SUBDIVISION RULES AND REGULATIONS

OF

JOHNSON COUNTY, TEXAS

AMENDED AND APPROVED

November 14, 2011

Roger Harmon, County Judge

Rick Bailey, County Commissioner Pct.1

Troy Thompson, County Commissioner, Pct. 2

Jerry D. Stringer, County Commissioner, Pct. 3

Don Beeson, County Commissioner, Pct. 4

Mike Walker, Director of Public Works

SUBDIVISION RULES AND REGULATIONS
OF
JOHNSON COUNTY, TEXAS

INDEX

Section I, Introduction Page 2

Section II, Definitions Page 2

1. Acre Page 2
2. "As Built" Drawings Page 2
3. AutoCAD Page 3
4. Building Lines Page 3
5. Build Out Page 3
6. Commissioners Court Page 3
7. Conventional Septic System Page 3
8. County Page 3
9. County Judge Page 3
10. County Engineer Page 3
11. County Road (Street) Page 3
12. Curb and Cutter Page 3
13. Development Permit Page 3
14. DXF Page 3
15. DWG Page 3
16. Easement Page 4
17. Engineer Page 4
18. E.T.J. Page 4
19. Extraterritorial Jurisdiction Page 4
20. FEMA Page 4
21. Final Plat Page 4
22. Financial Security Page 5
23. Fire Hydrant Page 5
24. Flag Lots Page 5
25. Flood Plain (Base) Page 5
26. Floodway Page 5
27. Gated Subdivision Page 5
28. Gated Subdivision, Private Road (Street) Page 5
29. GIS Page 5
30. GPS Page 5
31. Lot Page 5
32. Lot Lines Page 6
33. Manufactured Home Rental Community Page 6
34. May Page 6
35. MHRC Page 6
36. Mylar Page 6
37. Non-conventional Septic Systems Page 6

38. O.S.S. F. Page 6
39. Parkway Road Page 6
40. Plat Page 6
41. Plat Application Page 6
42. Private Drive Page 7
43. Private Road Page 7
44. Private Sewage Facility Page 7
45. Public Street Page 7
46. Public Works Department Page 7
47. Re-Plat Page 7
48. Right-of-Way Page 7
49. Roadway Page 7
50. Setback Lines Page 7
51. Shall Page 8
52. State Plane Coordinates Page 8
53. Subdivider or Developer Page 9
54. Subdivision Page 9
55. Surveyor Page 9
56. TCEQ Page 9
57. TOPO (Topography) Page 9
58. TXDOT Page 9
59. Takings Impact Assessment Page 9

Section III, Time Period for Approval of Plat Application Page 10

Section IV, Requirements for Plat Application Page 11
A. Submission of Plat Application Page 11
B. Plat Dimensions and Scale Requirements Page 11
C. Plat Information Page 12
1. Subdivision Name Page 12
2. Subdivision Owner(s)' Name Page 12
3. Boundary Lines Page 12
4. Utility Service Page 12
5. Lot and Street Layout Page 13
6. Drainage Page 14
7. Land Use Page 17
8. Drawing Requirements Page 17
9. Utility Service Page 17
10. Subdivision Within Extraterritorial Jurisdiction Page 19
11. Numbering of Lots and Blocks Page 20
12. Approval by Commissioners Court Page 20
13. Building Lines Page 20
14. Tax Certificates Page 20
15. Certification and Dedication by Owner Page 20
16. Certification by Surveyor Page 20
17. Restrictions of Subdivision Page 20

18.	Engineering Plans	Page 22
19.	Sanitation Easements	Page 23
20.	Physical Addresses	Page 23
21.	Approval by Commissioners Court	Page 23
Section V, Financial Security		Page 24
Section VI, General Requirements		Page 26
A.	Street Arrangements	Page 26
B.	Dead-end Streets	Page 26
C.	Adjoining Streets and Land	Page 26
D.	Culverts	Page 26
E.	Construction	Page 27
F.	Testing	Page 27
G.	Fees	Page 28
H.	Utilities	Page 28
I.	Installation of Street Signs	Page 29
J.	Mailboxes	Page 30
K.	Completion of Roads and Drainage Facilities	Page 30
L.	Sale of Lots	Page 31
M.	Extension of Time to Complete Streets and Drainage Facilities	Page 31
N.	Structures Installed or Built on Lots Which Are Lower Than The Road	Page 31
O.	Access to Subdivisions	Page 32
P.	Inspections	Page 32
Q.	Drainage Easements	Page 32
R.	Authority to Enforce Subdivision Deed Restrictions	Page 32
S.	Plat Revision	Page 32
T.	Exception to Plat Revision	Page 33
Section VII, Subdivision Standards		Page 33
A.	Residential Lots	Page 33
B.	Street Layout	Page 33
C.	Sewage and Waste Disposal	Page 34
Section VIII, Subdivision Cancellation		Page 35
Section IX, General Road and Street Specifications		Page 37
A.	Street Specifications	Page 37
B.	Right-of-Way	Page 37
C.	Requirement for Street Pavement	Page 38
Section X, Street Acceptance Procedure		Page 41
A.	General	Page 41
B.	Completion of Construction and Release of	

Financial Security Page 41

Section XI, Gated Subdivisions Page 42
A. Definitions Page 42
1. Gated Subdivision Page 42
2. Gated Subdivision Street Page 42
B. General Requirements for a Gated Subdivision Page 43
1. Completion of Roads, Drainage Facilities and Signs in a Gated Subdivision Page 43
2. Sale of Lots in a Gated Subdivision Page 44
C. Road Acceptance Procedure for a Gated Subdivision Page 44
1. General Page 44
2. Completion of Construction and Release of Bond for a Gated Subdivision Page 44

Section XII, Minimum Infrastructure Standards for Manufactured Home Rental Communities (MHRC) Page 45
A. Manufactured Home Rental Community Page 45
B. Placement in areas of "Special Flood Hazard" Page 47
C. Manufactured Home Rental Communities (MHRC) Page 48
D. General Requirements of Infrastructure Development Plan Page 48
1. Drainage Page 48
2. Water Supply Page 48
3. Sanitary Sewer Lines or On-Site Sewage Facilities Page 49
4. Survey, Rental Spaces, Utility Easements and Dedications of Right-of-Way Page 49
5. Specifications for Roads and Streets Page 49
E. Documentation to be Submitted to the Public Works Department Page 50

Section XIII, Enforcement Page 51

Section XIV, Severability of Provisions Page 52

Appendix A, Drainage Requirements Criteria and Design Standards Page 53
A. Purpose Page 53
B. Definitions Page 53
1. Access Ramp Page 53
2. Access Road Page 53
3. Base Flood Page 53
4. Channel Page 53
5. Drainage Area or Basin Page 53
6. Drainage Facilities or System Page 54

	7.	Detention	Page 54
	8.	FEMA	Page 54
	9.	Flood Hazard Boundary Map (FHBM)	Page 54
	10.	Flood Insurance Study	Page 54
	11.	Floodplain	Page 54
	12.	Floodway	Page 54
	13.	Floodway Fringe	Page 54
	14.	Freeboard	Page 54
	15.	Hydrograph	Page 55
	16.	Inlet	Page 55
	17.	Time of Concentration	Page 55
	18.	Inverted Crown Section	Page 55
	19.	Local Drainage System	Page 55
	20.	Off-Site	Page 55
	21.	On-Site	Page 55
	22.	Pipe	Page 55
	23.	Soffit	Page 55
C.	General Drainage Requirements		Page 55
	1.	Drainage Plan	Page 55
	2.	Drainage Improvements Required	Page 56
	3.	Off-Site Drainage	Page 57
	4.	Detention Facilities	Page 57
	5.	Floodway Fringe Area	Page 57
	6.	Channel Requirements	Page 57
	7.	Channel Access Roads and Ramps	Page 58
	8.	Lot Drainage	Page 58
D.	Storm Drainage Design Criteria		Page 58
	1.	Storm-water Runoff	Page 58
	2.	Storm-water Design Frequencies	Page 59
	3.	Street Drainage Requirements	Page 60
	4.	Pipe System Requirements	Page 60
	5.	Culverts	Page 61
	6.	Improved Channels	Page 62
	7.	Detention Ponds	Page 62
	8.	Computation Sheets	Page 63
	9.	Standard Details	Page 63
	10.	Easements	Page 64
	11.	Flood Damage Prevention	Page 65
	12.	Minimum Finished Floor Elevation	Page 65
	13.	Floodway and Floodplain Modification and Permitting	Page 65
	14.	Residential Construction	Page 65
	15.	Nonresidential Construction	Page 65
	16.	Drainage Design	Page 66

SUBDIVISION RULES & REGULATIONS

OF

JOHNSON COUNTY

The State of Texas
County of Johnson

On this _____ day of _____, 2011 the Commissioner's Court of Johnson County, Texas convened in regular session of said Court, at the Commissioners' Courtroom, Johnson County Courthouse, Cleburne, Texas, with the following members present, to wit:

County Judge	Roger Harmon
Commissioner Precinct #1	Rick Bailey
Commissioner Precinct #2	Troy Thompson
Commissioner Precinct #3	Jerry Stringer
Commissioner Precinct #4	Don Beeson

After publication of notice and a public hearing as required by law, the court adopted the following order.

WHEREAS, the Commissioners Court seeks to avoid problems associated with the construction of streets and drainage facilities in subdivisions, and

WHEREAS, the Commissioners Court deems it necessary to take the following action associated with road construction, drainage facilities, traffic hazards and dangers posed by potential contamination from sewage and septic systems; and

WHEREAS, the Commissioners Court deems it necessary to take the following action to insure orderly development and identification of new residences and businesses for safety and taxation purposes and in order to insure continued orderly development of subdivisions; and

WHEREAS, the Commissioners' Court of Johnson County, Texas deems it necessary to adopt a set of subdivision rules and regulations stipulating the conditions under which the Court will approve plats of subdivisions for recording in order to assist the County in providing for safety of the public, and providing for the proper drainage and the proper construction and maintenance of the public roads; and

WHEREAS, the Commissioners Court of Johnson County, Texas deems it necessary to establish minimum infrastructure standards under which the Commissioners Court will approve a infrastructure development plans for Manufactured Rental Home Communities in order to assist the County in providing for the safety of the public, to protect the health of the public, and to oversee the welfare of the public; and

WHEREAS, the Commissioners Court of Johnson County, Texas considered the matter and deemed it appropriate to enter its Order relating to the approval and acceptance of the Subdivision Rules and Regulations of Johnson County, Texas.

NOW, THEREFORE, BE IT ORDERED BY THE COMMISSIONERS COURT OF JOHNSON COUNTY, TEXAS, that the following subdivision rules and regulations for subdivisions be, and are, adopted as conditions precedent to the Commissioners Court approving plats of subdivisions for recording, and that the minimum infrastructure standards for Manufactured Rental Home Communities are adopted as a condition precedent to the Commissioners Court approving infrastructure development plans for Manufactured Rental Home Communities and that the following subdivision rules and regulations are effective this date and superseding and in lieu of all previous orders pertaining to the approval of all subdivision plats and manufactured home rental communities within Johnson County, Texas.

SECTION I
Introduction

The *Subdivision Rules and Regulations of Johnson County, Texas* incorporate and adopt for all purposes including reference and definition the provisions of *Local Government Code* Chapter 232 and those sections of *Local Government Code* Chapters 232, 233, and 242 (V.T.C.A. 2005) which are applicable to Johnson County. References herein to *Local Government Code* Chapters 232, 233, 242, or other statutory and regulatory provisions of Texas law include the provisions in effect or adopted by the Texas Legislature as of **September 1, 2009** and all amendments thereto.

These rules and regulations have been adopted to provide minimum standards by which land may be subdivided and developed for the benefit of the citizens of Johnson County. The purpose of these Rules and Regulations is to provide for the safety, health and well being of the general public by requiring that adequate streets and drainage facilities are provided in all subdivisions, and to provide facilities which can be maintained without imposing an undue burden to taxpayers.

These regulations are in no way intended to restrict residential or commercial development in Johnson County. Rather, it is hoped that through public and private sector cooperation, Johnson County can achieve and maintain a quality and standard of life which reflects the highest traditions and standards and aspirations of its citizens.

SECTION II
Definitions

Acre:	4840 square yards or 43,560 square feet.
'As Built' Drawings:	Drawings that show the actual installation of underground utilities.
AutoCAD	Software used by architects, engineers, drafters and others to create precision drawings or technical illustrations

Building Lines	See "Setback Lines" below (please note, building or setback lines may **not** be permanent in some situations. Said lines may be subject to the limitations set forth in Chapter 233 Local Government Code.)
Build Out	When all residential construction on the available lots in a subdivision have been completed.
Commissioners Court:	Commissioners Court of Johnson County, Texas.
Conventional Septic System:	Historically, a system used to treat sewage on-site that uses a two (2) tank system and lateral lines or other types of gravity fed trenched lines for soil absorption.
County:	Johnson County, Texas
County Judge:	County Judge of Johnson County.
County Engineer:	A Professional Engineer who is a county employee or who is the County's designated agent by contract.
County Road (Street):	A public road or street which has been acquired by the County through prescriptive easement or by dedication and accepted for maintenance purposes by the County or is a road or street that was constructed by and is being maintained by the County.
Curb and Gutter	A type of road construction that encompasses a concrete border system for the road. The border is used to maintain the integrity of the road structure and to facilitate the removal of water from the road surface.
Development Permit	A permit giving authorization for any man made change to improved or unimproved real estate, including, but not limited to, buildings or other structures, mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment or materials.
DXF	A CAD data file format
DWG:	Abbreviation for drawing. Used in AutoCAD to designate a type of file.

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

Engineer: A person duly authorized under the provisions of the Texas Engineering Registration Act to practice the profession of engineering.

E.T.J. Extraterritorial Jurisdiction

Extraterritorial Jurisdiction: The extraterritorial jurisdiction of a municipality is the unincorporated area that is contiguous to the corporate boundaries of the municipality and that is located:

a) Within one-half mile of those boundaries, in the case of a municipality with fewer than 5,000 inhabitants;
b) Within one mile of those boundaries, in the case of a municipality with 5,000 to 24,999 inhabitants;
c) Within two miles of those boundaries, in the case of a municipality with 25,000 to 49,999 inhabitants;
d) Within 3-1/2 miles of those boundaries, in the case of a municipality with 50,000 to 99,999 inhabitants;
e) Within five miles of those boundaries, in the case of a municipality with 100,000 or more inhabitants.

The above delineations are established by the State Legislature and any amendments to the defining characteristics by the State Legislature are hereby incorporated herein. Chapter 42.021, *Local Government Code, V.T.C.A.*)

FEMA: Federal Emergency Management Agency.

Final Plat: A map of a land subdivision prepared in a form suitable for filing and recording with the necessary affidavits, dedications and acceptances, and with complete bearings and dimensions of all lines defining lots and blocks, streets, public areas and dimensions of all lines and other dimensions of land and subdivision requirements of Johnson County, Texas and the State of Texas.

Financial Security: Various forms of security used to guarantee the completion of construction of the roads, drainage easements, drainage structures and signage in the form of: cash deposit, a letter of credit issued by a federally insured financial institution, funds in escrow, bonds or certificate of deposits.

Fire Hydrant: Texas Standard, with operating nuts, hose and pumper connections compatible with the local fire-fighting agency.

Flag Lots: Lots with a very narrow corridor intersecting the roadway (County or State) with the majority of the property behind another lot or lots fronting the roadway.

Flood Plain (Base): The area of land subject to inundation by the 100-year recurrence frequency rainfall and runoff under fully developed (ultimate) watershed conditions.

Floodway: The channel, river or watercourse and the adjacent land areas that must be reserved in order to discharge the 100-year flood under fully developed (ultimate) watershed conditions without cumulatively increasing the water surface elevation more than one (1) foot above the 100-year flood, fully developed watershed, water surface elevation. The floodway limits shall be defined in accordance with standards defined by the Federal Emergency Management Agency.

Gated Subdivision: A subdivision that restricts or denies access to the general public.

Gated Subdivision, Private Road (Street): A road in a gated subdivision not maintained by the County but constructed to county standards.

GIS Global Information System

GPS Global Positioning System

Lot: An undivided tract or parcel of land less than 10 acres in which the parcel or land is designated as a separate and distinct tract. As used herein includes

any subdivision of land subject to platting pursuant to Local Government Code Section 232.001.

Lot Lines: The property lines of any portion, piece, or division of land.

Manufactured Home Rental Community: Any subdivision where the property (lots) are for rent or lease for a term of less than 60 months without a purchase option for use and occupancy as residents for manufactured homes..

May: Is "permissive".

MHRC: Manufactured Home Rental Community.

Mylar: Medium used for plat filing with the County Clerk's office and submission of certain items to the Public Works Department or Commissioners Court.

Non-conventional Septic Systems: A proprietary disposal system where the effluent is treated with a process using chlorine and disposed of via surface application (aerobic system).

O.S.S.F.: On Site Sewage Facilities which may be a septic tank system or non-conventional septic system.

Parkway Road A roadway that intersects with an existing state or county right of way that provides ingress and egress to a subdivision in order to eliminate perimeter lots of a subdivision adjacent to a state or county right of way from having direct ingress or egress to said state or county right of way. Said parkway road may be adjacent to and parallel to an existing state or county right of way in the event a proposed subdivision will only be one (1) lot in depth and will face an existing state or county right of way.

Plat: A map of the land tract proposed for subdivision showing the requested information in these rules and regulations.

Plat Application: An application submitted to the Public Works Department for approval of a subdivision which includes the documentation and other information that must be submitted under these Subdivision Rules and Regulations prior to the Commissioners Court taking action on said application.

Private Drive: A drive serving one home. Not intended or made available for public use.

Private Road: A road not maintained by the County.

Private Sewage Facility: All systems and methods used for the disposal of sewage, other than organized disposal systems operated under a valid permit issued by the Texas Natural Resource Conservation Commission (TCEQ).

Public Street: Any area, parcel or strip of land (road) which provides vehicular access to adjacent property or land whether designated as a street, highway, freeway, thoroughfare, avenue, boulevard, road, place, drive, or however otherwise designated and which is either dedicated or granted for public purposes or acquired for public use by prescriptive easement.

Public Works Department: The Public Works Department of Johnson County and the department that issues permits and inspects private sewage facilities, receives and reviews plat applications, inspects road construction and drainage facilities in subdivisions, and issues development permits for the Flood Insurance Program.

Re-Plat: The division or combining of a lot(s) or property in a platted subdivision.

Right-of-Way: That portion of property in a subdivision dedicated for public roads with a width as described in these rules and regulations; by the type of roadway dedicated.

Roadway: That portion of any street or road so designated or regularly used for vehicular traffic.

Setback Lines: 1. A line or lines designating the area within which a building may not be erected.

(a)

(1) Building or set-back lines may be established on the public roads, including major highways and roads, in the county; and

(2) prohibit the location of a new building within those building or set-back lines.

(b)

A building or set-back line established under this subchapter:

(1) must be a minimum of 25 feet from the edge of the right-of-way on all public roads other than major highways and roads; or

(2) must be a minimum of 50 feet from the edge of the right-of-way of major highways and roads.

(c) The commissioners court may designate the public roads that are major highways and roads.

2. Section 233.034. Notice; Limitations Period

(a) An owner of real property that fronts along a road that has a building or set-back line established under this subchapter is charged with notice of the building or set-back line order.

(b) The commissioners court shall show in a general manner each building or set-back line established under this subchapter on a map. The map shall be filed with the county clerk.

(c) If the county does not begin the construction of the improvement or widening of a road along which a building or set-back line has been established within four years after the date the building or set-back line is established, the building or set-back line becomes void, unless the county and the affected property owners agree to extend the time period for the improvements or widening.

Shall: Is "mandatory".

State Plane Coordinates: A system of coordinates by which standards are set for positioning roads, highways, subdivisions, etc. for mapping.

Subdivider or Developer: Any person, partnership, firm, association corporation or combination thereof, or any officer, agent employee, servant or trustee thereof, who performs or participates in the performing of any act toward the subdivision of land within the intent, scope and purview of these regulations.

Subdivision: The division of any tract of land situated outside the limits of any municipality where the owner divides the tract into two or more parts to lay out a subdivision of the tract, including an addition; lots; or streets, alleys, squares, parks or other parts of the tract intended to be dedicated to public use or for the use of purchasers or owners of lots fronting on or adjacent to the streets, alleys, squares, parks, or other parts.

A division of a tract includes a division regardless of whether it is made by using a metes and bounds description in a deed of conveyance or in a contract for deed, by using a contract of sale or other executory contract to convey, or by using any other method. (Section 232.001 of *the Local Government Code, V.T.C.A.*)

"Subdivision" includes but is not limited to those activities described in Section 232.001 of the *Texas Local Government Code* which require the subdivider to submit a plat to the Commissioners Court.

Surveyor: A licensed State Land Surveyor or a Registered Professional Land Surveyor as authorized by the Texas Statutes to practice the profession of surveying.

TCEQ: Texas Commission on Environmental Quality (formerly TNRCC)

TOPO (Topography): The accurate and detailed description or drawing of land with the surface features detailed. This includes hills, valleys, streams, lakes, elevation lines and other markings normally used in topographical maps.

TXDOT: Texas Department of Transportation.

Takings Impact Assessment: A market analysis of the change in value created by a governmental action that affects an owner's private

real property in whole or in part or temporarily or permanently.

SECTION III
Time Period for Approval of Plat Application

Plats shall be approved according to the schedule provided by Local Government Code Section 232.0025

Section 232.0025. Timely Approval of Plats

(a) The commissioners court of a county or a person designated by the commissioners court shall issue a written list of the documentation and other information that must be submitted with a plat application. The documentation or other information must relate to a requirement authorized under this section or other applicable law. An application submitted to the commissioners court or the person designated by the commissioners court that contains the documents and other information on the list is considered complete.

(b) If a person submits a plat application to the commissioners court that does not include all of the documentation or other information required by Subsection (a), the commissioners court or the court's designee shall, not later than the 10th business day after the date the commissioners court receives the application, notify the applicant of the missing documents or other information. The commissioners court shall allow an applicant to timely submit the missing documents or other information.

(c) An application is considered complete when all documentation or other information required by Subsection (a) is received. Acceptance by the commissioners court or the court's designee of a completed plat application with the documentation or other information required by Subsection (a) shall not be construed as approval of the documentation or other information.

(d) Except as provided by Subsection (f), the commissioners court or the court's designee shall take final action on a plat application, including the resolution of all appeals, not later than the 60th day after the date a completed plat application is received by the commissioners court or the court's designee.

(e) If the commissioners court or the court's designee disapproves a plat application, the applicant shall be given a complete list of the reasons for the disapproval.

(f) The 60-day period under Subsection (d):

(1) may be extended for a reasonable period, if agreed to in writing by the applicant and approved by the commissioners court or the court's designee;

(2) may be extended 60 additional days if Chapter 2007, Government Code, requires the county to perform a takings impact assessment in connection with a plat application; and

(3) applies only to a decision wholly within the control of the commissioners court or the court's

designee.

(g) The commissioners court or the court's designee shall make the determination under Subsection (f)(2) of whether the 60-day period will be extended not later than the 20th day after the date a completed plat application is received by the commissioners court or the court's designee.

(h) The commissioners court or the court's designee may not compel an applicant to waive the time limits contained in this section.

(i) If the commissioners court or the court's designee fails to take final action on the plat as required by Subsection (d):

(1) the commissioners court shall refund the greater of the unexpended portion of any plat application fee or deposit or 50 percent of a plat application fee or deposit that has been paid;

(2) the plat application is granted by operation of law; and

(3) the applicant may apply to a district court in the county where the tract of land is located for a writ of mandamus to compel the commissioners court to issue documents recognizing the plat's approval.

SECTION IV
Requirements for Plat Application

A. Application for subdivision plat approval shall be submitted to the Johnson County Public Works Department.

B. Plat Dimension and Scale Requirements: The plat to be received shall be on a sheet size of 18"x 24" maximum and to a legible scale, which is usually to a scale of one (1) inch equals 100 feet. The recording plat shall be on a film positive Mylar or other permanent type material. If the recording plat is a photographic reduction of a larger scale original, then the scale shall be shown in graphic form, however, the reduction shall be no more than 50%. All figures and letters shown must be plain, distinct, and of a sufficient size as to be easily read, and must be sufficient density to make a lasting and permanent record.

If the subdivision is too large to be accommodated by a single standard sheet size, then two or more sheets may be used, with match lines clearly shown.

The following documents and diagrams shall be submitted to the Public Works Department with the final plat:
Three (3) Mylar's (18"x24");
Blue-line paper copy (18"x24") of the final plat;
Two (2) copies of the final engineering drawings of each:

- drainage,
- water service plans,

- sewer system plans (if other than OSSF) and
- one (1) computer diskette in an 'AutoCAD' or 'dxf' format

All corners of the subdivision shall be referenced to a known GPS point using State plane coordinates on a computer diskette. Working drawings of bridges or major crossings of creeks will be required along with written specifications for the facility. These shall be provided on computer diskette also in a format in use by the Public Works Department.

C. The Plat shall show or be accompanied by the following information:

1. **Subdivision Name:**
   The name of the subdivision, scale, date, and North Point, names or numbers of streets, and lot, block and section numbers within the subdivision, shall be shown on all drawings.

2. **Subdivision Owner(s)' Name:**
   The names and addresses of the owner or owners of the proposed subdivision and the name and address of the Engineer and/or Surveyor responsible for the preparation of the final plat shall be shown.

3. **Boundary Lines:**
   The perimeter boundary of the subdivision shall be shown with bearings and distances, with a beginning point referenced to a survey corner and shall be described by metes and bounds, together with the names and locations of adjacent subdivisions and vicinity map. The boundary line description of the tract being subdivided shall close to an accuracy of one in ten thousand (1:10,000). The ACREAGE IN EACH SURVEY MUST BE SHOWN. The original survey name and abstract number shall be shown on the plat.

   The plat shall show the locations of City limit lines and outer border of the City's extraterritorial jurisdiction if either traverses the subdivision, forms part of the subdivision, or is contiguous to the subdivision boundary as indicated by City records.

4. **Utility Service:**
   The owner(s) shall submit a plan for providing water and sewer service within the proposed subdivision. A letter of commitment from each utility shall be submitted with the plat. If the information is provided during the Plat Approval Application process, and no changes are made, no additional information will be required.

   Each purchase contract made between a developer/sub-divider and a purchaser of land in the subdivision shall contain a statement describing the extent to which water will be made available to the subdivision, if it will be made available, how and when. Each purchase contract made between a developer/sub-divider and a purchaser of land in the subdivision shall provide a checklist of items covered in appendix 'B' attached.

5. **Lot and Street Layout:**
Street Right of Ways (ROW) shall be ***sixty (60) feet*** for residential sub-divisions.

In order to lessen public hazards related to school bus stops and children entering and exiting school buses, postal deliveries and trash pick-ups, all perimeter lots of all subdivisions adjacent to a State or County right-of-way shall **not** have direct ingress or egress to said State or County right-of-way.

The foregoing activities create frequent stops on the thoroughfares and create traffic hazards and safety hazards for those operating or utilizing buses, delivery services and garbage haulers as well as persons operating vehicles on the public roads. Said perimeter lots shall have ingress and egress by way of streets or roads inside the subdivision or via a parkway road.

Where a new subdivision is adjacent to existing county roads, the County will require additional right-of-way for future widening of the roadway due to the increase in traffic created by the subdivision. To insure public safety, the County may require up to a sixty (60) foot dedication to the public of an area off of the centerline of the existing roadway to be utilized for future right-of-way and roadway development

Where a proposed subdivision is bisected by an existing county road or state road; up to a sixty (60) foot dedication of right-of-way shall be required on each side of the center line of the bisecting road. A "Waiver of Takings Impact Assessment" may be requested for all dedications.

Where the proposed subdivision will only be one (1) lot in depth and it will face an existing right-of-way; a parkway road shall be required adjacent to the right-of-way property line. The parkway road shall have a right-of-way of sixty (60) feet with a separate entrance and exit onto the existing right-of-way and shall provide for adequate drainage through construction according to accepted engineering practices along the parkway right-of-way. The pavement shall be twenty-four (24) feet. Curb and gutter type construction may be used to facilitate drainage. This arrangement of lots will maintain a smooth flow of traffic on the roadways and provide for the safety of those living in the subdivision and utilizing the roadways.

The location and width of existing and proposed streets, roads, lots (accurate dimensions and acreage), alleys, building lines, easements, and any other features relating to the proposed subdivision shall be shown. The plans shall show the outline of adjacent properties for a distance of at least one hundred (100) feet and show how the streets, alleys, highways, or drainage features in the proposed subdivision may connect with adjacent land or with adjacent subdivisions. The acreage of the proposed subdivision and each lot shall be indicated on the plat. The minimum of lot size shall be one acre (43,560 sq. ft) of land when on-site sewage facilities are proposed for single family residences.

6. **Drainage**:
The Drainage Plan must show the physical features of the property including water courses, the probable flood hazard areas, flood plains or floodways and source of information, ravines, bridges, culverts, existing structures and the location and dimensions of existing and proposed streets, alleys, drainage facilities, and other features of importance of lot and street layout, prepared by a Professional Engineer licensed in the State of Texas and proficient in civil engineering. Sheet size of drainage plan shall be 24"x36" with a scale of 1"=100'. Two 24" x 36" road and drainage plans are to be provided with plat application.

Topography of the tract shall be shown on the Plat Application by means of contours tied to United States Geological Survey, (USGS), as follows:

(a) When the land has less than a five percent (5%) slope, the contour interval shall not be greater than two (2) feet.

(b) When the land has more than a five percent (5%) slope, the contour interval shall not be greater than five (5) feet.

The topographic contour lines on the Plat Application shall be prepared by a surveyor for the drainage study; based upon either aerial photo-grammetry or ground surveys and shall show where all floodplains and floodways cross through the subdivision.

The Public Works Department will require the developer to do additional ground surveys when there are indications of potential off-site flooding from surface water from the proposed subdivision during construction and after complete build out.

Where development may create a drainage problem (improper drainage or non-existent drainage) or flooding within the subdivision, provisions shall be made for additional drainage easements, structures and devices to allow for proper control of drainage, and for future maintenance within the easement area. If the construction of the subdivision causes drainage impacts to adjacent areas; a drainage study shall be done to a distance of one (1) mile outside of the subdivision's boundaries, and provisions shall be made for appropriate mitigation actions outside the boundaries of the proposed plat. A report of the foregoing study and supporting data shall be provided to the Public Works Department simultaneously with all Plat Application documents.

The owner shall be responsible for maintenance of drainage easements until the lots in the subdivision are sold. The landowner shall be responsible for maintenance of drainage easements after purchase of the property.

Floodways or floodplains, which are necessary to provide for the drainage needs of the development, shall be dedicated to the public as a drainage easement to the limits defining the floodway or floodplain.

Such dedications do **not** create a duty on the part of the County to maintain the easement or dedicated property. The landowner has the duty to maintain and shall maintain all drainage easements traversing, crossing or upon said landowner's property. (However, the County or its designee shall have the right to go on to land dedicated to the public and clear blockages or take other actions to maintain a drainage easement).

All drains, drainage structures, and appurtenances shall be designed by a person authorized to practice the profession of engineering under the provisions of the Texas Engineering Practice Act and amendments thereto.

All drainage data and calculations shall be presented to the Public Works Department. The notation of 4 benchmark elevations will be required; larger (300 lots or more) subdivisions will require 6 bench mark elevations.

The 100-year floodplain and floodway design calculations should be made assuming ultimate (fully developed) watershed conditions.

The following rules shall be delineated as flood notes and shall be placed on the plat:

(1) Blocking the flow of water or constructing improvements in the drainage easements, and filling or obstruction of the floodplain is prohibited.

(2) The existing creeks or drainage channels traversing along or across this addition shall remain as open channels and shall be maintained by the individual owners of the lot or lots that are traversed by or adjacent to the drainage courses along or across said lots.

(3) Johnson County will not be responsible for the maintenance and operations of said drainage ways or for the control of erosion.

(4) Johnson County will not be responsible for any damage, personal injury or loss of life or property occasioned by flooding or flood conditions.

(5) Johnson County has a right but not a duty to enter onto property and clear any obstructions including but not limited to trees, plants, dirt, or buildings, which obstruct the flow of water through drainage easements.

The above rules shall be placed in the deed restrictions or covenants.

Drainage structure design standards to be used in the project shall be included in the engineering plans for review. Engineering plans shall be signed, dated and sealed by a Professional Civil Engineer licensed in the State of Texas. During the

construction phase and until the drainage easements have adequate ground cover to resist silting; silt fencing or other adequate means of control (such as hydro mulching) will be used to stop the flow of silt into and down drainage easements... All types of erosion control to be used shall be shown on the drainage construction plans.

To stabilize drainage easements along existing fence line; natural ground cover and trees (all sizes) should be left in place along the back slope of the easement.

The location of building setback lines on all streets and drainage easements, and other public right-of-way or future right-of-way shall be shown on the plat.

The linear footage of all roads to be built within the subdivision shall be shown on the plat along with the number of lots, projected population, school district, and water provider (company name).

Lots located in depressions and lot located in or adjacent to the 100-year floodplain shall show on each lot the minimum recommended finished floor elevation, based on an Engineer's design, which shall be not less than three (3) feet above the 100-year floodplain elevation in subdivision for site built homes and three (3) feet of free board in subdivisions for manufactured homes. Johnson County will not be responsible for any flooding or flood conditions that occur in these areas. All contracts of sale shall show or describe the floodplain dimensions and finished floor elevation based upon a survey of the parcel.

The plat shall show the location of a minimum of four (4) permanent bench marks within the subdivision; six (6) bench marks if over 300 lots, which were used to establish the 100-year floodplain and recommended finished floor elevation in lots. Reference to recorded subdivision plats or adjoining platted land by record names, and deed record volume and page. These benchmarks shall be set by GPS and recorded by State Plane Coordinates.

The following statements set forth duties of the developer and property owner and **must appear** on the final plat:

"Duties of Developer/Property Owner
The approval and filing of this plat by Johnson County does not relieve the developer of the property or owner of the property of any duty to comply with all local, state or federal law of the jurisdictions in which the property is located.

The approval and filing of this plat by Johnson County does not relieve the developer of the property or owner of the property of any duty to any adjacent or downstream property owner or impose, impute or transfer any duty or liability to Johnson County, the Commissioners, officials or employees of Johnson County.

Johnson County makes no representation that the creeks, streams, rivers, drainage channels or other drainage structures, devices, or features portrayed hereon or actually existing on the property portrayed by this plat do not violate the statutes or common law of an incorporated city, Johnson County, the State of Texas, or the United States.

Johnson County is relying upon the surveyor whose name is affixed hereon to make accurate and truthful representations upon which Johnson County can make determinations regarding the approval or disapproval of this plat.

Indemnity

The property developer submitting this plat to Johnson County for approval and the owner of the property the subject of this plat do hereby agree to jointly and severally indemnify and hold harmless Johnson County and the Commissioners, officials, and employees of Johnson County from any and all claims or damages resulting from or allegedly arising from Johnson County's approval or filing of this plat or construction documents associated therewith.

7. **Land Use:**
   Designation of the proposed areas of land within the subdivision whether for single family residential, or multi-family residential, commercial, industrial, public or other use.

8. **Drawing Requirements:**
   Show the North Point, scale and date. A diagram of the "proposed plat submitted with the Plat Approval Application" shall be drawn to a scale that is legible, which is usually one (1) inch equals 100 feet and in accordance with good engineering practices. A location map shall also accompany all preliminary and final plats. Sheet size shall be 18"x24".

9. **Utility Service:**
   The Owner shall submit, along with the Plat Approval Application, a statement as to his plan for providing water and sewer service within the proposed subdivision and shall also provide his plan for providing electric, gas, telephone, and trash pick up service. All utilities shall be contained in the prescribed utility easements along property lines.

Utilities shall be located as follows:	
Electrical	Back easement (when possible)
Telephone	Back easement
Gas	Front easement
Water	Front easement
Sewer (where available)	In street (middle)

Fire hydrants shall be installed on water mains of 6" or larger within the subdivision. Fire hydrant spacing shall not exceed six hundred (600) linear feet. Fire hydrants shall be a Texas Style Standard. Operating nuts, hose nozzles and pumper nozzle shall be compatible for use by the local fire-fighting agency. Water lines on cul-de-sacs off a main road must have 6" water lines to provide for fire hydrants in increments of 600' and where possible a 4" water line will be used to finish off the remainder of the length.

The plan for sanitary sewage treatment and/or disposal shall be indicated, e.g.; municipal sewer services, privately owned sewage disposal system or individual on-site sewage facilities on the Plat Approval Application. If it is the owner's intent to allow conventional soil absorption systems, representative soil analysis shall be performed by a certified site evaluator. The location of each soil analysis and the area that it covers shall be outlined on the plat. Johnson County approves both conventional and non-conventional systems as determined by the soil analysis.

Utility easements of not less than fifteen (15) feet shall be provided on the front and back lot lines and five (5) feet on the sides of the lot. The proposed water supply shall be clearly indicated, i.e., municipal water, rural water supply corporation, privately owned water system, individual wells, etc., on the plat. A water system and/or a sanitary sewer system that is to be installed by the Developer of property must be approved by the TCEQ, Texas Department of Health and other governmental agencies when their regulations so require. All private water systems will need to meet the need of providing the required fire protection for the subdivision with the necessary storage capability to provide for that fire protection and have the supporting data to show that ability.
Also, the plan for sanitary sewage treatment and/or disposal shall be clearly indicated, i.e., municipal sewer service, privately owned sewage disposal system, individual on-site sewage facilities, etc.

If it is the owner or developer's intent that each lot purchaser should provide individual on-site sewage facilities, then a site analysis shall be performed by a Registered Professional Engineer, Registered Sanitarian or Site Evaluator. A report on the locations and results of these site analyses shall be submitted to the Public Works Department as a part of the application for a permit to construct and operate a private on-site sewage facility.

All private sewage facilities (OSSF) must be designed by a professional engineer or registered sanitarian based upon a site analysis performed on the subject lot and all necessary permits obtained before starting construction of a private sewage facility.

Proper drainage must be provided throughout the subdivision to eliminate surface water saturation of areas where private sewage facilities are to be used. (Subsurface or Surface application)

If the subdivision contains lots restricted for commercial use, and private sewage facilities are to be used for sewage disposal, each lot restricted for commercial use must contain an area of not less than 43,560 square feet (1 acre), and shall have a road frontage on a street of at least one hundred fifty (150) feet except in a cul-de-sac where there should be a minimum of sixty (60) feet lot frontage.

All lots for single family residential use; shall be a minimum of one (1.0) acre (or 43,560 square feet).

The minimum street frontage shall be one hundred fifty (150) feet except in a cul-de-sac where there should be a minimum of sixty (60) feet lot frontage. Only one residence shall be located on a lot and only one residence shall be connected to an on site sewage facility.

All lots for duplexes, triplex, fourplex (multi-family units) in subdivision shall be a minimum of two (2) acres (87,120 square feet) when the lots are served by private sewage facilities. Apartment complexes shall be on three (3) acres (130,680 square feet) with an approved TCEQ wastewater treatment system. The minimum road frontage should be two hundred (200) feet except in a cul-de-sac where there should be a minimum of eighty (80) feet lot frontage.

When the subdivision or platted property fronts a state highway, farm to market road or an existing county road the developer must provide for adequate and safe locations for postal cluster (U.S. Post Office) boxes with adequate space for safe ingress, egress and parking for same and safe drop off points for school children.

10. Subdivision Within Extraterritorial Jurisdiction:

If the location of the subdivision is within the extraterritorial jurisdiction of any city or town, the developer shall determine whether or not Johnson County has entered into an agreement with such city of town for approval of subdivisions. If the County has entered into an agreement whereby the city or town is the entity responsible for approving and regulating the subdivision of land and the construction of roads, drainage and associated features, then the subdivision of the property and construction shall be done according to the rules promulgated by such city or town. **(Note: a "development permit" must still be obtained through the Johnson County Public Works Department.)**

11. Numbering of Lots and Blocks:
The number of all lots and blocks shall be arranged in a systematic order and clearly shown on the plat in distinct and legible figures.

12. Approval by Commissioners Court:

The developer shall not authorize the placement of any manufactured home, sale of lots, grading of streets, or construction in the subdivision before the plat and engineering plans are approved by the Commissioners Court and the plat is filed with the County Clerk's Office; and cash, a bond, a letter of credit or other financial security is provided to the Public Works Department.

13. Building Lines:
Building set-back lines shall be shown on all lots, and should provide for a minimum set-back distance of at least twenty-five (25) feet on roads located within the subdivision and fifty (50') feet on any lots bordering on an existing Farm-to-Market road or State highway. On existing County roads the property line may be referenced to the centerline of the road. Set back should then consist of a minimum of thirty (30') from the centerline of the road to set the road right-of-way and then the appropriate set back of twenty-five (25) feet from the right-of-way edge. Building distances from side lot lines are to be ten feet (10') and are to be fifteen feet (15') on rear lot lines. If the lots within the subdivision are larger, a greater setback distance should be considered for side setbacks.

14. Tax Certificates:
Two (2) current tax certificates should accompany the final plat showing that all taxes assessed are fully paid.

15. Certification and Dedication by Owner:
A dedication by the developer or property owner of all streets, roadways, alleys, utility easements, right-of-way, and other land intended for public use and use by the developer, and certification that all parties with any interest in the title to the subject property have joined in such dedication, duly executed, acknowledged and sworn to by said developer or property owner before a Notary Public.

16. Certification by Surveyor:
Seal, signature, and certification by a Surveyor to the effect that the plat correctly represents a survey made by him.

17. Restrictions of Subdivision:
A copy of the Deed Restrictions and/or Covenants, within the subdivision shall accompany the plat.

The Deed Restrictions and/or Covenants and Purchase Contract shall notify lot owners that houses to be built on lots which are lower than the road or roads on which it fronts and/or abuts shall be built at a **finished floor elevation of eighteen (18) inches or more above** the proposed grade of the yard adjacent to the slab on the uphill side of the

property in order to prevent storm drainage water from damaging houses on properties that are lower than the road.

The Deed Restrictions and/or Covenants and the plat shall give notice to lot owners that any filling, obstruction of, or building permanent structures in the floodway is prohibited.

If sewage disposal is to be done by means of Private Sewage Facilities, the Deed Restrictions and/or Covenants **SHALL** contain the following:

(a) On-site sewage facility performance cannot be guaranteed by Johnson County, even though all provisions of the Rules of Johnson County, Texas for Private Sewage Facilities and TCEQ regulations are complied with.

(b) Inspection and/or acceptance of a private sewage facility by the Public Works Department shall indicate only that the facility meets minimum requirements and does not relieve the owner of the property from complying with County, State and Federal regulations. Private Sewage Facilities, although approved and meeting minimum standards, must be upgraded by the owner at the owner's expense if normal operation of the facility results in objectionable odors, if unsanitary conditions are created, or if the facility when used does not comply with governmental regulations.

(c) A properly designed and constructed private sewage facility system, in suitable soil, can malfunction if the amount of water it is required to dispose of is not controlled. It will be the responsibility of the lot owner to maintain and operate the private sewage facility in a satisfactory manner and in compliance with the provisions of the Texas Health and Safety Code.

The Deed Restrictions and/or Covenants shall require that all driveway culverts shall be installed in accordance with the policies of Johnson County and shall be of sufficient size to pass the five (5) year storm flow. In no case shall driveway culverts be less than eighteen (18) inches in diameter unless approved by the commissioner of said precinct or by the design of the engineer of record for the subdivision as shown on the final plat. The driveway above the culvert should be constructed such that the top of the driveway is five (5) inches below the outside edge of the main road so that storm water, which exceeds the capacity of the culvert, can pass over the culvert without entering the driveway or main road.

The Deed Restrictions and/or Covenants and the plat shall notify lot owners that no houses shall be built in a 100-year floodplain unless said house is constructed at or above the minimum recommended finished floor elevation, which is not less **than three (3) feet above** the 100-year floodplain elevations as shown on each lot on the

plat that is within the 100-year floodplain. **No** building or other structure, dirt, rocks, gravel, or other material shall be located within the floodway.

The Deed Restrictions and/or Covenants shall provide that a lot owner is prohibited from blocking the flow of water or constructing improvements in drainage easements.

18. Engineering Plans:

The engineering plans submitted with the Final Plat shall include two (2) copies of the plan profile sheets for the construction of streets, creek crossings by bridge, creek crossings by major culvert (60 inches or larger), and drainage facilities, which show the following:

1. Street Construction Plans Shall show:

(a) The plan of the street in no larger than 1=40' scale showing the location of the proposed pavement, ditches and drainage structures within the street right-of-way;

(b) The profile of the street in no larger than 1"=40' scale horizontal and 1"=4'scale vertical;

(c) The street grades and elevations;

(d) Vertical curve and horizontal curve information;

(e) The ditch grades, design flow of water, design depth of water and design velocity of water;

(f) Typical street sections;

(g) The seal and signature of the engineer responsible for the design on all sheets.

2. Drainage construction plans shall show:

(a) The plan of the drainage facilities in no larger than 1"=40' scale.

(b) The profile of the drainage facilities in no larger than 1"=40' scale horizontal and a 1"=4' scale vertical.

(c) The open channel or storm drain grades, design flow of water, design depth of water and design velocity of water and capacity.

(d) A plan and profile of all culverts under any street with the design flow of water, headwater and tail water depths, and the tail water velocity, and head walls shown.

All street crossing culverts 24" or larger will have concrete headwalls.

All head walls for street crossings will be of concrete construction with a concrete pan and concrete aprons to control erosion.

(e) The size of all driveway culverts to carry the design flow of water at each lot in the subdivision when the culvert is installed at the designated ditch grade.

(f) Typical ditch sections and width of the right-of-way and drainage easements needed.

(g) The seal and signature of the engineer responsible for the design on all sheets.

(h) Summary sheet of all drainage facilities.

SPECIAL NOTE: With respect to any construction that will possibly affect down stream flood conditions where known floodway and floodplains exist in or adjacent to the development; special care shall be taken, including, but not limited to, a flood study for the area to be submitted to the regional FEMA office for their approval.

19. **Sanitation Easements:**
Sanitation easements showing minimum distance required from public water wells as required by state law are to be shown on the plat.

20. **Physical Addresses:** Identification of the physical addresses. Addresses for inclusion on the final plat are to be coordinated with the 911 Addressing Coordinator of Johnson County. The addresses shall be shown in tabular form and shall correspond with the lot and block numbers. This information shall be on the computer diskette provided with the final plat and shall be on a separate layer.

21. **Approval by Commissioners Court:**
A space shall be provided on the final plat for the approval by the County Judge acting in behalf of and for the Commissioners Court of Johnson County, Texas. A subdivision plat shall be filed and recorded, after the final plat approval and approval of the financial security, metes and bounds description, and plat restrictions. The plat *Deed Restrictions and Deed Covenants* shall be filed, recorded, and a certified copy of same provided to the Public Works Department.

A dedication document including a metes and bounds description of the subdivision shall either be on the plat or accompany the plat and be filed and recorded in the County Clerk's Office when the Final Plat is filed and recorded.

No lots shall be made available for sale until all of the conditions of plat approval and provision of financial security have been met. No lots shall be made available for sale until all road and drainage construction is complete, proper signage is in place, all utility construction is completed and the foregoing has been approved by the Johnson County Public Works Department.

All construction of roads, streets, required drainage and drainage structures and signs shall be completed within 1 year after the plat has been approved by the Commissioner's Court.

SECTION V
Financial Security

Upon the Commissioner's Court approval of the plat, the owner shall provide appropriate financial security as authorized by Sections 232.004 and 232.045 of the Local Government Code that assures the County that the roads, streets and drainage requirements are constructed in conformance with these regulations and within a reasonable time as specified by the Commissioners Court. The financial security shall be equal to **one hundred percent (100%)** of the estimated cost of construction of the roads, streets and drainage requirements.

§ 232.004. Bond Requirements. If the commissioners court requires the owner of the tract to execute a bond, the owner must do so before subdividing the tract unless an alternative financial guarantee is provided under Section 232.0045. The bond must:

(1) be payable to the county judge of the county in which the subdivision will be located or to the judge's successors in office;

(2) be in an amount determined by the commissioners court to be adequate to ensure proper construction of the roads and streets in and drainage requirements for the subdivision, but not to exceed the estimated cost of construction of the roads, streets, and drainage requirements;

(3) be executed with sureties as may be approved by the court;

(4) be executed by a company authorized to do business as a surety in this state if the court requires a surety bond executed by a corporate surety; and

(5) be conditioned that the roads and streets and the drainage requirements for the subdivision will be constructed:

(A) in accordance with the specifications adopted by the court; and

(B) within a reasonable time set by the court.

§ 232.0045. Financial Guarantee in Lieu of Bond

(a) In lieu of the bond an owner may deposit cash, a letter of credit issued by a federally insured financial institution, or other acceptable financial guarantee.

(b) If a letter of credit is used, it must:

(1) list as the sole beneficiary the county judge of the county in which the

subdivision is located; and

(2) be conditioned that the owner of the tract of land to be subdivided will construct any roads or streets in the subdivision:

(A) in accordance with the specifications adopted by the commissioners court; and

(B) within a reasonable time set by the court.

The owner shall provide to the Director of Public Works, upon request, his/her signed and approved bids for the construction project. These bids may be used to determine the amount of the financial security required.

The financial security shall be presented to the Johnson County Public Works Department for submission to the Commissioners Court with the plat.

The financial security shall remain in full force and in effect until all the roads, streets, drainage, drainage structures, and signage in the subdivisions have been completed in accordance with these rules and good engineering practices and construction methods and standards, and the financial security has been released by the Commissioner's Court.

In the event any or all of the roads, street, drainage and drainage structures, as constructed by the owner, fail to meet the requirements of the foregoing specifications, and the owner fails or refuses to correct the defects called to his attention in writing by the Johnson County Public Works Department and/or precinct Commissioner, the unfinished improvements shall be completed at the cost and expense of the owner as provided. The County shall be reimbursed for such costs by the owner, by the transfer of funds from the financial security to Johnson County, or otherwise, as necessary to satisfy the expense of completing construction or correcting construction defects. Johnson County shall also be entitled to reasonable attorneys fees to be paid from the security (by the developer).

The release of any financial security shall be by **order of the Commissioners Court**. To request the release of financial security, the owner who posted the financial security in question shall present a written request for release of said financial security. The request shall contain a statement by the engineer responsible for the design of the project, stating that he/she has made an inspection of the subdivision and that it meets the specifications of his/her design and request the acceptance of the subdivision construction by the County and the release of financial security. The owner of a subdivision, that is not a gated subdivision, shall also request in writing County maintenance of the roads and streets in the subdivision. One (1) set of 'as built' drawings on Mylar showing the work to be accepted by the County shall be submitted to the Public Works Department and a 3 1/2" computer diskette or a CD-ROM shall accompany the letter of request with the 'as built' in a 'dwg' format.

A final inspection shall be made on the project by the Commissioner of the precinct, and/or his road maintenance supervisor and the Director of Public Works. The inspection shall be made within fifteen (15) days of the request for said inspection. The owner shall then be notified in writing of any deficiencies in construction with respect to the requirements of the current Subdivision Rules and Regulations of Johnson County. Upon correction of the deficiencies, consideration of the release of financial security and County maintenance of the roads (in a non-

gated subdivision) will be placed on the Commissioners Court agenda. If the inspection reveals no deficiencies, consideration of the release of financial security and County maintenance of the roads (in a non-gated subdivision) will be placed on the Commissioners Court agenda.

SECTION VI
General Requirements

General Requirements pertaining to subdivisions within Johnson County, Texas shall be as follows:

A. Street Arrangement:
The design of new streets or the extension of existing streets shall be done to facilitate both present and future traffic flow and to adequately provide for storm water drainage. In all cases, the design engineer shall be cognizant of local drainage characteristics and shall plan local streets such that the new street does not create a localized drainage or flooding problem or hazard for existing development.

B. Dead-End Streets:
Dead-end streets will not be approved unless such dead-end streets are designed to connect with future streets on adjacent land, but cul-de-sacs may be permitted where the form or contour of the land makes it difficult to construct the subdivision with connecting streets. Such cul-de-sacs shall provide proper access to all lots, and a turn-around shall be provided at the closed end, with an outside pavement street line radius of at least sixty (60) feet and right-of-way radius of at least eighty (80) feet. Cul-de-sac streets shall have a length of not longer than six hundred (600) feet without a cross street connector.

C. Adjoining Streets and Land:
Where no adjacent connections are platted, the street must be continued to the boundaries of unsubdivided tracts, so that other subdivisions may connect therewith when deemed necessary by Public Works Department and the Commissioners Court to facilitate future traffic flow.

D. Culverts:
See Appendix A, Drainage Requirements Criteria and Design Standards, D. Storm Drainage Design Criteria, 5. Culverts.

Large culverts – (24 inches or larger) shall have concrete head walls. These culverts and headwalls shall conform to TX DOT standards.

Culverts shall be constructed of corrugated metal unless otherwise approved by the Commissioner of that precinct in which the culvert is to be installed. However, concrete culverts, including concrete box culverts, will be allowed in locations that require a culvert of a size such that a corrugated metal culvert is not practical.

The landowner or developer shall install all drainage culverts of sufficient size as designated by the Engineer who designed the drainage system. Culvert design,

size, and installation is subject to the approval of the Commissioner of that precinct for determination as to whether said culverts comply with these rules and good engineering practices. Multiple installations of corrugated metal pipe or reinforced concrete pipe shall have a reinforced concrete headwall **or** four (4) inches of reinforced concrete as shown in the Appendix.

Multiple installations of corrugated metal pipe shall be laid parallel; the following clear distances between outer surfaces of adjacent pipes shall be maintained:

CLEAR DISTANCE BETWEEN PIPES		
Diameter Of Pipe	Clear Distance Between Pipes Full Circle and Pipe Arch	Pipe Arch Design No.
18"	1'-2"	2-15"x21"
24"	1'-5"	3-20"x28"
30"	1'-8"	4-24"x35"
36"	1'-11"	5-29"x42"
42"	2'-2"	6-33"x39"
48"	2'-5"	7-41"x53"
54"	2'-10"	8-46"x60"
60"-84"	3'-2"	9-51"x66"
90"-120"	3'-5"	10 & over

All driveway culverts will be sized to carry the design flow of water at each lot in the subdivision and the culvert(s) shall be installed at the designed ditch grade.

All culverts shall be sized by the engineer at the time of platting and the size shown on each lot in tabular form for the plat.

E. Construction:

The Public Works Department and/or the Commissioner of the precinct where the subdivision is located must approve all road construction and drainage work in any subdivision. The construction agent shall give the Public Works office 72-hour notification prior to beginning road construction or drainage work.

All work shall be constructed and finished in accordance with good engineering practices.

F. Testing:

All testing required by the Public Works Department to determine conformance to specifications shall be performed by a qualified engineer or a testing laboratory, approved by the Public Works Department. The following tests will be required:

Subsurface Investigations:

A subsurface investigation to evaluate subgrade characteristics, stabilization requirements, and pavement section thickness shall be required. After the chemical injection or lime stabilization has been completed; random plasticity and density testing shall be required to determine the effectiveness of the stabilization.

Materials:
Pavement materials and mix designs shall be analyzed and evaluated for their suitability by for pavement usage.

Construction:
Materials, engineering testing and inspection services shall conform to Texas Council of Engineering Laboratories (TECL) recommended scope services.

The cost of all testing shall be paid by the Owner of the subdivision.

G. Fees:

Before the plat is approved, the owner shall pay the inspection fee to the Public Works Department. Fees for plat approval, inspection and other ancillary activities shall be as set forth in the fee schedule adopted by the Johnson County Commissioners Court.

H. Utilities

All utility lines crossing a subdivision road shall be installed to at least meet the minimum requirements shown in the next paragraph and meet any other requirements of a utility company operating in Johnson County and/or as required by statute.

Utility lines crossing a road shall be installed as follows below the flow line of the ditch:

Water:	24" or as required for proper drainage ditches
Sewer:	Where a wastewater treatment plant is necessary lines will be installed by flow requirement (engineered).
Telephone:	18" minimum
Natural Gas:	Where available 42" minimum
Underground Power:	36" minimum

All waterlines shall be encased in a metal or PVC Schedule 40 casing when crossing under a road. The casing shall be from ditch line to ditch line.

All utility cuts shall be compacted in twelve (12) inch lifts and shall be installed before roadway preparations are started. All installation shall be done by boring

under the road wherever possible. All water line installation will be done to the specifications of the provider of water.

All water, natural gas, telephone, electrical lines or their sleeving will be installed before the stabilization of the sub-grade has been started.

All utility lines, except those crossing a road, should be installed in the utility easements of the subdivision.

I. Installation of Street Signs:

Installation of street signs: All traffic signs, traffic control devices, street signs, and guard post shall be installed by the owner in accordance with the most recently published edition (as of the time the plat approval application is submitted to the Commissioners Court) *Texas Manual on Uniform Traffic Control Devices for Streets and Highways and Public Transportation,* or such manual as succeeds said *Texas Manual on Uniform Traffic Control Devices for Streets and Highways and Public Transportation* .

The owner of a subdivision shall have installed the street name signs on new streets. The proper installation of these signs is a part of the required construction standards of Johnson County. Signs and installation will be inspected for approval by the Public Works Department prior to the release of the financial security.

They shall be 0.080 gauge aluminum blanks with an alodine finish and covered with engineer grade green reflective sheeting with silver (white) copy. Designations such as street (st), road (rd), etc; shall be standard abbreviations as follows:

Avenue:	Ave	Parkway:	Parkway
Boulevard:	Blvd	Place:	PL
Circle:	CIR	Plaza:	PLZ
Court:	CT	Road:	RD
Drive:	DR	South: S	
East:	E	Southeast:	SE
Freeway:	FRWY	Southwest:	SW
Highway:	HWY	Square:	SQ
Hill:	Hill	Street: ST	
Junction:	JCT	Terrace:	TER
Lane:	LN	Thruway:	TWY
North:	N	Trail:	TR
Northeast:	NE	Way:	Way
Northwest:	NW	West:	W

The streets or roadways in a subdivision will not be accepted for County maintenance by the Commissioner's Court until all requirements and conditions regarding street names, street signs, and traffic control devices have been complied with.

J. Mailboxes:

Mailboxes shall be a minimum of three (3) feet from the edge of the pavement. All mailboxes within the county right-of-way shall meet the current TXDOT standards if the posted speed limit on the county road is 40 mph or more. No brick and concrete mail boxes will be adjacent to the pavement (3 ft. or less). Brick and concrete mailbox structure shall be constructed on turn out access because of safety concerns.

All subdivisions that are single lot deep along the state right-of-ways must follow current TXDOT standards for turn out lanes at the driveway entrances and have breakaway mailbox post or standards.

Mailboxes in subdivisions with posted speed limits at or below 40 mph must meet post-office requirements, and must be placed a minimum of three (3) feet away from the edge of the pavements to prevent interference with the 'line of sight' of vehicles exiting a driveway.

Where possible, owners should look at installing an area of turn around with cluster mailboxes. The area will be of an adequate size to allow for proper egress and ingress and good 'line of sight' for the vehicle exiting the mailbox area.

K. Completion of Roads and Drainage Facilities:

The owner shall complete all streets, street signs and drainage facilities in the subdivision within twelve (12) months after the date of plat application approval.

All bridges in the subdivision shall be marked according to current TXDOT (Texas Department of Transportation) standards for marking and signing of bridge approaches.

Roads shall not be open to traffic until all signs are in place and the streets are completely paved and approved by Johnson County.

There will be **no** site development permits or OSSF permits issued by the Public Works Department before the street construction has been approved by Johnson County, street signs erected, drainage completed, and all traffic control devices are installed, and all utility construction is completed and approved. It is the responsibility of the Owner to complete all of the road construction and drainage before any home construction begins or manufactured homes are moved into the subdivision. If homes are moved in prior to the acceptance of the roads and drainage in the subdivision — legal action may be taken including but not limited to seeking an injunction to stop construction/development against the owner. The property owner and/or house builder may also be subject to **criminal penalties**.

L. Sale of Lots:

The owner shall not sell any lots in the subdivision until the plat application is approved by the Commissioners Court; and

(1) the streets and drainage facilities are properly constructed and completed, all utility construction is completed, and all street and traffic signs are installed, and each are approved by the Public Works Department;

(2) the Financial Security is delivered to and on file with the Public Works Department that will guarantee the subdivision roads, streets and drainage facilities related thereto will be built and completed within twelve (12) months after the plat is approved by the Commissioners Court.

M. Extension of Time to Complete Roads, Streets & Drainage Facilities:

The Commissioners Court may extend the time for constructing the roads, streets and drainage facilities related thereto for an additional period up to one (1) year period if the Commissioners Court determines that mitigating circumstances such as inclement weather conditions justify such an extension of time. The owner shall provide new financial security for the construction of the roads, streets and drainage facilities thereto during the additional period of time granted by the Commissioners Court. All road construction and drainage facilities must be completed by the end of the extension period and the roads and drainage accepted by the Director of Public Works.

Granting of an extension would require that a request for said extension be made in writing and received by the Commissioner's Court at least forty-five (45) days prior to the date originally scheduled for completion of construction.

N. Structures installed or Built on Lots Which Are Lower Than The Road:

Dwellings installed on or built on lots which are lower than the road or roads on which it fronts and/or abuts should be built at a finished floor elevation of eighteen (18) inches or more above the proposed grade of the yard adjacent to the slab on the uphill side of the property. This requirement is intended to prevent storm drainage water from damaging houses on properties that are lower than the road.

Lots located in depressions shall have a minimum finished floor elevation shown on the final plat. The finished floor elevation shall not be less than eighteen (18) inches above the yard height. In the case of manufactured house on a lot lower than the road; they shall have a finished floor at two (2) feet above the yard height.

<u>The developer is responsible for notifying a prospective buyer of the above requirement.</u>

Johnson County will not be responsible for any flooding or flood conditions that occur in the above described areas or in any other areas.

Engineers should be careful to design drainage so as to alleviate potential localized flooding on individual lots. Such planning shall include, but not limited to proper grading of the lots to provide for adequate drainage. The drainage shall have a minimum effect on the OSSF System.

O. Access to Subdivisions:

Access to all subdivisions from a state highway, farm to market road, or county road shall be via an arterial road into the subdivision. An exception to this must be presented to the Commissioners Court; must have substantial proof of the necessity of this exception, and the approval of the Commissioners Court.

Johnson County shall not be responsible for the maintenance of private roads, drives, streets, emergency access easements, recreational areas, and open spaces; and owners of such property or rights shall and do agree to indemnify and save harmless Johnson County, from all claims, damages and losses arising out of or resulting from performance of the obligations of said owners.

P. Inspections:

Johnson County may perform the minimum amount of inspections and testing as set forth in these regulations, to assure compliance. However, it is intended that the burden of inspection, testing, and responsibility for compliance shall rest with the owner.

Inspection, approval, and acceptance by the Commissioners Court does not relieve the owner of his/her responsibility to inspect, test, and construct all streets, roads, drainage, and other items in complete compliance with the Subdivision Rules and Regulations.

Inspection, approval, and acceptance by the Commissioners Court shall not constitute a waiver of rights, including the right to collect or recover cost expended by the county or from any financial security furnished to the County.

Q. Drainage Easements:

See Appendix A, Drainage Requirements Criteria and Design Standards, Section E, Easements. The drainage easements must be left unobstructed so that equipment can be used to clean and maintain them when necessary.

R. Authority to Enforce Subdivision Deed Restrictions:

No authority for the enforcement of subdivision deed restrictions shall lie with Johnson County. Such enforcement, if any, shall rest solely with the subdivision/developer owner, a purchaser/property owner, or homeowner's association.

S. Plat Revision:

A revised plat must be approved by the Commissioners Court for the conveyance of portions of one or more previously platted lots in a subdivision. This includes divisions of property and combining of lots.

Division of Lots:
A fee shall be required for revising plats. All owners of property inside a subdivision must be notified by certified letter of a re-plat of property inside said subdivision.

Combination of Lots:
A fee shall be required for revising a plat where 2 or more lots are being combined into one lot. This type plat revision does not require legal notification by certified letter, only by posting.

T. Exception to Plat Revision:
The Commissioners Court may allow the conveyance of portions of one or more previously platted lots by metes and bounds without revising the plat.

SECTION VII
Subdivision Standards

Gated subdivisions (security gates or guard stations) are considered privately owned and will be maintained without any County contribution. However, they must be platted and constructed according to these Rules and Regulations. Adequate provisions must be made and approved for entrance of emergency vehicles.

A. Residential Lots:
Subdivision residential lots having water supply provided by a well and an individual on-site sewage system should have a minimum lot size of one (1) acre. Such lots must have a minimum paved street frontage of one hundred fifty (150) feet. Should topographic information indicate a portion of a lot is in an area of a floodway, the lot shall be enlarged to allow a minimum required lot size outside the area of a floodway for the home site, water well, and on-site sewage disposal system.

Lots served by a public water supply but using individual on-site sewage facilities for sewage disposal shall have a minimum surface area of at least one (1) acre for conventional systems or one (1) acre for aerobic systems or a non-standard treatment system.

All subdivisions will back to the State highway, Farm Market Road right-of-way or county road right-of-way with a least two (2) separate roads/streets entrances for egress/ingress.

B. Street Layout:
Traffic impact studies shall be performed by the owner for any development proposal expected to generate traffic volumes that will significantly impact the capacity and/or safety of the existing street/road system. An example where such traffic impact studies shall be required is to determine the need for turning lanes entering subdivisions from busy streets, especially minor and major traffic arteries utilized during rush hour traffic.

Traffic turning lanes shall be required at entrances to subdivisions of 25 lots or more. Further, a traffic study shall be performed by the owner or his/her engineer if the subdivision shall have more than one hundred (100) lots to determine the need for any additional right-of-way needed to maintain good and safe traffic flow around the subdivision.

The use of cluster boxes approved by the U.S. Postal Service is encouraged inside the subdivision.

Where adjoining property is not subdivided, the arrangement of streets in the subdivision may make provisions for the proper projection of streets into such un-platted property. Dead-end streets shall be prohibited except at boundary lines to permit future expansion. Temporary turnarounds shall be provided on dead-end expansion streets. Cul-de-sacs shall have a right-of-way radius of not less than eighty (80) feet with a paved area of a minimum sixty (60) feet in radius.

No squares, "islands", or other obstructions to traffic shall be reserved or constructed within the street right-of-way of the subdivision except at the entrance to said subdivision and additional right of way (row) will be required to accommodate that type of entrance. Flared entrances to subdivisions shall be provided to accommodate access by large trucks and manufactured housing delivery where necessary. A flared entrance row shall be eighty-six (86) feet wide and one hundred and ten (110) feet in depth to accommodate the delivery of manufactured housing with a paved service of forty (40) feet. A transitional flare shall be 86' (ROW) x 60' (Length) x 75' (ROW).

All streets and roads shall intersect at ninety-degree angles. Where this is not practical, the intersection on the side of the acute angle shall be cut back, but in no case shall the cut back be less than twenty-five (25) feet to provide for better line of sight.

The owner in platted or un-platted property along County Roads, State Highways or Farm to Market roads will provide an offset area for the cluster mailbox arrangement. This offset shall meet TXDOT requirements.

Subdivision entrances located where drainage flow would necessitate a ditch exceeding forty-two (42") inches in depth shall have underground drainage (covered culverts). Said underground drainage shall extend for a distance equal to one hundred fifty (150') feet in each direction from the entrance with guarded, sloped headwalls to conform to TXDOT standards.

C. Sewage and Waste Disposal:

Every parcel of land to have a home-site or commercial activity shall have at the time of occupancy an adequate system for sewage and wastewater disposal upon occupancy by either:

(1) connection to an approved community sewage disposal system; or

(2) construction of a properly designed and operational individual on-site sewage facility.

On-site sewage facilities can be sources of pollution to ground water, soil surface, and the environment if not properly sized, constructed, and maintained. A permit for the construction and location on a lot is required in the interest of public health and welfare. Connection to a community sewage disposal facility and system is preferred where possible.

Community sewage disposal systems shall conform to the rules and regulations of TCEQ and Johnson County as to design, materials, and construction. The Owner shall present proof of TCEQ acceptance, and that of any other State or County agency controlling sewage disposal systems.

If a community sewage disposal system is to be installed, the plans for the location of such system must be approved by the County and thereafter by the appropriate State regulatory agency prior to approval of the final plat by the County. If connection is to be made to an existing community sewage disposal system, evidence must be presented that such system has previously received such approval and has sufficient capacity to handle the additional demand.

If an individual on-site sewage facility (OSSF) is to be utilized, the owner shall prominently state on final plat that homeowners are to be responsible for the construction of an approved on-site sewage facility (OSSF). A lot shown on an approved and recorded final plat is sufficient for a lot owner to obtain a permit to have an on-site sewage facility (OSSF) constructed and a Warranty Deed, Deed of Trust, or Contract for Deed and site evaluation.

Details for the design and construction of a sewage facility are found in the most current edition of the ***"Rules of Johnson County, Texas for Sewage Facilities"***.

SECTION VIII
Subdivision Cancellation

Canceling Subdivisions-Sect. 232.008, Local Government Code, V.T.C.A.

(a) This section applies only to real property located outside municipalities and the extraterritorial jurisdiction of municipalities, as determined under Chapter 42, Local Government Code, V.T.C.A.

(b) A person owning real property in this state that has been subdivided into lots and blocks or into small subdivisions may apply to the commissioners court of the county in which the property is located for permission to cancel all or part of the subdivision, including a dedicated easement or roadway, to reestablish the property as acreage tracts as it existed before the subdivision. If, on the application, it is shown that the cancellation of all or part of the subdivision does not interfere with the established rights of any purchaser who owns any part of the subdivision, or it

is shown that the purchaser agrees to the cancellation, the commissioner's court by order shall authorize the owner of the subdivision to file an instrument canceling the subdivision in whole or in part. The instrument must describe the subdivision or the part of it that is canceled. The court shall enter the order in its minutes. After the cancellation instrument is filed and recorded in the deed records of the county, the county tax assessor-collector shall assess the property as if it had never been subdivided.

(c) The commissioner's court shall publish notice of an application for cancellation. The notice must be published in a newspaper, published in the English language, in the county for at least three weeks before the date on which action is taken on the application. The court shall take action on an application at a regular term. The published notice must direct any person who is interested in the property and who wishes to protest the proposed cancellation to appear at the time specified in the notice.

(d) If delinquent taxes are owed on the subdivided tract for any preceding year, and if the application to cancel the subdivision is granted as provided by this section, the owner of the tract may pay the delinquent taxes on the acreage basis as if the tract has not been subdivided. For the purpose of assessing the tract for a preceding year, the county tax assessor-collector shall back assess the tract on the acreage basis.

(e) On application for cancellation of a subdivision or any phase or identifiable part of a subdivision, including a dedicated easement or roadway, by the owners of 75 percent of the property included in the subdivision, phase, or identifiable part, the commissioners court by order shall authorize the cancellation in the manner and after notice of at least 10 percent of the property affected by the proposed cancellation file written objections to the cancellation with the court, the grant of an order of cancellation is at the discretion of the court.

(f) To maintain an action to enjoin the cancellation or closing of a roadway or easement in a subdivision, a person must own a lot or part of the subdivision that:

(1) abuts directly on the part of the roadway or easement to be canceled or closed; or

(2) is connected by the part of the roadway or easement to be canceled or closed, by the most direct feasible route, to:

(a) the nearest remaining public highway, county road, or access road to the public highway or county road; or

(b) any uncanceled common amenity of the subdivision.

(g) A person who appears before the commissioners court to protest the cancellation of all or part of a subdivision may maintain an action for damages against the person

applying for the cancellation and may recover as damages an amount not to exceed the amount of the person's original price for the property in the canceled subdivision or part of the subdivision. The person must bring the action within one year after the date of the entry of the commissioners court's order granting the cancellation.

(h) The commissioners court may deny a cancellation under this section if the commissioners court determines the cancellation will prevent the proposed interconnection of infrastructure to pending or existing development.

SECTION IX
General Road and Street Specifications

A. Street Specifications:

The following improvements are required on new streets created by the subdivision:

(a) The minimum gradient for a subdivision street shall be four-tenths (0.40) percent and the maximum gradient shall be ten (10) percent for streets with open bar ditches and the maximum gradient on curb and gutter streets shall be determined by the engineer designing the street for the public safety of persons using the street.

(b) The owner shall remove any trees or obstructions from the right-of-way of the streets of the subdivision or a county road abutting the subdivision that are within the slope of the drainage ditches or within ten (10) feet of the curb of a curb and gutter street. All trees will be removed from drainage easements along the frontal slope.

B. Right of Way:

(a) The owner shall provide for right-of-way on main artery streets or roads within the subdivision of a width of not less than sixty (60) feet or more than one hundred (100) feet as determined by the Public Works Department and the Commissioners Court.

Where a Farm to Market road, or State Highway abuts the subdivision, the owner shall set back the subdivision property line a minimum of forty (40) feet from the center line of the existing road to provide for future right-of-way development per TXDOT requirements.

(b) Typical County Roads and streets or roads in the subdivision shall have a right-of-way of not less than sixty (60) feet. The owner shall provide drainage easements on lots to meet the requirements of the

Drainage Construction Plans when the drainage ditches exceed the width of the platted right-of-way width.

(c) Subdivisions bordering Johnson County Road 600 (E. Renfro) from Quill Miller Creek bridges south to State Highway 67 shall provide a minimum right-of-way of seventy (70) feet from the center line of the County Road 600 or more as determined by the Public Works Department and the Commissioners Court, or Texas Department of Transportation.

C. **Requirement for Street Pavement:**
All streets shown on the plat must meet the following specifications:

(1) Roadway:
The developer will build the roadbed and ditches to meet the requirements shown on Typical Section Sheets (Appendix A). The inside pavement edge of sharp curves shall be widened if deemed necessary by the Public Works Department.

The minimum design speed for local streets shall not be less than 30 miles per hour except where approved by the Commissioners Court in areas such as "Children at Play" in residential areas.

(2) Sub-grade:
Random testing of the sub-grade for plasticity will be required and said tests shall be performed by a licensed lab for plasticity. The sub-grade shall be scarified to a depth of eight (8) inches, and watered and compacted.

The sub-grade shall be lime stabilized with hydrated lime in the amount of thirty-five (35) pounds per square yard in slurry placing to a depth of eight (8) to ten (10) inches when the plastic index is twenty (20) or greater; or chemical injection may be applied in a like manner. A representative of the company providing the chemical shall be on sight during the chemical injection process. Additional density tests will be required for chemically injected roadbeds.

The material and lime shall be thoroughly mixed by approved road mixers or other approved equipment, and the mixing continued until, in the opinion of the Public Works Department, a homogeneous friable mixture of material and lime is obtained, such that when all nonslaking aggregates retained on the 3/4 sieve are removed, the remainder of the material shall meet the following requirements when tested from the roadway in the roadway condition by laboratory sieves:

Minimum passing	1-3/4 sieve	100%
Minimum passing	3/4 sieve	85%

The soil lime mixture shall be sprinkled during the mixing operation as directed by the Public Works Department to provide optimum moisture in the mixing.

During the interval of time between application and mixing, hydrated lime that has been exposed to the open air for a period of six (6) hours or more or has had excessive loss due to washing or blowing will not be accepted.

The Public Works Department, upon the basis of engineering reports provided and paid for by the owner, may entertain proposals for other types of lime and different percentages of lime.

Sandy soil shall be stabilized with concrete as determined by the results of laboratory test and approved engineering standards.

(3) Base:
After the sub-grade is completed it shall be covered with State approved crushed stone compacted to a depth of eight (8) inches to be laid in two (2) equal courses of four (4) inches each. (Physical Requirements for flexible base material. Type 'A' Grade 1 meeting the Texas Department of Public Transportation Standard Specifications). Developer or contractor will be required to provide copies of original delivery tickets on base material used.

(4) Density:
The sub-grade and base shall be density controlled in conformity with the regulations of the Texas Department Of Highways and Public Transportation.

The base shall be a minimum of 95% Standard Proctor density as required by the Texas Department of Highways and Public Transportation.

The sub-grade shall be a minimum of 95% Standard Proctor density as required by the Texas Department of Highways and Public Transportation.

The Public Works Department shall control the frequency and number of density tests. The minimum number of tests on the sub-grade and base density shall be six (6) tests per one thousand feet of length of roadway.

The sub-grade and base courses shall be subject to density tests at the contractor's or owner's expense.

Random checking of thickness of the road base will be required at the time the final density test is performed.

(5) Driving Surface:
The driving surface may be a surface treatment of:

- Three (3) course surface treatment
- Two (2) inches of hot plant mix asphalt. Type "B" or
- 5 inches of Concrete

(6) Time Of Driving Surface Application:
Asphalt application will be after April 15 and prior to October 15 of each calendar year.

The time may be extended to November 15 for Hot Mix Overlay (only) subject to the approval of the Public Works Director and the Commissioner of the Precinct.

(7) Concrete Street with Curb and Gutter:
A concrete curb and gutter street means a two-lane street with concrete curb and gutter that has a minimum street width of thirty-two (32) feet from back face of curb to back face of curb.

The natural sub-grade will be lime stabilized to eight (8) inches, with 7% lime and compacted density of 95%.

The gutter will be twenty-four (24) inches wide.

The concrete curb shall be a six (6) inch standard curb with a five (5) inch thick driving surface.

A concrete curb and gutter street shall meet all other specifications contained in these Subdivisions Rules and Regulations. The concrete curb and gutter shall be installed in accordance with the requirements shown on the diagrams in the Exhibits.

The concrete curb and gutter shall be installed prior to the driving surface being installed.

All concrete curb and gutter will be backed to undisturbed soil to maintain the integrity of the curbing.

8. Concrete Streets without curbing:
On concrete streets without curb and gutter, the shoulders will be of flexible base material with three (3) foot minimum continuance of pavement depth with a one (1) foot minimum width of slope to sub-grade level.

9. Paved Surface:
All roads inside subdivision will have a minimum paved surface of thirty feet (30') with a minimum of thirty-four (34') feet of base material.

Cul-de-sacs will have a minimum 60' paved and 80' radius of base material. (r.o.w. 160')

SECTION X
Street Acceptance Procedure

A. General:

All conditions of plat approval must be met.

All construction must be in accordance with approved plans and construction standards set forth herein.

B. Completion of Construction and Release of Financial Security:

At such time as construction phases within the subdivision are completed the owner shall notify the Public Works Department in writing. The Public Works Department shall then inspect said construction of the roads, streets, signage, and drainage facilities and give written notice of any deficiencies.

The Public Works Department will require copies of test results performed by certified testing laboratory.

The financial security shall remain in full force and in effect until all the roads, streets, drainage, drainage structures, and signage in the subdivisions have been completed in accordance with these rules and good engineering practices and construction methods and standards, and the financial security has been released by the Commissioner's Court.

In the event any or all of the roads, street, drainage and drainage structures, as constructed by the owner, fail to meet the requirements of the foregoing specifications, and the owner fails or refuses to correct the defects called to his attention in writing by the Johnson County Public Works Department and/or precinct Commissioner, the unfinished improvements shall be completed at the cost and expense of the owner as provided. The County shall be reimbursed for such costs by the owner, by the transfer of funds from the financial security to Johnson County, or otherwise, as necessary to satisfy the expense of completing construction or correcting construction defects. Johnson County shall also be entitled to reasonable attorneys fees to be paid from the security (by the developer).

The release of any financial security shall be by **order of the Commissioners Court**. To request the release of financial security, the owner who posted the financial security in question shall present a written request for release of said financial security. The request shall contain a statement by the engineer responsible for the design of the project, stating that he/she has made an inspection of the subdivision and that it meets the specifications of his/her design and request the acceptance of the subdivision construction by the County and the release of financial security. The owner of a subdivision, that is not a gated subdivision, shall also request in writing County maintenance of the roads and streets in the subdivision. One (1) set of 'as built' drawings on Mylar showing the work to be accepted by the County shall be submitted to the Public Works Department and a 3 1/2" computer diskette or a CD-ROM shall accompany the letter of request with the 'as built' in a 'dwg' format.

A final inspection shall be made on the project by the Commissioner of the precinct, and/or his road maintenance supervisor and the Director of Public Works. The inspection shall be made within fifteen (15) days of the request for said inspection. The owner shall then be notified in writing of any deficiencies in construction with respect to the requirements of the current Subdivision Rules and Regulations of Johnson County. Upon correction of the deficiencies, consideration of the release of financial security and County maintenance of the roads (in a non-gated subdivision) will be placed on the Commissioners Court agenda. If the inspection reveals no deficiencies, consideration of the release of financial security and County maintenance of the roads (in a non-gated subdivision) will be placed on the Commissioners Court agenda.

It is the intent of the Commissioners Court to assume the maintenance responsibility of the streets within the subdivision after said streets have been constructed in accordance with guidelines set forth by the Commissioner's Court and accepted by Commissioners' Court.

If deficiencies are found and the Developer refuses to correct these deficiencies; the Director of Public Works will recommend to the Commissioners' Court that the roads **not** be accepted and recommend that the financial security be used by the County to complete the necessary repairs to bring the roads and/or drainage facilities up to the construction standards set forth in these rules.

The County can at that time advertise for bids to complete the repairs and bill the Owner for any cost over the remaining amount of the financial security agreement.

SECTION XI
Gated Subdivisions

Gated subdivisions (security gates or guard stations) which restrict public access are considered privately owned and the roads, streets, and drainage facilities will not be maintained by Johnson County. However, gated subdivisions must be platted and constructed according to these Subdivisions Rules and Regulations. Adequate provisions must be made and approved for entrance of emergency vehicles.

A. Definitions

1. Gated Subdivision:
A subdivision that restricts or denies access to the public by means of a gate, wall, fence or other structure, device, mechanism or combination thereof.

2. Gated Subdivision Street:
Any area, parcel, strip of land or road, which provides vehicular access to adjacent property or land, whether designated as a street, highway, freeway, thoroughfare, avenue, land boulevard, road, place, drive or however otherwise designated which is contained within a gated subdivision or provides access to a gated subdivision from a County Road or Public Street.

B. General Requirements for a Gated Subdivision

General Requirements pertaining to a gated subdivision within Johnson County, Texas have been considered by the Commissioners' Court and shall be as follows:

1. **Completion of Roads, Signs and Drainage Facilities in a Gated Subdivision:** The owner/developer shall complete all roads, signs and drainage facilities in a gated subdivision within twelve (12) months after the date of plat approval by the Commissioners Court.

   Roads shall not be open to traffic; and no site development permits or septic permits will be issued by the Public Works Department before road signs and drainage are in place and two courses of surface treatment or 2 inches of "Type D" hot mix asphalt are completed.

   Gated Subdivisions must comply with platting requirements and all Johnson County Subdivision Rules and Regulations, except as specified or modified specifically by this section.

   Roads, drainage and signs in gated subdivisions shall be designed, installed and maintained to the same standards as required of any other subdivisions, pursuant to state law and the Land Development Rules and Regulations of Johnson County existing and adopted as of the date of plat approval.

   The County will not accept a dedication of streets or roadways as public streets or roadways nor maintain said streets or roadways as long as they are contained within a gated subdivision.

   If the subdivision is no longer gated and the County is requested by the owner of the streets or roadways to accept the streets or roadways and provide maintenance, the County may consider such, provided the streets and roadways are either up to or brought up to County standards by the owner(s) of the streets or roadways. Said standards shall be those existing and adopted pursuant to state law and the Subdivision Rules and Regulations of Johnson County as of the date the County consents to accept the roads for maintenance.

   The owner/developer shall arrange for fire, medical and law enforcement personnel to have unrestricted access to the subdivision 24 hours a day.

   Johnson County has no duty to assure unrestricted access to the gated subdivision for fire, medical, law enforcement or other emergency personnel.

   The owner/developer of a gated subdivision shall indemnify and hold harmless Johnson County against any claim of damages or liability relating in any way whatsoever to any restriction of access to fire, medical, law enforcement or emergency personnel which might be asserted by any person whatsoever.

2. **Sale of Lots in a Gated Subdivision:**
The developer shall not sell any lots in the subdivision until:

(1) The plat is approved by the Commissioners Court; and,

(2) The roads, signs and drainage facilities are completed and approved by the Commissioners Court; and

(3) The owner/developer puts up financial security in an amount determined by the Commissioners Court and as prescribed by the Subdivision Rules and Regulations of Johnson County for not less than one (1) year guaranteeing that the roads, streets and drainage facilities related thereto will be built within twelve (12) months after the date of plat approval.

The financial security shall not be released by the County to the owner/developer until after the roads and streets are constructed and approved by the Public Works Department, and all signs and drainage facilities have been completed and approved by the Public Works Department.

C. Road Acceptance Procedure for a Gated Subdivision

1. **General:**
All conditions of plat approval must be met.

All construction must be in accordance with approved plans and construction standards set forth herein and in the Subdivision Rules and Regulations of Johnson County, Texas.

2. **Completion of Construction and Release of Bond for a Gated Subdivision:**
At such time as construction phases within the subdivision are completed the developer shall notify the Public Works Department in writing. The Public Works Department shall then inspect said construction of the roads and drainage facilities and give written notice of any deficiencies.

Should it be deemed necessary to ascertain compliance with County construction specifications, the Public Works Department will require copies of test results performed by a certified testing laboratory.

The release of any financial security shall be by **Order of the Commissioners Court**. To request the release of financial security, the owner who posted the financial security in question shall present a written request for release of said financial security. The request shall contain a statement by the engineer responsible for the design of the project, stating that he/she has made an inspection of the subdivision and that it meets the specifications of his/her design and request

the acceptance of the subdivision construction by the County and the release of financial security. One (1) set of 'as built' drawings on Mylar showing the work to be accepted by the County shall be submitted to the Public Works Department and a 3 1/2" computer diskette or a CD-ROM shall accompany the letter of request with the 'as built' in a 'dwg' format.

A final inspection shall be made on the project by the Commissioner of the precinct, and/or his road maintenance supervisor and the Director of Public Works. The inspection shall be made within fifteen (15) days of the request for said inspection. The owner shall then be notified in writing of any deficiencies in construction with respect to the requirements of the current Subdivision Rules and Regulations of Johnson County. Upon correction of the deficiencies, consideration of the release of financial security will be placed on the Commissioners Court agenda. If the inspection reveals no deficiencies, consideration of the release of financial security will be placed on the Commissioners Court agenda.

In gated subdivisions, maintenance of roadways, drainage ditches, driveway culverts and signs is the duty of the owner/developer of said property, or the individual lots owners, or such homeowner's association as may have accepted duties of maintenance after such duties were duly delegated to the homeowner's owners association.

If the gated subdivision at some point in time, is no longer gated and the County is requested by the owner/developer or the individual lot owners of the subdivision to accept the streets, roadways, drainage ditches and culverts, and provide County maintenance, the County may consider such, provided the roads, and streets are either up to or brought up to the County standards by the ownership of the subdivision, or the owner of the roadways, drainage ditches and culverts.

Before the roads are accepted, the roads, streets, signs and drainage facilities must meet the standards and regulations of the County which are in effect at the time the County consents to accept the roads for maintenance.

In addition, prior to the County accepting the roads or streets for maintenance, a dedication by the developer or property owner(s) of all streets, roadways, alleys, utility easements, right-of-way, and other land intended for public use and use by the developer, and certification that all parties with any interest in the title to the subject property have joined in such dedication, duly executed, acknowledged and sworn to by said developer or property owner(s) before a Notary Public must be presented to and accepted by the Commissioners Court.

Section XII
Minimum Infrastructure Standards for Manufactured Home Rental Communities (MHRC):

A. Manufactured Home Rental Community:

A manufactured home rental community means a plot or tract of land that is separated into two or more spaces or lots that are rented, leased, or offered for rent or lease, for a term of less than 60 months without a purchase option, for the installation of manufactured homes for use and occupancy as residences.

"Business day" means a day other than a Saturday, Sunday, or holiday recognized by this state and includes only those days which the Johnson County Courthouse is open for business.

After a public hearing and after notice is published in a newspaper of general circulation in the county, the commissioners court of a county, by order adopted and entered in the minutes of the commissioners court, may establish minimum infrastructure standards for manufactured home rental communities located outside the limits of a municipality. The minimum standards may include only:

- Reasonable specifications to provide adequate drainage in accordance with standard engineering practices, including specifying necessary drainage culverts and identifying areas included in the 100-year flood plain;
- Reasonable specifications for providing an adequate public or community water supply, including specifying the location of supply lines, in accordance with Subchapter C, Chapter 341, Health and Safety Code;
- Reasonable requirements for providing access to sanitary sewer lines, including specifying the location of sanitary sewer lines, or providing adequate on-site sewage facilities in accordance with Chapter 366, Health and Safety Code;
- A requirement for the preparation of a survey identifying the proposed manufactured home rental community boundaries and any significant features of the community, including the proposed location of manufactured home rental community spaces, utility easements, and dedications of rights-of-way; and
- Reasonable specifications for streets or roads in the manufactured rental home community to provide ingress and egress access for fire and emergency vehicles.

The commissioners court may not adopt minimum infrastructure standards that are more stringent than requirements adopted by the commissioners court for subdivisions. The commissioners court may only adopt minimum infrastructure standards for ingress and egress access by fire and emergency vehicles that are reasonable necessary.

If the commissioners court adopts minimum infrastructure standards for manufactured home rental communities, the owner of land located outside the limits of a municipality who intends to use the land for a manufactured home rental community must have an infrastructure development plan prepared that complies with the minimum infrastructure standards adopted by the commissioners court.

Not later than the 60th day after the date the owner of a proposed manufactured home rental community submits an infrastructure development plan for approval, the county engineer or another person designated by the commissioners court shall approve or reject the plan in writing. If the plan is rejected, the written rejection must specify the reasons for the rejection and the actions required for approval of the plan.

Construction of a proposed manufactured home rental community may not begin before the date the county engineer or another person designated by the commissioners court approves the infrastructure development plan. The commissioners court may require inspection of the infrastructure during or on completion of its construction. The final inspection must be completed not later than the second business day after the date the commissioners court or the person designated by the commissioners court receives a written confirmation from the owner that construction of the infrastructure is complete.

If the inspector determines that the infrastructure complies with the infrastructure development plan, the commissioners court shall issue a certificate of compliance not later than the fifth business day after the date the final inspection is completed.

A utility may not provide utility services, including water, sewer, gas and electric services, to a manufactured home rental community subject to an infrastructure development plan or to a manufactured home in the community unless the owner provides the utility with a copy of the certificate of compliance. This subsection applies to:

- A municipality that provides utility services;
- A municipally owned or municipally operated utility that provides utility services;
- A public utility that provides utility services;
- A nonprofit water supply or sewer service corporation organized and operating under Chapter 67, Water Code, that provides utility services;
- A county that provides utility services; and
- A special district or authority created by state law that provides utility services.

The change in law made by this Act applies only to a manufactured rental home community for which construction is commenced on or after the date minimum infrastructure standards are adopted by the commissioners court as provided by Section 232.007, Local Government Code, as amended by this Act (VTCA. 1999).

B. Placement in areas of "special flood hazard":

All manufactured homes to be placed in areas of "special flood hazard", i.e., land in the floodplain subject to a one percent or greater chance of flooding in any given year as indicated on Johnson County's Flood Insurance Rate Map (FIRM), shall be installed using methods and practices which minimize flood damage in accordance with Johnson County's Certification and Flood Damage Prevention Order, authorized by 44 CFR Section 60.3(d). Such manufactured homes must be elevated and anchored to resist

flotation, collapse, or lateral movement. Methods of anchoring may include, but are not limited to, use of over-the-top or frame ties to ground anchors. The minimum height of the finished floor shall be the BFE plus three (3) feet.

This requirement is in addition to applicable State anchoring requirements for resisting wind forces (Article 5221f, Texas Manufactured Housing Standards Act, as amended by H.B. 2703, 75th Legislature, effective September 1, 1997, and the codes and standards of the Texas Department of Housing and Community Affairs, Chapter 80, as amended, effective January 1, 1996).

C. Manufactured Home Rental Communities (MHRC):
The purpose of this subsection is to achieve orderly development of manufactured rental home communities, to promote and develop the use of land to assure the best possible community environment, and to protect and promote health, safety, and general welfare of the residents of Johnson County.

D. General Requirements of Infrastructure Development Plan

An owner who intends to use the land for a manufactured home rental community shall submit to the Public Works Department an infrastructure development plan that provides information regarding the following.

1. **Drainage:**
   The infrastructure development plan shall provide information for providing adequate drainage in accordance with standard engineering practices, including specifying necessary drainage culverts and identifying areas in the 100 year flood plain using the criteria in Appendix A of these Subdivision Rules and Regulations as said criteria may be applicable.

2. **Water Supply:**
   The infrastructure development plan shall provide information for providing adequate water supply and the locations of the supply lines.

   Manufactured rental home communities shall meet all current standards on waterline and fire hydrant installation as set forth listed in of these Subdivision Rules and Regulations of Johnson County as may be applicable.

3. **Sanitary Sewer Lines or On-Site Sewage Facilities:**
   The infrastructure development plan shall provide information for providing access to sanitary sewer lines or providing adequate on-site sewage facilities.

   A manufactured rental home community with a density of more than one house per acre shall have a TCEQ approved "'community wastewater treatment system" (package plant). All sewer lines, yard lines, collector lines, and/or trunk lines shall be inspected by the Public Works Department during construction and prior to the covering of the lines. The construction superintendent shall notify and inform the

Public Works Department seventy-two (72) hours prior to the beginning of construction of the time, date, and location of the commencement of construction.

A manufactured rental home community shall meet the criteria set forth in these Subdivision Rules and Regulations of Johnson County regarding Sewage and Waste Disposal and the current edition of the ***"Rules of Johnson County, Texas for Sewage Facilities"***.

4. **Survey, Rental Spaces, Utility Easements and Dedications of Right-of-Way:** The infrastructure development plan shall provide a survey identifying the proposed manufactured rental home community boundaries and any significant features of the community, including the location of the manufactured rental community spaces, utility easements and dedications of right-of-way.

5. **Specifications for Roads and Streets:**
The infrastructure development plan shall provide information for providing ingress and egress for fire and emergency vehicles.

The entrances to the manufactured rental home community shall be constructed in such a way as to provide a sufficient turning radius for the delivery or removal of manufactured housing units. Entrances shall have right-of-ways of eighty-six (86') feet with forty (40') feet of paved surface.

All roads in the manufactured home rental community shall be built to county standards and shall be subject to the same test and requirements as currently set forth in Section VI, General Requirements, and Section IX, General Road and Street Specifications, in these Subdivision Rules and Regulations of Johnson County.

All roads and streets inside the manufactured rental home community will remain private roads and streets.

E. Documentation to be Submitted to the Public Works Department
Two (two) sets of plans for the following are to be submitted to the Public Works Department:

- Drainage system
- Water system
- Sewer system
- Survey
- Streets

The County will withhold all permits for the manufactured rental home community until the infrastructure development plan has been approved by the manner prescribed by these regulations and is found to be in compliance with these rules and regulations. The requirements for submitting an infrastructure development plan for a manufactured rental home community are as follows:

a. Each applicant seeking approval of a MHRC shall submit to the Public Works Department three (3) blue-line copies of a MHRC infrastructure development plan as outlined in paragraph (d) below.

b. Upon receipt of a MHRC infrastructure development plan, the Director, Department of Public Works, shall make copies available to County Commissioners. The County Commissioners shall submit their recommendations for approval or disapproval in writing back to the Public Works Department within thirty (30) days of receipt of the plan.

c. When the MHRC infrastructure development plans are completed in accordance with these rules and County Commissioners' recommendations, the Public Works Director shall submit the plan with his recommendation received from the County Commissioners to the Commissioners Court for consideration. The Commissioners Court may approve the plan as submitted, amend, and approve the plan as amended, or disapprove the plan.

d. The MHRC infrastructure development plan shall be drawn to scale not to exceed one hundred (100) to one (1) (1:-100'). When more than one sheet is necessary to accommodate the entire area to be developed, an index sheet showing the entire park at the appropriate scale shall be attached to the plan.

e. Two (2) sets of "as built" construction plans shall be submitted to the Public Works Department within thirty (30) business days after construction has been completed.

f. An owner's certificate in the following form shall be shown on the plan:

STATE OF TEXAS
COUNTY OF JOHNSON

I hereby certify that this infrastructure development plan is true and correct and if approved by the County Commissioner's Court, all development will be in accordance with this plan, and no alterations will be made in the plan after approval. The statements made herein are true and correct and I am aware the statements are material statements and will be relied upon by Public officials.

_____
Owner or Authorized Agent

SECTION XIII
Enforcement

A. The Commissioners Court of Johnson County shall have the right and the authority to refuse to approve and authorize any map or plat of any such subdivision, unless such map or plat meets the requirements set forth in these Subdivision Rules and Regulations and

state and federal law; and there is submitted at the time of approval of such map or plat, the financial security which may be required by these rules.

B. At the request of the Commissioners Court of Johnson County, the County Attorney or other prosecuting attorney for the county may file an action in a court of competent jurisdiction to:

(1) enjoin the violation or threatened violation of a requirement established by or adopted by the Commissioners Court under Chapter 232 of the V.T.C.A., Local Government Code; or

(2) recover damages in an amount adequate for the county to undertake any construction or other activity necessary to bring about compliance with a requirement established by or adopted by the Commissioners Court under Chapter 232 of the Local Government Code, V.T.C.A.

C. A person commits an offense if the person knowingly or intentionally violates a requirement established by or adopted by the Commissioners Court under Chapter 232 of the Local Government Code, V.T.C.A. An offense under this subsection is a Class B Misdemeanor.

SECTION XIV
Severability of Provisions

It is hereby declared to be the intention of the Commissioners Court that provisions of these rules and regulations are severable, in accordance with the following:

A. If any sentence, phrase, section, paragraph, article or any part of these rules, regulations, and requirements is declared invalid, unenforceable or unconstitutional for any cause or reason, such invalidity, unenforceability, or unconstitutionality shall not be held to affect, invalidate or impare the validity, force or effect of any other sentence, phrase, section, paragraph, article or any other part of these rules, regulations and requirements.

B. If any court of competent jurisdiction shall judge invalid the application of any provision of these regulations to a particular property, such judgment shall not affect the application of said provision to any other property not specifically included in said judgment.

A motion was made by Commissioner: _____ to adopt the foregoing ***Subdivision Rules and Regulations of Johnson County, Texas.***

The motion was seconded by Commissioner: _____.

Ayes: _____

Nayes: _____

The motion was declared to have passed.

Approved this the _____ day of _____, 2011.

_____
Roger Harmon, County Judge

_____
Rick Bailey, Commissioner Precinct # 1

_____
Troy Thompson, Commissioner Precinct # 2

_____
Jerry Stringer, Commissioner Precinct # 3

_____
Don Beeson, Commissioner Precinct # 4

Attest:

_____
County Clerk

APPENDIX A
Drainage Requirements Criteria & Design Standards

All developments shall provide the drainage facilities and improvements to serve the development in accordance with the following requirements and design standards.

A. Purpose:

The following standards and requirements are adopted for the following purposes:

(1) To protect human life, health and property;

(2) To minimize the expenditure of public monies for costly flood control projects;

(3) To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;

(4) To minimize prolonged business interruptions;

(5) To minimize damage to public facilities and utilities located in floodplains;

(6) To provide for the sound use and development of all areas in such a manner as to minimize future flood blight areas;

(7) To minimize erosion and sedimentation problems and enhance water quality; and

(8) To minimize future operational and maintenance expenses.

B. Definitions:

Access Ramp: A route used to provide entry for vehicles and machinery into a channel.

Access Road: A route parallel to and at the top of the bank of channel used to allow maintenance of channels from the top of bank.

Base Flood: The flood having a one percent chance of being equaled or exceeded in any given year. Also known as the 100-year flood.

Channel: Any open or closed device for conveying flowing water.

Drainage Area or Basin: The land area or catchment area, upon which rainfall contributes runoff to a specific location.

Drainage Facilities or System: One or more conduits, channels, ditches, swales, pipes, detention devices, or any other device, work or improvement, natural or man-made, which is used, designed, or intended to be used to carry, detain, or otherwise control storm water.

Detention: The storage of storm runoff for a controlled release during or immediately following the design storm.

FEMA: Federal Emergency Management Agency

Flood Hazard Boundary Map (FHBM): An official map on which the Federal Insurance Administration has delineated both the areas of special flood hazards and the risk premium zones applicable to flood insurance.

Flood Insurance Study: The official report provided by the Federal Insurance Administration containing flood profiles, the water surface elevation of the base flood, and the flood hazard boundary map.

Floodplain: The area designated as subject to flooding from the base flood (100-year flood) on the Flood Insurance Rate Map. The floodplain includes the floodway. See Figure 1.

Floodway: The channel or a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height. See Figure 1.

Normally, the floodway will include the stream channel and that portion of the adjacent land areas required to pass the base flood (100-year flood) discharge without cumulatively increasing the water surface elevation at any point more than one (1) foot above that of the pre-floodway condition, including those designated on the Flood Insurance Rate Map.

Floodway Fringe: The area located within the floodplain and outside the floodway. See Figure 1.

Freeboard: The vertical distance between the design water surface level and the top of an open conduit left to allow for wave action, floating debris, or any other condition or emergency without overtopping the structure.

Hydrograph: A graph showing stage, flow, velocity or other property of water versus time at a given point on a stream or conduit.

Inlet: An opening into a storm drain system for the entrance of surface water runoff.

Time of Concentration: The estimated time, in minutes, required for storm water runoff to flow from the most hydraulically remote section of the drainage area to a specific design point.

Inverted Crown Section: A street cross-section usually reserved for alleys, in which the center of the street is lower than the edges so that drainage is carried down the center of the street.

Local Drainage System: Any drainage facility or system which serves an area having a contributory drainage basin of less than one (1) square mile in area.

Off-Site: Located outside the boundary of a development.

On-Site: Located within the boundary of a development.

Pipe: A closed conduit through which water flows.

Soffit: Inside top of a pipe.

C. General Drainage Requirements:

1. Drainage Plan:

A drainage plan shall be submitted with the Plat Application so that the Commissioners Court and/or the Department of Public Works may review the design with regard to drainage problems. Approval of the Plat Application may be contingent on the preliminary drainage plan showing evidence that the drainage for the proposed development can be adequately disposed of without causing significant flood damage or water damage to on-site or off-site property. The proposed subdivision and the watershed (contributing drainage area above the subdivision) shall be shown on the most recently updated U.S. Geological survey map scaled to 1' = 2000'. This map may also serve as the location (vicinity) map for the project. The proposed drainage areas within the proposed subdivision shall be shown on a map prepared from field or aerial survey as prepared by a Registered Public Surveyor and illustrating existing and proposed contour lines at the following intervals:

(a) When the land has **less than** five percent (5%) slope, the contour interval shall not be greater than two (2') feet.

(b) When the land has **more than** a five percent (5%) slope, the contour interval shall not be greater than five (5') feet.

This map shall also illustrate areas that are off-site and contribute to the storm water discharge passing through the subdivision. At the discretion of the Department of Public Works, large drainage areas that contribute to one point above the subdivision may be shown only on the U.S.G.S. map previously described. Direction of flow within streets, alleys, natural and man-made drainage-ways and at all system intersections shall be clearly shown on the drainage area map. This includes sags, crests and corners. Existing and proposed drainage channels shall be clearly shown and differentiated on the drainage area map. A Professional Engineer registered in the State of Texas and proficient in Civil Engineering shall prepare the preliminary drainage plan.

2. **Drainage Improvements Required:**
All subdivision and development plans shall provide for any new drainage facilities, the improvements of any existing drainage facilities, channel improvements or grading, driveway adjustments, culvert improvements, or any other improvement, drainage facility or work which is necessary to provide for the storm water drainage standards of this office. Such subdivision and development plans shall include, but not be limited to the drainage facilities, improvements, and other action necessary:

(a) To provide for the conveyance of all storm water from the subdivision, when fully developed, to an adequate discharge point.

(b) To fulfill any purpose for which these requirements are imposed.

(c) To adequately protect the development from flooding, including the effects of the 100-year flood.

(d) To properly control any drainage resulting from the subdivision so as to not increase the upstream or downstream water surface elevation. Upstream or downstream storm drainage improvements and/or easements beyond the limits of the subdivision may be necessary to meet this requirement.

(e) To provide for the conveyance of existing storm drainage flowing through the subdivision.

(f) During the construction phase and until the drainage easements have adequate ground cover to resist silting, or erosion, silt fencing or other adequate means of control shall be used to stop the flow of silt into and down drainage easements. To maintain the stabilization of the back slope of the drainage easement along existing fence line; natural ground cover and trees (all sizes) should be left in place along the back slope (fence side) of the easement.

3. **Off-Site Drainage:**
Off-site drainage facilities and improvements shall be provided by the developer/property owner whenever additional storm water runoff from the subdivision would adversely affect any off-site property or would overload an existing drainage facility, whether natural or man-made. Where storm water runoff from three or more acres has been collected or concentrated to one point, it shall not be discharged onto adjacent properties, except into existing creeks, channels, or storm drains, unless drainage or flowage easements are obtained for those properties.

4. **Detention Facilities:**
Detention facilities may be used to reduce peak discharges where conditions prevent conveying storm water to an adequate discharge point, or studies show that off-site structural facilities will not mitigate hydraulic effects more efficiently. The use of on-site detention facilities shall be limited to subdivisions containing more than 10 acres of land. Detention facilities may be constructed only in areas to be dedicated to the public. All detention facilities shall comply with the design criteria of this Section. All areas dedicated to the public shall be done by a "Waiver of Takings Impact Assessment".

5. **Floodway Fringe Area:**
Any subdivision proposing to construct or fill a floodway fringe area where the floodway has not been designated on a Flood Hazard Boundary Map shall submit the necessary engineering studies to show the limits of the floodway and the necessary approval of FEMA when required. If the floodway fringe area is not proposed to be developed or filled, the area within the floodplain, which will be necessary to provide for the drainage needs of the subdivision shall be dedicated to the public as a drainage easement of the final plat.

6. **Channel Requirements:**
Channel regulations and improvement requirements shall be based on the amount and concentration of the storm water runoff produced from the proposed subdivision and any additional upstream contributing drainage areas. All subdivisions shall provide for the permanent improvement and modification of existing drainage channels as necessary to serve the development, subject to and in accordance with the following:

   (a) Channels which serve drainage basins **larger than** one (1) square mile shall be maintained in a natural state.

   (b) Channels of local drainage systems serving areas **less than** one (1) square mile may be lined with concrete or an improved grass-lined channel.

7. **Channel Access Roads and Ramps:**
Any subdivision which makes use of any channel within or on the perimeter of the subdivision to provide for storm water runoff may be required to provide adequate access roads and ramps for channel maintenance purposes as directed by the Commissioners Court.

8. **Lot Drainage:**
Generally, each lot shall be designed or graded to direct storm water into an abutting street, alley, channel, or inlet. If drainage is provided in the rear of any lot by an alley or closed storm drainage system consisting of inlets and pipes, the alley or drainage system shall be designed for the 100-year flood. Where it is not practical to provide abutting drainage facilities for each lot, drainage facilities shall generally be required whenever the storm water runoff from no more than two (2) lots is directed across a third residential lot, or whenever the facilities are necessary to avoid an adverse effect on any other lot. Lots that are lower than the road or roads on which they abut shall have the finished floor elevation a minimum of eighteen (18) inches above the finished grade of the lot adjacent to the slab on the uphill side of the property, minimum finished floor elevations shall be shown on the final plat. Lots located in depressions shall have a minimum finished floor elevation shown on the final plat. This elevation shall not be less than three (3) feet above the 100-year flood elevation. The owner/developer is responsible for notification of any prospective buyer of the above requirements. Johnson County will not be responsible for any flooding or flood conditions that occur in these areas. No development permits will be issued for these types of lots without the appropriate information. During the construction phase of a non-residential or residential structure a "Foundation Form Survey" shall be provided showing the property finished floor elevation and verified by the Public Works Department before actual construction can begin.

D. Storm Drainage Design Criteria

1. **Storm-water Runoff:**
All storm-water drainage improvements shall be designed based upon the entire contributing drainage area being fully developed (ultimate development). The contributing drainage area will consider existing subdivisions and will assume for undeveloped areas the equivalent runoff for single-family residential on lots of one (1) acre or more unless evidence shows a likelihood of more intense development or other basis for higher concentrations of floodwaters or runoff.

(a)

RUNOFF COEFFICIENTS FOR TYPES OF LAND USE	
Type of Area or Land Use	Adopted Runoff Coefficient 'C' (Ratio of Runoff to Rainfall)
Parks or Open Areas	0.30
Residential (Lots of 1.0 acre or more)	0.35
Residential (Lots of less than 1 acre)	0.50
Industrial	0.70
Apartments	0.75
Business	0.80
Mercantile District	0.90

(b)

INLET TIME OF CONCENTRATION		
Type of Area	Minimum Time	Maximum Time
Open Areas	20 minutes	30 minutes
Residential	15 minutes	20 minutes
Industrial	10 minutes	20 minutes
Business	10 minutes	20 minutes
Mercantile	5 minutes	20 minutes

2. Storm-water Design Frequencies:

DRAINAGE FACILITY	STORM FREQUENCY
Roadway Ditches & Driveway Culverts	5-Year (see Figure 2)
Enclosed Storm Drainage	5-Year (see Figure 3)
Road right-of-way	100-Year (see Figure 2 & 3)
Grass Lines and Concrete Lined Channels	100-Year plus one (1) foot of Freeboard above the 100-Year water surface elevation.
Large Culverts or Small Bridges (with less than 50-foot span)	100-Year (no over-flow of road)
Large Bridges (span greater than 50-feet elevation.)	100-Year (low chord of bridge shall be two (2) feet above the 100-Year water surface

3. **Street Drainage Requirements:**

(a) The permissible water spread for a street are based on the 5-year flood. All streets shall be capable of conveying a 100-year flood without water exceeding the right-of-way limits and/or drainage easement on adjacent lots. The spread limits listed below shall apply to the following streets and facilities:

PERMISSIBLE WATER SPREAD/5-YEAR FLOOD	
Arterial	**********
(Divided/Undivided)	1 lane open in each direction
Collector Street	1 lane open
Local/Residential Street	Top of Curb

(b) Inverted crown sections are permitted only in alleys.

4. **Pipe System Requirements:**

(a) Storm drain systems capable of conveying the 5-year frequency flood are required when water spread limits are exceeded. Closed pipe systems shall be required for discharges up to and including the equivalent flow of a 48-inch pipe, unless the grade of the natural ground is less than 0.5%, then an enclosed pipe system shall be required for discharges up to and included 100 c.f.s. (cubic feet per second).

(b) The minimum velocity with the pipe flowing shall be three (3) feet per second.

(c) The minimum storm drain pipe diameter shall be eighteen (18) inches.

(d) Pipe diameters shall not normally decrease downstream.

(e) Pipe soffits at changes in pipe sizes should be set the same elevation.

(f) Vertical curves in the conduit will not be permitted, and horizontal curves will be permitted only with the approval of the Public Works Department with supporting documentation for a Professional Engineer registered in the state of Texas and proficient in civil engineering.

(g) Manholes shall be placed at the connection of two (2) or more laterals, at pipe junctions having pipe sizes greater than twenty-four (24") inches, at alignment changes and at the beginning of the storm drain system.

Maximum manhole spacing shall be as follows:

Pipe Size (Inches)	Maximum Spacing (Feet)
18-36	600
42-60	1,000
Larger than 60	At directional changes

5. **Culverts:**
Culverts shall be constructed of corrugated metal unless otherwise approved by Public Works Department and the Commissioner in that precinct. However, concrete culverts, including concrete box culverts, will be allowed in locations that require a culvert of such size that a corrugated metal culvert is not practical. Culverts 24" or larger will have concrete headwalls.

The landowner or developer shall install all drainage culverts of sufficient size as designated by the Engineer who designed the drainage system and with approval of the Public Works Department.

Multiple installations of corrugated metal pipe or reinforced concrete pipe shall have a reinforced concrete headwall. Multiple installations of corrugated metal pipe shall be laid parallel; the following clear distances between outer surfaces of adjacent pipes shall be maintained.

CLEAR DISTANCE BETWEEN PIPES		
Diameter of Pipe Of Pipe	Clear Distance Between Pipes Full Circle and Pipe Arch	Pipe Arch Design No.
18"	1'-2"	2-15" x 21"
24"	1'-5"	3-20" x 28"
30"	1'-8"	4-24" x 35"
36"	1'-11"	5-29" x 42"
42"	2'-2"	6-33" x 49"
48"	2'-5"	7-41" x 53"
54"	2'-10"	8-46" x 60"
60" – 84"	3'-2"	9-51" x 66"
90"-120"	3'-5"	10" & Over

The plat shall notify landowners that the size of required drainage culverts designated by the drainage study are on file in the Public Works Department.

The required dimensions and descriptions of all driveway culverts shall be calculated and determined prior to the time the final plat is submitted to the Public Works Department and the size of the culvert shown for each lot in tabular form. Each driveway culvert must be a minimum of twenty-four (24) feet in length in subdivisions for manufactured housing. The driveway above the culvert shall be constructed such that the drive is four (4) inches below the outside edge of the main

road so that storm water, which exceeds the capacity of the culvert, can pass over the culvert without entering the roadway and driveway entrance to the house.

6. **Improved Channels:**
All improved channels shall have a depth based on design frequency. Side slopes of concrete lined open channels shall not be steeper than two (2) feet horizontal distance to one (1) foot rise (2:1). In grass lined open channels, the side slopes shall not be greater than 3:1, and the channel slope and bottom width shall be such that erosion is controlled and the channel is stable. All improved channels shall be designed for a minimum of one (1') foot of freeboard at maximum design flow. Channels discharging into watercourses shall have the same invert level as the watercourse. The calculations of capacity of channels shall consider the effects of backwater from downstream conditions.

MAXIMUM Velocities for Storm Drainage Structures	
Type of Structure	Maximum Velocity
Grassed lined channels	6fps
Concrete lined channels	14 fps
Culverts	15 fps
Inlet laterals	15 fps
Storm sewers	12 fps

7. **Detention Ponds:**
All detention ponds shall be in compliance with any applicable design requirements of any State or Federal law or regulations, as amended, including the regulations of the Texas Water Commission, or its successor agency. The following requirements and design standards shall apply to detention ponds to the extent they do not conflict with any applicable Federal or State laws or regulations, as amended:

(a) The 100-year flood shall be used to determine the volume of detention storage required. Detention facilities shall be designed so that any additional runoff generated by the proposed development will not increase the amount of original discharge for storm frequencies ranging from the 5-year to the 100-year flood.

(b) The Modified Rational Method shall be used to construct runoff hydrographs for detention storage design when the contributing drainage area is 200 acres or less. The procedures outlined in Soil Conservation Service Technical Release No. 20 (TR-20), or in the Corps of Engineers Flood Hydrograph Package (HEC-1), shall be used to determine runoff hydrographs for detention storage design when the contributing drainage exceeds 200 acres. Other methods may be approved for runoff hydrographs when appropriate if shown to be more scientifically accurate for predicting runoff.

(c) An emergency spillway or overflow area shall be provided at the maximum 100-year pool level and shall be capable of conveying discharges as required by the regulations of the Texas Water Commission, or its successor agency. The spillway shall be constructed of concrete, unless the Department of Public Works approves an alternative configuration.

(d) Any outflow structure, which conveys water through the embankment in a conduit shall be reinforced concrete, designed to support the external loads. The conduit shall withstand the internal hydraulic pressure without leakage under full external load or settlement and must convey water at the design velocity without damage to the interior surface of the conduit.

(e) The outflow structure of a detention basin discharging water into any natural stream or unlined channel shall discharge at a non-erosive rate, unless approved erosion protection is provided.

(f) Detention basins resulting from excavation shall provide positive drainage with a minimum bottom slope of one (1) percent. The side grade for any excavated detention basin, which is not a rock, shall not exceed 3:1. Side slopes and bottom shall be protected from erosion with grass or other approved materials.

(g) Earthen embankments used for water impoundment must be constructed according to specifications for fill material and be designed based upon geotechnical investigations of the site. The minimum crown width of the embankment shall be twelve (12) feet. Embankments shall be protected from erosion with grass or other approved materials.

(h) Detention basins shall be designed with adequate ingress and egress to allow for regular maintenance, including periodic desilting and debris removal. Detention basins designed for permanent water storage must include dewatering facilities to allow for maintenance. Detention basins designed to serve drainage areas of 320 acres or more must include a desilting basin in the upstream pool area.

(i) Security fencing with a minimum height of six (6') feet shall encompass the detention storage area. The fence shall be designed so as to allow access for maintenance and so as not to restrict storm-water flow into or out of the detention basin.

8. Computation Sheets:
Computation sheets that are utilized shall be submitted as a part of the drainage plan.

9. Standard Details:
Standard details adopted by the Texas Department of Transportation, as amended, shall be used for applicable drainage facility improvements.

E. Easements:

The following requirements for easement for public drainage improvements, channels, and facilities required for any subdivision shall apply:

1. All public drainage systems and facilities, which are not to be included within an existing or proposed public street right-of-way, shall be located within easements to be dedicated to the County with adequate access to a public street. Prior to acceptance of any public drainage facilities, all easements within which the facilities are located shall be cleared of all buildings, structures, fences, or other obstacles that would interfere with drainage flow and access to the easement. Minimum easement width for any drainage facility shall be 15 feet.

   Trees in easements along existing fence (between properties) shall be left in place along the existing fence and in the back slope where possible.

   Acceptance of dedication of drainage easement does not impose a duty upon the County to clear or maintain the easement (Accepting a drainage easement is not the equivalent of accepting roads or streets for maintenance).

   Trees may remain in natural drainage ways such as creeks upon approval of the County Engineer, Public Works Director or the Commissioner for the precinct in which the property is located. The owner/developer shall be responsible for maintenance of drainage easements until the County releases the financial security for the construction of the roads, streets and drainage facilities. The individual lot/property owners shall be responsible for maintenance of drainage easements on their respective lot/property after the purchase of the lot/property.

2. Floodways or floodplains, which are necessary to provide for the drainage needs of the subdivision, shall be dedicated to the public as a drainage easement to the limits defining the floodway or floodplain.

3. Easements for closed drainage systems shall be in accordance with the following minimum standards, unless special circumstances warrant additional or reduced easements, as determined by the Public Works Director.

PIPE SIZE	Minimum Easement Width
36" and under	15 feet
42" through 54"	20 feet
60" through 66"	25 feet
72" and above	30 feet

4. Easements for improved channels shall be provided with sufficient width for maintenance access. For channels having a top width of less than 15-feet, a 15-foot maintenance access shall be provided along one side of the channel. Channels with top widths greater than 15-feet shall have access roads of 15-feet in width along

both sides of the channel unless otherwise approved by the Department of Public Works.

5. Utilities shall not be located within any existing drainage easement unless it is also designated for utility use. No utilities shall be located in any lined channel in such a way as to interfere with the function of, maintenance of, or access to the channel or the utilities.

6. A drainage easement shall be provided for a required outfall channel or ditch to the point where the flow line "day lights" on natural grade.

7. To provide for maintenance, a drainage easement shall be provided at least twenty-five feet (25') beyond any outfall headwall.

8. During the construction phase and until the drainage easements have adequate ground cover to resist silting; silt fencing or other adequate means of control will be used to stop the flow of silt into and down drainage easements. To maintain the stabilization of the back slope of the drainage easement along existing fence line; natural ground cover and trees (all sizes) should be left in place along the back slope (fence side) of the easement.

F. Flood Damage Prevention:

All subdivision subject to these regulations shall comply with the following requirements:

1. **Minimum Finished Floor Elevation:**
Minimum finished floor elevations for proposed subdivision areas should be three (3) feet above the 100-year flood elevation based upon ultimate development watershed conditions.

2. **Floodway and Floodplain Modification and Permitting:**
No land shall be modified in any floodplain or floodway until the drainage modification plans have been reviewed and approved by FEMA, the Public Works Department and meet the requirements of FEMA for a "No-rise Certificate". (Need to define "No-rise certificate")

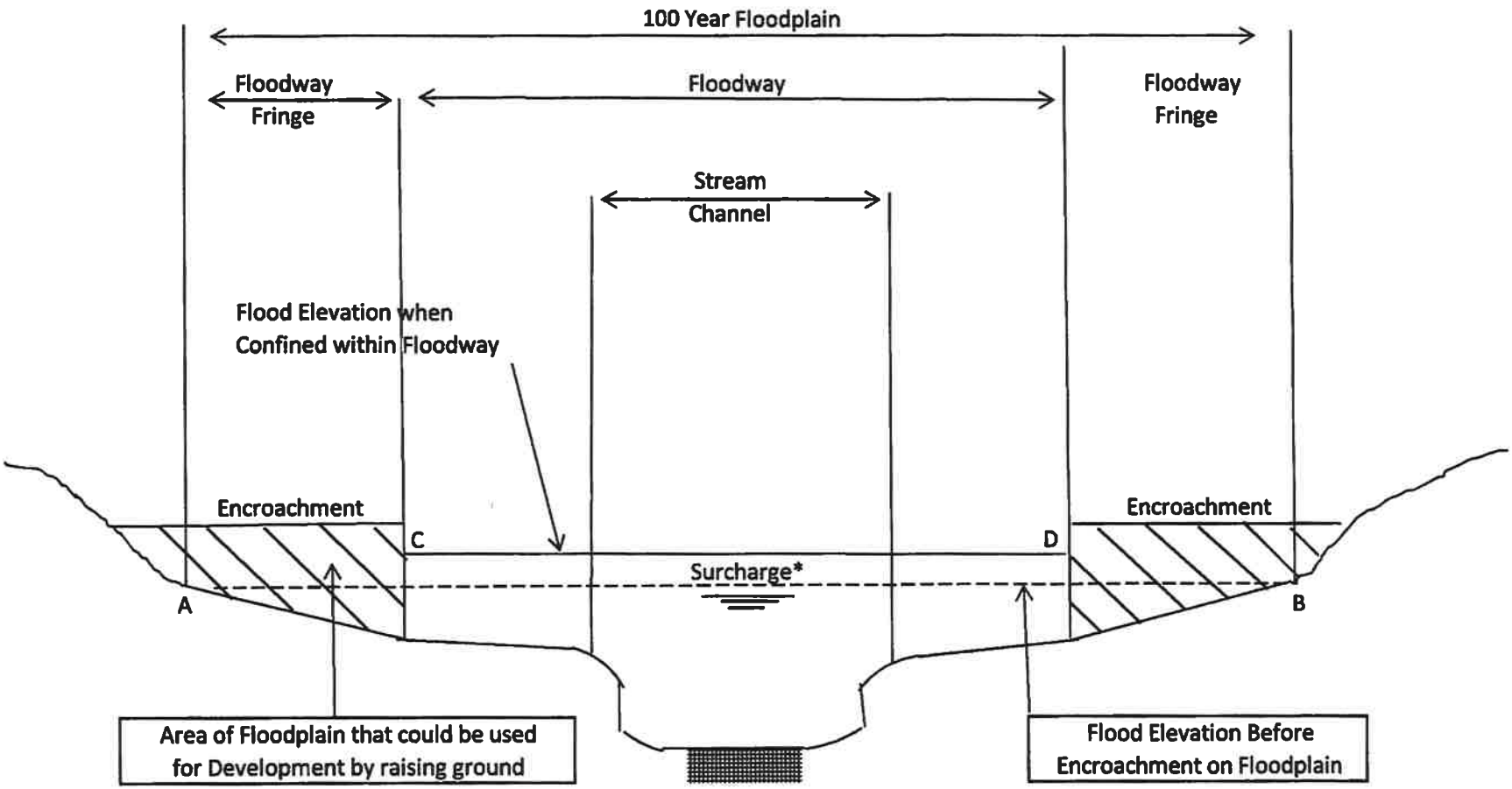
3. **Residential Construction:**
New construction or substantial improvement of any residential structure shall have the lowest floor, including basement, elevated three (3) feet above the 100-year flood elevation with the ultimate development watershed conditions. A registered professional engineer, architect, or land surveyor shall submit a certificate, in the form of a sworn affidavit, to the Department of Public Works that the standard of this subsection is met.

4. **Nonresidential Construction:**
New construction or substantial improvement of a commercial, industrial or other nonresidential structure shall either have the lowest floor, including any basement, elevated three (3) feet above the 100-year flood elevation with the ultimate

development watershed conditions, or together with attendant utility and sanitary facilities, be flood proofed so that below the 100-year flood level, the structure is water tight with walls substantially impermeable to the passage of water and with structural components having the capability of resisting hydrostatic and hydrodynamic loads and effect of buoyancy. A registered professional engineer, or architect, shall submit a certification to the Public Works Department, in the form of a sworn affidavit that the standard of this subsection is met.

G. Drainage Design:

The Texas Department of Transportation, Bridge Division, Hydraulic Manual, latest edition shall be used for drainage design in Johnson County. Drainage design criteria for Johnson County has been previously identified in Section D.

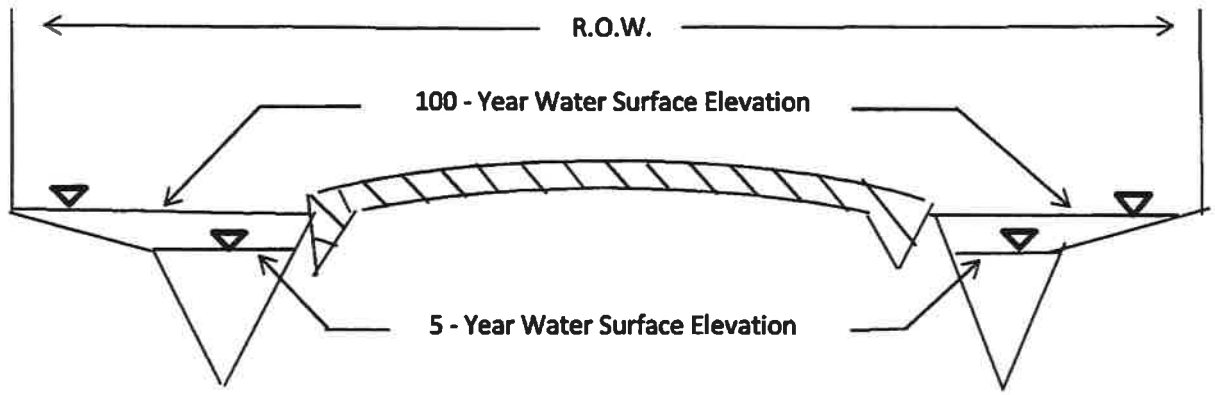


Line A-B is the Flood Elevation Before Encroachment
Line C-D is the Flood Elevation After Encroachment

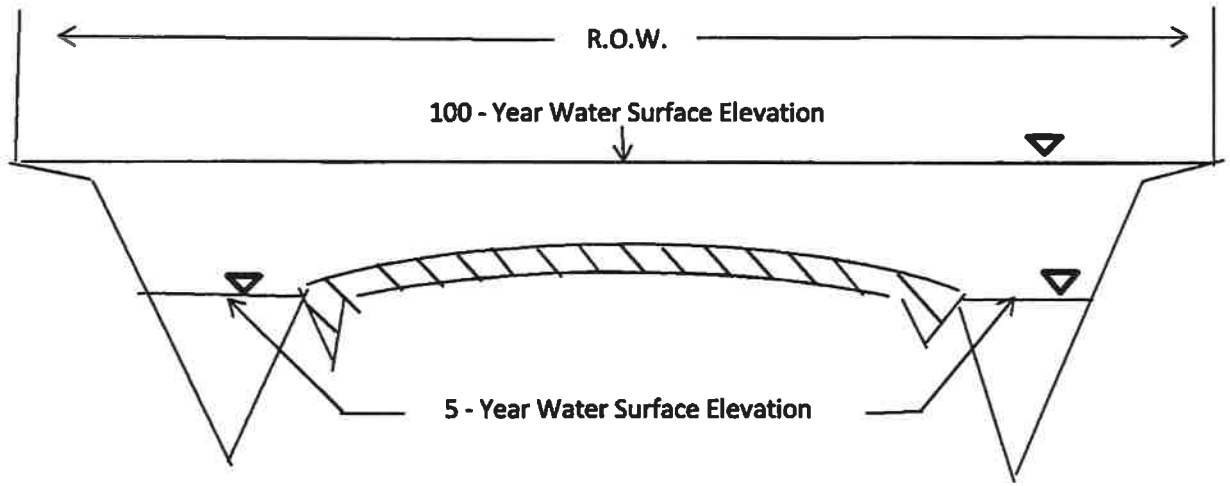
*Surcharge shall not exceed 10 feet

FLOODWAY SCHEMATIC

Figure 1



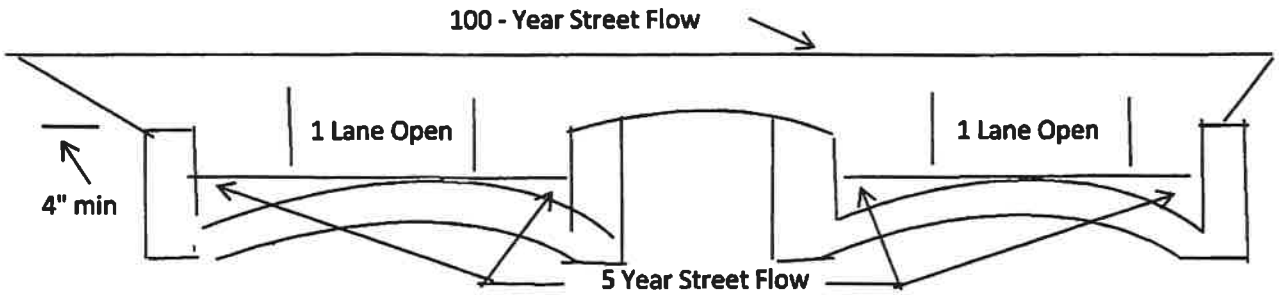
CASE I - ROADWAY ABOVE R.O.W. GRADE



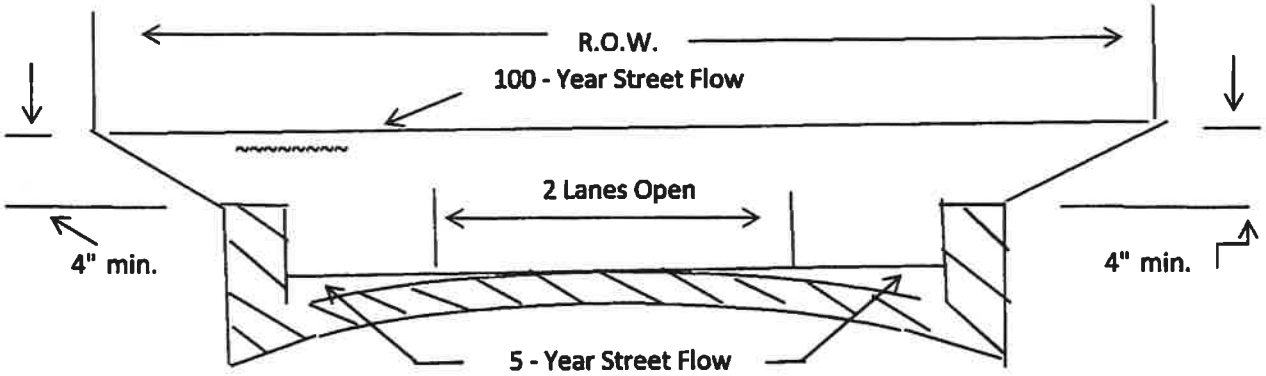
CASE II - ROADWAY BELOW R.O.W. GRADE

WATER SPREAD LIMITS FOR NON-CURBED ROADWAYS

Figure 2



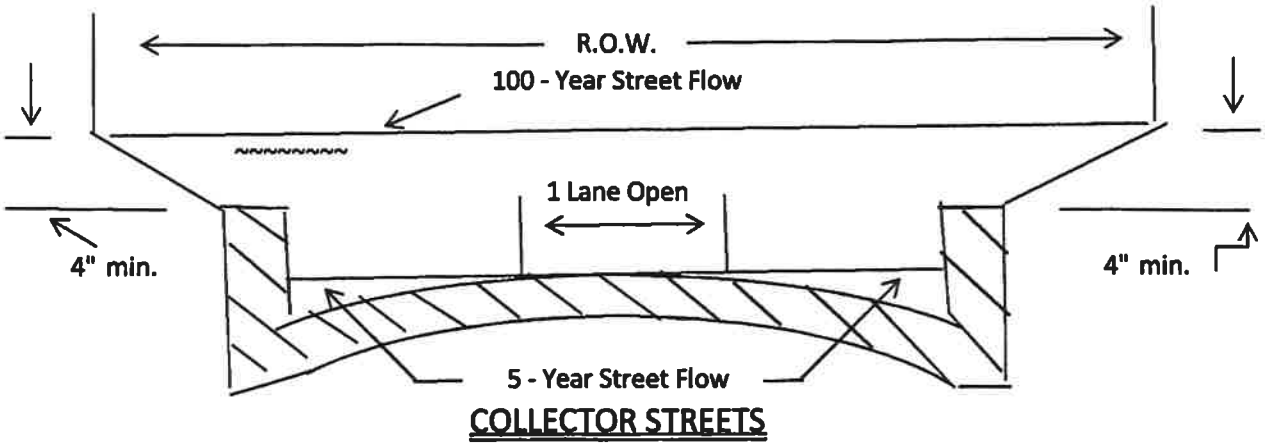
ARTERIALS - DIVIDED



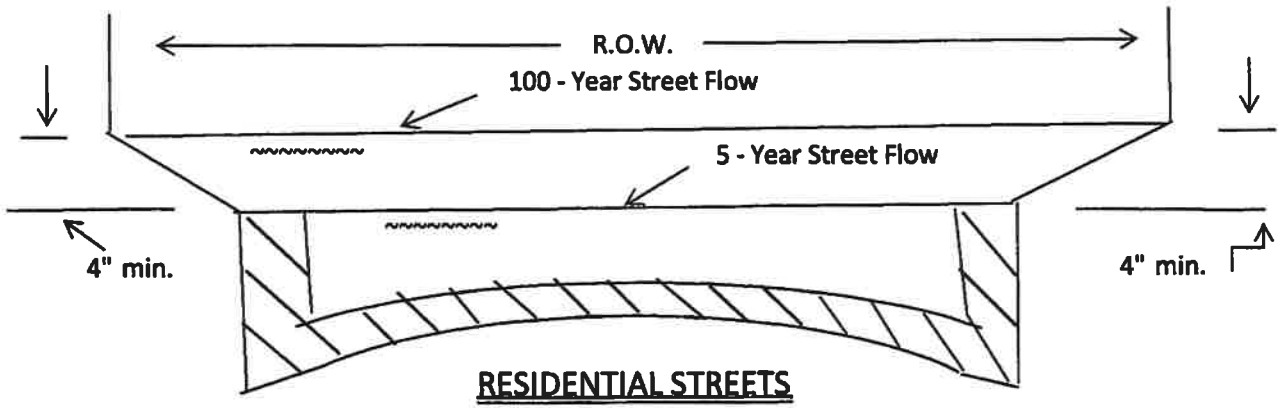
ARTERIALS - UNDIVIDED

MAXIMUM WATER SPREAD LIMITS FOR MAJOR & MINOR STORMS

Figure 3a



COLLECTOR STREETS



RESIDENTIAL STREETS

MAXIMUM WATER SPREAD LIMITS FOR MAJOR & MINOR STORMS

Figure 3b

PROJECT _____ DATE _____

COMPUTATION SHEET

RUNOFF COMPUTATIONS

BY _____ CK BY _____

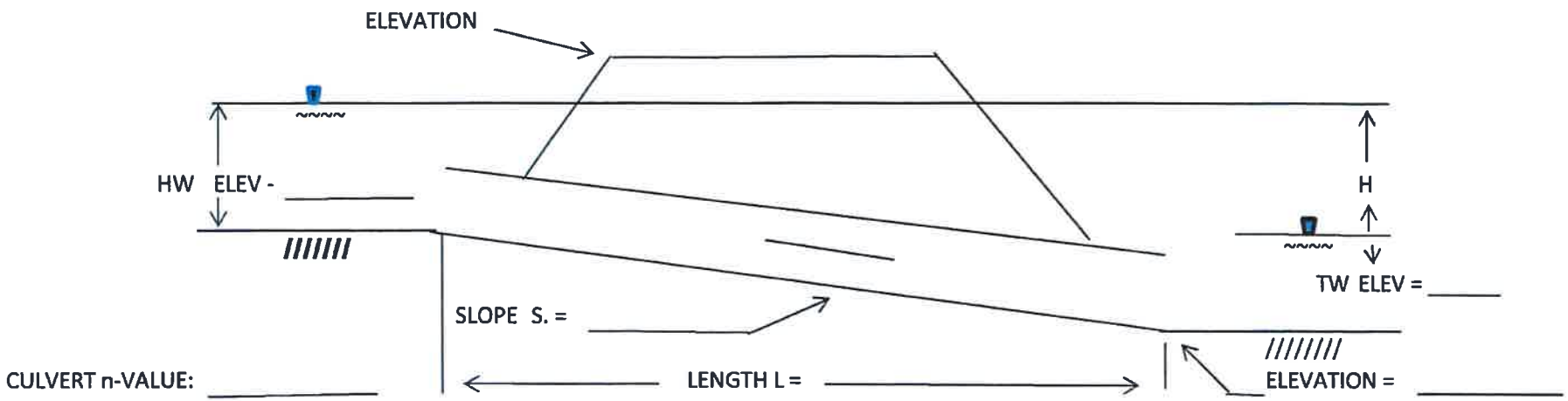
DESIGN STORM _____ SHEET _____ OF _____

DESIGN POINT	ACRES - DRAINED					WEIGHTED C	OVERLAND TIME			GUTTER TIME			Tc	I	Q
	DRAINAGE AREA		C	C	C		Lo	So	to	Lg	Sg	tg			
	NO.	AREA													
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)

SKETCHES and COMPUTATIONS

Figure 4

CULVERT DESIGN



CULVERT DESCRIPTION (ENTRANCE TYPE	FLOW (cis)	CULVERT SIZE	HEADWATER COMPUTATION										CONTROLLING HEADWATER DEPTH	OUTLET VELOCITY	COMMENTS
			INLET CONTROL		OUTLET CONTROL HW = H. - LS.										
			HW/D	HW	K.	H	d.	(d. - D)/2	TW	h.	LS.	HW			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

Figure 5

DETENTION POND DESIGN

STORAGE OUTFLOW RELATIONSHIP			
POND ELEV	STORAGE		OUTFLOW (cis)
	DEPTH (11)	VOLUME (ac-11)	
1	2	3	4

PRINCIPLE SPILLWAY:
Description: _____

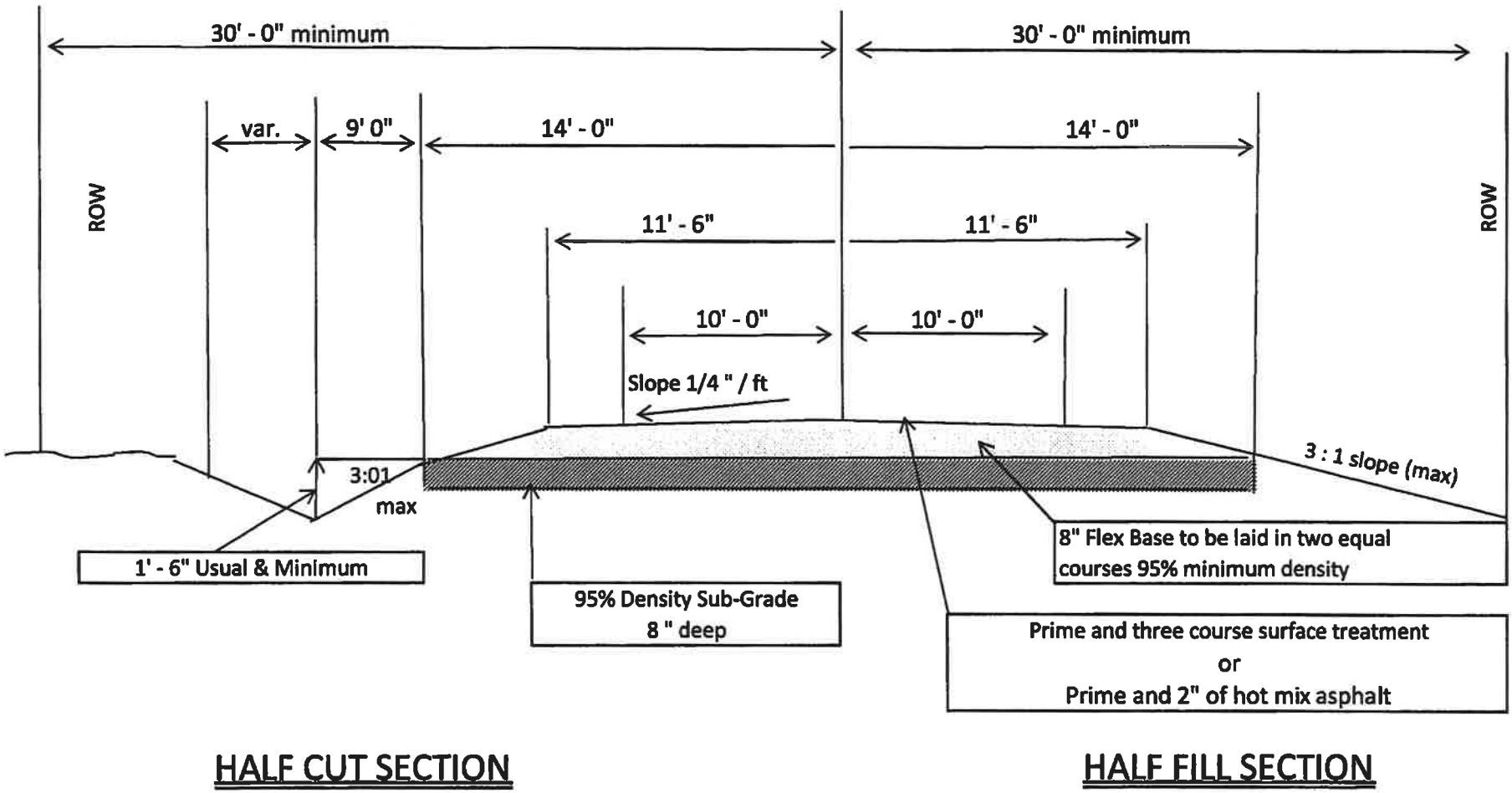
Elevation: _____

EMERGENCY SPILLWAY:
Description: _____

Elevation: _____

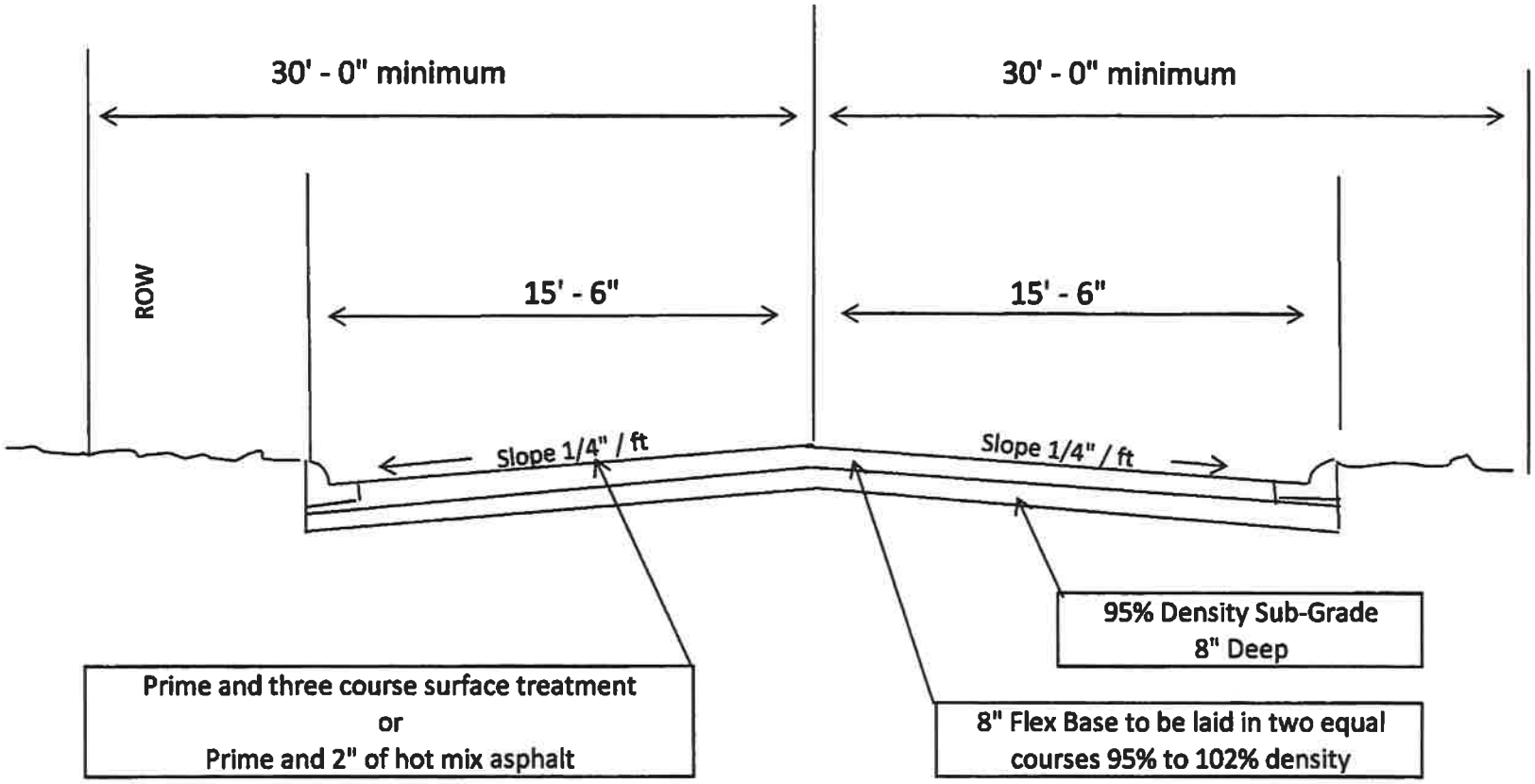
DESIGN FREQUENCY	HYDROGRAPH DATA						Pond Elevation (11 MSL)	Pond Storage (ac-11)
	PRESENT WATERSHED DEVELOPMENT		ULTIMATE WATERSHED DEVELOPMENT		PROPOSED POND OUTFLOW			
	Time to Peak (min)	Peak Flow (cia)	Time to Peak (min)	Peak Flow (cia)	Time to Peak (min)	Peak Flow (cia)		
	5	6	7	8	9	10	11	12
5-YR								
10-YR								
25-YR								
50-YR								
100-YR								
PMF								

Figure 6



TYPICAL ROADWAY SECTION

Figure 7



TYPICAL CURB & GUTTER SECTION

Figure 8