

**TITLE 21
FLOOD PLAIN AND EROSION HAZARD MANAGEMENT CODE**

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21.01 SHORT TITLE

This Code may be referred to as the Floodplain Management Code.

- A. This Code shall apply within regulatory floodplain and erosion hazard areas and for purposes of the detention/retention provisions shall apply to development in the Marana Town limits.
- B. This floodplain management code is one aspect of land and resource management planning for the Town of Marana. Floodplain management must be seen in perspective, not only as flood hazard minimization; but as one element of an integrated and balanced positive program of natural resource management and flood and erosion hazard reduction.

The Council recognizes that it is both necessary and desirable to maintain a balanced and cooperative relationship between human communities and the land and resources which sustain them. Maintaining the stability, health, diversity and natural ecosystems of the environment is essential.

It is the intent of the Council that:

1. The highest and best use of floodplains in Town of Marana is for maintenance of natural hydrologic and hydraulic processes, groundwater

- recharge, aesthetics, natural open space, recreation areas and wildlife habitat.
2. Any human habitation, or structural developments which limit natural processes within floodplain or erosion hazard areas are to be discouraged and limited to the extent allowable by law.
 3. The Town will acquire by appropriate means, and whenever possible, lands within the regulatory floodway, floodway fringe and erosion hazard areas. These lands are to be managed to preserve or enhance natural values and expressed resource management goals.
 4. Regulatory land use control for floodplain management will focus on overall watershed management. Floodplain management will be used to prevent unwise human occupation or encroachment into flood and erosion hazard areas after the effective date of the original Floodplain Management Ordinance, July 9, 1984. Structural flood control measures may be used to prevent, reduce or eliminate flood or erosion hazards to property and structures, both public and private, constructed or occupied before the effective date of the original Ordinance, except where flood hazards result from increased urbanization.
 5. Natural flood areas, streams, washes, arroyos, rivers, and drainage courses are, whenever possible, to be preserved in their natural riverine environment. Any land use proposal which proposes this approach shall be considered superior to all others.
- C. It is the purpose of this Code to protect the public health, peace, safety, comfort, convenience and general welfare of the citizens of the Town of Marana by adopting regulations designed:
1. To minimize flood and erosion damages and reduce the height of floods;
 2. To meet or exceed state and federal requirements relating to floodplain management, thereby enabling Town residents to purchase low cost flood insurance, receive disaster relief should the need arise, and to seek residential and commercial real estate loans;
 3. To establish minimum flood protection elevations and flood damage prevention requirements for structures and other types of development which are vulnerable to flood and erosion damage.
 4. To prevent unwise encroachment and building development within areas subject to flooding of erosion, and assure that the flood carrying capacity within the altered and/or relocated portion of any watercourse is maintained;
 5. To minimize expenditure of public money for costly flood control projects;
 6. To minimize the need for rescue and relief efforts associated with flooding and erosion generally undertaken at the expense of the general public;
 7. To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in regulatory floodplain and erosion hazard areas;

8. To help maintain a stable tax base by providing for the development of areas of special flood and erosion hazard so as to minimize future flood blight areas;
 9. To assist potential buyers in receiving notice that property may be in an area of special flood or erosion hazards;
 10. To insure that those who occupy the areas of special flood or erosion hazards assume the responsibility for their actions;
 11. To protect, preserve and enhance groundwater recharge. To encourage the preservation of natural washes and enhance the riverine environment.
- D. In the interpretation and application of this Code, all provisions shall be:
1. Considered as minimum requirements;
 2. Liberally construed in favor of the governing body; and
 3. Deemed neither to limit or repeal any other powers granted to the Town of Marana under any state statute or Town Ordinance. Where this Code conflicts with or overlaps any other ordinance or regulation, whichever imposes the more stringent restrictions for the health, safety and welfare of the public shall prevail.
- E. This Code shall be applicable and enforceable in all areas within the corporate boundaries of the Town of Marana, including public lands. The Town of Marana has chosen to exercise the floodplain management powers and duties pursuant to Section 48-3610 of the Arizona Revised Statutes. From time to time the Town of Marana, may choose to enter into separate agreements for the administration of portions of its powers and duties under this Code.
- F. The performance requirements as specified in this Code are minimum standards and address general floodplain management requirements. Specific projects may warrant additional requirements. The Floodplain Management Board and the Town Floodplain Administrator have the authority to establish standards and/or policies as necessary to carry out the provisions of this Code. All drainage design standards, river and basin management plans, or other land use plans approved by the Town Council or Floodplain Management Board are hereby incorporated into this Code.

21.03 WARNING AND DISCLAIMER OF LIABILITY

- A. The degree of flood protection required by this Code is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on occasion or the flood height may be increased by man-made or natural causes, such as bridge openings restricted by debris. This Code does not imply that areas outside floodways and floodway fringe areas, or land uses permitted within such areas, will be free from flooding or flood damage. This Code shall not create liability on the part of the Town of Marana, the Town Floodplain Management Board, or any officer or employee thereof for any flood damages that may result from reliance on this Code or any administrative decision based upon this Code.

21.04 DEFINITIONS

A. The following definitions shall apply to words and phrases used in this Code:

Balanced Basin/Watershed: A drainage basin or watershed which contains floodwater channels, natural or man-made, and or flood control structures that are adequate to contain existing runoff from the base flood produced by the basin or watershed; but in which additional runoff cannot be safely contained by said channels or structures.

Base Flood: The base flood (Q100) shall mean the peak discharge of a 100-year flood. The base flood has a one percent probability of being equaled or exceeded in any given year. Said flood shall be determined from an analysis of floods on a particular watercourse and other watercourses in the same general region in accordance with the criteria established by the Director of the Arizona Department of Water Resources, or the Pima County Flood Control District Board, which criteria is hereby incorporated by reference and made a part of this Code.

Base Flood Elevation: The calculated water-surface elevation of the base flood.

Critical Basin/Watershed: A drainage basin or watershed which contains floodwater channels. Natural or man-made, and/or flood control structures that cannot contain existing runoff produced by the base flood within the basin or watershed, and which has a documented history of severe flooding hazards.

Critical Basin/Watershed Management Plan: A site specific plan for a balanced/critical basin or watershed which has been prepared for and approved by the Town of Marana and provides a conceptual plan for orderly development of flood control/floodplain management measures within the basin or watershed.

Detention System: A type of flood system which delays the downstream progress of flood waters in a controlled manner, generally through the combined use of a temporary storage area and a metered outlet device which causes a lengthening of the duration of flow and thereby reduces downstream flood peaks.

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

Drainage Basin: The contributing area to a single point or drainage concentration, expressed in units of area. Also called catchment area, watershed, and river basin.

Dry Well: A deep hole, covered and designed in such a manner so as to hold drainage water until it soaks into the ground.

Dwelling Unit: A place of residence which may be located in a single or multiple dwelling building or a manufactured home.

Encroachment: Equal Degree of: Encroachment is the advancement or infringement of uses, fill, or structures into any regulatory floodplain in a manner that impedes the flow capacity of the channel and regulatory floodplain of a watercourse. An equal degree of encroachment is a standard applied to the

evaluation of the effects of the encroachment on increases in flood heights. It assumes that an encroachment, if permitted, may confer on all property owners on both sides of the watercourse an equal right to encroach to the same degree within that reach. Since the factors affecting hydraulic efficiency are usually not uniform within a reach, this standard will usually not result in equal measured distances between floodway limit lines and the regulatory flood plain boundaries of the watercourse.

Erosion Hazard Area: Land adjoining a watercourse regulated by this ordinance which is deemed by the Town or County Engineer be subject to flood-related erosion losses.

Flood: A temporary rise in water level, including groundwater overflow of water onto lands not normally covered by water.

Floodplain Management: The operation of an integrated natural resource management program. Encompassing corrective and preventive measures for reducing flood and erosion damage including but not limited to emergency preparedness planning, flood control works and floodplain management regulations.

Floodplain Management Board: The Town Council for the Town of Marana, Arizona.

Floodplain Management Regulations: The codes, ordinances and other regulations relating to the use of land and construction within the regulatory floodplain, including zoning ordinances, subdivision regulations, building codes, housing codes, setback requirements, open-area regulations and similar methods of control affecting the use and development of these areas.

Floodplain Use Permit: An official document which authorizes specific activity within the regulatory floodplain

Flood Proofing: A combination of structural provisions, changes, or adjustments to properties and structures subject to flooding which are primarily used for the reduction or elimination of flood damages to properties, water and sanitary facilities, structures, and contents of buildings in a flood hazard area.

Floodway: The channel of a river or other watercourse and the adjacent land area necessary in order to discharge the one-hundred year flood without cumulatively increasing the water surface more than one (1) foot and without creating hazardous velocities of flood waters. In determining the floodway limits it shall be assumed that the area landward (outside) of the floodway lines will be ultimately developed in such a way that it will not be available to convey flood flows (See Exhibit 1).

Floodway Fringe Area: Land outside the floodway and below the regulatory flood elevation.

Geologic Floodplain: That portion of the land that has, in the geologic past, been subject to fluvial processes. The geologic floodplain may be different than the regulatory floodplain.

Levee: A man-made structure, usually an earthen embankment designed and constructed in accordance with sound engineering practices to contain control, or divert the flow of water so as to provide protection from temporary flooding.

Lowest Floor: The floor of the lowest enclosed area of any development.

Manufactured Home: A structure transportable in one or more sections which is built on a permanent chassis and designed to be used with or without a permanent foundation when connected to the required utilities. For floodplain management purposes, the term manufactured home also includes park trailers, travel trailers and other similar vehicles placed on a site for greater than 180 consecutive days.

Manufactured Home Park or Subdivision: A subdivision designed and intended for sale of lots for residential occupancy in manufactured housing.

Mean Sea Level: For purposes of the National Flood Insurance Program, the National Geodetic Datum (NGVD) of 1929 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

Obstruction: Any physical alteration in, along, across, or projecting into any channel, watercourse, stream, lake, or regulatory floodplain area which may impede, retard or change the direction of the flow of water, either in itself or by catching or collecting debris carried by such water, or that is placed where a flow of water might carry the same downstream to the damage of life or property. Examples include, but are not limited to, the following: any dam, wall, wharf, embankment, levee, dike, pile, abutment, projection, excavation, channel rectification bridge, conduit, culvert, building, wire, fence, rock, gravel, refuse, fill, structure or vegetation.

Person: Any individual or his agent, firm, partnership, association, corporation, or agent of the aforementioned groups, or the State or any agency or political subdivision thereof.

Reach: A hydraulic engineering term used to describe longitudinal segments of a stream or watercourse. In an urban area an example of a reach would be the segment of a watercourse between two consecutive bridge crossings.

Reclamation Plan: A plan for sand and gravel operations which defines hydrologic and hydraulic constraints; outlines methods of extraction, operation and site development, and provides for backfilling procedures and final site reclamation.

Regulatory Flood Elevation: The elevation which is one foot above the calculated water-surface elevation of the base flood.

Regulatory Floodplain: That portion of the geologic floodplain associated with a watercourse or that area where drainage is or may be restricted by man-made structures and that would be inundated by the base flood where the peak discharge of the flow is one hundred cubic feet per second (cfs) or greater, or those areas which are subject to sheet flooding, or those areas mapped as being floodprone on existing recorded subdivision plats (See Exhibit 1).

Retention System: A type of flood control system which stops the downstream progress of flood waters by employing methods of total containment which

generally involve creation of storage areas which incorporate infiltration devices such as dry wells to dispose of stored waters, principally by percolation over some specified period of time, thereby eliminating basin contributions to downstream flood peaks or flood volumes. Alternately, flood waters can be stored and used as a direct substitute for irrigation by groundwater provided that the water is used at a specified minimum rate and that minimum storage capacities are maintained at all times.

Setback: The minimum horizontal distance between a structure and a watercourse. On each side of a watercourse, the setback is measured from the top edge of the highest channel bank or edge of the base flood water-surface elevation, whichever is closer to the channel centerline.

Sheet Flooding: Those areas which are subject to flooding with depths of one-half (1/2) foot or greater during the regulatory flood where a clearly defined channel does not exist and the path of the flooding is often unpredictable and indeterminate.

Structure: Anything constructed or erected, the use of which requires location on the ground or attachment to some foundation having a location on the ground.

Town Floodplain Administrator: The Town Engineer and any other Town staff designated to assist the Town Engineer.

Variance: A grant of relief from the requirements of this Code which permits construction in a manner that would otherwise be prohibited by this Code.

Violation: The failure of a structure or other development to be fully compliant with this Code.

Watercourse: Any lake, river, stream, creek, wash, arroyo, or other body of water or channel having banks and bed through which waters flow at least periodically and any depression serving to give direction to a current of storm water, provided that, it shall, upon rule or order of the Floodplain Management Board, also include other designated areas where substantial flood damage may occur.

Watershed: The drainage area above a point on a watercourse.

21.05 STATUTORY EXEMPTIONS: NON-CONFORMING USES

A. As specified in Arizona Revised Statutes (A.R.S.) §48-3609 the provisions of this Code shall not affect or prohibit:

1. Existing legal uses of property or the right to continuation of such legal uses. However, if a non-conforming use of land, building or structure is discontinued for twelve (12) consecutive months or destroyed to the extent of fifty (50) percent of its value, as determined by a competent appraiser, any further use shall comply with this Code.
2. Reasonable repair or alteration of property for the purposes for which the property was legally used on July 9, 1974, except that any alteration, addition or repair to a non-conforming building or structure which would result in increasing its flood damage potential by fifty (50) percent or more shall be either flood proofed or elevated to at or above the base flood elevation.

3. Reasonable repair of structures constructed with the written authorization required by Arizona Revised Statute: 48-3613.
 4. Facilities constructed or installed pursuant to a certificate of environmental compatibility issued pursuant to Title 40, Chapter 2, Article 6.2 of Arizona Revised Statutes.
- B. As specified in ARS. 48-3613 before construction of the following may begin, plans for the construction must be submitted to the Floodplain Management Board for review and comment; however, the following shall not be prohibited and shall not require a Floodplain Use Permit or other written authorization:
1. The construction of bridges, culverts, dikes and other structures necessary for the construction of public highways, roads, and streets intersecting or crossing a watercourse.
 2. The construction of storage dams for watering livestock or wildlife and the construction of structures on banks of a watercourse to prevent erosion of or damage to adjoining land if the structure will not divert, retard or obstruct the natural channel of the watercourse; or dams for the conservation of floodwaters.
 3. Construction of tailings dams and waste disposal areas used in connection with mining and metallurgical operations. This paragraph does not exempt those sand and gravel operations which will divert, retard or obstruct the flow of waters in a watercourse from complying with and acquiring authorization from the Council pursuant to the regulations adopted by the Council under this Code.
 4. Other construction if it is determined by the Floodplain Management Board that written authorization is unnecessary.
 5. Any flood control district, county, city, town or other political subdivision from exercising powers granted to it under Arizona law.
 6. The construction of streams, waterways, lakes and other auxiliary facilities in conjunction with development of public parks and recreation facilities by a public agency or political subdivision.
 7. The construction and erection of poles, towers, foundations, support structure, guy wires, and other facilities related to power transmission as constructed by any utility whether a public service corporation or a political subdivision.
- C. This article shall not exempt any person from obtaining a floodplain use permit as set forth in this Code for any use which diverts, retards or obstructs the flow of water and creates a danger or hazard to life or property in the area.
- D. These exemptions do not preclude any person from liability if that person's actions increase flood hazards to any other person or property.
- E. Non-Conforming Uses
1. Improvements to or reconstruction of existing non-conforming uses.

- a. Any structure which is repaired, reconstructed or substantially improved at a cost equal to or exceeding fifty (50) percent of the value of the structure as shown on the latest assessment rolls of the Pima County Assessor either (a) before the improvement or repair is started; or (b) if the structure has been damaged and is being restored. before the damage occurred, shall conform to the provisions of this Code. For the purpose of determining the value of any such construction, repair or alteration, the normal retail value of the materials and the reasonable value of the labor performed shall be used. No person shall repair or alter property in a piecemeal manner so as to avoid the provision of this section.
 - b. For the purpose of this article substantial improvement is considered to occur when the first alteration of any wall, ceiling, floor, or other structural part of the building commences, whether or not that alteration affects the external dimension of the structure. The term does not, however, include any project for improvement of a structure to comply with existing State or local health, sanitary or safety code specifications which are solely necessary to assure safe living conditions.
2. Discontinuance of Non-Conforming use. In the event that the use of a non-conforming use is discontinued for a period of twelve (12) consecutive months, any further use thereof shall be in conformity with the provision of this Code.

21.06 FLOODPLAIN MAPS AND BOUNDARIES

- A. The boundaries of the regulatory floodplains and the floodways for which adequate hydrologic and hydraulic data is available for their delineation on maps shall be shown on maps maintained by the Town Floodplain Administrator.
 1. The Federal Emergency Management Agency (FEMA) has identified certain flood hazard areas in an engineering report entitled "The Flood Insurance Study for the Town of Marana, Arizona", hereinafter referred to as The Flood Insurance Study, dated September 4, 1987, with accompanying Flood Insurance Rate Maps and Flood Boundary and Floodway Maps, as well as Flood Insurance Studies, Flood Insurance Rate Maps and Flood Hazard Boundary Maps for all the areas within Pima County, all of which are hereby incorporated by reference and declared to be a part of this Code. The delineation of the 100-year floodplains and the floodways shown on these maps shall be the regulatory floodplains and floodways governed by this Code for those watercourses studied with the exception of the Santa Cruz River. The Flood Insurance Study and the accompanying maps are on file in the offices of the Floodplain Administrator of the Town of Marana. Amendments by the Federal Emergency Management Agency to the Flood Insurance Study and its accompanying maps shall be incorporated in the floodplain maps maintained by the Town Floodplain Administrator.
 2. Due to continuously and episodically changing hydrologic and hydraulic conditions on the watercourses within Pima County, base flood peak

discharges, flow volumes, and associated regulatory floodplain and erosion hazard areas are continuously subject to revision. At a minimum, base flood values will meet or exceed the current values established by the FEMA, and reflect historic flood information and general, current, watershed conditions. Current regulatory floodplain and erosion hazard area maps will be maintained by the Town Floodplain Administrator for the Santa Cruz River.

- a. All watersheds which generate regulatory flood peak discharges exceeding 5,000 cfs for the 100-year flood discharge shall have their flood peak discharges listed by the Town Floodplain Administrator and adopted by the Town Council. (See Appendix I) These discharges will be amended, if necessary, as revised flood peak predictions become available.
3. In those areas where the regulatory floodplain and erosion hazard areas are not delineated pursuant to paragraphs 1 and 2 of this section, and upon request for a town permit the Town Floodplain Administrator may require the land owner to establish the regulatory floodplain and floodway limits through a hydrologic and hydraulic study prepared by an Arizona Registered Professional Civil Engineer.
4. In those areas where a hydrologic and hydraulic study has been prepared by an Arizona Registered Professional Civil Engineer which delineates the regulatory floodplains, floodways, and erosion hazard areas and has been approved by the Town Engineer, the delineation of those boundaries shown within the study shall be the regulatory floodplain, floodway, and erosion hazard areas governed by this Code.
5. Prior to the release of assurances for subdivisions or certificate of occupancy for development plans, construction of any improvement which changes the configuration of the delineated floodplain contained in the Flood Insurance Study, whether upstream of, downstream from, or adjacent to the development, the person responsible for the installation of the improvement shall provide to the Town of Marana a new delineation of all floodplains affected by the improvement. The new delineations and reports shall be prepared in conformance with the requirements of FEMA, the Director of Water Resources and this Code. The Town of Marana will submit the required flood insurance study information to Federal Emergency Management Agency within 15 days of receipt.
6. Engineering studies showing the regulatory floodplain and erosion hazard areas may be prepared under the direction of the Town Engineer. Upon approval by the Town Engineer, these maps shall be the regulatory floodplain and erosion hazard areas governed by this Code.
7. Where a question arises as to the exact location of any regulatory floodplain, floodway, or erosion hazard area, the question shall be decided by the Town Floodplain Administrator and his decision shall be final except as provided for in Section 21.16. If there appears to be a conflict between a mapped boundary and actual field conditions, the Town Floodplain Administrator may, if so desired, use the water surface

elevation of the base flood for the area in question as the governing factor in locating the boundary in question. Any person contesting the location of any boundary shall be given a reasonable opportunity to present his own technical evidence if he so desires.

8. Where presently platted or mapped regulatory floodplain and erosion hazard areas are different than previously approved regulatory floodplain and erosion hazard areas, the most recent information shall apply.

21.07 PERMITS; PENALTY

A. Floodplain Use Permit Required

1. From and after the effective date of this Code it shall be unlawful to cause or allow any development to occur on any land within the regulatory floodplain or within erosion hazard areas without first applying for and obtaining a floodplain use permit from the Town Floodplain Administrator, and thereafter complying with each and every written term of the permit. However, no such floodplain use permit shall be required for any repairs or alterations for which the value of the materials and labor thereon does not exceed \$1,500.00 except for those improvements which obstruct the flow of floodwater. For the purpose of determining the value of any such repairs or alterations, the normal retail value of materials and the reasonable value of the labor performed shall be used. Even though no floodplain use permit is required, all other provisions of this Code shall be observed in the performance of said repairs or alterations. Repairs or alterations shall not be done in a piecemeal fashion for the purpose of avoiding applying for a permit when the total cost of said work is in excess of \$1,500.00.
2. Every new structure, building, fill, excavation or development located or maintained within any regulatory floodplain or erosion hazard area in violation of this Code and without written authorization from the Floodplain Management Board is a public nuisance per se and may be abated, prevented or restrained by action of the Town.
3. In addition to other penalties or remedies otherwise provided by law, the Town or any person who may be damaged as a result of the diversion, retardation or obstruction of water within the regulatory floodplain, shall have the right to commence, maintain and prosecute any appropriate action or pursue any remedy to enjoin, abate or otherwise prevent any person from violating or continuing to violate any provision of this Code. If any person is found to be in violation of any provision of this Code, the court shall require the violator to comply with this Code or remove the obstruction and restore the regulatory floodplain to its original condition.
4. As a further remedy, the Town of Marana may withhold the issuance of building permits or floodplain use permits for any development or improvement on the same parcel, or on a contiguous parcel of land under the same ownership, where any improvement or development on the property is not in compliance with this or any other provision of law relating to that development.

B. Issuance of Permits

1. It shall be the duty of the Town Floodplain Administrator to issue the floodplain use permits required by this Code. The Town Floodplain Administrator may request and shall receive, so far as may be necessary in the discharge of his duties, the assistance and cooperation of all departments, agencies, officials and public employees of the Town of Marana in the enforcement of this Code. No license, permit or other similar approval for any development which would be in conflict with the provisions of this Code shall be issued by any department, official or employee of the Town of Marana; and any such license, permit or approval, if issued in conflict with the provisions of this Code shall be null and void.
2. The Town shall advise Pima County, which has assumed jurisdiction over its floodplains in accordance with Arizona Revised Statute No. 48-3610, in writing and provide a copy of any development plan of any application for a floodplain use permit or variance to develop land in a regulatory floodplain, floodway or erosion hazard area within one mile of the Town's exterior boundaries. The Town shall also advise Pima County in writing and provide a copy of any development plan of any major development proposed within a regulatory floodplain, floodway, or erosion hazard area which could affect floodplains, floodways or watercourses within the County's area of jurisdiction. Written notice and a copy of the plan of development shall be sent to any adjacent jurisdiction no later than three working days after having been received by the Town.

C. Permit Procedures

Upon receiving an application for a floodplain use permit, the Town Floodplain Administrator may require the applicant to:

1. Submit, where applicable, plans in triplicate drawn to scale showing the nature, location, dimensional and elevation of the lot, existing or proposed structure, fill, storage of materials, flood proofing measures and the relationship of the above to the location of the channel, floodway, regulatory floodplain and erosion hazard area boundaries and the base flood elevation. All elevations or vertical distances must reference an established datum or base elevation. If the proposed development in the floodplain is located within one mile of the Town boundaries, or within the Santa Cruz Channel Banks, an additional copy of the development plan and/or subdivision plat and/or plans including all reports and attachments shall be submitted for forwarding to the Pima County Flood Control District.
2. Where special circumstances necessitate more detailed information, the applicant must furnish any or all of the following as is deemed necessary by the Town Floodplain Administrator for the evaluation of the effects of the proposed use upon flood flows and other factors necessary to render a decision on the suitability of the proposed use.

- a) Valley cross-sections showing the existing channel of the stream, elevation of land areas adjoining each side of the channel, cross-sectional areas to be occupied by the proposed development, and high water information.
 - b) Plan (surface view) showing elevations or contours of the ground; pertinent structures, fill, or storage elevations; size, location and spatial arrangements of all proposed and existing structures and channel banks on the site; location and elevation of streets, water supply, sanitary facilities; photographs showing existing land uses and vegetation upstream and downstream, soil types, and pertinent information.
 - c) Profile showing the elevation and slope of the bottom of the channel or flow line of the stream or watercourse.
 - d) Specifications for building construction and materials, flood proofing, filling, dredging, grading, channel improvements, storage of materials, water supply, and sanitary facilities.
 - e) Engineering study prepared by an Arizona Registered Professional Civil Engineer outlining the effects the development will have on the flow of water through the area being developed and the surrounding areas. This study will be for the purpose of evaluating possible flood hazards and shall, where necessary, include consideration of the effects of the development on flood heights, water velocities, direction of flow, sedimentation and/or erosion, volume of flows, channel shape and size, type of channel banks and other items that may be pertinent, and the resultant effects on structures, land, banks, etc. for the respective floodplain and the surrounding area.
3. The Town Floodplain Administrator shall review the proposed development to assure that all necessary permits have been received from those governmental agencies from which approval is required by Federal or State Law including Section 404 of the Federal Water Pollution Control Act Amendments of 1972, 33 U.S.C.1134.

D. Denial of Permit

No permit shall be issued for any development which is not in conformance with this Code or any other provision of law relating to such development. A floodplain use permit may be denied if the proposed development constitutes a danger or hazard to life or property. In making such a determination, the Town Floodplain Administrator may consider the following factors, which list is not intended to be all-inclusive:

1. The danger to life, person, or property due to increased flood heights, velocities, or redirection of flow caused by the development.
2. The danger that materials may be swept on to other lands or downstream to the injury of others.
3. The proposed water supply and sanitation systems of any development and the ability of these systems to prevent disease, contamination and unsanitary conditions if they should become flooded.
4. The susceptibility of the proposed development and/or its contents to flood damage and the effect of such damage on the individual owners.

5. The availability of alternative locations for the proposed use on the same property which are not subject to flooding or erosion.
6. The compatibility of the proposed use with existing floodplain uses and with floodplain management programs anticipated in the foreseeable future.
7. The relationship of the proposed use to any comprehensive plan and floodplain management program for the area.
8. The all weather access to the property in times of flood for ordinary and emergency vehicles.
9. The expected heights, velocity, duration, rate of rise and sediment transport or the flood waters expected at the site under both existing and proposed conditions.
10. Documentation that all necessary permits have been obtained from state and Federal agencies.
11. Such other factors which are relevant to the purposes of this Code.

E. Conditions

Any floodplain use permit may be subject to conditions or restriction designed to reduce or mitigate the potential danger or hazard to life or property resulting from development within the regulatory floodplain, floodway or erosion hazard areas. The applicant may be required to execute deed restrictions running with the land or be required to post performance bonds, assurances or such other security as may be appropriate and necessary to assure the performance of the conditions or restrictions that may be imposed. Examples of conditions that may be imposed include, but are not limited to, the following:

1. Modification of waste disposal and water supply facilities.
2. Limitations on periods of use and hours of operation.
3. Institution of operation controls, sureties related to temporary uses, and deed restrictions.
4. Requirements for construction of channel modifications, dikes, levees and other protective measures.
5. Indemnification agreements whereby the applicant agrees to hold the Town of Marana, and the Floodplain Management Board their officers, employees and agents, harmless and defend them from any and all claims for damages now and in the future relating to the use of the property sought to be developed by reason of flooding, flowage, erosion or damage caused by water whether surface, flood or rainfall.
6. Flood proofing measures for non-residential structures, such as the following, which shall be designed to be consistent with the base flood elevation for the particular area, flood velocities, durations, rate of rise, hydrostatic and hydrodynamic forces, and other factors associated with the regulatory flood. The Floodplain Management Board may require that the applicant submit a plan or document certified by an Arizona Registered Professional Civil Engineer that the flood proofing measures are consistent with the base flood

elevation and associated flood factors for the particular area. Examples of flood proofing measures that may be required include, but are not limited to:

- a) Anchorage to resist flotation and lateral movement.
- b) Installation of watertight doors, bulkheads, and shutters.
- c) Reinforcement of walls to resist water pressures.
- d) Use of paints, membrane, or mortars to reduce seepage or water through walls.
- e) Addition of mass or weight to structures to resist flotation.
- f) Installation of pumps to lower water levels in structures.
- g) Construction of water supply and waste treatment as to prevent the entrance of flood waters.
- h) Pumping facilities for subsurface external foundation wall and basement floor pressures.
- i) Construction designed to resist rupture or collapse caused by water pressure or floating debris.
- j) Cut-off valves on sewer lines or the elimination of gravity flow basement drains.
- k) Elevation of structures or uses.
- l) Bank protection or armor plating on any proposed fill.

F. Penalty

Any person who fails to obtain the permit required by this article or who fails to comply with the terms and conditions of said permit shall be guilty of a Class 1 misdemeanor. Any person who commences development prior to obtaining a required permit shall also pay double the permit fee.

G. Revocation of Permit

For failure to comply with the terms of the floodplain use permit, the Town shall be entitled to revoke the floodplain use permit upon written notice by registered mail or personal delivery to the applicant citing the reasons for revocation. The person holding the floodplain use permit may request a hearing before the Town Floodplain Administrator within ten (10) working days from the receipt of notice or personal delivery where the merits of and reasons for revoking the permit are heard. After considering the issues and facts presented during the hearing, the Town Floodplain Administrator may revoke a previously issued floodplain use permit. If no request for a hearing is made within ten (10) work days from the receipt or notice, the permit shall be considered revoked. The applicant or any affected party may appeal the decision of the Town Floodplain Administrator by requesting a hearing before the Floodplain Management Board in accordance with Section 21.16.

H. Removal of Violation

Upon written notice, the Town Floodplain Administrator may cause any structure,, encroachment or work constructed without a floodplain use permit, or which is in violation with the terms of a permit, to be removed immediately at the expense of the

person who caused the structure, encroachment or work if said structure, encroachment or work if said structure, encroachment or work will cause an immediate danger to life and property.

I. Recovery of Costs

The Town of Marana shall be entitled to recover all costs, including but not limited to administrative, engineering and legal, as well as actual costs to remove or modify the structure, encroachment and any other work in violation of this Code.

J. Certification

Prior the either the pouring of the first slab of the finished floor inspection, the applicant shall submit certification of elevations required in the floodplain use permit or by this Code. Such certification shall be prepared by an Arizona Registered Land Surveyor or Professional Engineer, as appropriate, and provided to the Town Floodplain Administrator. Such certification shall be maintained by the Town Floodplain Administrator.

21.08 FLOODWAY REQUIREMENTS

A. Uses Allowed

Except as provided for in this article, no other use shall be allowed in any floodway. The following open space uses shall be permitted within the floodway to the extent that they are not prohibited by any provision of this Code or any other ordinance, law or regulation, and provided they do not require fill, excavation, or the storage of materials or equipment:

1. Agricultural uses, including general farming, pasture, grazing, outdoor plant nurseries, horticulture, viticulture, truck farming, sod farming, and wild crop harvesting.
2. Industrial-commercial uses such as loading areas, airport landing strips, parking areas.
3. Private and public recreational uses, including golf courses, tennis courts, driving ranges, archery ranges, picnic grounds, boat launching ramps, swimming areas, parks, wildlife and nature preserves, game farms, fish hatcheries, shooting preserves, target ranges, trap and skeet ranges, hunting and fishing areas, hiking and horseback riding trails.
4. Accessory residential uses, including lawn, gardens, parking areas and play areas.

B. Excavations; Including Sand and Gravel Operations

1. Extraction of sand, gravel, and other materials is allowed within the floodways and flood hazard areas provided that excavations are not so located nor of such depth, or width, or length, or combination of depth-width-length as to present a hazard to structures (including but not limited to roads, bridges, culverts, and utilities), to the banks of watercourses, to other property, or which adversely affect groundwater recharge.
2. There shall be no stockpiling within the floodways and flood hazard areas of materials or tailings that may obstruct, divert, or retard the flow of floodwaters

except as reviewed and approved by the Town Floodplain Administrator on an individual Floodplain Use Permit basis.

3. Excavations may be allowed only in those reaches of watercourses which have, at a minimum, a balanced sediment system, i.e., the sediment coming into the reach is equal to or greater than the sediment leaving the reach and the long term sediment balance for the entire river system indicates that the stream channel will aggrade.
4. Due to the rapidly changing hydraulic characteristics of watercourses in the Town of Marana, and the effects excavations have on these characteristics, Floodplain Use Permits for excavations shall only be issued for a limited time period, not to exceed one (1) year, subject to annual renewal upon review by the Town Floodplain Administrator.
5. In addition to those conditions provided for elsewhere, floodplain use permits for excavations may impose conditions regarding the area and location in which excavations are allowed, the maximum amount of material to be excavated, and other reasonable restraints on the methods of operating, including time restraints.
6. Any extraction of sand and gravel or related materials in a floodway or flood hazard area will only be allowed after the effective date of this Code if a reclamation plan is also provided for the extraction operation. The reclamation plan shall show in sufficient detail the actions which are proposed to reclaim the excavated areas so that all adverse effects of extraction are mitigated. The plan shall also contain a timetable and financial assurances for accomplishing reclamation.
7. The Town Floodplain Administrator may require bonds or other financial assurances appropriate for the sand and gravel extraction operation.
8. The Town Floodplain Administrator may require hydrologic, hydraulic and geomorphic analyses addressing the existing conditions as well as the impacts under the proposed method of operation.
9. The Floodplain Management Board may grant variances as provided by Section 21.17 of this Code.

C. Limitations

No use shall be allowed which:

1. Acting alone or in combination with existing or future uses creates danger or hazard to life or property. In determining whether a use creates a danger or hazard to life or property, the Town Floodplain Administrator may require a certification by Registered Professional Civil Engineer that the proposed use will not result in any increase in the floodway elevations during the occurrence of the base flood nor will the proposed use divert, retard or obstruct the flow of flood waters.
2. Increases the regulatory floodway elevation.
3. Adversely effects groundwater recharge.
4. Increases erosion potential upstream and/or downstream.

5. Places a waste disposal system wholly or partially in a floodway.

D. Flood Control Structures

Flood control structures designed to protect life or property from the dangers or hazards of floodwaters are permitted provided all other provisions of this Code are met.

21.09 FLOODWAY FRINGE AREA REQUIREMENTS

A. Uses Allowed

Any use to the extent not prohibited by this Code or any other ordinance or law is allowed within the floodway fringe area.

B. General Conditions

The following general conditions shall apply to all uses within the floodwaters fringe area. No development, storage of materials or equipment, or other uses shall be permitted which acting alone or in combination with existing or future uses, create a danger or hazard to life or property. Consideration of the effects of a proposed use or development shall be based on a reasonable assumption that there will be an equal degree of encroachment extending for a significant reach on both sides of the watercourse.

1. Fill

- a) Any fill proposed to be deposited in the floodway fringe must be shown to have some beneficial purpose and the amount thereof not greater than is necessary to achieve that purpose, as demonstrated by a plan submitted by the owner showing the uses to which the filled land will be put and the final dimensions of the proposed fill or other materials.
- b) Such fill or other materials shall be protected against erosion by riprap, vegetative cover, bulkheading, or other approved methods.
- c) Such fill shall not adversely affect the groundwater recharge conditions in the subject area,

2. Structures

- a) Structures shall be constructed so as to offer the minimum obstruction to the flow of flood waters. Whenever possible, structures shall be constructed with the same alignment as the direction of flood flow and so far as practicable shall be placed approximately on the same alignment as those of adjoining structures,
- b) All structures shall be firmly anchored to prevent their flotation, which might otherwise result in damage to other structures or restriction of bridge openings and other narrow sections of the watercourse.
- c) Service facilities such as electrical and heating equipment shall be constructed at or above the regulatory flood elevation for the particular area or be adequately flood proofed.

- d) Any structure designed or utilized for human habitation, whether full or part time, shall have the lowest floor elevated at or above the regulatory flood elevation. Prior to the pouring of the first slab or finish floor inspection the applicant shall submit to the Town Floodplain Administrator certification by an Arizona Registered Land Surveyor that the elevation of the lowest floor is in compliance with the Floodplain Use Permit.
 - e) Enclosed areas within the regulatory floodplain and below the regulatory flood elevation shall be designed to equalize hydrostatic flood forces on exterior walls by allowing for the entry and exit of floodwaters.
 - f) If fill is used to elevate any structure, the minimum elevation of the fill shall be at or above the base flood elevation and shall extend at such elevation for a distance of at least twenty-five feet beyond the outside limit of the structure unless a study/analysis prepared by an Arizona Registered Professional Civil Engineer demonstrates that a lesser distance is acceptable.
 - g) Structures designed or utilized for human habitation, whether full of part time, shall only be permitted where the product of the flow depth d , in feet, times the square of the flow velocity v , in feet per second, of the surrounding floodwaters of the base flood does not exceed the numerical value of eighteen ($dv^2 \leq 18$) for a period in excess of thirty minutes, and the surrounding floodwaters of the base flood do not exceed three feet in depth.
3. Storage of Materials and Equipment
- a. The storage and/or processing of materials that are buoyant, flammable, explosive or that could be injurious to human, animal or plant life in time of flooding is prohibited.
 - b. Storage of other material or equipment may be allowed if it is not subject to major damage by floods and is firmly anchored to prevent flotation or is readily removable from the area within the limited time available after flood warning.
4. Utilities
- a. All new and replacement water supply, treatment, and sewage collection and disposal systems built in a regulatory floodplain shall be designed to eliminate to the degree physically possible, in accordance with Arizona Department of Environmental Quality guidelines, infiltration of floodwaters into these systems and discharge from these systems into flood waters.
 - b. On-site sanitary waste disposal systems shall be located to avoid impairment to them or contamination from them during flooding.
5. Excavations; Including Sand and Gravel Operations
- a. Extraction of sand, gravel, and other materials is allowed within the flood way fringe provided that excavations are not so located nor of such depth, or width, or length, or combination of depth-width-length as to present a hazard

to structures (including but not limited to roads, bridges, culverts, and utilities), to banks or watercourses, to other property, or which adversely affect groundwater recharge.

- b. There shall be no stockpiling of material or tailings, that may obstruct, divert, or retard the flow of floodwaters except as reviewed and approved by the Town Floodplain Administrator on an individual Floodplain Use Permit basis.
 - c. Due to the rapidly changing hydraulic characteristics or watercourses in the Town of Marana, and the effects excavations have on these characteristics, floodplain use permits for excavations shall only be issued for a limited time period, not to exceed one (1) year, subject to annual renewal upon review by the Town Floodplain Administrator.
 - d. In addition to those conditions provided for elsewhere, floodplain use permits for excavations may impose conditions regarding the area and location in which excavations are allowed, the maximum amount of material to be excavated, and other reasonable restraints on the methods of operation, including time restraints.
 - e. Any extraction of sand and gravel or related materials in the floodway fringe or flood hazard areas will only be allowed after the effective date of this Code if a reclamation plan is also provided for the extraction operation. The reclamation plan shall show sufficient detail the actions which are proposed to reclaim the excavated areas so that all adverse effects of extraction are mitigated. The plan shall also contain a timetable and financial assurances for accomplishing reclamation.
 - f. The Town Floodplain Administrator may require bonds or other financial assurances appropriate for the sand and gravel extraction operation.
 - g. The Town Floodplain Administrator may require hydrologic, hydraulic and geomorphic analyses addressing the existing conditions, as well as, the impacts under the proposed method of operation.
6. Removal of Native Vegetation

In order to minimize erosion and sedimentation in the run off from the Tortolita Mountains, native vegetation shall not be removed from that part of the Town of Marana East of I-10 except where the Town Engineer has approved the methods to control erosion, sedimentation, flow and related factors and their implementation is assured by a mutual consent agreement between the Town and the applicant signed and guaranteed by cash or a bond acceptable to the Town Attorney in an amount set by the Town Manager to guarantee performance of the provisions of the mutual consent agreement. (Ord. 91.19, 8/91).

21.10 STANDARDS FOR MANUFACTURED HOMES AND MANUFACTURED HOME PARKS AND SUBDIVISIONS

A. Permit Required

From the effective date of this Code it shall be unlawful to place a manufactured home within a regulatory floodplain, as described in Sections 21.07 and 21.08 of this Code, or erosion hazard areas as described in Section 21.12 of this Code, for more than 180 consecutive days without first applying for and obtaining a Floodplain Use Permit from the Town Floodplain Administrator, and thereafter complying with each and every written term of the permit. However, no such Floodplain Use Permit shall be required for any repairs or alterations for which the value of the materials and labor thereon does not exceed \$1500.00 except for those improvements which obstruct the flow of floodwaters. For the purpose of determining the value of any such repairs or alterations, the normal retail value of materials and the reasonable value of labor performed shall be used. Although no Floodplain Use Permit is required, all other provisions of this Code shall be observed in the performance of said repairs or alterations. Repairs or alterations shall not be done in a piecemeal fashion for the purpose of avoiding applying for a permit when the total cost of said work is in excess of \$1500.00.

B. General Provisions

All manufactured homes and additions to manufactured homes located within the regulatory floodplain or erosion hazard area shall be anchored to resist flotation, collapse, or lateral movement by one of the following methods:

1. By providing an anchoring system designed to withstand horizontal forces of 25 pounds per square foot and uplift forces of 15 pounds per square foot; or
2. By providing over-the-top and frame ties to ground anchors. Specifically:
 - a) Over-the-top ties be provided at each of the four corners of the manufactured home, with two additional ties per side at intermediate locations, except that manufactured homes less than fifty (50) feet long require only one (1) additional tie per side; and
 - b) Frame ties be provided at each corner of the home with five (5) additional ties per side at intermediate points, except that manufactured homes less than fifty (50) feet long require only four (4) additional ties per side; and
 - c) All components of the anchoring system be capable of carrying a force of 4,800 pounds.

C. Manufactured Home Parks and Manufactured Home Subdivisions

When located within the regulatory floodplain, the following standards are required for (a) manufactured homes not placed in manufactured home parks or subdivisions, (b) new manufactured home parks or subdivisions, (c) expansions to existing manufactured home parks or subdivisions and, (d) repair, reconstruction, or improvements to existing manufactured home parks or subdivisions that equal or exceed fifty (50) percent of the value of the streets, utilities and pads before the repair, reconstruction or improvement commenced.

1. Adequate surface drainage and access for a hauler shall be provided.

2. All manufactured homes shall be placed on pads or lots elevated on compacted fill which shall be, at a minimum, at or above the water-surface elevation of the base flood or on a stem, wall or on pilings so that the bottom of the structural frame or the lowest point of any attached appliances, whichever is lower, is at or above the base flood elevation. If elevated on pilings:
 - a. The lots shall be large enough to permit steps;
 - b. The pilings shall be placed in stable soil no more than ten (10) feet apart, and,
 - c. Structures designed or utilized for human habitation, whether full or part time, shall only be permitted in areas where surrounding floodwaters are less than three (3) feet in depth or where the product of the flow depth d , in feet, times the square of the flow velocity v , in feet per second, of the surrounding floodwaters is less than or equal to the numerical value of eighteen ($dv^2 \leq 18$), whichever is more restrictive.

D. Certification

Certification that the installation of a manufactured home meets all of the requirements of this section is required. Such certification shall be provided by the person installing the manufactured home, the owner, the developer of the manufactured home park or subdivision, or an agency regulating manufactured home placement, whichever is deemed appropriate by the Town Floodplain Administrator. Certification of elevations listed on the Floodplain Use Permit shall be prepared by an Arizona Registered Land Surveyor and provided to the Town Floodplain Administrator prior to habitation of the structure.

21.11 SUBDIVISION AND DEVELOPMENT REQUIREMENTS

A. Suitability of Land

Land may not be parceled or subdivided in such a manner as to create lots unsuitable for development because of severe flood hazards.

B. Delineation on Plats and Development Plans Areas Subject to Flooding and Erosion

1. All tentative plats and development plans submitted shall show location by survey, or photographic methods, of streams, watercourses, canals, irrigation laterals, private ditches, culverts, lakes and other water features, including those areas subject to flooding or erosion. The plats/plans shall also include the direction of any flow and drainage area, as well as water surface elevations and the limits of inundation for the base flood if such a flood has a peak flow rate equal to or greater than 100 cfs.
2. All tentative plats and development plans shall show proposed grading and improvements for areas which are subject to flooding or which have extremely poor drainage and a description and location of all facilities proposed to be used to alleviate flooding or drainage problems, both on the proposed subdivision or development, and downstream and upstream of any watercourse affected by the subdivision or development, whether they are within or outside the boundaries of the subdivision or development.

3. All development plans and tentative plats must be accompanied by conceptual grading plans and conceptual drainage improvement plans as necessary to demonstrate:
4. The methods for floodproofing and/or drainage control for the development including sufficient lot grading information to demonstrate adequate finished pad elevations and/or drainage slopes to protect building foundations.
5. That improvements are compatible with the existing upstream and downstream drainage conditions and that any proposed grading and/or grade change will not have an adverse impact on surrounding property.
6. The methods of erosion and sediment control.
7. The methods of mitigating increased urban peak and volumetric flood water runoff or discharge on downstream properties created as a result of the development.
8. Prior to commencement of any site improvements or grading, a grading plan must be submitted to the Town of Marana for review and approval. The standards for grading and related sitework shall be used to prepare these plans or documents.
9. All final plats and development plans shall indicate both the size of drainage areas and their respective 100-year peak discharges which exceed 100 cfs, as well as the limits of the regulatory floodplains, erosion hazard boundaries and the limits of the federally established floodways, if contained on a Flood Boundary Floodway Map, and be delineated in a surveyable manner and certified by a Registered Professional Civil Engineer where any of the portion of the land being subdivided contains areas within the regulatory floodplain. Where floodplains are delineated the discharge value used to establish the floodplain will be clearly shown and, for minor watercourses, the drainage area will also be shown.
10. The Town shall advise the county, which has assumed jurisdiction over its floodplains in accordance with Arizona Revised Statute 48-3610 in writing and provide a copy of any development plan and or plats or any application for a Floodplain Use Permit or variance to develop land in a regulatory floodplain or floodway within one mile of the boundary of the Town. The Town shall also advise the county, in writing and provide a copy of any development plan of any major development proposed within a regulatory floodplain or floodway which would affect floodplains, floodways or watercourses within the county's area of jurisdiction. Written notice of a copy of the plan of development shall be sent to any adjacent jurisdiction no later than three working days after having been received by the Town.

C. Street Elevations

Streets required for paved permanent access shall be designed and constructed so that the flow depths over them do not exceed one foot in depth during the base flood. At least one paved permanent access shall be provided to each lot over terrain which can be traversed by conventional motor vehicles in times of flooding. In specific instances at

drainage crossings where it can be demonstrated that this requirement is either impractical, based upon low hazard to life and property, or where construction of a drainage crossing may create problems which override the corresponding benefits; this requirement may be waived by the Town Floodplain Administrator. Fill may be used for streets in areas subject to flooding provided such fill does not unduly increase flood heights. The developers may be required to provide profiles and elevations of streets for areas subject to flooding.

D. Building Sites

Land which contains areas within a regulatory floodplain or erosion hazard area shall not be platted for residential occupancy or building sites unless each lot contains a building site, either natural or man-made, which is not subject to flooding by the base flood.

1. In areas subject to flooding where no fill is proposed to be used, the building line shall be located no closer to the floodplain than the edge of the area subject to flooding by the base flood.
2. In areas where fill is to be used to raise the elevation of the building site, the building line shall be located not less than twenty-five (25) feet landward from any edge of the fill. No fill shall be placed in any floodway, nor shall any fill be placed where it diverts, retards or obstructs the flow of water to such an extent that it creates a danger or hazard to life or property.
3. Any dwelling unit built within a regulatory floodplain shall be constructed so as to place the minimum floor elevation of the dwelling unit at or above the base flood elevation or at least one foot above the highest existing natural grade if no base flood elevation is or depths of flow are shown on the Flood Insurance Rate Maps.

E. Setbacks from Channels

Along reaches of streams or watercourses where hazards from eroding banks and/or channel meandering are considered by the Town Floodplain Administrator to be severe, special engineering studies shall be made by the property owner or developer and requirements for setbacks from banks of streams or watercourses and/or other protection measures shall be established in accordance with findings that are concurred with by the Town Floodplain Administrator. Also see Section 21.12.

F. Rights-of-Way for Drainage

Whenever a subdivision plat or development plan contains a watercourse which is regulated by this Code, all right-of-way associated with the watercourse shall be designated "Drainageway". If the watercourse is shown as an Open Space Corridor on the Town General Plan, space for continuous and interconnected active and passive recreational activities shall be included and so designated.

1. If the watercourse is an improved major watercourse, the drainageway shall include the channel, the channel improvements, and a fifty foot wide area measured outward from the front face of the top of the bank protection for Pima County or Pima County Flood Control Districts uses.
2. If the watercourse is an improved minor watercourse, the drainageway shall include the channel, the channel improvements, and necessary maintenance access.

3. If the watercourse is to remain natural, the drainageway shall be the boundaries of the regulatory floodplain.
4. Along major watercourses where the peak discharge during the base flood is 10,000 cubic feet per second or greater, the drainageway shall be dedicated in fee simple to the Pima County Flood Control District.
5. Along other watercourses, the County Engineer shall determine whether it is necessary for Pima County or the Pima County Flood Control District to have control of the drainageway. If the County Engineer determines that public control is necessary, the owner shall dedicate the drainageway in fee simple or grant an easement.

G. Detention/Retention Systems

(See Section 21.14 of this Code)

H. Fees and Public Cost Recovery for Drainage or Flood Control Improvements

The Floodplain Management Board may establish a cost recovery system and/or fee system for the improvement of installation of public flood control systems. The purpose of the fee is to provide a method for off-site improvements necessary to mitigate the effect of urbanization and to provide a systematic approach for the construction of public flood control improvements. If such a system is adopted it shall demonstrate that the fee will in some manner benefit the property from which the fee is collected and be applied equitable to all property in proportion to floodwaters generated by urban use of the property. The fees will also be restricted to providing flood control improvements necessary for the allowed use of the properties from which the fee is collected, and the fees shall be reasonably related to the actual cost of providing flood control improvements beneficial to the site or surrounding area. The fees will be reviewed by the Flood Control District Advisory Committee prior to action by the Floodplain Management Board.

21.12 BUILDING SETBACK REQUIREMENTS AND EROSION HAZARD AREAS

A. Major Watercourses

For major watercourses, with 100-year peak discharges of 2,000 cfs or greater, the following building setbacks shall be required where bank protection is not provided.

1. Along the following major natural watercourses where no unusual conditions exist, a minimum setback measured from the primary channel bank or 100-year floodway, where the channel does not contain the 100-year discharge, shall be provided at the time of the development unless an engineering analysis which establishes safe limits is performed by a Registered Professional Civil Engineer and is approved by the Town Floodplain Administrator.
 - a. Santa Cruz River requires a setback of five hundred (500) feet.
 - b. All other major watercourses with 100-year discharges greater than 10,000 cfs shall require a setback of two-hundred and fifty (250) feet.
 - c. Major washes with 100-year discharges of 10,000 cfs or less, but more than 2,000 cfs, will require a setback of one hundred (100) feet.

2. Along major watercourses where unusual conditions do exist, building setbacks shall be established on a case-by-case basis by the Town Floodplain Administrator, unless an engineering study which establishes safe limits is performed by a Registered Professional Civil Engineer and is approved by the Town Engineer. When determining building setback requirements the Town Floodplain Administrator shall consider danger to life and property due to existing flood heights and/or velocities and historical channel meandering. Unusual conditions include, but are not limited to, historical meandering of the watercourse, large excavation pits, poorly defined or poorly consolidated banks, natural channel armoring, proximity to stabilized structures such as bridges or rock outcrops, and changes in the direction, amount, and velocity of the flow of waters within the watercourse.

B. Minor Washes

For minor washes with a 100-year peak discharge of 2,000 cfs or less, the following building setbacks shall be required where bank protection is not provided.

1. Along minor washes where no unusual conditions do exist, a minimum building setback of fifty (50) feet measured from the nearest primary channel bank shall be provided at the time of development.
2. Along minor washes where unusual conditions do exist, building setbacks shall be established on a case-by-case basis by the Town Floodplain Administrator, unless an engineering study which establishes safe limits is performed by a Registered Professional Civil Engineer and is approved by the Town Engineer. When determining building setback requirements, the Town Floodplain Administrator shall consider danger to life and property due to existing flood heights and/or velocities and historical channel meandering.

21.13 ACCESS REQUIREMENTS

A. Purpose

It is recognized that private vehicular access may become impassable to ordinary and emergency vehicles during times of flooding. It is the intent of this Code to allocate the responsibility for private vehicular access which crosses regulatory floodplain.

B. Application of Code

This Code shall apply in all situations where private vehicular access crosses any regulatory floodplain located between the point where the private access leaves a paved, publicly maintained roadway and the end of the private access.

C. Requirements for Private Vehicular Access

In all situations where private vehicular access crosses a regulatory floodplain located between the point where the private access leaves a paved, publicly maintained roadway and the end of the private access, the owner of the property requiring the private vehicular access shall:

1. Construct a private vehicular access in such a manner that it is permanent and is over terrain which can be traversed by conventional motor vehicles during a base flood; or

2. Execute and record a covenant running with the land enforceable by the Town of Marana, Pima County and the Pima County Flood Control District which contains the following:
 - a. An acknowledgment that the private vehicular access may be impassable to conventional motor vehicles and emergency vehicles in times of flooding,
 - b. A hold harmless provision, holding the Town of Marana, the Floodplain Management Board, Pima County and the Pima County Flood Control District harmless from and against all injuries and damages resulting from traversing or attempting to traverse the private vehicular access during times of flooding, and
 - c. A provision which either:
 - 1) Requires the covenant, successors and assigns to erect and maintain a sign(s) in a location(s) and size(s) acceptable to the Town of Marana stating "DO NOT ENTER WHEN FLOODED"; or
 - 2) Causes the covenant, successors and assigns to assume responsibility to notify users of the private vehicular access that it may be impassable in times of flooding and agreeing to indemnify and defend the Town of Marana, the Floodplain Management Board, Pima County, the Pima County Flood Control District, their officers, employees, servants and agents, against all claims for injuries to persons or damages to property due to the construction, installation, location, operation, safeguarding, maintenance, repair and condition of the private vehicular access.

21.14 DETENTION/RETENTION SYSTEMS

- A. All proposed residential densities of three or more units per acre and all proposed commercial and industrial developments greater than one acre in size shall provide some method of peak or volumetric runoff reduction. The amount of reduction is stipulated within the Stormwater Detention/Retention Manual. The Stormwater Detention/Retention Manual approved for use by the Pima County Board of Supervisors as of the effective date of this Code is made a part of this Code.
 1. **Balanced and Critical Basins.** Balanced and critical drainage basins which have been identified by the County Engineer as unsuitable for added development because of the high probability of increased flooding, or flooding of existing improvements or property not previously flooded, or pounding of flood water, may be developed further only upon the incorporation of adequate detention/retention systems or flood control facilities as reviewed and approved by the Town Engineer. Drainage basins which have not been previously identified as unsuitable for additional urban development but upon any study are so identified shall be subject to the provisions of this Section. These detention or retention systems or flood control facilities shall be incorporated into any and all future basin development proposals regardless of size or land use density. The standards for grading and related site work shall be used to prepare these plans or documents.
 2. **Alternative Improvements.** Structural flood control measures may be proposed in conjunction with or in place of detention/retention systems if it

can be clearly demonstrated that such measures will not alter the water and sediment equilibrium of the affected watercourse and will mitigate environmental impacts. Appropriate structural flood control measures, such as channelization to a logical conclusion downstream of the proposed development and/or improvements to existing off-site flood control systems within the effected drainage or stream reach, shall be completed in accordance with plans reviewed and approved by the Town Engineer.

3. Fees in Lieu of Detention/Retention Requirements. A fee may be utilized in place of a detention/retention system when it can be clearly demonstrated that detention at the site does not provide off-site flood relief due to the parcel size, location within the drainage basin, or other factors. The fees collected will be used to construct public flood control improvements which will mitigate the potential damage of flood waters originating from the property contributing the fees. In balanced and critical basins, and where development is less than three units to the acre, use of a fee system will be encouraged in lieu of a detention system in order to preserve the natural drainage patterns. Any fee system shall be approved by resolution of the Floodplain Management Board.
4. Balanced and Critical Basin Map. The Town Floodplain Administrator shall retain for public inspection and use an official map prepared by the County Engineer designating balanced and critical basins within the Town of Marana.

21.15 SEDIMENT AND EROSION CONTROL

A. Grading

Any grading and alteration of a watershed tributary to any watercourse regulated by this Code shall be controlled to minimize the loss of soil through erosion from rainfall or storm water flowage. Methods to control erosion and sedimentation must be demonstrated to the satisfaction of the Town Engineer prior to the granting of a Floodplain Use Permit for any work in any flood hazard zone or floodplain. Both temporary and permanent measures for sediment and erosion control must be clearly delineated on plans or other written documents prior to receiving a Floodplain Use Permit. The Standards for Grading and Related Site Work shall be used to prepare these plans or documents.

B. Soil Investigations

The Town Engineer may require appropriate soil investigation reports for the purpose or determining the erosive properties of areas or lands to be graded or disturbed which may create sediment deposition or erosion in any watershed regulated by this Code.

C. Applicability

Any activity which may have an effect on the flood water carrying capacity or any watercourse in any watershed in the Town or Marana is subject to the provisions of this Section.

21.16 APPEALS

A. Appeals Process

Any property owner appealing any decision concerning the interpretation or administration of this Code shall first appeal in writing to the Town Engineer. The Town Engineer may hold hearings and request such additional information as he deems necessary in order to render his decision. The Town Engineer shall render a decision within 15 days of receiving such additional information.

Any property owner aggrieved by the decision of the Town Engineer may then appeal to the Town of Marana Floodplain Management Board through the Town Floodplain Administrator within thirty (30) days of the date written notice of the decision of the Town Engineer is mailed to the property owner at the address listed by him in his appeal.

B. Procedures for Public Hearing

1. Upon receipt, in proper form, of the appeal, the Floodplain Management Board shall hold a public hearing concerning the appeal not more than forty-five (45) days nor less than fifteen (15) days after the filing.
2. The appeal shall contain a detailed explanation of all matters in dispute and the Floodplain Management Board through the Town Floodplain Administrator may require the submission of such additional information as it deems necessary.
3. The Floodplain Management Board shall render its decision within thirty (30) days of the close of the hearing.
4. The Floodplain Management Board may meet monthly or at such times as it deems necessary for the transaction of business including the hearing of appeals.
5. The Floodplain Management Board may refer matters of a highly technical nature, where an appeal is made to the Town Engineer for interpretation, the Town Engineer may refer the matter to a technical review board which shall make findings and recommendations to the Town Engineer for decision. The technical review board shall consist of three Registered Professional Civil Engineers, one named by the Town Floodplain Administrator, one named by the appellant, and one named by the first two members. This review board shall not be permanent in nature, but shall be formed as required to hear individual appeals. All costs of the technical review board shall be borne by the property owner.

21.17 VARIANCES

A. Authorization

The Floodplain Management Board shall hear and decide all requests for variances from the requirements of this Code to the extent permitted by Arizona Revised Statute 48-3609.

B. Requirements for a Variance

Variances shall only be issued if the Floodplain Management Board makes the following five determinations:

1. A determination that the variance is the minimum necessary, considering the flood hazards to afford relief;

2. A determining of good and sufficient cause;
3. A determination that failure to grant the variance would result in exceptional hardship to the applicant; and
4. A determination that the granting of the variance will not create a danger or hazard to life or property in the area or result in increased flood heights, additional threats to public safety, the creation of a nuisance, the victimization of or fraud on the public, or that the variance is not in conflict with other local laws or ordinances
5. Special circumstances, such as size, shape, topography, location or surrounding of the property, would cause strict application of the regulations to deprive the property of the privileges enjoyed by similar property in a regulatory floodplain or erosion hazard area. A variance is subject to conditions to ensure that the variance does not constitute a grant of special privileges inconsistent with the limitations on similar property in the regulatory floodplain.

C. Covenants

Upon granting of a variance, permit or waiver for the construction of a dwelling unit or commercial or industrial structure, where the construction of such unit or structure is otherwise contrary to this Code, the Floodplain Management Board shall provide written notice to the grantees of such a variance, permit, or waiver that, if the structure is a dwelling unit or business as defined by A.R.S. §26-321, the land upon which the structure is located is ineligible for exchange of state land pursuant to the flood relocation and land exchange program provided for by Title 26, Chapter 2, Article 2. A copy of the notice shall be recorded by the Floodplain Management Board in the office of the County Recorder and shall be recorded in a manner so that it appears in the chain of title of the affected parcel of land.

D. Notification of Adjacent Jurisdictions

The Town shall advise the county which has assumed jurisdiction over its regulatory floodplains in accordance with Arizona Revised Statute No. 48-3610 in writing and provide a copy of any development plan of any application for a Floodplain Use Permit or variance to develop land in a regulatory floodplain or floodway within one mile of the Town's boundary. The Town shall also advise the county in writing and provide a copy of any development plan of any major development proposed within a regulatory floodplain or floodway which would affect floodplains, floodways or watercourses within the county's area of jurisdiction. Written notice and a copy of the plan of development shall be sent to any adjacent jurisdiction no later than three working days after having been received by the Town.

21.18 AMENDMENTS

A. Public Hearing Process

This Code may be amended only after a public hearing at which parties in interest and other citizens have an opportunity to be heard.

B. Petition for Amendments

The Town Floodplain Administrator or any affected person may petition for an amendment to this Code and shall initiate such proceeding by filing with the Floodplain

Management Board a proper and complete petition for such change on the form or forms provided by the Floodplain Management Board.

1. Staff Report: Upon receipt of such petition the Town Floodplain Administrator, with the assistance, advice and counsel of the other appropriate Town Departments, shall make a study and report the findings to the Floodplain Management Board. The report shall be made available to the applicant and other interested parties at least ten (10) days before the date of any public hearing for the respective petition.
2. Floodplain Management Board Action: Upon receipt of the Town Floodplain Administrator's report and recommendation, the Floodplain Management Board shall hold a public hearing thereon at which petitioner and other parties in interest have an opportunity to be heard. At least thirty (30) days prior to the hearing, a notice of the time and place of hearing shall be published in a newspaper of general circulation within the area of jurisdiction of the Floodplain Management Board; or, if no newspaper of general circulation is regularly published within the area of jurisdiction, a newspaper of general circulation regularly published nearest the area of jurisdiction. A notice of any hearing accompanied by a copy of each of the proposed amendments shall be furnished to the Director of the Arizona Department of Water Resources at least thirty (30) days prior to the date of such hearing. A copy of any amendment adopted by the Floodplain Management Board shall within five (5) days there after be filed with the Director of the Arizona Department of Water Resources.

21.19 UNLAWFUL ACTS, PENALTY

A. Unlawful Acts

It is unlawful for any person to divert, retard or obstruct the flow of waters in the regulatory floodplain without first securing the permit required by any provision of this Code.

B. Penalty

Any person or entity violating the provisions of this Code shall be guilty of a Class 1 misdemeanor.

21.20 MISCELLANEOUS

A. Cooperative Agreements and Consultants

The Floodplain Management Board may retain consultants and experts and may enter into cooperative agreements for the delineation of floodplains and floodways and for such other assistance guidance considered appropriate and necessary.

B. Severability

This Code and the various parts thereof are hereby declared to be severable. Should any section or paragraph of this Code be declared by the court to be unconstitutional or invalid, such decision shall not affect the validity of the Code as a whole, or any portion thereof other than the section or paragraph declared to be unconstitutional or invalid

C. Units of Measure

All units of measure contained in this Code, whether expressed or implied, are intended to be in the English system of units.

D. Fees

Non-refundable review fees as determined by Town Council Resolution shall accompany Floodplain Use Permit applications, appeals, variances, amendments, reports, studies and plans including but not limited to hydrologic, hydraulic, floodplain, erosion, sedimentation, geomorphic analyses, structural flood control, soils investigation, detention/retention systems, setback and hazard areas.

