



ORDINANCE NO. Z 16-10

SUBDIVISIONS

AN ORDINANCE AMENDING ORDINANCE Z15-11 FOR THE PURPOSES OF REGULATING AND RESTRICTING CONGESTION IN THE STREETS, PROMOTE THE ORDERLY LAYOUT OF THE LAND; SECURE SAFETY FROM FIRE AND OTHER DANGERS; PROVIDE ADEQUATE LIGHT AND AIR; FACILITATE ADEQUATE PROVISIONS FOR TRANSPORTATION, WATER, SEWAGE, SCHOOLS, PARKS, PLAY GROUNDS AND OTHER PUBLIC REQUIREMENTS; PROTECT NEIGHBORHOOD AREAS FROM THE HAZARD OF THROUGH TRAFFIC; DEFINING CERTAIN TERMS; PROCEDURES FOR APPLICATIONS AND APPROVALS; DESIGN STANDARDS FOR STREETS, ALLEYS, EASEMENT, BLOCKS AND LOTS; REQUIRED IMPROVEMENTS SUCH AS DEVELOPMENT COST, MONUMENTS, UNDERGROUND UTILITY CONDUITS, AND STREETS; FINAL RECORDED PLAT REQUIREMENTS; VARIANCES; PENALTY FOR VIOLATION; AND CITY REQUIREMENTS; PROVIDING FOR ENACTMENT, REPEALER, AND SEVERABILITY; PROVIDING FOR PUBLICATION, EFFECTIVE DATE, POSTING OF SIGNS, AND COMMENCEMENT OF ENFORCEMENT; FINDING PROPER NOTICE & MEETING.

WHEREAS, the City of Nolanville is a Home Rule City in the State of Texas, and Texas Local Government Code Sec. 51.072 recognizes the City's full power of local self-government; and

WHEREAS, Texas Local Government Code Sec. 51.001 authorizes the City to adopt, publish, amend, or repeal an ordinance, rule, or police regulation that is for the good government, peace, or order of the municipality or for the trade and commerce of the municipality, and is necessary or proper for carrying out a power granted to it by law or to one of its offices or departments; and

WHEREAS, Texas Local Government Code Sec. 212.002 specifically authorizes the City, after a public hearing on the matter, to adopt rules governing plats and subdivisions of land within the City's jurisdiction to promote the health, safety, morals, or general welfare of the City and its safe, orderly, and healthful development; and

WHEREAS, the City's Planning and Zoning Commission, following all of the procedures required by law, has reviewed Ordinance No. Z15-11 and has submitted to the City Council recommended modifications to the same; and

WHEREAS, the City Council has considered the aforementioned recommendations and finds them to be appropriate, necessary and proper for the government, interest, welfare, and good order of the City, and to promote the health, safety, morals, or general welfare of the City,

NOW, THEREFORE, BE IT ORDAINED by the City Council of the City of Nolanville, Texas:

1. FINDINGS OF FACT

The foregoing recitals are incorporated into this Ordinance by reference as findings of fact as if expressly set forth herein.

2. ENACTMENT

The City's Subdivision Ordinance, Ordinance No. Z15-11, is hereby repealed and amended so as to read in accordance with Attachment "A", which is attached hereto and incorporated into this Ordinance for all intents and purposes.

3. PUBLICATION

The caption or title and the penalties under this Ordinance shall be published one (1) time in the official newspaper(s) of the City of Nolanville, as required under Sec. 3.11(C) of the City Charter.

4. REPEALER

All ordinances, or parts thereof, that are in conflict or inconsistent with any provision of this Ordinance are hereby repealed to the extent of such conflict, and the provisions of this Ordinance shall be and remain controlling as to the matters regulated herein.

5. SEVERABILITY

Should any of the clauses, sentences, paragraphs, sections or parts of this Ordinance be deemed invalid, unconstitutional, or unenforceable by a court of law or administrative agency with jurisdiction over the matter, such action shall not be construed to affect any other valid portion of this Ordinance.

6. EFFECTIVE DATE

This Ordinance shall be effective immediately upon passage and publication as provided by law.


7. PROPER NOTICE & MEETING

It is hereby officially found and determined that the meeting at which this Ordinance was passed was open to the public, and that public notice of the time, place and purpose of said meeting was given as required by the Open Meetings Act, Texas Government Code, Chapter 551. Notice will also be provided as required by Chapter 52 of the Texas Local Government Code.

PASSED AND APPROVED this 20th day of October, 2016, by a vote of 5 (ayes) to 0 (nays) to 0 (abstentions) of the City Council of the City of Nolanville, Texas.


CITY OF NOLANVILLE:

ATTEST:



Dave Escobar Sr., Mayor





Crystal Briggs, City Secretary

Attachment "A"

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SECTION 1: GENERAL PROVISIONS

A. DEFINITIONS.

For the purpose of this chapter, the following definitions shall apply unless the context clearly indicates or requires a different meaning.

DEVELOPMENT. The new construction or the enlargement of any exterior dimension of any building, structure, or improvement.

EXTRATERRITORIAL JURISDICTION. A city's extraterritorial jurisdiction as determined under Tex. Loc. Gov't Code, Chapter 42.

MAY. Deemed permissible.

SHALL. Deemed as mandatory.

STREET. A way for vehicular and non-vehicular traffic, whether designed as a street, highway, thoroughfare, parkway, throughway, road, avenue, boulevard, lane, place, or other designation. Streets may be classified as follows:

(1) *Residential streets.* These are streets that serve individual residential lots. They carry low traffic volumes at low speeds.

(2) *Minor collectors.* These are streets generally located within subdivisions or between subdivisions to collect traffic from residential streets and to channel this traffic to the major collectors. Residential lots may front on these streets.

(3) *Major collectors.* These streets are generally located along borders of neighborhoods and within commercial areas to collect traffic from residential areas and to channel this traffic to the arterial system. These are limited access roads with no residential lots fronting on them.

(4) *Minor arterials.* High volume streets that conduct traffic between communities and activity centers and connect to major state and interstate highways. These are limited access roads with no residential lots fronting on them.

(5) *Major arterials.* High volume streets with six or more lanes. These are limited access roads with no residential lots fronting on them.

(6) *Alley.* A minor way which is used primarily for vehicular access to the back or side of properties otherwise abutting on a street.

SUBDIVISION. The division of any lot, tract, or parcel of land situated within the corporate limits of the city or within its extraterritorial jurisdiction, by plat, map, or description into two or more parts, lots, building lots, sites, or building sites, for the purpose, whether immediate or future, of sale, rental, lease, or division of ownership. The dedication and laying out or realignment of streets, roads, alleys, rights-of-way, highways, parks, easements or other portions intended for public use with or without platting is also a SUBDIVISION. This

definition excludes the division of and or lots of land for agricultural purposes in parcels of five acres or more unless any such division of five acres or more includes the planning or development of a new street or access easement or re-alignment of an existing street.

WALK. A public walkway.

B. FEE SCHEDULE.

Fees shall be as designated in the Fee Schedule Ordinance approved by the City Council as part of the current fiscal year's operating budget.

C. EXTRATERRITORIAL JURISDICTION.

(1) The City Council finds that to promote the health, safety, morals, or general welfare of the city and the safe, orderly, and healthful development of the city, it is necessary to extend to the extraterritorial jurisdiction of the city the application of the ordinance prescribing rules governing plats and subdivisions of land.

(2) Pursuant to Tex. Loc. Gov't Code, the city hereby extends to its extraterritorial jurisdiction the application of this chapter which prescribes the rules governing plats and subdivisions of land.

(3) The fine or criminal penalty prescribed in Section 8 C does not apply to a violation in the extraterritorial jurisdiction.

D. THOROUGHFARE PLAN ADOPTED.

(1) The Thoroughfare Plan Map of the City of Nolanville is hereby adopted and approved by the City Council as the Transportation Thoroughfare Plan Map.

(2) The Transportation Thoroughfare Plan is the city's general plan for guiding thoroughfare system development, including sidewalks, the planned widening and extension of its roads, streets, and public highways within the city and its extraterritorial jurisdiction (ETJ). The plan indicates the needed rights-of-way, general alignments for planned new roadways, as well as plans for widening and extensions of existing thoroughfares. Proposed general alignments are shown for planned new roadways, but actual alignments may vary depending upon the topography of the land and changing conditions. The importance of thoroughfare planning is to decide, in advance, the general location and type of thoroughfares that are needed to serve the projected future mobility needs of the city and region, and to require consideration of thoroughfare right-of-way needs concurrent with new development or redevelopment.

(3) Sidewalks and other pedestrian pathways such as linear parks along drainage channels are required to move people safely to and from schools and commercial areas while providing opportunity for neighborhoods to be more neighborly and residents to walk, exercise, etc.

(4) The plan shows approximate alignments and right-of-way requirements for planned thoroughfares that should be considered in platting of subdivisions, required right-

of-way dedication, and construction of major roadways. The plan does not show future alignments of residential streets because the function of these streets is to provide access to adjacent land development. The alignment of residential streets may vary depending upon specific development plans. Minor collectors' alignments are to be determined based on function approval during the planning process for new developments.

(5) The original of the Thoroughfare Plan Map shall be filed in the office of the City Secretary. It shall be the official map and shall bear the signature of the Mayor and attestation of the City Secretary. It shall not be changed in any manner except as the Council may amend this Thoroughfare Plan from time to time. In case of any question, the Thoroughfare Plan Map, together with any amending ordinances, shall be controlling.

(6) Additional copies of the original map shall be placed in the offices of the Public Works Director. These copies shall be maintained up-to-date by posting thereon all subsequent amendments and shall be identified as the official Thoroughfare Plan Map.

E. DEVELOPER'S PRESENCE REQUIRED.

The developer or their authorized representative must be present at all Planning and Zoning Commission Meetings and City Council Meetings at which their plan or plat is on the agenda for discussion or action. Failure of the developer or their authorized representative to appear before the Planning and Zoning Commission or City Council during a meeting on which the plan or plat is on the agenda for discussion or action may be deemed a withdrawal of the plat or plan.

SECTION 2: PROCEDURE FOR APPROVAL

A. DEVELOPMENT CONCEPT PLAN.

(1) *General.* A Development Concept Plan is the developer's concept of how he or she intends to develop a site. The purpose of the development concept plan is to allow the city lead time necessary to assist in the development process and to plan and coordinate the construction of necessary infrastructure (depending on the availability of funds the city may participate in over-sizing of infrastructure if the city deems it necessary above what is required to serve the planned area or above ordinance requirements). It is also intended to allow the developer to comprehensively plan in a coherent method for the development of the different phases of his or her development.

(2) *Requirement.* A Development Concept Plan is required when land is developed in more than one phase. It provides an opportunity for the developer to illustrate his or her proposed plans before the expense of extensive design is incurred. A Development Concept Plan is binding and must be complied with; however, it may be amended at the request of the developer. Substantial amendments or changes to an approved Development Concept Plan must be reviewed by the Planning and Zoning Commission with final approval by the City Council. Minor amendments may be approved by the Planning and Development Director or other affected city staff. Minor amendments are those that:

- (a) Increase by 10% or less the number of lots or potential structures that can be accommodated by the infrastructure; or
 - (b) Reduce the number of lots.
 - (c) Any proposed change in infrastructure is considered major amendment.
- (3) *Form and Content.* The Development Concept Plan shall be drawn to a scale of 1 inch equals 200 feet or larger, depicting at a minimum the following elements as applicable:
- (a) Perimeter of entire property;
 - (b) Perimeter of all proposed phases;
 - (c) Lines depicting approximate locations of streets with right-of-way widths and pavement widths;
 - (d) Lines depicting approximate locations of water and sewer lines with sizes. Required lift stations must be shown;
 - (e) Contour lines and drainage plan;
 - (f) Proposed land uses;
 - (g) Proposed densities and/or lot sizes;
 - (h) Proposed zoning;
 - (i) Impacts on traffic and existing utilities such as sewer demand calculations;
 - (j) Easements necessary to serve adjacent properties;
 - (k) Signature blocks for the Mayor, City Secretary and Planning and Zoning Commission Chair or the Planning and Development Director, depending on the nature of the plan.

(4) *Processing.*

(a) Seven copies of the Development Concept Plan shall be submitted to the Planning and Development Director. The Development Concept Plan shall be reviewed by the Planning and Development Director and affected city staff for conformity with the city's plans, major thoroughfare plan, utility master plan, engineering standards and specifications, city ordinances and other city standards.

(b) Upon completion of this review, the plan shall be submitted to the Planning and Zoning Commission and City Council for consideration, conveying staff comments and recommendations. A preliminary plat may be submitted along with the Development Concept Plan in the interest of reducing processing time.

(c) The Planning and Zoning Commission shall study the plan and all recommendations. Particular attention will be given to the arrangement, location and width of streets and their relation to the topography of the land; lot sizes and arrangement; water and sewer lines; drainage; the further development of adjoining lands; and the requirements of city ordinances, policies and plans.

(d) The Planning and Zoning Commission shall act on the plan and may advise the developer of any specific changes or additions they will require in the layout or comment on the character and extent of improvements and dedications that will be required as a prerequisite to the approval of final plats. The Planning and Zoning Commission shall forward the plan with their recommendations to the City Council. The Planning and Development Director shall inform the developer in writing of the decision of the City Council including any conditions for approval or reasons for disapproval.

(e) Once the plan has been approved by the City Council, two Mylar copies shall be submitted to the city. A Development Concept Plan will expire one year after approval unless:

(i) An extension is applied for and granted by the Director of Planning and Development;

(ii) Development activity as determined by the Director or his or her designee occurs within the one-year period following approval. In no event may an extension be granted for a period exceeding one year. Should development activities not take place in any subsequent phases for three years after the previous phase had been developed or partially developed, the plan shall be considered expired and void. If the regulations, requirements or standards change during the three years, the Planning and Zoning Commission and City Council may grant an extension subject to the new regulations at the request of the developer. The Building Official may grant an extension if the regulations requirements or standards have not changed.

B. PREAPPLICATION PROCEDURE.

(1) Prior to filing an application for conditional approval, the sub-divider shall contact the City Manager/ Building Official and utility companies so that his subdivision will conform to the Master plan and fill all requirements of Section A, B of this chapter.

(2) The above shall be presented to the Planning Commission ten days prior to a scheduled meeting.

C. CONDITIONAL APPROVAL FOR PRELIMINARY PLAT.

(1) Seven copies of the preliminary layout and supplementary material specified shall be submitted to the Planning Commission with written application for conditional approval.

(2) Following the review by the City Manager, City Planning Commission, Department Heads and Building Official involved of the preliminary layout and other material submitted for conformity thereof to the regulations of this chapter, and negotiations with the sub-divider on changes deemed advisable and the kind and extent of improvements to be made by the sub-divider, the Planning Commission shall, within 30 days, act thereon as submitted or modified, and if approved, the Planning Commission shall express its approval as conditional approval, and state the conditions of such approval, if any, or, if disapproved, shall express its disapproval and its reasons therefore.

(3) The action of the Planning Commission shall be noted on at least two copies of the preliminary layout, referenced and attached to any conditions determined. One copy shall be returned to the sub-divider and the other retained by the Planning Commission.

(4) Conditional approval of a preliminary layout shall not constitute approval of the final plat. Rather it shall be deemed as expression of approval to the layout submitted on the preliminary layout as guide to the preparation of the final plat which will be submitted for approval of the Planning Commission and for recording upon fulfillment of the requirements of these regulations and the conditions of the conditional approval.

D. APPROVAL OF FINAL PLAT

(1) Any person desiring approval of a final plat must apply to and file with the Planning Commission seven copies of the final plat, together with all other exhibits required for approval. The final plat and all required exhibits shall be filed with the Planning Commission not later than 180 days after the day the preliminary layout was approved, and not more than 30 days prior and not less than 20 days prior to the meeting at which the application is to be considered. Failure to apply for final plat approval within 180 days after the day the preliminary layout was approved shall render such preliminary layout approval void.

(2) The Final Plat and all required exhibits shall be prepared to comply with the requirements of Sections 4A hereof, and shall conform substantially to the preliminary layout as approved. However, if desired, the applicant may seek final plat approval of only that portion of the approved preliminary layout which he proposes to record and develop at that time.

(3) Final plat approval shall not be issued until the plat has been approved by both the Planning Commission and the City Council.

(a) The Planning Commission shall act on an application for approval of a final plat within 30 days after the date the plat is filed. A plat is considered approved by the Planning Commission unless it is disapproved within that period.

(b) If a Final Plat is approved by the Planning Commission, the City Council shall act on the application within 30 days of the date the plat is approved by the Planning Commission, or is deemed approved by Planning Commission's failure to act. A plat is considered approved by the City Council unless it is disapproved within that period.

(4) The final plat shall be approved if:

(a) The plat conforms to the general plan of the city and its current and future streets, parks, playgrounds and public utility facilities.

(b) The plat conforms to the general plan for the extension of the city and its roads, streets, and public highways within the city and in its extra-territorial jurisdiction, taking into account access to and extension of sewer and water mains and the instrumentalities of public utilities.

(c) If applicable, the applicant has complied with Tex. Loc. Gov't Code 212.0105 and 212.0106 as then amended.

(d) The plat conforms to all city rules governing plats and subdivisions of land.

(5) If a final plat is approved by both the Planning Commission and the City Council, the City Council shall endorse the plat with a certificate indicating such approval. The certificate must be signed by the City Council's presiding officer and attested by the City Secretary, or a majority of the members of the City Council. If the final plat approval is deemed by virtue of the City Council's failure to act within the prescribed period, the City Council shall, upon request, promptly issue a certificate stating the date the plat was approved or deemed approved by the Planning Commission, and that the City Council failed to act on the plat within the 30-day period.

E. ADMINISTRATIVE APPROVAL OF PLATS.

(1) Notwithstanding Section 2 D of this Ordinance, the Building Official shall have the authority to approve:

(a) Amending plats described by Tex. Loc. Gov't Code§ 212.016, as then amended, revised or re-codified; and

(b) Minor plats involving four or fewer lots fronting on an existing street, and not requiring the creation of any new street or the extension of municipal facilities.

(2) Any person seeking approval of a minor plat or an amended plat by the Director of Planning and Development shall comply with the requirements of Section 6 A of this Ordinance.

(3) The Building Official shall not under any circumstances disapprove a plat. Should the Building Official refuse to approve a plat under this section, he or she shall refer the plat to the Planning Commission for action within 30 days after the date the plat is filed.

(4) The Director of Planning and Development may, for any reason, require a person desiring approval of an amending plat or minor plat to comply with the procedure set forth in Section 2 D of this code.

SECTION 3: PRELIMINARY PLAT

A. PRELIMINARY PLAT.

(1) General subdivision information shall describe or outline the existing conditions of the site and the proposed development as necessary to supplement the drawings required in this section. This information may include data on existing covenants, land characteristics, and available community facilities and utilities; and information describing the subdivision proposal such as the number of residential lots, typical lot width and depth, price range, business areas, playgrounds, park areas, and other public areas, proposed protective covenants and proposed utilities and street improvements.

(2) Location map shall show the relationship of the proposed subdivision to existing community facilities which serve or influence it. Include development name and location, main traffic arteries, public transportation lines, shopping centers, elementary and high schools, parks, and playgrounds, principal places of employment, other community features such as railroad stations, airports, hospitals, and churches, scale, north arrow, and date.

(3) Sketch plan on topography survey shall show in simple sketch form the proposed layout of streets, lots and other features in relation to existing conditions. The sketch plan may be a free-hand pencil sketch made directly on a print of the topographic survey. In any event the sketch plan shall include either the existing topographic data listed in Section 3 B of this chapter, or such of these data as the Planning Commission determines is necessary for its consideration of the proposed sketch plan.

(4) A developer will obtain a statement from utility companies that they are aware of the subdivision and foresee no difficulties in providing service to the area. A statement will be forwarded with the preliminary plat.

B. PRELIMINARY PLAT ON CONDITIONAL APPROVAL.

(1) *Topographic data.* Topographic data required as a basis for the preliminary layout shall include existing conditions as follows, except when otherwise specified by the Planning Commission.

(a) Boundary lines: bearings and distances.
(b) Easements: location, width, and purpose.
(c) Streets on and adjacent to the tract: name and right-of-way width and location; type, width, and elevation of surfacing; any legally established center-line elevations, walks, curbs, gutters, culverts, and the like.

(d) Utilities on and adjacent to the tract: location, size, and invert elevation of sanitary, storm, and combined sewers; location of gas lines, fire hydrants, electric and telephone poles, and street lights; if water mains and sewers are not on or adjacent to the tract, indicate the direction and distance to, and size of the nearest ones, showing invert elevation of sewers.

(e) Ground elevations on the tract, based on a datum plane approved by the Planning Commission.

(i) For land that slopes less than approximately 2% show spot elevations at all breaks in grade, along all channels and ditches or swales and at selected points not more than 100 feet apart in all directions.

(ii) For land that slopes more than 2% show contours with an interval of not more than five feet.

(f) Subsurface conditions on the tract, if required by the Planning Commission: location and results of tests to ascertain subsurface soil, rock, and groundwater conditions, depth to groundwater unless test pits are dry at a depth of five feet; location and results of soil percolation test if individual sewage disposal systems are proposed.

(g) Other conditions on the tract if required by the Planning Commission: water courses, marshes, rock outcrop, wooded area, isolated preservable trees between street lines eight inches or more in diameter, houses, barns, shacks, and other significant features.

(h) Other conditions on adjacent lands: approximate direction and gradient of ground slope, including any embankments or retaining walls; character and location of buildings, railroads, power lines, towers, and other nearby nonresidential land uses or adverse influence; owners names on adjacent unplatted land; for adjacent platted land refer to subdivision plat by name and date of recording, and show approximate present build-up, typical lot size, and dwelling type.

(i) Photographs, if required by the Planning Board, camera location, directions of views and key numbers.

(j) Zoning on and adjacent to the tract.

(k) Proposed public improvements: highways or other major improvements planned by public authorities for future construction on or near the streets.

(l) Key plan showing location of the tract.

(m) Title and certificates: present tract designation according to official records in office of County Clerk; title under which proposed subdivision is to be recorded, with names

and addresses of owners, notation stating acreage, scale, north arrow, datum, benchmarks, certification of registered civil engineer or surveyor, date of survey.

(n) Deed restrictions.

(2) *Preliminary layout.* Preliminary layout shall be at a scale of 200 feet to one inch or larger. It shall show all existing conditions required in division (A), topographic data, and shall show all proposals including the following:

(a) Streets. Street names, right-of-way widths, approximate grades and gradients, similar data for alleys, if any.

(b) Other rights-of-way or easements: location, width, and purpose.

(c) Location of utilities, if not shown on other exhibits.

(d) Lot lines, lot numbers, and block numbers.

(e) Sites, if any, to be reserved or dedicated for parks, playgrounds, or other public uses.

(f) Sites, if any, for multi-family dwellings, shopping centers, churches, industry, or other non-public uses, exclusive of single-family dwellings.

(g) Minimum building setback lines.

(h) Site data, including number of residential lots, typical lot size, and acres in parks, and the like.

(i) Title, scale, north arrow, and date.

(3) *Other preliminary plans.* When required by the Planning Commission, the preliminary layout shall be accompanied by profiles showing existing ground surface and proposed street grades, including extensions for a reasonable distance beyond the limits of the proposed subdivision; typical cross-sections of the proposed grading, roadway and public sidewalk, and preliminary plan of proposed sanitary and storm water sewers with grades and sizes indicated. All elevations shall be based on a datum plane approved by the Planning Commission.

SECTION 4: DESIGN STANDARDS

A. STREETS & SIDEWALKS.

(1) The arrangement, character, extent, width, grade, and location of all streets shall conform to the Thoroughfare Plan and shall be considered in their relation to existing and planned streets, to topographical conditions, to public convenience and safety, and in their appropriate relation to the proposed uses of the land to be served by such streets.

(2) When a street is not shown on the Thoroughfare Plan, the arrangement of the streets shall:

(a) Provide for the continuation or appropriate protection of existing streets in surrounding areas; or conform to a plan for the neighborhood approved or adopted by the city to meet a particular situation where topographical or other conditions make continuance or conformity to existing streets impracticable.

(b) Provide for future access to adjacent vacant or undeveloped areas which will likely develop in the future.

(c) Resolve alignment with existing right-of-way and driveway openings.

(3) Where a subdivision abuts or contains an existing or proposed major street, the Planning Commission may require marginal access streets, reverse frontage with screen planting contained in non-access reservation along the rear property line, deep lots with rear service alleys, or such other treatment as may be necessary for adequate protection of residential properties and to afford separation of through and local traffic.

(4) Where a subdivision borders on or contains a railroad right-of-way or limited access highway 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, as for park purposes in residential districts, or for commercial or industrial purposes in appropriate districts. Such distances shall also be determined with due regard for the requirements of approach grades and future grade separations.

(5) Reserve strips controlling access to streets shall be prohibited except where their control is definitely placed in the city, under conditions approved by the Planning Commission.

(6) Street jogs with centerline off-sets of less than 125 feet shall be avoided.

(7) A tangent at least 100 feet long shall be introduced between reverse curves on arterial and collector streets.

(8) When connecting horizontal street lines deflect from each other at any one point by more than 10 degrees, they shall be connected by a curve with a radius adequate to ensure a non-passing sight distance of not less than 100 feet for minor and collector streets, and of such greater radii as Planning Commission shall determine for special cases.

(9) Streets shall be laid out so as to intersect as nearly as possible as right angles and no street shall intersect any other street at less than 60 degrees.

(10) Property lines at street and alley inter-sections shall be rounded with a radius of 20 feet, or of a greater radius where the Planning Commission may permit comparable cutoffs or chords in place of rounded corners, particularly in commercial and industrial areas.

(11) All streets within the city shall be constructed as shown on the Thoroughfare Plan and, where not otherwise shown thereon, shall be designed as follows:

(a) Residential streets shall be 36 feet in width (back of curb to back of curb) with a minimum of 60-foot right-of-way. Where a major entrance to a subdivision is not part of a collector street, there shall be 42 feet wide with a 70-foot right-of-way for a distance of 100 feet from the intersection. Sidewalks are required on both sides of residential streets within the affected subdivision or lots. Builder/owner shall construct sidewalks in the rights-of-way adjacent to the lots; whether on the front, side, or rear of the lots, before a certificate of occupancy is issued.

(b) Minor collectors shall be 42 feet wide (back of curb to back of curb), with a minimum of 70-foot right-of-way. Sidewalks are required on both sides of minor collectors within the affected subdivision or lots. Builder/owner shall construct sidewalks in the rights-of-way adjacent to their lots; whether on the front, side, or rear of the lots, before a certificate of occupancy is issued.

(c) Major collectors shall be 48 feet wide (back of curb to back of curb) with four lanes, turning lanes, and a minimum 80-foot right-of-way. Sidewalks are required on both sides of collectors within the affected subdivision or lots. Builder/owner shall construct

sidewalks in the rights-of-way adjacent to their lots; whether on the front, side, or rear of the lots, before a certificate of occupancy is issued.

(d) Arterials shall be between 60 and 80 feet wide, depending on the need as determined by the city, with five lanes or more. The right-of-way shall be between 90 and 120 feet, depending on the design requirements as determined by the city. Sidewalks are required on both sides of arterials within the affected subdivision or lots. Builder/owner shall construct sidewalks in the rights-of-way adjacent to their lots; whether on the front, side, or rear of the lots, before a certificate of occupancy is issued.

(e) All street wearing surfaces shall consist of concrete or hot mixed asphaltic concrete (HMAC) laid over a base course of crushed stone which has been designed, installed and compacted in accordance with city standards and requirements.

(f) All curb and gutter, integral curbs, valley gutters, driveway approaches, drainage structures, and the like shall be constructed of Class C (3,600 PSI) Portland Cement Concrete per city standards.

(g) Pavement section design shall be designed by a professional engineer and shall be based upon a geotechnical analysis performed by a qualified geotechnical professional. All construction shall meet or exceed the minimum requirements of Appendix A, Tables I through IV and the following adopted regulations where applicable:

(i) Standard Specifications for Public Works Construction, "National Building Code".

(ii) Standard Details for Public Works Construction, "National Building Code".

(12) Half streets shall be prohibited.

(13) Dead-end streets, designed to be so permanently, shall be no longer than 600 feet and shall be provided at the closed end with a turn-around having an outside roadway diameter of at least 80 feet, and a street property line diameter of at least 100 feet.

(14) No street names shall be used which will duplicate or be confused with the names of existing streets. Street names shall be subject to the approval of the Planning Commission.

(15) Street grades, wherever feasible, shall not exceed the following, with due allowance for reason-able vertical curves:

STREET TYPE	PERCENT GRADE
Residential streets	10
Minor collectors	7
Major collectors	5
Arterials	5

(16) No street grade shall be less than 0.5%.

(17) Center grade changes with an algebraic difference of 2% or more shall be connected with vertical curves with a minimum of 100-feet in length. AASHTO design guidelines shall be used to determine proper vertical curve length based on design speed.

B. ALLEYS.

(1) Alleys shall be provided in commercial and industrial districts, except that the Planning Commission may waive this requirement where other definite and assured provision is made for service access, such as off-street loading, unloading, and parking consistent with and adequate for the uses proposed.

(2) The width of an alley shall not be less than 20 feet.

(3) Alley intersections and sharp changes in alignment shall be avoided, but where necessary, comers shall be cut off sufficiently to permit safe vehicular movement.

(4) Dead-end alleys shall be avoided where possible, but if unavoidable, shall be provided with adequate tum-around facilities at the dead-end, as determined by the Planning Commission.

C. EASEMENTS.

(1) Easements across lots or centered on rear or side lot lines shall be provided for utilities where necessary and shall be at least ten feet wide. Drainage, utility and access easements of adequate size, as determined by the Public Works Director or other designated staff, are required to provide for development of adjacent land.

(2) Where a subdivision is traversed by a water course, drainage way, channel, or stream, there shall be provided adequate storm water easements or drain-age rights-of-way for the maximum storms expected to occur in 25 years, conforming substantially with the lines of such water course, and such further width or construction, or both, as will be adequate for the purpose. Parallel streets or parkways may be required in connection therewith.

(3) Pedestrian access easements shall be provided to ensure pedestrian connectivity for the subdivision. Such easements can be combined with utility and drainage easements.

D. BLOCKS.

(1) The lengths, widths, and shapes of blocks shall be determined with due regard to:

(a) Provision of adequate building sites suitable to the special needs of the type of use contemplated.

(b) Zoning requirements as to lot sizes and dimensions.

(c) Needs for convenient access, circulation, regulation, and safety of street traffic.

(2) Block lengths shall not exceed 600 feet, or be less than 400 feet except where essential to the reasonable development of the subdivision.

(3) Pedestrian crosswalks, not less than ten feet wide, shall be required where deemed essential to provide circulation or access to schools, playgrounds shopping centers, transportation, or community facilities.

E. LOTS.

(1) Lot dimensions shall conform to the requirements of the Zoning Ordinance and:

(a) Residential lots where not served by public sewer shall conform to the size that has been established by the Bell County Health Department.

(b) Depth and width of properties reserved or laid out for commercial and industrial purposes shall be adequate to provide for the off-street service and parking facilities required by the type of use and development contemplated.

(2) Corner lots for residential use shall have 15 feet extra width to permit appropriate building set-back from and orientation to both streets.

(3) The subdividing of the land shall be such as to provide by means of a platted street, each lot with satisfactory access to an existing public street. This access shall be frontage upon a dedicated public road-way for at least 60 feet of its width. This width shall be determined by a linear measurement from one side property line to the other at the front building line. If the front building line forms an arc, the linear measurement shall be considered a tangent of that arc.

(4) Double frontage, and reversed frontage lots, should be avoided except where essential to provided separation of residential development from traffic arteries or to overcome specific disadvantages of topography and orientation. A planting screen easement of at least 10 feet and across which there shall be no right of access shall be provided along the line of lots abutting such a traffic artery or other disadvantageous use.

(5) Side lot lines shall be substantially at right angles or radial to street lines.

(6) A survey must be provided for transfer of ownership of property and filed with the city clerk.

F. STREET LIGHTING.

(1) *Within the city limits.*

(a) Adequate street lighting for pedestrian and traffic safety shall be installed in all subdivisions established within the city limits, as well as those subdivisions in the extra-territorial jurisdiction (ETJ) requesting voluntary annexation after the effective date of this section. Street lights shall generally be limited to intersections, curves, dead ends, cul-de-sacs and streets where pole spacing exceeds 300 feet. Installation procedures and acceptable designs and specifications shall be established by the electric utility company serving energy to the lights. The use of special non-standard poles or fixtures from sources other than the said electric utility is prohibited and shall not be accepted for dedication.

(b) The subdivision developer shall be responsible for the cost of street lighting materials and installation, including the cost of service lines to supply electricity to the street lights and all engineering costs. Once satisfactorily installed, approved and accepted, the ownership and maintenance of the street lights shall be dedicated to the electric utility serving the area. Electric energy to power the street lights shall be provided by the electric utility providing service to the area. The city will pay the energy costs of street lights meeting the requirements of this section and located in the city limits.

(2) *Within the extraterritorial jurisdiction (ETJ).* Except as provided in Section 4 F.(1) above, construction of street lighting shall not be required for subdivisions located in the ETJ. However, a street lighting plan shall be developed for subdivisions located in the ETJ in the same manner as if the subdivision were located within the city limits. Any

utility easements required to allow construction of the street lighting shown on the plan shall be dedicated on the subdivision plat so that the city may install the street lighting if the subdivision is subsequently involuntarily annexed.

G. LANDSCAPING.

(1) The owner of a lot or building shall place and maintain landscaping in compliance with this section. The minimum required amount of landscaping shall be determined as follows (for R-1, R-2 and R-3, see corresponding sections):

(a) *Number of trees.* The number of trees shall be calculated by dividing the lot frontage (i.e., the length in feet of lot lines abutting public rights-of-way) by 25. The resulting quotient shall be the total number of trees required. The length of the lot lines for irregular lots shall be the average width or length of the lot. A reduction in the required trees would apply to lots with more than one lot line abutting public right-of-way: two lot lines would be divided by 30; three lot lines would be divided by 34; four lot lines would be divided by 40. It is discouraged to plant such trees as cottonwood, willows, and shallow root trees because of their destructive nature.

(i) A minimum of one-half of the total number of trees required shall be canopy trees, and the remainder may be either canopy or non-canopy trees. **CANOPY TREES** shall mean those species whose mature crown height is 20 feet or more. **NON-CANOPY TREES** shall mean those species whose mature crown height is less than 20 feet.

(ii) Trees planted adjacent to residential property to act as a buffer shall count as 1.25 trees each. No more than 50% of the total number of trees required may be planted adjacent to residential property.

(b) *Number of shrubs.* The number of shrubs shall be calculated by dividing the lot frontage by five. The resulting quotient shall be the number of shrubs required.

(i) Each five square feet of planting beds used and maintained for the purpose of rotating live decorative planting materials shall count as one shrub.

(ii) Each canopy tree maintained in excess of the total number of trees required by this section shall reduce the number of shrubs required by five. Each non-canopy tree maintained in excess of the total number of trees required by this section shall reduce the number of shrubs required by three.

(c) *Other groundcover.* Complete coverage by grass, live groundcover, or non-vegetative groundcover approved by the city is required in those areas not covered by trees, shrubs, pavement or other improvements.

(i) When applied to an expansion of an existing use, the requirements of this section shall be calculated for the expansion only.

(ii) Where development occurs in phases on parts of lots or tracts, lot frontages may be considered to be the width of the impervious surfaces plus required setbacks.

(iii) Existing landscaping that otherwise complies with this section may be used to satisfy the minimum requirements of this division.

(iv) Landscaping placed in the public right-of-way may count towards the minimum requirements of this division only with the approval of the city and, in the case of right-of-way controlled by the state, the approval of the Texas Department of Transportation.

(2) *Approved landscaping and materials.*

(a) *Trees.* Trees shall be six feet or more in height and measure a minimum of two inches in caliper (diameter) when measured 12 inches from the base of the trunk or top of the ball.

(b) *Shrubs and planting beds.* Shrubs shall be not less than three gallons in size.

(c) *Grasses and live groundcovers.* Where live plant materials are used, 100% groundcover is required, whether by solid sod overlay, pre planting and successful takeover of grasses, or planting of live groundcover.

(d) Approved non-vegetative groundcovers include washed gravel, bark mulches, lava rock, sand, rock, or other decorative covers generally used in landscaping. Where approved non-vegetative groundcovers are used they shall form a uniform appearance free from weeds and grasses.

(e) Artificial plant materials may not be used to meet the requirements of this section.

(f) Among the permitted landscaping materials, the use of native vegetative species that conserve water and require less maintenance requirements is suggested.

(3) *Placement and maintenance.*

(a) Landscaping shall be on private property except as otherwise provided in this section, and not less than 50% of the required tree and shrub *landscaping* must front on public roadways.

(i) If there is insufficient land available for landscaping upon are- development, expansion or change in existing use (such as when all land area is paved), then the landscaping required by this section may be planted in the right of way upon approval of the Building Official and/or the Texas Department of Transportation. If such approval cannot be obtained, then the requirements of this section may be reduced or waived accordingly by the Director of Planning and Development.

(ii) Landscaping placed in the public right-of-way shall not create a safety hazard, and maintenance thereof is the responsibility of the developer and adjacent property owner.

(b) All landscaping shall comply with the sight distance requirements as defined.

(c) All required landscaping other than non-vegetative groundcover shall be irrigated by either an underground sprinkler system, or hose attachment within 150 feet of all landscaping.

(d) All required vegetative landscaping shall be maintained in good health. Dead, damaged or diseased landscaping must be promptly replaced, and in any event within the time required by the Building Official. Replacement landscaping must be of substantially the same type.

(e) It shall be an offense for a person to park a vehicle on a landscaped area. It shall be an affirmative defense to prosecution under this division that at the time of the alleged offense the vehicle was parked or left standing due to a mechanical defect which made it unsafe to move, provided that the person having ownership or control of the vehicle obtained consent from the property owner to park the vehicle in that location, and as soon as reasonably possible completed emergency repairs or summoned tow removal equipment, as appropriate.

SECTION 5: REQUIRED IMPROVEMENTS

A. DEVELOPMENT COSTS.

(1) The sub-divider will be required to install, at his or her own expense, all water lines, streets, street signs, sewer lines, storm sewer lines, drainage facilities and structures within the subdivision, in accordance with the City's standards governing the same, including all engineering costs covering design, layout, and construction. When a street pavement of a greater width than 48 feet, back of curb to back of curb, is required by the city, the city shall pay the cost of paving the additional width and associated costs. There will be no participation by the city in the cost of any of the underground utility lines or drainage facilities, within the subdivision, except in the event of the requirement for oversize mains to serve land areas and improvements beyond the subdivision in question or to serve other subdivisions. Each installation of this character and the terms and extent of city participation will be considered individually, upon the merits of each facility and the condition involved, and shall be in accordance with policies set forth by the City Council.

(a) All utility mains will be sized to meet the acceptable services/pressures defined in Section 5, C. The city will not participate in water mains over eight inches in diameter and sewer mains over 10 inches in diameter unless these mains are required by the city for future expansion and which are not required to serve the development in question with acceptable services/pressures required defined in Section 5, C.

(b) All street signs shall meet the City's standard specifications and sign patterns and all the requirements of the Texas Manual on Uniform Traffic Control Devices (TMUTCD), latest extant edition, including, without limitation, material, location and installation. Street signs are subject to inspection and acceptance by the city prior to the issuance of a certificate of occupancy.

(2) Sidewalks shall be four feet wide, properly connecting with existing sidewalks, and constructed according to city standards. Sidewalks must be constructed and accepted by the city prior to the issuance of a certificate of occupancy. Owners of lots that remain undeveloped must construct sidewalks within five years after the date of approval of the final plat.

(3) Inadequate or substandard existing streets shall be upgraded to city standards by the developer, including dedication of additional right-of-way if necessary. If development is on one side of such a street, the developer shall dedicate additional right-of-way if necessary, upgrade the street pavement, and associated infrastructure on the side that is being platted.

(4) Where street over-sizing in excess of 48 feet in width is required for compliance with the Thoroughfare Plan, the city shall reimburse the actual and reasonable cost directly attributable to such over-sizing (including the cost of additional pavement, additional sub-grade and additional cross-drainage costs) as herein provided.

(a) In order to initiate a reimbursement request, the owner must establish a per linear foot oversize cost for the reimbursable public improvements. Requests for the reimbursement to the owner shall include owner's name and mailing address. The requests must include as-built drawings showing the reimbursable items with quantities and unit costs, and other supporting or explanatory documentation.

(b) Upon acceptance of the infrastructure by the city, refunds for approved over-sizing shall be scheduled as of the next year's capital improvements program, unless funds are available earlier. If payment is not made within 60 days after acceptance by the city, interest will accrue at the prime rate plus 1% compounded daily.

(5) The City Council may modify the requirements of this section and may elect to participate in the cost of such developments if it finds that the circumstances taken as a whole would make it inappropriate to require the sub-divider to comply with this section, or any portion thereof, and such modification or participation would accomplish a legitimate public purpose which would benefit the city. Each request by a sub-divider pursuant to this section shall be considered separately in accordance with such criteria as may be defined by the City Council, and the approval of any such request shall be accompanied by such conditions as may be necessary to ensure that a legitimate public purpose beneficial to the city is accomplished. Nothing in this section is intended to authorize the use of public funds or credit for a private purpose.

B. MONUMENTS.

(1) Monuments shall be placed at all corners of boundary lines of subdivisions, block comers, angle points, points of curves in streets and at intermediate points as required by the Planning Commission as indicated below.

(a) Concrete monuments six inches in diameter by 18 inches long shall be placed at all exterior comers of boundary lines of a subdivision and in any case not more than 1,300 feet apart. The exact intersection point on the monument shall be marked by an iron rod 1/4 inch in diameter with the top of the monument placed flush with the natural ground unless otherwise directed. Previously positioned iron rods used as comer markers will not be disturbed to meet this requirement.

(b) Intermediate block corners, curve points, angle points, and lot corners shall be marked by iron rod monuments, 18 inches long and not less than 1/2-inch in outside diameter, driven flush with the ground or counter sunk if necessary in order to avoid being disturbed.

(2) All monuments shall be in place at the time final plat is certified and sealed by the surveyor or engineer and prior to acceptance of utilities and streets.

(3) Bench marks will be placed and described within the subdivision at the rate of one per 10 acres of developed area, but in no case will there be less than one per subdivision. Datum shall conform to that used by the Federal Emergency Management Agency. These elevations shall be clearly shown on the plat and readily identifiable on the ground.

(4) The description and location of permanent survey reference monuments and benchmark monuments will be clearly shown on all plats.

C. UNDERGROUND UTILITY CONDUITS.

(1) *General.* Underground conduits shall be of sufficient size, as determined by generally accepted and good engineering principals, to accommodate and/or deliver current and anticipated future loads and/or flows and pressures, as the case may be, but in no case less than that specified below for each particular application.

(2) *Water mains.* In no case shall any water main be less than 6 inches in residential areas and eight inches in nonresidential areas. Water mains shall be sized as shown on the master water plan; in the absence of such a plan, or when the plan does not indicate requirements for a water main in the same location as the proposed water main, the water main shall be designed and sized to deliver the following pressures/flows:

(a) At each building service: The minimum pressure set forth by the Texas Water Commission, Water Hygiene Division.

(b) At each required fire hydrant: The minimum recommended by the most current Key Rate Schedule, as published by Texas Commission on Fire Protection. All flows to be verified by the Fire Department using gauges calibrated within the current calendar year.

(c) Private service lines shall be defined as the service line extending from water system meter to an individual customer. Public service lines shall be defined as the line extending from water main to a single meter. Bullheads shall be defined as a public service line with branches to serve two or more customers.

(d) Public service lines will become the property of the WCID #3 when completed and will be maintained by the developer/builder at their expense until accepted by the WCID #3. Public service lines will not be less than 1 inch or larger than two inches in diameter. Bullheads shall be no less than one inch in diameter. All public service lines shall be sized to deliver the pressures required by the Texas Natural Resource Conservation Commission. Public service lines will not be used as an extension of a water main and can serve a maximum of five actual or potential customers based on maximum density/minimum lot size development within the physical constraint of the area serviced. In no case will public service lines exceed 150 feet in length without prior approval of the Public Works Department.

(e) The developer may be required to extend one or more water mains for the purpose of looping the system and supplementing volumes and/or pressures to achieve the flows required above. In the event that these flows are not obtainable with design modifications and not due to any fault of the developer, the developers shall be required to provide the maximum flow possible as determined by the city. In this event, the city shall cause an emergency review of the water system. Should a system deficiency be detected, the city has the right to impose a delay, curtailment or a moratorium in selected or multiple development activities or suspend plat approval action until such deficiency is corrected.

(3) *Sewer mains.* Gravity sewer mains shall be sized sufficiently to handle current and anticipated loads, but in no case shall any sewer line be less than six inches in diameter. Forced sewer mains will be sized by a professional engineer to accommodate anticipated loads.

(4) *Conduit extensions.*

(a) Water lines: If an existing water main is within 150 feet of the boundary of any lot or tract of land proposed for development and/or improvement through the erection of buildings, then the water main shall be extended to the lot or tract in question. From the point of connection with the existing main, the water main shall be installed in accordance with all applicable regulations, including the installation of approved fire hydrants along the entire length of the extension at the following intervals:

(i) Commercial areas: 300 feet maximum spacing.

(ii) Residential areas: 600 feet maximum spacing.

(b) Sewer lines: If an existing sewer main is within 150 feet of the boundary of any lot or tract of land proposed for development and/or improvement through the erection of buildings, then the sewer main shall be extended, in accordance with all applicable regulations, to the lot or tract in question provided a gravity flow capability is available.

(c) Whenever a water or sewer main is required to be extended to a lot or tract, an appropriate service line (tap) shall be extended to serve said lot or tract, and buildings located thereon shall be connected thereto whether they are pre-existing or are subsequently erected. The provisions of subsections (a) and (b) of this division above and any other ordinance notwithstanding, any subdivision or re-subdivision of a lot or tract of land at a gross density of more than that specified below shall be required to provide water and/or sewer service to said subdivision or re-subdivision, regardless of whether a subdivision plat is required to be prepared and approved by the WCID #3.

(i) Water service: one lot or tract per acre.

(ii) Sewer service: two lots or tracts per acre.

(d) All utilities shall be required to extend across the full width of the development lot (defined by plat or lot of record) in such an alignment that it can be extended to the next property in accordance with the master sewer and water plans for the city. Properties already served by water and sewer shall not be required to install additional facilities unless the current lines are not of adequate capacity to serve the proposed development in which case the developer will be required to install adequate facilities. Once a utility meter is installed, movement required due to changes in grade/landscape will be the responsibility of the developer/builder.

(5) *Development mains.* Developers shall pay the actual cost of water and sewer main extensions, force mains and lift stations required to serve their development area including costs of right-of-way acquisition. Their development area includes current and future phases. Required facilities will be according to the city's master utility plan as determined by the city planning staff with right of appeal to the Planning and Zoning Commission.

D. STORM DRAINAGE DESIGN CRITERIA.

The design of all storm drainage facilities shall be in accordance with these guidelines and the City of Harker Heights Drainage Criteria Manual. Where conflicts between these guidelines and COHH DCM occur, these guidelines shall govern.

(1) *Development responsibilities.* All costs of drainage systems within the area proposed for development shall be the responsibility of the developer. The drainage systems must be designed for the fully developed area and oversized as necessary for the stream watershed areas. These areas if not already developed, must be considered for development as identified by the city so the appropriate runoff factors can be applied. Appropriate hydrological and hydraulic analyses, as determined by the City Engineer, shall be completed by an engineer licensed in the State of Texas to analyze the impacts of proposed development on upstream and downstream properties. Runoff from development shall not adversely impact upstream or downstream properties. Costs of aforementioned analyses shall be borne by the Developer.

(2) *Design discharge determination.*

(a) Design frequency: The minimum frequencies adopted by the city are presented in subsection (3) of this division below.

(b) The rational method: For drainage areas less than 200 acres and not in a FEMA floodway the peak discharge resulting from storm runoff will be computed by the

rational formula: $Q_y = C I_y A$; where Q is the discharge in cubic feet per second; y is the return period in years; C is the runoff coefficient; I is the rainfall intensity in inches per hour; and, A is the drainage area in acres.

Runoff coefficient: The run-off coefficient (C) shall consider the slope of the terrain, the character of the land-use, the length of overland flow and the imperviousness of the drainage area and shall be determined from the ultimate land development. The run-off coefficient for the appropriate land uses shall be as follows. For combination areas, use weighted averages.

RATIONAL METHOD RUNOFF COEFFICIENTS FOR COMPOSITE ANALYSIS							
METHOD RUNOFF COEFFICIENTS FOR COMPOSITE ANALYSIS							
Runoff Coefficient (C)							
Character of Surface	Return Period						
	2 Years	5 Years	10 Years	25 Years	50 Years	100 Years	500 Years
DEVELOPED							
Asphaltic	0.73	0.77	0.81	0.86	0.90	0.95	1.00
Concrete	0.75	0.80	0.83	0.88	0.92	0.97	1.00
<i>Grass Areas (Lawns, Parks, etc.)</i>							
Poor Condition*	0.32	0.34	0.37	0.40	0.44	0.47	0.58
Flat, 0-2%	0.37	0.40	0.43	0.46	0.49	0.53	0.61
Average, 2-7%	0.40	0.43	0.45	0.49	0.52	0.55	0.62
Steep, over 7%							
Fair Condition**	0.25	0.28	0.30	0.34	0.37	0.41	0.53
Flat, 0-2%	0.33	0.36	0.38	0.42	0.45	0.49	0.58
Average, 2-7%	0.37	0.40	0.42	0.46	0.49	0.53	0.60
Steep, over 7%							
Good Condition***	0.21	0.23	0.25	0.29	0.32	0.36	0.49
Flat, 0-2%	0.29	0.32	0.35	0.39	0.42	0.46	0.56
Average, 2-7%	0.34	0.37	0.40	0.44	0.47	0.51	0.58
Steep, over 7%							
UNDEVELOPED							
Cultivated	0.31	0.34	0.36	0.40	0.43	0.47	0.57
Flat, 0-2%	0.35	0.38	0.41	0.44	0.48	0.51	0.60
Average, 2-7%	0.39	0.42	0.44	0.48	0.51	0.54	0.61
Steep, over 7%							

(3) *Minimum Time of Concentration and Design Storm Frequency.* The minimum time of concentration to be used shall be ten minutes; see "current Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRMs)".

Location of Drainage Facility or Characteristics of:

<i>Drainage Facility</i>	<i>Drainage Area</i>	<i>Return Period (years)</i>
Storm drains	Residential and business	10
Channel/ditches	Drainage area under 600 acres	25
	Area equals or exceeds 600 acres	50
Natural Streams	Designated Areas	10
Culverts/bridges	Major Thoroughfare	50
Floodways Between Building Lines		100

(4) *Area.* The area (A) in determining flows by the rational method shall be calculated by subdividing a map into the drainage areas within the basin contributing storm water runoff to the system. The design must include the entire drainage basin, not just the subdivision under design. For drainage areas greater than 200 acres, or where the Flood Insurance Administration, Federal Emergency Management Agency (FEMA) has mapped an area, Soil Conservation Service (SCS) Unit Hydrograph techniques will be used to compute runoff volumes and peak discharges. This methodology can be found in the SCS Technical Release 55 Urban Hydrology. For project areas that have several hydraulic elements combined (for example, pipes, channels, and culverts), both the rational method and the SCS Unit Hydrograph Method should be used. Where this occurs, the higher discharge from the two methods should be utilized.

(5) *Street capacity.*

(a) Street classifications within the city are: Minor (36.0 feet), Collector (48.0 feet), Major (48 feet or greater), Marginal Access (36 feet or greater). The design for street widths shall be such that storm water from a ten-year storm will not exceed the top of the curb.

(b) Whenever drainage is planned to cross street intersections a concrete valley gutter will be used.

(6) *Storm drains.*

(a) Frequency: 25-Year Storm (100-Year Storm contained within building lines).

(b) Minimum velocity: storm sewers shall be designed to have a minimum velocity when flowing full of 2.5 feet per second. The practical minimum slope on all construction shall be 0.40%.

(c) Maximum velocity: 20 fps

(7) *General design rules.*

- (a) Pipe sizes less than 18 inches in diameter shall be prohibited.
- (b) Other than A.S.T.M. standard size pipe shall be prohibited.
- (c) Discharge of the contents of a pipe shall be into a pipe equal to or larger, in diameter.
- (d) At changes in size of pipe or box, the soffits or top inside surfaces on the two pipes shall be at the same level.
- (e) To determine the tail water depth for the outfall channels calculate the hydraulic gradient when the tail water surface at the outlet is higher than the pipe or box.
- (f) Concrete pipes or boxes shall be used for storm drains. No other construction material may be used as an alternate unless written prior approval is obtained from the city. Corrugated metal pipe may be used only as culverts. May consider allowing HDPE outside of paved areas.
- (g) Manholes shall be located at intervals not to exceed 600 feet for pipe 30 inches or less in diameter or at intervals not to exceed 1200 feet for pipe greater than 30 inches in diameter.

(8) *Open channel design.*

Graded earthen shallow swales may be used to convey runoff from a street to another larger channel as long as the ten-year Q does not exceed 10 c.f.s. See Standard Details for Public Works Construction, the "National Building Code". Flow from earthen swales will not be directed onto a street or paved area. Where low flows are present and high velocities are also expected due to steep grade, a concrete trickle channel shall be provided. Trickle channels shall have a minimum width of three feet; a minimum concrete thickness of four inches. Earthen channels shall have a maximum side slope of 4:1 and shall be sodded or seeded upon completion.

(a) Flows over 10 c.f.s. shall require engineered drainage enhancements. Enhancements may include subsurface drainage systems or an approved concrete channel design in the drainage easement. (See Standard Details for Public Works Construction, the "National Building Code").

(b) All channels shall be designed in accordance with table in Section D.3.

(c) Design guidelines for maximum channel velocities are shown below Section 6

(9) *Maximum channel velocities*

<i>Channel Material</i>	<i>Maximum velocity, in feet per second</i>
Non-Cohesive	3
Shale	5
Cohesive	6
Grass-lined	7
Soft rock	8
Hard rock	12
Reinforced concrete	15

(10) *Culverts.*

(a) Requirements: Culvert length shall be such as to accommodate roadway

shoulders, planned walkways and a maximum 4:1 slope to a standard headwall or end section. Where surface water from a street section enters a channel near a headwall concrete spillway and apron areas shall be provided to prevent erosion. Texas Department of Transportation Standard Headwalls or an approved sloped-end treatment shall be used. Sloped- end treatments shall require rip-rap and concrete apron sections.

(b) Outlet velocity: Where outlet velocities in designed drainage systems are greater than the velocities in the natural channel, rip-rap and/or velocity control devices approved by the city shall be installed to prevent erosion at the outlet of all systems.

(11) *Required submittal information.* Stormflow data and information shall be submitted to the city for approval along with any request for approval of a subdivision.

(a) Topography and drainage plan, with contour lines on two foot intervals. All elevations shall be current datum or referenced to a City Benchmark on the same datum. The datum used shall be specified on the drawing.

(b) Areas contributing drainage to the proposed subdivision shall be shown on small scale supplemental drawings. The information to be submitted shall include the area, slope and type of development in the contributing area.

(c) The locations of water courses and drainage ways through the proposed subdivision shall be shown together with the quantity of drainage. Where applicable, the areas of the 100-year floodplain shall be indicated along with base flood elevation lines consistent with the city's Flood Insurance Rate Map (FIRM). Where the city's FIRM does not indicate 100-year floodplain data, the developer's engineer shall ascertain whether any area in the proposed development is within said floodplain. If it is, the developer's engineer shall indicate the boundaries of same along with approximate elevations. If no area within the development is determined to be within the 100-year flood plain, the engineer shall certify to that effect upon the drainage plan sheet.

(d) Supplemental information showing the preliminary design calculations for drainage shall be furnished on the topography and drainage plan. Calculations should include hydraulic grade lines in the case of underground storm drains. Hydraulic grade lines shall not be nearer than one foot from the finished surface. Calculations shall also be required for proof of capacity of the street at any critical section such as flat grade sections and where top of curb elevations are split more than 0.2. Calculations shall conform to the current design criteria adopted by the city as contained in this chapter.

E. PARKLAND DEDICATION. All developments subject to this Subdivision Ordinance shall provide Parkland Dedication in accordance with applicable City Ordinance requirements.

SECTION 6: FINAL PLAT

A. CONTENTS OF FINAL PLAT.

(1) The final plat shall be drawn in ink on tracing cloth or on permanent plastic sheets 17 inches wide by 28 inches long and shall be at a scale of 100 feet to one inch. Where

necessary, the plat may be on several sheets accompanied by an index sheet showing the entire subdivision. For large subdivisions, the final plat may be submitted for approval progressively in contiguous sections satisfactorily to the Planning Commission.

(2) The final plat shall show the following:

(a) Primary control points, approved by the City Engineer, or descriptions and ties to such control points, to which all dimensions, angles, bearings, and similar data on the plat shall be referred.

(b) Tract boundary lines, right-of-way lines of streets, easements, and other rights-of-way and property lines of residential lots and other sites; with accurate dimensions, bearings, or deflection angles, and radii, arcs, and central angles of all curves.

(c) Name and right-of-way width of each street or other right-of-way.

(d) Location to identify each lot or site.

(e) Location, dimensions, and purpose of any easements.

(f) Purpose for which sites, other than residential lots, are dedicated or reserved.

(g) Minimum building setback lines on all lots and other sites.

(h) Location and description of monuments.

(i) Names or record owners and deed volume and page of adjoining un-platted land (including those across adjacent roads).

- (j) Reference to recorded subdivision plats of adjoining platted land by record name, date, and plat book and page.
- (k) Certification by surveyor or engineer certifying to account of survey and plat.
- (1) Notarized statement by owner adopting plat and dedicating streets, rights-of-way and any sites for public uses.
- (m) Title, scale, north arrow, and date.

B. PROFILES OF STREETS REQUIRED.

Cross-sections and profiles of streets showing grades approved by the City Engineer shall be required. The profiles shall be drawn to standard scales and elevations and shall be based on a datum plane approved by the City Engineer.

C. CERTIFICATE OF COMPLIANCE REQUIRED.

- (1) A certificate by the Public Works Official certifying that the subdivider has complied with one of the following alternatives shall be required:
 - (a) All improvements have been installed in accord with the requirements of these regulations and either the action of the Planning Commission giving conditional approval of the preliminary layout; or
 - (b) A bond or letter of credit has been posted, which is delivered to the city, and in sufficient amount to assure such completion of all required improvements.
- (2) Protective covenants in form for recording.

E. OTHER DATA REQUIRED.

Such other certificates, affidavits, endorsements, or agreements may be required by the Planning Commission in the enforcement of these regulations.

F. FILING FEE.

The final plat shall be accompanied by a filing fee in an amount stipulated in the fee schedule approved as part of the current fiscal year's operating budget.

F. ISSUANCE OF PERMITS.

No building permit, or any water, sewer, plumbing, or electrical permit shall be issued by the city to the owner or other person, with respect to any property in said subdivision or re-subdivision covered by this chapter, until:

- (1) Such time as the developer and/or owner has fully completed and paid for the improvements required to be made by the terms of this chapter, including the installation of streets with proper paving, curb and gutter, drainage structures, storm sewers, alleys, and installation of water and sanitary sewer mains, all according to the specifications of the city; or

(2) Until an escrow deposit sufficient to pay the cost of such improvements as determined by the Building Official computed on a private commercial rate basis has been made with the City Secretary, accompanied by an agreement signed by the developer and/or owner authorizing the city to make such improvements at prevailing private commercial rates or have the same made by a private contractor and pay for same out of escrow deposit.

G. MAINTENANCE BOND REQUIRED.

(1) Before the release of any surety instrument guaranteeing the construction of required subdivision improvements or the signing of the final plat where subdivision improvements were made prior to the filing of the final plat for recordation the sub- divider shall furnish the city with a maintenance bond, or other surety instrument such as a letter of credit or escrow account. The purpose of the maintenance bond/surety instruments to assure the quality of materials and workmanship and maintenance of all required improvements including the city's costs for collecting the guaranteed funds and administering the correction and/or replacement of covered improvements in the event the sub-divider defaults. The maintenance bond or other surety instrument shall be satisfactory to the City Attorney as to form, sufficiency, and manner of execution. ALL public works improvements including streets, said bond or other instrument shall be in an amount equal to 40% of the cost of improvements verified by the City Engineer and shall run for a period of two calendar years. Effective time frame for bonds or other instruments will be measured from the date of release of the performance surety instrument, or signing and recording of the final plat whichever is later. In an instance where a maintenance bond or other surety instrument has been posted and a defect or failure of any required improvement occurs within the period of coverage, the city may declare said bond or surety instrument to be in default and require that the improvements be repaired or replaced.

(2) Whenever a defect or failure of any required improvement occurs within the period of coverage, the city shall require that a new maintenance bond or surety instrument be posted for a period of one full calendar year, except streets which will be for two calendar years. The amount of the bond or instrument will be equal to the amount required to correct the fault or failure. Effective time frame for the new maintenance bond or other instrument shall begin on the date the city inspects and approves the required correction.

SECTION 7: DEVELOPMENT PLATS

A. ADOPTION OF LOCAL GOVERNMENT CODE REGULATION FOR DEVELOPMENT PLATS.

The City Council hereby adopts and approves Tex. Loc. Gov't Code Subchapter B to Chapter 212 and the law codified by that Subchapter, as such may be amended from time to time.

B. APPLICATION OF OTHER REGULATIONS.

The provisions of Subchapter A of Tex. Loc. Gov't Code, Chapter 212 that do not conflict with this subchapter apply to development plats.

C. PLANS, RULES, AND ORDINANCES.

After a public hearing on the matter, the City Council may from time to time adopt general plans, rules, or ordinances governing development plats of land within the limits and in the extraterritorial jurisdiction of the city to promote the health, safety, morals, or general welfare of the city and the safe, orderly, and healthful development of the city.

D. DEVELOPMENT PLAT REQUIRED.

(1) Any person who proposes the development of a tract of land located within the limits or in the extraterritorial jurisdiction of the city must have a development plat of the tract prepared in accordance with this subchapter and the applicable plans, rules, or ordinances of the city.

(2) The development plat must be prepared by a registered professional land surveyor as a boundary survey showing:

(a) Each existing or proposed building, structure, or improvement or proposed modification of the external configuration of the building, structure, or improvements involving a change of the building, structure, or improvement.

(b) Each easement and right-of-way within or abutting the boundary of the surveyed property.

(c) The dimensions of each street, sidewalk, alley, square, park, or other part of the property intended to be dedicated to public use or for the use of purchasers or owners of lots fronting on or adjacent to the street, sidewalk, alley, square, park, or other part.

(3) New development may not begin on the property until the development plat is filed with and approved in accordance with the city ordinance, Ordinance 7055-08.

(4) If a person is required under the city ordinance, Ordinance 7055-08, as amended, to file a subdivision plat, a development plat is not required in addition to the subdivision plat.

E. RESTRICTION ON ISSUANCE OF PERMITS.

The city, a county, or an official of another governmental entity may not issue a building permit or any other type of permit for development on lots or tracts subject to this subchapter until a development plat is filed with and approved in accordance with this ordinance.

F. APPROVAL OF DEVELOPMENT PLAT.

(1) Development plats will be submitted to the Planning Commission and the City Council in accordance with procedures established by this chapter.

(2) The development plat shall be approved if the plat conforms to:

(a) The general plans, rules, and ordinances of the city concerning its current and future streets, sidewalks, alleys, parks, playgrounds, and public utility facilities.

(b) The general plans, rules, and ordinances for the extension of the city or the

extension, improvement, or widening of its roads, streets, and public highways within the city and its extraterritorial jurisdiction, taking into account access to and extension of sewer and water mains and the instrumentalities of public utilities.

- (c) Any general plans, rules, or ordinances adopted under this chapter

G. EFFECT OF APPROVAL ON DEDICATION.

The approval of a development plat is not considered an acceptance of any proposed dedication for public use or use by persons other than the owner of the property covered by the plat and does not impose on the city any duty regarding the maintenance or improvement of any purportedly dedicated parts until the city's governing body makes an actual appropriation of the dedicated parts by formal acceptance, entry, use, or improvement.

H. EXTRATERRITORIAL JURISDICTION.

This subchapter does not authorize the city to require municipal building permits or otherwise enforce the city's building code in its extraterritorial jurisdiction.

I. ENFORCEMENT.

(1) If it appears that a violation or threat of a violation of this subchapter or plan, rule, or ordinance adopted under this subchapter consistent with this subchapter exists, the city is entitled to appropriate injunctive relief against the person who committed, is committing, or is threatening to commit the violation.

(2) It is no defense to a criminal or civil suit under this subchapter that an agency of government other than the city issued a license or permit authorizing the construction, repair, or alteration of any building, structure, or improvement. It also is no defense that the defendant had no knowledge of this subchapter or of an applicable plan or rule.

SECTION 8: ADMINISTRATION AND ENFORCEMENT

A. VARIANCES.

(1) *Hardship.* Where the Planning Commission finds that extraordinary hardships may result from strict compliance with these regulations of this chapter, it may vary the regulations so that substantial justice may be done and the public interest secured; provided that such variation will not have the effect of nullifying the intent and purpose of the Zoning Ordinance or other regulatory documents.

(2) *Large scale development.* The standards and requirements of this chapter may be modified by the Planning Commission in the case of a plan and program for a new town or a complete community or neighborhood unit, which in the judgment of the Planning Commission provide adequate public spaces and improvements for the circulation, recreation, light, air, and service needs of the tract when fully developed and populated, and which also provide such covenants or other legal provisions as will assure conformity to and achievement

of the plan.

(3) *Conditions.* In granting variances and modifications, the Planning Commission may require such conditions including access controls, buffer strips, or certain deed covenants as will, in its judgment, secure substantially the objectives of the standards or requirements so varied or modified.

B. CITY AND WATER DEPARTMENT REQUIREMENTS.

WCID # 3 will:

- (1) Make all water and sewer service taps at their regular charge for such service.
- (2) The water and sewer lines as completed will become the property of the city and the developer or builder shall maintain said lines at its own expense. Extensions of said lines may be made at any time the city may desire.

The City will:

- (1) The City shall never be liable for payment of interest on any deposits, payments, or refunds provided for herein.
- (2) The builder or developer shall never have the right to demand payment hereunder out of any funds raised by the city through taxation.
- (3) Not reimburse any part of the cost of construction of paving, curb and gutter, drainage structures, storm sewers, street name signs, water and sanitary sewer mains that are eight inches and 10 inches, respectively, in diameter or smaller.

C. PENALTY.

(1) Any person violating any provision of this chapter for which no penalty is otherwise provided, shall upon conviction, be guilty of a misdemeanor and shall be fined not less than \$10 nor more than \$2,000 and each day such violation continues shall be considered a separate offense and punishable accordingly.

(2) A person commits an offense if the person violates this ordinance or a plan, rule, or ordinance adopted under this ordinance or consistent with such sections within the limits of the city. An offense under these sections is a Class C misdemeanor. Each day the violation continues constitutes a separate offense.

APPENDIX A

APPENDIX A

TABLE 1. SUMMARY OF DATA FOR THE STUDY

TABLE 1

The data were collected from a series of experiments conducted over a period of six months. The results are presented in the following table, which shows the mean values and standard deviations for each parameter measured. The data were analyzed using a two-way ANOVA, and the results are discussed in the text.

TABLE 2. SUMMARY OF DATA FOR THE STUDY

TABLE 2

Parameter	Mean	Standard Deviation	Significance
Parameter 1	1.2	0.3	0.05
Parameter 2	1.5	0.4	0.01
Parameter 3	1.8	0.5	0.001
Parameter 4	2.1	0.6	0.0001
Parameter 5	2.4	0.7	0.00001
Parameter 6	2.7	0.8	0.000001
Parameter 7	3.0	0.9	0.0000001
Parameter 8	3.3	1.0	0.00000001

The data presented in Table 2 show a clear trend of increasing values for the parameters measured. The significance levels are also shown, indicating that the differences between the parameters are statistically significant. The results are consistent with the hypothesis that the parameters are related to the study variables.

APPENDIX A: PAVEMENT DESIGN PROCEDURE

TABLE

- I. Sub grade classification groups
- II. Sub grade classification chart
- III. Pavement thickness design chart; local, minor, and major residential street
- IV. Pavement thickness design chart; minor and major collector street

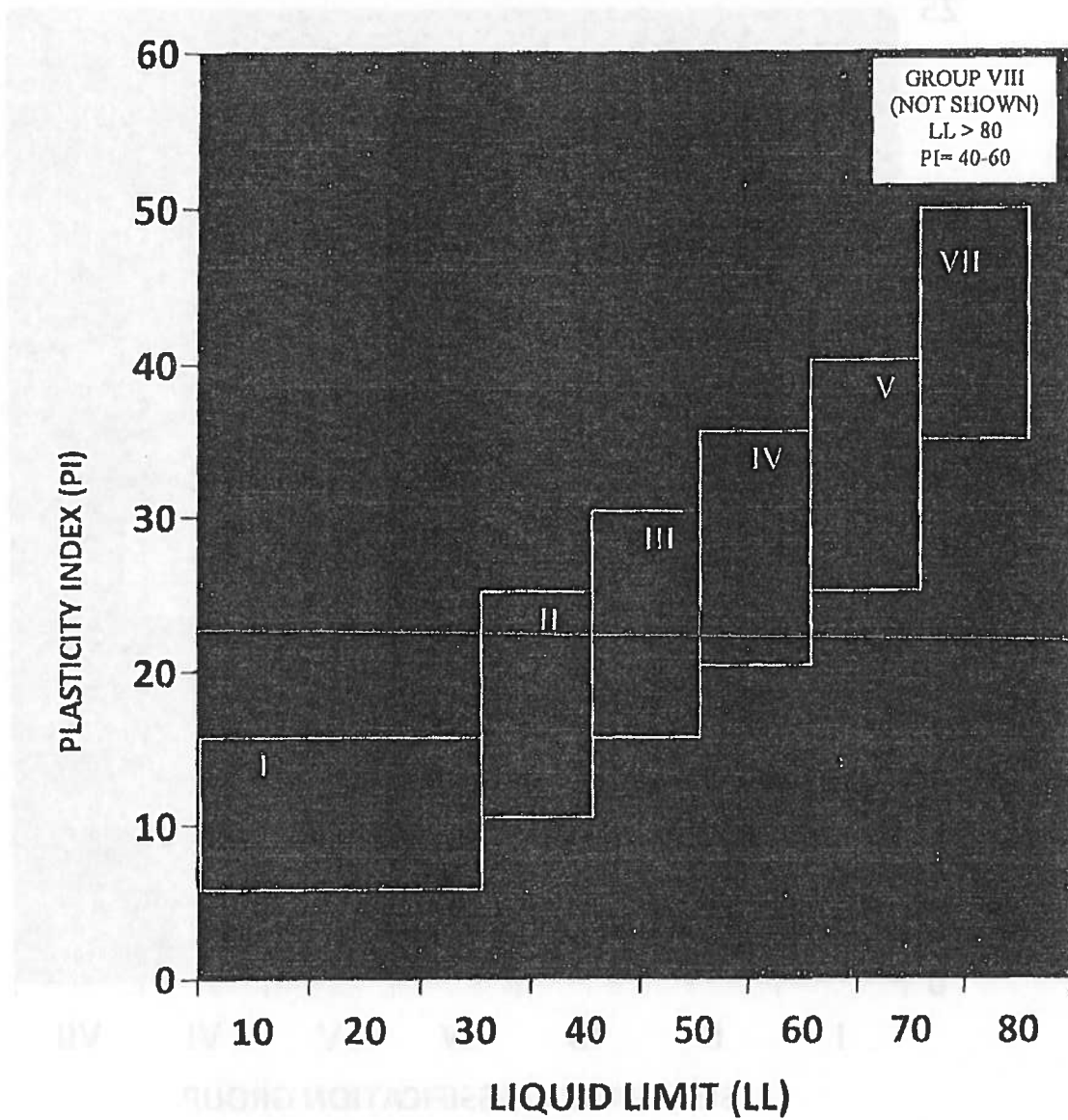
TABLE I: SUBGRADE CLASSIFICATION GROUPS

Soil Classification Tests

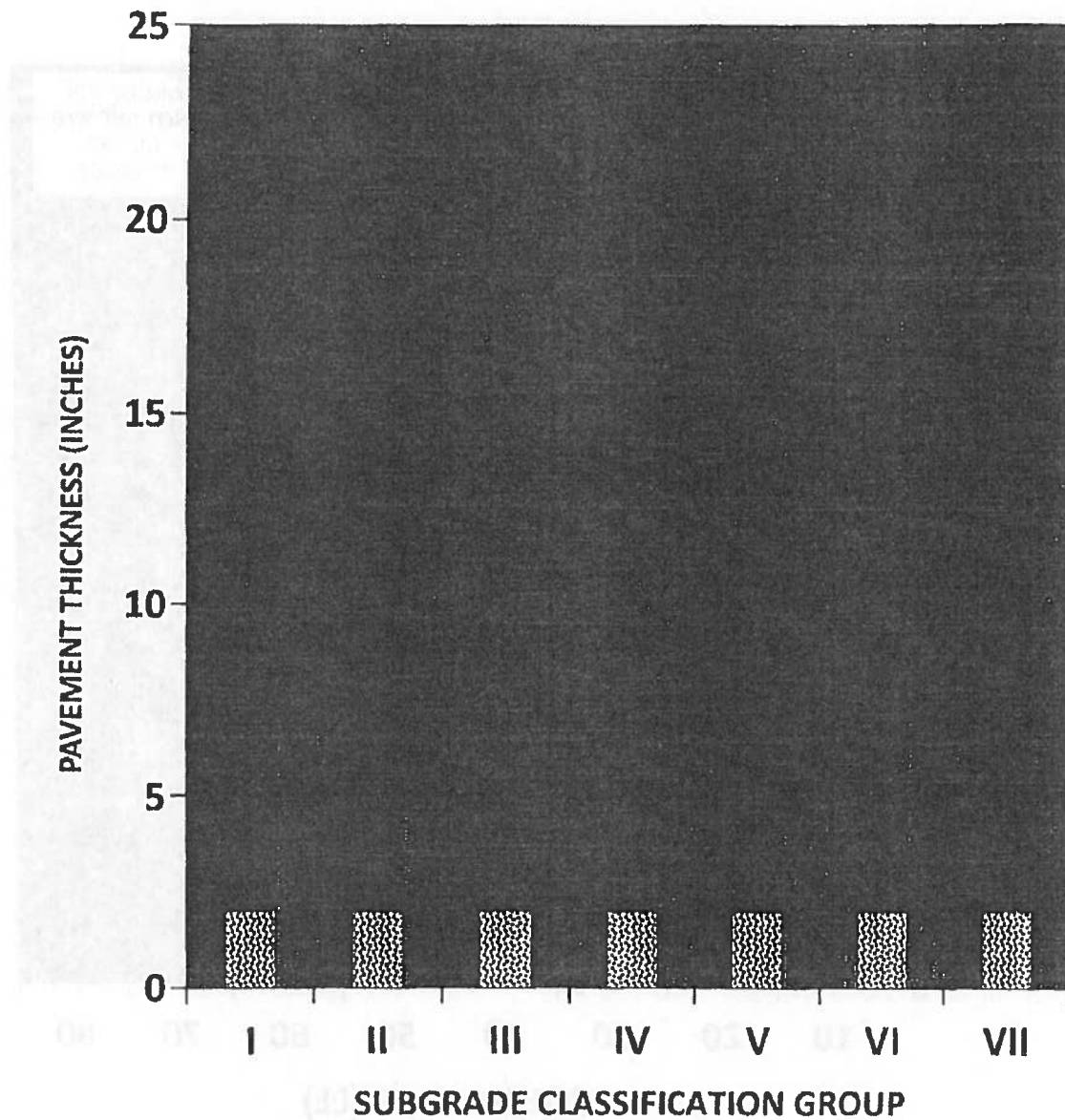
Group No.	Liquid Limit	Plasticity Index	Typical Material Description
I	<35	5-15	Limestone, weathered limestone, or severely weathered limestone
II	30-40	10-25	Sandy clays, silty clays, or severely weathered limestone
III	40-50	15-30	Sandy clays, silty clays, or severely weathered limestone
IV	50-60	20-35	Clay or silty clay
V	60-70	25-40	Clay
VI	70-80	35-50	Clay
VII	>80	40-60	Clay

NOTE: Graphical representation of these sub-grade groups are shown on Table II. Values which plot on the borderline between two groups should be assigned the group number of the poorer soil group. Soils which have less than 40% passing the Number 200 mesh sieve and which would plot in Groups III through VII may be upgraded to the next better group.

TABLE II: SUBGRADE CLASSIFICATION CHART

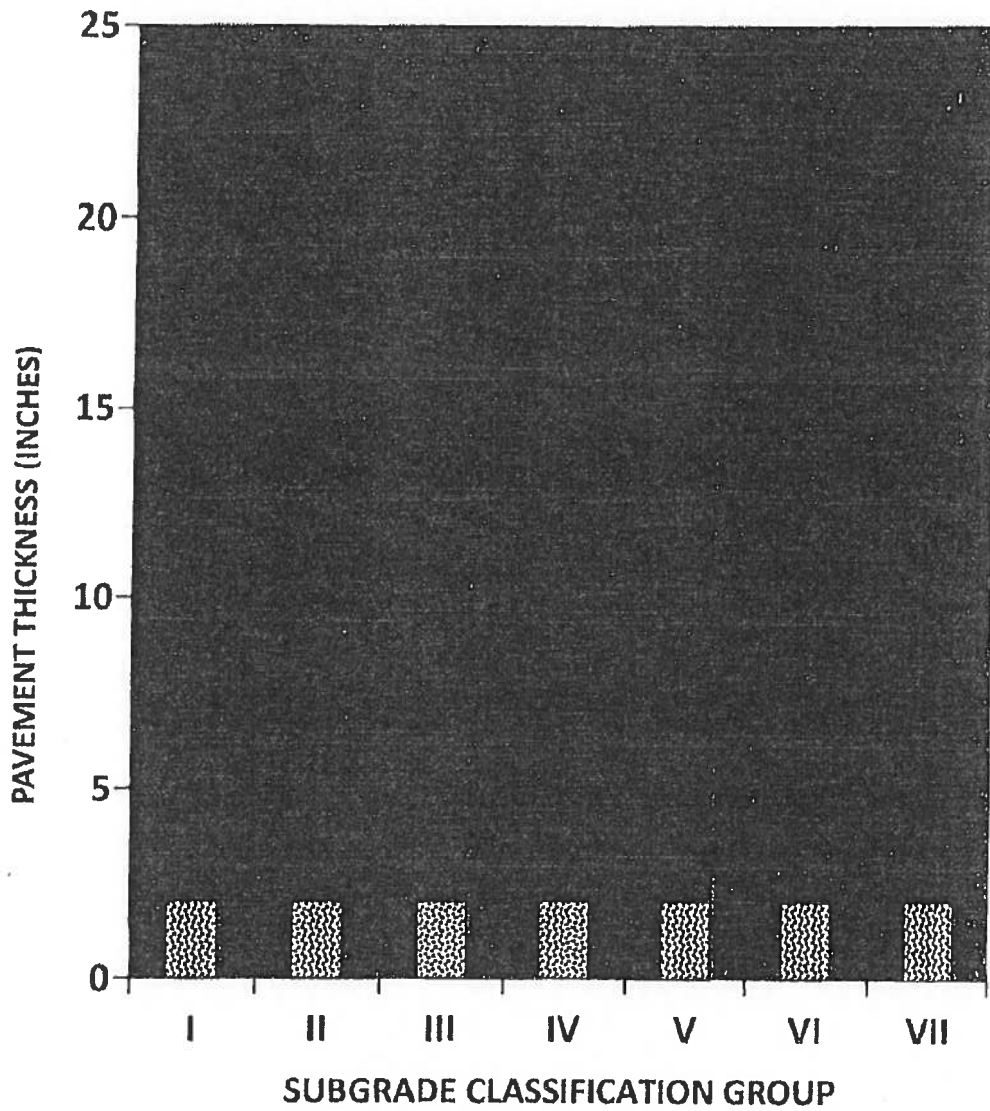


**TABLE III: PAVEMENT THICKNESS DESIGN CHART;
LOCAL, MINOR, AND MAJOR RESIDENTIAL STREET**



Minimum surface course thickness = 2 Inches

**TABLE IV: PAVEMENT THICKNESS DESIGN CHART;
MINOR AND MAJOR COLLECTOR STREET**



Minimum surface course thickness = 2 Inches

