

HOMEOWNER ACKNOWLEDGEMENT AND WAIVER

WHEREAS, _____, hereinafter "Homeowner" owns property in the City of New Haven located in a federally-designated flood plain ("Property");

WHEREAS, federal statutes restrict construction of new buildings as well as substantial improvement (i.e., repairs, reconstruction or alteration) of buildings in flood plains;

WHEREAS, a City of New Haven Floor Damage Prevention Ordinance limits substantial improvement of a building in a flood plain based on the cost of such substantial improvements in relation to the value of the building ten years before the planned new improvement (the "Ordinance");

WHEREAS, the proposed noise reduction work constitutes a "substantial improvement", the cost of which has the effect of limiting future improvements that may be allowed by the City on the Property;

WHEREAS, the Tweed New Haven Airport Authority (the "Authority") is coordinating implementation of the Noise Abatement Program;

WHEREAS, Homeowner has consented to the noise abatement work to be performed at the Property.

NOW, THEREFORE,

- 1) The Authority informs Homeowner of the effect on future substantial improvements to the Property resulting from the work to be performed under the Noise Abatement Program (the "Program").
- 2) As consideration for benefits to Homeowner from participation in the Program, Homeowner acknowledges receipt of the information in the preceding paragraph and the Ordinance attached hereto as Exhibit A, in particular in Sections 2.1.38 and 5.3.1.1, and Homeowner waives any claim against the Authority, its agents and assigns with regard to the aforesaid effect of the Program on future substantial improvements to the Property.
- 3) Homeowner further acknowledges that the Authority and/or its agents have suggested that Homeowner consult with an attorney before signing this waiver.

IN WITNESS WHEREOF, Homeowner has caused this Homeowner Acknowledgement and Waiver to be signed and intends to be legally bound hereby.

WITNESSES

HOMEOWNER

Name: _____

Property Address: _____

Mailing Address (if not the same as Property address)

EXHIBIT A

Proposed language is underscored, deleted language is struck off (See Page 7).

**FLOOD DAMAGE PREVENTION ORDINANCE
CITY OF NEW HAVEN, CONNECTICUT**

**SECTION 1 - STATUTORY AUTHORIZATION, FINDING OF FACT,
PURPOSE AND OBJECTIVES**

1.1 Statutory Authorization

In Section 7-148(c)(7) of the General Statutes, the Legislature of the State of Connecticut delegates to local governmental units the responsibility of adopting regulations designed to promote the public health, safety, and general welfare of its citizenry. Therefore, the Board of Aldermen of the City of New Haven, Connecticut does ordain as follows:

1.2 Findings of Fact

1.2.1 The flood hazard areas of New Haven are subject to periodic inundation which results in loss of life and property, health and safety hazards, disruption of commerce and governmental services, extraordinary public expenditures for flood protection and relief, and impairment of the tax base, all of which adversely affect the public health, safety and general welfare.

1.2.2 These flood losses are caused by the cumulative effect of obstructions in floodplains causing increases in flood heights and velocities, and by the occupancy in flood hazard areas by uses vulnerable to floods or hazardous to other lands which are inadequately elevated, flood-proofed, or otherwise protected from flood damages.

1.3 Statement of Purpose

It is the purpose of this ordinance to promote the public health, safety and general welfare and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

1.3.1 Restrict or prohibit uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;

1.3.2 Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction;

1.3.3 Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;

1.3.4 Control filling, grading, dredging and other development which may increase erosion or flood damage; and

1.3.5 Prevent or regulate the construction of flood barriers which will unnaturally divert flood waters or which may increase flood hazards to other lands.

1.4 Objectives

The objectives of this ordinance are:

1.4.1 To protect human life and health;

1.4.2 To minimize expenditure of public money for costly flood control projects;

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

1.4.4 To minimize prolonged business interruptions;

1.4.5 To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone and sewer lines, streets and bridges located in floodplains;

1.4.6 To help maintain a stable tax base by providing for the sound use and development of flood prone areas in such a manner as to minimize flood blighted areas; and

1.4.7 To insure that potential home buyers are notified that property is in a flood hazard area.

SECTION 2 - DEFINITIONS

2.1 Unless specifically defined below, words or phrases used in this ordinance shall be interpreted so as to give them the meaning they have in common usage and to give this ordinance its most reasonable application.

2.1.1 Addition (to an existing building) - any walled and roofed expansion to the perimeter of a building in which the addition is connected by a common load-bearing wall other than a fire wall. Any walled and roofed addition which is connected by a fire wall or is separated by independent perimeter load-bearing walls in new construction.

Proposed language is underscored, deleted language is struck off (See Page 7).

2.1.2 Appeal - a request for a review of the Building Inspector's interpretation of any provision of this ordinance or a request for a Flood Damage Prevention (FDP) Variance.

2.1.3 Area of special flood hazard - the area within a community subject to one percent or greater chance of flooding in any given year.

2.1.4 Base flood - the flood having a one percent chance of being equaled or exceeded in any given year.

2.1.5 Base flood elevation (BFE) - the elevation of the crest of the base flood or 100-year flood. The height in relation to mean sea level expected to be reached by the waters of the base flood at pertinent points in the floodplains of coastal and riverine areas.

2.1.6 Basement - that portion of a building having its floor subgrade (below ground level) on all sides.

2.1.7 Breakaway wall - a wall that is not part of the structural support of the building and is intended through its design and construction to collapse under specific lateral loading forces without causing damage to the elevated portion of the building or the supporting foundation system.

2.1.8 Building - any structure built for support, shelter, or enclosure for any occupancy or storage.

2.1.9 Coastal High Hazard Area - the area of special flood hazard extending from offshore to the inland limit of a primary frontal dune along an open coast and any other area subject to high velocity wave action from storms or hurricane wave wash, designated on a FIRM as zone VE or V.

2.1.10 Cost - as related to substantial improvements, the cost of any reconstruction, rehabilitation, addition, alteration, repair or other improvement of a structure shall be established by a detailed written contractor's estimate. The estimate shall include, but not be limited to: the cost of materials (interior finishing elements, structural elements, utility and service equipment); sales tax on materials, building equipment and fixtures, including heating and air conditioning and utility meters; labor; built-in appliances; demolition and site preparation; repairs made to damaged parts of the building worked on at the same time; contractor's overhead; contractor's profit; and grand total. Items to be excluded include: cost of plans and specifications, survey costs, permit fees, outside improvements such as septic systems, water supply wells, landscaping, sidewalks, fences, yard lights, irrigation systems, and detached structures such as garages, sheds, and gazebos.

2.1.11 Development - any man-made change to improved or unimproved real estate, including, but not limited to, the construction of buildings or other structures; the construction of additions, alterations or substantial improvements to buildings or structures; the placement of buildings or structures; mining, dredging, filling, grading, paving, excavation or drilling operations or storage of equipment; the storage, deposition, or extraction of materials; and the installation, repair or removal of public or private sewage disposal systems or water supply facilities.

2.1.12 Elevated building - a non-basement building built to have the lowest floor elevated above the ground level by means of fill, solid foundation perimeter walls, pilings, columns (posts and piers), shear walls, or breakaway walls.

2.1.13 Existing manufactured home park or subdivision - a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured home are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before June 19, 1980, the effective date of the floodplain management regulations adopted by the community.

2.1.14 Expansion to an existing manufactured home park or subdivision - the preparation of additional sites by the construction of facilities for servicing the lots on which the manufacturing homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).

2.1.15 Federal Emergency Management Agency (FEMA) - the federal agency that administers the National Flood Insurance Program (NFIP).

2.1.16 Finished living space - as related to fully enclosed areas below the base flood elevation (BFE), a space that is, but is not limited to, heated and/or cooled, contains finished floors (tile, linoleum, hardwood, etc.), has sheetrock walls that may or may not be painted or wallpapered, and other amenities such as furniture, appliances, bathrooms, fireplaces and other items that are easily damaged by floodwaters and expensive to clean, repair, or replace. A fully enclosed area below the BFE including the additional one foot of freeboard required by the Ordinance cannot have finished living space and needs to be designed for exposure to flood forces and can only be used for parking, building access or limited storage.

2.1.17 Flood or flooding - a general and temporary condition of partial or complete inundation of normally dry land areas from:

1. the overflow of inland or tidal water;
2. the unusual and rapid accumulation or runoff of surface waters from any source.

2.1.18 Flood Insurance Rate Map (FIRM) - an official map of a community on which the Federal Emergency Management Agency has delineated both the areas of special flood hazard and applicable risk premium zones.

2.1.19 Flood Insurance Study - the official report of the Federal Emergency Management Agency. The report contains flood profiles as well as the Flood Boundary Floodway Map and the water surface elevation of the base flood.

2.1.20 Floodway - the channel of 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 one foot.

2.1.21 Floor - the top surface of an enclosed area in a building (including basement) i.e., top of slab in concrete slab construction or top of wood flooring in wood frame construction.

2.1.22 Functionally dependent use or facility - a use or facility that cannot perform its intended purpose unless it is located or carried out in close proximity to the water. The term includes only docking facilities, port facilities that are necessary for the loading and unloading of cargo or passengers, and ship building and ship repair facilities. The term does not include seafood processing facilities, long-term storage, manufacturing, sales or service facilities.

2.1.23 Highest adjacent grade - the highest natural elevation of the ground surface, prior to construction, next to the proposed walls of a structure.

2.1.24 Historic structure - any structure that is: (a) listed individually in the National Register of Historic Places (a listing maintained by the Department of the Interior) or preliminarily determined by the Secretary of the Interior as meeting the requirements for individual listing on the National Register; (b) certified or preliminarily determined by the Secretary of the Interior as contributing to the historic significance of a registered historic district or a district preliminarily determined by the Secretary to qualify as a registered historic district; (c) individually listed on a state inventory of historic places in states with historic preservation programs which have been approved by the Secretary of the Interior; or (d) individually listed on a local inventory of historic places in communities with historic preservation programs that have been certified either: (1) by an approved state program as determined by the Secretary of the Interior or (2) directly by the Secretary of the Interior in states without approved programs.

2.1.25 Lowest floor - the lowest floor of the lowest enclosed area (including basement). An unfinished or flood-resistant enclosure, usable solely for parking of vehicles, building access or storage, in an area other than a basement area is

not considered a building's lowest floor. These areas must be designed in accordance with the definition of "elevated building" and Section 5.3.2.

2.1.26 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. The term also includes park trailers, recreational vehicles, travel trailers, and similar transportable structures placed on a site for 180 consecutive days or longer and intended to be improved property.

2.1.27 Manufactured home park or subdivision - a parcel, or contiguous parcels, of land divided into two or more manufactured home lots for rent or sale.

2.1.28 Market value - the market value of the structure shall be determined based on the appraised value of the structure using the cost to approach value method prior to the start of the initial repair or improvement, or in the case of damage, the value of the structure prior to the damage occurring.

2.1.29 Mean sea level - for purposes of the National Flood Insurance Program, the North American Vertical Datum (NAVD) of 1988 or other datum, to which base flood elevations shown on a community's Flood Insurance Rate Map are referenced.

2.1.30 National Geodetic Vertical Datum (NGVD) as corrected in 1988 - a vertical control used as a reference for establishing varying elevations within the floodplain.

2.1.31 New construction - structures for which the "start of construction" commenced on or after June 19, 1980, the effective date of the floodplain management regulations, and includes any subsequent improvements to such structures.

2.1.32 New manufactured home park or subdivision - a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after June 19, 1980, the effective date of the floodplain management regulations adopted by the community.

2.1.33 Recreational vehicle - a vehicle which is a building on a chassis, is 400 square feet or less when measured at the largest horizontal projection, is designed to be self-propelled or permanently towable by a light duty truck, and which is not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel or seasonal use.

2.1.34 Sand dunes - naturally occurring accumulations of sand in ridges or mounds landward of the beach.

2.1.35 Start of construction, [for other than new construction or substantial improvements under the Coastal Barrier Resources Act (PL 97-348)], includes substantial improvement - the date the building permit was issued, provided the actual start of construction, repair, reconstruction, or improvement was within 180 days of the permit date. The actual start means the first placement of permanent construction of a structure (including a manufactured home) on a site, such as the pouring of slabs or footings, installation of piles, construction of columns, or any work beyond the state of excavation or placement of a manufactured home on a foundation. Permanent construction does not include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds, not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.

2.1.36 Structure - a walled and roofed building that is principally above ground, a manufactured home, a gas or liquid storage tank, or other man-made facilities or infrastructures.

2.1.37 Substantial damage - damage of any origin sustained by a structure whereby the cost of restoring the structure to its pre-damaged condition would equal or exceed fifty percent (50%) of the market value of the structure before the damage occurred. "Substantial damage" also means flood-related damages sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on the average, equals or exceeds 25 percent of the market value of the structure before the damage occurred.

2.1.38 Substantial improvement - any combination of repairs, reconstruction, alteration, or improvements to a structure taking place during the life of a structure over a ten year period, in which the cumulative cost equals or exceeds fifty percent (50%) of the market value of the structure before the "start of construction" of the improvement. This term includes structures that have incurred "substantial damage", regardless of the actual repair work performed. The market value of the structure should be (1) the appraised value of the structure using the cost to approach value prior to the start of the initial repair or improvement, or (2) in the case of damage, the value of the structure prior to the damage occurring. For the purposes of this definition, "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 dimensions of the structure. The term does not, however, include any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions.

2.1.39 Variance - a grant of relief from the requirements of this ordinance which permits construction in a manner otherwise prohibited by this ordinance where specific enforcement would result in unnecessary hardship. Such hardship shall be based on the unusual physical characteristics of the property in question which are not shared by adjacent parcels; hardship shall not be based on the structure, or on economic or personal hardships.

2.1.40 Violation - failure of a structure or other development to be fully compliant with the City’s Flood Damage Prevention Ordinance. A structure or other development without required permits, lowest floor elevation documentation, flood-proofing certificates or required floodway encroachment calculations is presumed to be in violation until such time as that documentation is provided.

2.1.41 Water Surface Elevation - the height, in relation to the North American Vertical Datum (NAVD) of 1988, (or other datum, where specified) of floods of various magnitudes and frequencies in the floodplains of coastal or riverine areas.

SECTION 3 - GENERAL PROVISIONS

3.1 Lands to Which this Ordinance Applies

This ordinance shall apply to all areas of special flood hazard within the jurisdiction of the City of New Haven.

3.2 Basis for Establishing the Areas of special flood hazards

The areas of special flood hazard identified by the Federal Emergency Management Agency (FEMA) in its Flood Insurance Study (FIS) for New Haven County, Connecticut, dated July 8, 2013, and accompanying Flood Insurance Rate Maps (FIRM), dated July 8, 2013 (Panels 09009C0429J, 09009C0433J, 09009C0434J, 09009C0437J, 09009C0439J, 09009C0441J, 09009C0442J, 09009C0443J, 09009C0444J, 09009C0453J, 09009C0557J), and December 17, 2010 (Panels 09009C0426H, 09009C0427H, 09009C0428H, 09009C0436H, 09009C0461H, 09009C0556H), and other supporting data applicable to the City of New Haven, and any subsequent revisions thereto, are adopted

by reference and declared to be a part of this ordinance. Since mapping is legally adopted by reference into this ordinance it must take precedence when more restrictive until such time as a map amendment or map revision is obtained from FEMA. The area of special flood hazard includes any area shown on the FIRM as zones A, AE, and VE, including areas designated as a floodway on a FIRM. Zone VE is also identified as a coastal high hazard area. Areas of special flood hazard are determined utilizing the base flood elevations (BFE) provided on the flood profiles in the FIS. BFEs provided on a FIRM are only approximate (rounded up or down) and should be verified with the BFEs published in the FIS for a specific location. The FIS and FIRM are on file with the city/town clerk.

3.3 Establishment of the Floodplain Development Permit

A Floodplain Development Permit shall be required in conformance with the provisions of this ordinance prior to the commencement of any development activities to be undertaken in a Special Flood Hazard Area.

3.4 Compliance

No structure or land shall hereafter be located, extended, converted or structurally altered without full compliance with the terms of this ordinance and other applicable regulations.

3.5 Abrogation and Greater Restrictions

This ordinance is not intended to repeal, abrogate, or impair any existing easements, covenants, or deed restrictions. However, where this ordinance and another conflict or overlap, whichever imposes the more stringent restrictions shall prevail.

3.6 Interpretation

In the interpretation and application of this ordinance all provisions shall be: 1) considered as minimum requirements; 2) liberally construed in favor of the governing body, and; 3) deemed neither to limit nor repeal any other powers granted under state statutes.

3.7 Warning and Disclaimer of Liability

The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on scientific and engineering consideration. Larger floods can and will occur on rare occasions. Flood heights may be increase by man-made or natural causes. This ordinance does not imply that land outside the areas of special flood hazard or uses permitted within such areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of the City of New Haven or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.

SECTION 4 - ADMINISTRATION

4.1 Designation of the Ordinance Administrator

The Building Inspector is hereby appointed to administer and implement the provisions of this ordinance.

4.2 Certification

Where required under this ordinance, a registered professional engineer or architect shall certify that the design and methods of construction are in accordance with accepted standards of practice for meeting the provisions of this ordinance. Such certification must be provided to the Building Inspector.

4.3 Permit Procedures

Prior to any development activities in the Flood Damage Prevention District, application for a Floodplain Development Permit shall be made on forms furnished by the City of New Haven. Such application shall be accompanied by two sets of plans drawn to scale showing, at a minimum, the property lines and location of the parcel, existing and proposed contours; existing or proposed structures, fill, storage of materials, drainage facilities and the location of the foregoing. The following information shall also be submitted to the Building Inspector.

4.3.1 Application Stage

- 4.3.1.1 Elevation in relation to mean sea level of the proposed lowest floor (including basement) of all structures (Sections 5.3.1 and 5.3.4.2);
- 4.3.1.2 Elevation in relation to mean sea level to which any non-residential structure will be flood-proofed (Section 5.3.1.2.2);
- 4.3.1.3 Description of the extent to which any watercourse will be altered or relocated as a result of proposed development;
- 4.3.1.4 A statement as to whether or not the proposed alterations to an existing structure meet the criteria of the substantial improvement definition (Section 2.1.38);
- 4.3.1.5 A statement as to whether there will be dry access to the structure during the 100-year storm event;
- 4.3.1.6 Certification as to floodproofing, as required by Section 5.3.1.2.2;

4.3.1.7 Certification as to the provisions of Section 5.3.2 governing fully-enclosed areas below base flood elevation, if the minimum design criteria in Section 5.3.2.1 - 5.3.2.3 is not used;

4.3.1.8 Certification as to floodway heights, as required by Section 5.2.1 and 5.3.3;

4.3.1.9 Certification as to breakaway walls. If the design criteria stated in subsection 5.3.4.8 is not utilized then the design and construction methods must be certified as explained in subsection 5.3.4.8.1 and 5.3.4.8.2;

4.3.1.10 Certification as to the structural anchoring provisions of subsection 5.3.4.3 and 5.3.4.4.

4.3.2 Construction Stage. Upon completion of the applicable portion of construction the applicant shall provide the Building Inspector with an elevation certificate prepared by a Connecticut licensed land surveyor, engineer or architect verifying the as-built lowest floor elevation, defined as the top of the lowest floor (including basement) in A zones (Sections 5.3.1.1 and 5.3.1.2.1); defined as the lowest point of the lowest structural horizontal member (excluding pilings or columns) in V zones (Section 5.3.4.2); or, in the case of floodproofed buildings, the elevations to which the floodproofing is effective (Section 5.3.1.2.2).

4.3.3 Compliance. Deficiencies in the lowest floor elevations shall be corrected by the permit holder immediately and prior to further progressive work being performed to proceed. Failure to submit an acceptable survey or failure to make corrections required hereby shall be cause for issuance of a stop-work order.

4.4 Duties and Responsibilities of the Building Inspector

In the administration of this ordinance, the Building Inspector shall perform the following duties, among others:

4.4.1 Review all permit applications to determine whether proposed building sites will be reasonably safe from flooding.

4.4.2 Review all development permits to assure that the requirements of this ordinance have been satisfied.

4.4.3 Advise permittee that additional Federal or State permits may be required, and if specific Federal or State permit requirements are known, require that copies of such permits be provided and maintained on file with the Flood

Development Permit. Such additional permit requirements may include, but not be limited to: Stream Channel Encroachment Line Permit, Coastal Area Management Permit, Water Diversion Permit, Dam Safety Permit, and Corps of Engineers 404 Permit.

4.4.4 Notify the regional planning agency and the affected municipality at least 35 days prior to the public hearing if any change of regulation or use of a flood zone will affect an area within 500 feet of another municipality.

4.4.5 Notify adjacent communities and the Department of Energy and Environmental Protection, Inland Water Resources Management Division prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

4.4.6 Assure that maintenance is provided within the altered or relocated portion of said watercourse so that the flood-carrying capacity is not diminished.

4.4.7 Record the elevation (in relation to mean sea level) of the lowest floor (including basement) of all new or substantially improved structures, in accordance with Sections 5.3.1.1 and 5.3.1.2.1.

4.4.8 Record the elevation (in relation to mean sea level) to which the new or substantially improved structures have been flood-proofed, in accordance with Section 5.3.1.2.2.

4.4.9 Obtain and maintain all certifications required under this ordinance and assure that they meet the standards of Section 4.2 hereof.

4.4.10 Make the necessary interpretation, where needed, as to the exact location of boundaries of the areas of special flood hazard (for example, where there appears to be a conflict between a mapped boundary and actual field conditions). The person contesting the location of the boundary shall be given a reasonable opportunity to appeal the interpretation as provided in this article.

4.4.11 Obtain, review and reasonably utilize any base flood elevation and floodway data available from a Federal, State or other source in order to administer the provisions of Section 5.3, when base flood elevation data or floodway data have not be provided in accordance with Article 3, Section B.

4.4.12 Maintain all records pertaining to the provisions of this ordinance.

4.4.13 Review plans for adequacy of breakaway walls in Coastal High Hazard Areas are in accordance with subsection 5.3.4.

SECTION 5 - PROVISIONS FOR FLOOD HAZARD REDUCTION

5.1 General Standards

In all areas of special flood hazard the following provisions shall apply:

5.1.1 New construction and substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy;

5.1.2 New construction and substantial improvements shall be constructed with materials resistant to flood damage;

5.1.3 New construction or substantial improvements shall be constructed by methods and practices that minimize flood damage;

5.1.4 Electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities shall be designed and/or located so as to prevent water from entering or accumulating within components during flooding conditions;

5.1.5 New and replacement water supply systems shall be designed to minimize or eliminate infiltration of flood waters into the system;

5.1.6 New and replacement sanitary sewage systems shall be designed to minimize or eliminate infiltration of flood waters into the systems and discharges from the system into flood waters;

5.1.7 On-site waste disposal systems shall be located and constructed to avoid impairment to them or contamination from them during flooding;

5.1.8 In any portion of a watercourse which is altered or relocated the flood carrying capacity shall be maintained;

5.1.9 Manufactured homes. All manufactured homes (including "mobile" homes and recreational vehicles placed on a site for one hundred eighty (180) consecutive days or longer), located within zone A or AE (including, but not limited to, manufactured homes located outside a manufactured home park or subdivision, in a new manufactured home park or subdivision, in an existing manufactured home park or subdivision, in an expansion to an existing manufactured home park or subdivision, or on a site in an existing manufactured home park in which a manufactured home has incurred substantial damage as a result of a flood) to be placed or substantially improved shall be:

5.1.9.1 Elevated so that the lowest floor is one foot above the base flood elevation;