

CHAPTER 104 - FUNDAMENTAL DEVELOPMENT REQUIREMENTS

ARTICLE 1 – IN GENERAL

104-1.1 Purpose & Intent

- A. The purpose of this Chapter is to accumulate fundamental development regulations and performance standards, which apply to any development, redevelopment and/or improvement of public and private property within the City rather than to repeat them several times. The standards and regulations set forth in this Chapter shall qualify or supplement, as the case may be, the regulations set forth elsewhere in this *Ordinance*.
- B. The following fundamental requirements are intended to be viewed in broad terms with the detailed provisions found within the specific policies, ordinances, plans and guidelines adopted by the City.

104-1.2 Unsuitable Sites

- A. No land shall be *used* or *structure* erected if the City Engineer or authorized representative has determined that the land is unsuitable and likely to be harmful to the health, safety, and general welfare of the community. The types of features or physical aspects which may render land unsuitable include, but are not limited to, potential flooding, concentrated runoff, inadequate drainage, adverse soil or rock formation, extreme topography, low percolation rate or bearing strength, and/or erosion susceptibility.

104-1.3 Compliance with Other Plans, Regulations, and Contiguity

- A. The adopted plans, policies, regulations, standards, and guidelines listed below, in effect at the time of application, and as may be periodically updated, shall qualify or supplement, as the case may be, the regulations of this *Ordinance*:
 - 1. Surprise *General Plan* 2035, hereinafter known as *General Plan*
 - 2. Parks and Trails Master Plan,
 - 3. Integrated Water Master Plan Water Infrastructure July 2009,
 - 4. Integrated Water Master Plan Water Resources Update June 2015,
 - 5. Planning and Engineering Design Standards (PEDS)
 - 6. Building and Fire Codes,
 - 7. Arts and Culture Master Plan

8. Water and Wastewater Facility Guidelines April 2011
9. SPA 2 Reclaimed Water and Recharge Master Plan Update September 2017
10. Other plans adopted to guide development

104-1.4 Urban Growth Principles

- A. Urban Growth standards encourage and guide new development to locate *adjacent* and/or contiguous to already existing developed areas of the City, with the intent to achieve the following objectives:
- (1) The expansion of incorporated City limits and contiguous service areas through a timely and orderly annexation program.
 - (2) The efficient *use*, timely, and cost-effective extension of new City *infrastructure* and services.
 - (3) The physical connection and visual integration of new development with adjoining existing and proposed development.
 - (4) The reinvestment in built-up areas of the City through the *infill* development process.
 - (5) The preservation of rural characteristics, natural areas, and features.
 - (6) The protection and preservation of *environmentally sensitive features* from the encroachment of urban development.
 - (7) The improvement of air quality by reducing vehicle miles traveled and by encouraging public transit and *alternatives* to private automobile *use*.
 - (8) A wide mix of housing types and greater diversity in both residential and nonresidential architecture.
 - (9) The promotion of the City's individual image, identity, and character through the extensive and enhanced *use* trails for pedestrian *multimodal* connectivity.
 - (10) The preservation of historical and cultural features.
- B. All *new construction* and development within the City, including residential subdivisions or development having an overall *gross residential density* of at least one *dwelling unit* per gross acre (1 du/ac) or greater shall meet the following minimum standards related to the required degree of contiguity, *access*, and availability of adequate public *infrastructure*.

1. At least one-sixth (1/6) of the proposed development's site boundaries shall be contiguous to, and have shared *access* and connectivity with, existing *urban development*. All such *uses* and developments are served by completed *infrastructure*, including paved *streets*, public *sewer* and water, storm water drainage and other utilities, as well as fire suppression consistent with the current City-adopted fire code. Said standards shall further apply to any developments petitioning to annex into the City.
2. If the development is an approved scheduled phase of an overall master development plan which meets the contiguity requirement of this section, and if any portion of the development phase is within one-half mile (1/2 mi) of an existing *urban development*, then the specific development phase need not comply with the minimum contiguity requirement.
3. For purposes of this section, contiguity shall not be affected by the existence of a *platted street* or *alley*, a public or private *right-of-way*, a public or private transportation *right-of-way* or area, publicly owned *open space*, or a lake, reservoir, stream, wash or other natural or artificial waterway located immediately between the proposed development and existing urban development.
4. Waiver/exceptions. The City council may waive or make exceptions to the contiguity requirements of this section provided a specific finding is made that the proposed development will:
 - a. Substantially advance the implementation of the City's *General Plan* provisions regarding greater diversity in housing types and densities;
 - b. Produce special benefits to the City in terms of large-scale *open space* dedication or preservation, completion of regional trail linkages, or substantially advance other primary *open space* and recreational goals contained in the City's *General Plan*; and/or
 - c. Produce special benefits to the City in terms of a long-term economic development opportunity in accordance with the *General Plan*; or promote the *infilling* of an area with already existing noncontiguous urban-level development.

104-1.5 Public Infrastructure Level of Service

- A. Every development within the City shall be adequately served by public *infrastructure*, facilities and services consistent with the City's adopted

development standards and by other applicable federal, state, regional or county legislation.

- B. No *building permit* shall be issued unless such public *infrastructure*, facilities and services are in place, or commitments have been made to provide the required *infrastructure* and level of service standards described herein. No site-specific development plan or *building permit* shall be approved or issued that will reduce the level of service standards below the adopted level of service standards for the affected development.
- C. The following level of service standards shall be *used* to review and approve proposed development and construction, and to determine if a development or construction project meets or exceeds the minimum requirements for adequate *infrastructure*, facilities, and services.
1. Americans with Disabilities Act (ADA). *Infrastructure* construction and improvements of facilities shall comply with the Americans with Disabilities Act.
 2. Community Circulation. All new development projects and development phases therein, must have physically traversable and legally established *access* that is improved and connected to the City's existing, improved *multimodal* circulation system or to planned *multimodal* circulation improvements. Except for *model home* complexes, all required *multimodal* circulation *infrastructure* improvements shall be fully and completely installed and shall be operational and available to serve the new development phase(s) at the time the City issues the first certificate of occupancy for a *building permit* or final inspection.
 3. Water Quality and Wastewater Standards. All water and wastewater *infrastructure* requirements shall be in compliance with all council adopted and/or approved water and wastewater plans, guidelines, reports and documents and any county, state or federal water quality regulations.
 - a. The development and installation of water supply facilities shall be adequate to provide high quality potable water from a public or community water supply source, and shall be constructed to conform to City standards and requirements set forth in the City-adopted engineering design standards, the water quality directives of the City, the Maricopa County Environmental Services Department, the State of Arizona Department of Environmental Quality, and the City-adopted Fire Code.
 - b. All developments must also be in compliance with all local, state and federal regulations regarding aquifer recharge, erosion and sedimentation, storm drainage and runoff control, solid wastes, and hazardous substances.

- c. No materials (organic or inorganic), compounds or chemicals, which can contaminate any water supply, interfere with bacterial process in *sewerage* treatment or otherwise cause emission of elements which are offensive or hazardous to the public health, safety, welfare or comfort shall be discharged at any point into any public *sewer*, private sewage disposal system or stream or into the ground, except in accordance with the standards approved by the Arizona State Department of Health and/or Environmental Quality or such governmental agency as may have jurisdiction over such activities.
4. Drainage and Flooding. Surface water from rooftops or *lots* shall not be allowed to drain onto *adjacent lots*. No *structure* or land shall hereafter be constructed, located, extended, converted, or *altered* within any flood hazard areas that would create a public nuisance or create a hazard to life or property.
 - a. In the design of the development, every effort shall be made to utilize the natural slope of the land for the stormwater collection system.
 - b. The point in which natural drainage flows enter and exit a property prior to development shall remain the same after the property has been *altered* for the development.
 - c. Encroachment into a *floodway* shall be prohibited including but not limited to *fill*, *new construction*, substantial improvements, and other development, unless certification by an AZ registered professional Engineer is provided demonstrating that encroachments shall not result in any increase in flood levels during the occurrence of the base flood discharge.
5. Fire and emergency services and facilities. A certificate of occupancy nor final inspection for a specific development shall not be issued until such time that all necessary fire and emergency services and facilities, as required by the City to serve the development, are in place and operational. Each development phase or *building* therein shall provide paved sufficient *access*, adequate water source and pressure, and facilities for fire protection and suppression as required by the most current City adopted Fire Code. Where required by the City, the *developer* shall reserve a site(s) for a fire station facility
6. Fire and Explosion Hazards. Disposal of waste materials by outdoor incineration on the premises shall require a burn permit from ADEQ. All storage of, and other activities involving inflammable and explosive materials shall be provided adequate safety devices against hazards of fire and explosion, together with adequate fire-fighting and fire suppression equipment and devices standard in industry. All storage of

inflammable or explosive materials shall further comply with location requirements set forth by the Fire Department or as established by this or other City codes and ordinances.

7. Utilities. Utility services, including electrical, gas, telephone, cable, and any other dry utility, shall be provided underground and in accordance with City policies, guidelines and engineering development standards; as well as with utility companies' service rules and regulations for location and construction of utilities. The policies and procedures of the City shall prevail where policies and procedures regarding location, undergrounding, and *screening* of utilities differ between the City and utility company. Including all financial obligations, it shall be the *developer's* responsibility to plan, design, and coordinate the installation of utilities with applicable utility companies.
8. Park, recreation, and open space facilities. A percentage of gross land area shall be required as *open space* for all new development with residential, mixed-use, or commercial *zoning* as prescribed in **Chapter 106** of this *Ordinance*. The location, size, type, and design of *open space* and/or recreational facilities shall be in accordance with the *General Plan*, the City's adopted Parks and Trails Master Plan, and the PEDS (Chapter 107 of this *Ordinance*)
9. Public education facilities. If required by the *school* district, the *developer* of a subdivision shall reserve land within the proposed subdivision for a *school* site(s) to be acquired by the applicable *school* district. The provision of a site(s) for educational facilities shall comply with state legislative mandates, and with the location requirements of the applicable *school* district and the City.
10. Construction Standards & Testing specifications.
 - a. Construction and/or installation of public *infrastructure* shall meet and conform to the requirements, standard specifications, and codes as set forth by the City departments of community development, public works, and fire department. To the extent there is any inconsistency or discrepancy between standard specifications and codes for construction and/or installation with the provisions of this chapter, the more restrictive provision shall prevail.
 - b. Sampling and testing of materials and *laboratory* inspection of materials and processes shall be performed at the expense of the *developer*. Testing shall be in accordance with the City's standards specifications and codes. Any organization providing construction materials testing services must have an established in-house *laboratory* that meets the standards and requirements of the American Society for Testing and Materials.

104-1.6 Air Quality Standards

- A. All development within the City shall comply with local, county, state, and federal air quality regulations governing air emissions including, but not limited to, those regulating odor, dust, fumes, gases or other emissions of *noxious matter*, toxic and/or corrosive, as well as suspended solid or liquid particles.
- B. Dust and particulates. Prior to engaging in any earth moving on a site, a plan for controlling dust resulting from construction or other activities on the site shall be submitted by the *developer* at the time of application for a grading permit.
- C. Undeveloped areas that are proposed to be *used* for *buildings*, parking, driveways sidewalks and similar *uses* that have been either disturbed through the grading process or by a previous *use* shall be required to remove weeds, debris, and dilapidated *buildings* and may be required to install dustproof ground cover ahead of construction phase schedule to prevent the intrusion of unwanted dust or blowing debris from the *site/lot*.
- D. Odors. No *use* shall be operated so as to produce the emission of objectionable or offensive odors in such concentration as to be readily perceptible at any point at or beyond the *lot line* of the land on which the *use* is located. The guidelines, policies and standards established by the State of Arizona Department of Environmental Quality and Maricopa County Air Quality Department, as periodically updated, are adopted herewith by the City council as the guides and standards of the City for determining quantities of offensive odors. Special attention shall be given when placing land *uses* in the vicinity of wastewater treatment facilities.

104-1.7 Noise and vibration standards.

- A. Noise restrictions. Land *uses* and/or activities shall not result in or generate any noise perceptible beyond the boundaries of the immediate site in violation of the noise regulations in the City Municipal Code.
- B. Vibration. Every *use* shall be so operated that the ground vibration inherently and recurrently generated by the *permitted use* is not discernable, at any point beyond the site property line, without instruments.
- C. Construction of *buildings* and equipment operations. Any construction or repair work, or operation of any construction-type equipment or device(s) within any residential zone or within any residential designation within a planned area development (PAD) zone shall be unlawful within the hours of 9:00pm to 5:00am, except when the work is associated with an emergency operation or *public improvement*, and subject to the provisions of this section and any noise control ordinances within the Surprise Municipal Code.

- D. Property maintenance. Any outdoor maintenance or cleaning of private property that includes but is not limited to sweepers, tree or weed trimmers, leaf blowers, and lawn mowers shall be unlawful within the hours of 9:00pm to 5:00am, except when the work is associated with an emergency operation or *public improvement*, and subject to the provisions of this section and any noise control ordinances within the Surprise Municipal Code.

104-1.8 Glare and heat standards

- A. Glare and heat standards shall apply to all land development and shall regulate the *use* of building materials, large paved areas, *streets* and *street* widths and composition, sidewalks, exterior *lighting fixtures*, *building* orientations, *street* landscaping, and any other development components that could result in adverse reflected heat or harsh, bright light and/or reflections.
- B. All development shall be planned and designed so as to minimize the amount of heat and/or glare generated by a proposed *use* or activity by incorporating the following design standards:
1. Use of building materials. Materials *used* in the construction of residential, retail commercial, *office*, industrial and institutional *buildings* shall be such so as not to produce intense glare or heat, whether direct or reflected, that is perceptible from any point along the *building* site's property lines.
 2. Large paved areas. Areas developed as large hard-surface plazas and parking *lots* shall be planned and designed to incorporate canopy trees, arbors or other landscape techniques to reduce radiant heat generated from paved services.
 3. Streets and sidewalks. *Developers* shall plan, design, and install *streets* and *curb separated sidewalks* in all residential and nonresidential development in accordance with the *street* and *streetscape* standards set forth in the PEDS.
 4. Exterior lighting. Public and private exterior lighting sources shall be placed in a manner so as not to cause *light spillover* or glare beyond the property line onto drivers, pedestrians and neighboring land *uses*. All exterior lighting shall be designed, located, installed, and maintained in accordance with the lighting standards and regulation provided in **Chapter 107** of this *Ordinance*.
 5. Glare. Any activity or *manufacturing* processes that create glare, such as but not limited to welding, shall be conducted within an enclosed *building* or be effectively *screened* from public view. If the source of the

glare is proposed to be *screened* with plant material, then the *applicant* must demonstrate that the *screening* will be effective year-round.

104-1.9 Hazardous Materials Standards

- A. The following general hazardous material guidelines and standards shall apply to all development or redevelopment proposals containing the storage or manufacture of hazardous or toxic materials and having the potential to cause *off-site* impacts as a result of the release or discharge of a hazardous material or toxic or *noxious matter*.
1. No land *use* activity shall, for any period of time, result in the discharge across the boundaries of a *lot* on which it is located, either by surface run-off or by underground plume, a hazardous, toxic, or *noxious matter* in such concentrations as to be detrimental to or endanger the public health, safety, or welfare.
 2. The release of any hazardous, toxic, or *noxious matter* shall not cause injury or damage to *persons*, land or the *use* of land, or render unclean the surface or underground waters of the City to the extent of being harmful to the public health or to animal or aquatic life, or to the *use* of such waters for domestic water supply, industrial purposes, recreation, or other legitimate and necessary *uses*.
 3. Any operation involving ionizing radiation such as the *use* of gamma rays, X-rays, alpha and beta particles, high-speed electrons, neutrons, protons, and other atomic or nuclear particles, shall be permitted only in accordance with the codes, rules, and regulations of the Arizona State Department of Health Services.
 4. No person shall operate or cause to be operated for any purpose any planned or unplanned source of electromagnetic radiation, including overhead utility transmission lines, which does not comply with current federal, state, and local regulations governing the location of such sources.
 5. Electromagnetic radiation generated by operating sources in compliance with and the under the regulatory auspices of the Federal Communications Commission shall be deemed unlawful if such radiation causes abnormal degradation of performance of any electromagnetic receptor of quality and proper design. The determination of "abnormal degradation of performance" and of "quality and proper design" shall be made in accordance with good engineering principles and practices, and the standards of the American Institute of Electrical Engineers, the Institute of Radio Engineers and the Electronics Industries Association.

6. No *use*, activity, or process shall be conducted in a manner that will release airborne hazardous materials.
- B. All development proposals and land *uses* that either manufacture or store a hazardous material or toxic or *noxious matter* shall include a Hazardous Materials Impact Analysis (HMIA). The HMIA shall provide the following information.
1. Information on the specific type of materials manufactured and/or stored on-site.
 2. The magnitude of impact such hazardous materials would have on the site and surrounding area in case of an accidental release of said materials was to occur.
 3. The emergency procedures and containment plans and evacuation plans.
 4. In addition to the above HMIA information also include the following information on the site development.
 - a. How the development shall be planned and designed to comply with all City fire, safety, and building codes regulating the *use* and storage of the hazardous materials.
 - b. How and what special features of the site such as topographical conditions, earthen *berms*, proximity siting to other *buildings* on the site or adjoining property, *building* design, and walls will be utilized to lessen the impact of hazardous material releases.

104-1.10 Open space Requirements and Hierarchy.

- A. Properties that are zoned residential, mixed-used, and commercial shall be required to provide a percentage of the gross acreage as *open space*; as further specified in the tables in **Chapter 106** of this *Ordinance*.
- B. New residential subdivisions shall plan, design, and provide the required *open space* for usage by the general public on a subdivision-wide basis rather than on a *lot-by-lot* basis. The following hierarchical layers identify the most appropriate and preferred location, intent, and design for the required *open space*:
1. In locations that best protects the identified *environmentally sensitive features* and *cultural resources* on or *adjacent* to the property, and
 2. In those areas where there exists opportunities to create any connectivity to a regional network of *open space* and/or trail easements that could maximize the benefit to both the residents and wildlife, and

3. In those areas where there exists an opportunity for connectivity to the trails and *open space* within *adjacent* developments, and
4. In those areas that provide a convenient and central location for the most number of *dwelling units* within the development.

104-1.11 Density Ranges, Transfer of Density and Development Rights

- A.** Density Ranges. The residential *zoning districts* provide for a range in the permitted densities (refer to **Chapter 106** herein). In order for a project to achieve approval at the higher end of the *gross residential density* range, per the residential *zoning district*, the development shall be required to provide the community with a variety of housing opportunities, a more generous amount of *open space*, and a creative design around *environmentally sensitive features*. Each project shall assume the minimum *gross residential density* per *zoning district* and may achieve additional *gross residential density* up to the maximum per *zoning district* based on the following hierarchy:
1. Connections made to regional network of *open space* and/or trails and to *adjacent* developments.
 2. *Open space* is more than slivers of landscape tracts along the *streets*.
 3. Provides a higher number of different housing types, and varying *lot* sizes than the minimum required per the *zoning district* and the PEDS.
 4. Pedestrian scaled *personal services* and neighborhood retail *uses*, with *street frontage* integrated into the neighborhood, designed to serve the daily needs of the residents of the immediate neighborhood.
 5. Provides additional *open space* than the minimum required per the *zoning district*.
 6. Constructs and installs the *amenities* within the *community open space system* that are not covered by impact fees.
 7. Walkability in the design of the residential neighborhood including but not limited to *curb separated sidewalks*, bicycle paths and trails, fully protected bicycle lanes along collector and *arterial streets* if applicable.
 8. LEED level Neighborhood & *dwelling units*.
- B.** Transfer of Density and Development Rights. The *transfer of density and development rights* shall not be an assumed right and occur without the approval of the City Council. Approvals of a density and development rights transfer shall be made only upon a finding that the proposed transfer will not be detrimental to the intent of, and will advance the City's interest in, protecting

those lands with *environmentally sensitive features, cultural resources, and larger tracts of open space.*

1. Lands identified as having *environmentally sensitive features and/or cultural resources* along with the associated *buffer areas*, are eligible to transfer density and development rights from those lands provided the following:
 - a. All lands from which the density and development rights have been transferred from shall be concurrently rezoned to *Open space Conservation (OS-1)* or *Open space Recreation (OS-2)* depending upon the specific details of the site.
 - b. The portion of the development project that can receive *density transfer* shall have less sensitive environmental conditions than the land from which the density is transferred. Eligible receiving areas are any portions of the development project that do not contain slopes over ten (10%) percent, *environmentally sensitive features, cultural resources, minor water features* or *major water features.*
 - c. The *transfer of density* between slope bands/categories within a *hillside development area* shall only be allowed when transferring from a higher slope band to a lower slope band and may occur at a rate of 1:1 allowable *dwelling units* provided the maximum density within the receiving slope category/area is not exceeded; in which case the density must be transferred into next lower slope category or into a *non-hillside* area.
 - d. When all of the allowable *dwelling units* are transferred from a *hillside development area* above the ten percent (10%) slope line to a *non-hillside* area, resulting in a minimum fifty (50) acre undisturbed area above the ten percent (10%) slope line, and the resulting undisturbed area is zoned OS-1, the *density transfer* from the *hillside development area* to the *non-hillside* area may occur at a rate of 1:1.25 allowable *dwelling units.*
 - e. A density bonus may occur at a rate of 1:1.25 allowable *dwelling units* when transferring density and development rights from *water features* identified as and required for regional drainage facilities, as part of an approved City regional drainage and flood control plan developed by the City.
2. Lands without *environmentally sensitive features or cultural resources* may still be eligible for transferring density and development rights within a specific projects provided:

- a. Density shall be limited to a rate of 1:1 allowable *dwelling units* when transferred for purposes of meeting the required *open space* for a development provided those lands are over five (5) acres in size and zoned *Open space Recreation (OS-2)*.
 - b. The development is proposing to utilize a *cluster development* design and the resulting *open space* is twenty-five (25%) percent greater than the minimum required by the underling *zoning district*.
3. *Off-site Transfers. Density transfers* to noncontiguous *parcels* may be approved, in order to encourage the *transfer of density and development rights* from more sensitive areas to those that are less sensitive. Such transfers shall be limited to a rate of 1:0.75 allowable *dwelling units*. Such noncontiguous transfers shall be identified at the time the application is submitted to the City so that the property *owners* of the less *sensitive lands* may join in a single application with the property *owner* of more sensitive areas, and to transfer development potential from the more sensitive to the less sensitive areas without the need for a second *rezoning*.
 4. The overall density of the development site shall not exceed the density permitted for the character area as set forth in the *General Plan* nor the applicable *zoning* requirements of this *Ordinance*.

104-1.12 Luke Air Force Base Compatibility

- A. The City is located within the vicinity of the Luke Air Force Base and Luke Auxiliary Field 1. The City and any development within high noise contours and accident potential zones as delineated on the City's *General Plan* shall comply with Arizona State Statutes to:
 1. Minimize conflict with high noise levels and hazards generated by aircraft and
 2. Provide additional notification to the public; and
 3. Create orderly, efficient, and functional development patterns that are compatible with the continued operation of Luke Air Force Base.

ARTICLE 2 – ENVIRONMENTALLY AND CULTURALLY SENSITIVE LANDS DEVELOPMENT STANDARDS

104-2.1 Applicability

- A. All properties north of State Route 74 (commonly known as Carefree Highway) and those other areas identified as Scenic Lands Development Sub Areas in the Surprise *General Plan* must comply with the processes, procedures, and regulations outlined herein in addition to any that may be developed specifically for those subareas.
- B. Elsewhere, when any portion of a development site, regardless of the acreage, *zoning*, or location within the City can be identified as having *environmentally sensitive features* or *cultural resources*, the entire development site shall be required to adhere to the following processes, procedures, and regulations:
 - 1. Develop an *Environmental Inventory Plan* and Report of the site;
 - 2. Utilize an *Integrated Conservation Design* approach in the design and development of the project; and
 - 3. Comply with the *Environmentally Sensitive Lands Standards* in the **PEDS - Chapter 5** and the standards outlined in the following sections.

104-2.2 Environmental Inventory Plan and Report

- A. An *Environmental Inventory Plan* and Report shall be submitted along with all development applications, including applications for *General Plan Amendments*, zone changes, *platting*, and *site planning*; except for a *single-family home* on a *lot* in a subdivision with an approved *Environmental Inventory Plan* on file with the City.
- B. The required *Environmental Inventory Plan* and Report shall identify the *environmentally sensitive feature(s)*, and *cultural resource(s)* that are to be conserved and protected within the proposed development and the *buffer area(s)* necessary to mitigate impacts to those features and resources from the development. Boundary determination shall be based upon the biological and ecological characterization of the *environmentally sensitive feature(s)* and the culturally sensitive nature of the land. Using maps, photos, and on-site evaluation, the *Environmental Inventory Plan* shall at a minimum identify and locate the following features and resources as well as others that may be found to be unique to the site:
 - 1. *Hillside development areas, steep and unstable slopes, and ridgelines.*
 - 2. *Habitat areas, wildlife corridors and movement areas.*

- a. The wildlife *use* of the area showing the species of wildlife using the area, the times or seasons that the area is *used* by those species and the “value” (meaning feeding, watering, cover, nesting, roosting, perching) that the area provides for such wildlife species.
 - b. *Habitat* that supports federally endangered plant or animal species, Species of Greatest Conservation Need (SGCN) in Arizona, or *significant stands of protected native plant species*.
 - c. Any special features, such as *habitat*, breeding, and population patches.
 - d. Wildlife movement corridors.
3. *Protected native plant(s) and significant stands of vegetation.*
- a. An inventory of the pattern, species and location of *protected native plants* listed in **Table 104-2.a** below as well as other on-site native vegetation that are five inches or greater in *caliper* or cacti that are three feet or greater in height or cacti that have reached their full height at maturity.

Table 104-2a - Protected Native Plants	
Botanical Name	Common Name
TREES: (▲) Denotes trees which are indigenous to the Phoenix metropolitan area	
Acacia farnesiana or smalli	Sweet Acacia
Celtis pallida	Desert Hackberry
Cercidium floridum	▲ Blue Palo Verde
Cercidium microphyllum	▲ Foothill Palo Verde
Chilopsis linearis	Desert Willow
Juniperous species	Juniper
Olneya tesota	▲ Ironwood
Populus fremontii	Fremont Cottonwood
Prosopis velutina	▲ Velvet Mesquite
Cacti and Succulents	
Carnegiea gigantea	Saguaro
Ferocactus	Barrel Cactus
Fouquieria splendens	Ocotillo
Canotia holocantha	Crucifixion Thorn
Peniocereus Greggii	Desert Night-Blooming Cereus
Yucca elata	Soaptree Yucca

4. *Water features* include *floodplains*, *desert washes*, *riparian areas*, *rivers/streams*, *springs/seeps*, and *wetlands*.
 - a. The boundary of any *wetlands* that might exist on the site and a description of the ecological functions and characteristics provided by those *wetlands*.
 - b. The bank and high water mark of any perennial stream, *floodway*, *floodplain*, wash, or swale on the site (identified by professional engineer).
5. *Archeological or cultural resources*.
 - a. An archeological records survey by the State Historic Preservation Office (SHPO) shall be conducted for the development site.
 - b. A complete on-site archeological assessment, by a qualified archeologist, shall be required if after the initial records check it is determined that:
 - (1) The proposed development site contains lands upon which an *archaeological resource* has been previously identified; and/or
 - (2) SHPO or the Arizona State Museum (ASM) determines that an on-site archeological study is needed due to known, but not formally identified/reported, *cultural resources* are likely present on the site or in the immediate vicinity.
 - (3) A previous SHPO survey has not been conducted for the site.
- C. The Environmentally Inventory Report shall provide a narrative description of the general archeological, biological and ecological functions provided by the *habitats*, *environmentally sensitive features* or *cultural resources*. The report shall also outline the specific mitigation measures to be utilized and the *buffer areas* necessary to protect the *habitats*, features, and resources on the proposed development site.
- D. In *Hillside Development Area*: In addition to the materials listed in **B** and **C above** a detailed Slope Category Analysis shall be required to be submitted for any site that contains slopes of ten (10%) percent or greater (Refer to **Section 104-2.8** for more details). Also, the report shall include a proper soil investigation by a licensed geologist or engineer to determine if any geological hazards or soil bearing provisions shall be required.
- E. Both the *Environmental Inventory Plan* and accompanying report shall be prepared by the *applicant's* design team of professionals with competence and registration or certification in the following area(s): urban planning, civil

engineering, wildlife biology, archeology, landscape (ASLA or certified nurseryman) and any other relevant disciplines as may be appropriate or necessary.

Section 104-2.3 Buffer Area Regulations

- A. An *environmental buffer area(s)* shall be required to protect the ecological and archeological character of any identified *environmentally sensitive feature(s)* and the integrity of any *cultural resource(s)* identified by the *Environmental Inventory Plan* for the development site. The proposed *buffer areas* shall be shown on the *Environmental Inventory Plan* and described by the accompanying report. Once approved by the City, these *buffer areas* shall be indicated on the final development plans and legally described on the *recorded plats*.
- B. These *buffer areas* may be multiple and noncontiguous and may be calculated toward the development's *open space* requirement only if the *buffer area* is zoned as *Open space Conservation (OS-1)* for preservation.
- C. The minimum width of any *buffer area* shall be seventy-five (75) feet as measured from the edge of the *environmentally sensitive feature(s)* or *cultural resource(s)* that is being protected. This width may be increased based upon the significance and sensitivity of the feature, *habitat*, or resource as determined by the City in conjunction with the *applicant's* design team professional qualified in the specific discipline in question. Reduced widths for the *buffer area* may be approved when along and *adjacent* to minor ephemeral desert washes
- D. A designated *buffer area* shall be required for ridgeline protection which shall include the crest of any hill above the ten percent (10%) slope band as shown on the Slope Category Analysis, plus the land located within 300 horizontal feet on either side of the crest of the hill. No development shall intrude into this designated ridgeline protection area.
- E. No disturbance or construction activity shall occur within any *buffer area* and no person shall engage in any activity that will disturb, remove, *fill*, dredge, clear, destroy or *alter* any area, including *protected native plants* and *water features* within the *buffer area*, except for the following limited purposes:
 - 1. Mitigation of development activities.
 - 2. Restoration of previously disturbed or *degraded* areas or planned enhancement projects to benefit the natural ecological characteristics of the area, feature, or resource.
 - 3. Emergency public safety activities.

4. Utility installations when such activities and installations cannot reasonably be located outside the *buffer area* or other nearby areas of development.
 5. Construction of a trail or pedestrian walkway that will provide public *access* for educational or passive recreational purposes provided that the trail or walkway is compatible with the ecological character or wildlife *use* of the natural *habitat*, feature, or resource.
 6. Construction or installation of recreational *amenities* such as benches, observation blinds, informational kiosk, trail marker/*signage* and similar items trails, often associated with passive activities such as hiking, photography, nature observation and environmental education programs, provided that such *amenities* are compatible with the ecological character or wildlife *use* of the natural *habitat*, feature, or resource.
 7. Limited construction necessary for *access*; but not including parking *lots* for trailheads.
- F. If the development causes any disturbance within a *buffer area* or to an *environmentally sensitive feature* or *cultural resource*, the *applicant/property owner* shall undertake restoration and mitigation measures to restore the damaged area or lost resources on-site and, if applicable, to those *adjacent off-site* areas or resources. Any such mitigation or restoration measures shall be at least equal in value (ecological, biological, culturally) to the loss suffered because of the disturbance, and shall be based upon mitigation and restoration plans and reports approved by the City’s Community Development Director. Any existing *protected native plants* that are destroyed shall be replaced with native vegetation in like kind, size, and density.

Section 104-2.4 Construction Mitigation Measures

- A. Protective measures shall be required to be in place prior to, and remain for the duration of, the development and construction of the project. The following shall be required to ensure protection of the *habitats*, *environmentally sensitive features*, *cultural resources*, and the associated *buffer areas*:
1. Limits of Development (LOD). The precise LOD shall be delineated on the development plan and/or *recorded plat* to identify those areas of the project site where no land disturbance activities can occur during the construction of the project. The location of the LOD line(s) shall consider and account for all construction activities including but not limited to, *ingress/egress* to the project site and all necessary staging and operational areas.

2. Barrier fence. Prior to the issuance of a *grading* or *building permit*, and prior to any disturbance activities the limits of development (LOD) shall be clearly staked in the field, with visible plastic fencing, in conformance to the approved development/*site plan*. In locations where such fencing is physically impossible the *use* of visible roping may be approved. The disturbance limit boundaries shall be established and staked by an Arizona-registered land surveyor. Appropriate warning *signs* in English and Spanish shall also be posted at least every 100 linear feet on the required fencing. Such fencing and *signage* shall be maintained in place throughout the *grading/construction* process and shall only be removed after a final inspection or Certificate of Occupancy has been issued by the City. The *fenced* and/or roped area shall include all previously disturbed areas and all areas intended to be disturbed. There shall be no disturbance outside the *fenced* area.
3. Construction timing. Construction shall be organized and timed to minimize the disturbance of sensitive or specially valued species occupying or using on-site and *adjacent* natural *habitats* or features.

Section 104-2.5 Development Regulations for Specific Environmental Features

- A. Lands with *habitat areas*, *wildlife corridors* and movement areas.
1. If the *Environmental Inventory Plan* and Report identifies a *habitat* for a wildlife species classified as a sensitive or Species of Greatest Conservation Need (SGCN) in Arizona or by federal agencies as "threatened" or "endangered", then the development plan shall include provisions to ensure that the *habitat* is protected. Any such natural *habitat*, feature, *sensitive land* area and the *adjacent buffer area*, established for the *use* or survival of any such species, shall not be disturbed or diminished and, to the maximum extent feasible, such *habitat* shall be enhanced.
 2. If the development site contains *wildlife corridors* and movement areas that connect to other *off-site* natural *habitats*, features or similar *sensitive land* areas, the development plan shall preserve such natural connections. Such corridors and movement areas shall be designed and constructed to allow for the continuance of existing wildlife movement between natural *habitats*, features or *sensitive land* areas and to enhance the opportunity for the establishment of new connections between other areas for the movement of wildlife.
 3. *Fences* along *roadways*, within wildlife movement areas, *wildlife corridors*, and within *open space*, environmentally/culturally sensitive areas, and *buffer areas* shall be designed to allow for safe and controlled wildlife permeability.

B. Lands with *protected native plants* and/or *significant stand(s) of vegetation*.

1. Those plants which must be disturbed due to construction are required to be salvaged unless the *applicant* can demonstrate how conditions such as poor health or orientation make successful relocation impossible. Salvaged plants are to be replanted within the project to the greatest extent possible.
2. Any project which affects any indigenous plant from the specified *protected native plant* List is required to submit a Native Plant Preservation Plan detailing the existing location and proposed treatment of each protected plant. Protected plants should, at the most optimal situation, remain in place.
3. Native Sonoran Desert vegetation should not be pruned or removed from areas identified as Natural *Open space* or *buffer areas* unless demonstrated to the City that a health, safety or welfare issue exists. This includes removal of dead trees or cacti.

C. Lands with *water features*.

1. For proposed developments that will disturb any existing *water feature* of one-quarter acre (1/4 ac) or greater, the *developer* must provide to the City a written statement from the U.S. Army Corps of Engineers that the development plan fully complies with all applicable federal regulations as established in the Federal Clean Water Act. The *developer* shall also provide to the City written statements from such other governmental agencies having jurisdiction that the development plan fully complies with all applicable federal, state and county environmental regulations. Such written statements shall be provided prior to the scheduling of a public hearing and/or approval for the project.
2. A copy of an approved permit required pursuant to Section 404 of the federal Clean Water Act, if required for the development, shall be submitted to the City prior to issuance of any excavation or grading permit or *final plat* approval.
3. If a development site contains an existing *water feature*, the development plan shall include such enhancements and restoration measures as necessary to provide a reasonable wildlife *habitat* and to improve the aesthetic quality of areas along the high water mark that are in transition, and that are subject to erosion. The development plan shall also include a design for uniform and ecologically and aesthetically compatible treatment of *lots* or tracts that are proposed to surround the *water feature*. Erosion control protection and landscaping plans shall be provided for *parcels adjacent* to the high water mark.

4. *Water rights.* No development plan shall be approved which would have the effect of injuring or diminishing any water supply determined to be an *environmentally sensitive feature*. The creation of new *water features* shall comply with all City Water Resource Management regulations.

104-2.6 Land Disturbance Regulations

- A. Whenever the City requires, erosion control, and bank stabilization of *floodways*, washes, swales and streams, the *use* of native vegetation and nonstructural control techniques shall be utilized for such purpose. The *use* of native vegetation shall be the principal means of channel and bank stabilization. The *use* of riprap, concrete, gunite or other similar hard-surface materials for channel and bank stabilization shall be restricted to locations where the *use* of vegetation techniques is not reasonably feasible.
- B. All stormwater drainage shall utilize nonstructural control techniques to the greatest extent possible and shall provide for safe and controlled wildlife permeability and connectivity through these corridors by using the following methods:
 1. Limitation of land disturbance and grading.
 2. Maintenance of vegetated *buffers* and natural vegetation.
 3. Minimization of impervious surfaces.
 4. Use of terraces, contoured landscapes, runoff spreaders, grass or rock-lined waterways.
 5. Use of infiltration devices.
 6. Use of recharge basins, seepage pits, dry wells, seepage beds or ditches, porous pavement, and/or drains.
- C. All exposed *fill* in the disturbed area shall be contained behind retaining walls or covered with a natural rock veneer and treated with an aging agent and landscaped with indigenous plant material.

104-2.7 Transition Standards

- A. If the project contains or *abuts* a publicly owned natural area, the development plan shall be designed so that it will be compatible with the environmental management of the public property. In order to achieve this, the development plan shall include measures such as:

1. Appropriate non-vehicular *access* to the natural area from or through the development, and
 2. *Setbacks* or *open space* tracts to provide a transition between the development and the natural area, and
 3. Educational *signage* or printed information regarding the natural values, management needs, and potential conflicts associated with living in close proximity to a natural area.
- B.** Development plans containing or *abuts* a publicly owned natural area shall include such easements and *rights-of-way* necessary to allow appropriate non-vehicular public *access*, unless such *access* is deemed to be unnecessary and undesirable. Any such *access* requirement or dedication shall be credited towards the *open space* requirements of the development. If the development site contains any privately owned natural area, any *access* provided to such area, whether for private or public *use*, shall be designed and managed in such manner as to minimize the disturbance of existing wildlife using such area.

104-2.8 Hillside Development Area Regulations.

- A.** Slope Category Analysis.
1. The Slope Category Analysis shall include a topographic map, at a scale not less than two hundred (200) feet to the inch, that identifies the different slope bands that exist on the development site in the below categories of slopes. The slope analysis shall be prepared at two (2) foot intervals for slopes less than ten (10%) percent and at five (5) foot intervals for slopes over ten (10%) percent and in a graphic (color coded) method that describes the following range of slope categories:
 - a. 0 to 10% slopes (*non-hillside*)
 - b. 10% to 15% slopes (*hillside development area*)
 - c. 15% to 20% slopes
 - d. 20% to 25% slopes
 - e. 25% to 30% slopes
 - f. 30% to 35% slopes
 - g. 35% to 40% slopes
 - h. 40% and Over

2. All contour lines shall be extended onto the *adjacent* properties, a minimum of fifty feet or to a greater distance if necessary, to establish the overall slope of the land.
3. As part of the Slope Category Analysis and mapping include the location of *ridgelines* and *significant rock outcroppings* and indicate the location and dimensions of the *buffer areas* around or along the perimeter of those protected *environmentally sensitive features*. Include information on the location and mitigation measures proposed for those unstable *slopes* on the site.
4. *Applicants* seeking a waiver for the requirements for a Slope Category Analysis may submit a written waiver request to the Community Development Director along with an explanation of why a waiver is warranted and shall include such supporting materials as follows:
 - a. Site photographs;
 - b. Site specific topography information;
 - c. All other such information which may provide information on the request.

B. Gross Residential Density Limitations: The maximum number of *lots* into which land located in a *hillside development area* may be *subdivided* shall be the sum of the number of *lots* allowed in each slope category of land as shown in **TABLE 104-2.b** below.

Table 104-2b – Hillside Gross Residential Density Allocation	
Slope of Land/Lot	Maximum Number of <i>Lots</i> Per Gross Acre
0% to 10%	Underlying Zoning
10% to 15%	1.30 *
15% to 20%	1.00 *
20% to 25%	0.70
25% to 30%	0.50
30% to 35%	0.30
35% to 40%	0.20
40% and Over	0.10
Notes: * The allowable gross <i>residential density</i> of these slope categories may exceed the Maximum Number of <i>Lots</i> shown above when density is transferred from a higher slope category (refer to Section 104-1.10 for details). In no case shall the <i>gross residential density</i> exceed the sum of the number of <i>lots</i> allowed by the <i>zoning district</i> and in no case shall units be transferred to a location of higher elevation within the project.	

C. Land Disturbance Regulations.

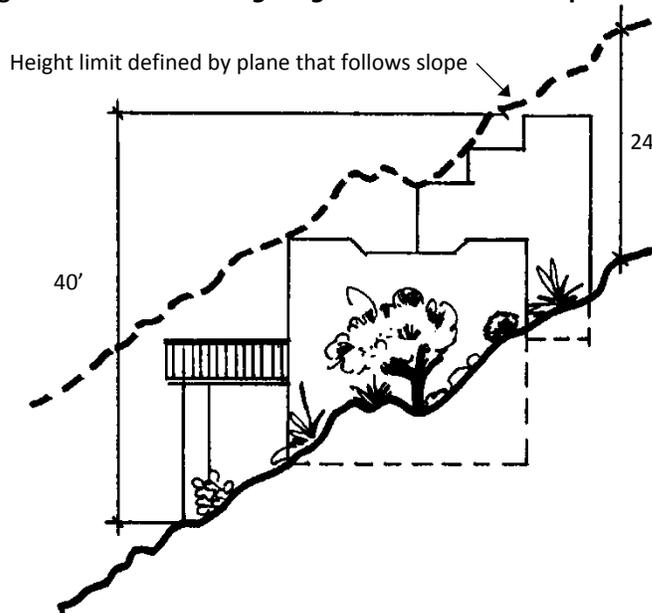
1. Grading for utility lines, including water and *sewer* lines and lateral lines, electric, gas, telephone and cable services shall be restored to the natural *grade* and revegetated with native plant material as listed in **Appendix B** of the **PEDS**.
2. Mass grading shall not be permitted in any *hillside development area*.
3. Raw spill slopes are prohibited.
4. Vegetation shall be reestablished on all exposed *fill* slopes, *cut* slopes, utility lines, driveway(s), and *graded* surfaces, except for cosmetic landscaping *abutting buildings* in accordance with the landscape standards in **Chapter 107** of this *Ordinance* pursuant to an approved landscape plan. All surplus excavated material shall be removed from the *lot* prior to any final inspection or the issuance of the Certificate of Occupancy. All *cut* and *fill* areas visible from *off-site* locations shall be treated with a natural staining or aging agent to match *adjacent* areas of the property.
5. The total combined maximum height of any *fill* and/or the depth of any *cut*, including grading for the construction of public or *private streets* or any subsequent grading, along with the establishment of any *building site* or driveway shall be ten (10) feet, as measured from natural *grade*, regardless of whether the *fill* or *cut* is retained, un-retained, or a combination thereof. These limitations may be amended on a site-by-site basis by the Planning and Zoning Commission. However, the Community Development Director may approve unexposed basement *cuts* exceeding the maximum ten foot depth if all of the following criteria are met:
 - a. The *building site* shall not be *graded* so as to create a flat, visible pad surrounding the main residential *structure*.
 - b. All portions of the *cut* in excess of ten feet shall be completely *screened* from view and retained by *building* walls, or retaining walls in the case of light wells.
 - c. Natural *grade* shall be reestablished in accordance with the "*Building height*" definition in Chapter 101 of this *Ordinance*.
 - d. The total depth of *cut* shall not exceed 24 feet at any point (refer to detail in Chapter 5 of the PEDS).
6. Any un-retained *fill* slope, if allowed, shall have a minimum three feet horizontal to every one foot (1') vertical *fill*. The maximum slope of *fill* grading for *roadway* construction shall be at the discretion of the City Engineer.

7. Maximum steepness of exposed *cut* slopes is dependent on the stability of the material excavated.

D. Architectural Standards.

1. For development within the *hillside development areas*, the height of *structures* shall be determined by the following three (3) sub-sections and not by the *zoning district* regulations that apply to *lots* or *parcels* outside the *hillside development area*.
 - a. The height of a *building* or *structure* is limited to a twenty-four foot (24') imaginary plane that parallels the existing pre-development natural *grade*, as measured vertically from any point under the *building* (see **Figure 1** below). The subterranean portion of the *structure* is not included in the total height calculation provided that at least half (½) of the volume of the subterranean portion of the *structure* is below natural *grade*.

Figure 104-2a – Building height in Hillside Development



- b. In the case where the natural *grade* has been *cut* and is not restored back against the *building*, no exposed face in any vertical plane shall exceed a twenty-four (24') foot height measured from the lowest, finished *grade*.
- c. The maximum overall height of the *building* or *structure*, including chimneys and *accessory structures*, shall not exceed forty feet (40') from the highest point of the *building* to natural *grade* at the lowest point *adjacent* to the *building structure* or column (see **FIGURE 1** above).

Section 104-2.9 Archeological or Cultural resources

A. Development Standards and Construction Process

1. Any *developer* whose land has been identified as requiring an archaeological assessment shall adhere to the following standards and procedures:
 - a. An archaeological assessment and survey shall be performed by a qualified archaeologist before any grading or other ground modification takes place. If cultural features or remains are found, testing and data recovery shall be completed as per Arizona Revised Statutes.
 - b. *Landowner(s)* must enter into an agreement to ensure the proper method for conserving or repatriating any remains and/or artifacts founds at the site.
 - c. Copies of final clearance reports from the State Historic Preservation Office (SHPO) shall be submitted to the City prior to construction work commencing.
2. In the event evidence of a significant historic, pre-historic or archeological nature is unearthed during construction on a site proposed for development, all work on the site shall be halted immediately, and the appropriate state agency (i.e. Arizona State Museum (ASM), SHPO) shall be contacted, additionally a professional archeologist shall be retained by the *developer* to confirm or deny the evidence, as well as the extent of land coverage of the find.
3. In the event evidence that is unearthed is determined to be of archeological significance, the *developer* shall be required to make arrangements to either remove the archeological find from the site using acceptable archeological standards and practices, or restore the site to its original condition and set aside the area as *open space*. Documentation of the ASM or SHPO and the archeologist's findings and recommendations shall be submitted to the City.
4. If during construction, human remains and associated burial items are discovered, ground disturbing activities in the vicinity of the discovery shall cease, the discovery site shall be secured, and the Arizona State Museum shall be immediately notified as required under Arizona Revised Statutes.
5. As indicated by the *Environmental Inventory Plan* those areas deemed important as *cultural resource* sites shall be preserved as closely as possible in their natural state and integrated into the development in a

manner that makes such land areas part of the development's overall *community open space system*.

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ARTICLE 3 – STORMWATER MANAGEMENT

104-3.1 Purpose of Provisions.

- A. The area of the City south and west of Grand Avenue prior to urban development was predominantly irrigated *farms*. Presently there are two (2) major systems for conveyance of stormwater to the Agua Fria River via drainage channels located along the west side of Reems Rd and the Loop 303. Understanding these drainage patterns necessitates special attention in order to control stormwater collection and *retention*.

104-3.2 Applicability.

- A. Each subdivision shall provide storm drainage facilities and appurtenances as required by the engineering development standards; as well as by all current City storm drainage master plans, design criteria, and construction standards and requirements.
- B. All required storm drainage *infrastructure* shall be constructed and in place and available to serve the new development in accordance with an approved storm drainage master plan, an erosion control report, and utility plans.
- C. For projects involving the issuance of only one (1) *building permit* and certificate of occupancy, the installation and acceptance of the certification of the drainage facilities shall be required prior to the issuance of the certificate of occupancy.

104-3.3 Plan and Report.

- A. Conceptual stormwater collection and *retention* plans shall be submitted with a *preliminary plat* or site development plan and approved prior to the approval of such *plat* or plan. The plan shall include, but not be limited to, the following:
 - 1. Method of collection (surface and/or subsurface);
 - 2. Depth, side slopes and area of *retention*;
 - 3. Calculations of volume held and required;
 - 4. High water elevation;
 - 5. Method of disposal of water within 36 hours;
 - 6. Any other data to form a complete plan.
- B. A final drainage report must be submitted with the final plans showing compliance with the conceptual drainage plan, and shall be received and approved by the City engineer.

104-3.4 Development Regulations.

- A. All water from a 100-year storm of a two-hour duration which falls within the area being developed, including the respective one-half (1/2) of all *abutting streets* (whether or not it is a dedicated *street* which may exist by an improvement district and owned by the City), shall be retained within the boundaries of the developed land. No *retention* shall be allowed in public *rights-of-way*. The method of collection and *retention* shall be approved by the department of public works. The method of *retention* calculation, drainage flows and removal of stormwater within thirty-six (36) hours shall conform to **Section 104-3.5**.
- B. Two or more *developers* are encouraged to join together to provide a common *retention* facility. A letter of agreement signed by all *developers* participating in the common *retention area* must be presented to the department of public works, and the *recorded plat* shall indicate that the *retention area* is a joint facility. The joint *retention area* must meet all criteria as a single area.
- C. All *retention* basins shall have a design capacity to preclude a water depth in excess of three feet resulting from a 100-year, two-hour storm. The depth of *retention* basins shall be measured from the lowest *adjacent* top of the curb. In no event shall stormwater stand in the *retention* basins longer than thirty-six (36) hours. Drywells shall be required for any depth of *retention* in excess of one foot (1') and for *retention* basins that have a volume greater than one thousand cubic feet (1,000 f³). Basin bottom percolation shall not be *used* to reduce the volume *used* for drywell requirement calculations. Bleed-off pipes are not allowed.
- D. No *retention* basins will be controlled or owned by the City unless dedicated as part of the City's *park and community open space system*. Non-dedicated *retention* basins shall be maintained by the *owner*. All non-dedicated *retention* basin areas shall be designated as easement areas for *retention* purposes and shall have a recorded restrictive covenant requiring perpetual maintenance.
- E. Curbed *local streets* shall be designed and constructed to carry the stormwater runoff from a ten-year storm between curbs. Curbed collector and *arterial streets* shall be designed and constructed with no curb overtopping and to maintain one (1) dry twelve-foot (12') minimum driving lane in each direction. No inverted crown *streets*, of any type, shall be permitted. When peak flows from the designated storm exceed the *street* capacity, open area drainage and *retention* systems shall be designed to carry the excess stormwater. The rational methods shall be *used* to determine peak flows. Fifteen minutes maximum may be *used* for the time of concentration for the runoff across the *lots*.
- F. Peak flows from a 50-year storm shall be carried within the cross section between *buildings* (*front setbacks* and *streets*). The finish floor elevation of all *buildings* shall be above the 100-year storm. All finished floors shall be a

minimum elevation of 14 inches above the low outfall of the site according to the Surprise Development Directives.

- G. For nonresidential areas the required landscaping areas within the parking *lots* may serve as *retention areas* utilizing LID methods to convey storm water to these areas. In residential areas the *parking areas* may not hold *retention* volume.
- H. The City shall not be responsible for the design, performance, operation or maintenance of the *retention* basin.
- I. The property *owner* of a single *lot* of one acre (1 ac) or smaller will be excluded from the requirements to provide on-site *retention*.

104-3.5 Retention Calculations, Drainage Flows, and Dry Wells.

- A. Formula. *Retention* calculation shall be submitted as follows:

Total volume required = (intensity for the 100-year, two-hour storm event from the Drainage Design Manual for Maricopa County, Volume I, and Surprise Development Directives) × (drainage area) × (average runoff coefficient)
- B. Runoff factors. The runoff factor *used* in computations must be justified by a typical cross section or actual area calculation. Refer to the Drainage Design Manual for Maricopa County to determine the runoff coefficients.
- C. Dry wells. Infiltration into the dry well cannot be considered to reduce the size of the *retention area*. The property *owner* of record shall be responsible for the design, performance, operation or maintenance of dry wells *used* with on-site *retention*. A dry well maintenance program shall be submitted for each dry well and documentation of maintenance performed on each dry well shall be submitted to the City engineer on an annual basis. A percolation rate of 0.5 cfs (or less, if required by the City engineer) per drywell over a 36-hour period shall be *used* in calculating the number of drywells.

104-3.6 Right of City to Drain Basin.

- A. It is unlawful for any person owning or controlling a *retention* basin to permit stormwater to stand therein longer than thirty-six (36) hours. In addition to any penalty provided by law, should the person owning or controlling any privately owned and maintained basin fail, neglect or refuse to drain said *retention* basin within thirty-six (36) hours, as required in **Section 104-3.4**, it shall be the right of the City upon the authorization of the water services director, or appointed designee, to enter upon the privately owned *retention* basin property and take such action as may reasonably be necessary to drain said basin. The draining of

said basin shall be at the expense of the property *owner* of record or person controlling such property.

104-3.7 Assessment of Costs for Drainage.

- A. Upon completion of the work, public works director or designee shall prepare or cause to be prepared, a verified statement of account of the actual cost of draining of said basin, the date the work was completed, and the *street* address and the legal description of the property on which said work was done, including five percent for inspection and other incidental costs in connection therewith and shall serve a duplicate copy of such verified statement upon the property *owner* of record or person controlling such property in the manner prescribed in **Section 104-3.9**.

104-3.8 Appeal to Council.

- A. The property *owner* of record or person controlling such property shall have 30 days from the date of service upon him of the assessment to appeal in writing to the council from the amount of the assessment as contained in the verified statement. If an appeal is not filed with the City council within such 30-day period, the amount of the assessment, as determined by the public works director, shall become final and binding. If an appeal is taken, the council shall, at its next regular meeting, hear and determine the appeal and may affirm the amount of the assessment, modify the amount thereof, or determine that no assessment at all shall be made. The decision of the council shall be final and binding on all *persons*.

104-3.9 Service of Notice.

- A. Notice shall be personally served on the *owner* or person controlling such property in the manner provided in rule 4(d) of the Arizona Rules of Civil Procedure, or mailed to the *owner* or person controlling such property at his last known address by certified or registered mail, or the address to which the tax bills for the property were last mailed. If the *owner* does not reside on such property, a duplicate notice shall also be sent to him by certified or registered mail at his last known address.

104-3.10 Lien for Drainage of Basin.

- A. If no appeal is taken from the amount of the assessment, or if an appeal is taken and the council has affirmed or modified the amount of the assessment, the

original assessment or the assessment as so modified shall be recorded in the *office* of the county recorder and, from the date of its recording, shall be a lien on the *lot* or tract of land until paid. Such liens shall be subject to and inferior to the lien for general taxes and to all prior recorded mortgages and encumbrances of record. A sale of the property to satisfy a lien obtained under the provisions of this section shall be made upon judgment of foreclosure or order of sale. The City shall have the right to bring an action to enforce the lien in a court of competent jurisdiction at any time after the recording of the assessment, but failure to enforce the lien by such action shall not affect its validity. The recorded assessment shall be prima facie evidence of the truth of all matters recited therein, and of the regularity of all proceedings prior to the recording thereof. A prior assessment for the purposes provided in this section shall not be a bar to a subsequent assessment for such purposes, and any number of liens on the same *lot* or tract of land may be enforced in the same action.

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ARTICLE 4 – NATIONAL FLOOD INSURANCE PROGRAM (NFIP)

104-4.1 Floodplain Administrator.

- A. The City of Surprise elects not to assume the responsibility of *floodplain* management from the flood control district of Maricopa County as provided for in A.R.S. §§ 48-3609; 48-3610. The City engineer is designated as the NFIP [National Flood Insurance Program] Floodplain Administrator for the City, is responsible for coordinating with the Flood Control District of Maricopa County, and will serve as the community point of contact on NFIP issues for county, state and federal officials.

104-4.2 Flood Insurance Studies Adopted by Reference.

- A. Those public records entitled "Flood Insurance Study for Maricopa County, Arizona and Incorporated Areas" dated October 16, 2013 with accompanying FIRMs dated October 16, 2013 and all subsequent *amendments* and/or revisions, copies of which shall be kept on file in the *office* of the City clerk, are hereby adopted by reference as the basis for establishing the special flood hazard areas in the City of Surprise. The special flood hazard areas documented in the FIS and FIRMs are the minimum area of applicability of the *floodplain* management regulations and may be supplemented by studies for other areas as allowed in the regulations.

104-4.3 Floodplain Regulations Adopted by Reference.

- A. That public record designated as the "*Floodplain* Regulations for Maricopa County" dated June 25, 2014 and all subsequent *amendments* and/or revisions, copies of which shall be kept on file in the *office* of the City clerk, is hereby adopted as the legal basis for implementing *floodplain* management in this community.