

# *Site Plan Checklist:*

*A Guide to Completing the Site Plan Application*



**CARBONDALE**

*All Ways Open*

**City of Carbondale  
Planning & Development  
Management  
200 S. Illinois Avenue  
Carbondale, IL 62901  
Phone: (618) 457-3248  
Fax: (618) 457-3289**

Updated 6-18

DEVELOPER'S SITE PLAN CHECK LIST				
Site Plan No.	Name/Location	Completed		
PLANNING RELATED ITEMS		Yes	No	N/A
1.	Application submitted (15.6.10.4.A)			
2.	Six copies of the site plan shall be filed with the application. A digital copy shall be submitted as a scalable PDF (15.6.10.4.B)			
3.	Legal Description of property, address, if applicable, and permanent parcel number (15.6.10.3.A)			
4.	Name & address of developer. (15.6.10.3.B)			
5.	Name & address of property owner(s) (15.6.10.3.B)			
6.	Seal and expiration date, signature, registration number & address of the professional engineer, surveyor or architect who assisted in the development of the site plan (15.6.10.3.C)			
7.	Title, Engineer's scale (not to exceed 1 in. equaling 20 feet on a 24" X 26" sheet), legend, north arrow and date are listed on each sheet. Special approval may be granted for using 1" equaling 30' and/or 30" X 42 sheets for large scale developments (15.6.10.3.E)			
8.	Survey information, including distances with angles or bearing, north points and land area in square feet (15.6.10.3.D)			
9.	Zoning classification of the property _____ (15.6.10.3.D) Copy of District regulations reviewed (available in the Office of Planning & Development Management)			
10.	Existing <u>and</u> proposed contours or spot grades at no more than 2 foot vertical intervals. All elevations shall be expressed in feet above mean sea level (16.6.10.3.G)			

11.	Provide spot grades for all accessible stalls, ramps and access routes (15.6.10.3.H)			
12.	Location, dimensions & area in sq. ft. of existing buildings not to be razed (15.6.10.3.I)			
13.	Proposed buildings with locations, dimensions, area in sq. ft., number of stories and type of construction. Buildings meet setback, square foot and height requirements for the zoning district in which they are located (15.6.10.3.J)			
14.	Provide the distance in feet on all sides between buildings and property lines and between buildings (15.6.10.3.K)			
15.	Building use, including number of employees, apartments or family units (identified on plan or in application) (15.6.10.3.I)			
16.	Drainage design for roof areas, parking lots and driveways, showing area for, or method of, disposal of surface runoff waters. Surface gradient shall be shown (15.6.10.3.M)			
17.	Drainage certificate certifying the drainage design, including storm water retention, hydrographs and calculations (15.6.10.3.M)			
18.	Location and use of all buildings on adjacent lands that are within 25 feet of the property line of the subject property (15.6.10.3.N)			
19.	Limits & locations of proposed or existing streets, sidewalks, easements, right-of-way, street curb, cut radii and street curb cut width. (15.6.10.3.O)			
20.	Limits and location of parking lots, driveways, parking bays, outside storage, rubbish, recycling and garbage areas, loading and unloading areas and surfacing and screening thereof (15.6.10.3.T)			
21.	Directions of vehicular traffic flow to, from and within the area, together with traffic control signs and markings (15.6.10.3.U)			
22.	Location, size, appurtenances, type of materials & elevation (MSL) where appropriate, of all public & private utilities serving the site. Applications for any proposed water and sewer taps should be submitted along with the site plan. If water main extensions are required, a separate drawing for each shall be submitted (15.6.10.3.P)			
23.	Limits, locations & size of retaining walls and the type of material to be used in construction (15.6.10.3.S)			
24.	An erosion control plan and a completed IEPA Notice of Intent form may be required (15.6.10.3.X)			

25.	Structures are completely on private property and do not encroach onto right-of-way			
26.	Location and approximate diameter of proposed or existing trees & other woody stemmed plantings together with the common names of the plantings. A landscape shall be submitted and approved prior to planting (See Section B: Plant Material Standards) (15.6.10.3.Q)			
27.	Limits & locations of required buffer yards designed to screen vehicle lights preventing illumination of adjoining property (15.6.10.3.R)			
28.	Limits & locations of outside storage, rubbish and garbage areas, loading & unloading areas and surfacing and screening thereof shall be shown on the site plan (15.4.5)			
29.	A photometric plan verifying the location, height and candlepower of all outside lighting. The plan should also include street lighting and sign lighting (15.6.10.3.V)			
30.	Locations of outside signs (15.10.3.W)			
31.	All proposed freestanding signs are located on private property and do not encroach upon City right-of-way (15.4.10)			
32.	Sketch of proposed signs are included showing compliance with applicable sign regulations (15.4.10)			
33.	The bicycle rack shall be installed on either asphalt or concrete, and shall be so graded and drained as to provide for the adequate runoff and disposal of surface water (15.4.8.10.D.1)			
34.	Such other or different information as may be required by the design standards set forth hereinafter or as required elsewhere in the Code (See Section A: General Landscape Requirements, Section B: Plant Material Standards, Section C: Design for Safety, Section D: Landscape Maintenance, Section E: Buffer Yards, Section F: Site Lighting, Section G: Drainage and Detention Basins and Section H: Outdoor Rubbish, Garbage and Storage) (15.6.10.3.Y)			
35.	A site plan shall be comprised at a minimum of the following sheets: (15.6.10.3.Z)			
	1. Topographic Survey			
	2. Site Plan			

3. Site Plan Utility Plan (water, sewer, storm sewer, gas, electric, etc.)				
4. Site grading/Elevation plan				
5. Erosion Control Plan (if applicable)				
6. Photometric and Light Plan				
7. Detail sheet(s)				
<b>ENGINEERING RELATED ITEMS</b>		Yes	No	N/A
The Engineering Division requests that all plans include a location map and be made available to the City in digital format (15.6.10.4.B)				
1.	<b>Parking Lots</b>			
	A. Limits and location of parking lots, driveways, parking bays. Show typical cross-section of all paved areas			
	B. Directions of vehicular traffic flow, to, from and within the area, together with traffic control signs and markings (15.4.8.6.5)			
	C. Parking lot surface:			
	1. Constructed of 6 inches of compacted crushed stone and surfaced with 2 inches of Hot Mix Asphalt (15.4.8.6.2.a.1)			
	2. Constructed of 6 inches Portland cement concrete (15.4.8.6.2.a.2)			
	3. Other construction _____ (15.4.8.6.2.b)			
	D. Grade of parking lot			
	1. Parking lot grades do not exceed 6%			
	2. Parking lot grades within handicap stalls do not exceed 2%.			

	E. Parking lot stalls and aisles (SEE ATTACHMENT II - Section B: Off-Street Parking)			
2.	<b>Entrances</b> A. Existing and proposed street curb cut radii and curb cut width (15.4.8.6.8)			
	B. Entrances entering or exiting onto a state controlled route are at an approved location and an Illinois Department of Transportation Highway permit has been secured			
	C. Entrance grades are not excessive (normally 8% or less)			
	D. Driveways are constructed of 6 inches of Portland cement concrete from the street to the right-of-way line (15.4.8.5.4)			
	E. Drives that cross sidewalks shall have a maximum of 1:50 cross slope at the sidewalk location			
	F. Flares on driveways to a given parcel do not protrude beyond the extension of the property lines			
3.	<b>Sidewalks</b> A. Limits and location of proposed and existing sidewalks and curb cuts			
	B. Sidewalks have a longitudinal slope of 1:20. If the slope exceeds 1:20, the maximum slope is 1:12; slopes between 1:20 and 1:12 must have a 5' long flat area when rise for a section reaches 30 inches			
	C. Sidewalks have a maximum cross slope of 1:50			
	D. Sidewalks constructed through driveways are thickened to 6 inches			
4.	<b>Drainage</b> A. Storm sewers on right-of-way are constructed of an IDOT approved pipe; storm sewers under streets are constructed of reinforced concrete pipe			
	B. Roof drains do not discharge across sidewalks			
	C. Detention and drainage certification is provided. (Drainage Certificate provided with application form)			

	D. Drainage design for roof areas, parking lot and driveways, showing area for or method of disposal of surface run-off waters			
	E. Pre-development and post-development drainage basins remain relatively constant			
	F. Storm water runoff discharging down driveways is captured by trench drains before crossing sidewalks			
	G. Post-development runoff is equal or less than pre-development runoff			
	H. Post-development runoff onto neighboring property is not directed to concentrated locations unless this was the pre-development condition			
	I. IDOT Highway Permit a. An IDOT Highway Permit has been secured for storm water discharging onto a state controlled route			
<b>WATER &amp; SEWER SERVICES-RELATED ITEMS</b>		Yes	No	N/A
1.	<b>Water Mains</b> A. IEPA Permit needed (check with staff)			
	B. Centered in 20' easement, or if adjacent to a sanitary sewer easement or ROW, the water main is no closer than 5' from ROW or edge of easement			
	C. Meet IEPA required separations from sanitary sewer lines			
2.	<b>Sewer Mains</b> A. IEPA Permit needed (check with staff)			
	B. Center in at least 20' easement			
3.	<b>Water Service Lines</b> A. Is a tap required?			
	B. Are existing lines to be used?			

	C. What size?																			
	D. Deposit Required (see below)																			
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Other	\$																			
4.	<b>Sewer Lateral</b>																			
	A. Is the location size on your drawings?																			
	B. If the existing sewer line is not going to be used, is a new tap required?																			
	C. IEPA Connection Permit																			
	D. If tap is required, a deposit is required (see below)																			
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	E. If new lateral, are cleanouts located at property line?																			
5.	A. Any water mains, sewer mains, water service lines, or sewer laterals located under pavement shall use trench backfill																			
6.	<b>Meter</b>																			
	A. Location, size on drawing (Note: In most cases, meter needs to be located in "green area")																			



	B. Convert to double meter			
7.	<b>Sprinkler System</b> A. Location of line, size, type of materials and location of valve are shown on drawing; valve is to be located at ROW or easement line			
	B. New tap required?			
	C. Backflow preventer required; if so, type of unit: 1. Reduce pressure zone			
	2. Other			
<b>FIRE-RELATED ITEMS</b>		Yes	No	N/A
1.	<b>Fire Hydrants</b> A. The location of all existing fire hydrants within 300' of the property lines are indicated on the Site Plan.			
	1. 300' maximum spacing required for commercial			
	2. 400' maximum spacing required for residential			
2.	<b>Water Mains</b> A. The location of all existing and proposed water mains surrounding the site are shown 1. Size			
	2. Vendor			
3.	<b>Fire Lanes identified and properly marked and signed</b> A. 18' minimum width			
	B. 13.5' minimum vertical clearance			
	C. Continuous unobstructed ingress and egress			

	D. Unobstructed cul-de-sacs, indicate size																																							
4.	Install Knox Box, if necessary (check with Fire Department)																																							
<b>BUILDING &amp; NEIGHBORHOOD SERVICES-RELATED ITEMS</b>		Yes	No	N/A																																				
1.	All trash enclosures are screened to a height of six feet on all sides.																																							
2.	<p>Accessory dwelling units</p> <p>A. Apartment and/or dormitory buildings not located within a complex provide one dwelling unit out of each eight</p> <p style="padding-left: 40px;">Number Required          Number Shown</p>																																							
	<p>B. Apartment and/or dormitory buildings located within a complex provide one out of each 10 dwelling units</p> <p style="padding-left: 40px;">Number Required          Number Shown</p>																																							
3.	<p>Required number of disabled parking spaces with a minimum width of 16' including an 8' wide access aisle. <u>Total #</u></p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;"><i>of Spaces</i></td> <td style="width: 30%;"><i>Disabled Spaces Required</i></td> <td style="width: 40%;"></td> </tr> <tr> <td>1-25</td> <td>(1) One</td> <td></td> </tr> <tr> <td>26-50</td> <td>(2) Two</td> <td></td> </tr> <tr> <td>51-75</td> <td>(3) Three</td> <td></td> </tr> <tr> <td>76-100</td> <td>(4) Four</td> <td></td> </tr> <tr> <td>101-150</td> <td>(5) Five</td> <td style="text-align: right;">Number Required</td> </tr> <tr> <td>151-200</td> <td>(6) Six</td> <td style="text-align: right;">Number Shown</td> </tr> <tr> <td>201-300</td> <td>(7) Seven</td> <td></td> </tr> <tr> <td>301-400</td> <td>(8) Eight</td> <td></td> </tr> <tr> <td>401-500</td> <td>(9) Nine</td> <td></td> </tr> <tr> <td>501-1000</td> <td>2% of total #</td> <td></td> </tr> <tr> <td>Over 1000</td> <td>20 plus 1 for each 100 over 1,000</td> <td></td> </tr> </table>	<i>of Spaces</i>	<i>Disabled Spaces Required</i>		1-25	(1) One		26-50	(2) Two		51-75	(3) Three		76-100	(4) Four		101-150	(5) Five	Number Required	151-200	(6) Six	Number Shown	201-300	(7) Seven		301-400	(8) Eight		401-500	(9) Nine		501-1000	2% of total #		Over 1000	20 plus 1 for each 100 over 1,000				
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4.	Adjacent disabled parking spaces do not share common access aisle																																							
5.	Freestanding disabled parking sign with \$250 fine is shown																																							
6.	Finished floor elevation for buildings is shown																																							

7.	Site access and site circulation are disabled accessible			
8.	Required pedestrian ramps meet applicable standards regarding rise and horizontal projection			
9.	Handrails are provided where required			
10.	Curb ramps are provided wherever an accessible route crosses a curb			
11.	Gratings located in walking surfaces have spaces no greater than one-half inch wide in one direction			
12.	Gratings with elongated openings are placed, so the long dimension is perpendicular to the dominant direction of travel			
<b>POLICE-RELATED ITEMS</b>		Yes	No	N/A
1.	<b>Lighting</b> A. Parking lot lighting meets minimum ordinance requirements (minimum of .125 footcandles at any space and average of .5 footcandles for the entire parking lot)			
	B. Lighting in parking areas is sufficient to make customers and employees feel comfortable walking to and from vehicles after dark.			
	C. Walkways, doorways and windows well-lit			
	D. Lighting around building perimeter and parking areas negates hiding places			
	E. All exterior lighting is shown on Site Plan (building and parking lots)			
2.	<b>Surveillance</b> A. In residential areas, the residents can view their surroundings, especially homes across from them			
	B. Commercial and industrial building design allows for visibility into parking areas by the occupants			

	C. Passing police patrols can see walkways, doors, windows and parking areas			
	D. The location of dumpster enclosure does not interfere with surveillance or conceal suspicious persons or activity			
3.	<b>Building Design</b> A. The placement of the structure, parking facilities or other areas (laundry, recreation rooms, etc.) does not encourage assaults or other crimes			
	B. There are no design features which hinder visibility			
	C. Physical security devices (locks, doors, etc.) are used to enhance security and/or help mitigate design problems			
	D. How does the activity within the building affect surrounding buildings or land use?			
4.	<b>Landscaping/Fencing</b> A. Landscaping or fencing does not encourage crime by creating hidden locations or restricting access			
	B. Landscaping and/or fencing interferes with light fixtures			
	C. There are built in psychological barriers (hedges, etc.) which create defensible space			
	D. Vehicles in parking lots are visible to passing traffic and are not concealed by landscaping or fences			
5.	<b>Circulation</b> A. The driveways and parking lots are designed, so they allow for smooth traffic flow and do not conflict with pedestrian traffic			
	B. Circulation routes around the area are visible and do not encourage assaults and other crime			
<b>OTHER COMMENTS</b>				


**DESIGN STANDARDS**

**SECTION A – General Landscape Requirements (4.1.3)**

A. All landscaping shall meet the following minimum requirements:

1. All required front yards that are not covered by an approved impervious surface shall be seeded and/or sodded with grass or otherwise landscaped. Landscaped beds shall be defined using mulch or decorative rock and shall be well kept and maintained free of weeds and other deleterious growth. (4.1.3.A.1)
2. Any dead tree located on private property shall be completely removed, including the stump and any exposed roots. The City may require the replacement of the tree if it is required as part of a site plan development. (4.1.3.A.2)
3. These provisions do not apply to land zoned F, AG or RR. (4.1.3.A.3)

B. Parking Lot Landscaping (4.1.4)

1. All commercial and residential development except one single-unit dwelling or one two-unit dwelling shall be required to submit a landscape plan meeting all of the requirements of this Article. The landscape plan shall be reviewed for compliance and approved by the Planning Services Division. (4.1.4.A)

2. Design Standards (4.1.4.B)

- a. Landscaped areas shall be provided totaling a minimum of ten percent of the total paved parking area. All landscaped areas shall be clearly defined by kept free of weeds and other invasive species. (4.1.4.B.1)
  - 1. In areas where the amount of landscaping required exceeds 2,5000 square feet, the applicant may exchange the amount of required landscaping over 2,5000 square feet for one shade tree. The Development Services Director or designee shall determine the location of the shade trees and the approval and location shall be given in writing, with complete requirements. (4.1.4.B.1.a)
- b. Landscaped islands shall be included at the end of each row of parking stalls that abuts an internal aisle. (4.1.4.B.2)
  - 1. Landscaped islands at the end of a row of parking stalls containing a single parking module shall provide at a minimum of 90 square foot landscaped island. (4.1.4.B.2.a)
  - 2. Landscaped islands at the end of a row parking stalls containing a double parking module shall provide at a minimum a 180 square foot landscaped island. (4.1.4.B.2.b)
- c. All parking lots shall include planted trees in accordance with the following schedule: (4.1.4.B.3)

<i>Parking Spaces</i>	<i>Trees Required</i>	<i>Additional Trees Required</i>
1-4	1 tree	None
5-30	1 tree for each 6 spaces or fraction thereof up to 30 spaces	None
3-100	5 trees for the first 30 spaces	1 tree for each additional 7 spaces or fraction thereof
101-196	15 trees for the first 100 spaces	1 tree for each additional 8 spaces or fraction thereof
197-304	27 trees for the first 196 spaces	1 tree for each additional 9 spaces or fraction thereof
305-504	39 trees for the first 305 spaces	1 tree for each additional 10 spaces or fraction thereof
505 or more	59 trees for the first 505 spaces	1 tree for each additional 11 spaces or fraction thereof

- d. In parking lots with more than 20 spaces, 30 percent of the required trees shall be placed within the perimeter of the actual paved parking lot surface area. (4.1.4.B.4)
- e. In no case shall ornamental trees account for more than 50 percent of the total required trees planted. (4.1.4.B.5)
- f. Trees shall be protected from potential damage by vehicles with curbs or other approved barriers. (4.1.4.B.6)

- g. Where parking lots are adjacent to a public right-of-way on an arterial or collector street, a minimum seven foot buffer shall be provided between the parking lot and the right-of-way line. This buffer shall be seeded or sodded and include at least one tree every 15 feet. Where the code requires a larger buffer between the parking lot and the right-of-way line, the larger buffer shall be provided. (4.1.4.B.7)
- h. All other parking lots not located on an arterial or collector street shall provide a minimum three foot buffer between the parking lot and the right-of-way line. This buffer shall be seeded or sodded. (4.1.4.B.8)
- i. Flexibility in placement of treed landscaped islands may be allowed for creative parking lot design and preservation of existing trees and vegetation. However, no more than 20 parking spaces not separated by a treed landscape island shall be allowed. Islands shall always be required at each end of a row of parking spaces. (4.1.4.B.9)
- j. Up to 40 contiguous parking spaces may be allowed where rows of head-to-head parking spaces are separated by a six foot wide linear landscaping island. (4.1.4.B.10)
- k. Parking lots shall be designed to avoid large open expenses of paving. All parking lots shall include landscaping in accordance with the standards established by 15-4-1-4. Existing trees shall be preserved where possible. Surface denuded of vegetation shall be seeded or sodded to prevent soil erosion.

## **SECTION B – Plant Material Standards**

### **DESIRABLE TREE PLANTING LIST FOR CARBONDALE, IL (4.1.4.C.1)**

- A. Trees, low shrubs and ground cover shall be used as the primary landscape materials. Ornamental, medium-sized and shade trees shall be incorporated into the design. Tall shrubs or low branching trees that may restrict the visibility of motorists or pedestrians should be avoided.
  - 1. The following table includes a list of approved tree species. If a request is made to place a species not included on the list, it must first be approved in writing by the City’s Forestry Division. (4.1.4.C.1)
  - 2. Wherever practicable, new landscaping shall use native materials, as specified by the University of Illinois Extension Service in its Illinois Plant, Landscape and Nursery Technology publications and website. (4.1.4.C.2)
  - 3. Preservation and protection of existing native species of plant material is strongly encouraged. Existing native species and natural cover should be retained wherever possible. Where planting requirements for landscaped areas result in the need for additional trees or shrubs in an existing natural area, there shall be minimum disturbance to native species. (4.1.4.C.3)
  - 4. Where it is not possible to retain existing natural ground cover, landscaped areas shall be seeded and/or sodded, or provided with other acceptable ground cover. (4.1.4.C.4)
  - 5. Landscaping should be used to minimize potential erosion through the use of plant materials, which aid in soil stabilization. (4.1.4.C.5)
  - 6. Landscaping should maximize shading of streets and off street parking areas. (4.1.4.C.6)

<b>ORNAMENTAL TREES (15-30+ FEET IN HEIGHT AT MATURITY)</b>		
<b>COMMON NAME – CULTIVARS</b>		
Akebono Cherry	Japanese Maple – Bloodgood	Royal Star Magnolia
American Hornbeam, Single Stem	Japanese Tree Lilac, Single Stem – <i>Beijing Gold, China Snow, Ivory Pillar, Ivory Silk</i>	Serviceberry, Single Trunk – <i>Autumn Brilliance, Cumulus, Robin Hill</i>
Bald Cypress – Lindsey’s Skyward	Kawansa Cherry	Sourwood
Canada Red Cherry	Korean Maple	Tatarian Maple
Carolina Silverbell	Kousa Dogwood	Thornless Cockspur Hawthorn
Crabapple – <i>Donald Wyman, Golden Raindrops, Prairiefire, Royal Raindrop</i>	Little Gem Magnolia	Three Flower Maple
Crimson Cloud Hawthorn	Okame Cherry	Thundercloud Cherry Plum
Eastern Redbud – <i>Appalachian Red, Floating Clouds, Forest Pansy, Oklahoma, Tennessee Pink</i>	Pagoda Dogwood	Trident Maple
Flowering Dogwood	Paperbark Maple	Washington Hawthorn
Goldenraintree	Parrotia	White Redbud
	Red Buckeye or Red Horsechestnut	Yoshino Cherry
<b>SHADE TREES (30-80+ FEET IN HEIGHT AT MATURITY)</b>		
<b>COMMON NAME – CULTIVARS</b>		
American Hophornbeam	Ginkgo – Autumn Gold, Princeton Sentry	Silver Linden – <i>Green Mountain, Sterling Silver</i>
American Linden – <i>American Sentry</i>	Japanese Zelkova – <i>City Sprite, Green Vase, Village Green, Wireless</i>	Sugar Maple – <i>All cultivars</i>
Baldcypress – <i>Goldrush, Shawnee Brave</i>	Kentuck Coffeetree – <i>Espresso</i>	Summer Sprite – <i>Halka</i>
Black Gum – <i>Wild Fire</i>	Lacebark Elm	Sweet Gum – <i>Happi Daze, Rotundiloba, Fruitless Only</i>
Chinese Pistache	Little Leaf Linden – <i>Green Spire</i>	Thornless Honeylocust – <i>Imperial, Shade Master, Skyline, Street Keeper</i>
Columnar Hornbeam	Miyabe Maple – <i>State Street</i>	Turkish Filbert
Dawn Redwood	Oaks – <i>All cultivars except Pink Oak</i>	
Elm, Hybrids – <i>Accolade, Dura Heat, Frontier, Patriot, Triumph</i>	Red Maple – <i>All cultivars except Autumn Blaze Maple</i>	
European Hornbeam		

*Certain species may not be recommended from time to time due to current biological threats or other recognized industry practices.*



- B. Standards For Plant Materials: When the seasonal nursery stock does not provide for the required plant and tree sizes, the development assistance committee may approve alternative sizes of the required plantings. All vegetation to be planted shall meet the following standards: (4.1.4.D)
1. Nursery stock shall meet with minimum requirements of the "American Standards For Nursery Stock" (ASNS), published by the American Association Of Nurserymen, Inc. (4.1.4.D.1)
  2. Plants shall be sound, healthy, vigorous, free from mutilation, plant diseases, insect pests or their eggs, and fungus and shall have healthy, normal root systems. Plants shall be nursery grown stock in containers or freshly dug, balled, and burlapped. (4.1.4.D.2)
  3. Caliper measurement, height measurement, minimum container volume, crown spread, and number of canes shall conform to the requirements of the American Standards for Nursery Stock (ASNS), published by the American Association of Nurserymen, Inc. (4.1.4.D.3)
  4. Shade trees shall be at least two inches in diameter at a point three feet above the ground when planted. Ornamental trees shall be a minimum one inch in diameter at a point three feet above the ground when planted. Trees shall not be planted any closer than two and one-half feet (2.5') from the edge of any landscaped area within and along the edges of parking areas and ingress/egress points. (4.1.4.D.4)
  5. Shrubs shall be a minimum of twelve inches (12") to eighteen inches (18") high and/or eighteen inches (18") spread for internal landscaped areas of parking areas and a minimum of twenty-four inches (24") to thirty inches (30") height for landscaped strips lying between parking areas, Shrubs making up buffer types "A" and "B" where a continuous hedge is required shall be a minimum of thirty-six inches (36") high, otherwise, a minimum size of twenty-four inches (24") to thirty inches (30") height is allowable. Shrubs making up buffer types "C" shall be a minimum of thirty-six inches (36") high with an aggregate average height of forty-eight inches (48"). (4.1.4.D.5)
  6. Ground covers other than grass shall be planted in such a manner as to provide reasonably complete coverage within one year after planting. (4.1.4.D.6)
  7. Turf establishment areas may be seeded, sodded, plugged, or sprigged except that sod and/or ground cover plants are required for slopes greater than 4:1 (25 percent). (4.1.4.D.7)
  8. Landscaping materials shall meet the requirements of the corner site visibility standards in 15-4.6. (4.1.4.D.8)

### **SECTION C: DESIGN FOR SAFETY**

- A. To ensure both the perceived and actual safety of pedestrians and bicyclists, it is important to provide clear visibility of the immediate environment along sidewalks and trails. Buffers and other landscaped areas adjacent to sidewalks, trails or other pedestrian ways required for pedestrian circulation shall be subject to the standards in this subsection; these standards shall not apply to landscaped areas adjacent to recreational trails: (4.1.4.D.5)

1. Such areas shall include low-growing shrubs (less than three feet (3') in mature height) and flowers and grasses within twenty feet (20') of the nearest edge of the sidewalk or trail; (4.1.4.D.5.a)
2. Such areas shall not include berms within fifty feet (50') of the nearest edge of the sidewalk or trail; (4.1.4.D.5.b)
3. Such areas may include fences or walls, subject to the following additional standards: (4.1.4.D.5.c)
  - a. Fences or walls that are no taller than three feet shall be allowed within a buffer area adjacent to sidewalks or trails; (4.1.4.D.5.c.1)
  - b. Fences, such as split-rail fences, that do not impair visibility, shall be allowed; (4.1.4.D.5.c.2)
  - c. All other fences or walls are prohibited in portions of open space areas within fifty feet (50') of a sidewalk or trail subject to this subsection. (4.1.4.D.5.c.3)
4. Where berms are used within a landscaped area, slopes shall not exceed 45 degrees and shall be completely covered with vegetation. (4.1.4.D.5.d)

#### **SECTION D: LANDSCAPE MAINTENANCE (4.1.5)**

- A. Maintenance of all required landscaped and buffer areas shall be the responsibility of the property owner. Failure to maintain plantings and other features of a required landscaped area in an attractive and healthy state shall be considered a violation of this Zoning Ordinance. Remedies shall include but not be limited to revocation of a Certificate of Compliance and the related Certificate of Occupancy.

The Planning Services Division shall periodically conduct the inspection of all landscaping planted as a site plan requirement to ascertain whether or not the landscaping is still alive. In the event that landscaping has died or been removed, the City shall require their replacement. If compliance is not received within three months of written notice to the property owner, appropriate steps shall be taken to secure compliance. (4.1.5.A)

#### **SECTION E: BUFFER YARDS (4.1.6)**

- A. Determination of Buffer Requirements (4.1.6.A)

Buffers shall be required for all new development and redevelopment except as provided in 15-4.1.6.A.5 and 15-4.1.6.A.6, below. The Table of Buffer Requirements (see table in 15-4.1.6.C.2) describes the type of buffer required as determined by the type of proposed use and the type of use which is designated, approved, or existing on lands adjacent to the proposed project. In order to determine the type of buffer required, the following procedures shall be followed:

1. Identify the type of use for the proposed project. (4.1.6.A.1)
2. On sites with extensive tree cover or large tracts of land, an aerial photograph depicting impacted/non-impacted areas may be submitted with a survey of a representative area no less than one-half acre (0.5 ac.) in size. (4.1.6.A.2)
3. Where an abutting property has a lawful nonconforming use of less intensity than the allowable use of the property, buffering shall be based upon the allowable use. (4.1.6.A.3)
4. Refer to table in Section 15-4.1.6.C.2, Table of Buffer Requirements, for buffer requirements on each property boundary or portion thereof and select the required buffer option for the specified type of buffer from those outlined in 15-4.1.6.B. (4.1.6.A.4)

5. The following developments are not required to provide buffers: (4.1.6.A.5)
    - a. Construction of single family homes or duplexes. (4.1.6.A.5.a)
    - b. Passive agriculture activities such as livestock grazing, orchards, silviculture, or croplands. (4.1.6.A.5.b)
    - c. Passive recreation such as golf courses, hiking/equestrian/bicycle trails, or boardwalks. (4.1.6.A.5.c)
    - d. Conservation lands. (4.1.6.A.5.d)
  6. Buffers are also not required in the following circumstances: (4.1.6.A.6)
    - a. When the property line abuts a railroad right of way. (4.1.6.A.6.a)
    - b. Within fifteen feet (15') of the edge of a street surface or curb line to prevent obstructing visibility. (4.1.6.A.6.b)
    - c. When the nonresidential use is compatible with a residential use, such as cropland, forests, parks, etc. (The parking lot or active recreational area of a park requires a buffer yard.) (4.1.6.A.6.c)
    - d. When the use of a property changes from one nonresidential or high density residential use to another nonresidential or high density residential use and the new use is not expanded in the direction of or parallel to a residential use and when the new use does not result in an increase in noise or light reaching a residential use that would otherwise be required to be protected by a buffer yard. (4.1.6.A.6.d)
    - e. When natural features of the property provide the required screening and buffer yard. (4.1.6.A.6.e)
    - f. Existing legal nonresidential uses or proposed uses that have an approved site plan on file on the effective date hereof, unless expansion beyond that approved as of the effective date hereof occurs in the direction of or parallel to a residential use. (4.1.6.A.6.f)
  7. When it is determined to be in the public interest, the buffer yard requirement may be waived by the City Council when a senior citizen housing conversion development is established as a special use in an R-1 zone. (4.1.6.A.7)
- B. Types of Buffers (4.1.6.B)

Required buffer types shall consist of A, B, and C. Trees in buffers of ten feet (10') or less should be understory trees. Trees in buffers of more than ten feet (10') may be canopy or understory trees provided however, at least one-half of the required trees shall be canopy trees.

1. Landscape Credits (4.1.6.B.1)

Landscape credits for buffers shall be determined from the following table:

<b>LANDSCAPE CREDIT UNIT (LCU) VALUES</b>			
<i>New Planting</i>	<i>Deciduous (Minimum Caliper)</i>	<i>Evergreen or Ornamental (Minimum Height)</i>	<i>LCU Value</i>
Trees	3 inches	10 feet	9
	2.5 inches	9 feet	6
	2 inches	8 feet	5
	1.5 inches	6 feet	3
Shrub	18 inches height or spread		2
Ornamental Grasses or Perennial Beds	1 gallon size		1

<i>Existing Tree</i>	<i>Minimum Caliper</i>	<i>LCU Value</i>
Mature	> 13 inches	15
Large	11 to 13 inches	12
Medium	6 to 10 inches	8
Small	3 to 5 inches	5

1. Type A Buffer (4.1.6.B.2)

A Type A buffer shall be at least ten feet (10') in width and shall have plant materials equal to 20 landscape credits per one hundred feet (100') with a visual screen four feet high consisting of evergreen plantings, fences, walls or a combination thereof.

2. Type B Buffer (4.1.6.B.3)

A Type B buffer shall be at least fifteen feet (15') in width and shall have plant materials equal to 30 landscape credits per one hundred feet (100') with visual screen five feet (5') high consisting of evergreen plantings, fences, walls or a combination thereof.

3. Type C Buffer (4.1.6.B.4)

A Type C buffer shall be at least twenty feet (20') in width and shall have plant materials equal to 40 landscape credits per one hundred (100') with a visual screen six feet (6') high consisting of evergreen plantings, fences, walls or a combination thereof.

4. Buffers along Sidewalks (4.1.6.B.5)

Where a public street separates a land-use required to install a buffer from the protected land use and where the land-use required to install the buffer will include a parking lot adjoining that street, the required buffer shall be broken into two parts:

- a. A buffer five feet (5') wide shall be established between the parking area and the public street or sidewalk; such buffer shall have plant materials with 10 landscape credits per one hundred feet (100') and a visual screen no more than thirty inches (30") high; (4.1.6.B.5.a)
- b. An additional buffer meeting the standards required by this section less five feet (5') in width and 10 landscape credits per one hundred (100') shall be installed on the other side of the parking lot, providing visual separation between the use required to include the buffer and the protected use, with the parking lot and the smaller buffer in between. (4.1.6.B.5.b)

C. Required Buffers (4.1.6.C)

1. Purpose/Principles (4.1.6.C.1)

The intent of this section is to require a more intensive use to provide a landscaped buffer to provide visual screening, separation and some sound buffering between it and a nearby protected use.

2. Buffer Table (4.1.6.C.2)

Any use falling in a zoning district listed across the top of the following table shall be required to install a buffer as designated by the letters A, B or C to separate it from any use or land located in a zoning district listed down the left side of the table; if the cell reflecting the intersection between two districts is blank, no buffer between them is required.



3. Exceptions (4.1.6.C.3)

Where a use that would be required by this section to provide a buffer is separated from the use that would be protected by any of the following, no buffer is required:

- a. A railroad track in active use; (4.1.6.C.3.a)
- b. A state highway; or (4.1.6.C.3.b)
- c. A public street with at least fifty feet (50') of right-of-way. (4.1.6.C.3.c)

D. Modifications to Buffer Requirements (4.1.6.D)

1. A proposed development may be allowed a 50 percent reduction in the required buffer width in no case to allow a required buffer to be less than five feet in width providing one of the following conditions exists and is indicated on the plan for the proposed development or project: (4.1.6.D.1)
  - a. The adjacent property is designated with a nonresidential land use district and is vacant; (4.1.6.D.1.a)
  - b. The adjacent property has an existing required landscaped buffer; or (4.1.6.D.1.b)
  - c. The adjacent property has existing vegetation sufficient in size, types of plantings, and location that serve in the same capacity as a required buffer.(4.1.6.D.1.c)
2. For projects that propose to retain an undisturbed open space area between the extent of the development and the property line, if the Director of Development Services finds that such area will substantially serve the purpose of a buffer, the Director of Development Services may give credit to the owner or owner's designee for part or all of the undisturbed open space toward the buffer requirements of this section. This exemption does not apply to industrial, extractive, or outdoor recreation uses. Additionally, the plan must show the undisturbed area has an existing mixture of grass, trees, and shrubs, and other vegetation that would serve in the same capacity as the required buffer. (4.1.6.D.2)
3. For projects that are required to provide a buffer to adjacent residentially designated property that is currently vacant, the owner or owner's designee may plant the required buffer at the proper density and configuration. All plants utilized shall be of a type that the growth will reach the required height criteria within a three-year period from the time of planting. (4.1.6.D.3)
4. Alternative designs for required buffers may be approved by the Director of Development Services upon a finding that the required buffer will require alterations of the existing improvements on the property. (4.1.6.D.4)

E. Use and Location of Buffers (4.1.6.E)

1. Allowed Uses (4.1.6.E.1)

Areas set aside as required buffers may also be used as follows:

- a. Satisfaction of minimum setback requirements, if any. (4.1.6.E.1.a)
- b. Satisfaction of minimum open space requirements, if any. (4.1.6.E.1.b)
- c. May contain stormwater retention or detention areas, so long as the required buffer plantings are provided and the design and landscaping of the buffer does not interfere with proper functioning of the drainage system and the design water depth does not harm the viability of the plantings. (4.1.6.E.1.c)
- d. Passive recreation such as pedestrian, bicycle, or equestrian trails subject to the following limitations: (4.1.6.E.1.d)

- 1) No plant material is eliminated. (4.1.6.E.1.d.1)
- 2) There is a minimum width of ten feet (10') of pervious material at all points in the buffer, after subtracting any part of a trail covered with impervious material. (4.1.6.E.1.d.2)
- 3) The total width of the buffer is maintained. (4.1.6.E.1.d.3)
- 4) All other requirements of this Zoning Ordinance are met. (4.1.6.E.1.d.4)
- e. Installation of underground utilities, so long as the location and use of the utility lines does not interfere with required buffer plantings. (4.1.6.E.1.e)
2. Prohibited Uses (4.1.6.E.2)
 

The following uses shall not be allowed in a required buffer: principal structures, accessory structures, play fields, stables, swimming pools, tennis courts, or similar active recreation uses; storage facilities, or parking facilities.
3. Location and Design (4.1.6.E.3)
  - a. Buffers shall be located on the outer perimeter of a lot or parcel, extending the entire length of the lot or parcel boundary line. (4.1.6.E.3.a)
  - b. Buffers shall not be located on any portion of an existing, dedicated, proposed right-of-way, road easement, or private street. (4.1.6.E.3.b)
  - c. Where an existing utility easement is partially or wholly within a required buffer, the developer shall design the buffer to eliminate or minimize plantings within the easement. Such design may require a buffer with more land area (see 15-4.1.6.B.). (4.1.6.E.3.c)
  - d. Where a proposed development is a mixed use project, buffers shall not be required between various constituent parts except that any nonresidential use shall be separated from the residential use by internal landscaping. (Note it is the intent to allow flexibility of design within the confines of a mixed use development, but to nevertheless require landscaping for the residential portion of the project from potential negative impact of a proposed nonresidential portion of the project.) (4.1.6.E.3.d)
  - e. All general landscape requirements of 15-4.1.3 shall be met. (4.1.6.E.3.e)

#### F. Fencing within Buffers

Fencing for the purpose of security or protection is allowable within all buffers provided the fence is in compliance with applicable standards of 15-4.2. Developments proposing a privacy fence five feet (5') or more in height within a required buffer, may be allowed a 50 percent reduction in the density of plantings required. Such request shall be submitted in writing by the owner or owner's agent and shall include provisions by the owner for maintenance of the buffer and the fencing. This reduction does not apply to industrial, extractive, or active outdoor recreational uses. (4.1.6.F)



## SECTION F: SITE LIGHTING (4.3)

### A. Applicability (4.3.1)

The following standards apply to all property within the City of Carbondale's zoning jurisdiction. For parking lot lighting standards see 15-4.8.6.11.

### B. Standards (4.3.2)

Where lighting facilities are provided, they shall be designed to provide safe, convenient and efficient lighting for pedestrians and vehicles. Lighting shall be designed in a consistent and coordinated manner for the entire site and shall be designed to meet the following standards:

1. Exterior light sources such as luminaries or lampposts shall not exceed the following heights: (4.3.2.A)
  - a. Within a parking lot that is not located in or within one hundred feet (100') of any R-1 or R-2 zoning district, thirty feet (30'); (4.3.2.A.1)
  - b. Within a parking lot that is located in or within one hundred feet (100') of any R-1 or R-2 zoning district, fifteen feet (15'); or (4.3.2.A.2)
  - c. Within any non-vehicular pedestrian areas, fifteen feet (15'). (4.3.2.A.3)
  - d. No lamina or lamppost shall exceed 30' in height except those provided in a LI, GI, PAD, or SIU District or those illuminating recreational sports fields or arenas during hours of use. (4.3.2.A.4)
2. All new and replacement outdoor lighting fixtures shall employ one or more of the following techniques to reduce glare or spillage: full cut-off fixtures; fully shielded fixtures, or 'NEMA' type II, III and IV reflectors and shall be maintained in such a manner as to confine light rays to the premises. All lighting, regardless of location, shall be designed to prevent direct glare, light spillage, and hazardous interference with residential property or automotive, bicycle and pedestrian traffic on adjacent streets and properties. (4.3.2.B)

### C. Light Glare from Vehicles (4.3.3)

When a parking lot adjoins or is within three hundred feet (300') of a residential area, provision shall be made to screen all vehicle lights to curtail direct illumination of the residential area; screening provided on the land may be provided by the use of closely spaced evergreen trees or physical structures which will harmonize with the developed use of the land and with the residential area. Vehicle light need not be screened on that portion of a site bounded by and parallel to a street. (4.3.3)

## SECTION G: DRAINAGE AND DETENTION BASINS (4.4)

### A. Applicability (4.4.1)

The following standards shall apply to any development for which a site plan must be submitted. New subdivisions or re-subdivisions shall provide storm water detention as detailed in 15-8.6.8.

### B. General Standards (4.4.2)

1. All drainage designs, storm sewers, detention/retention basins, and other such storm water runoff appurtenances shall be laid out and designed by an Illinois Licensed Professional Engineer in accordance with the requirements set forth herein and standard engineering practices. (4.4.2.A)
2. Surface water runoff from parking lots, driveways, roofs and pavements shall not be allowed to cross sidewalks or be directed onto private property that is not a part of the site unless easements have been obtained to permit such off site drainage. (4.4.2.B)
3. Surface water runoff shall be directed into municipal storm water/drainage facilities, if available. (4.4.C)
4. Storm water runoff shall not be directed to nor connected to the sanitary sewer system. Any existing connections of storm water runoff systems (i.e. storm sewers, downspouts, roof drains, etc.) to the sanitary sewer system shall be immediately removed or the persons in control of said connections shall be subject to citation. (4.4.2.D)
5. Retaining Walls shall be constructed where necessary for land stabilization. (4.4.2.E)

### C. Storm Sewers (4.4.3)

#### 1. Referenced Standards (4.4.3.A)

Specific technical aspects of all storm sewers shall be designed in accordance with the Carbondale Revised Code, and in accordance with, but not limited to, the latest editions of following design standards:

- a. Illinois Department of Transportation (IDOT) Manual of Policies and Procedures (4.4.3.A.1)
- b. IDOT Design Manual (4.4.3.A.2)
- c. IDOT Drainage Manual (4.4.3.A.3)
- d. IDOT Standard Specifications for Road and Bridge Construction (4.4.3.A.4)
- e. Standard Specifications for Water & Sewer Main Construction in Illinois (4.4.3.A.5)

### D. Hydrologic Design Standards (4.4.4)

#### 1. General Information (4.4.4.A)

This article applies to hydrologic design for detention basins and other storm drainage facilities (storm sewers, swales, ditches, culverts, bridges) within the City limits and the one- and-a-half mile extra territorial zoning jurisdiction.

Hydrologic design calculations are required and shall be reviewed by the City of Carbondale for all site plans submissions, developments, redevelopments, and subdivisions, and the like.

#### 2. Referenced Standards (4.4.4.B)

Design standards for hydrologic design shall comply with Carbondale Revised Code and with the provisions of the latest edition of the IDOT Drainage Manual otherwise stated herein

3. Rainfall Data (4.4.4.C)

Rainfall duration and frequency distributions shall be taken from Illinois State Water Survey (ISWS) Bulletin 70 or ISWS Circular 172 or most recent ISWS equivalent, unless the use of other local data is approved in writing by the City Engineer.

4. Rainfall Recurrence Interval (4.4.4.D)

The design rainfall recurrence interval shall be set by the design application as follows:

- a. Detention—10 year inflow, 5 year outflow (4.4.4.D.1)
- b. Emergency Overflow Routing—100 year (4.4.4.D.2)
- c. Bridges—100 year (4.4.4.D.3)
- d. Underpasses—50 year (4.4.4.D.4)
- e. Swales, Ditches, and Culverts—25 year (4.4.4.D.5)
- f. Streets & Storm Sewers—10 year (4.4.4.D.6)

5. Design (4.4.4.E)

- a. Choose an applicable hydrologic design method according to the IDOT Drainage Manual Figure 4-001. More complex hydrologic design methods, such as TR-20 or HEC-1, may always be substituted for less complex methods when selecting appropriate design methods. (4.4.4.E.1)
- b. Hydrologic design calculations shall include contour map(s) clearly showing the design drainage area(s), storm water facilities, storm sewers, swales, ditches, culverts, bridges and receiving storm water facilities. Critical spot elevations, invert elevations, pervious and impervious areas shall be clearly indicated. See Subdivision Regulations for other subdivision and site plan submittal requirements. (4.4.4.E.2)
- c. Submittals shall include design calculations, drainage basin areas and surface types, rainfall data used, critical storm duration, generated site specific hydrographs (i.e. pre design, post design, detention, post-detention, etc.) and justification of duration selection. (4.4.4.E.3)
- d. See article 15-4.4.6 for detention routing and design requirements. (4.4.4.E.3)

E. Detention Basin Standards (4.4.5)

1. General Information (4.4.5.A)

- a. The purpose of this chapter is to explain the City's policy regarding the ownership, design, construction, and maintenance responsibility for detention basins. Detention basins are used to collect and hold stormwater runoff for a period of time to compensate for increases in stormwater runoff caused by reduced ground surface perviousness due to activities such as paving or building construction. (4.4.5.A.1)

2. Design (4.4.5.B)

a. General (4.4.5.B.1)

1. Use Article 4.4.4 - Hydrologic Design, to determine design storm and hydrologic method of determining peak inflows—10 year design storm of most critical duration (minimum 60 minute storm) as determined by the City Engineer. (4.4.5.B.1.a)

2. Detention basin sizing shall follow the methodology in IDOT Drainage Manual, Pond Pack™ software, Hydroflow Hydrographs™ Software, or AutoCAD Civil 3DTM Software. (4.4.5.B.1.b)
  3. Outflow shall be limited to the calculated rate of runoff for the sites existing topography as if it was entirely covered with grass; assuming normal soil conditions, reasonable grass coverage, and normal ground saturations for a five year design storm of the most critical duration (minimum 60 minute storm) as determined by the City Engineer. (4.4.5.B.1.c)
  4. Parking lot and other such surfaces shall not be permitted to be used for storm water detention. (4.4.5.B.1.d)
  5. Plans shall clearly indicate normal and high water elevations, design storage volume, minimum, maximum and typical slopes. (4.4.5.B.1.e)
  6. Detention basins shall release the 10 year storage volume within 24 to 48 hours after the end of the rainfall event. (4.4.5.B.1.f)
  7. Emergency overflow routes shall be clearly designated for runoff in excess of the 10-year storm. (4.4.5.B.1.g)
  8. Minimum outlet storm sewer size shall be twelve inches (12”); smaller diameter restrictions (e.g. orifice plate or short pipe length) are acceptable. (4.4.5.B.1.h)
  9. Inlet and outlet pipes shall be provided with concrete end sections and erosion protection. (4.4.5.B.1.i)
  10. Detention Ponds and their appurtenances (i.e. storm sewer systems, weirs, dams, orifices, and specialized outflows) shall be designed by a professional engineer registered in the State of Illinois. (4.4.5.B.1.j)
  11. “Bubble up” outlets are prohibited. (4.4.5.B.1.k)
  12. Pumped outlets and other active control structures are discouraged and must be pre-approved on a case-by-case basis by the City Engineer. (4.4.5.B.1.l)
  13. Temporary erosion techniques shall be used as required to ensure a full stand of cover vegetation in minimum time. (4.4.5.B.1.m)
  14. Detention basin side slopes above normal pool shall be designed with permanent erosion protection consisting of grass, non-grass vegetation, or other permanent finish. Permanent erosion protection shall be aesthetically suitable to the development or existing surrounding land use. (4.4.5.B.1.n)
3. Dry Bottom Basins (4.4.5.B.2)
    - a. Side slopes shall be a maximum of 4H:1V. If retaining walls are used, their height is limited to 4 ft. Retaining wall design and material type shall be approved by the City Engineer. (4.4.5.B.2.a)
    - b. Dry bottom basins shall have 1% minimum bottom slopes or underdrain systems as approved by the City Engineer. (4.4.5.B.2.b)
    - c. Dry bottom basins shall include a low flow channel with some form of erosion protection, for example a concrete “V” gutter. (4.4.5.B.2.c)
  4. Wet Bottom Basins (4.4.5.B.3)
    - a. Above water side slopes shall be a maximum of 4H:1V. If retaining walls are used, their height is limited to 4 ft. Retaining wall design and material type shall be approved by the City Engineer. (4.4.5.B.3.a)

- b. In accordance with IDOT Standard Specifications Section 204, below water slopes shall be a maximum of 4H:1V except that slopes of 2H:1V will be permitted below a point where the proposed water depth will be eight feet (8') or greater. (4.4.5.B.3.b)
  - c. Wet bottom basins shall have a natural or artificial means of aeration. (4.4.5.B.3.c)
  - d. If fish or other aquatic wildlife are desired, a minimum depth of eight feet (8') shall be maintained over at least 25% of the pond's surface area. (4.4.5.B.3.d)
  - e. So-called "safety shelves" are not required as they promote the growth of algae and may cause entrapment. (4.4.5.B.3.e)
  - f. To minimize erosion caused by wave action, shoreline stabilization shall be required around all wet bottom detention basins. Shoreline stabilization shall extend down the sideslope to an elevation one foot (1') below the normal water surface elevation and up the sideslope to an elevation one foot (1') above the normal water surface elevation. Approved shoreline stabilization methods include riprap revetment constructed in accordance with the requirements of the Illinois Department of Transportation Standard Specifications for Road and Bridge Construction, latest edition; cast-in-place portland cement concrete retaining walls; or modular concrete block retaining walls. Alternative shoreline stabilization methods may be submitted to the City Engineer for review and approval. Any proposed shoreline stabilization method shall be reviewed and approved by the City Engineer prior to installation. (4.4.5.B.3.f)
  - g. An outlet structure shall be provided to allow dewatering of the pond for maintenance. Gravity dewatering is strongly preferred. (4.4.5.B.3.g)
  - h. Wet bottom basin design shall include an evaluation of soil permeability. A basin liner shall be included in the design if needed to ensure water retention to normal pool elevation. (4.4.5.B.3.h)
5. Underground Detention Systems (4.4.5.B.4)
- a. Underground systems may be permitted subject to the approval of the City Engineer. (4.4.5.B.4.a)
  - b. All underground systems shall be designed so that inspection and cleaning of these systems is easily accomplished. (4.4.5.B.4.b)
  - c. Normal and accepted engineering practices shall be used for the design and construction of underground detention systems. (4.4.5.B.4.c)
- F. Diagrams and Checklists (4.4.5.C)
- 1. Basin plans and specifications for review and approval. (4.4.5.C.1)
  - 2. Design calculations for basin hydrology and sizing. (4.4.5.C.2)
    - a. Hydrologic calculations shall include areas tributary to the basin and their land use types. (4.4.5.C.2.a)
    - b. Basin stage-storage-discharge tables shall be included in the submittal. (4.4.5.C.2.b)
    - c. Emergency overflow routes shall be included in the submittal. (4.4.5.C.2.c)
    - d. Inflow and outflow hydrographs both for both pre and post conditions shall be included in the submittal. (4.4.5.C.2.d)
    - e. A statement of engineering assumptions (i.e. soil conditions, grass coverage percentages, impervious area percentages, soil saturations, design storms, etc.) shall be included in the submittal. (4.4.5.C.2.e)

## **SECTION H: OUTDOOR RUBBISH, GARBAGE, AND STORAGE (4.5)**

A. Applicability (4.5.1)

The following standards apply to any existing or proposed commercial development or multi-family housing development. (4.5.2)

1. Outside rubbish and storage areas shall be permanently screened from view to a height of at least six feet (6') and shall be constructed to prevent accidental dispersal of the material contained therein. Where storage areas abut a residentially zoned property, a minimum six feet (6') vegetative barrier shall be provided between the fence and the residential property. (4.5.2.A)
2. All dumpsters, grease vats, and recycling receptacles shall be located within an enclosure with a height of at least six feet (6') and shall be constructed to ground level to prevent dispersal. (4.5.2.B)
3. Open storage is not allowed in the front yard or any side yard that abuts a public street except in the event of seasonal uses with the issuance of a Zoning Certificate. For the purposes of this section, open storage shall also include vehicles being repaired. (4.5.2.C)
4. This section does not apply in the GI, LI, BWA and PAD districts, which have separate standards addressing this issue. (4.5.2.D)