CHAPTER 1

PURPOSE; JURISDICTION; DEFINITIONS

SECTION:

12-1-1: Purpose
12-1-2: Authority
12-1-3: Jurisdiction
12-1-4: Definitions

12-1-1: **PURPOSE:**

A. The subdivision of land is the first step in the process of urban development. The arrangement of land parcels in the community for residential, commercial, and industrial uses and for streets, alleys, schools, parks and other public purposes will determine, to a large degree, the conditions of health, safety, economy, and amenity that prevail in the urban area. The quality of these conditions is of the public interest. These regulations and standards for the subdivision and improvement of land for urban use are to make provisions for adequate light, air, open space, drainage, transportation, public utilities and other needs, to ensure the development and maintenance of a healthy, attractive and efficient community that provides for the conservation and protection of its human and natural resources.

B. These regulations are designed, intended and should be administered in a manner to:

1. Implement the master plan.

2. Provide neighborhood conservation and prevent the development of slums and blight.

3. Harmoniously relate the development of the various tracts of land to the existing community and facilitate the future development of adjoining tracts.

4. Provide that the cost of improvements which primarily benefit the tract of land being developed be borne by the owners or developers of the tract, as provided in these regulations.

5. Provide the best possible design for the tract.

6. Resolve any differences of interest.

7. Establish adequate, accurate, and accessible records of land subdivision.

8. Ensure a maximum effort for the protection of the manmade and natural environment and to encourage, in the development of land, the minimum adverse effect thereto. (Ord. 5157, 8-10-1981)

12-1-2: **AUTHORITY**: In order to promote the health, safety, and general welfare of present and future residents, and to bring about the coordinated, efficient, and economic development of the city, the following regulations for the subdividing and developing of land are adopted pursuant to all the powers and authority derived from the charter of the city. The exercise of the powers of subdivision regulation are intended to be in pursuance of this grant of authority and not under state statutes, except, with respect to those matters of general state concern as to which state law controls under the state constitution. The city also may exercise powers of subdivision regulation granted by the state in respect to matters of general state concern. (Ord. 5157, 8-10-1981)

12-1-3: **JURISDICTION:** These regulations shall apply to the following forms of subdividing and developing of land within the corporate limits of the city: (Ord. 5157, 8-10-1981; and. 2003 Code)

A. The dividing of land into two (2) or more tracts, lots, sites, or parcels, any part of which, when subdivided, shall contain five (5) acres or less in area; or

B. The redividing of land previously subdivided or platted into tracts, parcels, sites or lots, any part of which, when redivided, contains five (5) acres or less in area; or

C. The dedicating, vacating or reserving of any public or private easement through any tract of land regardless of the area involved, including those for use by public and private utility companies; or

D. The dedicating or reserving of any street or alley or any part thereof through any tract of land regardless of the area involved; or

E. "Planned unit development" as defined in section 11-2-2 and title 11, chapter 10 of this code; or

F. The development of any parcel of land classified by zoning districts as multi-family; or

G. Any commercial or industrial development. (Ord. 5157, 8-10-1981)

12-1-4: **DEFINITIONS:** For the purpose of these regulations, certain terms used herein are defined as follows:

ADVERSE IMPACT: As a result of development, any significant increase in peak flow rate or aerial extent of flood water coverage, a measurable decrease in floodplain storage volume, increased velocities and an increase in BFE for any frequency storm up to and including the 100 year (1%) event.

ALLEY: A minor right of way dedicated to public use, which gives a secondary means of vehicular access to the back or side of properties otherwise abutting a street, and which may be used for public utility purposes.

APPURTENANCES: Structures, devices, and appliances, other than pipe or conduit, which are an integral part of a stormwater drainage system, such as manholes, storm water inlets, drop structures, detention storage facilities, etc.,

APPLICANT: A person, partnership, corporation, or public agency requesting permission to engage in construction.

AS BUILT PLANS: A set of detailed documents to be submitted to the engineering department upon final completion of public improvements specifying how the public improvements required on the final plat were actually constructed.

BACKWATER: The water retarded above a dam, bridge, or culvert or backed up into a tributary by a flood in the main stream. In this Chapter, backwater is also defined as the rise in the flood water surface due to the restrictions created by the construction of a bridge.

BENCHMARK: A permanent reference mark or point established for use by surveyors in measuring differences in elevations.

BERM: A horizontal strip or shelf built into an embankment or cut, to break the continuity of an otherwise long slope, usually for the purpose of reducing erosion, improving stability, or to increase the thickness or width of cross section of an embankment.

BLOCK: A parcel of land, intended to be used for urban purposes, which is entirely surrounded by public streets, highways, railroad rights of way, public walks, parks or greenstrips, rural land or drainage channels or a combination thereof.

BOARD OF COMMISSIONERS: The board of commissioners of the city of Ponca City, Oklahoma.

BOND, SURETY PERFORMANCE: Any form of security including a cash deposit, surety bond, collateral, property, or instrument of credit in the amount and form

satisfactory to the board of commissioners.

BRIDGE: A hydraulic structure that is constructed with abutments and superstructures which are typically concrete, steel, or other materials. Bridges are generally constructed with earth or rock inverts. Since the superstructures are not an integral part of the abutments and could therefore potentially move, the hydraulic criteria for bridges are different than for culverts.

BUILDING LINE OR SETBACK LINE: A line or lines designating area outside of which buildings may not be erected.

BYPASS FLOW: The quantity of water which continues past an inlet.

CERTIFICATE OF OCCUPANCY: Official certification that a premises conforms to provisions of the regulations, ordinances, and codes of the city of Ponca City and, thus, may be used or occupied.

CERTIFICATE OF SURVEY: An instrument, prepared by a registered land surveyor, licensed to practice in Oklahoma, describing the location and boundaries of a tract or parcel of land.

CHANNEL: A natural or artificial watercourse of perceptible extent which periodically or continuously contains moving water, or which forms a connecting link between two bodies of water. It has a definite bed and banks which serve to confine the water. Also see Watercourse.

COEFFICIENT OF ROUGHNESS "N": A factor in the Manning formula, for computing the average velocity of flow of water in a watercourse or conduit, which represents the effect of roughness of the confining material of the watercourse or conduit upon the energy losses in the flowing water.

CONSTRUCTION: Any alteration of land for the purpose of achieving its development or changed use, including particularly any preparation for, building of, or erection of a drainage structure.

CONSTRUCTION PLANS: Drawings depicting the construction details of the City approved drainage facilities required for development.

CRITICAL FACILITIES:

1. Structures or facilities that produce, use, or store highly volatile, flammable, explosive, toxic and/or water reactive materials;

2. Hospitals, nursing homes, and housing likely to contain occupants who may not be sufficiently mobile to avoid death or injury during a flood;

3. Police stations, fire stations, vehicle and equipment storage facilities, and emergency

operations centers that are needed for flood response activities before, during, and after a flood; or

4. Public and private utility facilities that are vital to maintaining or restoring normal services to flooded areas before, during and after a flood.

CROSS FLOW: Flow across the traffic lanes of a street, as distinguished from sheet flow of water falling on the pavement surface.

DEVELOPER: Any person, persons, corporation, or other entity who in his or her own behalf, or as an agent of another, engages in development, subdivision, construction of structures, or alteration of land in preparation therefore.

DEVELOPMENT: Any man-made change to improved or unimproved real estate, including but not limited to buildings or other structures, mining, dredging, filling, grading, paving, berming, diking, excavating, or drilling operations.

DRAINAGE: A general term applied to the removal of surface or sub-surface water from a given area. The term is commonly applied herein to surface water.

DRAINAGE AREA: The geographical area drained by a river and its tributaries; an area characterized by all runoff being conveyed to the same outlet.

DRAINAGE FACILITIES: Any drainage and/or flood control structure including but not limited to storm inlets, storm sewers, manholes, junction boxes, outlet structures, channels, erosion control structures and devices, culverts, bridges, dams and detention reservoirs.

DRAINAGE SYSTEM: The surface and subsurface system for the removal of water from the land, including both the natural elements of streams, marshes, swales, and ponds whether of an intermittent or continuous nature, and the man-made element which includes culverts, ditches, channels, retention facilities, detention facilities, gutters, streets, and storm sewer systems.

DRAINAGEWAY: A route or watercourse along which water moves or may move to drain an area.

DRIPLINE: The periphery of the area underneath a tree which would be encompassed by perpendicular lines dropped from the farthest edges of the crown of the tree.

EASEMENT: A grant by the property owner to the public, a corporation, or persons, of the use of an area of land for specific purposes.

EROSION: Wearing away of the lands by running water and waves, abrasion and transportation.

ESCROW FUNDS: A deposit of cash with the city or approved bank or other financial institution in lieu of amount required on a performance or maintenance bond.

FLOODPLAIN REGULATIONS: The codes, ordinances, and other regulations relating to the use of land and construction in the floodplain. The term encompasses zoning ordinances, subdivision regulations, building and housing codes, encroachment line statues, open-area regulations, and other similar methods of control affecting the use and development of the areas. (See ordinance number 6104, Title 10, Chapter 10, Flood Damage Prevention Ordinance).

FREEBOARD: The vertical distance between the normal maximum level of the surface of the water in a channel, bridge, culvert or dam, etc., and the top of the, channel, bridge, culvert or dam.

FROUDE NUMBER: A flow parameter, which is a measure of the extent to which gravitational action affects the flow, computed as $F = V/(gD)^{0.5}$, where V is the velocity (ft/sec), g is the gravitational constant (32.2 ft/sec^2) and D is the flow depth (feet) A Froude number greater than 1 indicates supercritical flow and a value less than 1 indicates subcritical flow.

GRADE: The slope of a road, street, or other public way, specified in percentage terms of vertical to horizontal measurements; or the average elevation at ground level of the buildable site, i.e., the area conforming to all zoning setback requirements of a lot, tract or parcel of land.

IMPERVIOUS: A term applied to a material through which water cannot pass, or through which water passes with great difficulty. Surfaces of concrete, asphalt and roofing are considered impervious.

IMPROVEMENT PLANS: The maps or drawings accompanying a subdivision plat and showing the proposed location and design of improvements to be installed in the subdivision in accordance with the provisions of the regulations, ordinances, and codes of the City of Ponca City.

INTENSITY DURATION FREQUENCEY (IDF) CURVE: A graphed curve that expresses the intensity of a rainfall event during certain duration and the frequency of occurrence. The IDF curves are used with the Rational Method of hydrology

LANDSCAPE OPEN SPACE: That area within the boundaries of a given lot which is devoted to and consists of plant material, including, but not limited to, grass, trees, shrubs, flowers, vines and other ground cover, native plant materials, planters, brick, stone, natural forms, water forms, aggregate and other landscape features, but not including the use of smooth concrete or asphalt; provided, however, that the use of brick, stone, aggregate, or other inorganic materials shall not predominate over the use of organic plant material.

LANDSCAPE SCREENING: Screening is the use of landscaping (other than grass on flat terrain), or the use of landscaping along with berms, walls, or decorative fences, that at least partially and periodically obstruct the view from the street, in a continuous manner, of vehicular use areas, parking lots and their parked cars, and detention ponds.

LETTER OF CREDIT: A letter from a bank or other reputable creditor that guarantees to the board of commissioners that, upon the city's request, funds will be provided to the city to complete specified improvements within a required time period.

LOT: A subdivision of a block or other parcel intended as a unit for the transfer of ownership or for development.

LOT, CORNER: A lot located at the intersection of and abutting on two (2) or more streets.

LOT, DOUBLE FRONTAGE: A lot which runs through a block from street to street and which has frontage on two (2) or more streets.

LOT LINE ADJUSTMENT: A relocation of lot lines of two (2) or more lots included in a plat filed of record, for the purpose of making necessary adjustments to building sites.

LOT OF RECORD: A lot which is a part of an approved plat or metes and bounds subdivision, the map of which has been recorded in the office of the appropriate county clerk.

LOT, REVERSE FRONTAGE: A corner lot of such size and shape that a building erected on it might logically be designed to face either adjoining street, thus causing the building to rear on the side line of any abutting lot.

MANHOLE: A structure used in storm sewer line construction or an access hole usually with a flush cover, through which a person may pass to gain access to an underground or enclosed structure or storm sewer line.

MASTER PLAN: An official public document adopted by the board of commissioners as a policy guide for the future physical development of Ponca City.

NATURAL STATE: The cover and topography of land before any development.

PLANNING COMMISSION: The city planning commission of the city of Ponca City.

PLAT, FINAL: A map of a land subdivision prepared on a form suitable for filing in the office of the county clerk with necessary affidavits, dedications and acceptances, and with complete bearings and dimensions of all lines defining lots and blocks, streets, alleys, public areas and other dimensions of land.

PLAT, PRELIMINARY: A map or maps of a proposed land subdivision meeting the requirements herein enumerated and showing the character and proposed layout of the tract in sufficient detail to indicate the suitability of the proposed subdivision to be submitted to the planning commission for consideration and approval.

PLAT, SKETCH: A sketch or informal plan prepared prior to preparation of the preliminary plat showing in general the proposed design of the subdivision including the street layout, lots, blocks, and the nature of improvements to be reviewed during the preapplication review process.

PREAPPLICATION REVIEW: An initial and informal review of a subdivision or development proposal between the developer and the technical review committee prior to formal submission of the preliminary plat.

PUBLIC IMPROVEMENT: Any drainage ditch, roadway, parkway, sidewalk, pedestrian way, tree, lawn, off street parking area, lot improvements, or other facility for which the local government may ultimately assume the responsibility for maintenance and operation, or which may effect an improvement for which local government responsibility is established.

RIGHT OF WAY: A strip of land occupied or intended to be occupied by a street, crosswalk, railroad, road, electric transmission line, oil or gas pipeline, water main, sanitary or storm sewer main, or for another special use. The usage of the term "right of way" for land platting purposes shall mean that every right of way shall be dedicated to the public, and shown on a final plat to be separate and distinct from the lots or parcels adjoining such right of way, and not included within the dimensions or areas of such lots or parcels.

RIPRAP: Broken stones or boulders placed compactly or irregularly on dams, levees, ditches, dikes, channels, etc., for protection of earth surfaces against erosion.

RUNOFF COEFFICIENT: A decimal number used in the Rational Formula which defines the runoff characteristics of the drainage area under consideration.

SCREENING: Decorative fencing, walk, evergreen vegetation or landscaped earth berms not to exceed six feet (6') nor be less than four feet (4') in height; maintained for the purpose of concealing from view the property or structure behind such fence, evergreen vegetation, or berm which is sought to be screened from the abutting property.

SCOUR: The erosive action of running water in streams or channels in excavating and carrying away material from the bed and banks.

SEDIMENT: Material of soil and rock origin transported, carried, or deposited by water.

SETBACK: The distance required, as set forth in title 11 of this code, between structures and a lot line measured perpendicularly in a horizontal plane extending across the

complete length of said line or lines.

SITE DEVELOPMENT PLAN: A plan drawn at a scale of not less than one inch equals one hundred feet (1" = 100'), which shows the topographic characteristics of the site at a contour interval of not less than two feet (2'); the location and dimensions of buildings, yards, courts, landscape, pedestrian and vehicular circulation and parking, fences and screening; service areas and service courts, and other features; the use of each building and area; the height of buildings; adjacent streets, alleys, utility, drainage, and other easements; and the relationship of the development to adjacent areas which it may affect.

SPILLWAY: A passageway in or about a dam or other hydraulic structures, for the escape of excess water.

STILLING BASIN: A basin or reservoir installed in a storm drainage system to retard velocity, causing sedimentation and providing storage for deposited solids.

STORM SEWER: A continuous closed conduit for conducting storm water that has been collected by inlets or collected by other means. A storm sewer system is a system of inlets, pipes, manholes, junctions, outlets, and other appurtenant structures designed to collect and convey storm runoff to a defined drainageway

STORMWATER DETENTION: A temporary storage of a determined quantity of storm water runoff for a specified period of time with a release rate that is either fixed or variable, the purpose being to attenuate the peak of the inflow hydrograph.

STORMWATER MASTER PLAN: The city-wide Ponca City Stormwater Master Plan as adopted by the City Commission.

STORMWATER POLLUTION: The result of rainwater or snowmelt that picks up pollutants and sediments as it runs off roads, highways, parking lots, lawns, agricultural lands, septic systems, and other land-use activities that can generate pollutants.

STREET: Any public or private right of way which affords the primary means of access to abutting property.

> Collector Street: A street which collects traffic from "local streets" as herein defined and serves to move traffic on the most direct route from residential neighborhoods, commercial, and industrial areas to the major street system or to a community facility such as a neighborhood shopping center, park, recreation area, or school. A collector street differs from a major street in that facilities on the collector system may penetrate residential neighborhoods, distributing traffic from the major streets through the area to the ultimate destination.
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> Cul-De-Sac Street: A local street having one end open to vehicular traffic and having one closed end terminated by a turnaround.

Frontage or Service Street: A street auxiliary to and located adjacent to a major street for service to abutting properties and access to adjacent areas and for allowing control of access to the major street.

Local Street: A major street which collects and distributes traffic between parcels of land and collector or arterial streets, with the principal purpose to provide access to abutting property. A local street offers the lowest level of mobility; and service to through traffic movement is deliberately discouraged.

Primary Or Principal Arterial Street: A major street and/or highway intended to move through traffic to and from major centers of activity such as central business districts, regional shopping centers, and major industrial areas. These streets should serve as a corridor system for the highest traffic volumes, the longest trip design and the major portion of all travel. For this class of facilities, the concept of service to abutting land should be subordinate to the provision of travel service to major traffic movements and any such service should be purely incidental to its primary functional responsibility.

Secondary Arterial Street: A major street which should interconnect with and augment the primary arterial system and provide service to trips of moderate length at a somewhat lower level of travel mobility than the higher system. This class of facilities places more emphasis on land accessibility and distributes traffic to smaller geographic areas than the major activity centers identified with the primary arterial streets.

STREET FLOW: The total flow of storm runoff in a street, usually being the sum of the gutter flows on each side of the street. Also the total flow where there are not curbs and gutters.

STREET YARD: The area of a lot which lies between the street right of way line and the actual front wall line of the building, as such building wall line extends from the outward corners of the building, parallel to the street, until such imaginary extensions of such front building wall line intersect the side property lines. In determining the actual building wall of the building for the purposes of this definition, steps and unenclosed porches shall be excluded, but such building wall line shall follow and include the irregular indentions of the building. A front building wall is a building wall fronting on a street.

On corner lots, the street yard shall consist of all the area of such lot between all abutting street right of way lines and their corresponding actual front building wall lines, as such lines are imaginarily extended in the manner provided above.

When there are multiple buildings on a lot, the street yard shall consist of all the area of the lot between the street right of way line and an imaginary line beginning at one side of the property line, running parallel to the street, connecting to the front most corner of the building wall fronting the street and nearest such side property line, then following and connecting the front most

walls of all buildings fronting on the street, and then extending to the other side property line, running parallel to the street. If a building has a rounded front, the front building wall corners shall be the points closest to the side boundaries. Isolated buildings (e.g., fast food restaurants in a shopping center, photo processing drop-offs, bank drive throughs, gas stations, etc.) shall not be considered in delineating the street yard.

On land used only for parking purposes or only as a commercial or private parking lot, the street yard shall consist of the area between the street right of way line and the back property line.

SUBDIVIDER (DEVELOPER): Any person, firm, partnership, corporation, or other entity acting as a unit, subdividing or proposing to subdivide land as herein defined.

SUBDIVISION: Any division, redivision, or delineation of land into two (2) or more lots, parcels, tracts, or sites, any one of which when divided has an area of five (5) acres or less for the purpose of transfer of ownership or urban development; or any division of land involving the vacation or dedication of right of way or alignment of an existing or proposed street or highway or any public utility easement, or the resubdivision of land heretofore divided into lots, sites, or parcels. The term, when appropriate to the context, also shall relate to the process of subdividing or to the land or area subdivided.

SUBDIVISION, MINOR: Any subdivision, resubdivision, alteration reorganization or division of land, which shall contain not more than three (3) lots and further shall not adversely affect the development of the remainder of the parcel or adjoining property and shall not be in conflict with any provision or portion of title 11 of this code.

TECHNICAL REVIEW PROCESS: An administrative procedure which provides technical review services to the planning commission in the administration of these regulations.

TECHNICAL REVIEW REPORT: An official document summarizing the findings of the departments, agencies, and commissions participating in the technical review process. (Ord. 5157, 8-10-1981; and. 2003 Code)

Chapter 2

GENERAL PROVISIONS

SECTION:

12-2-1: Plat Approval
12-2-2: Relation To Zoning
12-2-3: Official Recording
12-2-4: Agenda
12-2-5: Filing Fee
12-2-6: Issuance Of Permits
12-2-7: Exemptions

12-2-1: **PLAT APPROVAL:** For all cases of subdividing and development, except minor subdivisions, within the scope of these regulations, a preliminary and a final plat of the land in question shall be drawn and submitted to the planning commission and a final plat of the land in question shall be submitted to the board of commissioners for their approval or disapproval as provided in these regulations. (Ord. 5157, 8-10-1981)

12-2-2: **RELATION TO ZONING:** In order to provide adequate information for evaluation and decision by the planning commission and board of commissioners, and to provide documentation of intent for public record, the following requirements are mandatory:

A. A rezoning request which includes any amount of unplatted land shall be accompanied by a preliminary plat of the land in question, and any adjacent land which is fifty percent (50%) or more owned, or under option to buy, by the applicant; provided, however, that any land for which a plat is not required as a prerequisite for a building permit is exempted from this requirement. The preliminary plat shall be submitted for consideration as an agenda item before the planning commission and the board of commissioners simultaneously with the rezoning request.

B. In the instance of proposed planned unit developments, as provided in title 11, chapter 10 of this code, five (5) copies of a site development plan shall also be included with the submission of the preliminary plat when application for rezoning or PUD designation is made for planning commission and board of commissioners approval.

C. Provided that no final plat may be considered for acceptance by the planning commission or the board of commissioners until proper zoning is approved by the board of commissioners regarding the subject property. (Ord. 5157, 8-10-1981)

12-2-3: **OFFICIAL RECORDING:** No plat or other subdivision instrument shall be filed in the office of the Kay County clerk until it shall have been approved by the board of commissioners as hereinafter set forth. Upon filing the plat, the applicant shall return one certified copy of reproducible Mylar, together with book and page number of the recorded plat to the Ponca City engineering department within thirty (30) days. No improvements shall take place nor permits issued until said reproducible Mylar is received by the city engineering department. (Ord. 5157, 8-10-1981)

12-2-4: **AGENDA:** Each plat submitted for preliminary or final approval shall be placed on the agenda of the planning commission only after fulfilling the appropriate requirements of these regulations. However, a plat not meeting all of the requirements may be submitted if the subdivider presents with the plat a written request for specific exceptions and enumerates in detail the reasons therefor. (Ord. 5157, 8-10-1981)

12-2-5: **FILING FEE:** To defray partially the costs of public notifications, field studies, special studies, and administration procedures and review, there shall be paid a filing fee to the city clerk at the time of submission in accord with the following:

A. Preliminary Plat: Fees shall be as set by resolution of the board of commissioners from time to time.

B. Final Plat: Fees shall be as set by resolution of the board of commissioners from time to time. Where only a portion of an approved preliminary plat is submitted for final platting, a final plat of the remaining area may be submitted at any time within five (5) years of the preliminary approval without payment of an additional plat filing fee by the subdivider if, in the opinion of the technical review committee, the final plat for the additional area conforms substantially with the approved preliminary plat. In any instance where a final plat includes a rerouting of a collector street or an arterial street, a change in relationship between uses of land, or a request for a change of specific elements of the preliminary plat, then the preliminary plat reflecting said change shall have to be resubmitted and reviewed, and the subdivider shall pay a full preliminary plat filing fee on that part of the preliminary plat not previously filed of record as a final plat. (Ord. 5157, 8-10-1981; and. 2003 Code)

12-2-6: **ISSUANCE OF PERMITS:** No building permit or certificate of occupancy shall be issued for any parcel or plat of land which is not in conformity with the provisions of these regulations. (Ord. 5157, 8-10-1981)

12-2-7: EXEMPTIONS:

A. Generally: Whenever there is a tract or previously subdivided parcel under single ownership which is to be resubdivided into three (3) or fewer lots, the proposed subdivision may be exempt from the procedural provisions of these regulations, and a preliminary and final plat may not be required; but this shall not constitute an exemption from any of the design requirements herein contained.

B. Minor Subdivisions: Exemptions which shall be designated as "minor subdivisions" shall be permitted under the following procedures:

1. An accurate survey prepared by a land surveyor registered in the state of Oklahoma shall be submitted of the proposed tract, and the resubdivision thereof shall be submitted to the city engineer or his designated representative.

2. The technical review committee shall review the proposed minor subdivision to ensure compliance with all design and improvement requirements of these regulations and shall prepare a written report thereof, which shall be forwarded to the planning commission in not more than twenty (20) days after receipt of the application for a minor subdivision, for consideration at the next regular meeting of the planning commission. If the application is approved by the planning commission, it shall be certified by the signature of the chairman of the planning commission and attested by the secretary and forwarded to the board of commissioners for approval. If the application is denied, the reasons for denial shall be stated in writing with reference made to the express provision of the regulations to which the proposed minor subdivision does not conform and shall be transmitted to the applicant. Any disapproved request may be appealed to the board of commissioners. Whenever a deviation is required from the improvement requirements contained herein, or a street or other element is to be dedicated, the action of the planning commission shall be forwarded to the board of commissioners for its approval and acceptance of dedications.

C. Lot Line Adjustments: The purpose of this subsection is to allow adjustments to be made to lot lines of platted lots for the purpose of adjusting the size of building sites; however, it is not intended that extensive replatting be accomplished by use of this subsection. Exceptions to these regulations designated as lot line adjustments shall not violate any of the provisions of these regulations as to requirements for design or

improvements and shall constitute only procedural exceptions as herein stated. Requirements for exceptions shall meet the following stated conditions:

1. No additional lot shall be created by any lot line adjustment.

2. No lot line adjustments shall be allowed unless all required off site improvements are either completed and accepted by the city or their construction is secured under applicable sections of these regulations.

3. All proposed residential dwelling sites contained in a proposed lot line adjustment shall have a width at the front building line which is equal to or greater than the narrowest width lot, measured at the front building line, which fronts on the same street as said proposed dwelling site and which is located within the same block, or is across the street from the same block, in which said dwelling site is located. However, this subsection shall not be interpreted to deny eligibility for lot line adjustment exceptions which meet all other criteria of these regulations or are located on a cul-de-sac.

4. All proposed parcels of building sites involved in a lot line adjustment shall abut on either an existing alley or adequate utility drive easement and on a public street.

5. Unusable parcels shall not be created as a result of any lot line adjustment.

6. The technical review committee may approve or disapprove a lot line adjustment request. Any disapproved request may be appealed to the planning commission and subsequently to the board of commissioners. (Ord. 5157, 8-10-1981)

Chapter 3
DESIGN STANDARDS

12-3-1: GENERAL STATEMENT:

The quality of design of the urban area is dependent on the quality of design of the individual subdivisions that compose it. Good community design requires the coordination of the efforts of each subdivider and developer of land within the urban area. Therefore, the design of each subdivision shall be prepared in accordance with the design principles hereinafter established. (For further detailed design criteria and specifications, consult appendix A attached to ordinance 5157 on file in the office of the city clerk.) (Ord. 5157, 8-10-1981; and. 2003 Code)

12-3-2: STREETS:

A. Specifications and Requirements: It is the intent of this section that all lots and blocks provided in a subdivision abut on a street adequate to accommodate all traffic generated, in a reasonable and safe manner. The arrangement, character, extent, width, grade and location of all streets shall be designed in accordance with the following provisions:

1. Wherever topography permits, the arrangement of streets in a subdivision shall provide for the alignment and continuation or projection of existing streets into adjoining areas especially when such continuation is deemed necessary for convenient movement of traffic, for effective fire protection, and for efficient provision of utilities. Existing streets shall be continued at the same or greater width. Each subdivision shall provide for the continuation of all streets and highways as shown on the Ponca City area transportation plan.

2. Proposed streets shall extend to the boundary lines of the tract to be subdivided, unless prevented by topography or other physical conditions, or unless, in the opinion of the planning commission and the board of commissioners, such extension is not necessary or desirable for coordination with existing layouts, or the most advantageous for future development of adjacent tracts.

3. Where the plat to be submitted includes only part of the tract owned or intended for development by the subdivider, a tentative plan of a proposed future street system for the unsubdivided portion shall be prepared and submitted by the subdivider at the preapplication stage or the preliminary plat stage.

4. The arrangement of streets shall be such as to cause no undue hardship either on a subdivider or in the subdividing of adjacent properties. The dedication of street rights of way to facilitate the development of adjoining properties may be required.

5. If the adjacent property to a proposed subdivision or part of a subdivision is undeveloped and under separate ownership, and a street must be a dead end temporarily, the right of way shall be extended to the boundary of such subdivision. The developer

shall install barricades, as approved by the traffic engineering department, at such a temporary dead end, and said barricades shall be maintained by the city.

6. In the phasing of a final plat, a temporary turnabout may be required for such a street, or temporary stub streets may be permitted, depending on the anticipated traffic to be generated on the street; the sight distance between the entrance and the temporary termination of the street; the potential need for an adequate turnaround for service vehicles, fire trucks and ambulances; and the projected time span before continuing the construction of the remainder of the street. If a turnaround is not provided, barricades shall be installed and maintained by the developer as approved by the traffic engineering department.

7. Half streets shall not be dedicated where the other half of the street abuts unplatted land under separate ownership. Where a half street is adjacent to a tract to be subdivided and under the ownership of the subdivider, the remaining half of the street shall be platted within such tract.

8. Where a subdivision borders an existing road not constructed to city standards or when future plans indicate realignment or widening of an existing road that would require use of some of the land in the subdivision, the applicant shall dedicate the additional right of way. Land reserved for any road purposes shall not be counted in satisfying yard or area requirements of the zoning ordinance. Said land shall be either dedicated to the municipality in fee simple or in an easement.

9. When a tract is subdivided into larger than normal lots or parcels, such lots or parcels shall be arranged so as to permit the logical location and opening of future streets and appropriate resubdivision, with provision for adequate alleys or utility drive easements and connection for such resubdivision.

10. Reserve strips controlling access to streets shall be prohibited.

11. Whenever a subdivision abuts or contains an existing or proposed major street, the planning commission and the board of commissioners may require service streets, reverse frontage with limits of access and/or screening along the rear property line, deep lots in excess of minimum requirements set forth in title 11 of this code, and may limit the number of streets that open onto a major street, or such other treatment as may be deemed necessary for the protection of residential properties and standard separation of through and local traffic.

12. Commercial and industrial subdivisions or developments shall be designed so as to provide a minimum number of openings or accesses to a major street by means of an internal vehicular circulation system designed for such use, but the said developments shall not have access to residential streets in a manner that encourages or promotes the movement of traffic through a residential neighborhood which is not generated by the neighborhood.

13. In business and industrial developments, streets and other access ways shall consider the arrangement of building sites, the location of rail facilities, and the provision of alleys, of truck loading and maneuvering areas, of walks and of parking areas and shall avoid conflicting movement between the various types of traffic including pedestrian.

14. Where a subdivision borders on or contains a railroad right of way or limited access major street right of way, the planning commission may require a street approximately parallel to and on each side of such right of way at a distance suitable for the appropriate use of the intervening land. Such distances also shall be determined with due regard for the requirements of approach grades and future grade separation structures.

15. Local streets shall be laid out and designed to discourage use by through traffic; to conform to topography as much as possible; to permit efficient drainage and utility systems; and to require the minimum number of streets necessary for convenient and safe access to property.

16. Grades of streets shall conform as closely as possible to the original topography. If possible, all streets shall be arranged to provide building sites above the grade of the street, otherwise, adequate provisions for drainage must be made. A combination of steep grades and curves shall be avoided.

17. A cul-de-sac shall not exceed five hundred feet (500') in length, measured from the centerline of the intersecting street at the entrance of the cul-de-sac to the center of the turnaround, and shall be provided with a circular turnaround having a radius of not less than fifty feet (50') at the property line and not less than forty feet (40') at the back of the curb. To meet the needs of specific situations, this requirement may be changed by the planning commission, upon recommendation by the technical review committee, when topography or other limited factors make such changes necessary for securing the best overall design.

18. Streets shall intersect at approximately right angles (75 degree minimum). No more than two (2) streets shall intersect at any one point.

19. Street jogs and centerline offsets of less than one hundred fifty feet (150') shall not be permitted. In the case of two (2) collector street intersections, the centerline offset shall be two hundred feet (200').

20. No street names shall be used which will duplicate or be confused with that of existing streets unless obviously in alignment with such existing street. Street names shall be subject to approval at the preliminary plat stage by the technical review committee.

B. Paving And Right Of Way Width: In order to provide for roads of suitable location and width, and for improvements that accommodate prospective traffic; and to afford satisfactory access for police, firefighting, sanitation, and road maintenance equipment;

and to coordinate roads that create a convenient system and that avoid undue hardships upon adjoining properties, the following design standards for streets as set forth in table 1 are hereby required:

TABLE 1

Type Of Street	Paving Width (Back-Of-Curb To Back-Of-Curb)	R/W Width
Local	27 feet to 33 feet	60 feet
Collector	33 feet to 37 feet	70 feet
Arterial	49 feet	100 feet
Commercial and industrial	33 feet	70 feet

This table reflects minimum widths and depending on the type of land use involved, the terrain of the land, and the density of development these widths may be increased by the planning commission upon recommendation by the technical review committee. (Ord. 5157, 8-10-1981)

12-3-3: ALLEYS:

A. Commercial and Industrial Districts:

1. Alleys shall be provided in commercial and industrial districts and at the rear of all lots regardless of use frontage on a major street, unless provision is made for utility easements, emergency access and service access, such as off street loading, unloading, and parking consistent with and adequate for the uses proposed. Such action of the planning commission may be appealed to the board of commissioners. (Ord. 5157, 8-10-1981)

2. Alleys serving commercial and industrial areas shall not be less than twenty feet (20') in width and shall be paved the full width.

B. Multi-Family Districts: Alleys may be required in multi-family districts (R-2M and R-3) if such requirement is deemed to be necessary by the technical review committee and/or the planning commission for efficient solid waste collection, for more effective police and fire protection and for efficient provision and maintenance of utilities. Such action of the planning commission may be appealed to the board of commissioners. Alleys serving multi-family districts shall not be less than twenty feet (20') in width and shall be paved the full width. (Ord. 5157, 8-10-1981; and. 2003 Code)

C. One- And Two-Family Districts: Alleys are not required in one- and two-family residential (R-1, R-2) areas, but when provided in any residential district shall not be less than twenty feet (20') in width and paved not less than ten feet (10') of that width.

D. Intersections: Alley intersections and sharp changes in alignment shall be avoided, but where necessary, corners shall have a radius sufficient to permit safe vehicular movements, as determined by the public works department.

E. Dead-end Alleys: Dead-end alleys shall be avoided where possible, but if unavoidable, shall be provided with adequate turnaround facilities at the dead end, as determined by the public works department. (Ord. 5157, 8-10-1981)

12-3-4: ACCESS AND AVAILABILITY:

In the development of land in an urban area, whether according to traditional patterns or under a variation of planned unit development, adequate consideration shall be given to fire, sanitation, and police protection. Pursuant to this, the following guidelines are mandatory:

A. Dwelling Location: No dwelling unit shall be located more than four hundred feet (400'), measured from the extremity of the building, from an accessible street.

B. Entry Location: Each dwelling unit shall have an entry located not more than one hundred fifty feet (150') from a parking lot, private drive or public street, accessible and usable for emergency vehicles.

C. Fire Hydrants: All residential and commercial building fronts shall be serviced by fire hydrants so located such that the average spacing shall be three hundred fifty feet (350'). Any variance from this requirement shall be subject to approval by the fire department and the public utilities department. (Ord. 5157, 8-10-1981)

12-3-5: EASEMENTS:

A. Access to Utilities: The subdivider shall dedicate to the public appropriate easements and/or alleys to the end that each and every lot, piece, or parcel of land within a

subdivision shall have access to all available essential public utilities. (Ord. 5157, 8-10-1981)

B. Drive Easements: Where alleys are not provided, drive easements not less than ten feet (10') shall be provided along the rear of each lot for use by public and private utilities. Aerial easements and easements of greater width for either the extension of main storm and sanitary sewers and other utilities or the accommodation of utilities in unique situations such as, but not limited to, lots rearing onto unplatted land may be required where it is deemed necessary by the engineering department and the public utilities department. (Ord. 5157, 8-10-1981; and. 2003 Code)

C. Obstructions: Easements shall be maintained free of buildings, fences, appurtenances, or other structures which would prevent vehicular access for maintenance and service of utilities.

D. Surface Water Drainage: Where a subdivision is traversed by a watercourse, drainage channel or stream, there shall be provided a right of way or easement for drainage and public utility purposes, adequate to contain all runoff from a 100-year maximum flood as determined by the subdivider and approved by the engineering department. (Ord. 5157, 8-10-1981)

E. Width Of Easement: In all subdivisions, no easement shall be less than twenty feet (20') wide, except where located on side lot lines, in which case a total width of ten feet (10') may be allowed, subject to approval by the public works department and the public utilities department. In special cases smaller easements may be allowed subject to approval by the engineering department and the public utilities department. (Ord. 5157, 8-10-1981; and. 2003 Code)

12-3-6: BLOCKS:

A. Dimensions; Shape: The lengths, widths and shapes of blocks shall be determined with due regard to the following:

1. Provision of adequate building sites suitable to the special needs of the type of use contemplated.

2. Zoning requirements applicable to lot sizes and dimensions.

3. Needs for convenient access, circulation, control, and safety of street traffic.

4. Limitations and opportunities of topography.

B. Residential Use:

1. Blocks for residential use shall not be longer than one thousand five hundred feet (1,500'), measured along the centerline of the block. When a block exceeds seven hundred feet (700') in length, the planning commission may require a dedicated right of way not less than six feet (6') in width with a paved crosswalk not less than six feet (6') in width in the right of way to provide pedestrian access through the block.

2. Blocks used for residential purposes should be of sufficient width to allow for two (2) tiers of lots of appropriate depth, except where adjacent to major streets, limited access highways, railroads, waterways, or prevented by topographical conditions.

C. Business and Industrial Use: Blocks intended for business and industrial use should be of a width and depth suitable for the intended use, with due allowance for off street parking and loading facilities. (Ord. 5157, 8-10-1981)

12-3-7: LOTS:

A. Dimensions; Setback Lines: Lot dimensions and setback lines shall conform to the zoning regulations of the city.

B. Side Lot Lines: Side lot lines should be approximately at right angles or radial to street lines except for minor deviations on cul-de-sac or curvilinear streets.

C. Storm Drainage: Lot layouts shall provide positive drainage away from all buildings, and individual lot drainage shall reflect the general storm drainage pattern for the area.

D. Frontage: Double frontage and reverse frontage lots shall be avoided except where necessary to provide separation of residential development from major streets or to overcome disadvantages of topography.

E. Parking and Loading: Lots are not required for subdivisions for commercial and industrial use where a block is to be developed and retained under single ownership. However, when provided, lots should be of appropriate size and arrangement to provide for adequate off street parking and loading facilities based on the intended use, and such lots shall abut a public street, frontage or otherwise, on a minimum of one side. (Ord. 5157, 8-10-1981)

F. Sight Triangle: On any corner lot on which a front yard and exterior side yard are required, no wall, fence, sign, other structure, vehicle, or plant growth having a height in excess of three feet (3') above the elevation of the lowest point of the crown of the adjacent roadway shall be maintained in a triangle formed by measuring a distance of thirty feet (30') along both property lines from their point of intersection and connecting the points so established to form a triangle except, however, that a single pole eighteen inches (18") or less in diameter supporting a permitted sign, or a single tree trunk may be placed in a sight triangle; provided, that the bottom of the sign or lowest tree branch when mature is at least twelve feet (12') above the elevation of the lowest point of the crown of the adjacent roadway. (2003 Code)

12-3-8: BUILDING LINES:

A. Zoning Compliance: All building lines shall be established in accordance with zoning regulations of the city.

B. Restrictions Shown On Plat: Restrictions requiring buildings to be located within the building lines shown on the plat shall be set forth on the plat or on a separate instrument.

C. Setbacks: Setbacks on major streets existing or proposed shall be twenty five feet (25') from right of way line regardless of the proposed land use. (Ord. 5157, 8-10-1981)

12-3-9: SIDEWALKS:

A. Collector Streets: Sidewalks shall be constructed along both sides of all collector streets and arterial streets. This shall apply to any density or use within any zoning district of the city, except the agricultural district.

B. Local Streets: Sidewalks shall be constructed along both sides of local streets. The planning commission and the board of commissioners may have the option of waiving the aforementioned sidewalk requirement only on local residential streets within subdivisions with average gross densities of one dwelling unit per acre or less. (Ord. 5157, 8-10-1981)

12-3-10: PUBLIC AREAS AND OPEN SPACE:

Public parks, playgrounds, school sites, and other public areas and open spaces and public rights of way thereon shall be provided in accordance with the requirements and standards set forth in the policies and ordinances relating thereto. (Ord. 5157, 8-10-1981)

12-3-11: PLANNED UNIT DEVELOPMENTS:

Whenever a "planned unit development", as defined in title 11, chapter 10 of this code, is proposed for residential, commercial, or industrial use, the planning commission may vary the requirements of these subdivision regulations in accordance with said title 11 of this code in order to allow the subdivider more freedom in the design of the development, but at the same time protect the convenience, health, safety, and welfare of future residents of the development as well as the character of the surrounding property and the general welfare of the entire community. In no case however, shall the proposed design violate the requirements of title 11 of this code which regulates planned unit development, and in no instance shall this be construed in such a manner as to circumvent the requirement for adequate streets, easements, alleys, and other essential requirements of urban development. (Ord. 5157, 8-10-1981)

Chapter 4
IMPROVEMENTS

12-4-1: PURPOSE; COMPATIBILITY:

A. It is the purpose of this chapter to specify the nature of improvements which shall be required in conjunction with the subdividing and development of land; to identify the methods which will assure the city and the public that said required improvements will be accomplished; and further to prohibit the issuance of a building permit for construction within a recorded platted subdivision prior to completion and city acceptance of all required off site improvements within the subdivision. (For specific improvement construction specifications, refer to appendix A attached to ordinance 5157 on file in the office of the city clerk.)

B. The development plan for required off site improvements shall be approved by the city only after it is found that a proposed development, when considered in conjunction with the entire subdivision and the areas surrounding or adjacent to it, will contain public utilities and improvements which will be consistent, compatible, and homogeneous with, and will constitute logical and orderly extensions of, existing public improvements, as well as future improvements to be installed within and without the boundaries of the subdivision. (Ord. 5157, 8-10-1981)

12-4-2: IMPROVEMENT PLANS; APPROVAL REQUIRED:

A. Preparation Of Plans: Coincident with the submission of the final plat for consideration by the planning commission and prior to the installation and construction of the required off site improvements within any subdivision, plans and specifications therefore shall be prepared by a registered professional engineer and submitted to the city through the engineering department. That department shall, if warranted after the examination and inspection of said plans and specifications, submit to the planning commission and thereafter to the board of commissioners a report in writing stating, in its opinion, the plans and specifications comply with all current ordinances and standards applicable thereto. No installation or construction of any public utility or required off site improvement shall be commenced without approved plans and specifications and permission from the engineering department.

B. Submission: Plans for the off site improvements herein required shall be submitted for approval as follows:

Five (5) sets of plans and specifications for all required off site improvements shall be

filed with the city through the engineering department for final approval concurrent with the submission of the request for consideration of the final plat by the planning commission.

C. Time Limit for Completion: City approval of off site improvement plans for any required off site improvement or any part thereof is null and void two (2) years from the date of approval unless said off site improvements are under construction and will be completed within ninety (90) days. Plans for which approval has expired shall be resubmitted to the engineering department for review and current approval before any work is undertaken on the project and coincident with any consideration of the renewal of a corporate surety bond or other acceptable improvement guarantee associated therewith; provided, however, this shall not preclude the city from instituting a legal action to recover under said corporate surety bond or other improvement guarantee. (Ord. 5157, 8-10-1981)

12-4-3: SUPERVISION AND INSPECTION:

A. Compliance with Plans and Specifications: The subdivider shall be responsible for the construction of all subdivision improvements in accordance with the plans and specifications as submitted to, and approved by, the engineering department.

B. Notify City for Inspection: During various phases of construction of the subdivision improvements, the subdivider shall contact the engineering department for periodic inspection.

C. Noncompliance: Periodic inspections shall be conducted by the city to determine whether or not the improvements conform to the approved plans and specifications. In the event that the construction does not so conform thereto, the engineering department shall immediately notify the subdivider and, if necessary, the board of commissioners, so that proper and necessary action may be taken. (Ord. 5157, 8-10-1981)

12-4-4: BONDING:

A. Ensure Completion Of Improvements:

1. In lieu of completion of improvements prior to issuance of any building permit, the board of commissioners shall require the subdivider to file an improvement guarantee with the board of commissioners, through the city clerk and approved as to form by the

city attorney, to ensure the actual construction of improvements according to the plans and specifications approved by the city engineer. All improvements shall be completed within a period of time not to exceed two (2) years from the date of approval of the final plat by the board of commissioners.

2. The board of commissioners shall have the power to extend that deadline of one additional year where the subdivider can present valid reason for doing so. All improvement guarantees shall be one of the alternative forms listed below and shall be in the amount of one hundred twenty five percent (125%) of quantities necessary to construct the improvements as determined by the city engineer and with guarantee and conditions satisfactory to the board of commissioners. No building construction shall be permitted nor municipal utility service furnished on any lot which does not comply with the provisions of these regulations.

B. Alternative Forms of Improvement Guarantees:

1. Surety Performance Bond: The subdivider shall obtain a security bond from a surety bonding company authorized to do business in the state. The bond shall be payable to the city and shall be in the amount of one hundred twenty five percent (125%), as estimated by a registered engineer and approved by the city engineer, of completing all required improvements.

2. Escrow Account:

a. The subdivider shall deposit cash or other instrument readily convertible into cash at face value, either with the city, or in escrow with a bank. The use of any instrument other than cash, and, in the case of an escrow account, the bank with which the funds are to be deposited shall be subject to the approval of the board of commissioners. The amount of the deposit shall be one hundred twenty five percent (125%) of the cost, as estimated by a registered engineer and approved by the city engineer, of completing all required improvements.

b. In the case of an escrow account, the subdivider shall file with the board of commissioners, through the city clerk and approved as to form by the city attorney, an agreement between the financial bank and said subdivider guaranteeing the following:

(1) That the funds of said escrow account shall be held in trust until released by the board of commissioners and may not be used or pledged by the subdivider as security in any other matter during that period; and

(2) That in the case of a failure on the part of the subdivider to complete said improvements, then the bank shall immediately make the funds in said account available to the city for use in the completion of those improvements.

3. Letter Of Credit: The subdivider shall provide, from a bank or other reputable institution or individual, subject to the approval of the board of commissioners, a letter of credit. This letter of credit shall be deposited with the board of commissioners, through the city clerk, approved as to form by the city attorney, and shall certify the following:

a. That the creditor does guarantee funds in the amount of one hundred twenty five percent (125%) of the cost, as estimated by a registered engineer and approved by the city engineer, of completing all required improvements;

b. That, in the case of failure on the part of the subdivider to complete the specified improvements within the required time period, the creditor shall pay to the city, immediately, and without further action, such funds as are necessary to finance the completion of those improvements, up to the limit of credit stated in the letter; and

c. That this letter of credit may not be withdrawn, or reduced in amount, until released by the board of commissioners.

C. Delinquent Bond: In the event that the subdivider is the principal on any delinquent corporate surety bond, the obligations of which have not been fulfilled, said subdivider shall be required to provide as surety, cash or certificate of deposit for any improvement not installed and/or constructed by the subdivider prior to the filing of any other final plat.

D. Request Release From Guarantee: It shall be the responsibility of the subdivider posting any form of improvement guarantee to inform the city, through its engineering department, when his obligations under said guarantee have been fulfilled and to request release from the times and conditions of the posted improvement guarantee. The subdivider's obligation shall not be considered fulfilled until the board of commissioners has specifically released the subdivider from his obligation.

E. Certified Engineer's Estimate: Any construction surety, regardless of form, shall be accompanied by a certified engineer's estimate, prepared by a registered professional engineer licensed to practice in the state, certifying that the improvement guarantee amount is sufficient to cover one hundred twenty five percent (125%) of the current cost of constructing the guaranteed improvement.

F. Board of Commissioner's Action: If any portion of the required improvements shall fail to be accepted for dedication within the allocated time period, either for reasons of

incompletion or for reason of substandard construction, then the board of commissioners shall take the following action:

1. Where improvements have been guaranteed under the provisions of these regulations, the board of commissioners shall declare whatever security has been pledged as a guarantee to be forfeit.

2. Where the board of commissioners is not already in possession of said guarantee, it shall immediately take the actions necessary to obtain it. Upon receipt of these securities, the board of commissioners shall use them, or receipts from their sale if that be necessary, to finance the completion of required improvements or the rebuilding of such improvements to the proper specifications. Unused portions of these securities shall be returned to the subdivider, bonding company, or crediting institution, as is appropriate. (Ord. 5157, 8-10-1981)

12-4-5: COMPLETION AND CITY ACCEPTANCE:

A. Seek Acceptance: At such time as the subdivider has completed the installation and construction of all public utilities and improvements herein required within the subdivision, he may seek acceptance for all such improvements by the city.

B. Procedure: The procedure for consideration of acceptance of public improvements herein required shall be as follows:

1. The individual or legal entity responsible for causing public improvements to be constructed shall make written request through the engineering department that such public improvements be accepted by the city. Upon receipt of such notice, the engineering department and the public utilities department shall make a final inspection to determine whether or not the work is completed and does comply with the approved plans and specifications.

2. One set of reproducible as built plans and all required maintenance bonds shall be submitted in conjunction with said written request.

3. The project engineer shall submit a written statement indicating that the off site improvements have been constructed in accordance with the approved plans, that the as built plans are a true and accurate representation of said off site improvements, and that he recommends acceptance by the city.

4. The engineering department shall submit a written report to the city manager indicating the following:

a. That said public improvements either have or have not been constructed in compliance with approved plans and specifications and all requirements of this code;

b. That the as built plans either provide or do not provide a true and accurate representation of the public improvements; and

c. That all required maintenance bonds have been submitted and examined by the city attorney and either are or are not in order.

5. Upon the city manager's receipt of the written report from the engineering department, such report shall be submitted to the board of commissioners for their acceptance of the improvements and required maintenance bonds, and, where applicable, their release of the surety from liability under the subdivision bond where the provisions of said bond have been fully performed.

6. If the board of commissioners finds said public improvements and all associated requirements to be in compliance with this code, the improvements shall be accepted for maintenance as well as the required maintenance bonds therefore. (Ord. 5157, 8-10-1981)

12-4-6: MAINTENANCE AND SUPERVISION:

Where a subdivision contains sewers, sewage treatment facilities, water supply systems, parks and grounds held in common, or other physical facilities necessary or desirable for the welfare of the area, or that are of common use or benefit which are not or cannot be satisfactorily maintained by an existing public agency, provision shall be made which is acceptable to the board of commissioners for the proper and continuous operation, maintenance, and supervision of such facilities. A copy of the agreements providing for the proper and continuous operation, maintenance and supervision of such facilities shall be presented to the planning department and approved as to form by the city attorney at the time of final platting and shall be filed of record with the plat of the land thereof. (Ord. 5157, 8-10-1981)

12-4-7: STREET AND ALLEY IMPROVEMENTS:

The subdivider of any subdivision designed to be used for residential, commercial, industrial, or other uses shall lay out, grade, or otherwise improve all streets and alleys that are designed on the approved plat or that directly serve the subdivision in compliance with the standards and specifications of this code and in compliance with the following provisions:

A. Layout: Such street layout and all improvements shall be done under the supervision of the engineering department and shall be subject to the inspection and approval in accordance with the standards and specifications of this code.

B. Pavement Width, Design: Street right of way and pavement widths shall comply with standards established in this code. The paving design of the intersection of any new street with a state or federal highway shall be approved by the Oklahoma department of transportation.

C. Driveways: All driveways which connect with public streets shall be constructed in accordance with the standard design of the city engineering department. Except, however, for one- and two-family residential drives, the minimum width for a single driveway, measured at the property line, shall be ten feet (10') and the maximum shall be twelve feet (12') for a one car driveway; and a minimum of sixteen feet (16') and a maximum width of twenty four feet (24') at the property line for a two (2) car driveway. Additional driveway widths shall be approved by the city engineering department. Commercial and multi-family driveways shall conform to the Oklahoma department of transportation standards.

D. Existing Unpaved Street: Whenever a subdivision is adjacent to an already existing unpaved street, the subdivider will not be required to pave the entire width of said street. (Ord. 5157, 8-10-1981)

12-4-8: SIDEWALKS:

A. Time of Completion: All sidewalks required by this title shall be completed either:

1. At the time the streets are installed; or (Ord. 5157, 8-10-1981)

2. On each lot or parcel of land subsequent to the improvement of said lot or parcel of land, but prior to the final inspections of such improvements by the community development department. (Ord. 5157, 8-10-1981; amd. 2003 Code)

B. Surety Required: In the event that the owner or developer elects to construct sidewalks subsequent to the improvement of a lot or parcel of land, but prior to the final inspection of such improvement, he shall submit to the board of commissioners through the city clerk, a surety in the form of a corporate surety bond, cash or certificate of deposit as required by section 12-4-4 of this chapter. If at the expiration of said subdivision bond all sidewalks have not been completed, the developer may present, through the city clerk for submission to the board of commissioners for acceptance, a renewal bond, and an engineer's estimate shall accompany said renewal bond, prepared and sealed by a registered engineer in the state of Oklahoma, setting forth a current cost of said sidewalks. The form of surety on said renewal bond shall be cash or certificate of deposit.

If at the expiration of said renewal bond, the required sidewalks have not been completed, said bond will be called and the city will proceed to have said sidewalks installed.

C. Paving Plans: All sidewalks required herein shall be shown on the paving plans. (Ord. 5157, 8-10-1981)

12-4-9: WATER LINES:

A. Installation: The subdivider/developer shall be responsible for the installation of the water lines and fire hydrants in accordance with standard specifications for the improvements.

B. Inspection: Inspection of the water line installations shall be provided by the public utilities department.

C. Building Permit: No building permit shall be issued for any structure to be located on any lot within a recorded, platted subdivision until the required water lines for the lot have been installed in accordance with standard specifications for the improvements.

D. Sufficient Size: It shall be the policy of the city to require a subdivider to install water lines of sufficient size to serve his proposed development. When such water lines are located in areas that will provide service to other areas, the city shall be responsible for additional line size and incremental costs of installation.

E. Health Department Requirements: Any new and replacement water supply system shall be designed to meet the requirements of the Oklahoma health department. (Ord. 5157, 8-10-1981)

12-4-10: SANITARY SEWERS:

A. Installation: The subdivider/developer shall install sanitary sewer lines in accordance with the standards and specifications governing sewer line construction.

B. Building Permit: No building permit shall be issued for any structure to be located on any lot within an urban, platted subdivision filed of record until the required sanitary sewer improvements for that lot have been installed in accordance with the standards and specifications of the city.

C. Design: Standard design as adopted by the city shall be followed for sewer lines tied to the city collection facilities, or if city facilities are not available, there shall be installed a treatment system where allowed under this code and approved by the engineering department and the state health department and dedicated to the city.

D. Sufficient Size: It shall be the policy of the city to require a subdivider to install sewer lines of sufficient size to serve his proposed development. When such sewer lines are located in areas that will provide service to other areas, the city shall be responsible for additional line size and incremental costs of installation. (Ord. 5157, 8-10-1981)

12-4-11: STORM SEWERS AND DRAINAGE:

A. Minimize Flood Damage: All subdivision proposals and other proposed new developments shall be reviewed by the engineering department to ensure that all such proposals are consistent with the need to minimize flood damage; that all public utilities and facilities such as sewer, gas, electrical and water systems are located, elevated and constructed so as to minimize or eliminate flood damage; and that adequate drainage is provided so as to reduce exposure to flood hazards.

B. Standards and Specifications: Storm sewers and drainage facilities shall be provided and constructed in compliance with the standards and specifications outlined in appendix A attached to ordinance 5157 on file in the office of the city clerk. (Ord. 5157, 8-10-1981)

Chapter 5
PLAT PREPARATION AND APPROVAL

12-5-1: TECHNICAL REVIEW COMMITTEE:

There is hereby created a technical review committee of which the community development director, or someone appointed by the city manager, shall serve as chairman. Membership shall consist of the following:

Community development director
Public works director
City engineer
Director of traffic engineering
Environmental services director
General manager of Ponca City energy
Fire Marshall or fire chief
Director of parks and recreation

(Ord. 5157, 8-10-1981; amd. 2003 Code)
12-5-2: PREAPPLICATION PLANS AND DATA:

Not less than fourteen (14) days prior to the filing of an application for approval of a preliminary plat, the subdivider shall present to the technical review committee the following information:

A. Description And Condition Of Site: A general description of the existing conditions of the site and the suitability of the site for the proposed development. This information shall include data on existing covenants and agreements, the availability of utilities and community facilities, the proposed use of each portion of the subdivision, proposed lot sizes and building sizes, proposed business areas, playground, park and school sites and other pertinent data as may be needed to supplement the sketches required in subsections B and C of this section.

B. General Location Map: A general location map shall be submitted and shall show the proposed subdivision and its relationship to existing utilities, schools, parks, traffic arteries and other features that will affect and influence the subdivision such as hospitals, churches, airports, railroads and shopping and employment centers.

C. Sketch Plat: A sketch plat drawn to approximate scale shall be submitted and shall show topography, using a contour interval of not greater than two feet (2'), the proposed street layout, lots and other planning features. The street and lot plan may be in the form of a free hand pencil sketch. (Ord. 5157, 8-10-1981)

12-5-3: PRELIMINARY PLAT:

A. Submission Of Preliminary Plat: Ten (10) copies of the preliminary plat shall be submitted by the subdivider to the community development department not less than fourteen (14) days prior to the meeting at which it is to be considered by the planning commission. (Ord. 5157, 8-10-1981; amd. 2003 Code)

B. Submission Of Site Development Plan: At the same time, where the preliminary plat is submitted for a multi-family residential development where any lot, tract, or parcel contains in excess of twenty five thousand (25,000) square feet, or for commercial or industrial development, there shall be submitted ten (10) copies of a site development plan which shall be drawn to scale, showing the topographic characteristics of the site at a contour interval of not less than two feet (2'); the location and dimensions of buildings, yards, courts, landscape, pedestrian and vehicular circulation and parking, fences and screening; service areas and service courts, and other features, the use of each building and the area; the height of buildings; adjacent streets, alleys, utility, drainage, and other easements; and the relationship of the development to adjacent areas which it may affect.

C. Engineer Statement: The preliminary plat shall be accompanied by a statement signed by the registered engineer preparing the plat that he has, to the best of his ability, designed the subdivision in accordance with the ordinance and regulations governing the subdivision of land except when an exception is requested as provided for in this title in writing and the reasons for which are clearly stated.

D. Scale and Information: The preliminary plat shall be drawn at a scale of not more than one inch equals one hundred feet (1" = 100'), except where impractical, and shall show:

1. The scale, north arrow, and date.

2. The proposed name of the subdivision.

3. The name and address of the owner of record, the subdivider, and the registered land surveyor preparing the plat.

4. A key map showing the location of the proposed subdivision referenced to existing or proposed major streets and to government section lines, and including the boundaries and number of acres of the drainage area of which the proposed subdivision is a part.

5. The names, with locations of intersecting boundary lines, of adjoining subdivisions, and the location of the Ponca City limits if falling within or immediately adjoining the tract.

6. The land contours with vertical intervals of two feet (2') referenced to a United States geological survey, or coast and geodetic survey, benchmark or monument.

7. The location of dedicated streets at the point where they adjoin and are immediately adjacent; but actual measured distances shall not be required.

8. The location of all existing easements of record, sanitary and storm sewers, water mains, culverts, and other surface or subsurface structures within the tract or immediately adjacent thereto, and the location, layout, type, and approximate size of the following structures and utilities:

a. Water mains;

b. Sanitary sewer mains, sub mains, and laterals;

c. Storm sewers; and

d. Street improvements.

9. The locations of all drainage channels and subsurface drainage structures, and the proposed method of disposing of all runoff from the proposed subdivision, the calculations used to compute the runoff, and the location and size of all drainage easements relating thereto, whether they be located within or outside of the proposed plat.

10. The length of the boundaries of the tract, measured to the nearest foot, and the proposed location and width of streets, alleys, easements, and setback lines, and the approximate lot dimensions.

11. The existing zoning and proposed changes of zoning in the tract and of the property immediately adjacent thereto.

12. The classification of every street within or adjacent to the subdivision in accordance with the intended use of the street based on the proposed design. This shall be done by placing the appropriate term: "primary arterial", "secondary arterial", "collector", or "local" in parentheses, directly on each street.

E. Planning Commission Action: The planning commission shall approve or disapprove the preliminary plat.

1. If the preliminary plat be disapproved, the reasons for such action shall be specifically stated in writing, a copy of which, signed by the planning commission chairman, shall be attached to one copy of the plat and transmitted to the applicant.

2. The reasons for disapproval shall refer specifically to those parts of this city code, and policies of the city with which the plat does not conform.

3. If the plat conforms to all of the standards, or after the applicant and planning commission agree upon any revisions which may be filed with the planning commission on a revised copy, the applicant may proceed with the preparation of a final plat and improvement plans.

4. Approval of a preliminary plat by the planning commission shall be valid for a period of five (5) years from the date of approval, provided that the final plat is substantially in compliance with the approved preliminary plat, and provided that no change in land use relationships is proposed and that no change in street configuration is proposed.

5. After a period of five (5) years from the date of approval of the preliminary plat, the planning commission may review the approved preliminary plat to consider changed circumstances and conditions.

6. In any instance where a final plat includes a rerouting of a collector street, a change in relationship between uses of land or a request for a change of specific elements of the preliminary plat, then the preliminary plat shall be reviewed, and if the five (5) year period has expired, the subdivider shall pay a full preliminary plat filing fee on that part of the preliminary plat not previously filed of record as a final plat. (Ord. 5157, 8-10-1981)

12-5-4: FINAL PLAT:

A. Submission: A final plat, neatly drawn in ink on Mylar and ten (10) dark line prints thereof and one copy of any restrictive covenants that will be filed in the office of the county clerk and directly affect the land being subdivided shall be submitted to the community development department not less than fourteen (14) days before the planning commission meeting at which it is to be considered for final approval. At the same time, there shall be submitted to the engineering department five (5) sets of the proposed plans and specifications for all improvements in final form.

B. Septic Tank and Filter Field:

1. Submit Form To County: In the instance where the means of sewage disposal is proposed by individual septic tank and filter fields, the applicant shall first submit to the applicable county health department a copy of the Oklahoma state health department

form entitled "Oklahoma State Department of Health Soil Report for Subdivisions or Individual Sites", or any applicable form which supersedes said form for each lot contained within the final plat. Said form shall be executed by a registered professional engineer or by registered professional sanitarian. Upon receipt of this form, the county health department shall approve or disapprove the soil reports and send a copy of the Oklahoma state health department form. Application for plat approval, or any applicable form which supersedes said form to the community development department. This form shall be received by the community development department prior to the applicant submitting the final plat for approval. (Ord. 5157, 8-10-1981; amd. 2003 Code)

2. Percolation Tests: In the instance of where the means of sewage disposal is proposed to be by individual septic tank and filter fields, one dark line print of the final plat denoting the location on each lot where percolation tests have been performed shall be filed with application for approval of the final plat.

C. Common Property: In the case of a plat proposing the reserving or dedicating of land to be used in common by owners of lots in the subdivision, there shall be submitted by the subdivider evidence acceptable to the board of commissioners and the city attorney that all necessary steps have been taken for:

1. The establishment of a property owner's association for adequately maintaining the common property; and

2. Disposition of the common property in the event of dissolution of the association.

D. Conformance With Preliminary Plat: The final plat shall conform with the preliminary plat as approved by the Ponca City planning commission, and shall not include the rerouting of a collector street, a change in the relationship between uses of land, or a change of specific elements of the preliminary plat. Plats and/or improvement plans failing to meet these requirements or other requirements of this title shall not be placed on the planning commission agenda.

E. Scale; Information: The final plat shall be drawn on a scale of one inch equals one hundred feet (1" = 100') from an accurate survey and on sheets whose dimensions do not exceed twenty four inch by thirty six inch (24" x 36") sheets. However, in the instance of the platting of a small area, the scale of the drawing may be changed such that one inch (1") will equal less than one hundred feet (100') in order to allow a larger representation of the tract. On the first sheet of every plat there shall be a key map showing the location of the subdivision referenced to government survey section lines and major streets. If

more than two (2) sheets are required for the plat, the key map shall show the number of the sheet for each area. The final plat shall show:

1. The location and description of all permanent survey monuments in or near the tract, to at least one of which the subdivision shall be referenced.

2. The length of all required lines dimensioned in feet and decimals thereof, and the value of all required true bearings and angles dimensioned in degrees and minutes, as hereafter specified.

3. The boundary lines of the land being subdivided fully dimensioned by lengths and bearings, and the location of boundary lines of adjoining lands, with adjacent subdivisions identified by official names and a legal description of the land being platted on all pages.

4. A boundary closure sheet.

5. The lines of all proposed streets fully dimensioned by lengths and bearings or angles.

6. The lines of all proposed alleys. Where the length and/or direction of an alley are not readily discernible from data given for lot and block lines, the length and/or bearing shall be given.

7. The widths, and names where appropriate, of all proposed streets and alleys, and of all adjacent streets, alleys, and all proposed easements and all easements of record, which shall be properly located and identified.

8. The lines of all proposed lots fully dimensioned by lengths and bearings or angles, except that where a lot line meets a street line at right angles, the angle or bearing value may be omitted.

9. The outline of any property which is offered for dedication to public or private use fully dimensioned by lengths and bearings, with the area marked "public" or "private", as the case may be. (Ord. 5157, 8-10-1981)

10. The blocks numbered consecutively throughout the entire subdivision, and the lots numbered consecutively throughout each block. If only a portion of a block shown on an approved preliminary plat is included in a final plat, the block and consecutive lot numbers assigned thereto shall not be continued for the remaining lots of such a block at such time as said remaining lots are finally platted. The remainder of such a block shall bear a different block number and the lot numbers shall be consecutively numbered beginning with the number one. Street addresses shall be assigned by the city and shall be designated and printed on each proposed lot. Each plat shall then include a caveat and a disclaimer to read as follows: "Addresses shown on this plat are accurate as of the time the plat was filed of record". Addresses are subject to change and should never be relied upon in place of the legal description. (Ord. 5941, 1-22-2001)

11. The location of all building lines, setback lines, easements of record, and easements being dedicated for public services or utilities with dimensions showing their location.

12. The radii, arcs, points of tangency, points of intersection, and central angles for all curvilinear streets and radii or cutbacks for all property returns.

13. The proper acknowledgements of owners and the consent by the mortgagee to plat restrictions.

14. Owner's certificate and dedication, executed and acknowledged.

15. Certificate of survey, executed and with land surveyor's seal.

16. Certificate of bonded abstractor, executed.

17. Certificate for release of mortgage for any portion dedicated to the public, executed and acknowledged.

18. County treasurer's certificate, executed.

19. Reference to any separate instruments, including restrictive covenants, filed in the office of the county clerk, which directly affect the land being subdivided.

20. Certificate of planning commission approval.

21. Certificate of board of commissioners acceptance of ways, easements, and public land dedications.

22. All signatures affixed in black ink.

23. Name of the subdivision.

24. Name of city, county, and state.

25. Location and description of the subdivision referenced to section, township, and range.

F. Planning Commission Action: The planning commission shall approve or disapprove the final plat. Approval shall be shown on the plat with the date of such approval and over the signature of the commission chairman.

1. If the final plat be disapproved, the reasons for such action shall be specifically stated in writing, a copy of which, signed by the planning commission chairman, shall be transmitted with the tracing and prints to the applicant.

2. If the final plat be disapproved by the planning commission, the applicant may take the plat to the board of commissioners for consideration, where by a majority vote it may be approved for filing. However, no plat shall be approved which does not comply with this title.

G. Board of Commissioners Action: Before recording the final plat, it shall be submitted to the board of commissioners for approval or disapproval.

1. Approval of the plat shall be shown over the signature of and attested by the city clerk or his deputy.

2. The disapproval of any such plat shall be deemed a refusal of the proposed dedications shown thereon. (Ord. 5157, 8-10-1981)

H. Filing with County: After final approval of the plat and the affixing of all required signatures on the original tracing, the subdivider shall provide the community development department with four (4) reproducible Mylars, one of which shall be retained in the permanent file of the community development department. The applicant shall file three (3) Mylars in the office of the Kay County clerk. (Ord. 5157, 8-10-1981; amd. 2003 Code)

Chapter 6
ADMINISTRATION AND ENFORCEMENT

12-6-1: VARIATIONS AND EXCEPTIONS:

Whenever the tract to be subdivided is of such unusual size or shape or is surrounded by such development or unusual conditions that the strict application of the requirements contained in this title would result in substantial hardship or inequity, the planning commission, with the approval of the board of commissioners may vary or modify, except as otherwise indicated, such requirements of design, but not of procedure or off site improvements, so that the subdivider may develop his property in a reasonable manner, but so, at the same time, the public welfare and interests of the city are protected and the general intent and spirit of this title preserved. Such modification may be granted upon written request of the subdivider or his engineer, stating the reason for each modification, and may be approved by two-thirds ($^2/_3$) vote of the regular membership of the planning commission, subject to the acceptance of the plat and the dedications thereon by the board of commissioners; provided, however, that a variation based on unique conditions shall not be granted when the unique condition was created or contributed to by the subdivider. (Ord. 5157, 8-10-1981)

12-6-2: ADMINISTRATION AND AMENDMENTS:

The board of commissioners may, from time to time, adopt, amend and make public rules and regulations for the administration of these regulations to the end that the public be informed that approval of plats be expedited. These regulations may be enlarged or amended by the board of commissioners after public hearing, due notice of which shall be given as required by law. (Ord. 5157, 8-10-1981)

12-6-3: VIOLATION AND PENALTY:

A. Failure to Comply; Building Permit: No building permit shall be issued for any new structure or change, improvement or alteration of any existing structure on any tract of land which does not comply with all the provisions of this title.

B. Penalty Imposed: A violation of any provision of this title shall be deemed as a misdemeanor and shall be punishable by a fine. Any person, firm, or corporation who violates or refuses to comply with any of the provisions of this title shall be subject to penalty as provided in section 1-4-1 of this code for each offense. Each day that a violation is permitted to exist shall constitute a separate offense. (Ord. 5157, 8-10-1981; amd. 2003 Code)

Chapter 7
RURAL ACREAGE SUBDIVISIONS

12-7-1: GENERAL REQUIREMENTS:

A. Rural acreage (RA) subdivisions located inside the city limits or within areas designated as an environmentally sensitive area within the Ponca City master plan shall meet the standards prescribed in this chapter; shall be subject to all other requirements of these regulations; and shall conform to all regulations set forth in the zoning ordinance.

B. Rural subdivision shall include any subdivision of land:

1. Within an A agriculture district; or

2. Under the RA rural acreage residential provisions set forth in the zoning ordinance.

C. Lot splits from the original rural acreage plat shall not be allowed until streets are upgraded to meet the standard specifications listed in the subdivision regulations of the city. (Ord. 5930, 5-8-2000; amd. 2003 Code)

12-7-2: STREETS AND ROADS:

A. Access; Security Bond: No rural subdivision shall be approved unless the area to be subdivided has access from an existing public street or highway or a public street shown upon an approved plat and secured by a surety (performance) bond or other instrument acceptable under the provisions of section 12-4-4 of this title. Said road or street shall meet the width and rights of way requirements of this chapter.

B. Improvements: Roads and streets shall be improved according to city construction standards and specifications for RA subdivisions (or R-1 single-family residential, whichever is applicable), and shall be approved by the planning commission and the board of commissioners.

C. Points of Access: Two (2) separate points of access shall be provided to each subdivision, except where the site configuration justifies a single entry.

D. Length, Width And Shape Of Blocks: The lengths, widths and shapes of blocks shall be appropriate for the locality and type of development contemplated, but block lengths in RA subdivisions shall not exceed two thousand six hundred forty feet (2,640') nor be less than four hundred feet (400') in length. Wherever practicable, blocks along section line roads or other streets designated as arterials or collectors shall not be less than one thousand seven hundred sixty feet (1,760'), except where shorter blocks are required to meet access requirements.

E. Design Standards For Roads: Design standards for RA rural acreage roads.

	Subdivisions With Lots 2 Acres Or Larger	Subdivisions With Lots Less Than 2 Acres
Minimum right of way width (feet)	60	60
Minimum pavement width (feet)	22 without curb	25 without curb
Design speed	25 mph	25 mph
Minimum turnaround (feet):		
Right of way	100	100
Pavement	65	70
Minimum curve radius (feet)	100	100
Minimum curb radius at pavement (feet)	30	30
Maximum length of cul-de-sac (feet)	12 times the minimum lot width serving no more than 34 dwellings and not exceeding 2,600 feet in length	

F. Road Surfacing and Improvements: Once required utilities are installed, the roadways shall be surfaced to the standards prescribed in these subdivision regulations. See figures C-1 and C-2 in section 12-7-7 of this chapter. Adequate provisions shall be made for culverts, drains and bridges serving RA subdivisions, and such roads shall be designed to safely accommodate projected traffic, to facilitate drainage, and to permit ease of maintenance. (Ord. 5930, 5-8-2000)

12-7-3: DRAINAGE AND STORM SEWERS:

For RA subdivisions, current storm sewer, drainage, water retention, and flood zone regulations adopted by the city shall be satisfied. (Ord. 5930, 5-8-2000)

12-7-4: WATER SUPPLY:

A. Required: The developer shall provide an approved, adequate potable water supply to every lot in the subdivision, or demonstrate that an adequate water supply is available. (Ord. 5930, 5-8-2000)

B. Connection To City Or Public Supply: If the subdivision is within one-fourth ($^1/_4$) mile of an existing or funded city or other public water system, the developer shall connect to said public water supply so it is available to every lot within the subdivided area. (Ord. 6038, 4-10-2006)

C. Supply Operated By Another Governmental Entity: Where an approved public water supply operated by another government entity is accessible or procurable, the developer may connect with said water supply and make it available to each lot within the subdivided area. All such construction must conform to city standards and specifications. (Ord. 5930, 5-8-2000; amd. 2003 Code)

D. Private Systems: Where an approved water supply is not available, the rural subdivision may be served by a private water system or individual water wells, both of which must meet federal and state drinking water standards.

1. Private water systems shall meet city design standards and construction specifications and shall provide adequate capacity to meet domestic and fire flow demands. Private water systems shall consist of a fully looped system of pipelines, tanks, pumps, and other equipment as appropriate.

2. Individual water wells shall have a minimum capacity of five (5) gallons per minute (gpm). If soils and geological data indicate a possible ground water deficiency, developer must demonstrate, at his/her expense, that water is available in adequate quantity and quality.

3. Regardless of the method of private water supply, a minimum distance of forty feet (40') separation between residential structures shall be maintained in any RA residential district as a fire protection measure. (Ord. 5930, 5-8-2000)

12-7-5: SEWAGE DISPOSAL:

A. Required Compliance with City Standards: Developer shall provide adequate sewage collection and disposal facilities to each lot in the subdivided area, or demonstrate adequate disposal can be provided. Sewer system construction must conform to city standards and specifications. (Ord. 5930, 5-8-2000; amd. 2003 Code)

B. Connection To City Or Public System: If the subdivision is within one-fourth ($^1/_4$) mile of an existing or funded city or other public sewer system, or an extension of the city or public sewer system and within the natural drainage basin of said system, the developer shall connect with said public sewer system so it is available to every lot within the subdivided area. (Ord. 6038, 4-10-2006)

C. Proof of Unfeasibility of Connecting To City Sewer:

1. If the developer finds connecting to the city sewer is not feasible, the developer shall submit to the environmental services director a written statement providing substantial evidence for reasons of unfeasibility. The city may retain a technical expert to determine whether connection to city sewer is feasible. The cost for such a technical expert will be at the expense of the developer. If connection to city sewer is determined unfeasible, individual sewage disposal systems may be used provided they satisfy all city, county, state, and Oklahoma department of environmental quality (DEQ) health standards.

2. Before final plat approval, the developer must demonstrate that percolation rates are adequate for each lot and that the subdivision site is suitable for development at rural densities. The appropriate health department shall review said final plat and if all health regulations are met, said final plat shall be affixed with the seal and/or signature of a duly authorized agent of said health department and the date of approval. In addition, any special requirements and/or conditions placed on such approval shall be itemized on the face of the plat.

D. Sewage Lagoons Prohibited: Sewage lagoons and other open sewage disposal facilities are not permitted. (Ord. 5930, 5-8-2000; amd. 2003 Code)

12-7-6: PRIVATE ROADS:

A. Conditions for Using Private Roads: Pursuant to Oklahoma Statutes, the city will permit the use of private roadways in RA subdivisions that meet the conditions described below:

1. All private roads shall comply with the RA rural acreage requirements for roadway construction, with no reduction in city standards permitted. See figures C-1 and C-2 in section 12-7-7 of this chapter.

2. All private roads shall be self-contained in the subdivision it serves. No private road shall serve as a through street.

3. Private roads shall not be a continuation of dedicated public streets.

4. There shall be placed on the final plat, clearly conspicuous, the following notice: "The streets and drives have not been dedicated to the public, and said streets shall be maintained by private property owners within the subdivision, but said streets shall always be open to police, fire, and other official vehicles of all federal, state, county, and city agencies".

5. Every deed shall clearly acknowledge: "Said roadway is private and is not maintained by the City of Ponca City". (Ord. 5930, 5-8-2000)

6. Developers shall post and maintain a conspicuous sign at all entrances to said subdivision stating: "Private Roadway Not Maintained by the City of Ponca City". (Ord. 5930, 5-8-2000; amd. 2003 Code)

B. Requirements and Specifications:

1. Size of Property Abutting Roadway: Property abutting said private roadway shall contain not less than ten (10) acres for A agriculture and not less than one acre for RA rural acreage subdivisions and must comply with all applicable zoning and other municipal ordinances and regulations.

2. Easement Width: Said private roadway easement shall be at least sixty feet (60') in width.

3. Building Setback Lines: All applicable building setback lines shall be calculated from said private roadway easements.

4. Private Roadway: Said private roadway shall not be dedicated to the public but reserved for future dedications, and, until such future dedication, shall be the private property of the abutting property owners.

5. Petition for Improvements: A petition of at least sixty percent (60%) of the owners in the RA subdivision, to improve and dedicate the street, shall bind all said owners in the subdivision, to permanently improve said street or roadway in compliance with the requirements for public streets of the city. Such costs shall be assessed to property

owners. Subdivisions with one or more lots less than one acre in size shall not qualify for RA rural acreage subdivision regulations or zoning.

6. Construction Plans; Surety Bond:

a. Preparation by Engineer; Bond:

(1) Plans for the above stated improvements shall be prepared by a professional engineer and in accordance with the laws of the state of Oklahoma and the ordinances of the city. The subdivider shall file with the city a surety bond in the amount of one hundred ten percent (110%) of the estimated construction costs; conditioned that the subdivider, as principal, will faithfully install and complete improvements and utilities in the subdivision within a period not to exceed two (2) years, according to requirements of city ordinances, approved plans, specifications, and subdivision rules and regulations of the city, and will pay all bills for contractors, improvements, and utilities. An extension of this period may be granted by the board of commissioners.

(2) The professional engineer shall furnish the cost of said pavement and utilities to the city engineer who shall approve the estimated costs of paving, storm sewers and other drainage facilities, if required, in order that the planning commission may determine whether or not the amount of the bond submitted is adequate to ensure the construction of these facilities and in order to protect the interests of the city and public welfare. All current policies, inspection fees, or other normal requirements of the city engineering department shall apply in full force to ensure the proper construction of said private roadways.

b. Certification: In lieu of the provision contained in subsection B6a of this section, the developer may submit a document prepared by a professional engineer which certifies that all private roads for said development are constructed to the required city standards for R-1 single-family residential or RA rural acreage, whichever is applicable.

7. Agreement of Abutting Property Owners: Prior to the approval of such private roadways, all abutting property owners shall enter into such a legal agreement to assure maintenance and apportion maintenance costs. Such agreement shall clearly state that the city is not responsible for maintenance.

8. Street Stub Easements: Street stub easements to serve potential future subdivision and to improve the overall circulation pattern of the area shall be provided in any location deemed appropriate by the planning commission. (Ord. 5930, 5-8-2000)

12-7-7: FIGURES:

See following pages for figures C-1 and C-2.
Figure C-1

RURAL RESIDENTIAL STREET

PONCA CITY

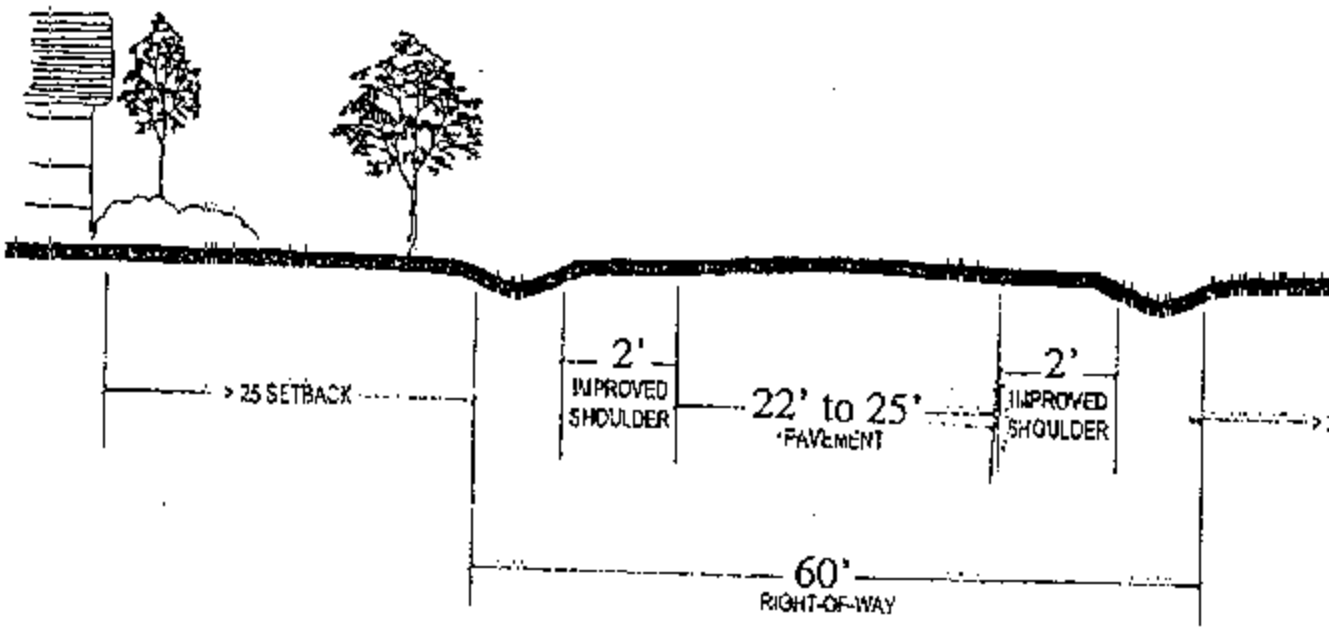
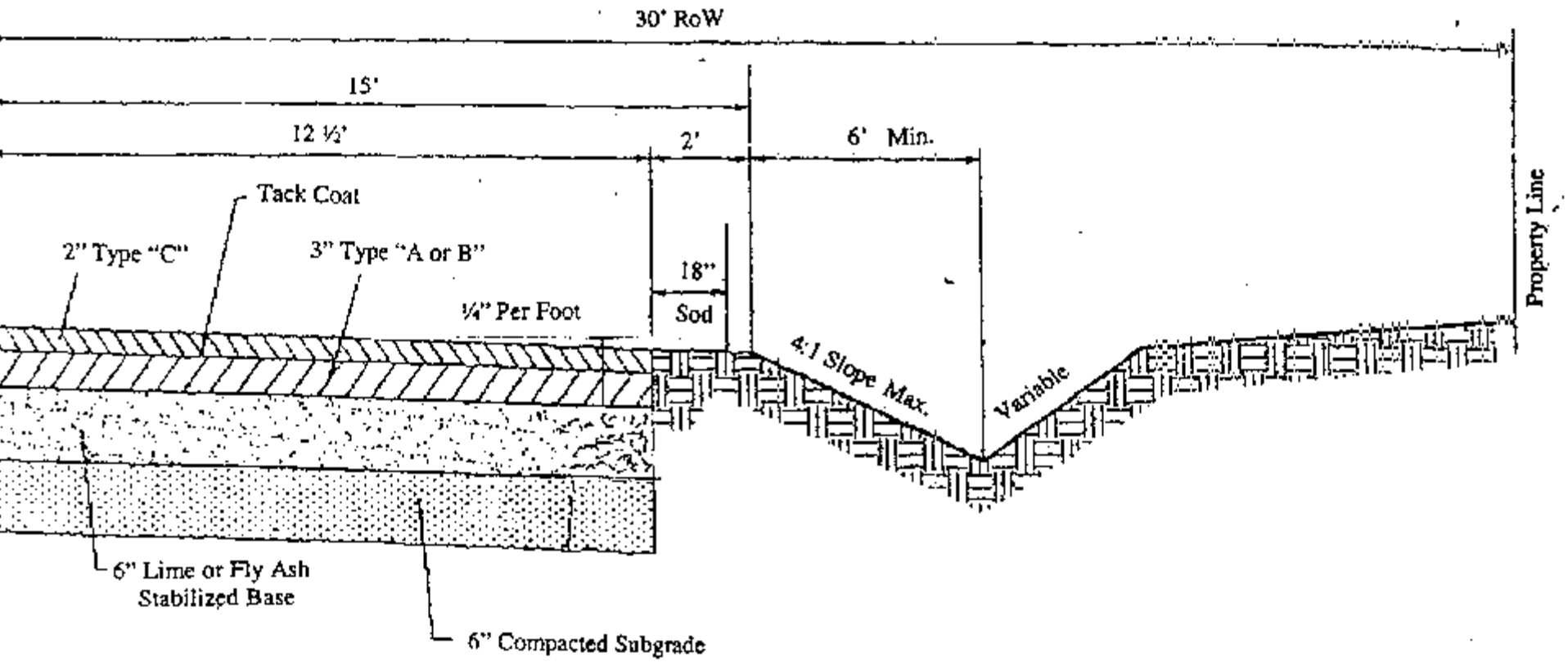


Figure C-2


30' RoW
15'
12 ½'
2'
6' Min.
Tack Coat
2" Type "C"
3" Type "A or B"
¼" Per Foot
18"
Sod
4:1 Slope Max.
Variable
Property Line
6" Lime or Fly Ash
Stabilized Base
6" Compacted Subgrade

(Ord. 5930, 5-8-2000)

CHAPTER 8

DRAINAGE DESIGN STANDARDS

SECTION 12-8-1: GLOSSARY

Reference Title 12, Chapter1 and Title 10, Chapter 10 for all definitions.

SECTION 12-8-2: PLANS AND APPROVAL REQUIRED:

A. Responsibility Of Consulting Engineer:

Approval of the plans by the City Engineer does not release the consulting engineer from his responsibility to meet the planning and design of the project as required by the City Engineer and/or other departments of the city.

B. Plan Sheets Signed And Sealed:

All of the plan sheets and the cover sheet of all calculation reports shall be signed, sealed and dated by a professional engineer, licensed in the state of Oklahoma, prior to submitting the plans to the City Engineer for review.

C. Statement Required:

Directly above the title block and signature of the professional engineer, licensed in the state of Oklahoma, the first sheet of the plans shall contain the following statement:

“I hereby certify that I am familiar with the adopted ordinances and regulations of the City of Ponca City, that these plans have been prepared under my direct supervision; the above and foregoing plans comply with all governing ordinances and the adopted standards of the City of Ponca City to the best of my knowledge, information and belief.“

D. Cost Estimate:

Construction pay items and engineer's cost estimate for each item of work covered by the standard specifications and/or special provisions shall be rounded off to the nearest unit and listed in the proposal clearly indicating the basis for payment. This applies only to those improvements that will be accepted by the City of Ponca City as public improvements.

SECTION 12-8-3: DRAFTING:

A. CONSTRUCTION PLANS

1. Plans shall be provided on a reproducible medium (paper or Mylar). Construction plans shall also be provided in digital cad vector file format currently used by the City Engineering Department on current commonly used media.
2. Standard sheets shall be thirty four inches wide by twenty two inches high (34" x 22") having a margin of one and one-half inches (1 1/2") along the left border and one inch (1") along the top, bottom and right border.
3. North shall be oriented to the top or right hand side of all sheets.
4. All line work shall be of sufficient density to be reproducible by current reproduction processes. Any line work which does not reproduce satisfactorily may be cause for rejection of the plans by the city.

5. Plotted text height shall be no smaller than 0.08 inch minimum height. Sizes greater than this are desirable and suggested.

6. "Record" drawings shall be provided on a reproducible medium (paper or Mylar). Construction plans shall also be provided in digital cad vector file format currently used by the City Engineering department on current commonly used media.

B. Plan Set Sheet Order

7. The front sheet shall contain existing topography (2 foot contour intervals), north arrow, index to sheets, street layout, lot layout, off site adjacent structures, location map, description, symbol legend, owner's and engineer's name, address and telephone number, benchmark, PE seal and signature.

8. Drainage areas for inlet design with flow arrows indicating areas Q1OO, Q10, Q2 and time of concentration. Summation tabular column of drainage areas and flows to respective inlet.

9. Layout of streets with stations, cul-de-sacs and intersections numbered with cross reference to plan detail.

10. Storm sewer layout (also to be included with paving plans).

11. Final grading plan showing final grades and minimum pad elevations for lots close to sump areas, for areas where pad is lower than the curb, and for lots adjacent to floodplain areas.

12. Storm Water Pollution Prevention Plan sheet showing permanent erosion and sediment control practices.

13. Large scale drawing of cul-de-sac and intersections showing drainage system.

14. Detention pond(s) showing existing and proposed topography cross sections through the pond including 5, 10, 25, 50 and 100 year water levels, details of inlet and outlet structures, and indicate if privately or publicly maintained. For critical facility's, the 500 year water level must be shown as well.

15. Details of structures, both standard and special.

16. Drawings of all dam structures.

SECTION 12-8-4: SURVEY & BENCHMARKS

A. The City of Ponca City Geographical Information System (GIS) was designed to be a useful tool for City master planning purposes and conceptual engineering analyses of large areas. It is not suitable for individual subdivision or development design and detailed hydrological and hydraulic on-site studies and design.

B. Preparation of plans for subdivisions shall require a detailed boundary survey and Property Descriptions be performed by an Oklahoma licensed Land Surveyor. The Land Surveyor shall comply with the Oklahoma State Board of Licensure for Professional Engineers & Land Surveyors 245:15 Subchapter 13. MINIMUM STANDARDS FOR LAND SURVEYING. In 245:15-13-2 (d) (13) the minimum standard within the City of Ponca City that applies shall be either (A) or (B), within the City Limits standards applicable for suburban or rural surveys are insufficient for subdivision development.

C. The permanent elevation benchmark and at least 2 horizontal control points shall be identified in State Plane Coordinates-Oklahoma North and shall also identify the Ponca City GPS Monument that the survey was based upon. Ponca City GPS horizontal positions are based upon NAD 83 (horizontal) and NAVD 88 (vertical).

D. All elevation information presented on subdivision plans shall be based upon NAVD 88 and:

17. Field surveyed points shall be accurate to plus or minus 0.1' vertically,

18. Contour lines shall be shown with a contour interval of 1.0' and software generated spot elevations (not field surveyed points), elevations at contour lines, and elevations interpolated between contour lines shall be accurate to within one-half of the contour interval.

19. The referenced benchmark for vertical control of sanitary sewers and storm water drainage structures shall have an accuracy of plus or minus 0.03' vertically to a Ponca City GPS Monument.

20. Features visible at the surface that are presented as topographic information (excluding property monuments subject to more accurate MINIMUM STANDARDS FOR LAND SURVEYING) shall be located horizontally to an accuracy of 0.5'.

21. The horizontal position of underground facilities (not visible at the surface) existing prior to this proposed development shall be accurately located horizontally within 30 inches.

E. Points of connection to sanitary sewers or storm water conveyance structures shall be field surveyed with a vertical accuracy of plus or minus 0.03'.

SECTION 12-8-5: TYPICAL SECTIONS:

A. Typical sections shall show dimensions, type of materials, layer details, reserve topsoil, temporary and permanent erosion control, compacted thickness, etc.

B. All typical sections or notes that are necessary to clearly reflect the design shall be included.

SECTION 12-8-6: CROSS SECTIONS:

A. Cross sections may be required by the City Engineer as a part of the construction plans, when necessary to reflect more clearly the intent of the design.

B. All cross sections required for street rights of way shall be drawn to scale showing existing ground and proposed construction from building line to building line.

C. Each section required shall be stationed clearly.

D. Sufficient information shall be furnished to show that water is not ponded behind curbs or in ditches.

E. Scale for cross sections shall not be less than:

22. Channels 1 inch = 5 feet horizontal 1 inch = 2 feet vertical

23. Streets 1 inch = 5 feet horizontal 1 inch = 2 feet vertical

SECTION 12-8-7: PLAN SHEETS AND PROFILES:

A. All property lines shall be shown, dimensioned and locations referenced thereto. This includes rights of way, easements, building lines, etc.

B. All intersections, cul-de-sacs, and other critical locations shall be shown in large plan detail, including direction of drainage, top of curb elevation at PCs, PTs and high or low points. All curve information shall be shown in detail.

C. All drainage areas shall be clearly marked on the drainage area plan sheet; showing acreage, runoff and off site pickup points.

D. A site plan showing proposed locations and elevations of all utilities shall accompany the street and storm sewer plans.

E. All fill areas within the street right of way and beneath storm drainage structures, shall be cross hatched on the profile and notation shall be made that the fill area shall be compacted to a minimum of ninety five percent (95%) standard proctor density.

F. A list of construction pay items and estimate of quantities shall be shown on the plans.

G. Curb returns with elevations shall be clearly labeled on profile.

H. Vertical curves in profile shall give the top of curb elevation at the PC, PI, PT, and high or low point, at a minimum of twenty five foot (25') intervals.

I. All structures (manholes, junction boxes, inlets, headwalls, etc.) shall be numbered and labeled both in plan and in profile and detailed on plans.

J. Scale shall not be less than one inch equals 50 feet (1" = 50') horizontal, and one inch equal five feet (1" = 5') vertical on profile sheets. Minimum scales shall be one inch equals one hundred feet (1" = 100') on plan sheets.

K. Storm sewer lines shall be identified on both plan and profile sheets by letter or number.

SECTION 12-8-8: STREETS:

A. All paving of streets, alleys, driveway approaches, and sidewalks shall conform to adopted city standards for the appropriate land use and street classification.

B. Typical sections for each street shall be shown from building line to building line. Additional cross sections may be required by the city engineer to reflect more clearly the intent of design.

C. Soils tests will be required for all areas to be paved and submitted to the City Engineer. A standard proctor density in accordance with AASHTO T-99 shall be required for each soil type encountered on the paving. It shall be the responsibility of the developer to supply the test. Individual density tests shall be supplied by the developer and performed by an approved testing company.

D. A proposed and existing profile shall be shown beyond the end of all dead end streets for a minimum of two hundred feet (200') to determine a satisfactory grade for future extension.

SECTION 12-8-9: STRUCTURES AND SPECIFIC DETAILS:

A. All special structures will be detailed.

B. When standards are used, standard sheets shall be included as part of project plans.

C. Special structures shall be drawn to scale unless noted otherwise.

D. Sufficient details, dimensions and related notes shall be provided for all structures.

E. All structures subject to vehicular traffic shall be designed for H-20 loading.

F. All bridge design shall meet the requirements in the latest edition of standard specifications for highway bridges prepared by ODOT.

SECTION 12-8-10: STORMWATER MANAGEMENT PROVISIONS

Presented in this Chapter are the minimum requirements necessary to promote the general public health, safety and welfare benefits by providing for, operating, constructing, equipping, maintaining, acquiring and owning a storm water drainage system. All development, redevelopment, grading, regrading, excavation, landfill, berming or diking of land within the City of Ponca City submitted for approval shall conform to the provisions set forth in this Chapter.

B. VARIANCES

1. Whenever a tract of land is of such unusual size or shape or there are unusual conditions that exist with regard to the development of said tract that the strict application of the requirements of this Chapter would result in a substantial hardship upon the applicant, he/she may seek relief from the requirements in the manner specified in Chapter 6, Section 12-6-1.

B. Review and Approval

2. The City Engineer may submit any documents as required to other city departments or other jurisdictional agency, for review and comments prior to his approval.
3. Projects and tasks proposed in the plans and documents required by this Chapter shall be implemented as proposed.
4. Any changes or amendments to the plans or documentation must be approved by the City Engineer in accordance with the established review procedures.

C. Stormwater Policy and Standards

5. Natural drainage channels and techniques shall be given priority consideration in preparation of drainage system designs and shall be designed or improved as an integral part of the landscape of the area;
6. Water quality control measures shall be incorporated into stormwater management designs wherever possible;
7. These regulations are provided for the purpose of protecting the general health, safety, and welfare of the residents of the City of Ponca City from the hazards and dangers of storm water run-off and to minimize water quality degradation;
8. Development in the floodplain is also regulated by Title 10 Building Regulations, Chapters 1 through 4 and Chapter 10 – Flood Damage Prevention Ordinance.
9. No Adverse Impact – The policies and standards contained herein provide design criteria that shall result in no adverse impact to off-site properties as a result of development;
10. Prevention and regulation of unnecessary disruption of commerce, access, and public service during times of flooding;
11. Contribute to improved construction techniques in drainage systems and the drainage way.

D. Drainage Policies

12. Drainage System Capacity: The stormwater drainage system shall be designed to pass the stormwater run-off received from upstream and from the subject property in a 1% (100 year) storm.

13. Development Impact on Flooding: Development shall be constructed so that it will not increase the frequency of flooding or the depth of inundation of structures for any storm frequency up to and including the 1% storm event.

14. Development Impact on Flood Peaks: Peak flows shall not be increased at any location for any storm, up to and including the 1% storm, which will result in the inundation of structures or property not previously subject to inundation as a result of that same frequency storm.

15. Detention and Increase in Downstream Conveyance Requirements for Development:

    a) Regulation of peak flows to allowable levels shall be achieved by on-site storage or implementation of the recommendations of the Stormwater Management Master Plan.

    b) Downstream conveyance may be improved to compensate for increased flows if such improvements comply with the policies of this chapter.

    c) The City of Ponca City has adopted and periodically updates a master plan for the drainage ways within its jurisdictional boundaries. These master plans set forth the guidelines for improvement and maintenance of the existing and future drainage facilities for all future development and any redevelopment. A project in compliance with the master plan will also be in general compliance with this Chapter.

16. Prevention of Erosion, Sedimentation, and Stormwater Pollution: The velocities for all frequency storms up to 1% shall not exceed the erosion protection features of the development. The design of the development shall not result in sedimentation of material transported by the drainage system. During construction of the development all Stormwater Pollution Prevention measures required by the Oklahoma Department of Environmental Quality shall be complied with. Furthermore, after acceptance of the development by the City of Ponca City, measures shall be implemented and maintained to prevent the discharge of un-permitted stormwater pollutants.

E. Operation and Maintenance

17. Continual maintenance of storm drainage facilities is required to ensure they will function as designed. Maintenance of detention facilities involves removal of debris and sediment and repair of the embankment and appurtenances. Sediment and debris must also be periodically removed from channels and storm sewers. Trash racks and street inlets must be regularly cleared of debris to maintain discharge capacity. Channel bank erosion, damage to drop structures, crushing of pipe inlets and outlets, and deterioration to the facilities must be repaired to avoid reduced conveyance capability, unsightliness, and ultimate failure.

    a) Maintenance Access: The City of Ponca City requires that a dedicated drainage easement be provided to all publicly maintained storm drainage facilities for operational and maintenance purposes. The drainage easement shall be shown on final plats or final development plans.

    b) Interim Stormwater Drainage System Maintenance: Drainage facilities provided by the developer shall be fully and properly maintained from construction through final acceptance of the development improvements by the City of Ponca City.

18. Private Stormwater Drainage System Maintenance

It shall be the responsibility of the individual property owners or a homeowners association to maintain private drainage facilities within any development as follows:

a) Mow drainage channels and their slopes for that portion of the channel lying within their property limits.

b) Keep clear all drainage channels within the boundaries of their properties in accordance with the requirements of this Chapter.

c) Prevent any and all drainage interferences, obstructions, blockages, or other adverse effects upon drainage into, through, or out of the property

d) Control the erosion of the drainage channels and the deposition of materials into the drainage channels from the property.

F. Drainage Easements

Drainage easements (see below table) shall be shown on the Final Plats and/or Site Development Plan and shall state that the City has the right of access on the easements which shall be kept clear of obstructions to the flow and/or maintenance access.

REQUIRED DRAINAGE EASEMENTS (NOT WITHIN A PUBLIC ROW)	
DRAINAGE FACILITY	MINIMUM EASEMENT WIDTH
1. Storm Sewer	20 feet
2. Storm Sewer Overflow, Where Required	As required to contain surface overflow in a surface drainage easement.
3. Open Channel	Top width of Channel plus 20 feet (arranged as appropriate for maintenance purposes)
4. Detention Areas	As required to contain storage volume and associated facilities plus adequate maintenance access around the perimeter.

G. Development within the Regulatory Floodplain

The City of Ponca City has adopted floodplain regulations which set forth the policies, purpose, restrictions, and requirements for floodplain development. See Title 10 Building Regulations, Chapter 10 Flood Damage Prevention Ordinance.

SECTION 12-8-11: TECHNICAL STANDARDS AND CRITERIA

A. DRAINAGE DESIGN AND TECHNICAL CRITERIA

The City of Ponca City requires that all storm drainage facilities be planned and designed in accordance with the criteria set forth in this Chapter. The criteria may be revised or amended as new technology is documented.

B. Drainage Construction Plans

Approval of plans for construction of any drainage facility not initiated within a two-year period from time of approval shall expire. Plans must be reviewed again and approved after two years have elapsed subsequent to their approval, unless construction (other than grading) has been initiated.

SECTION 12-8-12: DRAINAGE IMPROVEMENT RESPONSIBILITY

C. DEVELOPER RESPONSIBILITY

It shall be the responsibility of any individual engaged in the improvement of land to:

1. Control and manage all drainage within and from the development including the control and management of any approved increase in runoff volume or rate.
2. Prepare all drawings, plans, specifications, statements, studies, justifications, impacts and other data required by this Chapter to assure that all assigned responsibilities have been sufficiently and correctly incorporated.
3. Provide detention facilities, storm sewers, improved or natural channels, or a combination thereof to assure control and management of increased runoff.
4. Prevent soil deposition, sedimentation, and erosion from any surface of the site into a drainage channel provided or created within the development, and from the site into downstream drainage channels, and maintain same until suitable permanent soil cover is established.
5. Prevent any and all drainage obstructions from interfering with drainage through or adjacent to the development from discharge sources upstream. Temporary or permanent bypass channels or other improvements may be required.
6. Improve or modify any and all drainage systems and channels lying within the subdivision to a level that meets all requirements of this Chapter.
7. Improve or modify drainage systems downstream from the subdivision for problem areas identified in the stormwater master plan (and provide easements or row's for such) in accordance with the recommendations of the stormwater master plan.
8. Prevent any aggravation of existing flooding, drainage, erosion, runoff, pollution, or other storm water management problem within any area already under development.
9. Provide for transferring ownership and maintenance of storm water detention facilities to a private entity responsible for maintenance.
10. Comply with other applicable provisions of this Chapter and Title 10, Chapter 10 - Flood Damage Prevention Ordinance and permit requirements by State and Federal Agencies for all subdivision development activities.

D. PROPERTY OWNER RESPONSIBILITY

1. See Section 12-8-10(E) (2).

E. CITY OF PONCA CITY RESPONSIBILITY

The responsibility of the City of Ponca City, within the discretion of the City Commission, shall be to:

1. Repair and maintain channels and their slopes when located within or upon public right-of-ways or dedicated drainage easements.
2. Make necessary improvements to the drainage systems of the City as defined by the stormwater master plan that will not be improved by or during private development.
3. Maintain special flood hazard areas that are dedicated public areas, rights-of-way, park lands, or public-owned buildings or development.
4. Maintain all publicly-owned drainage systems outside the special flood hazard area.

5. Provide final inspection and acceptance of all privately financed public improvement projects.

F. ENGINEER RESPONSIBILITY

The responsibility of the engineer in the planning and design of public drainage facilities is as follows:

1. The engineer shall prepare the necessary drainage analysis and facility designs in accordance with the provisions of this Chapter and shall certify that they are in compliance, subject to approved technical variances.
2. The engineer shall use sound professional judgment and standard engineering practice when recommending technical variances.
3. The engineer shall observe the completed construction and upon completion of construction the engineer shall provide reproducible PE signed, sealed and dated as-built plans of all public drainage facilities as well as engineer's letter of confirmation that the facilities were constructed in compliance with the approved construction plans and per City code. As-built plans shall also be provided in digital cad vector file format currently used by the City Engineering Department on current commonly used media.

SECTION 12-8-13: SUBMITTAL REQUIREMENTS

The submittal requirements for drainage reports and plans are set forth in this section.

G. SUMMARY STATEMENT

The cover letter for the Drainage Reports shall include the following:

1. Goals and Policies
   a) Discuss how the proposed drainage plan meets the Stormwater Management goals and adheres to the floodplain policies of this Chapter.
   b) Discuss any deviation of the proposed drainage plan from the above goals and policies.
2. Drainage System Components
   c) Discuss the overall concept of the proposed system.
   d) Discuss the interaction of the major drainage and the proposed system.
3. Criteria
   e) Discuss any proposed deviation from the Chapter and methodology, as set forth in the standards, for consideration by the City for approval, if appropriate.
   f) Discuss the design criteria for the storm drainage design of the proposed system.

B. Drainage Report

The Drainage and Detention Report will identify and define solutions to the problems which may occur on site and off site as a result of the development. In addition, those problems that exist on site prior to development must be addressed during design. All reports shall be typed on 8 1/2" x 11" paper and bound together. The drawings, figures, plates, and tables shall be bound with the report or included in a folder/pocket at the back of the report. The report shall include a cover letter presenting the preliminary design for

review and the report shall be prepared by or supervised by an engineer licensed in Oklahoma.

4. Certification: The report shall contain a certification sheet as follows:

> "I hereby certify that this report (plan) for the preliminary drainage design of (Name of Development) was prepared by me (or under my direct supervision) in accordance with the provisions of the City code of Ponca City for the owners thereof."

_____

Licensed Professional Engineer
State of Oklahoma No._____
(Affix Seal)

5. Report Contents: The Drainage Report shall be formatted in accordance with the following outline and contain all of the applicable information listed:

a) GENERAL LOCATION AND DESCRIPTION

i) Location

a) Name and address of Legal Owner

b) Vicinity Sketch

c) Legal description of property

d) Boundary line survey

e) Township, range, section, 1/4 section

f) Local streets within and adjacent to the subdivision

g) Major drainage ways and facilities

h) Names of surrounding developments

ii) Description of Property

a) Area in acres

b) Ground cover (type of trees, shrubs, vegetation)

c) Major drainage ways and floodplains.

d) Soil Types and Hydrologic Soil Groups

b) DRAINAGE BASINS AND SUB-BASINS

i) Major Basin Description

a) Reference to major drainage way planning studies such as Stormwater Master Plan, flood damage prevention ordinance, and flood insurance rate maps

b) Major basin drainage characteristics

c) Identification of all drainage system components within 50-feet of the property boundary.

d) Overall drainage area boundary and drainage sub-area boundaries.

ii) Sub-Basin Description

a) Historic drainage patterns of the property in question

b) Off-site drainage flow patterns and their impact on the proposed development

c) DRAINAGE DESIGN CRITERIA

i) Regulations:

a) Discussion of the optional criteria selected or the deviation from the Chapter, if any

ii) Development Criteria Reference and Constraints

a) Previous drainage studies (i.e., project master plans) for the site in question that influence or are influenced by the drainage design and how the plan will affect drainage design for the site

b) Discussion of the drainage impact of site constraints such as streets, utilities, railways, existing structures, and development of site plan

iii) Hydrological Criteria

a) Design rainfall

b) Hydrologic analysis for runoff and on-site or regional stormwater detention facilities as required.

c) Hydrologic analysis for compensatory storage requirements for any alterations of the floodplain.

d) Runoff calculation method

e) Hydrologic analysis for runoff to insure conveyance.

f) Detention discharge and storage calculation method

g) Design storm recurrence intervals

iv) Hydraulic Criteria

a) Routing of off-site drainage flow through the development.

b) Location of watercourse and the appropriate hydraulic analysis for any alteration of a watercourse.

c) Hydraulic analysis for runoff to insure conveyance.

d) Hydraulic analysis for compensatory storage requirements for any alterations of the floodplain.

e) References for calculation of facility capacity

f) Detention outlet type

g) Grade control structure criteria used

d) DRAINAGE FACILITY DESIGN

i) General Discussion of:

a) Proposed and typical drainage patterns

b) Compliance with off-site runoff considerations

c) The content of tables, charts, figures, plates, or drawings presented in the report

d) Anticipated and proposed drainage patterns

ii) Specific Discussion of:

a) Drainage problems encountered and solutions at specific design points

b) Detention storage and outlet design

c) Photographs of downstream channel condition

d) Maintenance access and aspects of the design

e) Proposed maintenance agreement

f) Easements and/or ROW dedications required

e) IMPACT ON AREA OF SPECIAL FLOOD HAZARD

i) Location of watercourse and the appropriate hydraulic analysis for any alteration of a watercourse

ii) Hydraulic and Hydrologic analysis for run-off to insure conveyance

iii) Hydraulic and Hydrologic analysis for compensatory storage requirements for any alterations of the floodplain

iv) Hydraulic and Hydrologic analysis for run-off and on-site or regional stormwater detention facilities, if required

v) Floodplain boundaries with elevations to 1988 NAVD

vi) Estimate of the quantity of excavation and fill with drawings indicating each separate excavation or fill (cross sections may be required)

vii) All appropriate FEMA (Federal Emergency Management Agency) submittal data to achieve a map revision (LOMR)

viii) No Rise certification for offsite properties.

f) CONCLUSIONS

i) Compliance with the City code of Ponca City

a) Stormwater Master Plan

b) Best Management Practices Plan provided and implemented

ii) Drainage Concept

a) Effectiveness of drainage design to control damage from storm runoff

b) Influence of proposed development on the Stormwater Master Plan recommendation(s)

g) REFERENCES

i) Reference all criteria and technical information used

h) APPENDICES

i) Hydrologic Computations

a) Land use assumptions regarding adjacent properties

b) Path(s) chosen for computation of time-of-concentration.

c) Stormwater runoff at specific design points onsite and offsite.

d) Historic and fully developed runoff computations at specific design points

e) Hydrographs at critical design points if applicable

ii) Hydraulic Computations

a) Culvert capacities

b) Storm sewer capacity

c) Street capacity

d) Storm inlet capacity including inlet control rating at connection to storm sewer

e) Open channel design

f) Check and/or channel drop design

g) Detention area/volume capacity and outlet capacity calculations

i) COMPLETED DRAINAGE AND DETENTION CHECK LIST ASSURING THAT ALL ITEMS HAVE BEEN ADDRESSED.

6. Drawing Contents

j) Sheet-1 General Location Map: A map shall be provided in sufficient detail to identify drainage flows entering and leaving the development and general drainage patterns. The map should be at a scale of 1" = 200' to 1" = 400' and show the path of all drainage from the upper end of any off-site basins to the defined major drainage ways. The map shall identify any major construction (i.e., developments, irrigation ditches, existing detention facilities, culverts, main storm sewers), along the entire path of drainage. The size of the drawings shall be 8 1/2" x 11", 11” x 17”, or 22” x 34”.

k) Sheet-2 Floodplain Information: A copy of the regulatory floodplain map showing the location of the subject property shall be included with the report.

l) Sheet-3 Drainage Plan: Map(s) of the proposed development at a scale of 1" = 20' to 1" = 200' on a 22" x 34" drawing shall be included. The plan shall show the following:

i) Existing and proposed contours at 2 foot maximum intervals. In terrain where the slope is relatively flat, spot elevations and drainage arrows must be shown.

ii) Property lines and easements with purposes noted: Name, address and telephone number of legal owner of property; vicinity sketch

iii) Streets, roads and highways adjacent to the property

iv) Existing drainage facilities and structures, natural or man-made, including, roadside ditches, drainage ways, gutter flow directions, and culverts. All pertinent information such as material, size, shape, slope, and location shall also be included.

v) Overall drainage area boundary and drainage sub-area boundaries

vi) Proposed type of street flow (i.e., vertical or combination curb and gutter), roadside ditch, gutter flow directions, and cross pans. Include street classifications.

vii) Proposed storm sewers and open drainage ways, including inlets, manholes, culverts, retaining walls, erosion control measures, and other appurtenances

viii) Proposed outfall point for runoff from the developed area and facilities to convey flows to the final outfall point without damage to downstream properties

ix) Routing and accumulation of flows at various critical points for the minor storm runoff

x) Path(s) chosen for computation of time-of-concentration

xi) Details of detention storage facilities and outlet works

xii) Location and elevations of all defined floodplains affecting the property

xiii) Location and elevations of all existing and proposed utilities affected by or affecting the drainage design

xiv) Routing of off-site drainage flow through the development

SECTION 12-8-14: DESIGN RAINFALL

H. INTRODUCTION

Presented in this section is the design rainfall data to be used for runoff hydrograph calculations in HEC-HMS and the Rational Method. All hydrological analyses for the City of Ponca City shall utilize the rainfall data presented herein for calculation of storm runoff.

B. Total Rainfall

Total rainfall depths for 1-year through 500-year storms with storm durations of 5-minutes to 24-hours were developed for the City of Ponca City and are presented in the table below. The Flood Insurance Rate Map, floodway determinations, and Flood insurance Study issued by the Federal Emergency Management Agency (except for the Arkansas River main channel) and adopted by the Ponca City Board of Commissioners used the 24-hour duration storm to develop the results presented therein.

For instances in which a Conditional Letter of Map Revision or a Letter of Map Revision must be submitted to FEMA or when a Floodplain Development Permit is required by the City of Ponca City then this design rainfall shall be utilized. See table below in this section.

TOTAL RAINFALL DEPTHS								
Duration	Total Rainfall – Inches Storm Frequency							
	1-year 100%	2-year 50%	5-year 20%	10-year 10%	25-year 4%	50-year 2%	100-year 1%	500-year 0.2%
5-minute	0.36	0.48	0.56	0.62	0.72	0.79	0.86	1.00
15-minute	.81	.99	1.18	1.32	1.53	1.69	1.85	2.19
1-hour	1.39	1.79	2.33	2.71	3.23	3.64	4.05	4.99
2-hour	1.68	2.10	2.70	3.21	3.76	4.26	4.76	5.72
3-hour	1.84	2.19	3.06	3.51	4.21	4.67	5.72	6.68
6-hour	2.11	2.64	3.16	4.18	4.83	5.40	6.20	7.44
12-hour	2.57	3.21	4.21	4.88	5.72	6.38	7.27	8.73
24 hour	2.97	3.68	4.78	5.59	6.50	7.37	8.32	10.08

C. Storm Area

The rainfall depth-duration data presented in table above are point rainfall depths. As watershed area increases, it is unlikely that the rainfall will be evenly distributed over the entire watershed. Therefore, a storm area equal to the area of the entire watershed shall be used.

D. Storm Duration

All hydrologic studies shall use a storm duration of 24 hours except where the rational method is required to be used.

E. Balanced Rainfall Distribution

A balanced rainfall distribution shall be used. The maximum intensity duration shall be set to 5 minutes and positioned at the 50 percent location of the storm.

US Weather Bureau Technical Paper No. 40, Rainfall Frequency Atlas of the United States (May 1961) was used for cumulative rainfall data of storm durations greater than one hour, the National Oceanic and Atmospheric Administration (NOAA) Technical Memorandum NWS HYDRO-35 (June 1977) was used for cumulative rainfall data of storm durations from 5 to 60 minutes for development of the Flood Insurance Rate Maps. However, those references were developed prior to the climate changes that the City of Ponca City is currently experiencing. For example for the period 1931-1960 the average rainfall for Ponca City was 32.11 inches per year, but the annual average rainfall for Ponca City for the period 1971-2000 was 36.41 inches per year.

More current rainfall data is found in USGS Water Resources Investigations Report 99-4232 Depth-Duration Frequency of Precipitation for Oklahoma a joint effort by the U.S. Geological Survey and Oklahoma Department of Transportation. WRIR 99-4232 does not include 5-minute duration information, thus, HYDRO-35 remains the source of 5-minute duration information. Rainfall data to be used for projects in the City of Ponca City is contained in the Table below.

CITY OF PONCA CITY 2009 TOTAL REVISED RAINFALL DEPTH							
Duration	Storm Frequency & Rainfall in Inches						
	50% 2-Year	20% 5-Year	10% 10-Year	4% 25-Year	2% 50-Year	1% 100-Year	0.20% 500-Year
5-minute	0.48	0.56	0.62	0.72	0.79	0.86	1.00
15-minute	0.89	1.16	1.35	1.63	1.87	2.15	2.95
30-minute	1.26	1.64	1.90	2.26	2.56	2.90	3.80
60-minute	1.64	2.18	2.57	3.10	3.55	4.08	5.45
1-hour	1.52	2.07	2.42	2.88	3.20	3.54	4.30
2-hour	1.95	2.68	3.17	3.80	4.25	4.72	5.80
3-hour	2.17	2.98	3.52	4.23	4.75	5.25	6.50
6-hour	2.52	3.47	4.13	5.00	5.65	6.40	8.00
12-hour	2.78	3.85	4.62	5.60	6.40	7.20	9.20
24-hour	3.13	4.35	5.20	6.30	7.15	8.10	10.20
1-day	3.32	4.58	5.50	6.90	8.00	9.25	12.70
3-day	4.02	5.55	6.65	8.15	9.35	10.60	14.00
7-day	4.85	6.67	7.95	9.75	11.20	12.70	16.70

F. Rainfall Intensity

The rainfall intensity is the average rainfall rate in inches per hour for the period of maximum rainfall of a given frequency having duration equal to the time of concentration. As described in the February 1988 ODOT Drainage Design Manual, the following equations may continue to be used in the Ponca City area to calculate the average rainfall intensity until ODOT revises the Intensity-Duration-Frequency curves shown below:

$$I = d/(Tc+e)^{f}$$

Where:

I = Rainfall Intensity, inches per hour

Tc = Time of Concentration, minutes

d, e, f = Parameters defined in table below

1988 ODOT Rainfall Intensity Parameters			
Design Storm	Parameter		
	d	e	f
2 Year	56.43	11.5	0.81
5 Year	72	15	0.80
10 Year	82	15	0.80
25 Year	95	15	0.80
50 Year	108	15	0.80
100 Year	120	15	0.80

The following I-D-F Curves are preferred for use in Ponca City because they include adjustments to the more current rainfall patterns. These were developed by Te Ahn Ngo, P.E., CFM, Hydrologist with the Oklahoma Department of Transportation utilizing the information developed in WRIR 99-4232.

$$I = a/(b + Tc)^{c}$$

Where:

I = Rainfall Intensity, inches per hour

Tc = Time of Concentration, minutes

a, b, c = Parameters defined in table below

	Rainfall Intensity Parameters		
Design Storm	a	b	c
2-Year	47	10	0.79
5-Year	53	10	0.76
10-Year	59	10	0.75
25-Year	70	10	0.75
50-Year	75	10	0.74
100-Year	86	10	0.74
500-Year	127	10	0.77

SECTION 12-8-15: RUNOFF COMPUTATIONS

I. APPROVED METHODS

1. The City of Ponca City maintains HEC-HMS models that reflect current conditions and were used to develop the areas of Special Flood Hazard defined in Title 10,

Chapter 10. These models are based on the SCS method of unit hydrograph calculations, with a 24-hour duration storm. The SCS method is acceptable where the Rational Method and Modified Rational Method are not required per 12-8-15.A.4. below.

2. Where applicable, other methods may be used only when accepted by the City Engineer.

3. The Rational Method was the predominate hydrology method used to design most of the street drainage and storm sewers in the Ponca City area and consistency of the hydrology method utilized is preferred for a drain system design within the area. The post-development runoff shall be calculated utilizing the same method as pre-development runoff was calculated, except that post-development detention storage requirements shall be determined utilizing the Modified Rational Method (MRM). The Modified Rational Method is less sensitive to changes in estimation of time to concentration and accounts for the impact of differing storm durations.

4. Stormwater Runoff Determination

   The Rational Method shall be used to calculate runoff flows and the Modified Rational Method shall be used to calculate stormwater detention volumes for the following:

   a. Where the pre-development time of concentration is less than 20 minutes or the drainage basin is 10 acres or less;

   b. Where the drainage basin does not encroach on an area of Special Flood Hazard determined in Title 10, Chapter 10; and

   c. Where there is no connection to a storm sewer or drainage way that is under the jurisdiction of the Oklahoma Department of Transportation.

5. For subdivision development where the Rational Method and Modified Rational Method cannot be used by the conditions described above, the timing of peak flows must be taken into account by using the SCS hydrograph method for computation of storm water runoff for a 24 hour duration storm.

B. Rational Method

6. The Rational Method using the Wright-McLaughlin modifier (correction factor) is based on the formula:

$$Q = C_f * CIA$$

Where: Q = Peak discharge, cubic feet per second

C_f = Runoff Correction factor

C = Runoff coefficient, dimensionless (see Table 703)

I = Rainfall intensity for a duration equal to the time of concentration, inches/hour

A = Watershed area, acres

7. Runoff Correction Factor

   Experience has shown that the original Rational Method is reliable only when the design storm frequency is less than or equal to the 10% storm. If the design storm frequency is greater than a 10% storm, the following modification shall be made:

$Q = (C) \times (C_f) \times (I) \times (A)$

Where Q, C, I, and A are the same as in the original Rational Method. However, when the product of (C) x (Cf) exceeds 1.0, then 1.0 shall be used for (C) x (Cf).

C_f = Runoff correction factor, dimensionless **

Design Storm Frequency	C_f
2-10	1.00
25	1.10
50	1.20
100	1.25
500	1.43

8. Runoff Coefficient

Runoff Coefficients for different land use or surface characteristics are found in the table below.

RATIONAL METHOD
RUNOFF COEFFICIENTS AND PERCENT IMPERVIOUSNESS

Land Use or Surface Characteristic	Percent Imperviousness	Runoff Coefficients
BUSINESS:		
Commercial Areas	70 to 95	0.73 to 0.88
Neighborhood Areas	60 to 80	0.53 to 0.68
RESIDENTIAL:		
Single Family	35 to 60	0.36 to 0.49
Multi-unit (detached)	45 to 55	0.44 to 0.59
Multi-unit (attached)	65 to 75	0.63 to 0.74
1/2 acre lot or larger	30 to 45	0.26 to 0.39
Apartments	65 to 75	0.54 to 0.67
INDUSTRIAL		
Light uses	70 to 80	0.50 to 0.80
Heavy uses	80 to 90	0.60 to 0.90
PARKS, CEMETERIES	4 to 8	0.10 to 0.25
PLAYGROUNDS	40 to 60	0.30 to 0.40
RAILROAD YARDS	35 to 45	0.30 to 0.40
UNDEVELOPED AREAS		
Cultivated	30 to 70	0.36 to 0.58
Pasture	20 to 60	0.29 to 0.42
Woodland	5 to 40	0.18 to 0.29
STREETS		
Concrete	90 to 100	0.86 to 0.94
Asphalt	90 to 100	0.76 to 0.83
Gravel	50 to 70	0.55 to 0.65
Brick	75 to 85	0.70 to 0.85
DRIVES AND WALKS	90 to 100	0.80 to 0.90
ROOFS	85 to 95	0.80 to 0.90
LAWNS:		
Sandy soils	5 to 10	0.10 to 0.20
Clayey soils	10 to 30	0.18 to 0.22

The runoff coefficients were based upon slopes up to 6%. For greater slopes use current ODOT runoff coefficient graphs.

If the sub-basin is not homogeneous in its land use type, a composite runoff coefficient should be calculated by averaging the areas of different runoff coefficients.

Previously undeveloped land shall utilize a runoff coefficient (C-value) based upon pasture condition for the slope and soil conditions that currently exist. For a previously developed site where additional incremental construction is proposed a

weighted pre-development runoff coefficient that reflects the current site conditions is the least restrictive pre-development condition that may be considered. For previously developed sites for which complete redevelopment is proposed, the pre-development condition shall utilize a runoff coefficient (C-value) based upon pasture condition for the slope and soil conditions that existed prior to any development on that site.

9. Time of Concentration

Calculation of the Time of Concentration (Tc) by methods developed by the Oklahoma Department of Transportation are acceptable. Alternatively, the Time of Concentration (Tc) for the basin shall be calculated as follows:

Tc is made up of two time components, according to the following equation:

$$Tc = t_l + t_T$$

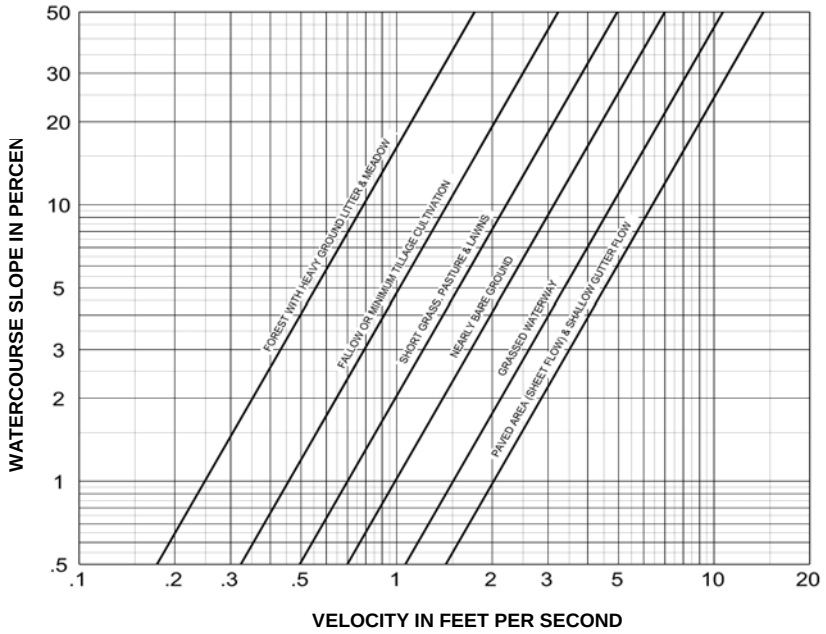
Where:

- Tc = time of concentration (minutes)
- t_l = initial, inlet, or overland flow time (minutes)
- t_T = travel time in the ditch, channel, gutter, storm sewer, etc. (minutes)

For urban areas, the time of concentration consists of an overland flow time (t_l) plus the time of travel (t_T) in the storm sewer, paved gutter, roadside drainage ditch, or drainage channel.

For non-urban areas, the time of concentration consists of an overland flow time (t_l) plus the time of travel in a combined form, such as a small swale, channel, or drainage way.

TRAVEL TIME VELOCITY



1. Valid only for overland flow paths up to 500 feet long.
2. For flow paths >500 feet long, use "Grassed Waterway" or "Paved Area" line.

Overland flow time t_l varies with surface slope, surface cover and distance of surface flow and is estimated using the appropriate line/formula below.

If the overland travel reach exceeds 500 feet, the “Grassed Waterway” or “Paved Area (Sheet Flow) & Shallow Gutter Flow” line/formula should be used since the runoff will combine and the sheet flow assumption is no longer correct.

The latter portion (t_T) of the time of concentration can be estimated from the hydraulic properties of the storm sewer, gutter, swale, ditch, or drainage way, or may be calculated using the "Paved Area (Sheet Flow) & Shallow Gutter Flow" line/formula in the Travel Time Velocity Figure.

C. Unit Hydrograph Methods

10. HEC-HMS shall be used to model hydrologic calculations involving runoff for watersheds which cannot use the Rational Method as described in section 12-8-15.A.4. and the SCS Unit Hydrograph method shall be used.

11. SCS Unit Hydrograph Method: The Soil Conservation Service (SCS) method is presented in detail in Section 4 of the U.S. Department of Agriculture Soil Conservation Service Engineering Handbook and Model Drainage Manual, American Association of State Highway and Transportation Officials, 1991.

D. Modified Rational Hydrograph Method

The modified rational method was documented in a report referenced below:

Poertner, H.G. Practices in Detention of Urban Stormwater Runoff. American Public Works Association, OWRR Contract No. 14-31-0001-3722, Chicago, 1974.

SECTION 12-8-16 STREET DRAINAGE AND STORM SEWER SYSTEMS

J. CRITERIA FOR STREET DRAINAGE AND STORM SEWER SYSTEMS

1. Roadway Drainage Systems:

a) Storm Sewer Systems: The City of Ponca City permits the use of streets for stormwater runoff within the following limitations:

i) Curb Inlet Locations: Inlets shall be located at intersections to prevent the flow from crossing the intersection. Inlets at intersections shall be located so they do not encroach upon the curb return. No drainage structure shall be permitted at a wheelchair ramp.

ii) Storm sewers will be designed so that there will be no adverse impact within any special flood hazard area.

iii) Cross Drains and Side Drains:

a) For principal arterials, cross drains and side drains will pass the 2% (50 year) storm. Inlets will be designed so that the 10% (10-year) storm does not exceed curb depth.

b) For other arterials, cross drains and side drains will pass the 4% (25 year) storm. Inlets will be designed so that the 10% (10-year) storm does not exceed curb depth.

c) For collector streets, cross drains and side drains will pass the 10% (10 year) storm. Inlets will be designed so

that the 10% (10-year) storm does not exceed curb depth.

d) For local streets, cross drains and side drains will pass the 10% (10 year) storm. Inlets will be designed so that the 20% (5-year) storm does not exceed curb depth.

e) For collector and local street that would be isolated with no street access in a 25 year storm, cross drains and side drains will pass the 4% (25 year) storm. Inlets will be designed so that the 4% (25 year) storm does not exceed the centerline by more than 0.33 feet (4 inches).

iv) In no case shall the runoff from the 100-year storm exceed the boundaries of the street right-of-way.

b) The overland flow portion of the collector system shall be confined to dedicated rights-of-way, or restricted drainage easements to assure that stormwater can pass through the development without inundating the lowest level of any building, dwelling, or structure. Drainage easements shall be shown on the plat. The stormwater runoff from no more than ½ acre shall be allowed onto another lot or between 2 lots without a storm drainage easement.

c) The emergency overflow easement shall state on the plat that the easement is provided for overland flow of storm water in the event the inlet of the sewer becomes clogged or the regulatory event is exceeded and that the area shall be maintained by the property owner or homeowners association at its prescribed elevation and further that the property owner and homeowners association are prohibit from constructing a fence, wall, planting or otherwise inhibiting the intended overland relief

2. Depth in Streets: Use of streets for conveyance of stormwater runoff shall be within the following limitations:

d) In all cases, the 100-year flow shall be contained within the right-of-way.

e) For the 25-year frequency rainstorm, two driving lanes of arterial streets and one driving lane for collector streets shall remain open. Depth of flow for arterial, and collector streets shall not exceed 6” at the gutter line or at outside edge of paving. Where no curb exists stormwater encroachment shall not extend past the street right-of-way.

f) For the 10-year frequency rainstorm one driving lane for local streets shall remain open and depth of flow shall not exceed 6” at the gutter line or outside edge of paving.

g) At sump locations, the water depth shall not exceed 12" above the top of the grate for the 100-year frequency rainstorm.

h) Where sump collection systems are used, an overflow route shall be established in the event of complete blockage of the sump in accordance with Section 12-8-16.A.1.c. above.

f) At least one street from the drive entrance to/from a Critical Facility to a street intersection with at least two different directions of public streets shall remain passable during a 1% storm. In order to be considered passable the depth of flow during a 1% storm shall not exceed the greater of the height of the curb or the vertical distance from the curb and gutter invert to the centerline of the street.

3. Location of Storm Sewers: Storm sewer shall not be placed within the wheel path of any driving lane of the pavement. The preferred location of the storm sewer is according to the following order of priority listed.

   i) Behind the Curb

   j) Down the Center of the Traffic Lane (The traffic lane is defined as the normal width provided for each lane and delineated by pavement stripes.)

   k) On Centerline

E. Drainage Impact on Streets

4. Sheet Flow:

   To minimize the effects of hydroplaning and splashing of sheet flow, the streets of Ponca City are designed with a 2% (1/4" per foot) cross slope. At intersections with arterial streets only the cross-slope may be decreased to 1% (1/8" per foot). In addition, for arterial streets, the amount of flow permitted in the street is limited to the outside lane before a storm sewer inlet is required.

5. Cross Flow:

   The depth of cross flow permitted in non-arterial streets, where it cannot be avoided, is limited to the top of curb. Cross flow in arterial streets is not permitted and is strongly discouraged for collectors and residential streets.

6. Valley Gutters:

   Concrete valley gutters are required in asphalt streets when the longitudinal grade is 1% or less. The width of the valley gutter will be determined by the depth required. The maximum slope of the lateral grade shall be 5%. If a bird bath exists on an asphalt valley greater than 1%, then a concrete valley gutter shall be constructed.

F. Hydraulic Evaluation

7. Curb and Gutter Capacity:

   a) The allowable storm capacity of each street section with curb and gutter shall be calculated using the modified Manning's formula:

$$Q = 0.56(Z/n)S^{1/2}Y_T^{8/3}$$

Where Q = discharge in cfs

Z = reciprocal of the street cross slope (S_x, ft/ft)

Y_T = depth of flow at the gutter (feet)

S = longitudinal grade of street (ft/ft)

n = Manning's roughness coefficient

b) Manning's roughness coefficient, n, shall be used according to the applicable construction condition from the table below.

MANNING'S n-VALUES FOR STREET GUTTERS	
Construction Type	n
Concrete gutter troweled finish	0.012
Asphalt Pavement Smooth texture Rough Texture	 0.013 0.016
Concrete gutter with asphalt pavement Smooth Rough	 0.013 0.015
Concrete pavement Float finish Broom finish	 0.014 0.016
Brick	0.016

Note: For gutters on flat grades where sediment may accumulate, increase all above values of n by 0.002.
Source: Drainage Design Manual, ODOT, February, 1988

c) When the street cross section has different cross slopes, capacity computation shall take into account the various cross slopes.

G. Storm Sewer Inlets

8. Design criteria

a) Inlet Types:

i) Three types of inlets are used in the City of Ponca City: curb opening inlets, combination grated and curb opening inlets and median inlets. Multiple inlets occur when more than one inlet (of the same type) are used in a continuous series, resulting in greater flow interception capacity.

ii) Inlet types shall be in accordance with the ODOT Standard Drawings.

iii) On arterial streets, offset type inlet, ODOT Standard SSCD-2, shall be used.

b) Location of Inlets:

i) Inlets shall be located at all low points in the gutter grade, on side streets at intersections where runoff would flow onto an arterial street or highway and upgrade of bridges to prevent runoff from flowing onto the bridge deck. Inlets are also required when the allowable depth of flow in the gutter is exceeded.

ii) Inlets at intersections shall be located in such a manner that no part of the inlet will encroach upon the curb return. Inlets on a continuous grade in the interior of a block should be placed upstream of a nearby driveway, if possible. The flow line and top of curb elevations shall be shown on all inlets.

iii) Spacing between Inlets: The spacing between inlets shall be such that depths of flow and widths of spread requirements are not violated.

c) Interception and Bypass:

i) The type of inlet to be used and the percent of flow to be intercepted at a particular location are left to the judgment of the designer. The objective is to minimize the cost of the storm sewer system while satisfying all of the design criteria. In general, an interception rate of 70 to 80 percent will result in an economical design.

ii) Hydraulic design of inlets shall be in accordance with Section G.4.

9. Inlets in Sump Condition: When inlets are placed in a sump, emergency overflow shall be provided as described in Sections 12-8-16.A.1.c.and 12-8-16.A.2.e.

d) Hydraulic Evaluation Methodology:

i) Curb and grate inlet capacities shall be in accordance with FHWA HEC-22 methods.

e) Grate Inlets:

i) Grated inlets without a curb opening are not permitted within City of Ponca City streets.

ii) The bicycle safe grates (in combination with a curb opening) are the only grates approved by the City of Ponca City within the street right-of-way.

iii) When a grate is used in conjunction with a curb opening directly behind the grate, only the hydraulic capacity of the grate shall be utilized to estimate the flow that is intercepted, since the curb opening portion is reserved to collect debris.

f) Curb Opening Inlets:

i) Two types of curb opening inlets are approved by the City of Ponca City: cast in place concrete inlets, and manufactured metal inlets.

SECTION 12-8-17: STORM SEWER PIPE SYSTEM

K. INTRODUCTION

A "storm sewer system" refers to a system of inlets, pipes, manholes, junctions, outlets, and other appurtenant structures designed to collect and convey storm runoff to a defined drainage way. A "drainage system" also includes curbs and gutters, roadside ditches, swales, channels, and detention systems for the control of overland runoff. In general, a storm sewer system is required when other parts of the drainage system no longer have the capacity for additional runoff without exceeding the design criteria.

L. DESIGN CRITERIA

1. Storm Sewer Velocity

a) The capacity and velocity shall be based on the Manning's n-values presented in the table below. The maximum full flow velocity shall be less than 12 fps. Higher velocities may be accepted by the City Engineer if the design includes adequate provisions for uplift forces, dynamic impact forces and abrasion. The minimum velocity in a pipe based on full flow shall be 2.5 fps to avoid excessive accumulations of sediment.

HYDRAULIC DATA FOR PIPE

MATERIAL	n-VALUE
(A) - CONCRETE	
Pre-Cast Pipe	0.012
Reinforced Concrete Box	0.015
Cast-in-Place	
Steel forms	0.013
Wood forms	0.015
(B) - PLASTIC	
Corrugated polyethylene	0.022
Corrugated polyethylene (smooth inter.)	0.012
Polyvinyl chloride (smooth interior)	0.012
(C) – CORRUGATED METAL PIPE	
Aluminized	0.012
Galvanized	0.024

b) The energy grade line (EGL) for the design flow shall be no more than one foot above the final grade at manholes, inlets, or other junctions. To insure that this objective is achieved, the hydraulic grade line (HGL) and the EGL shall be calculated by accounting for pipe friction losses and pipe form losses. Total hydraulic losses will include friction, expansion, contraction, bend, manhole, and junction losses.

C. Construction Materials:

Storm sewers within the City of Ponca City may be constructed using reinforced concrete, corrugated metal, or plastic pipe. The materials, pipes, and appurtenances shall meet the requirements of ODOT's Standard Specifications. The pipe material for roadway crossings shall be reinforced concrete pipe.

D. Vertical Alignment

2. The sewer grade shall be such that a minimum cover is maintained to withstand AASHTO HS-20 loading on the pipe. The minimum cover depends upon the pipe size, type and class, and soil bedding condition, but shall not be less than one foot from the top of pipe to the finished grade at any point along the pipe. The pipe shall not encroach into the street sub-grade.

3. Manholes will be required whenever there is a change in size, alignment, elevation grade and slope, or where there is a junction of two or more sewers. For sewers equal to or larger than 60" diameter, pre-formed smooth transitions shall be approved by the City Engineer. The maximum spacing between manholes for various pipe sizes shall be in accordance with the table below.

STORM SEWER ALIGNMENT AND SIZE CRITERIA
MANHOLE SPACING:

Pipe Size	Maximum Spacing for Manholes	Minimum Manhole Size
15" to 24"	400'	4'
27" to 42"	500'	5'
48"	600'	6'
54" to 66"	600'	8'
>66"	600'	junction structure

MINIMUM RADIUS FOR RADIUS PIPE:
Short radius bends shall not be used on sewers 36" or less in diameter for public systems.

MINIMUM PIPE DIAMETER:

Type	Minimum Equivalent Pipe Diameter	Minimum Cross-Sectional Area
Main Trunk	15"	1.23 SF
Lateral from inlet	15"	1.23 SF

4. The minimum clearance between storm sewer and water main (for new construction), either above or below shall be 12". Ductile iron pipe (with proper bedding) will be required for clearances of 12" or less when the clearance between existing water mains cannot be maintained.

5. The minimum clearance between storm sewer and sanitary sewer (for new construction), either above or below, shall be 12". In addition, when an existing sanitary sewer main lies above a storm sewer, or within 18" below, the sanitary sewer shall have impervious encasement or be constructed of ductile iron pipe for a minimum of 10' on each side of the storm sewer crossing.

6. Siphons or inverted siphons are not allowed in the storm sewer system.

E. Horizontal Alignment

7. Storm sewer alignment between manholes shall be straight. Curvilinear storm sewers using pipe bends or radius pipes require a technical variance and approval of the City Engineer.

8. A minimum horizontal clearance of ten feet is required between sanitary sewer or water utilities and the storm sewer.

9. The permitted locations for storm sewer within a street right-of-way are: (a) behind the curb, (b) down the center of the driving lane, and (c) on centerline. Behind the curb is the preferred location. The storm sewer shall not be allowed in the wheel path.

F. Storm Sewer Inlets and Outlets

10. All storm sewer outlets into open channels shall be constructed with a headwall and wingwalls or a flared-end-section. Erosion control measures shall be taken at all outfalls.

SECTION 12-8-18: OPEN CHANNELS

M. CHANNEL DESIGN

1. Design: Channels shall be designed in accordance with sound engineering principles.

2. Channel Geometry: For trapezoidal channels, the minimum bottom width shall be 4' with side slopes of not steeper than 3.5 to 1 for sodded sections and a minimum bottom width of 3' with side slopes of not steeper than 1:1 for paved or rock lined sections. Where the public may be exposed to hazards and nuisances of open channels, appropriate measures shall be taken to exclude the public from the perilous area.

3. Manning's n - Value: Manning’s Equation in the calculations of hydraulic characteristics of channels will be acceptable. The "n" value used for channels shall be based on the individual channel characteristics, according to the table below. Designers should anticipate growth of trees as a natural maturation process of the channel. Values less than 0.05 shall be justified.

MANNING'S n-VALUE FOR OPEN CHANNELS

Channel Type	n-Value Range	Recommended Value
Grass lined - maintained Grass lined - not maintained	.029 to .100 .045 to .10	.035
Natural Streams	.025 to .100	Note (1)
Riprap Lined 1. Ordinary riprap 2. Gabions 3. Grouted riprap 4. Slope mattress	. .025 to .050 .025 to .050 .023 to .030 .025 to .033	 .035 .035 .027 .028
Concrete Lined 1. Float finished/wood forms 2. Slip formed 3. Gunite	 .013 to .016 .013 to .016 .016 to .023	 Note (2) Note (2) Note (2)

4. Minimum Slope: Channels shall have minimum slopes of 0.1% for concrete-lined channels and 0.2% for grass lined channels. The City Engineer's acceptance is required for channels with a flatter slope.

5. Minimum Velocity: Minimum velocity in a drainage way system, having a roughness co-efficient less than or equal to 0.015, shall be 2.5 fps to avoid sedimentation.

6. Maximum Velocities: Velocities shall not exceed 6 fps for sections sodded in grass depending on soil conditions. Velocities in concrete lined or paved sections shall not exceed 15 fps. The dissipation of energy shall be required at the confluence of improved channels with natural channels through the use of dissipaters, stilling basins and etc. which shall be designed in accordance with FHWA HEC #14 Hydraulic Design of Energy Dissipaters for Culverts and Channels Drainage Manual.

7. Freeboard: Where practical, the design water surface elevation shall be kept below the level of natural ground. A 1' freeboard above the energy grade line should be added to calculated flow depths to determine minimum channel depths.

8. Base Flood Elevation (BFE) or floodplain boundary changes shall be approved by FEMA.

B. Trickle Channels

9. All channels altered or improved from the natural state will require a paved trickle channel unless a variance is granted by the City Engineer. Sodding, or other methods of erosion control shall be required adjacent to the paved channel.

C. Concrete Flumes

10. Concrete flumes in lieu of enclosed pipe shall be allowed as overflow protection for storm sewer systems, and to drain areas not exceeding two (2) acres in size. All concrete flumes shall extend to the rear of adjacent lots and shall discharge into a

dedicated drainage facility or channel. There will be no special freeboard requirement for concrete flumes.

D. Roadside Ditches

11. Roadside ditches shall only be utilized in areas of RA zoning and for City streets through areas in agricultural land use. Roadside ditches shall be designed to contain the 1% storm within the street right-of-way, contain the 20% storm within the ditch with 6 inches of freeboard, and not cause an adverse impact during a 1% storm.

SECTION 12-8-19: HYDRAULIC STRUCTURES

N. DEFINITIONS

1. Culvert: A culvert is defined as a closed conduit for the passage of water under an embankment, such as a road, railroad, or driveway. The distinction between a culvert and a sewer is the means by which flow enters the conduit. Flow normally enters a culvert by an open channel, generally at a similar elevation and a culvert usually crosses a street.

2. Bridge: A bridge is constructed with abutments and superstructures, which are typically concrete, steel, or other materials. Since the superstructures are generally not an integral structural part of the abutments, and are therefore free to move, the hydraulic criteria for bridges is different than for culverts. Bridges are also usually constructed with earth or rock inverts, whereas culverts are typically the same material throughout the waterway opening.

B. Culverts

3. Construction Materials:

a) Culverts beneath paving shall be constructed of reinforced concrete or corrugated metal in accordance with the table below. Other materials may be used on a case by case basis on acceptance by the City Engineer.

CULVERT MATERIALS

PIPE MATERIAL	STANDARD
Reinforced Concrete Pipe Round Elliptical Arch	ASTM C-76 or AASHTO M-170 ASTM C-507 or AASHTO M-207 ASTM C-506 or AASHTO M-206
Pre-Cast Concrete Manholes	ASTM C-478 or AASHTO M-199
Pre-Cast Concrete Box	ASTM C-789/C-850, AASHTO M-259/273 or ODOT
Concrete Cast-in-Place Box	ODOT Standard
Corrugated Aluminum Alloy: Alloy Pipe and Underdrains Structural Plate Aluminized Type II Coated	 AASHTO M-196 AASHTO M-219 AASHTO M-274
Corrugated Steel Metallic coated for sewer/drains Bituminous Coated pipe/arches Polymer Pre-coated Structural Plate	 AASHTO M-196 AASHTO M-190 AASHTO M-245 AASHTO M-167

b) Culverts in grassed areas where vehicular traffic is not anticipated may be constructed of High Density Polyethylene Pipe (HDPE) conforming to AASHTO M 294 Type S or SP, non-corrugated PVC pipe conforming to ASTM D 3034 DR 26, or corrugated PVC pipe conforming to ASTM F 949.

4. Sizing Method:

c) Culvert design shall follow the methodology presented in Hydraulic Design of Highway Culverts, Hydraulic Design Series HDS No. 5, FHWA, U.S. Department of Transportation and Drainage Manual, Oklahoma Department of Transportation, 1992.

5. Design Frequency:

d) Minimum design frequency for culverts shall be according to Section 12-8-16.A.1.

6. Minimum Size:

e) Pipe Culverts - 15" equivalent

f) Box Culverts - 3' in height

7. Velocity Limitations:

g) In design of culverts both the minimum and maximum velocities must be considered. A minimum velocity of 3- feet per second at the outlet is required to assure a self-cleaning condition of the culvert.

h) The outlet area shall include a headwall with wingwalls or an end-section in addition to the riprap protection if required. Where outlet velocities exceed six feet per second, erosion control measures shall be taken. Energy dissipaters shall be provided as required.

8. Structural Design:

i) Culverts shall be designed to withstand an HS-20 loading in accordance with the design procedures of AASHTO Standard Specifications for Highway Bridges and with the pipe manufacturer's recommendations. In addition, the AASHTO maximum heights of cover for corrugated metal structures shall also be followed. The minimum cover over top of the pipe shall be 12" unless otherwise accepted by the City Engineer.

9. Driveway Crossings:

j) Driveway culverts shall be sized to pass the 10-year ditch flow capacity without overtopping the driveway. The minimum size culvert shall be a 15" round pipe, or equivalent, for all streets. Sloped headwalls required per the city's Standard Details.

10. All culvert openings shall be protected by an end treatment designed for the pipe materials and appropriate application, including pre-fabricated end sections, headwalls with wingwalls or concrete culvert end treatments, in accordance with ODOT standard drawings.

C. Bridges

11. Velocity Limitations:

a) The velocity limitations through the bridge opening are controlled by the potential abutment scour and subsequent erosion protection provided. Using riprap for the channel lining and/or protection of the abutments and wingwalls, the maximum channel velocity is limited to 15 fps.

12. Hydraulic Analysis:

b) The hydraulic design of bridge crossings shall be in accordance with Drainage Manual, Oklahoma Department of Transportation, most current edition.

13. Inlet and Outlet Configuration:

c) The design of bridges shall include adequate wingwalls of sufficient length to prevent abutment erosion and to provide slope stabilization from the embankment to the channel. Erosion protection on the inlet and outlet transition slopes shall be provided to protect from the erosive forces of eddy current.

14. Bridges shall be designed in accordance with AASHTO/ODOT criteria. Rails shall comply with ODOT Standard Details.

SECTION 12-8-20: STORMWATER DETENTION

O. GENERAL

1. See Section 12-8-15.A.4. for Stormwater runoff determination methods.

2. The detention storage shall accommodate the excess runoff from a 100-year frequency storm. The excess runoff is that runoff generated due to urbanization which is greater than the runoff historically generated under existing conditions, for a given frequency storm. Detention facilities shall be designed so that the peak rate of discharge does not exceed that of the pre-development conditions for all storm events up to and including 100-year.

3. Peak release rates from developments shall not exceed the existing runoff that occurred before development for all storm frequencies up to and including the 100-year frequency storm. Releases for 2, 5, 10, 25, 50 and 100-year storms shall not exceed the existing rate.

4. Generally, urbanization results in more impervious area and a reduction in floodplain storage, both of which contribute to increased flow rates. If improvements are made to any natural channel downstream from an area which requires a minimum pipe diameter of 48" to discharge a 10-year frequency storm, current floodplain storage must be maintained.

5. The City of Ponca City requires the following minimum performance standards for drainage facilities:

Detention: Detention facilities shall have a release rate which does not exceed the pre-development runoff conditions for all flood frequencies up to and including the 1% storm.

For all stormwater detention facilities, the releases shall be conveyed such that there is no adverse impact downstream. The table below outlines the various freeboard requirements.

Freeboard Requirements for Stormwater Detention Facilities			
Embankment or Excavated Pond	1% (100-year) water surface elevation depth	1% (100-year) water surface elevation	0.2% (500-year) water surface elevation or Probable Maximum Flood
Embankment or Excavated	< 18-inches	Contained within a dedicated Stormwater detention easement	

Freeboard Requirements for Stormwater Detention Facilities			
Embankment or Excavated Pond	1% (100-year) water surface elevation depth	1% (100-year) water surface elevation	0.2% (500-year) water surface elevation or Probable Maximum Flood
Embankment	18-inches to 6 feet	Contained within the detention facility with one foot of freeboard to the top of the embankment*	Contained within the detention facility with one foot of freeboard to the top of the embankment.*
Embankment	> 6 feet		
Excavated	>18-inches	Contained within the detention facility with one foot of freeboard to the top of the embankment.*	

*unless more stringent OWRB dam safety requirements control, as outlined in Title 785:25-3-3 of the Oklahoma Administrative Code, found at *http://www.oar.state.ok.us/viewhtml/785_25-3-3.htm*.

6. An accessway at least 20 feet wide shall be provided to any required detention area. Access may be provided by frontage on a dedicated public street or by an access easement from a dedicated public street to the detention area.

7. Any dam or berm shall be designed in accordance with the dam safety criteria of the Oklahoma Water Resources Board, if the requirements of OWRB apply.

8. The maintenance responsibility for on site detention facilities shall remain with the private sector and appropriate covenants shall be obtained to secure such maintenance.

P. PHYSICAL FEATURES

1. Detention dams or dikes shall be constructed as earth filled and non-overflow type dams. Embankment slopes shall not be steeper then 4: 1. Spillways shall be constructed to pass the 500-year flood event with a minimum of one (1) foot of freeboard on the earth dam structure unless stricter criteria control.

2. Side slopes on detention facilities shall not be steeper than 4:1.

3. Access road, with grade of 10% or less, shall be provided to the detention areas for maintenance purposes.

4. Detention facilities shall be provided with a low flow concrete trickle channel from the inlet to the outlet structure to transmit low flows.

5. Storm sewer outlets in the slope of the detention pond shall be protected by a reinforced concrete slopewall.

6. All earth slopes and earth areas subject to erosion, such as, adjacent to low flow channels, inlet structures, and outlet structures shall be slab sodded with Bermuda sod or protected with other erosion control measures. All other earth surfaces, within the area designated for detention facility site, shall have an established

growth of Bermuda grass. All covered areas shall be fertilized, watered and in an established growing condition prior to completion and acceptance of the detention facility.

Q. Fee In Lieu of Onsite Detention

1. The owner shall have the option of paying the fee-in-lieu-of on-site detention or constructing on-site detention facilities except at locations where on-site detention facilities are required.

2. Payment in lieu of detention facilities may be considered only in the following locations:

   a) In development areas adjacent to regional detention facilities; or

   b) In areas downstream of regional detention facilities within the boundaries of mitigation of flood elevations provided by the regional detention facility; or

   c) Within the Special Flood Hazard Area of the Arkansas River main channel; or

   d) Any new development containing an impervious area of no more than 10,000 square feet.

   e) In Rural Acreage subdivisions.

   f) Immediately adjacent to or within the Central Business District.

   g) The fee rate is based on square feet of impervious area of the proposed development. The fee is $0.12/Square foot.