EXHIBIT A

rev 8/21/12

Article 4, 6, 8, 14, Appendix N, Q, R Amendments Packet

Housekeeping #93-UDO Section 8.1.5.8

8.1.5.8 A Site Development Permit shall be issued for a time period of not more than 2 years and shall expire by limitation. The Planning, Building and Development Director may grant an extension of time, not to exceed 1 year, if the Planning, Building and Development Director determines, based on information provided by the permit holder, that unusual difficulties have prevented work being started or completed within the specified time limits. A written extension request and permit extension fee [Revised 05.09.06] must be filed by a permit holder before expiration of the permit. If the work authorized by such permit has not been commenced within 6 months of permit issuance, the permit shall lapse and be of no further effect unless a start work extension request has been filed within ~~3~~6 months of permit issuance [Revised 05.09.06]. If the permit expires, a new permit application, review and fees shall be required for the completion of the project and the applicant shall comply with the current ordinance requirements.

Housekeeping #94-UDO Section 8.1.5.11

8.1.5.11 Refunds

Refunds of Site Development application and permit fees are granted in accordance with the Planning, Building and Development Department Fee Refund Policy. (County Board Approved~~Adopted by County Board Resolution on February 8, 2005~~) [Revised 05.09.06]

Housekeeping #95-UDO Section 8.1.6.2

8.1.6.2.f.1 **g.** If the soil mapping submitted for the development indicates the presence of the soils listed below, then the applicant shall provide site specific soil map- ping performed by a certified soil classifier for the development. No buildings or parking lots shall be constructed on these soils unless appropriate building methods, such as pilings, caissons or removal and replacement of unsuitable soils, as approved by the Planning, Building and Development Director, are used to provide and protect a suitable building foundation. Soils classified as a hydric soil (USDA/NRCS Soil Classification) in its very poorly drained condition or the following three soil classifications in any condition:

1) Houghton Muck ~~(W103)~~ (103A)

2) Houghton Peat ~~(W97)~~(1103A)

3) Peotone Silty clay Loam ~~(W330)~~(330A)

Housekeeping #96-UDO Section 8.1.6.2.h

8.1.6.2 h. A copy of a Natural Resource Inventory (NRI) shall be submitted by the applicant to the Planning, Building and Development Director for development that is required to obtain a NRI performed by the McHenry-Lake County Soil and Water Conservation District ~~of Lake County~~ pursuant to state statute 70 ILCS 405/22/02a.

Housekeeping #97-UDO Section 8.1.6.7.a.1

8.1.6.7.a.1 Location and depth of each ~~silt~~ trench and identified to correspond with the tile investigation report and surveyed points where the tile was field staked at approximately 50 foot intervals: [Revised 05.09.06]

Housekeeping #98-UDO Section 8.2.8.6.d

8.2.8.6. d. All proposed public road rights of way, buildings, structures, driveways and parking areas shall be set back at least 30 feet from the ordinary high water mark~~any water body~~of a water body with a tributary drainage area of 20 acres or more except for the following:

Housekeeping #99-UDO Section 8.2.10.6

8.2.10.6 **a.** Disturbed areas draining greater than 1,000 square feet but less than 1 acre shall, at a minimum, be protected by a filter barrier (including filter fences, which at a minimum, meet the applicable sections of the A~~S~~ASHTO Standard Specification to 288-00, or equivalent control measures) to control all off-site runoff. Vegetated filter strips, with a minimum width of 25 feet, in the direction of flow, may be used as an alternative only where runoff in sheet flow is expected. [Revised 05.09.06]

Housekeeping #100-UDO Section 8.2.11.6

8.2.11.6 in addition to meeting the erosion control standards contained in ~~Subsection E~~ Section 8.2.10, above, all berms not required in a perimeter landscape transition area shall comply with the berm landscaping requirements of Section 9.3.10.6.

Housekeeping #101-UDO Section 8.3.2.1.b.4.b

8.3.2.1 For a non-riverine Regulatory Floodplain, the historic flood of record (as determined by the Planning, Building and Development Director according to ~~subparagraph "d,"~~ Section 8.3.2.1.4 above plus 3 feet), may be used for the Base Flood Elevation instead of performing a detailed hydrologic and hydraulic study. However, a detailed hydrologic and hydraulic study may result in a lower Base Flood Elevation.

Housekeeping #102-UDO Section 8.5.7.1.b.3

8.5.7.1.b.3 ~~An addition not greater than 50 percent of the footprint of the existing structure. Compensatory storage shall be provided on-site.~~

Housekeeping #103-UDO Section 8.9.2.2

~~**8.9.2.2** Elevation Certificates of the lowest habitable floor (elevation including basements) shall be submitted for all structures located on flood table lands.~~

WDO Amendment #77a-UDO Section 8.1.2.9

8.1.2.9 Any activity to a building in a Special Flood Hazard Area (SFHA) as described in FEMA Publication 480 National Flood Insurance Program Flood Management Requirements.

WDO Amendment #89-UDO Section 8.1.3.1

8.1.3.1 All development shall comply with minimum federal, state and local regulations. No development is exempt from the floodplain, floodway, wetland [Revised 12.11.01] and soil erosion and sediment control provisions of this Ordinance. ~~Upon review and verification by the Planning, Building and Development Director, that the criteria of subparagraphs a, b or c below are met, the following are exempt from the specific ordinance standards of Article 8:~~ An exemption request under Section 8.1.3.1 below shall be submitted in writing by the applicant to the Planning, Building and Development Director for an exemption from specific performance standards of this Ordinance. The applicant's exemption request shall itemize each Ordinance provision that is requested for exemption. After review and verification by the Planning, Building and Development Director that Section 8.1.3.1 below are met, the specific Ordinance provision exemptions may be granted.

8.1.3.1.a ~~Annexation agreements,~~ ~~F~~Final plats, site development permits or current building permits approved prior to October 18, 1992 if the stormwater management facilities are installed and functioning and in compliance with all applicable stormwater regulations then in effect. This item is applicable to §§8.2.8.5 (Buffer Areas) only.

b. ~~Annexation agreements, Preliminary plats, F~~Final plats, ~~P~~planned ~~U~~unit ~~D~~developments, site development permits or current building permits approved between October 18, 1992 and October 9, 2012~~April 11, 2000~~ if the approved plans and designs are in conformance with the pre-October 9, 2012 ~~o~~Ordinance provisions. ~~in effective before April 11, 2000~~. That portion of any ~~preliminary plat,~~ final plat, planned unit development, site development permit or current building permit which is amended after the effective date of this Ordinance and~~April 11, 2000 and~~ which affects the stormwater management system is not exempt from the provisions of this Ordinance.

c. Re-subdivision of commercial or industrial subdivisions identified under Section 8.1.3.a.1 above, provided that the stormwater management facilities are installed and functioning and there is no increase in impervious surface area permitted. Re-subdivision of commercial or industrial subdivisions identified under Section 8.1.3.1.b above, provided that there is no increase in impervious surface area beyond which was originally approved.

WDO Amendment #42-UDO Section 8.1.4.1

8.1.4.1 **1.** is located in any portion of a regulatory floodway or floodplain, with compensatory storage requirement, ~~or~~ is located in any Depressional Storage Area that has a surface area of 0.25 acres or more, or that has a volume larger than 0.75 acre-feet;

2. creates a wetland impact ~~of 0.25 acres or more of~~ to Waters of the United

States or Isolated Waters of Lake County exceeding the isolated wetland impact mitigation thresholds in Section 8.2.13.4; [Revised 12.11.01]

3. modifies a water body where the tributary drainage area is greater ~~that drains more~~ than 100 acres, with compensatory storage requirement; ~~or consists of:~~

4. requires detention per Section 8.2.3.

~~**a)**~~
~~any residential development of 10 or more acres that will result in an impervious surface area of 2 acres or more, and any residential development of less than 10 acres that will result in an impervious surface coverage of 50 percent or more of the gross site area; or~~

~~**b)** any nonresidential development of 3 or more acres, or any nonresidential development of less than 3 acres that will result in an impervious surface coverage of 50 percent or more of the gross site area~~.

WDO Amendment #60-UDO Section 8.1.5.4

8.1.5.4 **b.** A request for commencement of grading activities may be made for a development site prior to the issuance of a Site Development Permit. ~~and t~~The proposed grading activity may commence with written approval from the Planning, Building and Development Director of the earth change approval plan that delineates the activities specifically allowed including appropriate soil erosion and sediment control measures. The written approval will be in the form of a permit. The permit application will state the conditions and limitations of the proposed grading activities. No permit may be issued and no development activity may occur in a regulatory floodplain, except for excavations outside of the regulatory floodway and which do not require an IDNR/OWR permit, wetland or in those portions of the site for which this Ordinance requires that state and federal permits be issued, except for Illinois Environmental Protection Agency sewer and water extension permits. (See Appendix G for a partial list of agencies from which permits may be required.)

WDO Amendment #1a-UDO Section 8.1.5.6

8.1.5.6 As-Built Drawings

As-built drawings, signed and sealed by a Professional Engineer, shall be required for all major developments, public road developments, and other types of development as determined by the Planning, Building and Development Director (such as those developments that affect stormwater runoff rates or volume, impact wetlands or wetland buffers, or are adjacent to floodplains). As-built drawings and supporting information shall clearly show all as-built conditions, including, but not limited to:

a. Topographic spot elevations and contours for overland flow paths, detention ponds, storage facilities, and building pads.
b. Detention pond restrictor size, invert elevation, emergency overflow size, and elevation.
c. Verification of required native vegetation planted (seed tags, invoices).
d. Storm sewer sizes, inverts.
e. Drain tile information provided from the Subsurface Drainage Inventory,

or identified during construction as follows: location, connection, size, material, and inverts for those drain tiles that are part of the stormwater management system.

f. Other information required under this Ordinance.

g. Applicable calculations or other information verifying conformance with the permitted plan set.

h. Low floor and low opening elevations of structures. Low opening sizes where vents are required.

i. Benchmark information.

WDO Amendment #4a & 8-UDO Section 8.1.5.7

8.1.5.7 Inspections

The Planning, Building and Development Director may inspect site development at any stage in the construction process. For major developments, the Planning, Building and Development Director shall conduct site inspections, at a minimum, at the end of the construction stages a through g listed below. Construction plans approved by the Planning, Building and Development Director shall be maintained at the site during progress of the work. In order to obtain inspections in accordance with the following schedule, the permit- tee shall notify the Planning, Building and Development Director at least 2 full working days before the said inspection is to be made. Recommended inspection intervals are listed below.

The Designated Erosion Control Inspector shall conduct inspections and document as described below, at a minimum, at the intervals in a. and f. listed below, for those developments that require a Designated Erosion Control Inspector, until permanent stabilization and Planning, Building and Development Director approval of appropriate as-built documentation and drawings.~~:~~

8.1.5.7.

f. After every seven (7) calendar days or storm event with greater than 0.5 inches of rainfall or liquid equivalent precipitation.

g. After final stabilization and landscaping, prior to removal of sediment and erosion controls.

h. After removal of erosion and sediment controls.

i. DECI inspections may be performed at a reduced frequency, at the discretion of the Planning, Building and Development Director, for projects with a valid Site Development Permit, that are permanently stabilized, have submitted a Notice of Termination to IEPA, and are entering a prolonged period of inactivity. DECI inspections shall only be required after storm events with greater than 0.5 inch of rainfall or liquid equivalent precipitation.

~~h~~**j.** If a wetland mitigation area is constructed as part of the Site Development Permit~~w Watershed d Development p Per- mit~~, ~~it is recommended that a~~ the SMC or IWLC-Certified Community's Certified Wetland Specialist shall, at a minimum, perform the following inspections: [Revised 12.11.01,05.09.06]

~~i~~**k.** Inspection by a Certified Wetland Specialist after mitigation areas have been final graded and before seeding or plant installation. [Revised 12.11.01, 05.09.06]

~~j~~**l.** Inspection by a Certified Wetland Specialist after seeding and plant installation. [Revised 12.11.01,05.09.06]

~~k~~**m.** At a minimum, annual inspections by a Certified Wetland Specialist during the 5-year monitoring and maintenance period for wetland mitigation areas. [Revised 12.11.01, 05.09.06]

~~If stripping, clearing, grading and/or landscaping are to be done in phases or areas, the permittee shall plan for appropriate erosion control measures to be in place after each stage listed above and for each phase of construction~~.

WDO Amendment #78-UDO Section 8.1.5.9

8.1.5.9 A permit that includes a structure located within the regulatory floodplain, or will be located within the regulatory floodplain, shall be terminated without the possibility of an extension, if the start of construction is not commenced within 180 days of the permit issuance date unless the structure is compliant with the following:

a) Any modification to National Flood Insurance Program regulations after permit issuance; or
b) Any modification to a FEMA FIRM or FIS after permit issuance.

For the purposes of this subsection, "start of construction" means the commencement of any repair, reconstruction, rehabilitation, addition, or improvement of a structure; or the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure.

WDO Amendment #77b-UDO Section 8.1.6.1

8.1.6.1 n. For permits required only in accordance with Section 8.1.2.9 documentation shall be submitted towards the determination of a substantial improvement. Other submittal requirements may be waived.

WDO Amendment #67-UDO Section 8.1.6.2; Section 4.1.3.3.b; Section 6.3.30.2

8.1.6.2.e.1 **a)** Existing contour lines at not greater than ~~2~~1 foot intervals. The reference bench mark shall be cited on the plan. Spot elevations shall be provided at all breaks in grade and where necessary to indicate grade changes in areas of shallow topography. The source and/or preparer of the topographic survey shall be recognized on the plan. All elevations shall

be referenced to National Geodetic Vertical Datum (NGVD) (1929 adjusted), and

8.1.6.2.e.2 a) Proposed contour lines at not greater than ~~2~~1-foot intervals. Proposed spot elevations shall be provided at all breaks in grade and where necessary to indicate grade changes in areas of low relief, and

4.1.3.3.b 4. Topographic contours at ~~2~~1-foot intervals;

6.3.30.2 A plat of survey of the site, or a map, at a scale of no greater than one inch equals 100 feet, shall be submitted showing the existing topography at ~~2~~1-foot contour intervals.

WDO Amendment #50-UDO Section 8.1.6.2

8.1.6.2.f.1.d) ~~A~~A section in the hydrologic and hydraulic analysis report describing how the Runoff Volume Reduction requirements (as described in Section 8.2.4) are incorporated into the development site plan. The section shall include the rationale for not selecting approaches with higher preference. The section shall also provide supporting calculations for meeting the runoff volume reduction requirements. ~~description of how the Runoff Volume Reduction Hierarchy provisions of §§8.2.4 were used in evaluating the stormwater management needs of the site and in designing the site's stormwater management system, and~~

WDO Amendment #15-UDO Section 8.1.6.2

8.1.6.2.f.3.3 A maintenance plan for the ongoing maintenance of all stormwater management system components, including wetlands, is required prior to plan approval ~~of the stormwater management system.~~ The plan shall be referenced in the recorded deed or plat restriction document associated with the stormwater management system. The plan shall include:

a) Maintenance tasks and the type and frequency of maintenance of all components of the stormwater management system, including existing and replaced drain tiles within the ownership parcel which are part of the stormwater management system.

WDO Amendment #64-UDO Section 8.1.6.2

8.1.6.2.l l. A copy of the building plans and cost estimates in accordance with FEMA NFIP standards shall be submitted for modifications to existing structures in the Regulatory Floodplain.

1. A copy of building plans shall be submitted for modifications to existing structures in the Regulatory Floodplain; the building plans shall include a comprehensive materials list of all items directly associated with the structure. At the discretion of the Planning, Building and Development Director, the building plans and comprehensive materials list shall be signed and sealed by an Illinois Licensed Architect or Professional Engineer.

2. A minimum of two cost estimates shall be submitted for modifications to existing structures in the Regulatory Floodplain. The cost estimates shall reflect the fair market value of all materials and labor directly associated with the structure, including construction management, overhead, and profit costs; the estimates shall correlate with the comprehensive materials list and building plans. At the discretion of the Planning, Building and Development Director, additional supporting cost estimate information shall be submitted.

WDO Amendment #53-UDO Section 8.1.6.5

8.1.6.5 **Proposed Revisions to Base Flood Elevation or Regulatory Floodplain Boundary**

The applicant shall submit, to PB&D, SMC~~, IDOT/DWR,~~ and FEMA, the data required for pro- posed revisions to the BFE of a regulatory floodplain study or relocation of a regulatory floodway~~floodplain~~ boundary. The applicant shall also submit this data to IDNR/OWR when the tributary area is greater than one square mile.

WDO Amendment #70h-UDO Section 8.1.6.7

8.1.6.7 **b.** Information collected during the Subsurface Drainage Inventory ~~drainage investigation~~ shall be used as part of the ~~to~~ design and construction of a stormwater management system that meets the requirements of this Ordinance.~~, including the connecting tile lines on adjoining properties.~~ [Revised 05.09.06]

~~Tiles discovered during construction that were not identified during the investigation shall be incorporated into the development stormwater system design and recorded on the development as-built documents. [Revised 05.09.06]~~

WDO Amendment #51-UDO Section 8.2.1.1

8.2.1.1 To address the "runoff volume reduction ~~hierarchy~~" requirements of §§8.2.4, all streets, blocks, lots, deed or plat restricted areas, parks and other public grounds shall be located and designed in such a manner as to preserve and utilize natural wetlands, flood-prone areas, ~~and~~ channels, and best management practices and undisturbed native soil/plant areas utilized to meet the runoff volume reduction requirements. ~~whenever possible.~~ [Revised 05.09.06]

WDO Amendment #71-UDO Section 8.2.1.5

8.2.1.5 All stormwater management systems within the ownership parcel, shall be contained within an appropriately sized and located deed restriction or plat restriction. Stormwater management systems that service a single parcel or two parcels of property may be exempted from this requirement upon approval of the Planning, Building and Development Director.

WDO Amendment #56-UDO Section 8.2.2.6

8.2.2.6 For determination of soil runoff characteristics, areas of the development that are hydrologically disturbed and compacted shall be changed to that soil type's and highest runoff potential/soil group classification. ~~Conversely, s~~Soil groups that are not hydrologically disturbed will retain their current runoff ~~characteristics, and areas~~characteristics. Areas that are deed or plat restricted for native planting areas may be determined to have lower runoff characteristics, and may be taken into account when meeting the runoff volume reduction requirements of this Ordinance (Section 8.2.4.2). [Revised 05.09.06]

WDO Amendment #58-UDO Section 8.2.3.1

8.2.3.1 Unless otherwise specified in a county-adopted Basin Plan, Floodplain Study or Appendix L, the detention volume required shall be calculated using a rating curve based on maximum release rates of 0.04 cubic feet per second, per acre for the 2-year, 24-hour storm event, nor 0.15 cubic feet per second, per acre for the 100-year, 24-hour storm event. [Revised 05.09.06] The release rate requirements shall apply to the hydrologically disturbed area of the ownership parcel unless the Planning, Building and Development Director determines that specific locations of the ~~development site~~ownership parcel have unique circumstances such that the release rate shall apply to a broader or smaller area. [Revised 05.09.06] The release rate requirements shall only apply to the developments listed in Section 8.1.2.6.

WDO Amendment #65a-UDO Section 8.2.3.2

8.2.3.2 All concentrated stormwater discharges must be conveyed into a maintainable outlet ~~an existing channel, storm sewer, or Overland Flow Path that has~~ with adequate downstream stormwater capacity (as defined in Article 14) and will not result in increased flood and drainage hazard. [Revised 05.09.06] An existing channel, storm sewer or Overland Flow Path is said to have adequate downstream capacity when it can be shown to accommodate up to and including the 100-year stormwater runoff without increasing property damage to the adjacent property or to a point downstream known to be a restriction causing significant backwater.

WDO Amendment #49a-UDO Section 8.2.4

8.2.4 **Runoff Volume Reduction (RVR) ~~Hierarchy~~**

8.2.4.1 Applicants shall choose ~~a~~ strategies~~y~~ that minimize stormwater runoff volumes and addresses water quality impairments. The site development plan shall incorporate stormwater infiltration, evapotranspiration, reuse, or other methods, into the project. ~~to meet the release rate requirements that minimizes the increase in runoff volumes and rates from the development and address the water quality treatment requirements of this sec- tion (§§8.2.8D).~~ The applicant shall use appropriate green infrastructure techniques and ~~-~~best management practices to reduce runoff volume, according to ~~and~~ the following hierarchy, in order of preference, in preparing a stormwater management ~~drainage~~ plan:

8.2.4.1 **a.** Preservation and enhancement of the stormwater management benefits of the natural resource features of the development site (e.g., areas of Hydrologic Soil Groups A and B, floodplains, Waters of the United States ~~wetlands~~, Isolated Waters of Lake County, channels, drainageways, [Revised 12.11.01] prairies, savannas, and woodlands);

8.2.4.1 **b.** Minimization or disconnection of impervious surfaces; ~~Preservation of the existing natural streams, channels and drainageways,~~

8.2.4.1 **c.** Enhancement of the infiltration and storage characteristics of the development site using appropriate best management practices;~~Minimizing impervious surfaces created at the site (e.g., narrowing road width, minimizing driveway length and width, clustering homes, and shared driveways;~~

8.2.4.1 **d.** The use of open ~~vegetated~~ channels with native vegetation to convey stormwater runoff;

~~Preservation of the natural infiltration and storage characteristics of the site (e.g., discon-~~
~~nection of impervious cover and on-lot bio-retention facilities);~~

8.2.4.1 **e.**Structural measures that provide water quality and volume reduction~~quantity control~~;

8.2.4.1 **f.** Structural measures that provide only volume reduction or other rainwater harvesting practices;~~quantity control and conveyance.~~

8.2.4.1 g. Measures that provide water quality and quantity control;

8.2.4.1 h.Measures that provide only quantity control.

WDO Amendment #49b-UDO Section 8.2.4.2

8.2.4.2 Runoff Volume Reduction (RVR) Quantitative Standard
The minimum RVR quantitative standard shall be the volume achieved utilizing applicable RVR Credits, as determined by the applicant and approved by the Planning, Building and Development Director, based on the maximum extent practicable, for the following development. The term "new" for the RVR Quantitative Standard refers to impervious surface created after April 1, 2009.

Minor and Major Development that result in at least 1 acre hydrologic disturbance and more than 0.5 acre of new impervious surface area; Redevelopment of previously developed sites that result in at least 1 acre hydrologic disturbance;

~~Public Road Development that meet or exceed the thresholds in Section Article IV.A.1.g.~~

a) RVR Implementation Criteria
1) Runoff Volume Reduction quantity shall be implemented with

appropriate methods, as approved by the Planning, Building and Development Director, which may include the following: Best Management Practices; Green Infrastructure; detention facilities; and preservation or enhancement of natural streams, wetlands, and areas with deed restricted native vegetation.

2) Best Management Practices, and the portion of the detention facility designed to meet this provision, shall be designed to dewater the RVR quantity in no greater than 96 hours. The applicant shall provide infiltration rate information for each RVR practice. The use of an under drain system may be incorporated into the design in order to achieve the required draw down time. Under drain systems shall be designed to dewater the RVR quantity in not less than 48 hours.

b) RVR Credits

The following credits may be used alone or in combination to meet the RVR quantity requirement:

1) Detention Facility Credit – Up to 50% of the RVR quantity may be provided within the portion of the detention facilities that have been designed to meet this standard. The volume provided to meet this provision shall be below the elevation of the primary outlet for the RVR portion of the facility.
2) Native Vegetation Cover Credit – Up to 100% of the reduced 2-year, 24-hour runoff volume achieved with native vegetation in deed or plat restricted areas (e.g., compensatory storage and buffer areas) as described in Soil Runoff Characteristics (Section 8.2.2.6) and Linear Water Bodies (Section 8.2.8.6).
3) Isolated Wetland Hydrology Credit – A maximum of 100% of the existing 2-year, 24-hour runoff volume to a preserved IWLC if the Wetland Hydrology (Section 8.2.13.7) and Water Quality Treatment (Section 8.2.8.4) requirements are met.
~~1)~~4) Water Quality Treatment Credit – Up to 100% of the volume utilized to meet the Water Quality Treatment Volume (Section 8.2.8.4)
5) Off-Site RVR Credit – RVR practices may be provided on off-site, localized properties that are within the same basin. Deed or plat restrictions shall be obtained and recorded on off-site properties to assure perpetual operation and maintenance of RVR facilities.
~~2)~~6) Best Management Practice and Green Infrastructure Credits – Up to 100% of the volume within the practices designed to meet this standard.

WDO Amendment #57-UDO Section 8.2.5

8.2.5 New Stormwater ~~Basins~~Facilities

The design of all new stormwater ~~basins~~facilities shall comply with the following standards:

WDO Amendment #45-UDO Section 8.2.5.1

8.2.5.1 All new stormwater infiltration, retention and detention basins shall be provided with an emergency overflow structure capable of passing the critical duration base flood inflow rate without dam- ages to downstream structures or property. [Revised 05.09.06]

WDO Amendment #48-UDO Section 8.2.5.2

8.2.5.2 New stormwater infiltration, retention and detention basins required to meet a development's discharge requirements shall be designed to by-pass off-site tributary flow from channels unless approved by the Planning, Building and Development Director.

All parcels within the established flood table land's elevation criteria of a detention facility design high water level shall be protected from flooding as follows:

a) For detention facilities with less than 100 acres of tributary area, all structures in parcels containing or adjoining the facility shall have a lowest adjacent grade a minimum of 1.0 foot above the design high water elevation within the emergency overflow structure.

b) For detention facilities with greater than or equal to 100 acres of tributary area, all structures in parcels containing or adjoining the facility shall meet the requirements of Section 8.5.8 of this Ordinance at an elevation 2.0 feet above the design high water elevation within the emergency overflow structure. New residential structures may have the lowest floor below this elevation if structurally dry flood-proofed to at least 2.0 feet above the design high-water elevation within the emergency overflow structure.

WDO Amendment #57-UDO Section 8.2.6

8.2.6 Existing Stormwater ~~Basins~~Facilities

WDO Amendment #70a-UDO Section 8.2.8.1.h

8.2.8.1.h **2.** Observation structures, or similar maintenance and inspection access structures, shall be installed within the development~~Where tiles are being connected~~ at suitable points of ingress or egress. ~~from the develop- ment site, observation structures or similar maintenance and inspection access structures shall be installed and parties responsible for those tasks shall be identi- fied in the maintenance plan.~~

WDO Amendment #70b-UDO Section 8.2.8.1.h.4

8.2.8.1.h 4. Drain tiles within the disturbed portions of the ownership parcel shall be replaced or intercepted and connected into the proposed stormwater management system or a bypass. The system or bypass shall be of an equivalent size.

WDO Amendment #70c-UDO Section 8.2.8.1.h.5

8.2.8.1.h 5. Drain tiles located within an ownership parcel may be removed or disabled provided that a maintainable outlet exists or is installed to prevent flood damages to off-site properties.

WDO Amendment #70d-UDO Section 8.2.8.1.h.6

8.2.8.1.h 6. If the development stormwater management system depends on existing drain tiles for stormwater conveyance or water surface elevation control, a maintainable outlet is required.

WDO Amendment #70e-UDO Section 8.2.8.1.h.7

8.2.8.1.h 7. The locations for existing drain tiles within the ownership parcel shall be defined using the Subsurface Drainage Inventory. Recorded deed or plat restrictions shall be provided for all existing and replaced drain tiles within the ownership parcel which are part of the stormwater management system. Drain tiles that service a single parcel of property may be excused from this requirement upon approval of the Planning, Building and Development Director.

WDO Amendment #70f-UDO Section 8.2.8.1.h.8

8.2.8.1.h 8. The maintenance plan per Section 8.1.6.2.f.3 shall include the type and frequency of maintenance for all existing and replaced drain tiles within the ownership parcel which are part of the stormwater management system.

WDO Amendment #16-UDO Section 8.2.8.4

8.2.8.4 Water Quality Treatment

~~**a.**~~ Water quality treatment standards can be achieved by combining the Runoff Volume Reduction requirements in Section 8.2.4, and the following requirements:

a. The following water quality ~~treatment~~ requirements apply to developments that result in at least 0.5 acre of new impervious surface area, where "new" is defined in Section 8.1.2.6 of this Ordinance. The volume of runoff kept on-site to meet the Runoff Volume Reduction requirements of this Ordinance (Section 8.2.4a) may be deducted from the required water quality treatment volume. ~~of this ordinance shall apply to any develop- ment within the total land area of the ownership parcel that results in creation of more than 0.5 acres of new impervious area. The term "new", as used in this paragraph (0.1), refers to impervious or hydrologically disturbed area created after the original effective date of the Watershed Development Ordinance (10/13/92). [Revised 06.12.01]~~

b

e. ~~In addition to the requirements above, h~~Hydrocarbon (e.g. oil and grease) removal technology shall be required using a volume of 0.5

inches of runoff for the new impervious surface tributary area to each treatment device and meeting a minimum 70% removal rate for all development classified as follows: [Revised 05.09.06]

1. Vehicle fueling and servicing facilities;

2. Parking lots with more than 25 new stalls

WDO Amendment #20-UDO Section 8.2.10.3 & 8.2.10.4

8.2.10.3 ~~Soil erosion and s~~Sediment control measures ~~features~~ shall be constructed prior to the commencement of hydrologic disturbance of upland areas.

8.2.10.4 Disturbed areas shall be stabilized with temporary or permanent measures within ~~10~~ seven (7) calendar days following the end of active hydrologic disturbance, or redisturbance, consistent with the following criteria or using an appropriate measure as approved by the Planning, Building and Development Director:

b. Disturbance to ~~A~~areas or embankments having slopes ~~greater than~~ equal to or steeper than 3H:1V shall be minimized; disturbed slopes shall be stabilized with staked in place [Revised 06.12.01] sod, appropriately specified mat or blanket, or other appropriate measure(s) in combination with seeding.

c. Erosion control blanket shall be required on all interior detention basin side slopes between normal water level and high water level. The ~~10-day~~seven (7) calendar day stabilization requirement may be precluded by snow cover or where ~~construction activity~~ land disturbing activities will resume within ~~21~~14 calendar days from when the active hydrologic disturbance ceased, provided that the disturbed ~~. In this case, stabilization measures do not have to be initiated on that~~ portion of the development site ~~by the 10th day after construction activity temporarily ceased given that portion of the site~~ has appropriate erosion and sediment controls.

WDO Amendment #20-UDO Section 8.2.10.8, 9, 11, 12, & 13

8.2.10.8 If dewatering services are used, adjoining properties and discharge locations shall be protected from erosion and sedimentation. Discharges shall be routed through an approved anionic polymer dewatering system or similar measure as approved by the Planning, Building and Development Director.~~effective sediment and erosion control measure (e.g., sediment trap, sediment basin or other appropriate measure).~~ The Planning, Building and Development Director, or approved representative, must be present at the commencement of dewatering activities.

8.2.10.10 A stabilized mat of ~~aggregate~~ crushed stone meeting IDOT gradation CA-1 underlain with filter ~~cloth (or other appropriate measure)~~fabric and in accordance with the Illinois Urban Manual, or other measure(s) as approved by the Planning, Building and Development Director shall be located at any point where traffic will be entering or leaving a

~~construction~~ development site to or from a public right-of-way, street, alley or parking area. Pollutants from equipment and vehicle washing, wheel wash water, and other wash waters shall be treated in a sediment basin or other appropriate measure(s) designed to minimize the discharge of pollutants, as approved by the Planning, Building and Development Director. Any sediment or soil reaching an improved public right-of-way, street, alley or parking area shall be removed by scraping or street cleaning as accumulations warrant and transported to a controlled sediment disposal area. The Planning, Building and Development Director may require additional stabilized construction entrance methods.

8.2.10.11 The applicant shall minimize the discharge of pollutants from the exposure of building materials, building products, landscape materials (e.g. fertilizers, pesticides, herbicides), detergents, sanitary waste, and other on-site materials to precipitation and stormwater runoff.

8.2.10.12 If the installed soil erosion and sediment controls do not minimize sediment leaving the development site, additional measures such as anionic polymers or filtration systems may be required by the Planning, Building and Development Director.

8.2.10.13 If stripping, clearing, grading, or landscaping are to be done in phases, the permitee shall plan for appropriate erosion control measures to be in place after each stage listed in Section 8.1.5.6

WDO Amendment #14-UDO Section 8.2.10.20

8.2.10.20 Designated Erosion Control Program Standards and Inspector Requirements

a. Designated Erosion Control Inspector Standards

1. A Designated Erosion Control Inspector, hired or employed by the applicant, shall be required for development in (a) and (b), and may be required by the Planning, Building and Development Director for (c): ~~The Designated Erosion Control Inspector must be certified by the Stormwater Management Commission (SMC).~~

a) Exceeds 10 acres of hydrologic disturbance; or

b) Exceeds 1 acre of hydrologic disturbance and has a Regulatory Floodplain, Isolated Waters of Lake County or Waters of the United States on-site or on a downstream adjoining property; or

c) Is less than or equal to 1 acre of hydrologic disturbance and has a Regulatory Floodplain, Isolated Waters of Lake County, or Waters of the United States on-site or on a downstream adjoining property.

2. Section 8.2.10.20.b & 8.1.5.6 of this Ordinance contains inspection requirements for development meeting the above thresholds for program inclusion and Designated Erosion Control Inspector requirements. ~~A Designated Erosion~~

~~Control Inspector, hired or employed by the applicant, is for all development that exceeds 10 acres of hydrologic disturbance or exceeds 1 acre of hydrologic disturbance and has a Regulatory Floodplain, Isolated Waters of Lake County or Waters of the United States on-site or on adjoining property.~~

WDO Amendment #24-UDO Section 8.2.13

8.2.13 Wetlands ~~Provisions~~

~~**8.2.13.1 Applicability [Revised 12.11.01]**~~

~~A Watershed Development Permit is required for any regulated development as defined in Article 8 Section 8.1.2 that:~~
~~**a.** Creates a wetland impact within an area defined as a Waters of the U.S.; or~~
~~**b.** Creates a wetland impact within an area defined as Isolated Waters of Lake County; or~~
~~**c.** Occurs in buffer areas adjoining to Waters of the U.S. or Isolated Waters of Lake County.~~

8.2.13.1 The standards of this section apply when Waters of the United States or Isolated Waters of Lake County are located wholly or partially within the development site:

WDO Amendment #25-UDO Section 8.2.13.2

8.2.13.2 Wetland Submittal Requirements [Revised 12.11.01, 05.09.06]

In addition to all other UDO provisions, wetland permit submittal requirements depend upon whether the development site contains ~~is within~~ Waters of the U.S. or Isolated Waters of Lake County as provided below.

WDO Amendment #3-UDO Section 8.2.13.2.a

8.2.13.2 **a.** The applicant shall ~~obtain~~ provide a valid, ~~a~~ written jurisdictional determination from the U.S. Army Corps of Engineers or a Corps-approved agency, as to which wetlands on the development ~~site are~~site are Isolated Waters of Lake County or Waters of the U.S. A copy of the jurisdictional determination shall be included with the wetland submittal. [Revised 05.09.06]

WDO Amendment #73-UDO Section 8.2.13.2.b

8.2.13.2 b. For development containing Waters of the United States or Isolated Waters of Lake County, but with no proposed impacts, the following information is required for a Letter of No Impact (LONI):

1) A cover letter describing the proposed activity;
2) Development plan(s) as specified in Section 8.1.6

3) A wetland hydrology analysis meeting the requirements of Section 8.2.13.7 when there is a modification of tributary drainage area or surface runoff volume to Isolated Waters of Lake County;

~~1)~~4) A letter from the U.S. Army Corps stating that the proposed development will not impact Waters of the United States, if required by SMC or the Isolated Wetland Certified Community.

~~b~~c. Wetland impacts to Waters of the U.S.: The following information is required:

~~c~~d. Wetland impacts to Isolated Waters of Lake County: The following information is required:

WDO Amendment #26-UDO Section 8.2.13.2.d.4

8.2.13.2.d

4. Development site plan(s) meeting the requirements of Section 8.1.6 of this Ordinance showing the boundaries of all existing wetlands or water bodies on the ownership parcel, including the development site and the areas of proposed wetland impacts.

5. A statement on the occurrence of any high quality aquatic resource on or adjoining the development;

~~5~~6. For developments involving State of Illinois funding or pass-through funding, documentation that the development is in compliance with the intra-agency Wetland Policy Act of 1989 [20 ILCS 830] as administered by the Illinois Department of Natural Resources; [Revised 05.09.06]

~~6~~7. Documentation that the development is in compliance with the U.S. Fish and Wildlife Service's consultation program under the Endangered Species Act;

~~7~~8. A mitigation plan meeting the requirements of Article 8 Section 8.2.13.4 of this Ordinance;

~~8~~9. A copy of the Natural Resources Information Report (NRI) for development that is required to obtain a NRI performed by the McHenry-Lake County~~Lake County~~ Soil and Water Conservation District pursuant to state statute 70 ILCS 405/22.02a;

~~9~~10. A narrative of the alternative measures taken to avoid, minimize, or mitigate for wetland impacts to Isolated Waters of Lake County (Category-II requirement only);

~~10~~11. Category-III Wetland Impacts:

WDO Amendment #9-UDO Section 8.2.13.2.d.11

b) Upon concurrence of the Planning, Building and Development Director, and the SMC or the IWLC-Certified Community's Certified Wetland Specialist that a site development permit applica- tion meets all other ~~the~~ wetland submittal requirements of this Ordinance, the SMC or the IWLC-Certified Community's ~~the Planning, Building and Development Director~~ Certified Wetland Specialist shall issue a Technical Notification to USACE, IDNR, IEPA, USFWS and the SMC requesting comments with respect to the proposed wetland impacts ~~and request comments~~ within 15 working days. [Revised 05.09.06, 07.10.12] The SMC or the IWLC-Certified Community's ~~Planning, Building and Development Director~~ Certified Wetland Specialist shall receive the comments and copies of the comments shall be for- warded to the applicant for response. Full consideration of the comments and applicant's response shall be evaluated by the SMC or the IWLC-Certified Community's ~~Planning, Building and Development Director~~ Certified Wetland Specialist for compliance with Section 8.1.1.J prior to approval of wetland provisions and permit issuance.

~~11~~12. Category-IV Wetland Impacts:

WDO Amendment #27-UDO Section 8.2.13.3

8.2.13.3 Requirements for Wetland Delineation [Revised 12.11.01, 05.09.06]

a. The applicant shall identify the boundaries, extent, function, and quality of all wetland areas on the development site and prepare a Wetland Determination Report. The presence and extent of wetland areas shall be determined by, or under the supervision of, a Certified Wetland Specialist using an on-site wetland procedure within three (3) years of the initial permit application date in accordance with the methodology contained in the 1987 Corps of Engineers wetland delineation manual (as amended, including applicable supplements) or as otherwise noted below. [Revised 05.09.06]

WDO Amendment #30-UDO Section 8.2.13.4

8.2.13.4 Isolated Waters of Lake County Mitigation Requirements [Revised 12.11.01, 05.09.06]

a. Mitigation is required within Lake County for: [Revised 05.09.06]

1. Wetland impacts greater than ~~or equal to~~ one-~~-~~tenth (0.10) acre~~s~~ of Isolated Waters of Lake County including those that are high quality aquatic resources ~~(HGAR)~~. [Revised 05.09.06]

2. ~~Wetland impacts greater than or equal to ¼ (0.25) acres of Isolated Waters of Lake County that are not high quality aquatic resources. [Revised 05.09.06]~~ For single-lot, single-family residences provided the activity is a single and complete project: Wetland impacts greater than 0.25 acre of Isolated Waters of Lake County or 0.10 acre of Isolated Waters of Lake County that are high-quality aquatic resources.

8.2.13.4 d. A Pproject mitigation document (PMD) shall be submitted for all mitigation projects in conformance with the U.S. Army Corps of Engineers Chicago District's Mitigation Guidelines and Requirements latest versionAppendix R. The guidelinesAppendix R contains requirements for performance standards, monitoring, and completion standards.

WDO Amendment #12a-UDO Section 8.2.13.6

8.2.13.6 Detention in Isolated Waters of Lake County [Revised 05.09.06]

a. Detention shall only be allowed in the following Isolated Waters of Lake County and are not may not be considered a wetland impact, subject to provisions of Section 8.2.13.6.b and 8.2.13.6.c:

2. Non-farmed wetlands that are not High Quality Aquatic Resources when the existing vegetated wetland acreage (not including open water area) are is either: covered by a minimum of 85% of one or more of the follow- ing species:

a) Covered by a minimum of 85% of one or more of the following species:

1) Reed canary grass (Phalaris arundinacea)

2) Purple loosestrife (Lythrum salicaria)

3) Common reed (Phragmites australis) or

4) Buckthorn (Rhamnus spp.)

b) Has an FQI of 7 or less

3. An IWLC comprised of open water that is not an HQAR.

WDO Amendment #12c-UDO Section 8.2.13.6.a.4

8.2.13.6.a **4.** Non-farmed wetlands not meeting Section 8.2.13.6.a.2 that are not HQARS and wholly located within a deed or plat restriction may be utilized for detention greater than the required 2-year, 24-hour volume. The outlet design shall maintain or replicate the existing hydrologic condition of the wetland, unless changes are proposed to enhance the wetland function. Excavation or grading shall be considered an impact under the appropriate impact Category I, II, or III.

b. When using a IWLC for detention and not for wetland mitigation enhancement credit, the applicant shall use a 'wetland' detention design as provided TRM, and shall re-establish vegetation within the detention basin using the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, NRCS, et al., (as amended) as a minimum standard for the re-vegetation plan. The following shall apply when using Isolated Waters of Lake County for detention and not for wetland enhancement mitigation credit:

1) The applicant shall use a "wetland detention basin" design as

provided in the Technical Reference Manual (TRM), and shall re-establish vegetation within the detention basin using the Native Plant Guide for Streams and Stormwater Facilities in Northeastern Illinois, NRCS, et al., (as amended) as a minimum standard for the re-vegetation plan.

2) Reduction of wetland area within the existing delineated wetland boundary from existing to proposed conditions shall be reviewed as an impact under the appropriate impact Category I, II, or III.

3) Excavation of existing wetland as part of the proposed wetland detention basin design shall be reviewed under Category IV meeting the criteria of Sections 8.2.13.6.a.1, 8.2.13.6.a.2, and 8.2.13.6.a.3.

4) The wetland hydrology thresholds of Section 8.2.13.7 shall apply for Isolated Waters of Lake County meeting the criteria of Sections 8.2.13.6.a.1 and 8.2.13.6.a.4.

5) The requirements for water quality treatment of Section 8.2.8.4 shall apply upstream of the Isolated Waters of Lake County.

6) The maintainable outlet requirements of Section 8.2.3.2 shall apply.

c. ~~If the wetland detention basin is also used as wetland mitigation enhancement credit, then the mitigation requirements of §§8.2.13.4 and the wetland hydrology thresholds of §§8.2.13.7 shall apply.~~ The following shall apply when using Isolated Waters of Lake County for detention and for wetland enhancement mitigation credit:

1) Isolated Waters of Lake County meeting the criteria of Section 8.2.13.6.a may be used for wetland enhancement mitigation credit.

2) Wetland enhancement within the proposed detention basin shall be reviewed under Category IV requirements, and the performance standards listed in Appendix R, Section H shall apply.

3) Reduction of wetland area within the existing delineated wetland boundary from existing to proposed conditions shall be reviewed as an impact under the appropriate impact Category I, II, or III.

4) The mitigation requirements of Section 8.2.13.4 shall apply.

~~4)~~5) The wetland hydrology thresholds of Section 8.2.13.7 shall apply.

~~5)~~6) The requirements for water quality treatment of Section 8.2.8.4 shall apply upstream of the Isolated Waters of Lake County.

~~Enhancement of existing wetland areas within the proposed detention basin will be permitted as a Category IV impact. Fill or loss of existing wetland area will be permit- ted under the appropriate impact Category I, II or III.~~

~~**e.** For all wetlands used for detention, the requirements for water quality treatment of §§8.2.8.4 shall apply upstream of the detention facility.~~

~~**f.** The wetland hydrology thresholds of §§8.2.13.7 shall apply for IWLC used for deten- tion meeting the criteria of §§8.2.13.6.a.1 above. The wetland~~

~~hydrology thresholds of §§8.2.13.7 shall not apply for IWLC used for detention meeting the criteria of §§8.2.13.6.a.2 and §§8.2.13.6.a.3 above.~~

WDO Amendment #55-UDO Section 8.2.13.7

8.2.13.7 **Wetland Hydrology Requirement [Revised 2.11.01, 05.09.06]**

The following hydrology requirement applies to Isolated Waters of Lake County located wholly or partially within the ownership parcel, including the development site. The runoff volume reduction requirements (Section 8.2.4.2) may be modified to satisfy the wetland hydrology requirement for the portion of the development site tributary to the wetland. [Revised 05.09.06]

WDO Amendment #79-UDO Section 8.3.2.4

8.3.2.4. c) Nothing contained herein shall prohibit the application of these regulations to land that can be demonstrated by engineering survey to lie within any regulatory floodplain. Conversely, any lands (except for those located in a regulatory floodway) that can be demonstrated by a topographic survey certified by a registered professional engineer or registered land surveyor to lie beyond the regulatory floodplain, and to the satisfaction of the Planning, Building and Development Director, to have been higher than the Base Flood Elevation as of the ~~effective~~ date of the first floodplain mapping denoting the site to be in a Special Flood Hazard Area and as of the date of the current effective map, shall not be considered to be located in the SFHA.~~subject to the regulations of this section~~.

WDO Amendment #39-UDO Section 8.5.5.1 & 8.5.5.2

8.5.5.1 Hydraulically equivalent compensatory storage requirements for ~~fill or structures~~ development activity in a riverine regulatory floodplain shall be at least equal to 1.2 times the volume of regulatory floodplain storage lost or displaced. Such compensation areas shall be designed to drain freely and openly to the channel and located opposite or adjacent to fill areas. A restrictive covenant or deed or plat restriction running with the land shall be recorded to prohibit any future modification to the compensation area. [Revised 05.09.06] ~~The regulatory floodplain volume lost below the existing 10-year frequency flood elevation must be replaced below the proposed 10-year frequency flood elevation. The regulatory floodplain volume lost above the 10-year existing frequency flood elevation must be replaced above the pro- posed 10-year frequency elevation.~~

8.5.5.2 Hydraulically equivalent compensatory storage requirements for ~~fill or structures~~ development activity in a non-riverine regulatory floodplain shall be at least equal to 1.0 times the volume of regulatory floodplain storage lost or displaced. Compensation areas shall be designed to access the required volume. A restrictive covenant or deed or plat restriction is required to prohibit any modification to the compensation area. ~~Non-riverine floodplain storage may be~~ Upon approval of the Planning, Building and Development Director, hydraulic equivalency for non-riverine compensatory storage may be altered, provided that the storage is replaced at or below the existing elevation at which storage is lost or ~~but~~ displaced but not below the proposed normal water level.

Hydraulically equivalent compensatory storage requirements for development

activity in a non-riverine regulatory floodplain, that is located partially on-site, with more than 10% of the BFE surface located on-site, shall be at least equal to 1.2 times the volume of regulatory floodplain storage lost or displaced. Such compensation areas shall be designed to access the required volume. A restrictive covenant or deed or plat restriction is required to prohibit any modification to the compensation area. Upon approval of the Planning, Building and Development Director, hydraulic equivalency for non-riverine compensatory storage may be altered, provided that the storage is replaced at or below the existing elevation at which storage is lost or displaced but not below the proposed normal water level.

WDO Amendment #80-UDO Section 8.5.5.3

8.5.5.3 Upon approval of the Planning, Building and Development Director, shorelines or stream- banks that have experienced erosion may be restored to their condition as of the current effective date of the first FIRM map in that community without the need to provide compensatory storage or pay fee-in-lieu- of for the fill used to restore the eroded area according to the following criteria: [Revised 06.12.01]

a. The restoration fill shall meet existing grades and within riverine areas the current effective regulatory floodplain BFE shall not be increased and the regulatory floodway conveyance shall be maintained. [Revised 06.12.01]

WDO Amendment #76-UDO Section 8.5.7.1.c & d

8.5.7.1. c. Topdressing is the placement of not more than 4 inches of topsoil within the regulatory floodplain for the purposes of stabilizing an existing erosion control problem and establishing vegetative cover. Topdressing shall be allowed by permit on a per-parcel, one-time only allowance, and not ~~impact~~ damage or alter adjoining property drainage patterns. [Revised 05.09.06] Upon approval of the Planning, Building and Development Director, floodplain compensatory storage shall not be required. Topdressing fill shall comply with the Soil Erosion and Sediment Control Standards and Wetlands Provisions of this Ordinance (Article 8). This provision shall not be applicable to the design process for new development. [Revised 05.09.06]

8.5.7.1. d. Topdressing is the placement of not more than four (4) inches of topsoil within the Regulatory Floodplain. For the purposes of restoring pre-subsidence grade to an area that primarily experiences subsidence due to a documented flood event, top dressing shall be allowed by permit on a per-parcel basis and not ~~impact~~ damage or alter adjoining property drainage patterns. Upon approval of the Planning, Building and Development Director, floodplain compensatory storage shall not be required. Topdressing fill shall com- ply with the Soil Erosion and Sediment Control standards and Wetlands Provisions of this Ordinance (Article 8). This provision shall not be applicable to the design process for new development. A one-time allowance ~~Allowance~~ of this provision shall be in accordance with (1) through (3) of the fol- lowing criteria and repeat allowances shall be in accordance with (1) through (4) of the following criteria: [Revised 02.10.09]

1. The restoration fill shall meet pre-subsidence elevations, and within riverine areas, the pre-

subsidence effective Regulatory Floodplain and Regulatory Floodway conveyance shall be maintained. ~~Repeat topdressing applications are limited to documented flood events with topographic or photographic evidence of subsidence. [Revised 02.10.09]~~

2. The property being considered for top dressing shall be documented and submitted by the applicant as part of the permit process. Proper documentation shall be either topographic information or photographic documentation of the flooding and subsidence that has occurred on the property. ~~The restoration fill shall meet pre-subsidence elevations, and within riverine areas, the pre-subsidence effective Regulatory Floodplain and Regulatory Floodway conveyance shall be maintained.~~ [Revised 02.10.09]

3. Upon completion of top dressing, the applicant shall provide topographic or photographic documentation of completed work. ~~The damaged property being considered for top dressing shall be documented and submitted by the applicant as part of the permit process. Proper documenta- tion shall be either field survey information or photo documentation of the flooding and subsidence that has occurred on the property.~~ [Revised 02.10.09]

4. Repeat top dressing applications are limited to documented flood events with topographic or photographic evidence of subsidence. ~~Upon completion of top dressing, the applicant shall provide topographic or photo-graphic documentation of completed work.~~ [Revised 02.10.09]

d. Impervious surface rehabilitative maintenance is the placement of not more than four (4) inches of pavement or any other impervious material within the regulatory floodplain. For the purposes of restoring pre-subsidence grades to an area that has experienced subsidence, rehabilitative maintenance of such areas shall be allowed by permit on a per-project basis and not damage or alter adjoining property drainage patterns. Upon approval of the Planning, Building and Development Director, floodplain compensatory storage shall not be required. Rehabilitative maintenance fill shall comply with the Soil Erosion and Sediment Control standards and Wetlands Provisions of this Ordinance (Section 8.2.10 and 8.2.13). This provision shall not be applicable to the design process for new development. A one-time allowance of this provision shall be in accordance with (a) through (c) of the following criteria and repeat allowances shall be in accordance with (a) through (d) of the following criteria:

a) The restoration fill shall meet pre-subsidence elevations, and within riverine areas, the pre-subsidence effective regulatory floodplain and regulatory floodway conveyance shall be maintained.

b) The project being considered for rehabilitative maintenance shall be documented and submitted by the applicant as part of the permit process. Proper documentation shall be either topographic information or photographic documentation of the subsidence that

has occurred on the project.

c) Upon completion of rehabilitative maintenance, the applicant shall provide topographic or photographic documentation of completed work.

d) Repeat rehabilitative maintenance applications are limited to documented topographic or photographic evidence of subsidence.

WDO Amendment #35-UDO Section 8.5.8

8.5.8.2 ***Building protection requirements for residential structures shall follow applicable FEMA regulations and include the following:***

(a) The lowest floor including basements of all new residential structures***,*** ***including additions,*** shall be elevated up to at least the Flood Protection Elevation (FPE). ***The floor of an*** attached garage for a new structure must be elevated up to at least ½ of one foot above the base flood elevation (BFE).

(1) If placed on compacted fill, the top of the fill for ***a*** residential structure shall be above the FPE. The top of fill for an attached garage shall be ½ of one foot above the BFE. The fill pad shall be placed at the appropriate elevation and designed to extend a minimum of 10 feet out from the building's designed footprint unless the building is certified by a Registered Structural Engineer to be protected from damages due to hydrostatic pressures. Additionally, the fill pad shall meet 95% of Standard Proctor Density in order to be demonstrated not to settle below the FPE for the residential structure and not below ½ of one foot above the BFE for an attached garage, and to be adequately protected against erosion, scour, and differential settlement. Foundation excavations shall not extend more than 5 feet beyond the foundation footprint. Backfill for the over excavated area does not need to meet the compaction requirements.

(2) If elevated by means of walls, pilings, or other foundation, the building's supporting structure must be permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood. The ***bottom of the*** permanent openings shall be no more than one foot above the lowest adjacent grade***. The total net area shall be provided*** below the BFE and consist of a minimum of two openings ***for each enclosed area with each opening of an enclosed area on a different exterior wall***. The openings must have a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding below the BFE. ***Any louvers, screens, or other opening covers must not block or impede the automatic flow of floodwaters into and out of the enclosed area.*** The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice, and floating debris. All areas below the FPE shall be constructed ***with*** materials resistant to flood damage. The lowest floor (including basement) for the residential structure and all electrical, heating, ventilation, plumbing, air conditioning equipment***,*** and utility meters shall be located at or above the FPE. ***Waterproofed service facilities, including, but not limited to, w***ater and sewer pipes, electrical and telephone lines, ***and*** submersible pumps***,*** may be

located below ***the*** FPE. No area less than one foot above the BFE shall be used for storage of items or materials.

(b) The lowest floor, including basements, of an existing residential structure with a substantial improvement shall be elevated ***to at least*** one foot above the BFE.

(1) If placed on compacted fill, the top of the fill for a substantially improved residential structure shall be at least one foot above the BFE. The fill pad shall be placed at the appropriate elevation and designed to extend a minimum of 10 feet out from the building's designed footprint unless the building is certified by a Registered Structural Engineer to be protected from damages due to hydrostatic pressures. Additionally, the fill pad shall meet 95% of Standard Proctor Density in order to be demonstrated not to settle below one foot above the BFE for the substantially improved residential structure, and to be adequately protected against erosion, scour, and differential settlement. Foundation excavations shall not extend more than 5 feet beyond the foundation footprint. Backfill for the over excavated area does not need to meet the compaction requirements.

(2) If elevated by means of walls, pilings, or other foundation, the building's supporting structure must be permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood. The bottom of the permanent openings shall be no more than one foot above the lowest adjacent grade. The total net area shall be provided below the BFE, and consist of a minimum of two openings for each enclosed area with each opening of an enclosed area on a different exterior wall. The openings must have a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding below the BFE. Any louvers, screens, or other opening covers must not block or impede The automatic flow of floodwaters into and out of the enclosed area. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice, and floating debris. All areas lower than one foot above the BFE shall be constructed with materials resistant to flood damage. The lowest floor (including basement) for the substantially improved residential structure and all electrical, heating, ventilation, plumbing, air conditioning equipment, and utility meters shall be elevated to at least one foot above the BFE. Waterproofed service facilities, including, but not limited to, water and sewer pipes, electrical and telephone lines, and submersible pumps, may be located below the BFE-plus-one-foot elevation.

8.5.8.3 ***(2) Building protection requirements for non-residential structures shall follow applicable FEMA regulations and include the following:***

(a) The lowest floor, including basements, of all new non-residential buildings, ***including additions***, shall be elevated at least to the FPE or be structurally dry flood-proofed to at least the FPE. A non-residential building may be structurally dry flood-proofed (in lieu of elevation) provided that a Registered Professional Engineer, Registered Structural

Engineer***, or Licensed Architect*** shall certify that the building has been structurally dry flood-proofed ***up to*** the FPE and the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood. The building design shall take into account flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy**,** and impacts from debris or ice. Flood-proofing measures shall be operable without human intervention and without an outside source of electricity. (Levees, berms, floodwalls**,** and similar works are not considered flood-proofing for the purpose of this subsection.)

(1) If a non-residential structure is not dry flood-proofed and is placed on compacted fill, the top of the fill shall be above the FPE. The fill pad shall be placed at the appropriate elevation and designed to extend a minimum of 10 feet out from the building's designed footprint unless the building is certified by a Registered Structural Engineer to be protected from damages due to hydrostatic pressures. Additionally, the fill pad shall meet 95% of Standard Proctor Density in order to be demonstrated not to settle below the FPE and to be adequately protected against erosion, scour, and differential settlement. Foundation excavations shall not extend more than 5 feet beyond the foundation footprint. Backfill for the over excavated area does not need to meet the compaction requirements.

(2) If a non-residential structure is not dry flood-proofed and is elevated by means of walls, pilings, or other foundation, the building's supporting structure must be permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood. The bottom of the permanent openings shall be no more than one foot above the lowest adjacent grade. The total net area shall be provided below the BFE, and consist of a minimum of two openings for each enclosed area with each opening of an enclosed area on a different exterior wall. The openings must have a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding below the BFE. Any louvers, screens, or other opening covers must not block or impede the automatic flow of floodwaters into and out of the enclosed area. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice, and floating debris. All areas below the FPE shall be constructed with materials resistant to flood damage. The lowest floor (including basement) for the non-residential structure and all electrical, heating, ventilation, plumbing, air conditioning equipment, and utility meters shall be located at or above the FPE. Waterproofed service facilities, including, but not limited to, water and sewer pipes, electrical and telephone lines, and submersible pumps, may be located below the FPE. No area less than one foot above the BFE shall be used for storage of items or materials.

(b) The lowest floor including basements of all substantially improved non-residential buildings and attendant utility facilities shall be elevated or structurally dry floodproofed to a minimum of one foot above the BFE. A substantially improved, nonresidential building may be structurally dry flood-proofed (in lieu of elevation) provided that a Registered Professional Engineer, Registered

Structural Engineer, or Licensed Architect shall certify that the building has been structurally dry floodproofed up to a minimum of one foot above the BFE and the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood. The building design shall take into account flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy, and impacts from debris or ice. Flood-proofing measures shall be operable without human intervention and without an outside source of electricity. (Levees, berms, floodwalls, and similar works are not considered flood-proofing for the purpose of this subsection.)

(1) If a substantially improved non-residential structure is not dry floodproofed and is placed on compacted fill, the top of the fill for a nonresidential structure substantial improvement shall be at least one foot above the BFE. The fill pad shall be placed at the appropriate elevation and designed to extend a minimum of 10 feet out from the building's designed footprint unless the building is certified by a Registered Structural Engineer to be protected from damages due to hydrostatic pressures.
Additionally, the fill pad shall meet 95% of Standard Proctor Density in order to be demonstrated not to settle below one foot above the BFE for the residential structure, and to be adequately protected against erosion, scour, and differential settlement. Foundation excavations shall not extend more than 5 feet beyond the foundation footprint. Backfill for the over excavated area does not need to meet the compaction requirements.

(2) If a substantially improved non-residential structure is not dry floodproofed and is elevated by means of walls, pilings, or other foundation, the building's supporting structure must be permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood. The bottom of the permanent openings shall be no more than one foot above the lowest adjacent grade. The total net area shall be provided below the BFE, and consist of a minimum of two openings for each enclosed area with each opening of an enclosed area on a different exterior wall. The openings must have a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding below the BFE. Any louvers, screens, or other opening covers must not block or impede the automatic flow of floodwaters into and out of the enclosed area. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice, and floating debris. All areas lower than one foot above the BFE shall be constructed with materials resistant to flood damage. The lowest floor (including basement) for the substantially improved non-residential structure and all electrical, heating, ventilation, plumbing, air conditioning equipment, and utility meters shall be elevated to at least one foot above the BFE. Waterproofed service facilities, including, but not limited to, water and sewer pipes, electrical and telephone lines, and submersible pumps, may be located below the BFE-plus-one-foot elevation.

See Section 8.1.6.2.I.1 & 2 for substantial improvement submittal

requirements.

8.5.8.2 The lowest floor, including basements, for all new residential structures and all new addi- tions to existing residential structures shall be 2 feet or more above the Base Flood Eleva- tion. An attached garage for a new structure must be elevated at least 6 inches above the Base Flood Elevation . If placed on fill, the top of the fill for the residential structure shall be above the Flood Protection Elevation. The top of fill for an attached garage shall be 6 inches above the Base Flood Elevation. The fill pad shall be placed at that elevation for a distance of 10 feet out from the building unless the building design is certified by a registered struc- tural engineer to be protected from damages due to hydrostatic pressures. Additional- ly, the fill pad shall meet the 95 percent standard proctor density in order to be demon- strated not to settle below the Flood Protection Elevation for the residential structure and not below 6 inches above the Base Flood Elevation for an attached garage and to be adequately protected against erosion, scour and differential settlement. Foundation excavations shall not exceed more than 5 feet beyond the foundation footprint. Backfill for the over-excavated area does not need to meet the compaction requirement.

b. If elevated by means of walls or other foundation, the building's supporting struc- ture must be permanently open to flood waters on at least 2 walls and not subject to damage by hydrostatic pressures of the base flood. The permanent openings shall be at grade level and below the Base Flood Elevation, and consist of a minimum of 2 openings. The openings shall have a total net area of at least 1 square inch for every 1 square foot of enclosed area subject to flooding below the Base Flood Elevation. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrody- namic forces such as current, waves, ice and floating debris. All areas below the Flood Protection Elevation shall be constructed of materials resistant to flood damage. The lowest floor (including basement) and all electrical, heating, ventilating, plumbing, and air conditioning equipment and utility meters shall be located at or above the Flood Protection Elevation. An attached garage must be elevated 6 inches above the Base Flood Elevation. Water and sewer pipes, electrical and telephone lines, submersible pumps and other waterproofed service facilities may be located below the Flood Protection Elevation. No area below the Flood Protection Elevation shall be used for storage of items or materials.

8.5.8.3 The lowest floor, including basements, of an existing residential structure with a substan- tial improvement shall be elevated in order to be not less than 1 foot above the Base Flood Elevation. [Revised 05.09.06] The lowest floor including the basements of all substantially improved non-residential buildings shall be elevated or structurally dry flood-proofed, per §§8.5.8.4. to a minimum of one foot above the BFE. [Revised 05.09.06] The requirements of §§8.5.8.2.a and §§8.5.8.2.b shall apply to the substantial improvement. [Revised 05.09.06]

8.5.8.4 The lowest floor, including the basement, of all new nonresidential buildings shall be el- evated at least to the Flood Protection Elevation in accordance with Sec. 8.5 or be struc- turally dry flood-proofed to at least the Flood Protection Elevation. [Revised 05.09.06] A nonresidential building may be structurally dry flood-proofed (in lieu of elevation) provided that the

~~registered professional engineer or structural engineer shall certify that the build- ing has been structurally dry flood-proofed below the Flood Protection Elevation and the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood. The building design shall consider flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy and impacts from debris or ice. Flood proofing measures shall be operable without human intervention and without an outside source of electricity. Levees, berms, floodwalls and similar works are not consid- ered flood-proofing for the purpose of this subsection.~~

8.5.8.4 A non-conforming structure damaged by any origin may be restored unless the activity meets the definition of substantial improvement, in which case it shall conform to the provisions of Section 8.5.8.3 for residential structures or Section 8.5.8.4 for non-residential structures.

8.5.8.5 Mobile homes and recreational vehicles which are not road-ready and cannot be disconnected from utilities in a timely manner and installed on-site for more than 180 days, shall be elevated to or above the Flood Protection Elevation and shall be anchored to resist flotation, collapse, or lateral movement by being tied down in accordance with the Rules and Regulations for the Illinois Mobile Home Tie-Down Act issued pursuant to 77 Ill. Adm. Code ~~98~~70. The requirements in Section 8.5.8.2 shall apply to this section. Mobile homes and recreational vehicles that are not elevated above the Flood Protection Elevation shall be moved to higher ground within 24 hours when the water level reaches a recreational vehicle site. [Revised 04.10.01].

8.5.8.6 Storage sheds, detached garages, and attached garages which are not substantial improvements on an existing single-family platted lot, may be constructed with the lowest floor below the FPE in accordance with the following:

(a) The building shall not be used for human habitation

(b) All areas below the BFE shall be constructed with waterproof material. Structures located in a Regulatory Floodway shall be constructed and placed on a development site so as not to block the flow of flood waters and shall also meet the Appropriate Use criteria of Section 8.6. In addition, all other requirements of this Ordinance must be met.

(c) The structure shall be anchored to prevent flotation.

(d) Service facilities such as electrical and heating equipment shall be elevated or floodproofed to the FPE.

(e) The building shall be used only for the storage of vehicles or tools and may not contain other rooms, workshops, greenhouses, or similar uses.

(f) If a residence is elevated appropriately, then the area below the residence can be used as a garage, as long as the garage conforms to (a) through (e) above and include permanent flow through openings as described in Section 8.5.8.2.b.

(g) The building shall be valued at less than ***$17,250 (2011 costs)*** and be no greater than 576 square feet in floor size.

(h) If elevated by means of walls or other foundation, the building's supporting structure must be permanently open to flood waters on at least 2 walls and not subject to damage by hydrostatic pressures of the base flood. The permanent openings shall be at grade level and below the Base Flood Elevation, and consist of a minimum of 2 openings. The openings shall have a total net area of at least 1 square inch for every 1 square foot of enclosed area subject to flooding below the Base Flood Elevation. The requirement for permanent openings may be waived by the Planning, Building and Development Director if a registered professional engineer or structural engineer certifies that the building is not water tight, inside and outside hydrostatic pressures will be equal and that the rate at which the water rises will allow for pressures to equalize. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice and floating debris.

~~Storage sheds, detached garages, and attached garages that are not substantial improve- ments on an existing single-family platted lot, may be constructed with the lowest floor below the Flood Protection Elevation in accordance with all of the following:~~

~~**a.** the building is not used for human habitation;~~

~~**b.** all areas below the Base Flood Elevation shall be constructed with waterproof mate- rial;~~

~~**c.** the structure shall be anchored to prevent flotation.~~

~~**d.** service facilities such as electrical and heating equipment shall be elevated or flood- proofed to the Flood Protection Elevation (a Floodproofing Certificate shall be re- quired);~~

~~**e.** the building shall be valued at less than $12,500 (1998 cost) and be no greater than 576 square feet in floor area; and~~

~~**f.** the building shall be used only for the storage of vehicles or tools and may not contain other rooms, workshops, greenhouses or similar uses.~~
~~**g.** If elevated by means of walls or other foundation, the building's supporting structure must be permanently open to flood waters on at least 2 walls and not subject to dam- age by hydrostatic pressures of the base flood. The permanent openings shall be at grade level and below the Base Flood Elevation, and consist of a minimum of 2 open- ings. The openings shall have a total net area of at least 1 square inch for every 1 square foot of enclosed area subject to flooding below the Base Flood Elevation. The requirement for permanent openings may be waived by the Planning, Building and Development Director if a registered professional engineer or structural engineer certi- fies that the building is not water tight, inside and outside hydrostatic pressures will be equal and that the rate at which the water rises will allow for pressures to equalize. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrody- namic forces such as current, waves, ice and floating debris.~~

~~A non-conforming structure damaged by ***any origin*** may be restored unless the ***activity meetsthe definition of substantial improvement,*** in which case it shall conform to the provisions of Section 8.5.8.3 ***for residential structures or Section 8.5.8.4 for*** ***non-residential structure***.~~

WDO Amendment #62-UDO Section 8.6

8.6 This section establishes performance standards for development within the regulatory floodway. The only development in a regulatory floodway which will be allowed are Appropriate Uses which will not cause an increase in flood heights for all flood events up to and including the base flood. Only those Appropriate Uses listed below will be allowed in the regulatory floodway. Appropriate Uses do not include the construction or placement of any new structures, fill, building additions, buildings on stilts, piles, piers, or columns, fencing (including landscaping or planting designed to act as a fence) and storage of materials except as specifically defined above as an Appropriate Use. If the development is proposed for the regulatory floodway portion of the regulatory floodplain, the standards of this section apply in addition to the Performance Standards for Regulatory Floodplain Development.

WDO Amendment #36-UDO Section 8.6.1.10

8.6.1.10 the replacement, reconstruction or repair of a damaged building, provided that the outside dimensions of the building are not increased and ~~, provided~~ that the activity~~, if the building~~ is not a substantial improvement. An activity that is a substantial improvement shall conform to Section 8.5.8.2 for residential structures or Section 8.5.8.3 for non-residential structures. ~~damaged to 50 percent or more of the building's market value before it was damaged, in which case it shall conform to Sec. 8.5.~~

WDO Amendment #72-UDO Section 8.6.1.12

8.6.1.12 Substantial improvements, provided that the outside dimensions of the building are not increased; the building shall conform to Section 8.5.8.2 for residential structures or Section 8.5.8.3 for non-residential structures.

WDO Amendment #61-UDO Section 8.6.2.6

8.6.2.6 For public flood control projects, the permitting requirements of this section will be considered met if the applicant can demonstrate to the Illinois Department of Natural Resources, Office of Water Resources, or SMC in areas outside of Illinois Department of Natural Resources, Office of Water Resources jurisdiction, through hydraulic and hydrologic calculation that the proposed project will not singularly or cumulatively result in increased flood heights outside the project right-of-way or easements for all flood events up to and including the base flood event. (See Sec. 8.5)

WDO Amendment #47-UDO Section 8.7.2.3

8.7.2.3 Lost regulatory floodway and regulatory floodplain storage must be compensated in accordance with all regulatory floodplain performance standards of this Ordinance except that artificially created storage that is lost or

displaced due to a reduction in upstream head loss caused by a bridge, culvert, stormsewer or constructed embankment shall not be required to be replaced, provided no damage will be incurred downstream (See Sec. 8.6). [Revised 05.09.06]

WDO Amendment #5b-UDO Section 8.7.2.5

8.7.2.5 For modifications or replacement of existing structures, the existing structure must first ~~must~~ be evaluated in accordance with ~~Illinois Department of Transportation Rules 92 Ill. Adm. Code Part 708~~ 17 IL Adm. Code Part 3708 to determine if the existing structure is a source of flood damage. If the structure is a source of flood damage, the applicant's engineer ~~shall submit justification to allow the damage to continue and evaluate the feasibility of relieving the structure's impact~~ must evaluate the feasibility of redesigning the structure to reduce the existing backwater, taking into consideration the effects of flood damage to upstream and downstream properties. Modifications or replacement structures shall not increase flood stages compared to the existing or regulatory condition, whichever is greater, for all flood events up to and including the base flood event. The evaluation shall be submitted to the Illinois Department of Natural Resources, Office of Water Resources or its designee for review and concurrence before a Site Development Permit is issued.

WDO Amendment #37-UDO Section 8.9

The following flood table land requirements apply to new construction only and not to additions or substantial improvements to structures within flood table lands built before August 10, 1999***:***

8.9.1 ***Public Health Protection Standards***

a. No chemicals, explosives, buoyant materials, animal waste, fertilizers, flammable liquids, pollutants, or other hazardous or toxic materials shall be placed or stored below the Flood Protection Elevation.
b. New and replacement water supply systems, wells, and sanitary sewer lines may be permitted providing all manholes or other above-ground openings located below the FPE are watertight.
c. On-site waste disposal systems shall be designed to avoid inundation by the base flood.

8.9.2 ***Building Protection Requirements***

a. The lowest floor, including basements, of all new residential structures, including additions, shall be elevated or structurally dry flood-proofed up to at least the Flood Protection Elevation (FPE). The floor of an attached garage for a new structure must be elevated up to at least ½ of one foot above the base flood elevation (BFE). If structurally dry flood-proofed, a Licensed Professional Engineer, Licensed Structural Engineer, or Licensed Architect shall certify that the building has been structurally dry flood-proofed up to the FPE and the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood. The building design shall take into account flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy, and impacts from debris or ice. Flood-proofing measures shall

be operable without human intervention and without an outside source of electricity. (Levees, berms, floodwalls, and similar works are not considered flood-proofing for the purpose of this subsection.)

(1) If the residential structure is not dry flood-proofed and is placed on compacted fill, the top of the fill for a residential structure shall be above the FPE. The top of fill for an attached garage shall be ½of one foot above the BFE. The fill pad shall be placed at the appropriate elevation and designed to extend a minimum of 10 feet out from the building's designed footprint unless the building is certified by a Registered Structural Engineer to be protected from damages due to hydrostatic pressures. Additionally, the fill pad shall meet 95% of Standard Proctor Density in order to be demonstrated not to settle below the FPE for the residential structure and not below ½of one foot above the BFE for an attached garage, and to be adequately protected against erosion, scour, and differential settlement. Foundation excavations shall not extend more than 5 feet beyond the foundation footprint. Backfill for the over excavated area does not need to meet the compaction requirements.

(2) If the residential structure is not dry flood-proofed and is elevated by means of walls, pilings, or other foundation, the building's supporting structure must be permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood. The bottom of the permanent openings shall be no more than one foot above the lowest adjacent grade. The total net area shall be provided below the FPE, and consist of a minimum of two openings for each enclosed area with each opening of an enclosed area on a different exterior wall. The openings must have a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding below the FPE. Any louvers, screens, or other opening covers must not block or impede the automatic flow of floodwaters into and out of the enclosed area. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice, and floating debris. All areas below the FPE shall be constructed with materials resistant to flood damage. The lowest floor (including basement) for the residential structure and all electrical, heating, ventilation, plumbing, air conditioning equipment, and utility meters shall be located at or above the FPE. Waterproofed service facilities, including, but not limited to, water and sewer pipes, electrical and telephone lines, and submersible pumps, may be located below the FPE. No area less than one foot above the BFE shall be used for storage of items or materials.

8.9.2

b. The lowest floor including basements of all new non-residential buildings, including additions, shall be elevated at least to the FPE or be structurally dry flood-proofed to at least the FPE. A non-residential building may be structurally dry flood-proofed (in lieu of elevation) provided that a Licensed Professional Engineer, Licensed Structural Engineer, or Licensed Architect shall certify that the building has been structurally dry flood-proofed up to the FPE and the structure and attendant utility facilities are watertight and capable of resisting the effects of the base flood. The building design shall take into account flood velocities, duration, rate of rise, hydrostatic and hydrodynamic forces, the effects of buoyancy, and impacts from debris or ice. Flood-

proofing measures shall be operable without human intervention and without an outside source of electricity. (Levees, berms, floodwalls, and similar works are not considered flood-proofing for the purpose of this subsection.)

(1) If a non-residential structure is not dry flood-proofed and is placed on compacted fill, the top of the fill shall be above the FPE. The fill pad shall be placed at the appropriate elevation and designed to extend a minimum of 10 feet out from the building's designed footprint unless the building is certified by a Licensed Structural Engineer to be protected from damages due to hydrostatic pressures. Additionally, the fill pad shall meet 95% of Standard Proctor Density in order to be demonstrated not to settle below the FPE and to be adequately protected against erosion, scour and differential settlement. Foundation excavations shall not extend more than 5 feet beyond the foundation footprint. Backfill for the over excavated area does not need to meet the compaction requirements.

2) If a non-residential structure is not dry flood-proofed and is elevated by means of walls, pilings, or other foundation, the building's supporting structure must be permanently open to flood waters and not subject to damage by hydrostatic pressures of the base flood. The bottom of the permanent openings shall be no more than one foot above the lowest adjacent grade. The total net area shall be provided below the FPE, and consist of a minimum of two openings for each enclosed area with each opening of an enclosed area on a different exterior wall. The openings must have a total net area of not less than one square inch for every one square foot of enclosed area subject to flooding below the FPE. Any louvers, screens, or other opening covers must not block or impede the automatic flow of floodwaters into and out of the enclosed area. The foundation and supporting members shall be anchored and aligned in relation to flood flows and adjoining structures so as to minimize exposure to known hydrodynamic forces such as current, waves, ice, and floating debris. All areas below the FPE shall be constructed with materials resistant to flood damage. The lowest floor (including basement) for the non-residential structure and all electrical, heating, ventilation, plumbing, air conditioning equipment, and utility meters shall be located at or above the FPE. Waterproofed service facilities, including, but not limited to, water and sewer pipes, electrical and telephone lines, and submersible pumps, may be located below the FPE. No area less than one foot above the BFE shall be used for storage of items or materials.

c. Mobile homes and recreational vehicles to be installed on-site more than 180 days shall be elevated to or above the FPE and shall be anchored to resist flotation, collapse, or lateral movement by being tied down in accordance with the Rules and Regulations for the Illinois Mobile Home Tie-Down Act issued pursuant to 77 Ill. Adm. Code 870.

d. Accessory structures and attached garages may be constructed with the lowest floor below the FPE in accordance with the following:

(1) The building shall not be used for human habitation.

(2) The structure shall be anchored to prevent flotation.

(3) Service facilities such as electrical and heating equipment shall be elevated or flood-proofed to the FPE.

~~Any new structure located on flood table land shall have no habitable floor, including base- ment, at an elevation less than 2 feet above the Base Flood Elevation. For all development within flood table lands, the applicant shall meet the requirements of §§8.5.8. This require- ment applies to new construction only and not to additions or substantial improvements to structures within flood table lands built before August 10, 1999~~.

~~**8.9.2.3** New residential structures built within flood table lands may have the lowest floor below the FPE if structurally dry flood-proofed to at least the Flood Protection Elevation in accor- dance with §§8.5.8.4 [Revised 05.09.06]~~

WDO Amendment #40-UDO Section 8.10.2.2

8.10.2.2 Flood-prone Area Conveyance, Velocities, Flood Profiles and Flood Storage

a. For all development within a flood-prone area where the tributary drainage area is 100 acres or more, the applicant shall meet the requirements of Sec. 8.5 according to the following criteria and submit to the Stormwater Management Commission for permit or approval:

2. an engineering study performed by a registered professional engineer which will determine a Base Flood Elevation and demonstrate that the proposed development will maintain the existing condition's conveyance, will not increase flood velocities, will not increase flood profiles and will ~~compensate for all lost flood~~provide hydraulically equivalent compensatory storage at a ratio of 1.2 to 1. Such compensation areas shall be designed to drain freely and openly to the channel and located opposite or adjacent to fill areas ~~in a manner that is hydraulically equivalent~~, or

2. an engineering study performed by a registered professional engineer which will demonstrate, for a range of flood elevations (which would exceed the expected 100 year flood elevation), the proposed development will maintain the existing condition's conveyance, will not increase flood velocities, will not increase flood profiles, and will ~~compensate for all lost flood~~ provide hydraulically equivalent compensatory storage at a ratio of 1.2 to 1. Such compensation areas shall be designed to drain freely and openly to the channel and located opposite or adjacent to fill areas. ~~in a manner that is hydraulically equivalent.~~

WDO Amendments #4b, 5a, 10, 19, 21, 28, 34, 38, 45a, 46, 65b, 75, 77, 83, 85, 88, 90, & 92-UDO Article 14-Definitions

WDO Amendment Number	Term	Definition
5a	Compensatory Storage	An ~~excavated, hydraulically equivalent~~ volume of storage ~~used~~ created to offset the loss or displacement of ~~natural~~ flood storage capacity due to a development activity ~~when artificial fill or structures are placed within a regulatory floodplain~~. (See also Sec. 8.5.)
45a	Critical Duration	The design storm duration for a given frequency storm which produces the greatest peak flow, volume, or stage by analyzing all durations presented in Appendix K.
34	Designated Erosion Control Inspector	A person responsible for, at a minimum, verifying compliance and ongoing maintenance of the approved soil erosion and sediment control plan measures of a development and who is recommended to meet the minimum qualification requirements of a., b., c., and d., as follows: a. Provide a one-page statement of qualifications in the areas noted below and a request to be included on the SMC Designated Erosion Control Inspector qualified listing. The signed statement will be considered as evidence of qualifications. b. Pass the Designated Erosion Control Inspector Exam that is administered by the SMC. c. Complete a SMC-approved soil erosion and sediment control course and meet the requirements of one of the following: 1) Have an official designation as a Certified Professional in Erosion and Sediment Control (CPESC) or Certified Erosion, Sediment and Stormwater Inspector (CESSWI); 2) Two years cumulative experience in the Upper Midwest Region on soil erosion and sediment control inspections. The listing of Designated Erosion Control Inspectors shall be officially updated every three years by the SMC. A minimum of 24 work-related professional development hours including SMC mandatory training for this designation shall be obtained within the three-year period in order to qualify for re-listing. Documentation shall be self-monitoring and shall be provided to SMC upon application for listing.
77	Development	The division of a parcel of land into 2 or more parcels; the construction, reconstruction, conversion, structural alternation, relocation, or enlargement of any buildings; any use or change in use of any buildings or land; any extension of any use of land or any clearing, grading, excavation or other movement of land, for which permission may be required pursuant to this Ordinance. For stormwater management purposes, development includes any other activity that might change the direction, height, volume or velocity of flood or surface water, including the drainage of wetlands and removal of vegetation to the extent such that the wetland would no longer meet the criteria of supporting hydrophytic vegetation as defined in this Ordinance except that which would be considered appropriate for management purposes.
46	Drain Tile	A conduit, such as corrugated plastic tubing, clay tile, or pipe, installed beneath the ground surface to collect and/or convey drainage water.

19	Erosion	The process whereby soil is removed by precipitation, flowing water, wave action, or wind.
88	Floodplain, Regulatory	Regulatory floodplains may be either riverine or non-riverine depressional areas. Floodplain boundaries shall be delineated by projecting the base flood elevation onto the best available topography and by superimposing the Special Flood Hazard Area onto the base map.~~ic information~~. Regulatory floodplains include: (1) Any riverine area inundated by the base flood where there is at least 640 acres of tributary drainage area; or (2) Any non-riverine area with a surface area of ¼ acre or more, or with a storage volume of ¾ acre-foot or more when inundated by the base flood; or (3) Any area indicated as a Special Flood Hazard Area on the Federal Emergency Management Agency Flood Insurance Rate Map or Letter of Map Revision and located with the best available topographic information to be inundated by the base flood.
75	Green Infrastructure	Any stormwater management technique or practice that reduces runoff volume through preserving, restoring, utilizing, or enhancing the processes of infiltration, evapotranspiration, and reuse. Approaches may include green roofs, naturalized detention facilities, trees and tree boxes, rain gardens, vegetated swales, wetlands, infiltration planters, porous and permeable pavements, porous piping systems, dry wells, vegetated median strips, reforestation/revegetation, rain barrels and cisterns, and protection and enhancement of riparian buffers and floodplain.
38	Hydraulically Equivalent Compensatory Storage	Compensatory storage placed between the proposed normal water elevation and the proposed 100-year flood elevation. All storage lost or displaced below the existing 10-year flood elevation is replaced below the proposed 10-year flood elevation. All storage lost or displaced above the existing 10-year flood elevation is replaced above the proposed 10-year flood elevation. The additional compensatory storage required beyond a 1:1 ratio may be placed at any elevation between normal water level and the base flood elevation.
10	Isolated Waters of Lake County	All waters such as lakes, ponds, streams (including intermittent streams), farmed wetlands, and wetlands that are not under U.S. Army Corps of Engineers jurisdiction. The limits of the Isolated Waters of Lake County extend to the ordinary high water mark or the delineated wetland boundary. A. The following are excluded from the Isolated Waters of Lake County: 1. Excavations and impoundments that have received a permit from the appropriate jurisdictional authority. 2. Excavations and impoundments permitted by right, prior to being a regulated activity, within 40% or more non-hydric soils. Areas designated as 'water' as depicted on the Soil Survey of Lake County, SCS, 1970 are determined as either hydric or non-hydric soils by connecting adjoining soil boundaries to create complete polygons of the depicted soil types. 3. ~~Areas~~ Wetlands created ~~by~~ incidental construction grading on development sites that have received a WDP or meet the criteria of Section 8.1.3~~ are exempt per Article 8, Section 8.1.3 of this Ordinance~~. 4. Road-side ditches. B. The following shall not be considered as meeting the exclusion criteria in A. above: 1. All areas meeting the definition of high-quality aquatic resources. 2. Wetland mitigation areas created to meet the requirements of this Ordinance or Section 404 of the Clean Water Act. 3. Wetland areas created or restored using public funds. [Revised 12.11.01, 05.09.06]

28	Letter of No Impact (LONI)	Written confirmation from SMC or Isolated Wetland Certified Community that no wetland impacts will occur from a proposed development, based on a review of plans or other applicable information provided by the applicant as specified in this Ordinance.
4b	Liquid Equivalent Precipitation	The amount of precipitation, including any frozen precipitation in its melted state (e.g., snow, sleet, freezing rain). With varying densities of frozen precipitation, the liquid equivalent precipitation indicates the actual amount of water that falls in a storm event, regardless of the type of precipitation.
83	Lowest Floor	Lowest floor of the lowest enclosed area, including basement. An unfinished or flood resistant enclosure, usable solely for parking of vehicles, or building access in an area other than a basement area is not considered a building's lowest floor; provided, that the requirements of Section 8.5.8 are met.
65b	Maintainable Outlet	A stormwater conveyance system (such as a storm sewer or overland flow path) that provides positive drainage to a natural watercourse or stormwater management system. The natural watercourse or stormwater management system shall have adequate downstream capacity. Stormwater management systems shall be within a recorded drainage easement or right-of-way.

92	Maximum Extent Practicable (MEP)	For the purposes of this Ordinance, the maximum extent practicable (MEP) is defined as the highest level of Runoff Volume Reduction (RVR) that is achievable for the development as determined by the applicant and approved by the Planning, Building and Development Director (see Appendix O for runoff volume reduction quantities). The MEP RVR quantitative standard for the development shall not be required to exceed the minimum performance standards identified in Section 8.2.4. For Public Road Developments, the MEP shall not necessitate the need to acquire right-of-way or deed and plat restricted areas outside of the right of way. In making the determination that the RVR quantitative standard for the development is the MEP, the following objectives should be considered, when applicable, including, but not limited to: **a.** Prevention or reduction of existing, adjacent flood-related problems **b.** Examination of adequate downstream capacity from the development **c.** Preservation of existing wetland hydrology **d.** Protection of adjacent streams from degradation due to increased volumes and prolonged bankfull flows **e.** Minimization of off-site water quality impacts **f.** Enhancements of aquifer recharge on-site **g.** Evaluate geographic features of the site (e.g. topography, soil structure, natural resources) **h.** Utilize best available and feasible technology ~~a.~~**i.** Maximize performance of the design j. Provide for sustainability through maintenance and management of the installed practices
85	Substantial Damage	Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before damaged condition would equal or exceed 50% of the market value of the structure before the damage occurred.
21	Substantial Improvement	Any repair, reconstruction, rehabilitation, addition or improvement of a structure which increases the floor area by more than 75% of the structure's first floor area or~~,~~ the cost of which equals or exceeds 50 percent of the market value of the current structure before the start of construction. ~~either, a) before the improvements or repair is started, or b) if the structure has been damaged, and is being restored, before the damage occurred~~. This term includes structures which have incurred a repetitive loss or substantial damage, regardless of the actual repair work performed. ~~and f~~For the purposes of this definition, "start of construction ~~"substantial improvement~~" is considered to occur when the first qualifying improvement, as described in FEMA Publication 480 National Flood Insurance Program Flood Management Requirements, commences or when the first alteration of any wall, ceiling, floor or other structural part of the building commences, whether or not that alteration affects the external dimensions of the structure. This term includes all cumulative improvements within the last ten years. The term does not, however, include either 1) any project for improvement of a structure to comply with existing state or local health, sanitary, or safety code specifications which are solely necessary to assure safe living conditions or 2) any alteration of a structure listed on the National Register of Historic Places or a State Inventory of Historic Places. [Revised 05.09.06]

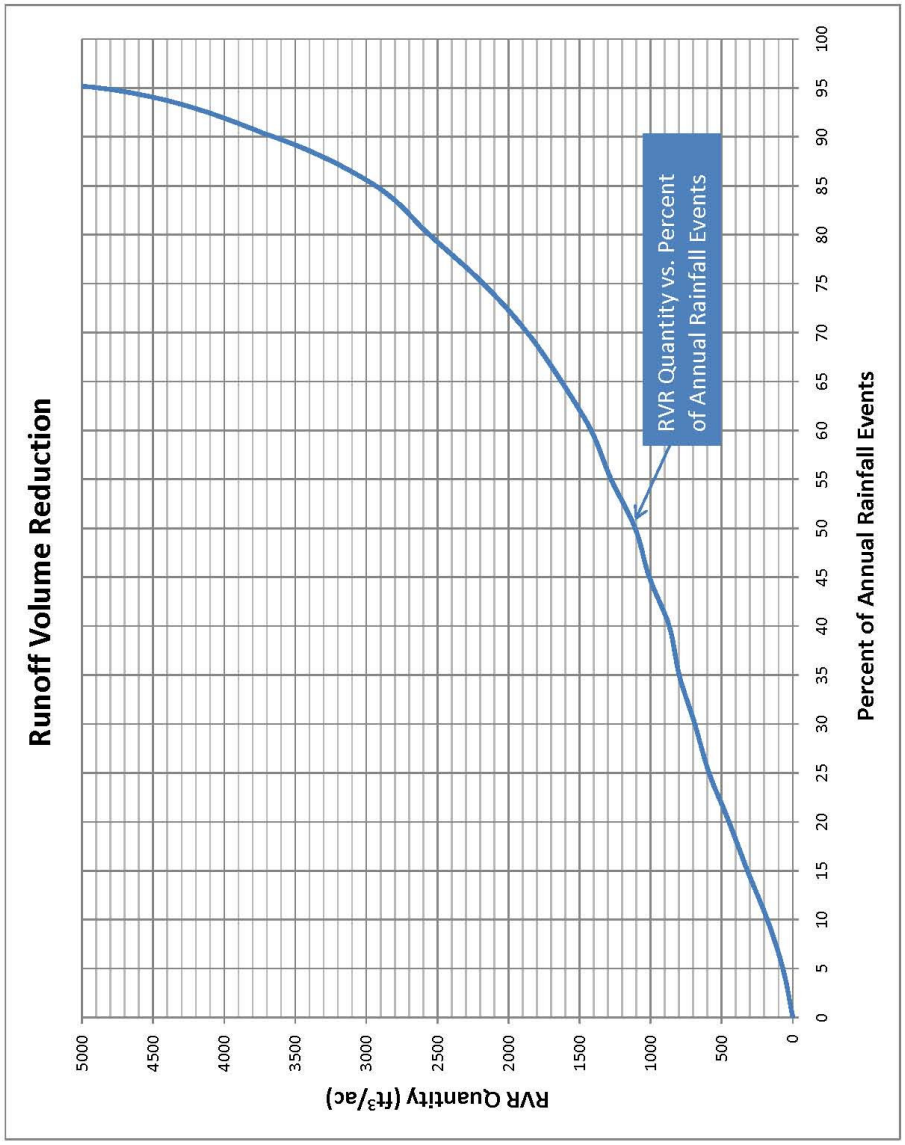
90	Wetland	A wetland is a specific type of natural or man-made drainageway as follows: Wetlands are~~is~~ land that is inundated or saturated by surface or ground water at a frequency and duration sufficient to support, under normal conditions, a prevalence of vegetation adapted for life in saturated soil conditions (known as hydrophytic vegetation).A wetland is identified based upon the three attributes: 1) hydrology, 2) soils and 3) vegetation as mandated by the current Federal wetland determination methodology. [Revised 12.11.01]

WDO Amendment #12b-UDO Appendix N

The following are descriptions of high-quality aquatic resources:

1. Advanced Identification (ADID) sites: Aquatic sites that have been determined to provide Biological Values~~identified~~ by the U.S. Army Corps of Engineers, Chicago District and U.S. Environmental Protection Agency (U.S. Environmental Protection Agency, 1992, Advanced Identification (ADID) Study, Lake County, Illinois, Chicago, Illinois) or latest ADID study.

APPENDIX ~~QQ~~ - RUNOFF VOLUME REDUCTION



Percent of Annual Rainfall Events	100% impervious values	
	Runoff Depth (in)	RVR Quantity ft^3/ac new impervious
0	0	0
5	0.02	70
10	0.05	180
15	0.09	320
20	0.12	450
25	0.16	590
30	0.19	690
35	0.22	800
40	0.24	870
45	0.28	1010
50	0.30	1110
55	0.35	1280
60	0.39	1420
65	0.45	1630
70	0.51	1870
75	0.60	2180
80	0.70	2560
85	0.81	2940
90	1.01	3660
95	1.35	4900
99	2.41	8760

Runoff Depth based on Figure 3 of the Center For Watershed Protection Report.

Runoff Depth = P*R where:

P = Rainfall Depth (inches)

R=Volumetric Runoff Coefficient = 0.95 for 100% impervious cover [0.05+.009(I), where I is 100% (impervious cover)]

RVR Quantity = Runoff Depth (in) / 12 (in/ft) * 43560 (ft^2/ac)

APPENDIX ~~NR~~ - ~~WDO~~UDO MITIGATION REQUIREMENTS AND GUIDELINES FOR ISOLATED WATERS OF LAKE COUNTY IMPACTS

INTRODUCTION

This Appendix contains the minimum requirements and guidelines for preparation of a Project Mitigation Document (PMD) related to the creation or enhancement of wetlands on a development site, or on an offsite property, to meet the mitigation provisions in ~~Article IV.E.3.~~Section 8.2.13.4 of this Ordinance. These provisions do not apply for Category IV impacts to Isolated Waters of Lake County. The PMD shall provide at a minimum, information needed by ~~SMC or an Isolated Wetland Certified Community (IWCC)~~Lake County to evaluate the appropriateness and enforceability of a proposed mitigation plan. Additional requirements may apply for impacts to Waters of the United States, as determined by the U.S. Army Corps of Engineers. For the purposes of this Appendix, the term mitigation site refers to the ownership parcel where the mitigation is to occur. Mitigation area refers to the location within the mitigation site where the actual mitigation will occur.

Each PMD shall include specific information in a standard format as outlined in Table 1 and described in Sections A-K below.

Table 1 – Standard Format for PMD

Section	Topic
A	Mitigation Goals
B	Mitigation Site Information
C	Mitigation Design
D	Deed or Plat Restriction
E	Construction Schedule
F	Financial Assurance
G	As-Built Plans
H	Performance Standards
I	Monitoring and Management
J	Reports
K	Compliance and Completion

A. MITIGATION GOALS

1. Discuss how the wetland mitigation shall duplicate or improve the hydrologic and biologic features of the impacted wetlands. Describe the specific functions of the wetlands to be created or enhanced versus the functions of the wetlands to be impacted.
2. Describe the acreage and vegetative community type of wetlands and wetland buffers to be created or enhanced to meet the minimum mitigation ratios required in ~~Article IV.E.3.b.~~Section 8.2.13.4.b of this Ordinance. Mitigation acreage shall be credited on the following basis:
   a. 100% for each acre of wetland created or restored. For the purposes of this Appendix, wetland creation includes restoration of historic wetlands which have been filled, drained, or otherwise manipulated to the extent the areas no longer exhibit wetland characteristics. Open water creation shall be credited at 100% for in-kind mitigation (e.g., one acre of open water created for one acre of open water impacted). No mitigation credit shall be given for open water creation to compensate for non-open water impacts.

b. 25% for each acre of non-farmed wetland enhanced after a minimum ratio of 1:1 for wetland creation to wetland impact is achieved.

c. Enhancement of farmed wetlands meeting the size criterion in ~~Article IV.E.4.a.~~Section 8.2.13.5.a of this Ordinance may be used for up to 80% of the total mitigation requirement (e.g., if 2.0 acres of mitigation are required, up to 1.6 acres may be credited for farmed wetland enhancement, as long as the size criterion above is met).

d. Enhanced upland areas or enhanced wetland edges used to meet the buffer requirements in ~~Article IV.B.1.i.~~Section 8.2.8.5 of this Ordinance shall be credited at 25% for each acre enhanced. Created or restored wetland edges used to meet the buffer requirements of this Ordinance shall be credited at 75% for each acre created or restored. All high-quality aquatic resources existing on the mitigation site shall, at a minimum, meet the buffer requirements for high-quality aquatic resources; all other existing enhanced, created or restored wetland areas shall, at a minimum, meet the non-high-quality aquatic resource buffer requirements of this Ordinance.

B. MITIGATION SITE INFORMATION

1. Site Location

Identify the mitigation site on a general location map (USGS quadrangle map preferred), plat of survey, and major watershed map (e.g., Fox River Watershed).

2. Physical Description

Describe the physical characteristics of the mitigation area. Provide information to support the mitigation site selection, including, but not limited to: wetland determination report meeting the requirements in ~~Article IV.E.2.~~Section 8.2.13.3 of this Ordinance, NRCS certified wetland determination (for agricultural land), topographic map with a minimum of 2-foot contour lines, recent and historic aerial photographs, current site photographs, drain tile information, USGS hydrologic atlas, FEMA flood insurance rate map and base flood elevations as required by this Ordinance, and SCS soil survey map and soil unit descriptions.

3. Land Use

Describe the past and current land use(s) of the mitigation site parcel. Submit a plan at a minimum scale of 1 in.=100 ft. showing the existing land use(s) and pertinent features, such as buildings, roads, utility lines, drain tiles, culverts, landscaping, lot lines, etc. Include on the plan or provide a narrative of any adjacent land uses that could conflict with the mitigation proposal and any zoning restrictions. Discuss potential adverse impacts to the mitigation site, including stormwater runoff from adjacent properties or nearby development in the watershed. Include a

copy of the current zoning map and comprehensive land plan showing proposed land use(s), roads and trail systems.

4. Ownership

Identify the current owner(s) of the mitigation site property. If the owner is different from the permittee, provide ~~the SMC or IWCC~~Lake County with a copy of an executed agreement between the owner(s) and permittee that grants permission by the owner(s) for the permittee to use the property for mitigation and specifies the responsibilities of each party for establishment of the mitigation site. Once mitigation is in place, the permittee shall notify ~~the SMC or IWCC~~Lake County of any change in ownership. The new owner(s) shall provide written assurance to the issuer of the ~~WDP~~SDP of the transfer of the permit and intent to comply with the terms and conditions of the permit, specifically the mitigation plan.

5. Significant Biological Resources

The permittee shall consult with the Illinois Department of Natural Resources (IDNR) and the U.S. Fish & Wildlife Service (USFWS) regarding the possible presence of threatened or endangered species or critical habitat on the mitigation site. ~~The SMC or IWCC~~Lake County shall not approve the mitigation area until documentation is provided confirming the proposed mitigation area is in compliance with the IDNR's Endangered Species Consultation Program and the Illinois Natural Areas Preservation Act [520 ILCS 10/11 and 525 ILCS 30/17] and the USFWS' consultation program under the federal Endangered Species Act.

C. MITIGATION DESIGN

1. Topography

If grading is proposed, submit a grading plan at a minimum scale of 1 in.=100 ft. showing existing and proposed grades with a minimum of 1-foot contour lines. Identify elevation and location of reference benchmarks. Include cross-sections for the mitigation wetlands with normal water level (NWL) and high water level (HWL) depicted, if applicable.

2. Hydrology

Identify the source(s) of water for the mitigation wetlands, both surface and subsurface. Describe any water control structures to be used and identify these structures on the grading plan, with invert elevations. Control structures with adjustable inverts are recommended to facilitate management of desired water levels in the mitigation wetlands. Describe the expected hydrologic regime of the mitigation wetlands. Provide hydrologic modeling results in both summary table and hydrograph form for the 2-year and 100-year, 24 hour storm events, at a

minimum, to support the expected hydrologic regime of the mitigation wetlands. Verify that the mitigation design will not adversely impact the hydrology of existing on-site or nearby wetlands.

Discuss factors influencing the quality of stormwater runoff from on-site and off-site sources (e.g., roads, lawns, parking lots, etc.) and incorporate best management practices (BMPs) into the design to treat runoff before it discharges into the wetlands. Identify the BMPs on the grading plan.

Stormwater detention basins shall not be used for creation of wetlands to meet the wetland mitigation requirements of this Ordinance in ~~Article IV, Section E.3~~Section 8.2.13.4.

3. Soils

A minimum of twelve (12) inches of suitable rooting medium shall be provided on the mitigation wetlands and wetland buffer areas. Use low ground pressure equipment to minimize soil compaction. Include information about whether topsoil will be imported from off-site.

If the mitigation site contains a drained hydric soil, include the SCS soil map unit description and describe the drainage system (e.g., drain tile, ditches, channels, etc.). The drainage system shall be shown on the grading plan. Verify the hydric soil map unit by digging a 30-inch deep soil pit in a representative location of the map unit and write a detailed profile description of the soil, including horizons, soil colors using Munsell color charts, and soil texture and structure. Examine the soil profile for the presence of redoximorphic features such as iron/manganese accumulations, oxidized rhizospheres, mottles, and depleted zones. Record the type, relative abundance, location, and color of these features. Record other evidence of soil wetness such as the accumulation of partially decomposed organic matter at the soil surface.

4. Planting Plan

Submit a plan at a minimum scale of 1 in.=100 ft. depicting the location and acreage of each wetland and wetland buffer community type to be established. This plan shall also be used as the base map to show the locations of the vegetation monitoring transects and hydrology sampling points discussed in Appendix ~~N~~R, Section ~~I~~I. Provide the list of plants to be established in community by common and scientific name, along with the seeding or planting rate for each species. Seed and plant stock source(s) shall originate from within 150 miles of the mitigation site to maintain local genotypes.

D. DEED OR PLAT RESTRICTION

All mitigation wetlands, as well as other preserved wetlands or waters and wetland buffers on the mitigation site, shall be protected in perpetuity by a deed or plat restriction. The permittee shall provide ~~the SMC or IWCC~~Lake County with a draft copy of the proposed deed or plat restriction document and

associated exhibit(s) showing the restricted areas for approval. Contact ~~the SMC~~Lake County for example wetland and wetland buffer restrictive language.

E. CONSTRUCTION SCHEDULE

Provide a schedule with anticipated start date and duration for each phase of the mitigation site construction, including installation of soil erosion and sediment control measures, earthwork, and planting.

F. FINANCIAL ASSURANCE

The permittee shall provide ~~the SMC or IWCC~~Lake County with a financial surety for 110% of the total estimated cost for construction, monitoring, and management of the mitigation wetlands and wetland buffers. The amount of the financial surety shall be based upon the wetland consultant's detailed cost estimate for completing the approved mitigation plan, including earthwork, planting, and monitoring and management for a minimum of five (5) full growing seasons after planting is completed. The cost estimate shall be provided to ~~the SMC or IWCC~~Lake County for approval prior to obtaining the financial surety. The financial surety may be in the form of a performance bond, irrevocable letter of credit, irrevocable trust, escrow account, casualty insurance, or other approved surety.

The financial surety shall be held by ~~the SMC or IWCC~~Lake County until the mitigation site meets the performance standards in Appendix ~~N~~R, Section H. Such surety may be phased out or reduced by ~~the SMC or IWCC~~Lake County once it has been demonstrated that the mitigation site is functionally mature and/or self-sustaining in accordance with the performance standards in Appendix ~~N~~R, Section H.

G. AS-BUILT PLANS

1. Upon the completion of earthwork, but prior to planting, the permittee shall provide an as-built topographic map to ~~the SMC or IWCC~~Lake County for approval. The as-built map shall depict the constructed grades at a minimum of 2-ft contour intervals, along with spot elevations, and the invert elevations of all water control structures. The bench mark(s) used to establish the grades shall also be indicated on the plan. If the constructed grades and invert elevations are not in conformance with the approved grading and utility plan, the permittee shall be responsible for regrading or reinstalling the water control structures at the designed elevations to comply with the approved plan. If the as-built plan and site inspection are determined to be in conformance with the approved design, ~~the SMC or IWCC~~Lake County shall issue a written approval of the as-built plan and planting activities may commence.

2. Upon the completion of planting activities, the permittee shall provide ~~the SMC or IWCC~~Lake County with lists of the species actually planted

in the mitigation wetlands and wetland buffers, including the common and scientific name of each species, the quantity of each species planted (e.g., weight of seeds/acre, number of plugged plants/acre), the source of the seeds/plants, the planting method(s) used, and the date(s) seeding or planting occurred.

H. PERFORMANCE STANDARDS

Performance standards are predetermined goals for guiding and measuring mitigation success.

1. Performance Period

The performance period shall consist of a minimum five (5) years at which time the vegetation performance standards are met, unless the vegetation performance standards can be met earlier for two (2) consecutive growing seasons, at which time the performance period shall be considered complete. Conversely, the performance period may be required to be longer than five (5) years in order to meet the vegetation performance standards if they haven't been met after the standard five-year time frame.

2. Wetland Vegetation Performance Standards

The performance standards below apply to emergent, wet prairie and sedge meadow communities. If other community types are proposed (e.g., aquatic, forest, etc.), the permittee shall submit proposed performance standards for each community to ~~the SMC or IWCC~~Lake County for approval.

a. Floristic Quality: By the end of the performance period, a native mean coefficient of conservatism value (native mean C value) of greater than or equal to 3.5 and a native floristic quality index value (FQI) of greater than or equal to 20 shall be achieved for each wetland community. Native plant species coefficients of conservatism and the methods for calculating the native mean C value and FQI are included in Swink, Floyd and Gerould Wilhelm, Plants of the Chicago Region (Indianapolis: Indiana Academy of Science, 4th Edition, 1994).

b. Mean Wetness Coefficient: By the end of the performance period, the mean wetness coefficient (mean W) shall be less than or equal to 0 in each wetland community. Wetness coefficients are listed below, based on the National Wetland Category of each plant species designated in Reed, Porter B., National List of Plant Species that Occur in Wetlands: North Central (Region 3), U.S. Fish Wildlife. Service. Rep. 88(26.3, 1988). The mean W for each wetland community is calculated by the following equation: Sum of wetness coefficients for all species/number of species.

Wetness Coefficients

National Wetland Category	*Wetness Coefficient*
Obligate (OBL)	-5
Facultative Wetland + (FACW+)	-4
Facultative Wetland (FACW)	-3
Facultative Wetland - (FACW-)	-2
Facultative + (FAC+)	-1
Facultative (FAC)	0
Facultative - (FAC-)	1
Facultative Upland - (FACU-)	2
Facultative Upland (FACU)	3
Facultative Upland + (FACU+)	4
Upland (UPL)	5

c. Vegetative Cover: By the end of the performance period, no area greater than 100 square feet within the created or enhanced wetlands shall be devoid of vegetation, as measured by percent areal coverage. Areas not meeting this standard shall be re-planted.

d. Invasive Species Dominance: By the end of the performance period, none of the three dominant plant species in the emergent, wet prairie, or sedge meadow communities shall be non-native or weedy species, including, but not limited to, the following species: Typha spp., Phragmites australis, Poa compressa, Poa pratensis, Lythrum salicaria, Salix interior, Echinochloa crusgalli, or Phalaris arundinacea. Dominance shall be based on the relative importance value (RIV) of each species, which is calculated by the following equation:Invasive Species Dominance:

RIVs = [RFs + RCs] / 2 x 100, where:

RIVs is the relative importance value of the individual species in the community,

RFs is the frequency of the individual species occurring in all quadrats/the total frequency of all species (adventive and native) occurring in all quadrats, and

RCs is the coverage of the individual species occurring in all quadrats/the total coverage of all species (adventive and native) occurring in all quadrats.

3. Wetland Buffer Vegetation Performance Standards

The performance standards below apply to the prairie community to achieve mitigation credit. If other community types are proposed for the wetland buffers (e.g., forest, savanna, etc.), the permittee shall submit proposed performance standards for each community to ~~the SMC or IWCC~~Lake County for approval.

a. Floristic Quality: By the end of the performance period, a native mean coefficient of conservatism value (native mean C value) of greater than or equal to 2.5 and a native floristic quality index value (FQI) of greater than or equal to 15 shall be achieved for the buffer.

b. Vegetative Cover: By the end of the performance period, no area greater than 100 square feet within the created or enhanced mesic prairie buffers shall be devoid of vegetation, as measured by percent areal coverage. Areas not meeting this standard shall be re-planted.

c. Invasive Species Dominance: By the end of the performance period, none of the three dominant plant species in the mesic prairie buffer community shall be non-native or weedy species, including, but not limited to, the following species: *Cirsium arvense, Melilotus* spp., *Alliaria petiolata, Poa compressa, Poa pratensis, Ambrosia artemisiifolia, or Rhamnus cathartica and R. frangula*. Dominance shall be based on the relative importance value (RIV) of each species, which is calculated using the equation in Appendix ~~N~~R, Section H.2.d.

I. MONITORING AND MANAGEMENT

1. Monitoring

a. Monitoring Plan: The PMD shall contain a proposed five-year monitoring plan. Such plan shall include, at a minimum, a description of the sampling methodologies to be followed for evaluating hydrology in the mitigation wetlands and assessing vegetation in the mitigation wetlands and buffers, the frequency of sampling, and the report(s) to be generated.

b. Vegetation Monitoring: A sufficient number of straight-line sampling transects shall be established in the mitigation wetlands and wetland buffers to achieve a representative amount of plant frequency and coverage data. The beginning and end points of each transect shall be monumented in the field with a metal stake. The location of each transect and the number of proposed quadrats per transect shall be accurately identified on the Planting Plan (Appendix ~~N~~R, Section C.4.), which shall be included in the annual monitoring reports. Each transect shall consist of a series of sample quadrats either 0.25 or 1.0 square meter in size. Vegetation sampling shall be conducted by, or under the supervision of, a Certified Wetland Specialist twice during the growing season with at least one month between sampling dates (e.g., May/June and August/September). Vegetation sampling shall include the following, at a minimum:

(1) Record the number and estimated percent areal coverage of each vascular plant species in each quadrat, including all non-native (adventive) taxa and native taxa. Use this data to perform the calculations in (2)-(4) below, Photograph each end of the transect at the time of sampling,

(2) Calculate the native mean C value, FQI, and mean wetness coefficient for each quadrat,

(3) Calculate native mean C value, and native FQI and mean wetness coefficient for each transect,

(4) Calculate the RIVn of total native species by the following equation:

RIVn = [RFn + RCn] / 2 x 100, where:

RIVn is the relative importance value of the total native species in the community,

RFn is the total frequency of the native species occurring in all quadrats/the total frequency of all species (adventive and native) occurring in all quadrats, and

RCn is the total coverage of the native species occurring in all quadrats/the total coverage of all species (adventive and native) occurring in all quadrats.

c. Hydrology Monitoring: A sufficient number of representative sample points shall be established in each mitigation wetland to assess the hydrologic conditions. The sample points shall be monumented in the field with a metal stake. The location of each sample point shall be accurately identified on the Planting Plan (Appendix ~~N~~R, Section C.4.), which shall be included in the annual monitoring reports. At a minimum, hydrology monitoring shall be conducted on a bi-weekly basis during the first growing season and on a monthly basis during each succeeding growing season of the monitoring period. Hydrology sampling shall include the following, at a minimum:

(1) Depth of inundation in NGVD as amended 1929 (in. or cm.), and

(2) Soil moisture condition to a minimum depth of 12 in. (e.g., saturated, moist, dry).

2. Management

a. Management Plan: The PMD shall contain a proposed five-year management plan. Such plan shall include a description of the anticipated management practices to be employed each year to meet the performance standards in Appendix ~~N~~R, Section H.,

and a schedule of all proposed management practices (i.e., a calendar indicating month and year of activity). In addition, the plan shall identify the entity to assume responsibility for long-term management of the mitigation wetlands and wetland buffers after the performance period and the dedicated source of funding for long-term management. At completion of the performance period, ~~the SMC or IWCC~~Lake County shall require a written agreement between the permittee and the entity identified for long-term management.

b. Management Practices: Describe the methods and equipment to be used for each proposed management practice (e.g., prescribed burning, control of invasive plant species by herbicide application or hand removal, mow management, etc.). List all permits or certifications/licenses required for the proposed management practices (e.g., IEPA open burn permit, local fire department permits, IDOA herbicide applicators license, etc.). Personnel who perform the management activities shall have appropriate licenses and qualifications.

J. REPORTS

At a minimum, an annual report prepared by, or under the supervision of, a Certified Wetland Specialist summarizing the results of the previous year's monitoring data shall be submitted to ~~the SMC or IWCC~~Lake County by January 31st of the following year. The annual reports shall contain, at a minimum:

1. A narrative summary of the vegetation and hydrology monitoring data;

2. A discussion of the progress of native vegetation establishment relative to the performance standards in Appendix ~~N~~R, Section H.;

3. An appendix containing the monitoring data;

4. Photographs of the sample transects and panoramic views of the mitigation wetlands and buffers;

5. A narrative summary of the management practices employed during the previous year and photographs documenting these activities;

6. Recommendations for proposed management practices to be employed during the following year(s), based on the monitoring results to date; and

7. The proposed schedule for management practices in the following year(s).

K. COMPLIANCE AND COMPLETION

1. Responsible Parties

The permittee shall be responsible for establishment of the mitigation wetlands and wetland buffers and all associated monitoring and management activities for the performance period. The permittee shall take corrective measures as necessary to meet the performance standards in Appendix ~~N~~R, Section H., within the performance period.

After the performance period, the entity identified for long term management shall assume long-term management for the mitigation wetlands and wetland buffers. The permittee's responsibility for the mitigation wetlands and wetland buffers shall be released in writing by ~~the SMC or IWCC~~Lake County.

2. Notification

After the performance period, the permittee shall provide written notification to ~~the SMC or IWCC~~Lake County, along with following information: 1) a scaled plan (min. 1 in. = 100 ft.) showing the delineated boundaries and actual acreages of the mitigation wetlands and wetland buffers; and 2) a summary of how the performance standards have been met for each wetland and buffer. Upon notification, ~~the SMC or IWCC~~Lake County shall review the submitted information and perform a site inspection to evaluate the success of the mitigation site. If the mitigation goals and performance standards have been met, ~~the SMC or IWCC~~Lake County shall notify the permittee in writing that the permittee's responsibility for the mitigation site is released. A copy of the written release shall be provided to the entity designated for long-term management of the mitigation site.

If ~~the SMC or IWCC~~Lake County determine~~s~~ that the mitigation goals or performance standards have not been met based on the information submitted and site inspection, ~~the SMC or IWCC~~Lake County shall notify the permittee in writing of the specific shortfalls. The permittee shall be granted a specified time limit to respond to the identified shortfalls. Failure to fully respond to the identified shortfalls within the specified time limit may result in ~~SMC or IWCC~~Lake County's use of the mitigation surety to correct the shortfalls.