

2020

MUSCATINE
COUNTY

CODE
OF
ORDINANCES

Adoption Date: 08-29-2020

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TITLE I: ADMINISTRATION

CHAPTER I.

COUNTY SUPERVISOR DISTRICTS AND ELECTION PRECINCTS FOR MUSCATINE COUNTY

SECTION 1. PURPOSE. The purpose of this ordinance is to revise election precincts in order to realize substantial savings in election costs in accordance with Iowa Code Section 49.8(6). Supervisor Districts are the same as were adopted January 2, 2002. These Supervisor Districts and Election Precincts shall apply to elections held after February 16, 2006.

SECTION 2. LEGAL DESCRIPTION OF SUPERVISOR DISTRICTS.

- 2.1 District #1** (Population 8,363) shall encompass the following:
Part of Fruitland Township South of Highway 61 and excluding the City of Muscatine
Part of Seventy-Six Township from the Southern Township Line, East of Hampton Ave and South of 275th Street to Independence Ave, then East of Independence Ave North to 235th St, then South of 235th St. East to Burlington Rd., then West of Burlington Rd. South to the Muscatine/L-M School District boundary, then South of the Muscatine/L-M School District boundary East to the township line
City of Muscatine, part of Precinct 1 (South of Cedar St from West edge of city limits to Houser St.)
City of Muscatine, part of Precinct 2 (South of Broadlawn Ave and West of Dolliver St.)
City of Muscatine, Precinct 3
City of Muscatine, Precinct 7
City of Muscatine, Precinct 8
- 2.2 District #2** (Population 8,301) shall encompass the following:
Cedar Township
Lake Township
Orono Township
Pike Township
Wapsinonoc Township
Remaining portion of Bloomington Township not included in County Board District #4
Part of Fruitland Township North of Highway 61 and excluding the City of Muscatine
Remaining portion of Goshen Township not included in County Board District #3
Remaining portion of Seventy-Six Township not included in County Board District #1
- 2.3 District #3** (Population 8,318) shall encompass the following:
Fulton Township
Montpelier Township
Moscow Township
Wilton Township
Part of Goshen Township East of Atalissa Rd and North of Highway 6 and the City of Atalissa
Part of Sweetland Township (North of Hwy 61 to New Era Rd., then North of New Era Rd to Sweetland Rd, then East of Sweetland Rd and North of Highway 22 to Sweetland Creek, then North of Sweetland Creek to Trolley Ave., then East of Trolley Ave and North of Highway 22 to the unnamed stream located west of the intersection of Vanatta Ave. and Hwy 22, then East and North of the unnamed stream)

- 2.4 District #4** (Population 8,371) shall encompass the following:
 Part of Bloomington Township from the Muscatine City limits East of Tipton Rd North to Bayfield Rd, then South of Bayfield Rd East to Isett Ave. then East of Isett Ave North to Mad Creek and then Southwest of Mad Creek to the city limits Remaining portion of Sweetland Township not included in County Board District #3
 City of Muscatine, Precinct 4
 City of Muscatine, portion of Precinct 5 (Southeast of 8th Street and Poplar Street to 6th Street, then Southeast of 6th Street to Orange Street)
 City of Muscatine, Precinct 9
 City of Muscatine, Precinct 10
- 2.5 District #5** (Population 8,369) shall encompass the following:
 City of Muscatine, portion of Precinct 1 not included in County Board District #1
 City of Muscatine, portion of Precinct 2 not included in County Board District #1
 City of Muscatine, portion of Precinct 5 not included in County Board District #4
 City of Muscatine, Precinct 6

SECTION 3: LEGAL DESCRIPTION OF ELECTION PRECINTS.

All voting precincts (except Muscatine City precincts established by the Muscatine City Council) shall be designated as follows:

1. Bloomington/Lake Precinct (BLLA) shall include all of Bloomington Township outside of the city limits of Muscatine and all of Lake Township. (Population = 2,087)
2. Cedar Precinct (CE) shall include all of Cedar Township. (Population = 294)
3. Fruitland 1 Precinct (F1) shall include all of the city of Fruitland and all of Fruitland Township south of the city limits of Muscatine. (Population = 468)
4. Fruitland 2 Precinct (F2) shall include all of Fruitland Township north of the city limits of Muscatine. (Population = 496)
5. Fulton Precinct (FU) shall include all of the city of Stockton and all of Fulton Township. (Population = 528)
6. Goshen Precinct (GO) shall include all of the city of Atalissa and all of Goshen Township. (Population = 349)
7. Montpelier Precinct (MO) shall include all of Montpelier Township. (Population = 851)
8. Orono Precinct (OR) shall include all of the city of Conesville and all of Orono Township. (Population = 154)
9. Pike Precinct (PI) shall include all of the city of Nichols and all of Pike Township. (population = 530)
10. Seventy-Six Precinct (76) shall include all of Seventy-Six Township. (Population = 368)
11. Sweetland Precinct (SW) shall include all of Sweetland Township outside of the city limits of Muscatine. (Population = 2,928)
12. Wapsie Precinct (WA) shall include all of Wapsinonoc Township outside of the city limits of West Liberty. (Population = 607)
13. West Liberty Precinct (WL) shall include all of the city of West Liberty. (Population = 3,332)
14. Wilton/Moscow Precinct (WIMW) shall include all of Wilton Township outside of the city limits of Wilton and all of Moscow Township. (Population = 1,238)
15. Wilton City Precinct (WC) shall include all of the city of Wilton. (Population = 2,829)

SECTION 4: EFFECTIVE DATE. This ordinance shall become effective February 16, 2006.

SECTION 5: PREVIOUS ORDINANCE REPEALED. Ordinance #01-02-02-01 adopted January 2, 2002 is hereby repealed.

CHAPTER II.

FEE FOR UNIFORM COMMERCIAL CODE (UCC) INFORMATION REQUEST

SECTION 1. FEE FOR INFORMATION REQUEST. The fee for a verbal or written Uniform Commercial Code information request shall be \$5.00 for each debtor name being requested if the request form is supplied, and \$6.00 for each debtor name requested if the filing office supplies the form. The fee for a copy of a filed UCC is \$1.00 per page.

CHAPTER III.

LOCAL OPTION SALES AND SERVICE TAX

SECTION 1. IMPOSITION OF TAX. There is imposed a local sales and service tax applicable to transactions within the following areas:

City of Atalissa
City of Conesville
City of Durant
City of Nichols
Unincorporated Areas

City of Blue Grass
City of West Liberty
City of Wilton
City of Stockton
Contiguous Cities of Muscatine and
Fruitland

of Muscatine County, Iowa.

SECTION 2. RATE OF TAX. The rate of the tax shall be one percent (1%) upon gross receipts from the sale of goods and services taxed under Iowa Code Division IV, Chapter 423 and 423B, in the areas where the tax is imposed.

SECTION 3. IMPOSITION DATES. The local sales and services tax is imposed on transactions occurring on or after July 1, 2019, until June 30, 2034, within the incorporated areas of Atalissa, Blue Grass, Conesville, Durant, Fruitland, Nichols, Muscatine, Stockton, West Liberty, Wilton and Unincorporated Areas of Muscatine County.

SECTION 4. COLLECTION OF TAXES, EXEMPTIONS. All persons required to collect state gross receipt taxes shall collect the tax pursuant to Iowa Code Section 423B.6 for Local Option Sales and Services Tax.

All applicable provisions of the appropriate sections of Chapter 423, Division IV, of the Code of Iowa are adopted by reference.

CHAPTER IV.

SCHOOL INFRASTRUCTURE LOCAL OPTION SALES AND SERVICE TAX

- SECTION 1. IMPOSITION OF TAX.** There is imposed a local sales and service tax for school infrastructure purposes applicable to transactions within all areas, incorporated and unincorporated, of Muscatine County, Iowa.
- SECTION 2. RATE OF TAX.** The rate of the tax shall be one percent (1%) upon gross receipts from the sale of goods and services taxed under Chapter 422, Division IV of the Iowa Code.
- SECTION 3. TIME OF IMPOSITION.** The school infrastructure local sales and service tax is imposed on transactions occurring on or after July 1, 2000.
- SECTION 4. COLLECTION OF TAXES, EXEMPTIONS.** The tax shall be collected by all persons required to collect gross receipt taxes. The tax shall be imposed on the gross receipts from the sale of goods and services taxed under Chapter 422, Division IV, Code of Iowa in the areas where the tax is imposed except those transactions exempted from the sales and service tax by Section 422B.8, Code of Iowa.

CHAPTER V.

MUSCATINE COUNTY ENFORCEMENT ORDINANCE

SECTION 1. SCOPE AND AUTHORITY. The purpose of this ordinance is to centralize the penalty portions of each chapter of the Muscatine County Code of Ordinances.

- 1.1 Violations of the Muscatine County Code of Ordinances, if not resolved at the administrative level, may be enforced by the county officers in accordance with the provisions of this chapter.
- 1.2 Legal proceedings may be initiated against an alleged violator, when appropriate and if probable cause exists, by:
 - a. Issuing a civil citation for a county infraction as authorized in Iowa Code Section 331.307 and set forth in Section 2 below;
 - b. Filing a petition in equity seeking relief, including but not limited to an order for abatement or injunctive relief as set forth in Section 3 below;
 - c. Filing a criminal (simple misdemeanor) complaint for a county violation as authorized in Iowa Code Section 331.302(2) and as set forth in Section 4 below;
 - d. Prosecuting in accordance with state criminal laws if an alleged violation of an ordinance is a felony, an aggravated misdemeanor, or a serious misdemeanor under the state law or if the violation is a simple misdemeanor under Chapter 687 through 747 of the Iowa Code.
- 1.3 In addition to the civil citation, which is initiated by the citing officer, the aforementioned legal options may be pursued individually or in combination, as determined by the Muscatine County Attorney after reviewing the circumstances surrounding each individual case, including but not limited to the nature and seriousness of the violation, corrective action attempted by the respective department and its officers, and the impact or potential impact of the violation on the health, safety and welfare of the citizens of Muscatine County.

SECTION 2. CIVIL ENFORCEMENT PROCEDURES FOR COUNTY INFRACTIONS.

- 2.1 Any violation of the Muscatine County Code of Ordinances, including any section, subsection or any part thereof, or any rule or regulation adopted or issued in pursuant thereof, is a county infraction, and enforceable as such, except as noted in Section 1.2.d.
- 2.2 A county infraction is punishable by a civil penalty of not more than the maximum amount allowed by State Code for a first offense, or the maximum amount allowed by State Code for a second or subsequent offense.
 - a. Each day the violation occurs or is permitted to exist by the defendant may constitute a separate offense.
 - b. A schedule of fines may be adopted and amended as appropriate by separate resolution.
 - c. In addition to assessing a civil penalty, the court may:
 - (1) Order the defendant to abate or correct the violation;

- (2) Authorize Muscatine County to abate or correct the violation; and
- (3) Order that Muscatine County's costs for abatement or correction of the violation be entered as a personal judgement against the defendant or assessed against the property where the violation occurred, or both, not to exceed the jurisdictional amount pursuant to Iowa Code Section 602.6306(2) unless entered by a district court judge.

- 2.3** An officer authorized pursuant to this section to enforce county code or regulation may issue a civil citation to a person who commits a county infraction. A copy of the citation may be served by personal service as provided in Rule of Civil Procedure 56.1, by certified mail addressed to the defendant at the defendant's last known address, return receipt requested, or by publication in the manner as provided in Rule of Civil Procedure 60.1. After a copy of the citation is served, the citing officer shall forward the original to the County Attorney for filing and prosecution.
- a. Standard County civil citation forms shall be maintained by the County Attorney and made available to appropriate county officers.
 - b. County officers authorized to enforce a county code or regulation are elected officials and appointed department heads, and those persons designated by elected officials and appointed department heads.
 - c. The issuance of a civil citation for a county infraction or the ensuing court proceedings does not provide an action for false arrest, false imprisonment or prosecution.
- 2.4** Within twenty (20) days of being served with a citation, the defendant shall answer the citation by appearing before the Clerk of Court, Small Claims Division, Muscatine County Courthouse, Muscatine, Iowa to admit or deny the alleged infraction.
- a. If the defendant fails to appear, judgement shall be entered against the defendant for the amount of the civil penalty and court costs, and restitution and with an order to correct or abate the violation if sought by the County.
- 2.5** If the defendant appears and admits the violation, the Clerk shall enter judgement against the defendant for the amount of the civil penalty and court costs, and restitution and with an order to correct or abate the violation if sought by the County.
- 2.6** If the defendant denies the infraction, the Clerk will set a time and date for a hearing on the matter, which will be tried in the same manner as a small claim and conducted in accordance with the following provisions.
- a. The County has the burden of proof that the county infraction occurred and that the defendant committed the infraction. The proof shall be clear, satisfactory, and convincing evidence.
 - b. The defendant may be represented by counsel of the defendant's own selection and at the defendant's own expense.
 - c. The defendant may question all witnesses who appear for the County and produce evidence or witnesses on the defendant's own behalf.

- d. The court, after hearing the matter, shall enter judgment against the defendant or dismiss the matter, in accordance with its findings of fact and all applicable legal standards.
- e. If judgment is entered against the defendant, the court may impose a civil penalty or may grant appropriate relief to abate or correct the violation, or both, and the court may direct the payment of the civil penalty be suspended or deferred under conditions established by the court. If a defendant willingly fails to pay the civil penalty or violates the term of any other order imposed by the court, contempt proceedings may be initiated against the defendant.
- f. A defendant against whom judgment has been entered is liable for the court costs and fees. If the county infraction is dismissed, the County is liable for the court costs and fees. When the action is dismissed or otherwise disposed of without provision for assignment of court costs, the County is liable for court costs and fees.
- g. A defendant against whom judgment has been entered may appeal the verdict in accordance with small claims appellate procedures set forth in Chapter 631, Code of Iowa, and the Iowa Rules of Civil Procedure.

SECTION 3. EQUITABLE ENFORCEMENT PROCEDURES FOR COUNTY INFRACTIONS. The County, through the Board of Supervisors and other authorized officers, may institute any appropriate action in equity to restrain, correct, or abate a violation as authorized by Chapter 331, Code of Iowa, or by any other provisions in the Code of Iowa empowering the County, the Board of Supervisors, or other county officers to take legal action to remedy a county violation.

SECTION 4. CRIMINAL ENFORCEMENT PROCEDURES FOR COUNTY INFRACTIONS.

- 4.1** Any violation of the Muscatine County Code of Ordinance for which criminal enforcement is specifically authorized by section or chapter is a county (simple) misdemeanor.
- 4.2** If convicted of a county misdemeanor, the defendant is subject to a fine of not more than \$100.00, or to imprisonment for not more than 30 days, and shall pay the court costs and fees.
- 4.3** Criminal enforcement is initiated by referring the charges to the County Attorney for review. The County Attorney determines whether to file county misdemeanors in accordance with the same standards established for filing criminal actions against persons for violations of State criminal laws.
- 4.4** Each day the violation occurs or is permitted to exist by the defendant may constitute a separate offense.
- 4.5** County misdemeanors are docketed and prosecuted in the same manner as State simple misdemeanors.

TITLE II: PUBLIC HEALTH

CHAPTER I.

WATER WELLS

ARTICLE I: PRIVATE WATER WELL CONSTRUCTION PERMIT

The purpose of this Ordinance is to adopt the Private Water Well Construction Permit rules of the Iowa Administrative Code (Chapter 38).

SECTION 1. DEFINITIONS.

Abandoned Well	A water well which is no longer in use or which is in such a state of disrepair that continued use for the purpose of accessing groundwater is unsafe or impracticable.
Agreement	A signed document between the Department and the County Board of Supervisors with which the Department delegates the authority to issue private well drilling permits to the County Board of Supervisors or its designee.
Construction	The physical act or process of making a water well including, but not limited to, siting, excavation, construction and installation of equipment and materials necessary to maintain and operate the well.
Contiguous	Any number of parcels of land that physically touch one another, including tracts of land separated by roads, railroads or streams, except that for the purpose of reporting on other existing wells on the property, the radius of a contiguous piece of land shall be limited to one mile from the site of the new well constructed.
Contractor	A person engaged in the business of well construction or reconstruction. The term may include a corporation, partnership, sole proprietorship, association or any other business entity as well as any employee or officer of the entity.
County	Muscatine County Board of Health
Department	Iowa Department of Natural Resources
Director	The Director of the Department or designee.
Groundwater	Any water below the surface of the earth.
Inactive Water Well	A water well that is not currently in use and is capped or sealed to prevent the entrance of contaminants into the well, but is in such a condition that it can be activated to produce a safe supply of water.
Landowner	An individual, trust, partnership, corporation, government or governmental subdivision or agency, association or other legal entity that has legal or equitable title to a piece of land.
Landowner's Agent	A person who acts for or in place of the landowner by authority from the landowner.
Private Water Well	A well that does not supply a public water supply system.
Protected Source	A surface water or groundwater source recognized by rule as deserving special protection in order to ensure its long-term availability, in terms of either quality or quantity, or both, to preserve the public health and welfare.

Public Water Supply System A system for the provision to the public of piped water for human consumption, if such system has at least fifteen (15) service connections or regularly serves an average of at least twenty-five (25) individuals daily at least sixty (60) days out of the year. The term includes: (1) any collection, treatment, storage and distribution facilities under control of the supplier of water and used primarily in connection with the system, and, (2) any collection (including wells) or pretreatment storage facilities not under the control which are used primarily in connection with the system.

Water Well An excavation that is drilled, cored, bored, augured, washed, driven, dug, jetted, or otherwise constructed for accessing groundwater. Water well does not include an open ditch or drain tiles.

SECTION 2. FORMS. The following application form is currently in use: Well Construction Permit #542-0988.

SECTION 3. PERMIT REQUIRED.

3.1 When permit required. A landowner or landowner's agent shall not drill or construct a new private water well without first obtaining a well construction permit issued by the Department or by a County Board of Supervisors or the Board's designee authorized to issue permits pursuant to rule 38.15(455B) of the Iowa Administrative Code. (Refer to Section 15 of this Ordinance) Examples of private water well requiring well construction permits include, but are not limited to: domestic wells, livestock wells, irrigation wells, recreational-use wells, monitoring wells, heat pump wells, industrial wells, and dewatering wells, except that dewatering wells shall be exempt from the construction standards of Chapter 49 (Nonpublic Water Wells) of the Iowa Administrative Code.

3.2 Exemptions. The following types of excavations do not need private water well construction permits: soil borings, percolation test holes, sand and gravel and limestone exploration holes, excavations for storing and extracting natural gas or other products, gravel pits and quarries and all monitoring wells required as part of a permit or a construction approval issued by the Department. Test holes, used to determine the availability, quality or depth of groundwater are also exempt provided that all the following conditions are met.

- a. The use of the test hole is limited to the conduct of the test only.
- b. The duration of the test is not more that seven consecutive days.
- c. The test hole is properly closed immediately after the test is completed in accordance with Chapter 39 "Requirements for Properly Plugging Abandoned Wells" of the Iowa Administrative Code.

3.3 Caveat. Nothing in these rules shall be construed as exempting public water supply wells from the construction permit and water withdrawal permit provisions of the environmental protection commission rules, 567- Iowa Administrative Code.

SECTION 4. FORM OF APPLICATION. Application shall be made on forms supplied by the County. Each application shall list all wells, including abandoned wells, on the applicant's property contiguous to the well site described in the application and shall describe the location of each well site. The location site shall be given in the form of a legal land description (section, township and range) to the nearest quarter of a quarter of a section and noted on a map or aerial photograph. The list of wells to be registered shall include but is not limited to abandoned wells, inactive wells, agricultural drainage wells, irrigation wells, domestic wells, and livestock wells.

SECTION 5. FEES.

- 5.1 Fee Payment.** Each application shall be accompanied by a nonrefundable fee determined by the Board of Supervisors, made payable to the Muscatine County Treasurer. More than one proposed well on one contiguous piece of property may be listed on one application and only one fee need be paid irrespective of the number of wells listed on the application form. A proper application shall consist of a fully and properly completed form and nonrefundable fee.
- 5.2 Exemption.** The County is exempt from the fee payment requirements of these rules.

SECTION 6. WELL MAINTENANCE AND RECONSTRUCTION.

A private well construction permit is required for all replacement wells. A private well construction permit is not required for the repair, maintenance, rehabilitation or reconstruction of an existing well. Changes in physical dimensions in these exemptions include, but are not limited to: deepening the well and changing the diameter or length or the casing or the screen.

SECTION 7. EMERGENCY PERMITS.

- 7.1 Emergency Permits.** Emergency permit applications may be made on approved County forms as provided for in (Section 4) and the reporting requirements shall be on a routine basis in accordance with 15.3 of this Ordinance.

SECTION 8. PERMIT ISSUANCE AND CONDITIONS.

- 8.1 When issued.** Upon receipt of a complete application, the County shall issue a permit to the landowner or landowner's agent except as provided in Rules 38.7(455B), 38.12(455B) of the Iowa Administrative Code (refer to Sections 7, 12, and 15 of this Ordinance).
- 8.2 Not withdrawal permit.** Each permit shall include notification that a private well construction permit is not a water withdrawal permit and does not eliminate the necessity of obtaining any water withdrawal permits required in 567-Chapter 51 and 52 of the Iowa Administrative Code. A water withdrawal permit is required before an applicant can withdraw more than 25,000 gallons of water per day from any source or combination of sources in the State of Iowa.
- 8.3 Construction by registered well driller.** Each well construction permit shall require that each well shall be constructed by a registered well driller in compliance with 567-Chapters 37 and 49 of the Iowa Administrative Code. However, temporary dewatering wells at construction sites shall be exempt from the construction standards of Chapter 49.

SECTION 9. NONCOMPLIANCE. Violations of any of the provisions of this Chapter may be addressed by the County pursuant to Iowa Code sections 455B.109, 455B.175 and 455B.191.

SECTION 10. EXPIRATION OF A PERMIT. A private well construction permit shall expire one calendar year from the date of issuance. If construction of the proposed well is not started prior to the expiration date, a new application plus a new nonrefundable fee must be filed.

SECTION 11. TRANSFERABILITY. A private well construction permit is not transferable.

SECTION 12. DENIAL OF A PERMIT. The County may deny a private well construction permit if granting the permit would lead to the violation of State law, would result in groundwater contamination, would lead to withdrawal from a protected source, or the Director

determines that the well would threaten public health or the environment. Examples of wells that could threaten public health or the environment and, therefore, may be denied construction permits include, but are not limited to: in-situ mining wells, wells which may result in a negative impact on an identified point source of groundwater contamination and cause leachate plume to spread or migrate, underground injection wells except as provided in 50.6(4) and 62.9 of the Iowa Code.

SECTION 13. APPEAL OF A PERMIT DENIAL. Any applicant aggrieved by a decision issued under the provisions of this Chapter may file a notice of appeal with the County. The notice of appeal must be filed within thirty (30) days of the date of the permit decision. The form of the notice of appeal and appeal procedures are governed by 567 - Chapter 7 of the Iowa Code. Appeal of a permit denied by a County which has been delegated authority to issue private water well permits shall be administered by the County in accordance with their appeal or judiciary review process and can only be appealed to the Department if delegation to the County is suspended, rescinded or revoked.

SECTION 14. DELEGATION OF AUTHORITY TO COUNTY BOARD OF SUPERVISORS.

14.1 Application by Board. A County Board of Supervisors requesting the authority to issue private well construction permits shall apply to the Department in accordance with Iowa Code Chapter 28E. The application shall include statement of agreement to comply with 567 - Chapter 38. Additional information may be requested by the Department.

14.2 County Standards. The County Board of Supervisors may impose additional standards as local conditions dictate, but cannot be less stringent than those required by the provisions of this Chapter.

14.3 Information to Department. The delegation agreement shall provide for the method format and frequency of reporting all permit application information to the Department.

14.4 Board Authority. After delegation of authority to a County Board of Supervisors, all applications in that County shall be made to the Board of its designee except that all new private well permit applications by State or Federal agencies shall be made to the Department.

14.5 Term of Delegation. The delegation of authority may be for up to five years and may be redelegated at the discretion of the Department.

SECTION 15. JURISDICTION. The provisions of this regulation shall apply throughout Muscatine County, Iowa, including cities and towns therein; provided such cities have not adopted a Board of Health pursuant to Chapter 137, Code 1973, in which event the provisions of this regulation shall not apply to said City.

SECTION 16. VIOLATIONS AND PENALTIES. These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

ARTICLE II: NONPUBLIC WATER WELLS

The purpose of this Ordinance is to adopt the Nonpublic Water Well Rules of the Iowa Administrative Code (Chapter 49).

SECTION 1. DEFINITIONS.

Abandoned Well A well whose use has permanently discontinued. A well shall be considered abandoned when its condition is such that continued use is impractical or no longer desired.

County Muscatine County Board of Health.

Annular Space	The open space between the well hole excavation and the well casing.
Cesspool	A covered excavation, lined or unlined, into which wastes from toilets or urinals are discharged for disposal. Cesspools are not an approved method of sewage disposal.
Compensation For Well Interference	Payment to the owner of a nonregulated well for damages caused by a lowered water level in the well due to withdrawal of water for a permitted use.
Established Grade	The permanent point of contact of the ground to the artificial surface with the casing or curbing of the well.
Grout	A material used to seal the annular space between the casing and the bore hole and shall consist of neat cement, concrete, heavy drilling mud or heavy bentonite water slurry. Heavy drilling mud or heavy bentonite water slurry when used as grout shall be of sufficient viscosity to require a time of at least seventy (70) seconds to discharge one quart of the material through an API (American Petroleum Institute) marsh funnel viscometer.
Major Rehabilitation or Reconstruction	Replacement, extension or removal of all or a portion of the well casing.
Nonpublic Water Supply	A water system that has fewer than fifteen (15) service connections or serves less than twenty-five (25) people, or one that has more than fifteen (15) service connections or services more than twenty-five (25) people for less than sixty (60) days a year.
Nonregulated Well	A well used to supply water for a nonregulated use (a use of water less than twenty-five thousand (25,000) gallons per day, which is not required to have a water use permit).
Permitted Use	A use of water in excess of twenty-five thousand (25,000) gallons per day which requires a water use permit pursuant to Chapters 50 through 52 of the Department of Natural Resources' rules and Iowa Code Chapter 455B, Division III, Part 4.
Pitless Adapter	An assembly designed for attachment to a well casing which permits below-frost discharge from the well and allows vertical access to the interior of the well for the installation or removal of the pump or its appurtenances thereby eliminating the need for frost pits.
Polluted or Contaminated	Alteration of the physical, chemical, or biological quality of the water so that it is harmful or potentially injurious to the health of the user or for the intended use of the water.
Pumps and Pumping Equipment	Any equipment or materials utilized or intended for use in withdrawing or obtaining water for any use, including seals and tanks, together with fittings and controls.
Stuffing Box	An approved receptacle in which packing may be compressed to form a watertight or airtight junction between two objects.
Vertical Zone of Contamination	Depth of geological formation, generally near the ground surface, containing connecting pore spaces, crevices or similar openings, including artificial channels, such as protected wells, through which contaminated water may gain access to a well or to a ground water source.
Well	Any excavation that is drilled, driven, dug, bored, augured, jetted, washed or is otherwise constructed for the purpose of withdrawing water.
Well Seal	A device used to cap or seal a well that establishes or maintains a junction between the casing of the well and the piping, electric conduit or equipment installed therein, so as to prevent water or other foreign material from entering the well at the uppermost terminal.

1. Well cap - a snug-fitting, nonwatertight device used above flood level that excludes dust and vermin and allows for venting.
2. Sanitary seal - a watertight fitting used on wells that terminate in a frost pit or well house.

SECTION 2. APPLICABILITY. These provisions apply to all nonpublic water wells constructed after the effective date of this Ordinance and include existing water wells undergoing major rehabilitation or reconstruction. These provisions do not apply to irrigation or livestock wells unless such wells are part of or are connected to a water system, which services as a source of drinking water for humans; or through poor construction or operation such wells can allow significant contamination to enter ground water.

SECTION 3. GENERAL. The Muscatine County Board of Health shall have the authority to visit well sites during any phase of the work in progress without prior notice. The County may also require the issuance of permits, the posting of performance bonds, the submission of water well logs, and other data as necessary. The issuance of permits shall be coordinated with the withdrawal permits issued by the Iowa Department of Natural Resources.

SECTION 4. VARIANCES. Variances to these rules may be granted by the County provided sufficient and proposed alternative information is afforded to substantiate the need and propriety for such action. Variances and reasoning shall be in writing.

SECTION 5. LOCATION OF WELLS. Wells shall be located with due consideration given to the lot size, contour, porosity and absorbency of the soil, local ground water conditions, and other factors necessary to implement the basic rules contained herein. The lack of specific distances to other possible sources of contamination such as refuse disposal sites, buried oil and gasoline storage tanks, etc., does not minimize their potential hazard. These must be evaluated in each particular situation and a distance arrived at that is based on pertinent facts. The County authority should be called upon for assistance in determining a proper distance in these cases.

5.1 Minimum distance. The following minimum lateral distances shall apply for the common sources of contamination:

Sources of Contamination	Minimum Lateral Distance
Lagoons or waste treatment facilities and sanitary landfills	1,000 feet
Cesspools	150 feet
Preparation of storage area for spray materials, commercial Fertilizer or chemicals that may result in ground water contamination	150 feet
Drainage or improperly abandoned wells	100 feet
Soil absorption field, pit privy or similar disposal unit	100 feet
Confined feeding operations	100 feet
Septic tank, concrete vault privy, sewer or tightly joined tile or equivalent material, sewer-connected foundation drain, or sewers under pressure	50 feet
Ditches, streams or lakes	25 feet
Sewer of cast iron with leaded or mechanical joints, independent clear water drains, or cisterns	10 feet
Pump house floor drain draining to ground surface. (Drains must not be connected to any sewer or drainage system.)	5 feet

5.2 Access. A well shall be located so that it will be reasonably accessible for cleaning, treatment, repair, test, inspection and other maintenance. Wells shall not be located in basements.

5.3 Areas subject to flooding:

- a. Wells shall not be located in areas subject to flooding unless the casing is grouted and extends at least one foot above the level of the highest known flood and is equipped with a well cap, or is otherwise protected as prescribed in writing by the County.
- b. The ground surface immediately adjacent to the well casing shall be compacted and graded so that surface water is diverted away from the casing. Well platforms are not recommended other than indicated in Sections 7.1(a) and 9.3(c).

SECTION 6. STANDARDS FOR WELL CONSTRUCTION, MAJOR REHABILITATION OR RECONSTRUCTION.

6.1 Water use in construction. Water use in the construction process shall be obtained from a source that will not result in contamination of the well. Water used shall be chlorinated with a dosage of 50 mg/l (50 ppm) to prevent iron bacteria contamination.

6.2 Minimum protective depth of wells. All wells shall be watertight to such depths as is necessary to exclude pollution. Ordinarily, the top ten feet (10') of soil will be subject to intermittent contamination; and, in some cases, this zone may extend to even greater depths. Under no circumstances shall water be derived from a depth of less than twenty feet (20') unless a variance is granted.

6.3 Wells located within frost pits:

- a. In new construction, wells are not permitted to be located within frost pits since they present a sanitary hazard to the water supply by providing access of flood or surface waters to the well.

EXCEPTION: Wells are permitted to be located within frost pits of augured or bored wells, which do not penetrate consolidated formations. (See Section 7.2)

- b. When existing wells located within frost pits undergo major rehabilitation or reconstruction:
 - (1) The casing shall be extended as outlined in Section 5.3(a); a pit less adaptor shall be installed in accordance with Section 8.4; the curbing of the pit shall be removed at least two feet (2') below the ground surface; the area of the pit shall be filled with a clean backfill, tamped; and the area shall be graded in accordance with Section 5.3(b).
 - (2) The well casing shall be provided with a sanitary seal.

6.4 Frost pits located adjacent to wells. Frost pits that do not contain wells within are permitted for the purpose of housing pressure tanks, valves, etc., provided they are not located closer than ten feet (10') from any well. The walls of the frost pit are to be constructed of six inch (6") poured concrete, four inch (4") reinforced concrete, two inch (2") special concrete mix, vibrated and reinforced or eight inch (8") concrete blocks.

The junction of the walls and the water lines, electrical conduits and roof, etc., shall be watertight.

The roof of the frost pit shall be constructed of watertight four inch (4") minimum reinforced concrete, and any opening shall be provided with a raised curbing extending at least four inches (4") higher than established grade. A substantial watertight, overhanging, tight-fitting type cover shall be provided.

An independent floor drain, discharging to ground surface and fitted with a brass, bronze, or copper 16-mesh screen, to prohibit the entrance of pests, shall be provided.

- 6.5 Equipment located with the well casing.** In new construction, no equipment shall be located within the well casing except submersible pumps, pump jets, drop pipes, air lines, and the necessary wiring and switches to operate the pumping equipment. When existing wells undergo major rehabilitation or reconstruction, auxiliary equipment shall be removed from within the casing and be properly relocated to areas such as a pump house, basement, or frost pit as outlined in 6.4.
- 6.6 Well seals.** The uppermost terminal of all wells shall extend not less than twelve inches (12") above established grade and shall be equipped with an appropriate well cap or sanitary seal. When pump wiring or drop pipes extend through the seal, they shall be equipped with properly fitting grommets to exclude contamination.
- 6.7 Buried well seals.** Buried well seals, are not permitted on new construction where the casing terminated below ground surface. Existing installations, upon major reconstruction, rehabilitation or pump replacement, shall have the casing extended and the area graded as provided for in 5.3(b).
- 6.8 Vents.** Vents shall be constructed to exclude dust, birds, animals and insects, and shall terminate in an inverted U construction, the opening of which is at least twelve inches (12") above the ground surface and is covered with a brass, bronze, or copper 16-mesh screen.
- 6.9 Plumbness and alignment.** Casings, after installation, shall be sufficiently plumb and straight so as not to interfere with the installation and operation of the pump.
- 6.10 Criteria for well interference protection.** Chapter 54 of the Iowa Administrative Code provides an administrative means for owners of non-regulated wells to receive compensation for well interference caused by permitted uses. To be eligible for any future compensation for well interference, non-regulated wells constructed after July 1, 1986, must be constructed to allow for future well interference. This allowance shall be at least ten feet (10") or half the pumping drawdown in the well, whichever is greater, based on the design capacity of the new well. However, in no situation must the non-pumping water level be protected below the top of a confined aquifer to half the normal saturated thickness of an unconfined aquifer. Shallow aquifers, which are only slightly confined, may be classified as unconfined aquifers for this purpose. Flowing wells must be constructed to accommodate a pump capable of supplying a sufficient water supply when the non-pumping water level is at the top of a confined aquifer or a hundred feet (100') below the surface, whichever is higher. Consideration should be given to future conditions such as drought and reduced well efficiency.
- If a permitted use exists prior to the construction of a non-regulated well, no compensation for well interference will be allowed unless a significant change in the permitted use occurs. A physical change to withdrawal facilities may be considered a significant change to a permitted use (e.g., moving the withdrawal location, installing a new well, or installing a higher capacity pump.) Therefore, a person desiring to construct a non-regulated well should first obtain information concerning nearby permitted uses. The Department of Natural Resources will provide information on permitted uses upon request.
- 6.11 Access port for measurement of water levels.** New wells and wells which undergo rehabilitation or reconstruction shall be equipped with an access port having a minimum diameter of three-fourths inch (3/4"). The access port must be

fitted with a threaded cap or plug and be located to allow insertion of a steel tape or electric probe into the well for measurement of water levels. When a spool type of pit less adapter is used which obstructs the casing from having a clear opening to the water, a three-fourths inch (3/4") pipe must be attached to the spool and brought to the surface below the well cap to facilitate a water level probe.

SECTION 7. TYPES OF WELL CONSTRUCTION.

7.1 Drilled wells. Drilled wells are constructed in consolidated or unconsolidated formations and may penetrate more than one water-bearing formation. Good construction and development practices require the placement of grout in the annular space to prevent surface water from entering the formation and to prevent highly mineralized or polluted water from mingling with higher quality water. To facilitate the placement of this seal or grout, the diameter of the drill hole, for at least the uppermost twenty feet (20'), shall be a minimum of five inches (5") greater than the outside diameter of the casing. Casing shall then be grouted as provided for in Section 8.3.

- a. Drilled wells in unconsolidated formations. In no case shall less than twenty feet (20") of permanent casing be installed in wells drilled in unconsolidated formations. If caving is experienced and a liner pipe is to be left in place, the annular space between the permanent casing and the liner pipe shall be grouted in accordance with Section 8.3 for its entire length. If grouting in accordance with Section 8.3 is not possible, a monolithic, reinforced, concrete platform of sufficient thickness and depth to prevent cracking due to frost heave, which slopes away from the well, shall be installed at ground surface for a distance of not less than three feet (3') in all directions from the casing.
- b. Drilled wells in consolidated formation. Limestone and dolomites which are cracked, creviced, etc., should be viewed with suspicion as a source of ground water supply if they are the uppermost bedrock formation and have a thin mantle of overburden. As the depth of overburden decreases, there is an increased risk of contamination entering the formation.
 - (1) Earth mantle more than thirty feet (30') in thickness. Where these geological conditions exist, the casing shall be firmly seated into firm rock, and the annular space around the casing through the earth mantle shall be grouted in accordance with Section 8.3.
 - (2) Earth mantle less than thirty feet (30') in thickness. In instances where the earth mantle is less than thirty feet (30') in thickness, the well casing shall extend to a depth of at least forty feet (40') and be seated in firm rock, and the annular space grouted in accordance with Section 8.3.
 - (3) Rock below creviced formations. When the uppermost bedrock consists of creviced limestone or dolomite and the well is to obtain water from a lower formation, the casing shall be extended through the creviced formation and be seated in firm rock. In instances where shale underlies creviced limestone or dolomite formations, the casing shall extend through the shale and be seated in firm rock. The annular space shall be grouted in accordance with Section 8.3.

7.2 Bored or augured wells. Bored or augured wells shall be constructed with a watertight casing in a borehole that is at least six inches (6") greater than the outside diameter of the casing. This annular space shall be grouted in accordance with Section 8.3. Concrete pipe, vitrified pipe and similar precast jointed curbing shall not be used as casing in the uppermost ten feet (10') of the well unless properly grouted. In no case shall less than twenty feet (20") of casing be installed. When these materials are used for casing or when existing

dug or bored wells undergo major rehabilitation or reconstruction, they shall be constructed as follows:

- a. Buried slab-type construction.
 - (1) The concrete or vitrified pipe casing shall be terminated not less than ten feet (10') below ground surface.
 - (2) The casing shall be fitted with a reinforced concrete or steel plate a watertight steel or thermoplastic casing firmly attached. This casing shall be at least six inches (6") in diameter and shall extend from the plate to not less than twelve inches (12") above established grade.
 - (3) A 12-inch (12") concrete seal shall be poured over and around the plate.
 - (4) After the concrete seal has set, the annular space between the steel or thermoplastic casing and the borehole shall be backfilled with clean soil.
 - (5) During the backfilling process, the earth shall be thoroughly tamped to minimize settling. Grading around the well shall then be accomplished in accordance with Section 5.3(b).
- b. Bored wells with extended casing of concrete, vitrified pipe, etc. only allowed if written authority is provided by administrative authority.
 - (1) This type of casing shall be terminated not less than twelve inches (12") above finished grade.
 - (2) Since this type of casing has construction joints, the borehole shall not be less than six inches (6") greater than the outside diameter of the casing to a depth of not less than ten feet (10'), and the annular space shall be grouted per Section 8.3.
 - (3) A watertight, four inch (4") reinforced, concrete well cap shall be provided.
- c. The use of pitless adapters is recommended even in this type of construction. The pit less adaptor or other transition piping designed to extend through a watertight seal. A frost pit that is not located over the casing as outlined in Section 6.3(b) or a pump house as outlined in rule 49.8(135) of the Iowa Administrative Code may be used to house the pressure tank, valves, etc.
- d. Casing shall be installed prior to grouting in order that the grout can provide a sanitary seal. Augured or bored wells that do not penetrate consolidated formations may terminate in tile frost pits provided that the pit walls, floor, and cover are constructed and sealed to prevent contamination.
 - (1) Pit walls (concrete tile). The pit shall extend twelve inches (12") above natural grade. Pipe nipples or adapters for entrance of water line and electric conduit through walls shall be mechanically sealed or poured in place.
 - (2) Pit floor. The pit floor shall be constructed of neat cement or concrete, and the well casing shall extend at least six inches (6") above the floor.
 - (3) Pit, manhole or well cover. The pit, manhole or well cover shall be constructed of concrete and shall have a diameter two inches (2") larger than the outer diameter of the pit, manhole, or well opening. If manholes are provided, the joint between a manhole and the pit cover shall be raised at least two inches (2") above the top of the pit cover.

- (4) Pit excavation. The annular space between sides of the pit excavation and outer diameter of pit tiles shall be a minimum of two inches (2"). The annular space outside the pit wall shall be continuous with annual space outside the well casing.
- (5) Grouting. Grouting of the annular space of the pit and well shall be accomplished in one continuous operation and in accordance with Sections 7.2 and 8.3 except that in cases where concrete grout is applied from the surface, a mechanical concrete vibrator shall be employed by extending the vibrator to a depth of at least two feet (2') below the pit floor into the annular space outside the well casing during application of the grout.

7.3 Flowing artesian wells. Drilling operations shall extend into but not through the formation confining the water. The casing shall then be installed and the annular space grouted and allowed to set. After setting, the drill hole shall then be extended into the confining formation. Flow control from the well shall be provided by valved pipe connections or a receiving tank set at an altitude corresponding to that of the artesian head. Under no circumstances shall the water flow uncontrolled to waste. A direct connection between the discharge pipe and a receiving tank, sewer, or other source of contamination is prohibited.

7.4 Driven sandpoint wells. Through the vertical zone of contamination to a depth of not less than that indicated in Section 6.2, the non-perforated, watertight pipe of a driven well shall conform to the specifications as indicated in Table A. Protection against freezing shall be accomplished by requiring that a pitless adaptor as outlined in Section 8.4 or a frost pit as outlined in Section 6.4 is properly installed. Under no circumstances shall thermoplastic well casing be driven.

7.5 Springs. While springs are utilized as a water source in isolated instances, the quality of the water obtained there from varies greatly since they are merely a breakout of groundwater and are subject to intermittent contamination. Information regarding utilization of springs, as a source of water should be sought from the administration authority prior to its development.

SECTION 8. MATERIAL STANDARDS.

All materials utilized in well water construction shall conform to the standards of the American Water Works Association (AWWA), the American Petroleum Institute (API), the American Society for Testing and Materials (ASTM), and the National Water Well Association (NWWA) except as modified by these standards.

8.1 Water Well Casing.

a. Steel or iron water well casing and couplings.

- (1) Each length of casing shall be legibly marked in accordance with API or ASTM marking specifications showing the manufacturer's or processor's name or trademark, size in inches, weight in pounds per foot, whether seamless or welded (type of weld), and the API or ASTM specification or trade monogram.
- (2) Pipe used as casing in the permanent construction of a well stand be new pipe produced to recognized standards of the API or ASTM, or other grade weldable new pipe having a quality equal to or greater than those specified. All diameter steel shall have minimum weights and thickness as specified in Table A.
- (3) All casing pipe joints shall be watertight welded construction or threaded couplings.

- b. Thermoplastic water well casings and couplings. Only those water well casings and couplings complying with ANSI ASTM F-480-76 will be considered as conforming to these regulations. Under no circumstances shall be thermoplastic water well casing be driven.

8.2 Grouting guides. Protective casing that is to be grouted shall have sufficient guides attached to the casing so as to permit the unobstructed flow and deposition of grout.

8.3 Grouting. Materials and procedures for grouting shall be as follows:

- a. Concrete grout. The mixture shall consist of cement, sand and water, in the proportion of one bag cement (94 lbs.) and an equal volume of sand to not more than six (6) gallons of clean water. Concrete grout shall be used only on bored or augered well as noted in Section 7.2.
- b. Neat cement grout. The mixture shall consist of one bag of cement (94 lbs.) to not more than six (6) gallons of clean water. Additives such as bentonite, "aquajel", or similar materials may be added up to five percent (5%) by weight to increase fluidity and to control shrinkage.
- c. Heavy drilling fluid. When this material is used as grout in a rotary drilled well, it shall contain a high percentage of clay or bentonite to minimize shrinkage of the slurry within the annular space. Heavy bentonite water slurry is a mixture of ten percent (10%) by weight of bentonite added to clean water or approximately five percent (5%) bentonite added to drilling mud. Bentonite shall contain eighty-five percent (85%) of the mineral montmorillonite and shall meet API Standard 13A, March 1966.

Saline, acid or alkaline substances or other additives to cause a temporary increase in viscosity of the bentonite slurry are not permitted as a component of grouting material.

- d. Application. Grouting shall be performed by adding the mixture from the bottom of the annular space upward in one continuous operation until the annular space is filled or to the point of the pitless adaptor attachment. The only exception to this method of application is in situations such as the construction of bored or augered wells where the annular space is six inches (6") or greater to depths of not more than twenty feet (20'). In this saturation, the grout may be applied from the surface providing care is taken to ensure an even flow to all sides of the casing for the entire pour, which shall be continuous until the annular space is completely grouted.

8.4 Pitless adaptor units. Pitless adaptor units conforming to Pitless Adaptor Standard No. 1 (PAS-1) as promulgated by the Water Systems Council are considered as complying with these regulations. This standard is available for inspection at the Des Moines office of the Department of Natural Resources or may be obtained for personal use from the Pitless Adaptor Divisions, Water System Council, 212 North La Salle Street, Chicago, Illinois 60601.

SECTION 9. PUMP INSTALLATION.

9.1 Pump house appurtenances. When pump houses are utilized, they shall be constructed above established grade permitting access to the well and pump for maintenance and repair. The pump room shall be provided with an independent floor drain that discharges to ground surface. The outside opening of this drain line shall be fitted with a brass, bronze, or copper 16-mesh screen to exclude pests.

9.2 Pump house floors. The top of the well casing shall terminate at least twelve inches (12") above the pump house floor. The pump house floor shall be constructed of concrete that is not less than four inches (4") in thickness and is slopped away from the casing. A watertight seal of asphalt or similar material, to provide resiliency, shall be provided between the casing and the pump house floor.

9.3 Pumps and pumping equipment. All pumps shall be designed, installed and maintained so that priming is not required for ordinary use. Pumps that have unprotected openings into the interior of the pump or casing shall not be used.

- a. Submersible pumps. Submersible pump discharge lines shall leave the well through a properly installed pitless adaptor or through a sanitary seal.
- b. Other power pumps. Other power pumps located over the well shall be mechanically joined to the casing or on a pump foundation or stand in such a manner as to effectively seal the top of the well. A sanitary seal shall be used where the pump is not located over the well, and the pump delivery or suction pipe emerges from the top thereof. If these units are located in a basement, all suction lines shall be elevated at least twelve inches (12") above the floor and shall be encased in a protective galvanized steel pipe.
- c. Hand pumps or similar devices. Pumps of this type shall be fitted with a gasket and bolted securely to the platform to provide a watertight seal, have a closed spout, directed downward, and a pump rod that operates through a stuffing box.

SECTION 10. WELL DISINFECTION. All new, repaired or reconditioned wells or pump installations shall be thoroughly pumped of waste until all dirt and foreign materials are removed and the water is reasonably clear. The well shall then be disinfected with a calcium or sodium hypochlorite solution in a concentration of at least 100 parts per million (ppm).

SECTION 11. WATER ANALYSIS. After disinfecting the well or pump installations, as outlined in Section 10 a water specimen shall be submitted to the University Hygienic Laboratory at Iowa City (previously known as the State Hygienic Laboratory) or to another approved laboratory for bacterial and nitrate analysis. And the results shall be reported to the County.

SECTION 12. HYDROPNEUMATIC (PRESSURE) TANKS, FILTERS, AND MISCELLANEOUS WATER TREATMENT EQUIPMENT. Properly sized tanks, filters, and other treatment equipment shall be installed in accordance with the manufacturer's directions and shall maintain a pressure of fifteen (15) pounds at highest point usage under normal demand. Where applicable, AWAA Standards for Steel Tanks, Standpipes, Reservoir, and Elevated Tank Storage (D 100-59) shall be followed.

SECTION 13. ABANDONMENT OF WELLS. Abandoned wells are a hazard and shall be properly abandoned as outlined in Public Information Circular No. 11 entitled "Plugging Procedures for Domestic Wells" as proved by the Department. A copy of this circular is available for inspection at the Des Moines office of the Department of Natural Resources. Personal copies may be obtained from the Geological Survey Bureau of the Department, North Capital Street, Iowa City, Iowa 52242.

Abandoned wells may not be used for the disposal of garbage, septic tank sludge or effluents, as a receptacle for field tile drainage, or for any other type of unauthorized disposal of waste materials.

SECTION 14. JURISDICTION. The provisions of this regulation shall apply throughout Muscatine County, Iowa, including cities and towns therein; provided such cities have not adopted a Board of Health pursuant to Chapter 137, Code 1973, in which event the provisions of this regulation shall not apply to said City.

SECTION 15. VIOLATIONS AND PENALTIES. These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

**TABLE A
Minimum
casing pipe and coupling
weight and dimensions**

Size in Inches	Per Ft.		Pipe			Couplings		
	Threads & Coupling	Plain End	Thickness in Inches	Diameter External	Inches Internal	Threads per Inch	External Diameter Inches	Length in Inches
1	1.70	1.68	.133	1.315	1.049	11-1/2	1.576	2-5/8
1-1/4	2.30	2.27	.140	1.660	1.380	11-1/2	1.900	2-3/4
1-1/2	2.75	2.72	.145	1.900	1.610	11-1/2	2.200	2-3/4
2	3.75	3.65	.154	2.375	2.067	11-1/2	2.750	2-7/8
2-1/2	5.90	5.79	.203	2.875	2.469	8	3.250	2-15/16
3	7.70	7.58	.216	3.500	3.068	8	4.000	4-1/16
3-1/2	9.25	9.11	.226	4.000	3.548	8	4.625	4-3/16
4	11.00	10.79	.237	4.500	4.026	8	5.200	4-5/16
5	15.00	14.62	.258	5.563	5.047	8	6.296	4-1/2
6	19.45	18.97	.280	6.625	6.065	8	7.390	4-11/16
6-5/8	20.00	19.49	.288	6.625	6.049	8R	7.390	7-1/4
OD	20.00	19.54	.272	7.000	6.366	8R	7.657	7-1/4
7	25.55	24.70	.277	8.625	8.071	8	9.625	5-1-16
8	35.75	34.25	.307	10.750	10.136	8	11.750	5-9-16
10	45.45	43.77	.330	12.750	12.090	8	14.000	5-15-16
12	57.00	54.57	.375	14.000	13.250	8	15.000	6-3/8
14 OD	65.30	62.58	.375	16.000	15.250	8	17.000	6-3/4
16 OD	73.00	70.59	.375	18.000	17.250	8	19.000	7-1/8
18 OD	81.00	73.60	.375	20.000	19.250	8	21.000	7-5/8
20 OD								

R=Round Threads

ARTICLE III. REQUIREMENTS FOR PROPERLY PLUGGING ABANDONED WELLS

The purpose of this Ordinance is to adopt the rules of Iowa Code Section 455B.190, as amended by 1989 Iowa Acts, Senate File 441, concerning the procedures for the proper plugging of abandoned wells.

SECTION 1. DEFINITIONS.

- Abandoned Well Water well which is no longer in use or which is in such a state of disrepair that continued use for the purpose of accessing water is unsafe or impractical.
- Agricultural Lime All calcium and magnesium products sold for agricultural purposes in the oxide, hydrate, or carbonate form.
- Approved Accepted or acceptable under an applicable specification state or cited in these rules.
- Aquifer A water-bearing geologic formation capable of yielding a usable quantity of water to a well or spring.
- Bentonite A naturally occurring highly plastic, colloidal clay composed largely of the mineral montmorillonite which expands upon wetting.
- Bentonite Grout A mixture of ten percent (10%) processed bentonite (by weight) and water which is free of (or Slurry) contaminants, turbidity and settleable solids.
- Bentonite Pellets A form of processed bentonite, which can be used directly for sealing applications in well plugging operations.

Bentonite Products	The forms of bentonite, which can be used for sealing materials in wells, including, graded bentonite, bentonite pellets and bentonite grout.
Casing	A tubular retaining structure installed in an excavated hole to maintain the well opening.
Class 1 Well	A well one hundred feet or less in depth and eighteen inches or more in diameter.
Class 2 Well	A well more than one hundred feet in depth or less than eighteen inches in diameter or a bedrock well. Bedrock wells include: (a) wells completed in a single aquifer; (b) wells completed in a single unconfined aquifer; and (c) wells completed in multiple aquifers.
Class 3 Well	A sandpoint well or a well fifty feet or less in depth constructed by joining a screened drive point with lengths of pipe and driving the assembly into a shallow sand and gravel aquifer.
Concrete	A mixture of one sack (94 pounds) or portland cement, an equal amount by volume of sand and gravel or crushed stone and not more than six gallons of water which is free of contaminants, turbidity and settleable solids.
Confined Aquifer	An aquifer in which the groundwater is under pressure greater than atmospheric pressure. The static water level in a well tapping a confined aquifer rises to a level above the top of the aquifer.
Crushed Stone	Class A road stone (predominantly limestone) well graded with six to sixteen percent fines, which will pass a 200 sieve.
Department	The Department of Natural Resources created under Iowa Code Section 455A.2.
Designated Agent	A person other than the State, designated by a County Board of Supervisors to review and confirm that a well has been properly plugged.
Director	The director of the Department.
Filling Materials	Agricultural lime, soil, sand, gravel, crushed stone and pea gravel used to occupy space between and below sealing materials in abandoned wells being plugged.
Frost Pit	A sunken area located directly over or within four feet of a well and used to house the equipment for discharging water from a well into the water system.
Graded Bentonite	Bentonite, which is crushed and sized for pouring and easy handling. Like processed bentonite, it swells when hydrated with water and will form a plastic, essentially impermeable mass.
Gravel	Class B stone screened from river sand or quarried, and of such size as will pass a two and one-half inch screen one hundred percent (100%) and be retained one hundred percent (100%) on a three-quarter inch (3/4") screen.
Groundwater	Any water beneath the surface of the earth.
Grout	For the purposes of this chapter, a fluid mixture of cement and water (neat cement); sand, cement and water (sand cement grout); or bentonite and water (bentonite grout or slurry) of a consistency that can be forced through a pipe and placed as required.
Limestone	Sedimentary rock, which contains greater than fifty percent (50%) calcium carbonate and has a strong reaction with hydrochloric acid (HCl).
Neat Cement	A mixture of one sack (94 pounds) of portland cement to not more than six gallons of water, which is free from contaminants, turbidity or settleable solids. Bentonite up to two percent (2%) by weight of cement may be added to reduce shrinkage.

Owner	The titleholder of the land where an abandoned well is located.
Pea Gravel	Gravel sized from one-eighth inch to three-eighths inch in diameter.
Plug	The closure of an abandoned well with plugging materials by procedures which will permanently seal the well from contamination by surface drainage and permanently seal off the well from contamination into an aquifer. This involves the proper application of filling and sealing materials.
Processed Bentonite	Bentonite which has been kiln dried and processed into pellets for direct use in well sealing applications or into powder or coarse granules for use in bentonite grout for sealing.
Registered Water Well Contractor	A water well contractor registered with the department in accordance with Section 567 –Chapter 37.
Sand	Clean, medium-textured quartz (concrete sand) and shall be at least twenty-five percent (25%) with diameters between 2.0 and 0.25mm, less than thirty-five percent (35%) with diameters between 0.25 and 0.05 mm and less than five percent (5%) with diameters between 0.0002 and .05 mm.
Sandpoint Well	A small diameter water well constructed by joining a screened drive point with lengths of pipe and driving the assembly into a shallow sand and gravel aquifer.
Sand Cement Grout	A mixture of one sack (94 pounds) of portland cement, an equal amount of volume of sand and not more than six gallons of water, which is free from contaminants, turbidity and settleable solids.
Sealing	The proper placement of sealing materials into an abandoned well to seal off flow into, out of or between aquifers.
Sealing Materials	Bentonite products. Sealing materials may also include neat cement, sand cement grout and concrete.
Standby Well	A water well which is temporarily taken out of service with the expectation of being returned to service at a future date.
Static Water Level	The water level in a water well or aquifer when the well is not flowing or being pumped; sometimes referred to as the water line.
Tremie Pipe	A device, usually a small diameter pipe, that carries grouting materials to the bottom of the hole and which allows pressure grouting from the bottom up without introduction of air pockets.
Unconfined Aquifer	An aquifer in which the static water level does not rise above the top of the aquifer, i.e., the pressure of the water in the aquifer is approximately equal to that of the atmosphere.
Water Well	An excavation that is drilled, cored, bored, augered, washed, driven, dug, jetted or otherwise constructed for accessing groundwater.

SECTION 2. FORMS. The following form is currently in use: Abandoned Water Well Plugging Record #542-1226.

SECTION 3. ABANDONED WELL PLUGGING SCHEDULE.

- 3.1 **Class 1 Wells.** Wells abandoned prior to 3-1-90 must be properly plugged by July 1, 1995.
- 3.2 **Class 2 Wells.** Wells abandoned prior to 3-1-90 must be properly plugged by July 1, 2000.
- 3.3 **Class 3 Wells.** Wells abandoned prior to 3-1-90 must be properly plugged by July 1, 2000.
- 3.4 **Contamination sources.** All classes of wells abandoned prior to the effective date of this rule and located less than two hundred feet (200') from an active well supplying potable water or located less than six hundred sixty feet (660') from a point source of potential contamination which may include but is not limited to industrial waste site; uncontrolled hazardous waste sites; petroleum storage areas; hazardous waste treatment, storage, or disposal areas; agricultural chemical storage areas; animal feedlots, and wastewater treatment facilities. All must be properly plugged by July 1, 1993.
- 3.5 **Wells abandoned after the effective date of the rule.** All classes of well which are abandoned on or after the effective date of this rule must be properly plugged within ninety (90) days of the date of abandonment.

SECTION 4. ABANDONED WELL OWNER RESPONSIBILITIES.

- 4.1 **Plugging Requirements.** The owner is responsible for insuring the abandoned well is plugged pursuant to this Chapter.
- 4.2 **Affidavit.** It is the responsibility of the owner to certify, on DNR Form 542-1226 "Affidavit of Well Plugging", that an abandoned well has been plugged in accordance with the requirements and time schedule contained in this Chapter. This affidavit must include confirmation of the well plugging by the designated agent for the County or a registered water well contractor. Within thirty (30) calendar days of the date the plugging was completed, the owner shall submit to the department a copy of DNR Form 542-1226.

SECTION 5. ABANDONED WELL PLUGGING MATERIALS.

- 5.1 **Sealing Materials.** Approved sealing materials are bentonite products (grade bentonite, bentonite pellets and bentonite grout), neat cement, sand cement grout and concrete.
- 5.2 **Filling Materials.** Approved filling materials include agricultural lime, soil, sand, pea gravel, gravel and crushed stone. The filling materials shall be free of debris, foreign matter and any toxic or agricultural chemical residue. Filling materials are not required for well plugging.

SECTION 6. ABANDONED WELL PLUGGING PROCEDURES.

- 6.1 **Freedom from obstruction.** Abandoned wells must be checked before they are plugged in order to ensure there are no obstructions that may interfere with plugging operations. Drop pipes, check valves, pumps, and other obstructions shall be removed if practical.
- 6.2 **Class 1 Wells.** These wells may be plugged by pouring filling and sealing materials from the top of the well or by using tremie pipes, except for sand cement grout or concrete placed below the static water level, which must be

placed by tremie pipe or dump bailer.

Filling materials of sand, gravel, crushed stone, pea gravel or agricultural lime shall be placed up to one foot below the static water level; soils are not permitted below the static water level due to naturally occurring bacteriological, organic and inorganic contaminants. A minimum of one foot of bentonite pellets, graded bentonite or neat cement shall be placed on top of the filling material up to the static water level as a seal. Sand cement grout or concrete applied with a tremie pipe or dump bailer also may be used on top of the filing material up to the static water level and in standing water above the static water level to act as a seal. Filling material may then be added up to four feet below the ground surface.

It is preferable that the filling materials be omitted and that sealing materials be used to fill the entire well up to four feet below the ground surface. Sand cement grout or concrete shall be placed with a tremie pipe or dump bailer when used below the static water level.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of four feet below the ground surface and shall be capped by a minimum of one foot of bentonite pellets, graded bentonite, neat cement, sand cement grout or concrete. The cap shall extend six or more inches beyond the outside diameter of the top of the remaining well casing and shall terminate three feet below the ground surface. The remaining three feet (below the ground surface) shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

- 6.3 Class 2 Wells Other Than Bedrock Wells.** Filling material consisting of sand, gravel, crushed stone or pea gravel shall be placed in the bottom of the well up to four feet below the static water level. A minimum of four feet of sealing materials consisting of any bentonite products or neat cement shall be added above the filling material up to the original static water level. If bentonite grout or neat cement is used, it shall be placed by tremie pipe. If graded bentonite or bentonite pellets are used, they may be added by pouring in place and agitating to avoid bridging. Sealing materials shall be added above the static water level up to four feet below the ground surface. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout or concrete terminating four feet below the ground surface. It is preferable that the filling materials be omitted and that sealing materials be used to fill the entire well up to four feet below the ground surface.

Casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of four feet below the ground surface. The remaining four feet shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

- 6.4 Class 2 Bedrock Wells.** If the details of well construction are unknown, the well shall be tremied full of neat cement or bentonite grout up to four feet below the ground surface. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout or concrete terminating four feet below the ground surface.

The casting pipe and any curbing, frost pit or pump house structure shall be removed to a depth of four feet below the ground surface. The remaining four feet shall then be backfilled with soil and the surface shall then be graded to divert water away from the abandoned well location.

- a. Bedrock wells completed in a single confined aquifer. Before proceeding to plug the well, a bridge plug or packer shall be placed at or below the bottom of the casing to stop the flow of water where the pressure in the confined aquifer causes the water to flow from the well to the surface. In such cases,

filling materials shall be placed in the lower portion of the well before the bridge plug or packer is set.

Filling material consisting of pea gravel, crushed stone or gravel shall be placed from the bottom of the well up to ten feet below the bottom of the casing or confining layer, whichever is lower. Sealing materials consisting of any bentonite products, sand cement grout or neat cement shall be placed from the top of the filling material to at least ten feet (10') above the bottom of the casing or confining layer or to the static water level, whichever is higher. If bentonite grout, neat cement or sand cement grout is used, it shall be placed by tremie pipe. If bentonite pellets or graded bentonite are used, they shall be added by pouring in place and agitating to avoid bridging. The casing shall then be filled up to four feet below the ground surface with sealing materials. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout or concrete terminating four feet below the ground surface.

It is preferable that the filling materials be omitted and that approved sealing materials be used to fill the entire well up to four feet below the ground surface.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of four feet below the ground surface. The remaining four feet shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

- b. Bedrock wells completed in a single unconfined aquifer. The plugging procedure for these wells is the same as for bedrock wells completed in a single confined aquifer except that a bridge plug or packer is not required to stop the flow of water since this problem will not exist in this type of well.
- c. Bedrock wells completed in multiple, aquifers. For the lowest aquifer, filling material consisting of pea gravel, crushed stone or gravel shall be placed from the bottom of the well up to ten feet below the bottom of the casing or confining layer, whichever is lower. Neat cement tremied in place shall then be placed as a sealing material on top of the fill and extend upward at least twenty feet (20'). Sealing materials shall then be placed in at least the top ten feet (10') feet of each subsequent aquifer and extend at least ten feet (10') into the confining layer of casing above. The same type of filling materials and sealing procedures shall apply for each subsequent aquifer. Filling material may be placed from the top of the uppermost aquifer seal up to the static water level of the well. The casing shall then be filled with approved sealing or filling materials to four feet below the ground surface. If bentonite grout is used from the static water level to the top of the well, it should be capped by neat cement, sand cement grout, or concrete terminating four feet below the ground surface.

It is preferable that the filling materials be omitted and approved sealing materials be used to fill the entire well up to four feet below the ground surface. Sand cement grout or concrete shall be applied with a tremie line or dump bailer when applied below the static water level.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of four feet (4') below the ground surface. The remaining four feet (4') shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

- 6.5 Class 3 Wells.** The preferred method of plugging a sandpoint well is to pull the casing and sandpoint out of the ground, allowing the hole to collapse and fill. If the sandpoint and casing cannot be extracted, they shall be tremied full of neat cement or completely sealed with bentonite products.

The casing pipe and any curbing, frost pit or pump house structure shall be removed to a depth of four feet (4') below the ground surface. The remaining four feet (4') shall then be backfilled with soil and graded so that surface water is directed away from the abandoned well location.

SECTION 7. DESIGNATED AGENT. A County's Board of Supervisors shall appoint an individual to be responsible to review and confirm an abandoned well to be properly plugged as required by 567--39.7 and authorized by 455B.190.5. The designation is effective upon notification to the Department by the Chairperson of the Board of Supervisors. This notification will include the identity of the designated agent and the length of appointment. Changes in a designated agent will require new notification by the Chairperson to the Department.

SECTION 8. DESIGNATION OF STANDBY WELLS.

8.1 Standby Wells. A standby well must be disinfected prior to being taken out of use for a long period of time and must be disinfected and, as a minimum, checked for bacteria and nitrates when placed back in service. Disinfection of standby wells shall be done in accordance with AWWA (American Water Works Association) Standard A100. The well must not be subject to contamination by surface drainage or from other causes, and the well casing must be provided with an air-tight cover when the well is not in use.

8.2 Caveat. Nothing in these rules shall be construed as exempting public water supply wells from requirements set forth in the environmental protection commission rules, 567--Iowa Administrative Code.

SECTION 9. VARIANCES. In accordance with Iowa Code Section 455B.181, a variance to these rules may be granted by the Department provided sufficient information is submitted in writing to the Department to substantiate the need for a variance and to assure the protection of all aquifers penetrated by the affected well. When satisfactory justification has been submitted to the Director substantially demonstrating that a variance to these rules will result in equivalent effectiveness or improved effectiveness, a variance to these rules may be granted by the Director. A denial of a variance may be appealed to the Environmental Protection Commission pursuant to 567--Chapter 7.

SECTION 10. JURISDICTION. The provisions of this regulation shall apply throughout Muscatine County, Iowa, including cities and towns therein; provided such cities have not adopted a Board of Health pursuant to Chapter 137, Code 1973, in which event the provisions of this regulation shall not apply to said City.

SECTION 11. VIOLATIONS AND PENALTIES. These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

CHAPTER II.

PRIVATE SEWAGE DISPOSAL SYSTEMS

The purpose of this ordinance is to adopt the rules of the Iowa Administrative Code (Chapter 69) concerning the minimum standards of private sewage disposal systems.

SECTION 1. DEFINITIONS.

Administrative Authority	The Muscatine County Board of Health.
Aerobic Treatment Unit	A disposal system employing bacterial action which is maintained by the utilization of air or oxygen and includes the aeration plant and equipment and the method of final effluent disposal.
Approved	Accepted or acceptable under an applicable specification stated or cited in these rules or accepted by the administrative authority as suitable for the proposed use.
Area Drain	A drain installed to collect surface or storm water from an open area of a building or property.
Building Drain	That part of the lowest horizontal piping of a drainage system which receives the discharge from soil, waste, and other drainage pipes inside the walls of any building and conveys the same to the building sewer.
Building Sewer	That part of the horizontal piping from the building wall to its connection with the main sewer or the primary treatment portion of a private sewage disposal system conveying the drainage of a building site.
Chamber System	A buried structure, typically with a domed or arched top, providing at least a 6-inch height of sidewall soil exposure below the invert of the inlet and creating a covered open space above a buried soil infiltrative surface.
Conventional	When used in reference to sewage treatment, a soil absorption system involving a series of 2- to 3-foot-wide trenches filled with gravel 1 foot deep, containing a 4-inch-diameter rigid pipe or other alternative trench technologies to convey the sewage effluent.
Department	Iowa Department of Natural Resources.
Distribution Box	A structure designed to accomplish the equal distribution of wastewater two or more soil absorption trenches.
Domestic Sewage or Domestic Wastewater	The water-carried waste products from residences, public buildings, institutions, or other buildings, including bodily discharges from human beings together with groundwater infiltration and surface water as may be present.
Drip Irrigation	A form of subsurface soil absorption using shallow pressure distribution with low-pressure drip emitters.
Drop Box	A structure used to divert wastewater flow into a soil absorption trench. When the trench is filled to a set level, the drop box then allows any additional wastewater not absorbed by that trench to flow to the next drop box or soil absorption trench.
Dwelling	Any house or place used or intended to be used by humans as a place of residence.
Environ- Mentalist	Shall refer to the County Enforcement Officer who is not a physician, but shall be the inspecting officer responsible to the County Board of Supervisors for the

enforcement of the provisions of this ordinance.

Expanded Polystyrene (EPS) Aggregate Systems	Cylinders comprised of expanded polystyrene (EPS) synthetic aggregate contained in high-polyethylene netting. The cylinders are 12 inches in diameter and are produced both with and without a distribution pipe. Cylinders may be configured in a trench, bed, at-grade and mound applications to obtain the desired width, height and length. Cylinders containing a distribution pipe shall be connected end-to-end with an internal coupling device.
Fill Soil	Clean soil, free of debris or large organic material, which has been mechanically moved onto a site and has been in place for less than one year.
Foundation Drain	That portion of a building drainage system which is provided to drain groundwater, not including any wastewater, from the outside of the foundation or over or under the basement floor and which is not connected to the building drain.
Free Access Filter	An intermittent sand filter constructed within the natural soil or above the ground surface, with access to the distributor pipes and top of the filter media for maintenance and media replacement.
Gravel	Stone screened from river sand or quarried and washed free of clay and clay coatings. Concrete aggregate designated as Class II by the department of transportation is acceptable.
Gravelless Pipe System	A soil absorption system comprised of 10-inch-diameter corrugated plastic pipe, perforated with holes on a 120-degree arc centered on the bottom, wrapped in a sheath of geotextile filter wrap, and installed level in a trench without gravel bedding or cover.
Grease Inceptor	A watertight device designed to intercept and retain or remove grease and fatty substances. The device may be located inside (grease separator) or outside (grease tank or grease trap) a facility.
Intermittent Sand Filter	A bed of granular materials 24 to 36 inches deep underlain by graded gravel and collecting tile. Wastewater is applied intermittently to the surface of the bed through distribution pipes, and the bed is under drained to collect and discharge the final effluent. Uniform distribution is normally obtained by dosing so as to utilize the entire surface of the bed. Filters may be designed to provide free access (open filters) or may be buried in the ground (buried filters or subsurface sand filters).
Lake	A natural or man-made impoundment of water with more than one acre of water surface area at the high water level.
Limiting Layer	Bedrock, seasonally high groundwater level, or any layer of soil with a stabilized percolation rate exceeding 60 minutes for the water to fall one inch.
Mound System	An aboveground soil absorption system used to disperse effluent from septic tanks in cases in which a seasonally high water table, high bedrock conditions, slowly permeable soils, or limited land areas prevent conventional subsurface soil absorption systems.
Packed Bed Media Filter	A watertight structure filled with uniformly sized media that is normally placed over an underdrain system. The wastewater is dosed onto the surface of the media through a distribution network and is allowed to percolate through the media to the underdrain system. The underdrain collects the filtrate and discharges the final effluent.
Percolation Test	A falling water level procedure used to determine the ability of soils to absorb primary treated wastewater.
Pond	A natural or man-made impoundment of water with a water surface area of one acre

or less at the high water level.

Pretreated Effluent	Septic tank effluent treated through aeration or other methods that, upon laboratory analysis, meets or exceeds a monthly average for biochemical oxygen demand (BOD) of 30 mg/L and total suspended solids (TSS) of 30 mg/L.
Primary Treatment Unit	A unit or system used to separate the floating and settleable solids from the wastewater before the partially treated effluent is discharged for secondary treatment.
Private Sewage Disposal System	A system which provides for the treatment or disposal of domestic sewage from four or fewer dwelling units or the equivalent of less than 16 individuals on a continuing basis. This includes domestic waste, whether residential or nonresidential, but does not include industrial waste of any flow rate except as provided for in Iowa Administrative Code Chapter 68, 567-68.11(455B). Private sewage disposal system includes, but is not limited to, septic tanks, holding tanks for waste, chemical toilets, impervious vault toilets and portable toilets.
Professional Soil Analysis	An alternative to the percolation test which depends upon a knowledgeable person evaluating the soil characteristics, such as color, texture, and structure, in order to determine an equivalent percolation or loading rate. A person performing a professional soil analysis shall demonstrate training and experience in soil morphology, such as testing absorption qualities of soil by the physical examination of the soil's color, mottling, texture, structure, topography, and hillslope position.
Qualified Sampler	For the purposes of collecting compliance effluent samples required under NPDES General Permit No. 4, means one of the following persons: a city or county environmental health staff person; an Iowa-certified wastewater treatment operator; or an individual who has received training approved by the department to conduct effluent sampling.
Roof Drain	A drain installed to receive water collecting on the surface of a roof and discharging into an area or storm drain system.
Secondary Treatment System	A system which provides biological treatment of the effluent from septic tanks or other primary treatment units to meet minimum effluent standards as required in these rules and NPDES General Permit No. 4. Examples include soil absorption systems, media filters, aerobic treatment units, or other systems providing equivalent treatment.
Septage	The liquid and solid material pumped from a septic tank, cesspool, or similar domestic sewage treatment system, or from a holding tank, when the system is cleaned or maintained.
Septic Tank	A watertight structure into which wastewater is discharged for solids separation and digestion (referred to as part of the closed portion of the treatment system).
Sewage Sludge	Any solid, semisolid, or liquid residue removed during the treatment of municipal wastewater or domestic sewage. "Sewage sludge" includes, but is not limited to, solids removed during primary, secondary, or advanced wastewater treatment, scum septage, portable toilet pumping, Type III marine device pumping as defined in 33 CFR Part 159, and sewage sludge products. Sewage sludge does not include grit, screenings, or ash generated during the incineration of sewage sludge.
Stream	Any watercourse listed as a "designated use segment" in rule 567—61.3(455B) which includes any watercourse that maintains flow throughout the year or contains sufficient pooled areas during intermittent flow periods to maintain a viable aquatic community.
Subsurface	A system in which the effluent from the primary treatment unit is

Sand Filter	discharged into perforated pipes, filtered through a layer of sand, and collected by lower perforated pipes for discharge to the surface or to a subsurface soil absorption system. A subsurface sand filter is an intermittent sand filter that is placed within the ground and provided with a natural topsoil cover over the crown of the distribution pipes.
Subsurface Soil forming a series of Absorption System	A system of perforated conduits connected to a distribution system, water-carrying channels into which the primary treated effluent is discharged for direct absorption into the soil (referred to as part of the open portion of the treatment system).

SECTION 2. GENERAL REGULATIONS.

2.1 Connections to approved sewer system.

- a. No private sewage disposal system shall be installed, repaired, or rehabilitated where a publicly owned treatment works (POTW) is available or where a local ordinance requires connection to a POTW. The POTW may be considered as unavailable when such POTW, or any building or any exterior drainage facility connected thereto, is located more than 200 feet from any proposed building or exterior drainage facility on any lot or premises which abuts and is served by such POTW. Final determination of availability shall be made by the administrative authority.
- b. When a POTW becomes available within 200 feet, any building then served by a private sewage disposal system shall be connected to said POTW within a time frame or under conditions set by the administrative authority.
- c. When a POTW is not available, every building wherein persons reside, congregate, or are employed shall be provided with an approved private sewage disposal system.
- d. Approval of the sewage disposal system by the Environmentalist shall be obtained before a connection may be made to a public water supply.
- e. Approval of the sewage disposal system by the Environmentalist shall be obtained before connections may be made to any individual or quasi-public water supply.
- f. Any structure occupied by humans, which is not connected to an approved private sewage disposal system, may be designated as unfit for human habitation by the Environmentalist. Any structure that has been designated as unfit for human habitation and has been so placarded shall be vacated within the time limit specified by the Environmentalist.
- g. Whenever an order has been issued by the Environmentalist, designating a structure as unfit for human habitation, and the owner and/or occupant fails, neglects or refuses to vacate the same, the Environmentalist may apply to a court of competent jurisdiction for an order requiring that the structure be vacated.
- h. If a building is to be connected to an existing private sewage disposal system, that existing system shall meet the standards of these rules and be appropriately sized.

2.2 Discharge restrictions. It is prohibited to discharge any waste water from private sewage disposal systems (except as permitted in this ordinance) to any ditch, stream, pond, lake, natural or artificial waterway, county drain tile, surface water drain tile, or land drain tile, to the groundwater, or to the surface of the ground. Under no conditions shall effluent from private sewage disposal systems be discharged to any abandoned well, agricultural drainage well or sinkhole. Existing

discharges to any of the above-listed locations or structures shall be eliminated by the construction of a system in compliance with the requirements of these rules.

2.3 Construction or alteration permit required. All private sewage disposal systems constructed or altered after March 18, 2009, shall comply with these rules and regulations. Alteration includes any changes that affect the treatment or disposal of the waste.

2.4 Abandonment permit required. No private sewage disposal systems shall be abandoned unless an abandonment permit issued by the administrative authority has been obtained. Private sewage disposal systems that are abandoned shall have the septic tank pumped, the tank lid crushed into the tank, and the tank filled with sand or soil.

2.5 Minor repairs permit required. No private sewage disposal system shall be repaired unless a minor repair permit issued by the administrative authority has been obtained. The installation shall be in accordance with these rules.

2.6 Time of Transfer inspections.

a. Inspections required. Prior to any transfer of ownership of a building where a person resides, congregates, or is employed that is served by a private sewage disposal system, the sewage disposal system serving the building shall be inspected. In the event that weather or other temporary physical conditions prevent the certified inspection from being conducted, the buyer shall execute and submit a binding agreement with the county board of health to conduct a certified inspection of the private sewage disposal system at the earliest practicable time and to be responsible for any required modifications to the private sewage disposal system as identified by the certified inspection. In the event that all parties agree the existing private sewage disposal system will not pass inspection, the buyer may forego the inspection and execute a binding agreement with the county board of health to install a private sewage disposal system compliant with this rule at a time specified by the administrative authority. The inspection requirement applies to all types of ownership transfers not specifically exempted, including when a seller-financed real estate contract is signed.

1. Inspection exemptions. The following types of real estate transactions are exempt from the inspection requirement. However, the discharge restrictions in Section 22 shall always apply.

(a) A transfer made pursuant to a court order, including but not limited to a transfer under Iowa Code chapter 633 or 633A, the execution of a judgment, the foreclosure of a real estate mortgage pursuant to Iowa Code chapter 654, the forfeiture of a real estate contract under Iowa Code chapter 656, a transfer by a trustee in bankruptcy, a transfer by eminent domain, or a transfer resulting from a decree for specific performance.

(b) A transfer to a mortgagee by a mortgagor or successor in interest who is in default, a transfer by a mortgagee who has acquired real property as a result of a deed in lieu of foreclosure or has acquired real property under Iowa Code chapter 654 or 655A, or a transfer back to a mortgagor exercising a right of first refusal pursuant to Iowa Code section 654.16A.

(c) A transfer by a fiduciary in the course of the administration of a decedent's estate, guardianship, conservatorship, or trust.

- (d) A transfer between joint tenants or tenants in common.
 - (e) A transfer made to a spouse or to a person in the lineal line of consanguinity of a person making the transfer.
 - (f) A transfer between spouses resulting from a decree of dissolution of marriage, a decree of legal separation, or a property settlement agreement which is incidental to the decree, including a decree ordered pursuant to Iowa Code Chapter 598.
 - (g) A transfer in which the transferee intends to demolish or raze the building.
 - (h) A transfer of property with a system that was installed not more than two years prior to the date of the transfer.
 - (i) A deed arising from a partition proceeding.
 - (j) A tax sale deed issued by the County Treasurer.
 - (k) A transfer for which consideration is \$500 or less.
 - (l) A deed between a family corporation, partnership, limited partnership, limited liability partnership, or limited liability company as defined in Iowa Code section 428A.2, subsection 15, and its stockholders, partners, or members for the purpose of transferring real property in an incorporation or a corporate dissolution or in the organization or dissolution of a partnership, limited partnership, limited liability partnership, or limited liability company under the laws of this state, where the deed is given for no actual consideration other than for shares or for debt securities of the family corporation, partnership, limited partnership, limited liability partnership, or limited liability company.
2. Inspection criteria. If a private sewage disposal system is failing to ensure effective wastewater treatment or is otherwise improperly functioning, the private sewage disposal system shall be renovated to meet current construction standards, as adopted by the State of Iowa, either by the seller or, by agreement, within a reasonable time period as determined by the, administrative authority, by the buyer. If the private sewage disposal system is properly treating the wastewater and not creating an unsanitary condition in the environment at the time of inspection, the system is not required to meet current construction standards. However, the discharge restriction in Section 2.2 shall always apply.
 3. Inspection validity. An inspection is valid for a period of two years for any ownership transfers during that period.
- b. Certified time of transfer inspectors. Inspections shall be conducted by an inspector certified by the State of Iowa.
 - c. Obligations of the Certified Inspector.
 1. Certified inspectors shall conduct time of transfer inspections according to this rule.

2. Following an inspection, the inspection form and any attachments shall be provided to the county environmental health department for enforcement on any follow-up mandatory improvements to the system, to the department for record, and to the person ordering the inspection.
- d. Inspection procedures. Inspection procedures. Inspections shall be conducted as follows:
1. Inspection form. The inspection shall be conducted using DNR Form 542-0191, Time of Transfer Inspection Report.
 2. Record search. Prior to an inspection, the certified inspector shall contact the administrative authority to obtain any permits, as-built drawings or other information that may be available concerning the system being inspected. Information may also be obtained from service providers or the homeowner. If an as-built drawing is available, the system inspection shall verify that drawing. If no as-built drawing is available, the inspector shall develop an as-built drawing as part of the inspection.
 3. Septic tank. At the time of inspection, any septic tank(s) existing as part of the sewage disposal system shall be opened and have the contents pumped out and disposed of according to 567—Chapter 68. In the alternative, the owner may provide evidence of the septic tank's being properly pumped out within three years prior to the inspection by a commercial septic tank cleaner licensed by the State of Iowa which shall include documentation of the size and condition of the tank and its components at the time of such occurrence. If the septic tank(s) is opened, the condition of the tank and its components shall be documented and included in the final report.
 4. Pumps and pump chambers. Pump chambers or vaults shall be opened for inspection, and the pump shall be tested to ensure proper operation.
 5. Secondary treatment. Proof that a secondary treatment system is in place must be provided. This proof may include, but is not limited to:
 - (a) Opening a distribution box or uncovering a header pipe for a soil absorption system. Existing distribution boxes shall be opened for inspection.
 - (b) Verification of the existence of a sand filter by locating the vents and discharge pipe.
 - (c) Locating and opening the lid(s) of an advanced treatment unit.
 - (d) Absorption fields shall be probed to determine their condition. The condition of the fields shall be noted on the inspection report. The condition of the absorption field may also be determined with a hydraulic loading test.
 6. Discharging systems. An effluent test shall be performed on any legally discharging private sewage disposal system. The effluent quality shall meet the requirements of NPDES General Permit No. 4 for CBOD5 and TSS. The test results shall be included in the inspection report.

The certified inspector shall report the location of the discharge point of a legally discharging private sewage disposal system and the discharge point's proximity to a perennial stream or drainage tile.

7. Packaged treatment units. An advanced treatment unit, such as an aerobic treatment unit, textile filter, peat filter or fixed activated sludge treatment system, shall be inspected according to the manufacturer's recommendations.
8. Other systems and system components. Private sewage disposal systems not mentioned above shall be inspected for code compliance, and an effluent sample shall be taken if applicable. Any components of the private sewage disposal system not mentioned above shall be inspected for proper function. Examples of other components include, but are not limited to, effluent screens, tertiary treatment systems, disinfection devices, alarms, control boxes and timers.
9. Inspection reports. Following an inspection, the inspection form and a narrative report describing the condition of the private sewage disposal system at the time of the inspection shall be provided to the county environmental health department, to the State of Iowa for record, and to the person who ordered the inspection.

The certified inspector shall provide the completed inspection report to the county environmental health office within ten business days of the inspection date.

SECTION 3. SITE ANALYSIS.

- 3.1 Site evaluation. A site evaluation shall be conducted by the administrative authority prior to issuance of a construction permit. Consideration shall be given to, but not be limited to, the impact of the following: topography; drainage ways; terraces; floodplain; percent of land slope; location of property lines; location of easements; buried utilities; existing and proposed tile lines; existing, proposed and abandoned water wells; amount of available area for the installation of the system; evidence of unstable ground; alteration (cutting, filling, compacting) of existing soil profile; and soil characteristics determined from a soil analysis, percolation tests, and soil survey maps if available.
 - a. Soil survey reports. During a site analysis and investigation, maximum use should be made of soil survey reports, which are available from USDA Natural Resources Conservation Service. A general identification of the percolation potential can be made from soil map units in Iowa. Verification of the soil permeability of the specific site must be performed.
 - b. Final inspections. All newly constructed private sewage disposal systems shall be inspected by the administrative authority before the system is backfilled or at a time prescribed by the administrative authority. A final as-built drawing shall be made as part of the final inspection.
 - c. Onsite wastewater tracking system. All pertinent information including, but not limited to, the site address, owner, type, date of installation, and as-built drawing of the private sewage disposal system shall be entered into the State of Iowa's web-based onsite wastewater tracking system.
- 3.2 Minimum distances. All private sewage disposal systems shall be located in accordance with the minimum distances shown in Table I.

Table I

Minimum Distance in Feet From	Closed Portion Of Treatment System(1)	Open Portion Of Treatment System (2)
Private water supply well	50	100
Shallow public water supply well(3)	200	400
Deep public water supply well (4)	100	200
Groundwater heat pump borehole	50	100
Lake or reservoir	50	100
Stream or pond	25	25
Edge of drainage ditch	10	10
Dwelling or other structure	10	10
Property lines (unless a mutual easement is signed and recorded)	10	10
Other type of subsurface treatment system	5	10
Water lines continually under pressure	10	10
Suction water lines	50	100
Foundation drains or subsurface tiles	10	10

- (1) Includes septic tanks, aerobic treatment units, fully contained media filters and impervious vault toilets.
- (2) Includes subsurface absorption systems, mound systems, intermittent sand filters, constructed wetlands, open bottom media filters and waste stabilization ponds.
- (3) "Shallow well" means a well located and constructed in such a manner that there is not a continuous layer of low-permeability soil or rock (or equivalent retarding mechanism acceptable to the department) at least 5 feet thick, the top of which is located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.
- (4) "Deep well" means a well located and constructed in such a manner that there is a continuous layer of low-permeability soil or rock at least 5 feet thick located at least 25 feet below the normal ground surface and above the aquifer from which water is to be drawn.

SECTION 4. PERMIT REQUIRED.

4.1 No person shall construct, alter, extend, repair or abandon a private sewage disposal system within the County of Muscatine, State of Iowa, until a permit has been obtained from the Office of Environmentalist.

- a. A permit shall be obtained for each separate piece of the work.
 - 1. Private sewage disposal system installation or replacement of primary or secondary treatment.
 - 2. Repair of any portion of a private sewage disposal system (not altering the size or treatment of the system).
 - 3. Abandonment of a septic tank.
- b. Permits shall be displayed during the construction period so as to be plainly visible at the construction site.
- c. No individual sewage disposal system shall be covered or so constructed so as to deny final inspection by the Environmentalist.
- d. If the work for which the permit was issued is not completed within one (1) year from the date of issuance, the permit shall automatically expire, if an extension permit has not been requested and issued prior to the expiration date.
- e. An annual Operation Permit is required for every private sewage disposal system that discharges requiring an IDNR NPDES general permit #4.

Operation Permit requiring sampling twice a year (IDNR NPDES # 4)

- 4.2** Application for permit. Permits shall be obtained from the Office of Environmentalist, provided by the Muscatine County Board of Health, prior to beginning work.
- a. The application shall include the name and business address of the person, firm, corporation, or other association that is to do the work, the name of the owner of the property, the name of the occupant, a description of the property (Section, Township and Range) where the work is to be done and such other pertinent information as may be required.
 - b. The application shall be accompanied by plans and specifications, showing accurately the size, materials and location of all proposed construction, alteration, extension or repair of said sewage disposal system.
 - c. All applications for permits for absorption systems within Muscatine County, shall be accompanied by soil porosity (percolation) test or soil analysis, certified by a registered engineer or an agent approved by the Muscatine County Board of Health.
- 4.3** Fees. The following non-refundable fees apply:
- a. Each application for a permit shall be accompanied by a non-refundable fee set by the Muscatine County Board of Supervisors and payable to the Muscatine County Treasurer. (Refer to current Fee Schedule)
 1. Septic Construction Permit
 2. Septic Repair Permit
 3. Septic Abandonment Permit
 4. Annual Operation Permit
 5. Extension Permit
 6. Administrative Fee: For an annual operation permit which is delinquent and a citation is served on the owner for payment.
- 4.4** Action by Environmentalist. Within thirty (30) days of receiving an application for permit, the Environmentalist shall review the application, confer with the applicant, and act upon the application as originally submitted or modified.
- a. If the application is disapproved the decision shall be made in writing and shall identify the deficiency of the application. The applicant may then submit a revised application, together with revised plans and specifications if requested, without payment of any additional fee.
 - b. If the application is approved, the Environmentalist shall issue a permit.
 - c. If in the course of work, changes from the original plans and specifications are needed, amended plans and specifications shall be submitted to the Office of the Environmentalist.
 - d. The Environmentalist will be notified in person or in writing at least twenty-four hours before the work is to be inspected or tested. Office hours are Monday through Friday 8:00 a.m. to 4:00 p.m.
- 4.5** Emergency work. In the event of an emergency situation, work may be initiated without first obtaining a permit. However, a permit must be obtained within a reasonable time after passage of the emergency. All emergency work must be done in conformity with the provisions of this ordinance and shall be inspected by the Environmentalist for full compliance.

4.6 Subdivision Requirements.

- a. Any person proposing to create a subdivision after the effective date of this ordinance shall submit to the Board of Health, for approval, plans clearly showing that the provisions of this regulation can be adequately met before any construction is started or before any of the lots in the subdivision are sold or offered for sale.
- b. Wherever feasible, the proposed subdivision shall be served by extension of an existing public sanitary sewer system.
- c. Where a public sanitary sewer system is not reasonably accessible to serve the proposed subdivision, the subdivider shall submit to the Board of Health plans and specifications for individual sewage disposal systems showing the total area to be used, location and size of all lots, topography and soil conditions and the results of percolation test.
- d. Lots in subdivisions created after the effective date of this regulations on which individual sewage disposal systems for dwellings are to be installed shall contain at least fifteen thousand square feet (15,000') where public water is available and a public sewer is not available and where neither public water nor public sewer is available the minimum lot size shall be twenty thousand square feet (20,000').

SECTION 5. REQUIREMENTS WHEN EFFLUENT IS DISCHARGED INTO SURFACE WATER.

All discharges from private sewage disposal systems which are discharged into, or have the potential to reach, any designated waters of the state or subsurface drainage tile shall be treated in a manner that will conform with the requirements of NPDES General Permit No. 4 issued by the Department of Natural Resources, as referenced in 567—Chapter 64. Prior to the use of any system discharging to designated waters of the state or a subsurface drainage tile, a Notice of Intent to be covered by NPDES General Permit No. 4 shall be submitted to the department. Systems covered by this permit must meet all applicable requirements listed in the permit, including effluent sampling and monitoring.

SECTION 6. REQUIREMENTS WHEN EFFLUENT IS DISCHARGED ABOVE THE GROUND SURFACE.

- 6.1** All private sewage disposal systems that discharge above the ground surface shall be annually inspected to ensure proper operation. All sampling, testing, analysis and reporting required in this subsection shall be at the sole cost and expense of the owner for time of transfer inspection or environmental complaint.
- 6.2** Private sewage disposal systems that require a maintenance contract shall be inspected by a manufacturer's certified technician.
- 6.3** Private sewage disposal systems that do not require a maintenance contract shall be visually inspected by a person with knowledge of the system for any malfunction and shall have the septic tank opened, inspected, and pumped if needed. A record of the inspection and any tank pumping shall be maintained and be made available to the administrative authority upon request.
- 6.4** No private sewage disposal system shall discharge to a state-owned natural or artificial lake, an outstanding Iowa water or an outstanding national water as defined in 567—subrule 61.2(2) unless authorized by an individual NPDES permit.

SECTION 7. REQUIREMENTS WHEN EFFLUENT IS DISCHARGED INTO THE SOIL.

No seepage or wastewater shall be discharged into the soil except in compliance with the requirements contained in this ordinance.

SECTION 8. BUILDING SEWERS.

8.1 Location and construction.

- a. The types of construction and distances as shown in Table II shall be maintained for the protection of water supplies. The distances shall be considered minimum distances and shall be increased where possible to provide better protection.

Table II

Sewer Construction	Distance in Feet From Well Water Supply	
	Private	Public
1. Schedule 40 plastic pipe (or SDR 26 or stronger) with approved-type joints or cast-iron soil pipe (extra heavy or centrifugally cast) with joints of performed gaskets.	10	25
2. Sewer pipe installed to remain watertight and root-proof.	50	75

- b. Under no circumstances shall a well suction line pass under a building sewer line.

8.2 Requirements for building sewers.

- a. Type. Building sewers used to conduct wastewater from a building to the primary treatment unit of a private sewage disposal system shall be constructed of Schedule 40 plastic pipe (or SDR 26 or stronger) with solvent-weld or bell-and-gasket-type joints or shall be constructed of cast iron with integral bell-and-gasket-type joints.
- b. Size. Such building sewers shall not be less than 4 inches in diameter.
- c. Grade. Such building sewers shall be laid to the following minimum grades:
 4-inch sewer 12 inches per 100 feet
 6-inch sewer 8 inches per 100 feet

8.3 Cleanouts.

- a. Spacing. A cleanout shall be provided where the building sewer leaves the house and at least every 100 feet downstream to allow for rodding.
- b. Change of direction or grade. An accessible cleanout shall be provided at each change of direction or grade if the change exceeds 45 degrees.

8.4 Grease interceptors.

- a. Applicability. Grease interceptors shall be provided for kitchen flows at restaurants, nursing homes, schools, hospitals and other facilities from which grease can be expected to be discharged.
- b. Installation. Grease interceptors shall be installed on a separate building sewer serving kitchen flows into which the grease will be discharged. The discharge from the grease interceptor must flow to a properly designed septic tank or to a building sewer and then to the septic tank.

SECTION 9. PRIMARY TREATMENT – SEPTIC TANKS.

9.1 General requirements.

- a. Septic tank required. Every private sewage disposal system shall have as a primary treatment unit a septic tank as described in this ordinance. All wastewater from the facility serviced shall discharge into the septic tank (except as noted in section “d” below).
- b. Easements. No septic tank shall be located upon property under ownership different from the ownership of that property or lot upon which the wastewater originates unless easements to that effect are legally recorded and approved by the proper administrative authority.
- c. Effluent discharge requirements. All septic tank effluent shall discharge into a secondary treatment system in compliance with this ordinance or into another system approved by the administrative authority according to Section 2.2.
- d. Prohibited wastes. Septic tanks shall not be used for the disposal of chemical wastes or grease in quantities which might be detrimental to the bacterial action in the tank or for the disposal of drainage from roof drains, foundation drains, or area drains.

9.2 Capacity.

- a. Minimum capacity. The minimum liquid-holding capacity shall be as specified in the following table (capacity may be obtained by using one or more tanks):

Up to and including 3-bedroom homes	1,250 gal.
4-bedroom homes	1,500 gal.
5-bedroom homes	1,750 gal.
6-bedroom homes	2,000 gal.

- c. Other domestic waste systems. In the event that an installation serves more than a 6-bedroom home or its equivalent, or serves a facility other than a house and serves the equivalent of fewer than 16 individuals on a continuing basis, approval of septic tank capacity and design must be obtained from the administrative authority. Minimum septic tank liquid-holding capacity shall be two times the estimated daily sewage flow.
- d. Determination of flow rates. Residential wastewater flows are based on 150 gallons per bedroom per day. For wastewater flow rates for nonresidential and commercial domestic waste applications serving the equivalent of fewer than 16 individuals on a continuing basis, refer to Appendix A.
- e. Minimum depth. The minimum liquid-holding depth in any compartment shall be 40 inches.
- f. Maximum depth. The maximum liquid-holding depth for calculating capacity of the tank shall not exceed 6½ feet.
- g. Dimensions. The interior length of a septic tank should not be less than 5 feet and shall be at least 1½ times the width (larger length-to-width ratios are preferred). No tank or compartment shall have an inside width of less than 2 feet. The minimum inside diameter of a vertical cylindrical septic tank shall be 5 feet.

9.3 Construction details.

- a. Fill soil. Any septic tank placed in fill soil shall be placed upon a level, stable base that will not settle.
- b. Compartmentalization. Every septic tank shall be divided into two compartments (compartmentalization may be obtained by using more than one tank) as follows:
 - 1. The capacity of the influent compartment shall not be less than one-half or more than two-thirds of the total tank capacity.
 - 2. The capacity of the effluent compartment shall not be less than one-third or more than one-half of the total tank capacity.
- c. Inlet/outlet. The invert of the inlet pipe shall be a minimum of 2 inches and a maximum of 4 inches higher than the invert of the outlet pipe.
- d. Baffles.
 - 1. Four-inch-diameter Schedule 40 plastic pipe tees shall be used as inlet and outlet baffles. Inlet tees shall extend at least 6 inches above and 8 inches below the liquid level of the tank. The inlet tee shall extend below the liquid level no more than 20 percent of the liquid depth. The outlet tee shall extend above the liquid level a distance of at least 6 inches and below the liquid level a distance of at least 15 inches but no more than 30 percent of the liquid depth. A minimum 2-inch clearance between the top of the inlet and outlet tees and the bottom of the tank lid shall be provided. A horizontal separation of at least 36 inches shall be provided between the inlet baffle and the outlet baffle in each compartment. Outlet baffles shall be fitted with an effluent screen. All effluent screens shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 46, including appendices, or other equivalent testing as determined by the State of Iowa. Effluent screens require periodic inspection and cleaning to ensure their continued proper operation.
 - 2. A horizontal slot 4 inches by 6 inches, or two suitably spaced 4-inch-diameter holes in the tank partition, may be used instead of a tee or baffle. The top of the slot or holes shall be located below the water level a distance of one-third the liquid depth. A ventilation hole or slot, located at least 8 inches above the liquid level, shall be provided in the partition.
 - 3. Repair or replacement of the outlet baffle is required to be fitted with an effluent screen.
- e. Access.
 - 1. Access necessary for adequate inspection, operation, and maintenance must be provided to all parts of septic tanks.
 - 2. An access opening shall be provided at each end of the tank over the inlet and outlet. These openings shall be at least 18 inches in the smallest dimension.
 - 3. Watertight risers shall be installed to bring the access openings to the ground surface. Risers shall be secured using stainless steel fasteners of sufficient complexity, locking devices, concrete lids of sufficient weight, or another device approved by the administrative authority to deter tampering.

9.4 Construction.

- a. **Materials.** Tanks shall be constructed of watertight poured concrete, fiberglass or plastic resistant to corrosion or decay and shall be designed so that the tanks, whether full or empty, will not collapse or rupture when subjected to anticipated earth and hydrostatic pressures. Metal tanks are prohibited.
- b. **Watertight tanks.** Tanks shall be watertight. Prior to approving a tank, the administrative authority may ask for proof that a tank is watertight.
- c. **Dividers.** Tank divider walls and divider wall supports shall be constructed of heavy, durable plastic, fiberglass, concrete or other similar corrosion-resistant materials approved by the administrative authority.
- d. **Inlet and outlet ports.** Inlet and outlet ports of pipe shall be constructed of heavy, durable Schedule 40 PVC plastic sanitary tees or other similar approved corrosion-resistant material.

9.5 Wall thickness. Minimum wall thickness for tanks shall conform to applicable IAPMO (1) standards or the following specifications:

Poured concrete	6 inches thick
Poured concrete, reinforced	4 inches thick
Special concrete mix, vibrated and reinforced	2.5 inches thick
Fiberglass or plastic	.25 inches thick

(1) International Association of Plumbing and Mechanical Officials

9.6 Concrete specifications. Concrete used in precast septic tank construction shall have a maximum water-to-cement ratio of 0.45. Cement content shall be at least 650 pounds per cubic yard. Minimum compressive strength (f'c) shall be 4,000 psi (28 Mpa) at 28 days of age. The use of ASTM C150 Type II cement or the addition of silica fume or Class F fly ash is recommended.

9.7 Tank bottoms. Septic tank bottoms shall conform to the specifications set forth in section 9.5 for septic tank walls, except that special mix concrete shall be at least 3 inches thick.

9.8 Tank tops. Concrete or masonry septic tank tops shall be a minimum of 4 inches in thickness and shall be reinforced with 3/8-inch reinforcing rods in a 6-inch grid or equivalent. Fiberglass or plastic tank tops shall be a minimum of 1/4 inch in thickness and shall have reinforcing and be of ribbed construction.

9.9 Reinforcing steel placement. The concrete cover for reinforcing bars, mats, or fabric shall not be less than 1 inch.

9.10 Bedding. Fiberglass or plastic tanks shall be bedded according to the manufacturer's specifications. Provisions should be made to prevent flotation of the tanks when they are empty.

9.11 Connecting pipes.

- a. **Minimum diameter.** The pipes connecting septic tanks installed in series and at least the first 5 feet of pipe on the effluent side of the last tank shall be a minimum of 4-inch-diameter Schedule 40 plastic.
- b. **Tank connections.** All inlet and outlet connections at the septic tanks shall be made by self-sealing gaskets cast into the concrete or formed into the plastic or fiberglass.

- c. Joints. All joints in connecting Schedule 40 plastic pipe shall be approved connections such as solvent-welded or compression-type gaskets.
- d. Pipe in unstable ground. Schedule 40 plastic pipe shall be used extending across excavations or unstable ground to at least 2 feet beyond the point where the original ground has not been disturbed in septic tank installations. If the excavation spanned is more than 2 feet wide, it must be filled with sand or compacted fill to provide a firm bed for the pipe. The first 12 inches of backfill over the pipe shall be applied in thin layers, using material free from stones, boulders, large frozen chunks of earth or any similar material that would damage or break the pipe.

SECTION 10. SECONDARY TREATMENT – SUBSURFACE SOIL ABSORPTION SYSTEMS.

Subsurface soil absorption systems are the best available treatment technology and shall always be used where possible.

10.1 General requirements.

- a. Locations. All subsurface soil absorption systems shall be located on the property to maximize the vertical separation distance from the bottom of the absorption trench to the seasonal high groundwater level, bedrock, hardpan or other confining layer, but under no circumstances shall this vertical separation be less than 3 feet.
- b. Soil evaluation. A percolation test or professional soil analysis is required before any soil absorption system is installed.
 - 1. Percolation test.
 - 2. Alternative analysis. If a professional soil analysis is performed, soil characteristics such as soil content, color, texture, and structure shall be used to determine a loading rate.
 - 3. Acceptable percolation rate. An area is deemed suitable for conventional soil absorption if the average percolation rate is 60 minutes per inch or less and greater than 1 minute per inch. However, if an alternative soil absorption system is proposed (e.g., mound system), then the percolation test should be extended to determine whether a percolation rate of 120 minutes per inch is achieved.
 - 4. Confining layer determination. An additional test hole 6 feet in depth or to rock, whichever occurs first, shall be provided in the center of the proposed absorption area to determine the location of groundwater, rock formations or other confining layers. This 6-foot test hole may be augered the same size as the percolation test holes or may be made with a soil probe.
- c. Groundwater. If the seasonal high groundwater level is present within 3 feet of the trench bottom final grade and cannot be successfully lowered by subsurface tile drainage, the area shall be classified as unsuitable for the installation of a standard subsurface soil absorption system. The administrative authority shall be consulted to determine an acceptable alternative method of wastewater treatment.
- d. Site limitations. In situations where specific location or site characteristics would appear to prohibit installation of a soil absorption system, design modifications which could overcome such limitations may be approved by the administrative authority. Examples of such modifications could be the

installation of subsurface drainage, use of shallow or at-grade trenches, drip irrigation, or mound systems or use of pretreated effluent.

- e. Prohibited drainage. Roof, foundation and storm drains shall not discharge into system which does not first pass through the septic tank.
- f. Prohibited construction. There shall be no construction of any kind, including driveways, covering the septic tank, distribution box or absorption field of a private sewage disposal system. Vehicle access should be infrequent, primarily limited to vegetation maintenance.
- g. Driveway crossings. Connecting lines under driveways shall be constructed of Schedule 40 plastic pipe or equivalent and shall be protected from freezing.
- h. Easements. No wastewater shall be discharged upon any property under ownership different from the ownership of the property or lot upon which the wastewater originates unless easements to that effect are legally recorded and approved by the administrative authority.

10.2 Sizing requirements.

- a. Percolation and soil loading charts. Table IIIa provides a correlation between percolation rates and soil loading rates. Table IIIb provides soil loading rates based upon soil texture and structure. Table IIIa and Table IIIb shall be used to determine the appropriate soil loading rate. Table IIIc specifies linear feet of lateral trenches required based upon the soil loading rate, wastewater flow rate, and trench width. Table IIId provides a method to determine the size of an absorption bed. Absorption beds (Table IIId) shall not be used except when the lot size limitations preclude the installation of a lateral trench system. Further details concerning limitations of this alternative shall be obtained from the administrative authority before authorization for installation is requested.
- b. Unsuitable absorption. Conventional subsurface soil absorption trenches shall not be installed in soils that have a percolation rate less than 1 minute per inch or greater than 60 minutes per inch. Plans for an alternative method of wastewater treatment shall be submitted to the administrative authority for approval prior to construction.

Table IIIa
Maximum Soil Application Rates Based Upon Percolation Rates

Percolation Rate (minutes per inch)	Monthly Averages	
	Septic Tank Effluent (1) BOD5 30mg/L-200mg/L TSS 30mg/L – 150mg/L (gals/sq ft/day) (2)	Pretreated Effluent BOD5 ≤ 30mg/L TSS ≤ 30mg/L (gals/sq ft/day)
0 to 5	1.2	1.6
Fine sands	0.5	0.9
6 to 10	0.8 – 0.6	1.2
11 to 29	0.6 – 0.5	0.9
30 to 45	0.5 – 0.4	0.7
46 to 60	0.4 – 0.2	0.5
61 to 120	0.0	0.3
Greater than 120	0.0	0.0

Note: “BOD” means biochemical oxygen demand. “TSS” means total suspended solids.

(1) Typical waste strengths for domestic waste. Pretreatments should be considered for waste of higher strength.

(2) Percolation rates and soil loading rates do not precisely correlate; therefore, a range is provided.

Table IIIb
Maximum Soil Loading Rates Based Upon Soil Evaluations in Gallons Per Square Foot per Day(gal/sq. ft/day) for Septic Tank Effluent. Values in () are for secondary treated effluent

Soil Texture	Single Grain	Structure					
		Massive	Granular, Blocky, Prismatic			Platy	
			Weak	Moderate	Strong	Weak	Moderate to Strong
Course sand & gravel	1.2 (1.6)	X	1.2 (1.6)	X	X	1.2 (1.6)	X
Medium sands	0.7 (1.4)	X	0.7 (1.4)	X	X	0.7 (1.4)	X
Fine sands	0.5 (0.9)	X	0.5 (0.9)	X	X	0.5 (0.9)	X
Very fine sands*	0.3 (0.5)	X	0.3 (0.5)	X	X	0.3 (0.5)	X
Sandy loam	X	0.3 (0.5)	0.45 (0.7)	0.6 (1.1)	0.65 (1.2)	0.4 (0.6)	0.3 (0.5)
Loam	X	0.4 (0.6)	0.45 (0.7)	0.5 (0.8)	0.55 (0.8)	0.4 (0.6)	0.3 (0.5)
Silty loam	X	NS	0.4 (0.6)	0.5 (0.8)	0.5 (0.8)	0.3 (0.5)	0.2 (0.3)
Clay loam	X	NS	0.2 (0.3)	0.45 (0.7)	0.45 (0.7)	0.1 (0.2)	0.1 (0.2)
Silty clay loam	X	NS	0.2 (0.3)	0.45 (0.7)	0.45 (0.7)	NS	NS

Note: “X” means not found in nature. “NS” means not suitable for soil absorption.

*Flow rates are difficult to determine for some very fine sands; experience may provide better information and flow rates.

Table IIIc
Maximum Length of Absorption Trenches in Feet

	2 Bedroom 300 gal.		3 Bedroom 450 gal.		4 Bedroom 600 gal.		5 Bedroom 750 gal.		6 Bedroom 900 gal.	
Width of trench in feet	2'	3'	2'	3'	2'	3'	2'	3'	2'	3'
Soil loading rate gal.ft. ²										
0.1	Not suitable for soil absorption trenches									
0.2	750	500	1125*	750	1500*	1000*	1875*	1250*	2250*	1500*
0.3	500	333	750	500	1000*	666	1250*	833*	1500*	1000*
0.4	375	250	562	375	750	500	938*	625	1125*	750
0.5	300	200	450	300	600	400	750	500	900*	600
0.6	250	167	375	250	500	333	625	417	750	500
0.7	214	143	321	214	428	286	536	357	643	429
0.8	188	125	281	188	375	250	469	312	562	375
0.9	167	111	250	167	333	222	417	278	500	333
1.0	150	100	225	150	300	200	375	250	450	300
1.1	136	91	205	136	273	182	341	227	409	273
1.2	125	84	188	125	250	167	313	208	375	250

*Requires pressure distribution (pump)

Table IIId
Alternative Option for Use of Absorption Bed*

Percolation Rate Min/inch	Absorption Area/Bedroom sq. ft.	Loading Rate/Day gal/sq. ft.
1 - 5	300	.5
6 - 15	400	.375
16 - 30	600	.25

*Absorption beds may only be used when site space restrictions require and shall not be used when the soil percolation rate exceeds 30 min/inch.

10.3 Construction details for all soil absorption trenches.

- a. Depth. Soil absorption trenches shall not exceed 36 inches in depth unless authorized by the administrative authority, but a shallower trench bottom depth of 18 to 24 inches is recommended. Not less than 6 inches of porous soil shall be provided over the laterals. The minimum separation between trench bottom and groundwater, rock formation or other confining layers shall be 36 inches even if extra rock is used under the pipe.
- b. Length. No soil absorption trench shall be greater than 100 feet long.
- c. Separation distance. At least 6 feet of undisturbed soil shall be left between each trench edge on level sites. The steeper the slope of the ground, the greater the separation distance should be. Two feet of separation distance should be added for each 5 percent increase in slope from level.

- d. Grade. The trench bottom should be constructed level from end to end. On sloping ground, the trench shall follow a uniform land contour to maintain a minimum soil cover of 6 inches and a level trench bottom.
- e. Compaction. There shall be minimum use or traffic of heavy equipment on the area proposed for soil absorption. In addition, it is prohibited to use heavy equipment on the bottom of the trenches in the absorption area.
- f. Fill soil. Soil absorption systems shall not be installed in fill soil. Disturbed soils which have stabilized for at least one year shall require a recent percolation test or soil analysis.
- g. Bearing strength. Soil absorption systems shall be designed to carry loadings to meet AASHTO H-10 standards.
- h. Soil smearing. Soils with significant clay content should not be worked when wet. If soil moisture causes sidewall smearing, the installation should be discontinued until conditions improve.

10.4 Gravel systems.

- a. Gravel. A minimum of 6 inches of clean, washed river gravel, free of clay and clay coatings, shall be laid below the distribution pipe, and enough gravel shall be used to cover the pipe. This gravel shall be of such a size that 100 percent of the gravel will pass a 2½-inch screen and 100 percent will be retained on a ¾-inch screen. Limestone or crushed rock is not recommended for soil absorption systems; however, if used, it shall meet the following criteria:
 - 1. Abrasion loss. The percent wear, as determined in accordance with the AASHTO T 96, Grading C, shall not exceed 40 percent.
 - 2. Freeze and thaw loss. When gravel is subjected to the freezing and thawing test, Iowa DOT Materials Laboratory Test Method 211, Method A, the percentage loss shall not exceed 10 percent.
 - 3. Absorption. The percent absorption, determined in accordance with Iowa DOT Materials Laboratory Test Method 202, shall not exceed 3 percent.
- b. Trench width. Soil absorption trenches for gravel systems shall be a minimum of 24 inches and a maximum of 36 inches in width at the bottom of the trench.
- c. Grade. The distribution pipes shall be laid with a minimum grade of 2 inches per 100 feet of run and a maximum grade of 6 inches per 100 feet of run, with a preference given to the lesser slope.
- d. Pipe. Distribution pipe shall be PVC rigid plastic meeting ASTM Standard 2729 or other suitable material approved by the administrative authority. The inside diameter shall be not less than 4 inches, with perforations at least ½ inch and no more than ¾ inch in diameter, spaced no more than 40 inches apart. Two rows of perforations shall be provided located 120 degrees apart along the bottom half of the tubing (each 60 degrees up from the bottom centerline). The end of the pipe in each trench shall be sealed with a watertight cap unless, on a level site, a footer is installed connecting the trenches together. Coiled perforated plastic pipe shall not be used.
- e. Gravel cover. Un-backed, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, synthetic drainage fabric, or other approved material shall be laid so as to separate the gravel from the soil backfill.

10.5 Gravelless pipe systems.

- a. Application. Gravelless subsurface soil absorption systems may be used as an alternative to conventional 4-inch pipe placed in gravel-filled trenches. However, these systems shall not be used in areas where conventional systems would not be allowed due to poor permeability, high groundwater, or insufficient depth to bedrock.
- b. Installation. The manufacturer's specifications and installation procedures shall be adhered to.
- c. Material. The 10-inch I.D. corrugated polyethylene tubing used in gravel less systems shall meet the requirements of ASTM F667, Standard Specification for Large Diameter Corrugated Polyethylene Tubing.
- d. Perforations. Two rows of perforations shall be located 120 degrees apart along the bottom half of the tubing (each 60 degrees up from the bottom centerline). Perforations shall be cleanly cut into each inner corrugation along the length of the tubing and should be staggered so that there is only one hole in each corrugation.
- e. Top marking. The tubing should be visibly marked to indicate the top of the pipe.
- f. Filter wrap. All gravelless drain field pipe shall be encased, at the point of manufacture, with a geotextile filter wrap specific to this purpose.
- g. Trench width. The trench width for the gravel less system shall be 24 inches.
- h. Length of trench. The total length of absorption trench for a 10-inch gravel less pipe installation shall be the same as given in Table IIIc for a 2-foot-wide conventional soil absorption trench.

10.6 Chamber systems.

- a. Application. Chamber systems may be used as an alternative to conventional 4-inch pipe placed in gravel-filled trenches. However, chamber systems shall not be used in areas where conventional systems would not be allowed due to poor permeability, high groundwater, or insufficient depth to bedrock.
- b. Installation. The manufacturer's specifications and installation procedures shall be adhered to.
- c. Length of trench. The total length of soil absorption trench for chambers 15 to 22 inches wide shall be the same as given in Table IIIc for a 2-foot-wide conventional soil absorption trench. Chambers 33 inches wide or greater shall be sized as given in Table IIIc for a 3-foot-wide conventional soil absorption trench.
- d. Sidewall. The chambers shall have at least 6 inches of sidewall effluent soil exposure height below the invert of the inlet.

10.7 Expanded polystyrene (EPS) aggregate system.

- a. Application. EPS aggregate systems may be used as an alternative to conventional 4-inch pipe placed in gravel-filled trenches. However, EPS aggregate systems shall not be used in areas where conventional systems would not be allowed due to poor permeability, high groundwater, or insufficient depth to bedrock.

- b. Installation. The manufacturer's specifications and installation procedures shall be adhered to.
- c. Length of trench. The total length of soil absorption trench for 12-inch EPS aggregate bundles shall be the same as given in Table IIIc for a 2-foot-wide conventional soil absorption trench. Twelve-inch EPS aggregate bundles 33 inches wide or greater shall be sized as given in Table IIIc for a 3-foot-wide conventional soil absorption trench.
- d. Gravel cover. Un-backed, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, synthetic drainage fabric, or other approved material shall be laid so as to separate the EPS aggregate from the soil backfill.

10.8 Gravity distribution. Dosing is always recommended and preferred to improve distribution, improve treatment and extend the life of the system.

- a. On a hillside, septic tank effluent may be serially loaded to the soil absorption trenches by drop boxes or overflow piping (rigid sewer pipe). Otherwise, effluent shall be distributed evenly to all trenches by use of a distribution box or commercial distribution regulator approved by the administrative authority.
- b. Design. When a distribution box is used, it shall be of proper design and installed with separate watertight headers leading from the distribution box to each lateral. Header pipes shall be rigid PVC plastic pipe meeting ASTM Standard 2729 or equivalent.
- c. Height of outlets. The distribution box shall have outlets at the same level at least 4 inches above the bottom of the box to provide a minimum of 4 inches of water retention in the box.
- d. Baffles. There shall be a pipe tee or baffle at the inlet to break the water flow.
- e. Unused outlets. All unused outlet holes in the box shall be securely closed.
- f. Materials. All distribution boxes shall be constructed of corrosion-resistant rigid plastic materials.
- g. Level outlets. All outlets of the distribution box shall be made level. A 4-inch cap with an offset hole approximately 2½ inches in diameter shall be installed on each outlet pipe. These caps shall be rotated until all outlets discharge at the same elevation. Equivalent leveling devices may be approved by the County Board of Health.
- h. Equal length required. The soil absorption area serviced by each outlet of the distribution box shall be equal.

10.9 Dosing systems.

- a. Pump systems.
 - 1. Pump and pit requirements. In the event the effluent from the septic tank outlet cannot be discharged by gravity and the proper lateral depths still maintained, the effluent shall discharge into a watertight pump pit with an inside diameter of not less than 24 inches, equipped with a tight-fitting manhole cover at grade level. The pump shall be of a submersible type of corrosion-resistant material.
 - 2. Pump setting. The pump shall be installed in the pump pit in a manner that ensures ease of service and protection from frost and

settled sludge. The pump shall be set to provide a dosing frequency of approximately four times a day based on the maximum design flow. No onsite electrical connections shall be located in the pump pit. These connections shall be located in an exterior weatherproof box.

3. Pressure line size. The pressure line from the pump to the point of discharge shall not be smaller than the outlet of the pump it serves.
 4. Drainage. Pressure lines shall be installed to provide total drainage between dosing to prevent freezing or shall be buried below frost level up to the distribution box.
 5. High water alarm. Pump pits shall be equipped with a sensor set to detect if the water level rises above the design high water level when the pump fails. This sensor shall activate an auditory or visual alarm to alert the homeowner that repairs are required.
 6. Discharge point. The effluent shall discharge under pressure into a distribution box or may be distributed by small-diameter pipes throughout the entire absorption field.
- b. Dosing siphons. Dosing siphons may also be used. The manufacturer's specifications shall be adhered to for installation. Similar dosing volumes and frequencies are recommended. Dosing siphons require periodic cleaning to ensure their continued proper operation.
 - c. Filtered pump vaults. A filtered pump vault is a device that is installed in a septic tank and houses a pump and screens effluent until it is pumped. Filtered pump vaults may be used when dosing volume is less than 50 gallons. Filtered pump vaults require periodic inspection and cleaning to ensure their continued proper operation.

SECTION 11. MOUND SYSTEMS.

11.1 General requirements.

- a. Mound systems shall be permitted only after a thorough site evaluation has been made and landscaping, dwelling placement, effect on surface drainage, and general topography have been considered.
- b. Mound systems shall not be utilized on sites subject to flooding with a ten-year or greater frequency.
- c. Mound systems shall not be utilized on soils where the high groundwater level, impermeable bedrock or soil strata having a percolation rate exceeding 120 minutes per inch occur within 12 inches of natural grade or where creviced bedrock occurs within 20 inches of natural grade.
- d. Mound systems shall be constructed only upon undisturbed naturally occurring soils or where a soil analysis has determined the site is suitable.
- e. Mound systems shall be located in accordance with the distances specified in Table I as measured from the outer edge of the sand in the mound.
- f. No buildings, driveways or other surface or subsurface obstructions shall be permitted within 50 feet on the down-gradient side of the mound when the mound is constructed on a slope greater than 5 percent. No future construction shall be permitted in this effluent disposal area as long as the mound is in use.

- g. Specifications given in these rules for mounds are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of these rules may be necessary to properly design a mound system.

11.2 Material for mound fill.

- a. The mound shall be constructed using clean, medium-textured sand, sometimes referred to as concrete sand. The sand size shall be such that at least 25 percent by weight shall have a diameter between 2.0 and 0.25 mm; less than 35 percent by weight, a diameter between 0.25 and 0.05 mm; and less than 5 percent by weight, a diameter between 0.05 and 0.002 mm.
- b. Rock fragments larger than 1/16 inch (2.0 mm) shall not exceed 15 percent by weight of the material used for mound fill.

11.3 Construction details.

- a. There shall be a minimum of 3 feet of fill material and undisturbed naturally occurring soils between the bottom of the washed gravel and the highest elevation of the limiting conditions defined in section 11.1 "c."
- b. Gravel shall meet the requirements specified in section 10.4 "a".
- c. From 1 to 2 feet of medium-textured sand (depending upon the underlying soil depth, see section 11.3 "a") must be placed between the bottom of the gravel and the top of the plowed surface of the naturally occurring soil.
- d. Mound systems shall utilize an absorption bed distribution piping design. The bed shall be installed with the long dimension parallel to the land contour. Systems on steep slopes with slowly permeable soils should be narrow to reduce the possibility of toe seepage.
- e. Minimum spacing between distribution pipes shall be 4 feet, and a minimum of 3 feet shall be maintained between any trench and the sidewall of the mound.
- f. No soil under or up to 50 feet down gradient of the mound may be removed or disturbed except as specified herein.
- g. Construction equipment which would cause undesirable compaction of the soil shall be kept off the base area. Construction or plowing shall not be initiated when the soil moisture content is high. If a sample of soil from approximately 9 inches below the surface can be easily rolled into a 1/8- to 1/4-inch-diameter wire 1 1/2 inches long or more, the soil moisture content is too high for construction purposes.
- h. Aboveground vegetation shall be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material.
- i. The area shall be plowed to a depth of 7 to 8 inches, parallel to the land contour, with the plow throwing the soil up slope to provide a proper interface between the fill and the natural soil. Tree stumps should be cut flush with the surface of the ground, and roots should not be pulled.
- j. The base absorption area of the mound is to be calculated based on the results of the percolation rate test or soil analysis as indicated in Table IIIa or IIIb and the flow rate. The maximum width of the mound shall be 12 feet.
- k. The area of the fill material shall be sufficient to extend 3 feet beyond the

edge of the gravel area before the sides are shaped to at least a 4:1 slope (preferably 5:1).

I. Distribution system.

1. The distribution pipe shall be rigid plastic pipe, Schedule 40 or 80, with a 1-inch nominal diameter or equivalent design that ensures proper distribution.
 2. The distribution pipe shall be provided with a single row of ¼-inch perforations in a straight line 30 inches on center along the length of the pipe or an equivalent design that ensures uniform distribution. All joints and connections shall be solvent-cemented
 3. The distribution pipe shall be placed in the clean, washed gravel (or crushed limestone as described in section 10.4 "a", with holes downward. The gravel shall be a minimum of 9 inches in depth below the pipe and 3 inches in depth above the pipe.
 4. No perforations shall be permitted within 3 inches of the outer ends of any distribution pipe.
 5. The outer ends of all pressure distribution lines shall be turned up, with a long 90-degree elbow or two 45-degree elbows to allow for cleaning. The outer ends will have a screw-on cap and cover. The cover shall be accessible from the ground surface without excavation.
 6. The central pressure manifold should consist of 1½- or 2-inch solid plastic pipe using a tee for connecting the distribution lines or an equivalent design that ensures uniform distribution.
- m. Construction should be initiated immediately after preparation of the soil interface by placing all of the sand fill material needed for the mound (to the top of the trench) to a minimum depth of 21 inches above the plowed surface. This depth will permit excavation of the trenches to accommodate the 9 inches of washed gravel or crushed stone necessary for the distribution piping.
- n. The absorption trench or trenches shall be hand-excavated to a depth of 9 inches. The bottoms of the trenches shall be level.
- o. Nine inches of gravel shall be placed in the trench and leveled. After the distribution pipe is placed, the pipe shall be covered with 3 inches of gravel.
- p. The top of the gravel shall be covered with synthetic drainage fabric. Unbacked, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, or other suitable material may be used with approval of the administrative authority. Plastic or treated building paper shall not be used.
- q. After installation of the distribution system, the distribution system shall be pressure-tested before it is covered with gravel. The entire mound is to be covered with topsoil native to the site or of similar characteristics to support vegetation found in the area. The entire mound shall be crowned by providing 12 inches of topsoil on the side slopes, with a minimum of 18 inches of topsoil over the center of the mound. The entire mound shall be seeded, sodded or otherwise provided with a grass cover to ensure stability of the installation.
- r. The area surrounding the mound shall be graded to provide for diversion of surface runoff water.

11.4 Dosing.

- a. Pump dosing shall be required for mound systems.
- b. The dosing volume shall be three to ten times the distribution piping network volume, but not more than 25 percent of the design flow shall be applied to the soil in one dose.
- c. The dosing pump shall be capable of maintaining a squirt height of 3 feet above the pipe at the outer ends of the distribution lines. All lines shall have an equal squirt height above the pipe to maintain equal distribution.

SECTION 12. AT-GRADE SYSTEMS.

12.1 General requirements.

- a. At-grade systems shall be permitted only after a thorough site evaluation has been made and landscaping, dwelling placement, effect on surface drainage, and general topography have been considered.
- b. At-grade systems shall not be utilized on sites subject to flooding with a ten-year or greater frequency.
- c. At-grade systems shall not be utilized on soils where the high groundwater level, impermeable bedrock or soil strata having a percolation rate exceeding 60 minutes per inch occur within 36 inches of natural grade.
- d. At-grade systems shall be constructed only upon undisturbed naturally occurring soils or where a soil analysis has determined the site is suitable.
- e. At-grade systems shall be located in accordance with the distances specified in Table I as measured from the outer edge of the gravel in the system.
- f. No buildings, driveways or other surface or subsurface obstructions shall be permitted within 25 feet on the down-gradient side of the at-grade system when the at-grade system is constructed on a slope greater than 5 percent. No future construction shall be permitted in this effluent disposal area as long as the at-grade system is in use.
- g. Specifications given in these rules for at-grade systems are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of these rules may be necessary to properly design an at-grade system.

12.2 Construction details.

- a. There shall be a minimum of 3 feet of undisturbed naturally occurring soils between the bottom of the gravel in the at-grade system and the highest elevation of the limiting conditions defined in section 12.1 "c".
- b. An at-grade system may be installed up to 12 inches deep.
- c. Gravel shall meet the requirements specified in section 10.4 "a". EPS aggregate or chambers are acceptable alternatives to gravel.
- d. At-grade systems shall utilize an absorption bed distribution piping design. The bed shall be installed with the long dimension parallel to the land contour. Systems on steep slopes with slowly permeable soils should be narrow to reduce the possibility of toe seepage.

- e. No soils under or within 15 feet of any at-grade system may be disturbed. On sloping sites, no soils shall be disturbed within 10 feet uphill of the system and within 15 feet downhill of the system plus an additional 5 feet for every 5 percent slope downhill.
- f. Construction equipment which would cause undesirable compaction of the soil shall be kept off the base area. Construction or plowing shall not be initiated when the soil moisture content is high. If a sample of soil from approximately 9 inches below the surface can be easily rolled into a 1/8-inch diameter wire 1½ inches long, the soil moisture content is too high for construction purposes.
- g. Aboveground vegetation shall be closely cut and removed from the ground surface throughout the area to be utilized for the placement of the fill material.
- h. The area shall be plowed to a minimum depth of 7 to 9 inches, parallel to the land contour, with the plow throwing the soil up slope to provide a proper interface between the fill and the natural soil. Chisel teeth on a backhoe bucket shall be at least as long as the depth of plowing. Tree stumps should be cut flush with the surface of the ground, and roots should not be pulled. All work shall be done from the uphill side of the at-grade system.
- i. The gravel bed absorption area of the at-grade system is to be calculated based on the results of the percolation rate test or soil analysis as indicated in Table IIIa or IIIb and the flow rate. The maximum width of the at-grade system shall be 8 feet.
- j. One foot of loamy cover material shall be installed over the rock bed. Cover shall extend at least 5 feet from the ends of the rock bed and be sloped to divert surface water. Side slopes shall not be steeper than 4:1. The upper 6 inches of the loamy soil cover must be topsoil borrow. Topsoil borrow must be of a quality that provides a good vegetative cover on the at-grade system.
- k. Distribution system.
 - 1. The distribution pipe shall be rigid plastic pipe, Schedule 40 or 80 with a 1-inch nominal diameter or equivalent design that ensures proper distribution.
 - 2. The distribution pipe shall be provided with a single row of 1/4-inch perforations in a straight line 30 inches on center along the length of the pipe or an equivalent design that ensures uniform distribution. All joints and connections shall be solvent-cemented.
 - 3. The distribution pipe shall be placed in the clean, washed gravel (or crushed limestone as described in section 10.4 "a", with holes downward. The gravel shall be a minimum of 10 inches in depth below the pipe and 2 inches in depth above the pipe.
 - 4. Distribution pipe shall be installed in the center of the gravel bed on slopes less than 1 percent and on the upslope edge at the gravel bed absorption width on slopes 1 percent or greater.
 - 5. No perforations shall be permitted within 3 inches of the outer ends of any distribution pipe.
 - 6. The outer ends of all pressure distribution lines shall be turned up, with a long 90-degree elbow or two 45-degree elbows to allow for cleaning. The outer ends will have a screw-on cap and cover. The

cover shall be accessible from the ground surface without excavation.

7. The central pressure manifold should consist of 1½- or 2-inch solid plastic pipe using a tee for connecting the distribution lines or an equivalent design that ensures uniform distribution.
8. The top of the gravel shall be covered with synthetic drainage fabric. Un-backed, rolled, 3½-inch-thick fiberglass insulation, untreated building paper, or other suitable material may be used with approval of the administrative authority. Plastic or treated building paper shall not be used.
9. After installation of the distribution system, the distribution system shall be pressure-tested before it is covered with gravel. The entire at-grade system is to be covered with topsoil native to the site or of similar characteristics to support vegetation found in the area. The entire at-grade system shall be crowned by providing 12 inches of topsoil on the side slopes, with a minimum of 18 inches of topsoil over the center of the at-grade system. The entire at-grade system shall be seeded, sodded or otherwise provided with a grass cover to ensure stability of the installation.
10. The area surrounding the at-grade system shall be graded to provide for diversion of surface runoff water.

12.3 Dosing.

- a. Pump dosing shall be required for at-grade systems.
- b. The dosing volume shall be three to ten times the distribution piping network volume, but not more than 25 percent of the design flow shall be applied to the soil in one dose.
- c. The dosing pump shall be capable of maintaining a squirt height of 3 feet above the pipe at the outer ends of the distribution lines. All lines shall have an equal squirt height above the pipe to maintain equal distribution.

SECTION 13. DRIP IRRIGATION.

13.1 General design.

- a. Pretreatment required. Drip irrigation systems must be preceded by a secondary treatment system discharging a treated, filtered effluent with BOD and TSS values less than 30 mg/L.
- b. Separation from groundwater. Drip irrigation systems shall have a minimum vertical separation distance to high groundwater level or bedrock of 20 inches.
- c. Maximum hillside slope. Drip irrigation systems shall not be installed on slopes of more than 25 percent.
- d. Additional specifications. Specifications given in these rules for drip irrigation are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of these rules may be necessary to properly design a drip irrigation system.

13.2 Emitter layout.

- a. Discharge rate. Systems shall be designed so that emitters discharge approximately 1 gpm at 12 psi or other rates suggested by the manufacturer and approved by the administrative authority.
- b. Grid size. Drip lines shall be run in parallel lines 2 feet apart. Emitters shall be placed in the drip lines at 2-foot intervals, with emitters offset 1 foot between adjacent lines. Each emitter shall cover 4 square feet of absorption area.
- c. Field size. The field shall be sized according to the application rate given in Table IV.
- d. Depth of drip lines. Drip lines shall be laid on the contour, 6 to 12 inches deep, with a maximum line length of 100 feet. Lines may be of unequal length.
- e. Interconnection.
 - 1. All drip lines shall be connected to supply and return headers such that the entire system will automatically drain back to the dosing tank or pump pit upon completion of the pumping cycle. Vacuum breakers shall be positioned at the high point of the supply and return headers.
 - 2. The dosing tank shall have a high water audio/visual alarm.

Table IV

Length of Drip Line Required per Bedroom

Percolation Rate Min./in.	Design Hyd. Loading Gpd/sq.ft	Length of Drip Line Feet/bedroom
1 – 5	2.0	40
6 - 15	1.3	60
16 - 30	0.9	90
31 - 45	0.6	150
46 - 60	0.4	200
61 - 90	0.2	400
91 - 120	0.1	800

SECTION 14. PACKED BED MEDIA FILTERS.

- 14.1** Intermittent sand filters. The general requirements for intermittent sand filters are as follows:
- a. Use. Intermittent sand filters may be used when the administrative authority determines the site is unacceptable for a soil absorption system.
 - b. Location. Intermittent sand filters shall be located in accordance with the distances specified in Table I.
 - c. Sampling port. A sampling port shall be available at the discharge point of the filter or shall be installed in the discharge line.

- d. Effluent sampling. A sampling port shall be available at the discharge point of the filter or shall be installed in the discharge line. All packed bed media filter systems having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.
- e. Prohibited construction. There shall be no construction, such as buildings or concrete driveways, covering any part of an intermittent sand filter.

14.2 Construction.

- a. Pipelines. Each bed shall contain a horizontal set of collector lines. The collector lines shall be equivalent to SDR 35 PVC pipe, 10-inch-diameter gravel less drainpipe, EPS aggregate or other suitable materials.
 - 1. One collector line shall be provided for each 6 feet of width or fraction thereof. A minimum of two collector lines shall be provided.
 - 2. The collector lines shall be laid to a grade of 1 inch in 10 feet (or 0.5 to 1.0 percent).
 - 3. Each collector line shall be vented or connected to a common vent. Vents shall extend at least 12 inches above the ground surface with the outlet screened or provided with a perforated cap.
 - 4. Gravelless drain field pipe with fiber wrap may be used for the collector lines. If fiber wrap is used, no gravel or pea gravel is required to cover the collector lines and the pipe shall be bedded in filter sand.
 - 5. If 4-inch plastic pipe with perforations is used for the collector lines, the lines shall be covered as follows:
 - (a) Gravel $\frac{3}{4}$ inch to $2\frac{1}{2}$ inches in size shall be placed around and over the lower collector lines until there is a minimum of 4 inches of gravel over the pipes.
 - (b) The gravel shall be overlaid with a minimum of 3 inches of washed pea gravel $\frac{1}{8}$ -inch to $\frac{3}{8}$ -inch size interfacing with the filter media. A layer of fabric filter may be used in place of the pea gravel. Fabric filters must be 30 by 50 mesh with a percolation rate of at least 5 gal/sq. ft.
 - 6. A minimum of 24 inches of coarse washed sand shall be placed over the pea gravel or above the gravel less drain field pipe. The sand shall meet the Iowa DOT standards for concrete sand: 100 percent of the sand shall pass a 9.5 mm screen, 90 to 100 percent shall pass a 4.75 mm screen, 70 to 100 percent shall pass a 2.36 mm screen, 10 to 60 percent shall pass a 600 Tm screen, and 0 to 1.5 percent shall pass a 75 Tm screen.
 - 7. The discharge pipe that extends from the collection system shall be SDR 35 PVC pipe at a minimum.

14.3 Subsurface sand filters.

- a. Distribution system and cover.
 - 1. Gravel base. Six inches of gravel $\frac{3}{4}$ inch to $2\frac{1}{2}$ inches in size shall be placed upon the sand in the bed.
 - 2. Distribution lines. Distribution lines shall be level and shall be

horizontally spaced a maximum of 3 feet apart, center to center. Distribution lines shall be rigid perforated PVC pipe.

3. Venting. Venting shall be placed on the downstream end of the distribution lines, with each distribution line being vented or connected to a common vent. Vents shall extend at least 12 inches above the ground surface with the outlet screened or provided with a perforated cap.
 4. Gravel cover. Enough gravel shall be carefully placed to cover the distributors.
 5. Separation layer. A layer of material such as un-backed, rolled, 3½-inch-thick fiberglass insulation, untreated building paper of 40- to 60-pound weight or synthetic drainage fabric shall be placed upon the top of the upper layer of gravel.
 6. Soil cover. A minimum of 12 inches of soil backfill shall be provided over the beds.
 7. Distribution boxes. A distribution box shall be provided for each filter bed where gravity distribution is used. The distribution boxes shall be placed upon undisturbed earth outside the filter bed. Separate watertight lines shall be provided leading from the distribution boxes to each of the distributor lines in the beds.
 8. As an alternative to gravel and rigid PVC pipe, EPS aggregate may be used for the distribution system. The EPS aggregate shall cover the entire surface of the sand filter, and a 3-foot separation between distribution pipes shall be maintained.
 9. Pressure distribution. Pressure dosing is recommended to improve effluent distribution across the surface of the filter. Pressure distribution systems may use conventional rock and PVC pipe, chambers with small-diameter pipe, or EPS aggregate with small-diameter pipe.
- b. Sizing of subsurface sand filters.
1. Gravity flow. For residential systems, subsurface sand filters shall be sized at a rate of 240 square feet of surface area per bedroom.
 2. Siphon-dosed. For residential systems, subsurface sand filters dosed by a dosing siphon shall be sized at a rate of 180 square feet of surface area per bedroom.
 3. Pressure-dosed. For residential systems, subsurface sand filters dosed by a pump shall be sized at a rate of 150 square feet of surface area per bedroom.
 4. Non-household. Effluent application rates for commercial systems treating domestic waste shall not exceed the following:
 - (a) 1.0 gallon/square feet/day for single bed sand filters.
 - (b) The total surface area for any subsurface sand filter system shall not be less than 200 square feet.

14.4 Free access sand filters.

- a. Pretreatment required. These systems must be preceded by a secondary

treatment system discharging a treated effluent with BOD and TSS values less than 30 mg/L.

- b. Description. Media characteristics and under drain systems for free access filters are similar to those for subsurface filters. Dosing of the filter should provide uniform distribution across the entire surface of the bed. Dosing frequency is usually greater than four times per day. For coarser media (greater than 0.5 mm), a dosing frequency greater than six times per day is desirable. Higher acceptable loadings on these filters as compared to subsurface filters relate primarily to the accessibility of the filter surface for maintenance. Gravel is not used on top of the sand media, and the distribution pipes are exposed above the surface.
- c. Distribution. Distribution to the filter may be by perforated pipe laid on the surface, by pipelines discharging to splash plates located at the center or corners of the filter, or by spray distributors. Care must be taken to ensure that lines discharging directly to the filter surface do not erode the sand surface. The use of curbs around the splash plates or large stones placed around the periphery of the plates will reduce the scour. A layer of washed pea gravel placed over the filter media may also be employed to avoid surface erosion. This practice will create maintenance difficulties, however, when it is time to rake or remove a portion of the media surface.
- d. Covers. Free access filters shall be covered to protect against severe weather conditions and to avoid encroachment of weeds or animals. The cover also serves to reduce odors. Covers may be constructed of treated wooden planks, galvanized metal, or other suitable material. Screens or hardware cloth mounted on wooden frames may also serve to protect filter surfaces. Where weather conditions dictate, covers should be insulated. A space of 12 to 24 inches should be allowed between the insulated cover and sand surface. Free access filters may not be buried by soil or sod.
- e. Loading. The hydraulic loading for free access sand filters shall be 5.0 gpd/sq. ft.

14.5 Dosing. Dosing for sand filters is strongly advised. Without dosing, the entire area of the sand filter is never effectively used. Dosing not only improves treatment effectiveness but also decreases the chance of premature failure.

- a. Pumps. A pump shall be installed when adequate elevation is not available for the system to operate by gravity.
 - 1. The pump shall be of corrosion-resistant material.
 - 2. The pump shall be installed in a watertight pit.
 - 3. The dosing system shall be designed to flood the entire filter during the dosing cycle. A dosing frequency of greater than two times per day is recommended.
 - 4. A high water alarm shall be installed.
- b. Dosing siphons. When a dosing siphon is used where elevations permit, such siphon shall be installed as follows:
 - 1. Dosing siphons shall be installed between the septic tank and the sand filter bed.
 - 2. Dosing siphons shall be installed with strict adherence to the manufacturer's instructions.

- c. Dosing tanks. The dosing tank shall be of such size that the siphon will distribute effluent over the entire filter during the dosing cycle. Smaller, more frequent doses are recommended.
- d. Effluent sampling. A sampling port shall be available at the discharge point of the filter or shall be installed in the discharge line. All free access sand filters having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

14.6 Peat moss biofilter systems. General requirements for individual peat moss biofilter systems are as follows:

- a. Use. Peat moss biofilter systems may be used when the administrative authority determines the site is unacceptable for a soil absorption system or an intermittent sand filter.
- b. Certification. All peat moss biofilter systems shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 40, Class I, including appendices (March 2008), or equivalent testing as determined by the State of Iowa.
- c. Installation and operation. All peat moss biofilter systems shall be preceded by a septic tank and installed, operated and maintained in accordance with the manufacturer's instructions and the requirements of the administrative authority. The septic tank shall be sized as specified in paragraph 69.8(2)"a" or larger if recommended by the manufacturer. Sizing of the system should be based on the manufacturer's specifications.
- d. Maintenance contract. Prior to installation, a maintenance contract for the proper monitoring and servicing of the entire treatment system shall be established between the owner and a certified technician for the life of the system. All monitoring and servicing shall be performed by a manufacturer's certified technician or person demonstrating knowledge of the system in accordance with the manufacturer's standards. Manufacturers are responsible for ensuring that an adequate number of maintenance providers are available to service all peat moss biofilters at the specified intervals. The maintenance provider shall perform the required maintenance and reporting to the owner and to the administrative authority. The maintenance provider shall also report any discontinuance of maintenance of the peat moss biofilter system to the administrative authority. Peat moss biofilter systems shall be inspected annually by the maintenance provider. A copy of the maintenance contract shall be on file in the office of the administrative authority.
- e. Effluent sampling. A sampling port shall be available at the discharge point of the filter or shall be installed in the discharge line. All peat moss biofilter systems having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

14.7 Recirculating textile filter systems. General requirements for recirculating textile filter systems are as follows:

- a. Use. Recirculating textile filter systems may be used when the administrative authority determines the site is unacceptable for a soil absorption system or an intermittent sand filter.
- b. Certification. All recirculating textile filter systems shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 40, Class I, including appendices (March 2008), or equivalent testing as determined by the department.
- c. Design. Recirculating textile filter systems shall be designed to prevent the

passage of untreated waste during an equipment malfunction or power outage.

- d. Installation and operation. Recirculating textile filter systems shall be preceded by a septic tank and installed, operated and maintained in accordance with the manufacturer's instructions and the requirements of the administrative authority. The septic tank shall be sized as specified in section 9.2"a" or larger if recommended by the manufacturer. Sizing of the system should be based on the manufacturer's specifications.
- e. Maintenance contract. Prior to installation, a maintenance contract for the proper monitoring and servicing of the entire treatment system shall be established between the owner and a certified technician for the life of the system. All monitoring and servicing shall be performed by a manufacturer's certified technician or person demonstrating knowledge of the system in accordance with the manufacturer's standards. Manufacturers are responsible for ensuring that an adequate number of maintenance providers are available to service all recirculating textile filters at the specified intervals. The maintenance provider shall perform the required maintenance and reporting to the owner and to the administrative authority. The maintenance provider shall also report any discontinuance of maintenance of the system to the administrative authority. Recirculating textile filter systems shall be inspected, at minimum, annually by the maintenance provider. A copy of the maintenance contract shall be on file in the office of the administrative authority.
- f. Effluent sampling. A sampling port shall be available at the discharge point of the filter or shall be installed in the discharge line. All recirculating textile filter systems having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

SECTION 15. AEROBIC TREATMENT UNITS.

- 15.1** Use. Aerobic treatment units may be used only when the administrative authority determines that the site is unacceptable for a soil absorption system or an intermittent sand filter. Because of the higher maintenance requirements of aerobic treatment units, preference should be given to packed bed media filters, where conditions allow.
- 15.2** Certification. All aerobic treatment units shall be certified by an ANSI-accredited third-party certifier to meet National Sanitation Foundation Standard 40, Class I, including appendices (March 2008), or equivalent testing as determined by the department.
- 15.3** Installation and operation. All aerobic treatment units shall be installed, operated and maintained in accordance with the manufacturer's instructions and the requirements of the administrative authority. The aerobic treatment units shall have a minimum treatment capacity of 150 gallons per bedroom per day or 500 gallons, whichever is greater.
- 15.4** Pre-tank required. All aerobic treatment units shall be preceded by a septic or trash tank with a minimum capacity of 500 gallons. The trash tank may be a single-compartment tank. A trash tank built in as part of the aerobic treatment unit's design satisfies this requirement.
- 15.5** Effluent treatment. The discharge point of the aerobic treatment unit system shall be accessible for effluent sampling, or a sampling port shall be installed in the discharge line. The effluent from aerobic treatment units shall receive additional treatment through the use of intermittent sand filters or soil absorption systems of a magnitude prescribed in section 10.2 for pretreated effluent.

- 15.6** Maintenance contract. Prior to installation, a maintenance contract with a manufacturer-certified technician or equivalent, as determined by the department, shall be maintained at all times. The maintenance contract shall include the aerobic treatment unit and effluent disposal system. Manufacturers are responsible for ensuring that an adequate number of maintenance providers are available to service all aerobic treatment units at the specified intervals. The certified technician shall perform the required maintenance and reporting to the owner and to the administrative authority. The certified technician shall also report any discontinuance of maintenance of the system to the administrative authority. Aerobic treatment units shall be inspected for proper operation at least twice a year at six-month intervals by the certified technician. A copy of the maintenance contract shall be on file in the office of the administrative authority.
- 15.7** Effluent sampling. A sampling port shall be available at the discharge point of the aerobic treatment unit or shall be installed in the discharge line. All aerobic treatment unit systems having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

SECTION 16. CONSTRUCTED WETLANDS.

16.1 General site design.

- a. Application. Constructed wetlands shall only be used where soil percolation rates at the site exceed 120 minutes per inch. Because of the higher maintenance requirements of constructed wetland systems, preference should be given to packed bed media filters, where conditions allow.
- b. Effluent treatment. The effluent from a constructed wetland shall receive additional treatment through the use of intermittent sand filters of a magnitude prescribed in section 10.2 for pretreated effluent.
- c. Effluent sampling. All constructed wetland systems having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.
- d. Additional specifications. Specifications given in this rule for constructed wetlands are minimal and may not be sufficient for all applications. Technical specifications are changing with experience and research. Other design information beyond the scope of this rule may be necessary to properly design a constructed wetland system.

16.2 Wetland design.

- a. Depth. The wetland shall be of a subsurface flow construction with a rock depth of 18 inches and a liquid depth of 12 inches.
- b. Materials. Substrate shall be washed river gravel with a diameter of $\frac{3}{4}$ inch to $2\frac{1}{2}$ inches. If crushed quarried stone is used, it must meet the criteria listed in section 10.4 "a".
- c. Sizing and configuration. Detention time shall be a minimum of seven days.
 1. Dimensions. Detention time may be accomplished with trenches 16 to 18 inches deep (120. inches of liquid), 3 feet wide, with 100 feet of length per bedroom. Detention time may also be done with beds 16 to 18 inches deep, with at least 300 square feet of surface area per bedroom. The bottom of each trench or bed must be level within $\pm\frac{1}{2}$ inch.
 2. Configuration. Multiple trenches or beds in series should be used.

Beds or trenches in series may be stepped down in elevation to fit a hillside application. If the system is on one elevation, it should still be divided into units by earthen berms at about 50 and 75 percent of the total length.

3. Unit connections. Each subunit shall be connected to the next subunit with an overflow pipe (rigid sewer pipe) that maintains the water level in the first section. Protection from freezing may be necessary.
- d. Liner. Wetlands shall be lined with a synthetic PVC or PE plastic liner 20 to 30 mils thick.
- e. Inlet pipe. Effluent shall enter the wetland by a 4-inch pipe sealed into the liner. With beds, a header pipe shall be installed along the inlet side to distribute the waste.
- f. Protective berms. Wetland system sites shall be bermed to prevent surface water from entering the trenches or beds.

16.3 Vegetation.

- a. Setting plants. Vegetation shall be established on the wetlands at the time of construction. Twelve inches of rock shall be placed in each unit, the plants set, and then the final 4 to 6 inches of rock placed.
- b. Plant species. Only indigenous plant species, preferably collected within a 100-mile radius of the site, shall be set. Multiple species in each system are recommended. Preferred species include, but are not limited to:
 1. *Typha latifolia* – common cattail.
 2. *Typha angustifolia* – narrow leaf cattail.
 3. *Scirpus* spp. – bullrush.
 4. *Phragmites communis* – reed.
- c. Plant establishment. Transplantation is the recommended method of vegetation establishment. For transplanting, the propagule should be transplanted, at a minimum, on a 2-foot grid. The transplants should be fertilized, preferably with a controlled-release fertilizer such as Osmocote 18-5-11 for fall and winter planting, 18-6-12 for spring planting, and 19-6-12 for summer planting. Trenches or beds should be filled with fresh water immediately.
- d. Plant management. In the late fall, the vegetation shall be mowed and the detritus left on the wetland surface as a temperature mulch. In the early spring, the mulch shall be removed and disposed of to allow for adequate bed aeration.

SECTION 17. WASTE STABILIZATION PONDS.

- 17.1 General requirements. Waste stabilization ponds shall only be used for nonresidential applications and shall be designed by an Iowa-licensed engineer. Waste stabilization ponds may be used if designed and constructed in accordance with the following criteria and provided the effluent is discharged in accordance with the requirements of the NPDES general permit listed in section 5. A septic tank sized according to section 9 shall precede a waste stabilization pond.

- 17.2** Location. Waste stabilization ponds must meet the following separation distances:
- a. 1,000 feet from the nearest inhabitable residence, commercial building, or other inhabitable structure. If the inhabitable or commercial building is the property of the owner of the proposed treatment facility or there is written agreement with the owner of the building, this separation criterion shall not apply. Any such written agreement shall be filed with the county recorder and recorded for abstract of title purposes, and a copy submitted to the department.
 - b. 1,000 feet from public shallow wells.
 - c. 400 feet from public deep wells.
 - d. 400 feet from private wells.
 - e. 400 feet from lakes and public impoundments.
 - f. 25 feet from property lines and rights-of-way.
- 17.3** Size.
- a. Dimensions. Ponds shall have a length not exceeding three times the width.
 - b. Capacity. When domestic sewage from a septic tank is to be discharged to a waste stabilization pond, the capacity of the pond shall be equivalent to 180 times the average daily design flow.
 - c. Depth. The wastewater depth for a waste stabilization pond shall be 3 feet to 5 feet and shall be uniform.
 - d. Freeboard. A minimum freeboard of 2 feet shall be maintained at all times.
- 17.4** Embankments.
- a. Seal. Embankments shall be constructed of impermeable materials and shall be compacted. The bottom of the waste stabilization pond shall be cleared and leveled to the required elevation and shall be lined with an impermeable natural or man-made material. Seepage loss through the sides and bottom shall be less than 1/16 inch per day.
 - b. Slopes. The ratio of inside embankment slopes shall be 3 horizontal to 1 vertical. The outside embankment slope ratio shall be at least 3:1.
 - c. Berm top. Berm tops shall be at least 4 feet wide.
 - d. Cover. Embankments shall be seeded from the outside toe to the inside high water line. From the high water line down the embankment diagonally, about 5 feet shall be ripped for erosion and vegetation control.
- 17.5** Inlet and outlet structures.
- a. Inlet. The inlet shall be placed no higher than 12 inches above the bottom of the pond. It shall discharge near the middle of the pond at a point opposite the overflow structure and onto a concrete splash plate at least 2 feet square.
 - b. Outlet. The outlet pipe shall withdraw water from a submerged depth of at least 1 foot. The intake for the outlet pipe shall be 3 to 5 feet from the embankment.

- c. Separation. The inlet and outlet should be separated to the maximum extent possible, ideally by a berm or baffle constructed in the lagoon to prevent short-circuiting.

17.6 Drainage. All surface water shall be diverted away from the waste stabilization pond.

17.7 Effluent sampling. All waste stabilization ponds having an open discharge shall be sampled in accordance with the requirements of NPDES General Permit No. 4 if applicable.

17.8 Maintenance.

- a. Fencing. All waste stabilization ponds are to be fenced adequately to prevent entrance of livestock and to discourage entrance by people into the area. Signs shall be posted warning of possible health and safety hazards.

- b. Vegetation. Vegetation on the top and sides of the berm shall be mowed and the length maintained. No trees shall be allowed to become established.

SECTION 18. REQUIREMENTS FOR IMPERVIOUS VAULT TOILETS.

All impervious vault toilets shall comply with the following requirements:

18.1 Location. Impervious vault toilets shall be located in accordance with the distances given in Table I in section 3 for the closed portion of the treatment system.

18.2 Construction. The vault shall be constructed of reinforced, impervious concrete at least 4 inches thick. The superstructure including floor slab, seat, seat cover, riser and building shall comply with good design and construction practices to provide permanent, safe, sanitary facilities. The vault shall be provided with a cleanout opening fitted with a fly-tight cover.

18.3 Wastewater disposal. Wastewater from impervious vault toilets shall be disposed of at a public sewage treatment facility.

SECTION 19. REQUIREMENTS FOR PORTABLE TOILETS.

All portable toilets shall be designed to receive and retain the wastes deposited in them and shall be located and maintained in a manner that will prevent the creation of any nuisance condition. Wastewater from portable toilets shall be disposed of at a public sewage treatment facility.

SECTION 20. OTHER METHODS OF WASTEWATER DISPOSAL.

Other methods or types of private wastewater treatment and disposal systems shall be installed only after plans and specifications for each project have been approved by the administrative authority.

SECTION 21. DISPOSAL OF SEPTAGE FROM PRIVATE SEWAGE DISPOSAL SYSTEMS.

21.1 The collection, storage, transportation and disposal of all septage shall be carried out in accordance with the requirements in Iowa Administrative Code 567—Chapter 68.

21.2 Commercial septic tank cleaners. Individual administrative authorities shall enforce the licensing program for commercial septic tank cleaners in accordance with the requirements of Iowa Administrative Code 567—Chapter 68.

SECTION 22. EXPERIMENTAL PRIVATE SEWAGE DISPOSAL SYSTEMS.

- 22.1** Design requirements. Experimental systems are to be designed and operated in accordance with approved standards and operating procedures established by individual administrative authorities.
- a. Plans and specifications, meeting all applicable rule requirements, should be prepared and submitted to the administrative authorities by a licensed professional engineer. Included with the engineering submittal should be adequate supporting data relating to the effectiveness of the proposed system.
 - b. For systems designed to discharge treated effluent into waters of the state, a Notice of Intent to be covered under the requirements of NPDES General Permit No. 4 shall be obtained. The administrative authority is responsible for determining that the requirements of the permit, including the monitoring program, are met.
 - c. Administrative authorities should prepare for signature an enforceable agreement to be placed on record which would require that present and future system owners meet all applicable rule requirements. In the event of noncompliance, the administrative authority shall require that adequate steps be taken by the system owner to bring the system into compliance or that the system owner replace the system with a system prescribed in these rules.

SECTION 23. VARIANCES.

Variances to these rules may be granted by the Department of Natural Resources or the administrative authority provided sufficient information is submitted to substantiate the need and propriety of such action. Applications for variances and justification shall be in writing and copies filed with the County.

SECTION 24. ADMINISTRATION.

- 24.1** Enforcement. It shall be the duty of the Environmentalist to administer and enforce the provisions of this regulation. The Environmentalist shall keep records of permits issued, inspections and re-inspection. These duties may be delegated to an authorized representative.
- 24.2** Inspections. Upon completion of the construction, alteration, extension, or repair, the permit holder shall inform the Environmentalist who shall conduct the inspection within twenty-four (24) hours, exclusive of Saturdays, Sunday, and holidays, after the receipt of notice, or as soon thereafter as practicable. If the Inspector finds the work to be in conformity with the provisions of this regulation, the inspector shall endorse his/her approval on the permit, with a signature and date of inspection.
- 24.3** Right of Entry.
- a. The Environmentalist shall have the right during reasonable hours and upon consent of the occupant to enter any building or premises in the discharge of their official duties to make any inspection, re-inspection, or test that is reasonably necessary to protect the public health, safety, and welfare. Where the building or premises is unoccupied, the consent of the owner shall be obtained.
 - b. If the Environmentalist has reasonable cause to believe that any individual sewage disposal system constitutes an extreme hazard to person or property, they shall have the right to enter immediately and inspect such sewage disposal system and may use any reasonable means required to effect such entry and make such inspection, whether such property be occupied or unoccupied and whether or not permission to inspect has been obtained.
- 24.4** Refusal of Admittance. If the Environmentalist, in proceeding to enter any

premises for the purpose of making an inspection to carry out the provisions of this regulation, shall be refused entry, a complaint may be made under oath to any court of competent jurisdiction and said court shall thereupon issue its order authorizing the Environmentalist to enter such place for the purpose of making such inspection.

24.5 Notice. Whenever the Environmentalist determines that there are reasonable grounds to believe that there has been a violation of any provision of this regulation or any rule or regulation adopted pursuant thereto, they shall give notice of alleged violation to the person or persons responsible therefor, as hereinafter provided. Such notice shall:

- a. Be in writing.
- b. Include a statement of the reasons why it is being issued, citing the provisions of the regulation involved.
- c. Allow a reasonable time for the performance of any act it requires.
- d. Be served upon the owner or his/her agent or the occupant, as the case may require; provided that such notice shall be deemed properly served upon such owner or agent, or upon such occupant if a copy thereof is served upon them personally; or if a copy thereof is posted in conspicuous place in or about the premises affected by the notice, or if they are served with such notice by any other method authorized or required under the laws of the State of Iowa.
- e. State that unless a condition described is corrected within the time specified therein, any permit issued under this regulation may be suspended, revoked or court action initiated.

24.6 Appeal. Any person aggrieved by any order made by the Environmentalist shall have the right to appeal to the Board of Health by filing a written notice of such appeal with the Board of Health within ten (10) days of the date of such order. If such notice is filed, the Board of Health shall set a time and place for a hearing, and notify the party that has filed the appeal. The date of the hearing shall not be more than twenty (20) days after the date the notice of appeal was filed. The notice of the hearing shall be sent by certified mail. The Board of Health by majority vote shall modify, withdraw or order compliance with said order. The aggrieved party may appeal any order of the Board of Health to the District Court of Muscatine County, Iowa within twenty (20) days of the date of such order.

24.7 Comply with Regulations. All individual sewage disposal systems in existence in the County of Muscatine, State of Iowa, before the effective date of this regulation shall be made to comply with the requirements of the regulation when in the opinion of the Health Officer a serious health hazard exists.

All individual sewage disposal systems located within the County of Muscatine shall be properly operated and maintained by the property owner.

All abandoned septic tanks and privy vaults shall be cleaned, disinfected and filled to the surface of the surrounding ground with materials approved by the Environmentalist.

SECTION 25. JURIDICTION.

The provisions of this regulation shall apply throughout Muscatine County, Iowa, including cities and towns therein; provided such cities have not adopted a Board of Health prior to 2010, pursuant to Chapter 137, 2013 Code of Iowa, in which event the provisions of this regulation shall not apply to said City.

SECTION 26. VIOLATIONS AND PENALTIES.

These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

**Appendix A
Estimates of Nonhousehold Domestic Sewage Flow Rates**

Source of use for sewage unit	(units)	Gallons per day per unit
Dwelling Units		
Hotels or luxury motels	(Each guest)	60
	(Add per employee)	13
or	(Per square foot)	0.3
Discount motels	(Each guest)	40
	(Add per employee)	13
or	(Per square foot)	0.46
Rooming house	(Each resident)	50
	(Add per nonresident meal)	4.0
Commercial/Industrial		
Retail stores	(Per square foot of sales area)	0.15
or	(Each customer)	5
	(Plus each employee)	15
or	(Each toilet room)	630
Offices	(Each employee)	18
or	(Per square foot)	0.25
Medical offices	(Per square foot)	1.6
Industrial buildings	(Each employee)	20
	(Does not include process ware or cafeteria)	
Construction camp	(Each employee)	20
Visitor center	(Each visitor)	20
Laundromat	(Each machine)	690
or	(Each load)	50
or	(Per square foot)	2.9
Barber shops	(Per chair)	80
Beauty shops	(Per station)	300
Car washes	(Per inside square foot)	10
	(Does not include car wash water)	
Eating and Drinking Establishments		
Restaurant	(Per meal)	4.0
	(Does not include bar or lounge)	
or	(Each seat)	40
	(Plus add for each employee)	13
Dining Hall	(Per meal)	4.0
Coffee Shop	(Each customer)	2.5
	(Add per employee)	13
Cafeteria	(Each customer)	2.5
	(Add per employee)	13
Drive-in	(Per car stall)	145
Bar or lounge	(Each customer)	5.5
	(Add per employee)	16
or	(Per seat)	40
Country clubs	(Per member) (No meals)	22
or	(Per member) (Meals and showers)	130
or	(Per member in residence)	100

Source of use for sewage unit	(units)	Gallons per day per unit
Resorts		
Housekeeping cabin	(Per person)	50
Lodge	(Per person)	74
Parks/swimming pools	(Per guest)	13
Picnic parks with toilet only	(Per guest)	10
Movie theaters	(Per guest)	4.0
Drive-in theaters	(Per space)	5
Skating rink/dance hall	(Per customer)	10
Bowling lanes	(Per lane)	200
Transportation		
Airport, bus or rail depot	(Per passenger)	4
or	(Per square foot)	6.5
or	(Per public restroom)	630
Auto service station	(Each vehicle served)	13
	(add per employee)	16
or	(Per inside square foot)	0.6
or	(Per public restroom)	630
Institutional		
Hospitals	(Each medical bed)	250
	(Add per employee)	16
Mental institution	(Each bed)	175
	(Add per employee)	16
Prison or jail	(Each inmate)	160
	(Add per employee)	16
Nursing home	(Each resident)	145
	(Add per employee)	16
Schools and Churches		
School	(Per student) (No gym, cafeteria or showers)	17
	(Per student)(Cafeteria only)	17
	(Per student)(Cafeteria, gym & showers)	30
Boarding school	(Per student)	115
Churches	(Per member)	2
	(Per member with kitchen)	5
Recreational		
Campground/with hookups	(Per person)	40
or	(Per site with central bath)	100
	(per site)	75
	(add for dump station w/ hookup)	16
Day camp (no meals)	(Per person)	16
Weekly overnight camp	(per member)	33

CHAPTER III.

NUISANCE

SECTION 1. NUISANCE - WHAT CONSTITUTES - ACTION TO ABATE.

Whatever is injurious to health, indecent, or offensive to the senses, or an obstruction to the free use of property, so as essentially to interfere with the comfortable enjoyment of life or property, is a nuisance, and a civil action by ordinary proceedings may be brought to enjoin and abate the same and to recover damages sustained on account thereof.

SECTION 2. WHAT IS DEEMED A NUISANCE.

The following are nuisances:

- a. The erecting, continuing, or using of any building or other place for the exercise of any trade, employment, or manufacture, which, by occasioning noxious exhalations, offensive smells, or other annoyances, becomes injurious and dangerous to the health, comfort, or property of individuals or the public.
- b. The causing or suffering of any offal, filth, or noisome substances to be collected or to remain in any place to the prejudice of others.
- c. The corrupting or rendering unwholesome or impure the water of any river, stream, or pond, or unlawfully diverting the same from its natural course or state, to the injury or prejudice of others.
- d. The depositing or storing of inflammable junk, such as old rags, rope, cordage, rubber, bones, and paper, by dealers in such articles within the fire limits of any city, unless it be in a building of fireproof construction, is a public nuisance.
- e. The emission of dense smoke, noxious fumes, or fly ash in cities is a nuisance and cities may provide the necessary rules for inspection, regulation and control.
- f. Dense growth of all weeds, vines, brush, or other vegetation in any city, town, subdivision, or mobile home park so as to constitute a health, safety or fire hazard is a public nuisance.
- g. Trees infected with disease in cities and towns - any dead tree.
- h. Inadequate or unsanitary sewage or plumbing facilities.
- i. The unlawful disposal of the carcasses of dead animals, fish or fowl.
- j. Failure to secure areas, buildings, equipment or places against unauthorized access where such access threatens the health or safety of individuals.
- k. Any attractive nuisance, which may prove detrimental to life, health or safety whether in building, on the premises of a building or upon an unoccupied lot. This includes any abandoned well shaft, basement, or abandoned, unattended, or used refrigerators, ice boxes and similar containers, equipped with airtight door or lid, snap lock or other locking device which may not be released from the inside. The duties of this chapter are imposed alike on the owner of the nuisance and the owner or occupant of the premise where the nuisance is permitted to remain.

SECTION 3. ANIMALS.

Any animal or fowl, whether pet or otherwise, kept for any purpose within the boundaries of Muscatine County shall be kept in such a manner as not to create a nuisance as defined in Chapter 657.1, Code of Iowa, 1973.

SECTION 4. GARBAGE.

- a. The term garbage shall be interpreted to mean all putrescible waste, except sewage and body wastes, including vegetable and animal offal and carcasses of dead animals, but excluding recognized industrial by-products, and shall include all such substances from all public and private establishments and from all residences.
- b. All garbage and refuse shall be collected sufficiently frequent to prevent nuisance and shall be collected in covered vehicles approved by the health officer.
- c. No person, firm or corporation shall collect garbage or refuse who does not possess a permit from the Environmentalist.

SECTION 5. RAT HARBORAGE.

- a. Rat harborage shall mean any condition which provides shelter or protection for rats, thus favoring their multiplication and continued existence in, under or outside, of any structure.
- b. It shall be unlawful for any person to place, leave, dump or permit to accumulate any garbage, rubbish or trash in any structure or on any property so that the same may afford food or harborage for rats.
- c. It shall be unlawful for any person to permit to accumulate on any property, any articles or materials that may constitute a rat harborage. Such materials or articles shall be placed on racks that are elevated not less than eighteen (18) inches above the ground and evenly piled or stacked.
- d. Upon receipt of a written notice or order from the local board of health, the owner of any property specified therein shall take immediate measure for rat control. In the event such control measures are not instigated within the time designated, this board may instigate condemnation and destruction proceedings or take such action as deemed necessary.

SECTION 6. VIOLATIONS AND PENALTIES.

These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

SECTION 7. PROCESS.

When upon indictment, complaint, or civil action any person is found guilty of erecting, causing, or continuing a nuisance, the court before whom such finding is had, may, in addition to the fine imposed, if any, or the judgment for damages or cost for which a separate execution may issue, order that such nuisance be abated or removed at the expense of the defendant, and, after inquiry into and estimating as nearly as may be the sum necessary to defray the expenses of such abatement, the court may issue a warrant therefore.

SECTION 8. STAY OF EXECUTION.

Instead of issuing such warrant, the court may order the same to be stayed upon motion of the defendant, and upon his entering into an undertaking to the county, is such sum and with such surety as the court may direct, conditioned either that the defendant will discontinue said nuisance, or that, within a time limited by the court, and not exceeding six (6) months, he will cause the same to be abated and removed, as either is directed by the court; and, upon his failure to perform the condition of his undertaking, the same shall be forfeited, and the court, upon being satisfied of such default, may order such warrant forthwith to issue and action may be brought on such undertaking.

SECTION 9. EXPENSES - HOW COLLECTED.

The expense of abating a nuisance by virtue of a warrant can be collected by the officer in the same manner as damages and costs are collected on execution, except that the materials of any building, fences, or other things that may be removed as a nuisance may be first levied upon and sold by the officer, and if any of the proceeds remain after satisfying the expense of the removal, such balance must be paid by the officer to the defendant, or to the owner of the property levied upon; and if said proceeds are not sufficient to pay such expense, the officer must collect the residue thereof.

SECTION 10. ADOPTION OF 1997 UNIFORM CODE FOR ABATEMENT OF DANGEROUS BUILDINGS.

There is hereto adopted in full the 1997 Uniform Code for the Abatement of Dangerous Buildings, with the following amendments:

Chapter 1 - Title and Scope.

Section 102.1 shall be amended by omitting the words *Housing Code*.

Section 102.2 shall be amended to read:

"The provisions of this code shall apply to all dangerous buildings, as herein defined, which are now in existence or may hereafter become dangerous in this jurisdiction. No part of this code shall apply to buildings or structures that are by reason of use or nature primarily adapted for agricultural purposes.

Section 103 shall be amended to read:

"All buildings or structures which are required to be repaired under the provisions of this code shall be subject to the provisions of the Muscatine County Construction Code."

Chapter 2 - Enforcement.

Section 204 shall be amended to read:

"All buildings or structures within the scope of this code and all construction or work for which a permit is required shall be subject to inspection by the building official in accordance with and in the manner provided by this code and the Muscatine County Construction Code."

Section 205.1 shall be amended by adding:

"For purposes of this code, the Board of Appeals shall be the Building Board of Appeals as approved for hearing appeals of the Muscatine County Construction Code."

Chapter 3 - Definitions.

Section 301 shall be amended as follows:

The definition of Building Code is amended to read "*Building Code is the Muscatine County Construction Code as adopted by this jurisdiction.*"

The definition of Housing Code is omitted.

Section 302.12 is amended by removing the words *Housing Code*.

Chapter 8 - Performance of Work of Repair or Demolition.

Section 801.1 is amended to read:

"When any work of repair or demolition is to be done pursuant to Section 701.3, Item 3, of this code, the building official shall issue a Request for Proposal soliciting bids from private contractors to perform such work under the direction of said official. Plans and specifications therefore may be prepared by said official, or the official may employ such architectural and engineering assistance on a contractual basis as deemed reasonably necessary. Any work completed by private contract shall be accomplished through standard Muscatine County contractual procedures."

Section 802.1 is amended by replacing the words "*director of public works*" with "*Building Official*".

Chapter 9 - Recovery of Cost of Repair or Demolition.

Section 901 is amended by replacing the words "*director of public works*" with the words "*Building Official*" and the word "*director*" with "*Official*".

The full provisions of the above-listed code are incorporated herein by reference without being set out in full as authorized by Section 331.302(11) of the Code of Iowa.

TITLE III: PROPERTY AND LAND USE

CHAPTER I.

SUBDIVISION ORDINANCE

ARTICLE I: TITLE, JURISDICTION, AND DEFINITIONS

SECTION 1. SHORT TITLE.

This Ordinance shall be known, and may be cited and referred to as the Subdivision Ordinance of Muscatine County, Iowa.

SECTION 2. GENERAL JURISDICTION.

It shall be unlawful for any person being the owner, agent or person having control of any land within the unincorporated portion of Muscatine County to create a subdivision unless by a plat, in accordance with the regulations contained herein. Such plat shall be submitted to the Board of Supervisors for approval or disapproval. No plat shall be recorded and no lots shall be sold from such plat unless and until approved as herein provided, and all public lands and rights dedicated to the governing body having jurisdiction for the area in which it is located.

SECTION 3. DEFINITIONS.

For the purpose of this Ordinance, certain terms and words are hereby defined. Words used in the present tense shall include the future, the singular number shall include the plural, and the plural shall include the singular; the word "shall" is mandatory, the word "may" is permissive.

Building Line	A line designating the allowable proximity of a building or structure to adjacent street, alley or property line.
Collector Streets	A street which carries traffic from minor streets to a thoroughfare, including the principal entrance streets of residential development.
Cut	Portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below original ground surface to excavated surface.
Debris Basin	A barrier or dam built across a waterway or at other suitable locations to retain rock, sand, gravel, or silt or other material.
Cul-de-sac Street	A minor street with only one outlet.
Dwelling	<p>Any building or portion thereof having one or more habitable rooms which are designed to be occupied by one family with facilities for living, sleeping, cooking, eating, and sanitation. The dwelling unit shall be constructed in compliance with the U.S. Department of Housing and Urban Development Code under authority of 42 U.S.C., Sec. 5403, Federal Manufactured Home Construction and Safety Standards.</p> <p>A dwelling unit shall have a floor area of at least six hundred forty square feet (640 sq. ft.), minimum width of twenty feet (20') at least seventy-five percent (75%) of its narrowest dimension unless otherwise noted in this Chapter, be placed on permanent foundation, have a perimeter foundation of masonry construction (load or non-load), and be taxed as real property.</p>
Easement	A grant by a property owner of the use of land for public utilities, drainage, sanitation or other specified uses to the public generally, to a person or persons, or to another legal entity.
Erosion	The wearing away of the land surface by the action of wind, water or gravity.
Existing Grade	The vertical location of the existing ground surface prior to cutting or filling.

Finished Grade	The final grade or elevation of the ground surface conforming to the proposed design.
Grading	Any stripping, cutting, filling, stockpiling, or any combination thereof and shall include the land in its cut filled condition.
Half Street	A street bordering one or more property lines of a tract of land in which the developer has allocated but part of the ultimate right-of-way width.
Lot	<p>A lot is a parcel land of at least sufficient size to meet minimum zoning requirements for its intended use, coverage and area, and to provide such yards and other open space as are herein required. Such lot shall have frontage on a public street or private street and may consist of:</p> <ol style="list-style-type: none"> a. A single lot of record; b. A portion of a lot of record; c. A combination of complete lots of record; of complete lots of record and portions of lots of record; or of portions of lots of record; and d. A parcel of land described by metes and bounds; provided that in no case of division or combination shall any residual lot or parcel be created which does not meet requirements of this ordinance.
Marginal Access Street	A minor street which is parallel and adjacent to a thoroughfare, and which, provides access to abutting properties and protection from through traffic.
Manufactured Home	A factory built structure, which is manufactured or constructed under the authority of 42 U.S.C., Sec. 5403 and is to be used as a place for human habitation as defined by a dwelling unit, but which is not constructed or equipped with a permanent hitch or other device allowing it to be moved other than for the purpose of moving to a permanent site, and which does not have permanently attached to its body or frame any wheels or axles. Any factory-built structure used for human habitation, which does not meet all the above requirements is considered a mobile home and shall be regulated as a mobile home.
Minor Street	A street of limited continuity used primarily for access to abutting properties and the local needs of a neighborhood.
Mobile Home	A factory-assembled structure equipped with the necessary service connections, designed so as to be readily transported on its own chassis and be designed to be used for residential purposes with or without a permanent foundation. Such a structure shall be considered a mobile home whether or not the original running gear, axles, and tongue or hitch have been removed.
Mulching	The application of plant or other suitable materials on the soil surface to conserve moisture, hold soil in place, and aid in establishing plant cover.
Natural Ground Surface	The ground surface in its original state before any grading, excavation, or filing.
Pedestrian Way	A right-of-way across or within a block, for use by pedestrian traffic whether designated as a pedestrian way, crosswalk or other name.
Permanent Foundation	A site-built or site-assembled system of stabilizing devices when running gear assembly is removed. It must be capable of transferring design dead loads and live loads required by Federal regulations, and other design loads unique to local home sites, wind, seismic, soil, and water site conditions that may be imposed on the structure. The foundation shall be to a depth of not less than forty-two inches (42") below grade and constructed of materials approved by Sections 25 or 26 of the Uniform Building Standards, dated 1982.
Plat	A map, drawing or chart of a subdivision.
Sediment	Solid material, both mineral and organic, that is in suspension, is being transported, or has been moved from its site of origin by air, water, or gravity as a product of erosion.
Slope	Degree of deviation of a surface from the horizontal, usually expressed in percent or degree.

Soil	All unconsolidated mineral and organic material of whatever origin that overlies bedrock which can be readily excavated.
Stripping	Any activity which removes or significantly disturbs the vegetative surface cover including clearing and grubbing operations.
Subdivider	Any individual, firm, association, syndicate, partnership, corporation, guardian, attorney, trust, or any other legal entity commencing proceedings under the regulations of this Ordinance to effect a subdivision of land hereunder for himself or herself or for another or for others.
Subdivision	The division of a lot, tract or parcel of land into two or more lots, sites or other divisions of land for the purpose, whether immediate or future, of sale or building and, when appropriate to the context, relates to the process of subdividing or to the lands or area subdivided. The following divisions shall not be considered subdivisions within the jurisdiction of this Ordinance where no new streets, roads or other areas intended for public use are involved: (a) divisions of land for agricultural purposes into parcels of forty (40) acres or more not involving any new road, street, easement or other dedication; (b) divisions of property by testamentary or intestate provisions; (c) divisions of property upon court order; and, (d) divisions of land created by right-of-way acquisitions by a governmental unit.
Surveyor	A registered, licensed, certified, or public land surveyor in good standing with the registration board of this state, whose education, training and experience qualify him to perform all of the acts of subdividing required of a surveyor by this Ordinance.
Temporary Protection	Stabilization of erosive or sediment producing areas.
Thoroughfare	A public right-of-way with a high degree of continuity and serving as an arterial traffic-way between various districts.
Vegetative Protection	Stabilization of erosive or sediment producing areas by covering the soil with: <ul style="list-style-type: none"> a. Permanent seeding, producing long-term vegetative cover, or b. Short-term seeding producing temporary vegetative cover, or c. Sodding, producing areas covered with a turf perennial sod-forming grass.

ARTICLE II: PRELIMINARY PLAT

SECTION 1. APPROVAL AND ACCEPTANCE PROCEDURE.

The following procedures shall be followed in order to secure approval of a preliminary plat:

- 1.1** Any owner or subdivider who wished to secure the County Zoning Commission and County Board of Supervisors approval of his proposed plat and subdivision shall submit to the County Zoning Commission and County Board of Supervisors three (3) print copies and one (1) digital copy, in a format specified by the County Zoning Administrative Officer, of said plat and other required information.
- 1.2** The County Zoning Commission and County Board of Supervisors shall study such preliminary plat and other information received from the Muscatine County Board of Health, the Muscatine Soil Conservation District, and the County Engineer and shall within sixty (60) days of receipt, approve or reject such plat and plan. The approval of the preliminary plat and plan shall constitute authorization for preparation and submission of the final plat and plan for approval by the County Zoning Commission and County Board of Supervisors.
- 1.3** The Preliminary Plat shall not be approved unless it includes a complete plan for soil erosion and sediment control, developed in accordance with the technical standards and specifications of the Muscatine Soil Conservation District and approved by the Soil Conservation District. The subdivider shall attach a statement to the erosion and sediment control plan certifying that the construction and/or development will be done in accordance with the plan. Within thirty (30) days of the receipt of the materials from the

County Zoning Administrative Officer, the Soil Conservation District shall notify in writing the County Zoning Administrative Officer that the erosion and sediment control plan has been (1) approved, (2) approved subject to modification, or (3) disapproved. If disapproved, the Soil Conservation District shall submit to the County Zoning Administrative Officer, a statement setting forth reasons for disapproval, and indicating in what way this plan fails to conform to the technical standards and specifications of the Soil Conservation District.

- 1.4 The County Zoning Commission and County Board of Supervisors may direct that the owner or subdivider attend any deliberation on the submitted plat and plan.
- 1.5 The County Zoning Commission and County Board of Supervisors may reject any plat and plan with specific recommendations to the owner or subdivider.
- 1.6 If a final plat is not filed within twelve (12) months of receiving approval of the preliminary plat and plan or an extension of time is not authorized by the County Zoning Administrative Officer, the approval of the preliminary plat becomes null and void.

SECTION 2. PRELIMINARY PLAT REQUIREMENTS.

Preliminary plat requirements, which shall be met before plat and plan will be considered by the County Zoning Commission shall set out:

- 2.1 The proposed name of subdivision.
- 2.2 The location by section, township and range and by other legal description.
- 2.3 The names and addresses of the owner or subdivider of tract and engineer or person preparing plat and information.
- 2.4 A plat and plan drawn shall be both clearly stated and graphically illustrated by a bar scale drawn on every sheet showing any portion of the lands subdivided.
- 2.5 The points of compass.
- 2.6 The date of preparation.
- 2.7 The boundary line of the proposed subdivision.
- 2.8 The approximate total area in the subdivision.
- 2.9 The location of existing public ways with improvements, railroad and utility right-of-ways, parks and other public open spaces, permanent buildings and structures, easements, section and township lines within proposed boundaries and to a distance of two hundred feet (200') beyond the tract.
- 2.10 The location and size of existing sewers, water mains, culverts and other underground facilities within and to a distance of two hundred feet (200') of the tract.
- 2.11 The boundary lines, names of owners, and zoning classification of adjoining unsubdivided or subdivided land within two hundred feet (200') of the tract.
- 2.12 A topographic map of the property showing contour intervals of two feet (2') shall be required by the County Zoning Commission.
- 2.13 The layout of proposed right-of-way widths and street names. Street naming shall conform to the Rural Address System Ordinance.
- 2.14 The proposed location and width of lot lines, building lines, pedestrian ways and utility easements.

- 2.15 The zoning classification of the subdivision.
- 2.16 The type of street cross section and type of surfacing.
- 2.17 The location of existing and proposed sanitary sewer lines and public disposal system, or location of existing and proposed individual septic tanks and absorption system.
- 2.18 The location of individual wells and fire wells or hydrants.
- 2.19 The location of all existing buildings and structures.
- 2.20 The location of all components and facilities of an approved Storm Water Management Plan, as required in Chapter II. Zoning Ordinance, Article XVI, Section 6 for Muscatine County.

SECTION 3. EROSION AND SEDIMENT PLAN REQUIREMENTS.

Two (2) copies of the plan for reducing erosion and controlling sediment on the subdivision site during and after construction, prepared in accordance with these regulations and soil loss limits established and adopted by the Muscatine Soil Conservation District shall be submitted to the County Zoning Commission.

- 3.1 The erosion and sediment control plan shall include as a minimum the following information for the entire tract of land, whether or not the tract will be developed in stages:
 - 3.11 Such soils information and interpretations pertaining to the site as may be available from the Soil Conservation District.
 - 3.12 Plans and specifications of soil erosion and sedimentation control measures to be applied to the site in accordance with the official standards and specifications of the Soil Conservation District.
 - 3.13 A timing schedule indicating the anticipated starting and completion dates of the development sequence and the time of exposure of each area prior to the completion of effective erosion and sediment control measures.
- 3.2 Practical combinations of the following general principles will provide effective erosion and sediment control when properly planned and installed:
 - 3.21 The development plan shall be adapted to the topography and soils so as to create the least erosion potential.
 - 3.22 Grading or alteration of land within the one hundred (100) year flood plain of watercourses will not be permitted unless sufficient technical data is presented to assure that such changes will not adversely affect erosion, sedimentation or stream flow characteristics.
 - 3.23 Planned permanent vegetation or improvements, such as streets and storm sewers, including other facilities for conveying storm runoff in a safe manner, shall be installed before other development occurs. An exception may be granted where following development will destroy the above planned permanent vegetation or improvements.
 - 3.24 Indiscriminate land clearing and baring shall be avoided. Natural vegetation shall be retained and protected where it does not conflict with development. Valuable trees in particular shall be saved by protecting from mechanical injury and from earth cut or fill beneath the canopy.
 - 3.25 Where inadequate vegetation exists, temporary or permanent vegetation shall be established.

- 3.26 The smallest practical area of land shall be exposed at any one time during development.
- 3.27 Land will not be exposed more than one month before either temporary or permanent erosion and sediment controls are installed.
- 3.28 Critical areas exposed during construction shall be protected with temporary vegetation and/or mulching. Where these areas are subject to damage by runoff from lands above, provisions shall be made for safely diverting or conveying such overflows.
- 3.29 Sediment basins (debris basins, desilting basins, or silt traps) shall be installed and maintained to remove sediment from run-off waters from land undergoing development.
- 3.30 Provisions shall be made to safely convey or temporarily store increased storm runoff resulting from land use and management changes associated with the development.
- 3.31 Topsoil shall be stockpiled and protected by temporary vegetation or mulching and returned to exposed areas after grading and development is complete.
- 3.32 Permanent vegetation and structures shall be installed area by area as development is completed.
- 3.33 All measures undertaken to reduce erosion and control sediment shall be in conformance with the official technical standards and specifications of the Muscatine Soil Conservation District.

ARTICLE III: FINAL PLAT

SECTION 1. APPROVAL AND ACCEPTANCE PROCEDURE.

The following procedures shall be followed in order to secure approval of a final plat:

- 1.1 The owner or subdivider shall, within twelve (12) months of receiving approval of this preliminary plat and plan file with the County Zoning Commission for its approval or rejection the original and five (5) print copies and one (1) digital copy, in a format specified by the County Zoning Administrative Officer, of the final plat and plan of the proposed subdivision. The original shall be on white paper of not less than twenty-pound weight without watermarks or other visible inclusions. Each document shall be of sufficient legibility to produce a clear reproduction. Printing on one side only. Black ink or dark blue ink.
- 1.2 The County Zoning Administrative Officer shall review the final plat and additional materials to determine if any changes have been made between the approved preliminary plat and the proposed final plat. If the County Zoning Administrative Officer determines there have been no changes, he shall be authorized and it shall be standard practice to waive the review by the County Engineer and Muscatine Soil Conservation District, and to present the final plat directly to the County Zoning Commission.
- 1.3 Before approval is given to a final plat and plan that required reviews by the County Engineer and Muscatine Soil Conservation District all recommendations shall be attached; the County Zoning Commission shall study and approve or reject the final plat and plan; and the County Zoning Commission shall note such approval, on the plat and plan, over the signature the Chairperson of the County Zoning Commission.
- 1.4 Upon approval by the County Zoning Commission, said plat and plan shall be submitted by the Commission to the County Board of Supervisors for final approval and acceptance

of all easements. Streets, ways, parks or public areas will not be dedicated and accepted by the County as public responsibility unless the County deems the improvements as a necessity for the public good of the County residents. All improvements to be dedicated to the County will meet the specifications and standards of the County Board.

- 1.5 If the County Zoning Commission does not approve the final plat and plan of a subdivision, the County Board of Supervisors may approve said plat and plan by a two-thirds (2/3) vote of the entire membership of the Board. Provisions for the acceptance of easements, streets, ways, parks or public areas will be the same as provided in Sub-section 1.4.
- 1.6 After approval of the final plat and plan by the County Board of Supervisors, the County Zoning Commission shall notify the owner or subdivider. Any approval shall be null and void if the plan is not recorded, in exact form approved, with the Muscatine County Recorder. Upon certification by the Recorder that copies of the plat are true, two copies of the plat, on linen or plastic film shall be provided to and filed by the Muscatine County Zoning Administrative Officer and one copy of the plat shall be provided to and filed by the Muscatine County Recorder, Auditor and Assessor.
- 1.7 Approval of the final plat by the County Board of Supervisors shall be null and void if the plat is not recorded within ninety (90) days after the date of approval unless an application for an extension of time is made in writing during said ninety (90) day period to the County Board of Supervisors and approved. Requests for an extension after the ninety (90) day period must be in writing and will be subject to a fee set by the Board of Supervisors.

SECTION 2. FINAL PLAT REQUIREMENTS.

- 2.1 All information shown on the preliminary plat, except topographic data, shall be shown on the final plat.
- 2.2 The size of each sheet shall be no larger than eleven inches (11") by seventeen inches (17") overall or the size the Muscatine County Recorder is able to scan, copy and record with a marginal line drawn, placed so as to leave a one-half inch (1/2") margin on each of three (3) sides and one and one-half inch (1-1/2") margin on the binding side.
- 2.3 Whenever more than one (1) sheet must be used to accurately portray the lands subdivided, each sheet must show the particular number of that sheet and the total number of sheets included, as well as clearly labeled match lines to show where other sheets adjoin.
- 2.4 The scale used shall be both clearly stated and graphically illustrated by a bar scale drawn on every sheet showing any portion of the lands subdivided.
- 2.5 The name of the subdivision shall be shown in bold letters inside the margin at the top of each and every sheet included.
- 2.6 A prominent north arrow shall be drawn on every sheet included, showing any portion of the lands subdivided, when possible it shall be placed in the upper right-hand corner. The bearing reference shall be clearly stated below each north arrow shown.
- 2.7 All monuments to be of record must be adequately described and clearly identified on the plat. Where additional monuments are to be set subsequent to the recording of the plat as provided in Sub-section 30.05 the location of such additional subordinate monuments shall be shown by a district symbol noted on the plat as representing subordinate monuments.
- 2.8 Sufficient survey data shall be shown to positively describe the bounds of every lot, block, street, easement, and other areas shown on the plat, as well as the outer boundaries of the lands subdivided.

- 2.9** A licensed land surveyor shall certify that the plat represents a survey made by him and that monuments and markers shown thereon exist as shown.
- 2.10** All distances shall be shown in feet and to the nearest one-hundredth foot, and in accordance with the definition of a foot adopted by the United States Bureau of Standards. All measurements shall refer to the horizontal plane.
- 2.11** The course of every boundary line shown on the plat shall be indicated by a direct bearing reference or by an angle between it and an intersecting line having a shown bearing except where such line has an irregular or constantly changing course, as along a body of water, or where its description is better illustrated by measurements shown at points or intervals along a meander line having shown courses. All bearing and/or angles shown shall be given to the nearest minute of arc, or to a small fraction to be stated in seconds or arc.
- 2.12** Curve data shall be stated in terms of radius, central angle, and tangent, or length of curve, and unless otherwise specified by local ordinance, curve data for streets of uniform width may be shown only with reference to the centerline, and lots fronting on such curves may show only the chord bearing and distance of such portion of the curve as is included in their boundary; in all other cases the curve data must be shown for the line affected.
- 2.13** When any lot or portion of the subdivision is bounded by an irregular line, the major portion of the lot or subdivision shall be enclosed by a meander line showing complete data with distance along all lines extending beyond the enclosure to the irregular boundary shown with as much certainty as can be determined or as "more or less" if variable. In all cases the true boundary shall be clearly indicated on the plat.
- 2.14** All interior excepted parcels shall be clearly indicated and labeled, "not a part of this plat."
- 2.15** All adjoining properties shall be identified, including lines of adjoining streets and alleys with their widths and names, and where such adjoining properties are a part of a recorded subdivision the name of that subdivision shall be shown. If the subdivision platted is a resubdivision of a part or the whole of a previously recorded subdivision, sufficient ties shall be shown to controlling lines appearing on the earlier plat to permit an overlay to be made; the fact of its being a resubdivision shall be stated as a subtitle following the name of the subdivision wherever it appears on the plat.
- 2.16** The purpose of any easement shown on the plat must be clearly stated, and shall be confined to only those that deal with public utilities, such as gas, power, telephone, water, and such drainage easements as deemed necessary for the orderly development of the land encompassed within the plat. All such easements relative to their usage and maintenance must be approved by the governing or jurisdictional body or their agent prior to recording of the final plat.
- 2.17** No strip of land shall be reserved by the subdivider unless the same is of sufficient size and shape to be of some practical use or service.
- 2.18** All blocks must be numbered or lettered in consecutive order. All lots within each block must be numbered in consecutive order. All streets must be named, numbered, or lettered in accordance with the Rural Address System Ordinance.
- 2.19** The purpose of all areas dedicated to the public must be clearly indicated or stated on the plat.
- 2.20** All protective covenants or private restrictions pursuant to Article V, Section 2 of this ordinance shall be shown on the plat and correctly referenced.
- 2.21** The proper acknowledgment of owners and mortgages accepting said platting and restrictions shall be shown on the plat.

- 2.22** When a proposed entrance of the subdivision is onto a county road, the approval of the County Engineer regarding such entrance shall be appended to the plat; except, where such control is exercised by the Iowa Department of Transportation and then the approval of this body shall accompany the final plat.
- 2.23** The following access provisions shall be compiled with:
 - 2.231** Entrances to individual lots will not be approved from any established public highway.
 - 2.232** Access to all lots shall be from the streets in the subdivision.
 - 2.233** When a proposed subdivision abuts and extends along a public highway, access must be from a frontage road located parallel to and between the right-of-way and the subdivision. The frontal road shall be set back so as to permit an increase in the right-of-way of the public highway.
 - 2.234** Connections of proposed streets or frontal roads with the established public road shall be spaced a minimum of six hundred sixty feet (660') apart, unless the County Engineer recommends exceptions, which may be granted on account of adequate sight distances or other engineering reasons.
 - 2.235** When any single lot is laid out along a public highway which requires an entrance from the public highway, consideration must be given for sufficient distance back of the right-of-way line of the public road to establish a frontal road if there is any possibility of additional lot sales in the future.

SECTION 3. VACATION OF PLATS BEFORE LOTS SOLD.

The following procedures shall be followed in order to vacate any final plat before any plated lots have been sold:

- 3.1** Any final plat may be vacated by the subdivider thereof, with the consent of a majority of the entire membership of the County Board of Supervisors, at any time before the sale of any lots, by a written instrument declaring the same to be vacated, executed, acknowledged, and recorded in the same office with the plat to be vacated, and to divest all public rights in the streets, alleys, and public grounds described therein.
- 3.2** Any part of a final plat may be vacated pursuant to Sub-section 3.1.
- 3.3** Nothing contained in this section shall authorize the closing or obstruction of highways.
- 3.4** When any part of a final plat is vacated, the owners of the lots may enclose the streets and public grounds adjoining them in equal proportion, except as provided in Sub-section 3.6.
- 3.5** The Muscatine County Recorder shall write across that part of the plat so vacated the word "vacated", and make a reference on the same to the volume and page in which the instrument is recorded.
- 3.6** Vacations made under this section shall not be construed to affect any lands lying within the County which have been dedicated or deeded and have been accepted by the County for public parks or other public purposes.

SECTION 4. VACATION OF PLATS AFTER LOTS SOLD.

The following procedures shall be followed in order to vacate any final plat after any plated lots have been sold:

- 4.1** Any final plat may be vacated by the subdivider thereof, in cases where lots in the subdivision have been sold, in the same manner as provided in Sub-section 3.1. of this ordinance, except that all of the owners of lots in the plat must join in the execution of the aforesaid writing.
- 4.2** Any part of a final plat may be vacated pursuant to Sub-section 3.1 of this ordinance, except that all of the owners of lots in the part of the plat to be vacated must join in the execution of the aforesaid writing.
- 4.3** Nothing contained in this section shall authorize the closing or obstruction of highways.
- 4.4** When any part of a final plat is vacated, the owners of the lots may enclose the streets, and public ground adjoining them in equal proportion, except as provided in Sub-sections 4.6 and 4.9.
- 4.5** The Muscatine County Recorder shall write across that part of the plat so vacated the word "vacated", and make a reference on the same to the volume and page in which the instrument is recorded.
- 4.6** Vacations made under this section shall not be construed to affect any lands lying within the County, which have been dedicated or deeded and accepted by the County for public parks or other public purposes.
- 4.7** Whenever the owners of one or more lots in a plat which has been recorded, shall desire to vacate a part of the plat, a petition, signed by all the owners of lots adjoining or within two hundred feet (200') of the lots and roads, streets or alleys to be vacated, shall be submitted to the Muscatine County Zoning Commission. Upon hearing, the County Zoning Commission shall submit its recommendation to the Muscatine County Board of Supervisors.
- 4.8** The County Zoning Administrative Officer shall give notice of hearing before the County Zoning Commission by publication in a newspaper of general circulation published within the county at least fifteen (15) days prior to the date of the hearing, and by certified mail to all owners of lots adjoining or within two hundred feet (200') of the lots and roads, streets or alleys to be vacated. Notice of hearing before the County Board of Supervisors upon the County Zoning Commission recommendation shall be by publication in a newspaper of general circulation published within the county at least fifteen (15) days prior to the date of the hearing, and by certified mail to all owners of lots adjoining or within two hundred feet (200') of the lots and roads, streets or alleys to be vacated.
- 4.9** Notice of hearing before the County Zoning Commission and the County Board of Supervisors shall include the time and place of such hearing, the location of the particular plat, and road, street or alley, or part thereof, the vacation of which is to be considered, and such other data as may be deemed pertinent.
- 4.10** At the hearing upon the petition and recommendation of the County Zoning Commission, the County Board of Supervisors, if it shall appear that all the owners of lots in the part of the plat and road, street or alley to be vacated desire the vacation, and there is no valid objection thereto, a decision shall be rendered vacating such portion of the plat and the roads, streets, or alleys therein, and for all purposes of assessment such portion of the County shall be as if it had never been platted into lots; but if any street as laid out on the plat shall be needed for public use, it shall be excepted from the order of vacation and shall remain a public highway. A copy of the vacation decision rendered by the County Board of Supervisors shall be filed with the Muscatine County Auditor.
- 4.11** At or before the hearing of the petition before the County Zoning Commission, the County Engineer shall submit an affidavit stating that the roads, streets and alleys proposed to be vacated are not accepted by the County, are not generally used by the public, the County does not maintain or exercise control over these roads, streets and alleys, and the County will execute a Quit Claim Deed for the roads, streets and alleys vacated pursuant

to this ordinance to adjacent land owners upon request and receipt of an accurate legal description.

SECTION 5. REPLATTING.

The owner of any lots in a vacated plat may cause the same and a proportionate part of the adjacent streets and public grounds to be replatted and numbered by a registered land surveyor in the same manner as is required for platting in the first instance, and when such plat is acknowledged by such owner, and is recorded as provided in this Ordinance, such lots may be conveyed and assessed by the number given them on such plat.

ARTICLE IV: IMPROVEMENTS

SECTION 1. IMPROVEMENTS.

Improvements Required. Before any portion of the final plat of any subdivision is finally approved for recording, the subdivider shall make and install improvements required as hereinafter stated, in that portion of the plat which is to be finally recorded. The final plat shall not be approved until the plans and specifications are acceptable to the County Engineer. In lieu of final completion of the minimum improvements before the plat is finally approved, the subdivider shall post a bond or suitable alternative performance guarantee, approved by the County Board of Supervisors and County Treasurer, which bond will insure to the County that the improvements will be completed by the subdivider within three (3) years after final approval of the plan and to provide for the repairs necessitated by defects in material or workmanship within two (2) years of completion of said improvements. The amount of the bond shall not be less than the estimated cost of the improvements as determined by a Registered Professional Engineer acting for the subdivider and the amount of the estimate must be approved by the County Engineer.

Before any dwelling or mobile home can be occupied, all improvements passing the front of the dwelling or mobile home must be complete.

SECTION 2. MINIMUM IMPROVEMENTS.

2.1 Streets. The subdivider shall grade and improve all streets within the subdivision. The plat must show that the streets will not be dedicated as public responsibility, but are to be maintained by the abutting property owners or the subdivision's home association.

2.11 Two types of cross sections are provided for, namely: open type ditches for surface drainage and closed ditch section designed for surface water to be carried in adequately designed storm sewers and intakes as follows:

2.111 Open type ditches for surface drainage specifications:

Shoulder-to-shoulder width - minimum of thirty feet (30').

Crown - minimum of six inches (6").

Fore slopes - minimum of two (2) to one (1).

Ditch bottom width - variable, minimum of four feet (4').

Back slopes - minimum of one and one-half (1-1/2) to one (1).

Cross Road Culverts - size; as required by Talbot's Formula using a maximum rainfall of four inches (4") per hour.

Cross Road Culverts - type and minimum depth of fill shall meet manufacturer's limitations.

Entrance pipe - diameter; minimum of eighteen inches (18"). Type, either concrete or corrugated metal pipe.

Surfacing for subdivisions with less than 40 lots - minimum construction: six inches (6") rolled stone base with double bituminous seal coat as per current Iowa Department of Transportation Standard Specifications.

Surfacing for subdivisions with 40 or more lots - minimum construction: 22' width, soil sub-base with moisture and density control of 95 PFC or greater, with 6-inches (6") rolled stone base and 3-inches (3") asphalt concrete wearing surface.

2.112 Closed Ditch Section - designed for surface water to be carried in adequately designed storm sewers and intakes specifications:

Shoulder-to-shoulder - width; minimum of forty-three feet (43').

Combination curb and gutter - minimum width back to back of curbs; thirty-one feet (31').

Curb height above gutter - minimum of six inches (6").

Cross road and entrance culverts - same requirements as set out for open type ditch section.

Surfacing - minimum construction shall be a four inch (4") soil aggregate sub base, with a six inch (6") rolled stone base and a three inch (3") asphaltic concrete wearing surface, or a six inch (6") unreinforced portland cement concrete pavement, or a four inch (4") black base and two inch (2") mat.

2.12 The street profiles and drainage connected with such streets shall be determined by a Registered Professional Engineer. In any subdivision containing a lot or lots of less than one (1) acre, the County Zoning Commission shall determine which type of cross section shall be required by the owner or subdivider.

2.2 Sanitary Sewer System. All components and facilities shall be constructed in conformance with the Private Sewage Disposal Systems Ordinance of Muscatine County, including mandatory connection to a public sewer system when it is reasonably accessible or when it is not reasonably accessible, use of an approved onsite wastewater treatment and disposal system.

2.3 Water System. All components and facilities shall be constructed in conformance with the Water Wells Ordinance of Muscatine County.

2.4 Storm Water Management. All components and facilities of an approved Storm Water Management Plan shall be constructed in conformance with the plan.

2.5 Minimum Lot Size. Fifteen thousand square feet (15,000 sq. ft.) lots as outlined in the R-3 zoning classification and the five thousand (5,000) or seven thousand (7,000) square feet outline in the M-1 zoning classification will not be permitted unless a community well and central sewerage system is provided to serve all dwelling units. A minimum lot of twenty thousand square feet (20,000 sq. ft.) in the R-2 zoning classification may be approved if private septic tanks and wells are to be used, provided that the size of septic tanks and subsurface absorption system and location and depth of individual wells meet the requirements of the Division of Engineering of the Public Health Department of the State of Iowa.

Approval of this lot size or R-2 zoning classification under the sewage and water supply facilities may be denied if the soil type is such that the individual septic tanks will contaminate the ground water used for the water supply.

- 2.6 Fire Wells and Water Hydrants.** Fire wells or water hydrants or both must be located at adequate intervals in the subdivision. Water hydrants must be provided only when access to a municipal water system is within one-fourth (1/4) mile of the subdivision.
- 2.7 Plantings.** The subdivider shall not plant trees on the parking area of any street in subdivisions.
- 2.8 Additional Improvements.** The County Zoning Commission may require the installation of sidewalks or pedestrian ways and street lights. The subdivider may also be required to grade and seed or sod all lots, plant trees, install street signs and provide parks, playgrounds and recreation areas.
- 2.9 Fences.** When a subdivision adjoins property used for agricultural purposes, the subdividers shall assume the responsibility of construction and maintenance of a fence along the common boundary between the subdivision and the agricultural property. The fence shall be of thirty-two inch (32") woven wire construction, with steel or wooden posts set every twelve feet (12'), and with three (3) strands of barbed wire. The subdivider must transfer this responsibility to the subsequent property owners.

SECTION 3. EASEMENTS

The following minimum standards shall apply to the granting of easements:

- 3.1 Streams.** Where a subdivision is traversed by a water course, drainage way, channel or stream, the subdivider shall make adequate provision for straightening or widening the channel so it will properly carry the surface water and shall also provide and dedicate to Muscatine County an easement for access fifteen feet (15') wide adjoining the top of both banks of such water course and substantially following the lines of such water course, or the relocation of the water course.
- 3.2 Utilities.**
- 3.21** All plats shall provide for utility easements; such easements shall have minimum widths of fifteen feet (15') and, where located along adjoining lot lines, one-half the width shall be taken from each lot. Before approval of any plat, the location of such easements shall be submitted for approval of local public utilities companies.
- 3.22** A perpetual easement shall be granted over and along areas shown on the plat and marked "Easement" in which utility agencies may install, lay, construct, renew, operate, maintain and remove conduits, cables, pipes, poles and wires, overhead and underground, with all necessary braces, and the right to install service drops either overhead or underground from point of service to any house or building in a line which may cross more than one lot if necessary, together with guys, anchors and other equipment for the purpose of servicing lots in the subdivision and other property, if expedient, with water, sewer, telephone, gas and electric service as part of the respective utility systems. There shall also be granted the right to trim and keep trimmed any trees or shrubs which may interfere or threaten to interfere with any of such public utility equipment, and the right shall also be granted to such agencies to enter upon the lots at all times necessary for the purposes aforesaid. No permanent buildings or trees shall be placed on areas shown on any plat and marked as "Easement" but same may be used for gardens, shrubs, landscaping and other purposes which do not then or shall not later interfere with the aforesaid uses or the rights to be granted.
- 3.23** The foregoing right shall be granted upon the express condition that the respective utility agencies will assume liability for all damage to the property caused by failure to use due care in exercise of the granted right.

3.24 Upon receipt of a proposed plat from the proprietor, the utility agencies affected shall within ten (10) days thereafter approved, disapprove and give reasons, or do nothing. The County Zoning Commission shall make the final decision in those incidents of conflict between utility agencies and proprietor.

SECTION 4. MONUMENTATION OF LAND SURVEYS.

Any boundary control monument set by a land surveyor shall be of reasonably permanent material solidly embedded in the ground and capable of being detected by magnetic or electronic equipment in common use. In addition, the land surveyor shall solidly affix to the top of the monument a cap of reasonably inert material bearing an embossed or stencil cut marking of the Iowa registration number of the land surveyor. Aliquot corners shall be marked in accordance with the procedure described in the "Manual of Instructions for the Survey of the Public Lands of the United States." If only one reference or witness corner is used, it must be an actual boundary line or prolongation thereof, otherwise at least two such reference or witness monuments shall be set. No land surveyor shall remove or destroy existing evidence to a boundary when setting a monument. Such evidence shall be lowered in its true position and be fully described in the field notes and plat of survey.

ARTICLE V: MINIMUM STANDARDS OF DESIGN AND DEVELOPMENT

SECTION 1. APPLICABILITY.

No preliminary or final plat and plan of a proposed subdivision shall be considered for approval unless it conforms to the following minimum standards of design necessary to protect public health, safety and general welfare.

SECTION 2. CHARACTER OF DEVELOPMENT.

The County Zoning Commission shall confer with the subdivider regarding the type and character of development by reason of flooding, ponding, poor drainage, adverse soil conditions, adverse geological formations, unsatisfactory topography or other conditions likely to be harmful to the public health, safety or general welfare, unless such unsuitable conditions are corrected to the satisfaction of the County Zoning Commission. Based on the land suitability and zoning regulations or proposed zoning district for the subdivision, the County Zoning Commission may require that certain minimum deed restrictions be placed upon the property.

SECTION 3. LANDS SUBJECT TO FLOODING.

A subdivision containing land located in a floodway or a flood hazard area shall conform to the Muscatine County Flood Plain Management Ordinance, Title III, Chapter IV.

SECTION 4. PLAT TO CONFORM TO COMPREHENSIVE PLAN.

The arrangement, character, extent, width, grade and location of all streets, and the general nature and extent of the lots and uses proposed, shall conform to the *Muscatine County Comprehensive Plan* and shall conform to such other plans, including but not limited to a County Road or Street Plan, Sanitary Sewer System Plan, a Water System Plan or a Parks and Open Space Plan, provided such plan has been adopted by the County.

SECTION 5. CONSTRUCTION STANDARDS FOR IMPROVEMENTS.

In addition to the standards set forth in this Ordinance, the County Engineer shall from time to time prepare, and the Board of Supervisors shall from time to time adopt by resolution, technical standards for public improvements. Such standards shall contain the minimum acceptable specifications for the construction of improvements. Such technical standards may vary for classes of improvements, giving due regard to the classification of streets and roads or other improvements, and the extent and character of the area served by the improvements. Upon adoption, such standards shall have force and effect as if they were fully set forth herein.

SECTION 6. ENGINEERING CERTIFICATION.

All designs, materials, inspection and construction procedures on said streets shall be certified to the County Engineer by a written report signed by a Registered Professional Engineer.

SECTION 7. LARGE LOT SUBDIVISIONS.

Whenever the area is divided into lots containing one (1) or more acres and there are indications that such lots will eventually be subdivided into small building plots, consideration must be given to the street and lot arrangement of the original subdivision so that additional minor streets can be opened which will permit a logical arrangement of smaller lots.

SECTION 8. LOT CONFIGURATION.

Side lines of lots shall be at right angles or radial to the street line or substantially so; and along curvilinear street lines, side lines of lots formed by radial projections shall form a lot having not less than twenty feet (20') across the rear property line.

SECTION 9. STREET DESIGN.

9.1 Relation to Adjoining Street Systems. The arrangement of streets in new subdivision shall make provisions for the continuation of the principal existing streets in adjoining additions or their projection where adjoining property is not subdivided.

9.2 Right-of-Way Requirements. The following minimum right-of-ways shall be provided:

Collector streets	66 feet
Minor streets	66 feet
Cul-de-sac streets	66 feet
Marginal access streets	66 feet
Pedestrian ways	10 feet

9.3 Thoroughfares. Thoroughfares and other higher class streets shall meet standards designated by the County Board of Supervisors with the advice of the County Zoning Commission.

9.4 Cul-de-sac Streets. Cul-de-sac streets shall be no more than five hundred feet (500') long. Each cul-de-sac shall have a terminus of nearly circular shape with a minimum diameter of one hundred and ten feet (110').

9.5 Alleys. Alleys shall not be permitted in a residential district unless deemed necessary by the County Zoning Commission.

SECTION 10. SANITARY SEWER DESIGN.

Subdivisions containing forty (40) or more lots shall provide common sanitary sewerage treatment using the administrative rules of the Iowa Department of Natural Resources. Subdivisions containing less than forty (40) lots may install septic systems in lieu of the common treatment using County Health Department standards. If the developer or the developer's successors subsequently files a Preliminary Plat or Final Plat which would increase the total number to forty (40) or more lots, the County Zoning Commission shall not consider such plat until the developer installs or, agrees to install, at his own expense, common sewer to the previously approved lots. This restriction covers all contiguous land which the developer owns or purchases in the future. A bond or performance guarantee as described in Article IV, Section 1 may be posted in lieu of sewer installation. Lots where septic systems are proposed shall provide adequate space for two (2) septic fields, the second field to act as a back up when the first field fails.

Subdivisions containing twenty (20) lots or more shall submit plans on the preliminary plat that include provisions for entity managed waste water treatment systems. Preliminary soil evaluations or percolation test results shall be included and space reserved on each lot for accommodating individual treatment systems or portions of a community treatment system shall be included on the preliminary plat. In the event that soil conditions dictate that alternate systems

such as a sand filter be required, a common discharge line shall be noted on the preliminary plat and installed by the developer where topography allows. Individual sampling ports shall be installed where necessary. A management entity may be anyone qualified to sample and/or maintain the types of systems present in the development. Proof of contract with a qualified management entity shall be provided prior to any system be permitted or any occupancy being granted for any residence within the development.

SECTION 11. PEDESTRIAN WAYS.

Pedestrian ways may be required in blocks of length greater than nine hundred feet (900').

SECTION 12. RAILROADS.

When the area to be subdivided adjoins a railroad right-of-way, no street shall be planned which is parallel or approximately parallel to the railroad, unless it is one hundred fifty feet (150') or more from the line of the railroad right-of-way.

SECTION 13. PARKS, PLAYGROUNDS AND RECREATION AREAS.

The subdivider of all residential subdivisions with forty (40) or more lots shall reserve land for parks and playgrounds or other recreation purposes in locations where such reservations would be appropriate. Each reservation shall be of suitable size, dimension, topography and general character and shall have adequate road access for the particular purpose. The area shall be shown and marked on the plat, "Reserved for Park and/or Recreation Purposes". The subdivider shall use the following table, which is based on providing three (3) acres of recreation area for every one hundred (100) dwelling units. The County Zoning Commission may refer such proposed reservations to the Muscatine County Conservation Board for recommendations. The reservation shall be preserved by covenant of private open space, provided there shall exist sufficient covenants, running with the land, to insure adequate maintenance by the property owners benefiting from such parks and playgrounds or other recreation purposes.

Table of Recreation Requirements

Single Family Lots Size of Lot	Percentage of Total Land Subdivision to be Reserved Recreation Purposes
80,000 sq.ft.	or > 1.5%
50,000 sq.ft.	2.5%
40,000 sq.ft.	3.0%
35,000 sq.ft.	3.5%
25,000 sq.ft.	5.0%
15,000 sq.ft.	8.0%

ARTICLE VI: VARIATIONS AND EXCEPTIONS

SECTION 1. VARIATIONS AND EXCEPTIONS PERMITTED.

Whenever the tract proposed to be subdivided is of such unusual size or shape or is surrounded by such development or unusual conditions that the strict application of the requirements contained in the Muscatine County Subdivision Ordinance would result in substantial hardships or injustices, the County Board of Supervisors upon recommendation of the County Zoning Commission may modify or vary such requirements to the end that the subdivider is allowed to develop the property in a reasonable manner; provided, however, that all such variations and exceptions granted hereunder shall be in harmony with the intended spirit of the Muscatine

County Subdivision Ordinance and granted with the view toward protecting the public interest and welfare. Any variance recommended by the County Zoning Commission is required to be entered in writing in the minutes of the County Zoning Commission and the reasoning on which the departure was justified shall be set forth.

SECTION 2. LIMITATIONS.

In no case shall any variation or modification be more than a minimum easing of the requirements of the Muscatine County Subdivision Ordinance. In no case shall it have the effect of reducing the traffic capacity of any street or be in conflict with any zoning ordinance or map.

SECTION 3. APPROVAL REQUIRED.

Such variances and waivers may be granted by an affirmative vote of two-thirds (2/3) of the members of the County Board of Supervisors.

SECTION 4. CONDITIONAL APPROVAL.

In granting variances and modifications, the County Board of Supervisors may require such conditions as will, in its judgment, secure substantially the objectives of the requirements so varied or modified.

ARTICLE VII: AMENDMENTS

SECTION 1. AMENDMENTS.

Any regulation or provisions of this ordinance may be changed and amended from time to time by the County Board of Supervisors; provided, however, that such changes and amendments shall not become effective until after study and report by the County Zoning Commission and until after a public hearing has been held, a public notice of which shall have been given in a newspaper of general circulation in the County at least fifteen (15) days prior to such hearing.

ARTICLE VIII: ADMINISTRATION AND ENFORCEMENT

SECTION 1. ENFORCEMENT.

No plat of any subdivision shall be entitled to be recorded in the County Recorder's office or have validity until it shall have been approved in the manner prescribed herein.

The County Zoning Administrative Officer shall not issue zoning certificates or permits for any structure located on a lot in any subdivision, the plat of which has been prepared after the date of the adoption of this ordinance but which has not been approved in accordance with the provisions contained herein.

SECTION 2. VIOLATIONS AND PENALTIES.

These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

SECTION 3. RESTRAINING ORDER.

In case any building or structure is erected, constructed, reconstructed, altered, repaired, converted, or maintained, or any building, structure or land is used in violation of this Ordinance, the proper authorities of the County, in addition to other remedies, may institute any proper action or proceed in the name of Muscatine County, Iowa, to prevent such unlawful erection, construction, maintenance or use, to restrain, correct or abate such violation, to prevent any illegal act, conduct, business or use in or about said premises.

SECTION 4. FEES.

Before a preliminary plat shall be considered by the County Zoning Commission, the subdivider or his agency shall deposit with the Treasurer of Muscatine County, Iowa, in care of the County

Zoning Administrative Officer, a fee determined by the County Board of Supervisors. Before a final plat shall be considered by the County Zoning Commission the subdivider or his agent shall deposit with the Treasurer of Muscatine County, Iowa, in care of the County Zoning Administrative Officer, a fee determined by the County Board of Supervisors.

SECTION 5. INTERPRETATION, PURPOSE AND CONFLICT.

Whenever the regulations of this Ordinance require a greater width of size of yards, court or other open spaces, or require a greater percentage of the lot to be left unoccupied or impose other higher standards than are required in any other Statute or local Ordinance or Regulations, the provisions of this Ordinance shall govern. Whenever the provisions of any other Statute or Local Ordinance or Regulation require a greater width or size of yards, courts or other open spaces, or require a greater percentage of the lot to be left unoccupied or impose other higher standards than are required by this Ordinance, the provisions of such Statute or Local Ordinance or Regulation shall govern.

SECTION 6. VALIDITY.

If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be invalid, such decision shall not affect the validity of the remaining portions of this Ordinance.

CHAPTER II.
ZONING ORDINANCE

ARTICLE I: TITLE, EXEMPTIONS, DEFINITIONS

SECTION 1. SHORT TITLE

This Ordinance shall be known and may be cited and referred to as the Zoning Ordinance of Muscatine County, Iowa.

SECTION 2. FARMS EXEMPT

In compliance with Chapter 335.2, Code of Iowa, 2011, no regulations or restriction adopted under the provisions of this Ordinance shall be construed to apply to land, farm houses, farm barns, farm outbuildings, or other buildings, structures, or erections which are primarily adapted by reason of nature and area, for use for agricultural purposes while so used; provided, however, that such regulations or restrictions which related to any structure, building, dam, obstruction, deposit or excavation in or on the flood plains of any river or stream shall apply thereto.

It shall be the responsibility of any person or group claiming that certain property is entitled to exemption on the basis of this section to demonstrate that the property is used for agricultural purposes.

SECTION 3. DEFINITIONS

For the purpose of this Ordinance, certain terms and words are hereby defined. Words used in the present tense shall include the future; words in the singular number shall include the plural and words in the plural number shall include the singular; the word "building" shall include the word "structure", and the word "shall" is mandatory and not directory.

- Accessory Use Or Structure A use or structure subordinate to the principal use of a building on the lot and serving a purpose customarily incidental to the use of the principal building.
- Alley A public way for the use of vehicles which affords only a secondary means of access to abutting property.
- Amusement Place A completely enclosed building arranged, intended or designed for recreation or , amusement use which is not noxious or offensive due to the emission of odors, gas, smoke, or noise; which is not a menace to public health and safety and which will not substantially or permanently injure the appropriate use of neighboring property.
- Apartment A room or suite of rooms in a multi-family dwelling intended or designed for use as a residence by a single family.
- Basement A story having part but no more than one-half of its height below grade. A basement is counted as a story for the purpose of height regulations.
- Bed and Breakfast A private residence which provides lodging and meals for transient guests on an overnight basis for periods not to exceed fourteen (14) consecutive days, in which the host or hostess resides and in which no more than five guest rooms are occupied at the same time and which, while it may advertise and accept reservations, does not hold itself out to the public to be a hotel, motel or restaurant, only serving food to overnight guests.
- Billboard Any structure, other than a building, used for the display of advertising, other than:
- a. Church or similar bulletin board;

- b. Signs pertaining only to the lease, hire or sale of a building or premises;
- c. Signs advertising the sale of products grown only upon the premises; or
- d. An announcement or identification sign with the name and address of the owner or tenant residing on the premises.

Boarding, Lodging, Rooming House A building other than a hotel where, for compensation and by arrangement, meals, and/or lodging are provided for three (3) or more persons.

Building Any structure having a roof supported by walls or by columns intended for enclosure, shelter or housing of persons, animals or chattels. When any portion thereof is separated by party walls without windows, doors, or other openings, each portion so separated shall be deemed a separate building, except residential dwellings.

Building, Height of The vertical distance from the average natural grade at the building line, to the highest point of the coping of a flat roof, or to the deck line of a mansard roof, or to the mean height level, between eaves and ridge for gable, hip and gambrel roofs.

Bulk Plant That portion of property where flammable liquids, or gases, or fertilizers or feeds are received by pipeline, tank cars, or tank vehicles, and are stored in the bulk for the purpose of distributing such products by tank vehicle, pipeline, tank car or container.

Cellar A story having more than one-half its height below grade. A cellar is not counted as a story for the purpose of height regulations.

Club, Private A building or portion thereof, or premises owned and/or operated by a corporation, association, person or persons for a social educational or recreational purpose, but not primarily for profit or to render a service which is customarily carried on as a business.

Commission Wherever the word "Commission" is used in this Ordinance it shall refer to the Muscatine County Zoning Commission.

Day Care Nursery or Day Care Center A private agency, institution, establishment or place where supplemental parental care and/or educational work is provided, other than overnight lodging, for six (6) or more unrelated children, for compensation.

District A section or sections of the unincorporated area or any portion thereof of Muscatine County, Iowa, for which the regulations governing the use of buildings and land, the height of buildings, the size of yards and the intensity of use are uniform.

Dwelling Any building or portion thereof having one or more habitable rooms which are designed to be occupied by one family with facilities for living, sleeping, cooking, eating, and sanitation. The dwelling unit shall be constructed in compliance with the International Residential Code or the U.S. Department of Housing and Urban Development Code under the authority of 42 U.S.C., Dec. 5403, Federal Manufactured Home Construction and Safety Standards.

A dwelling unit shall have a floor area of at least six hundred forty square feet (640'), minimum width of twenty feet (20') at least seventy-five percent (75%) of its narrowest dimension and, unless otherwise noted in this Chapter, be placed on permanent foundation, have a perimeter foundation of masonry construction (load or nonload), and be taxed as real property. Manufactured homes as defined in this Chapter are exempt from the perimeter foundation requirement as long as the foundation system maintain visual compatibility with the permanent foundation systems of surrounding residential structures.

Dwelling, One-Family	A dwelling arranged, intended or designed for occupancy by one (1) family.
Dwelling, Two-Family	A dwelling arranged, intended or designed for occupancy by two (2) families.
Dwelling, Multiple	A dwelling arranged, intended or designed for occupancy by more than two (2) families, living e independently of each other.
Family	<p>One (1) or more persons who are related by blood, adoption or marriage, living together and occupying single housekeeping units or a group of not more than five (5) persons living together by joint agreement, and occupying single housekeeping units on a nonprofit cost-sharing basis.</p> <p>A single housekeeping unit must share a common entrance and utilities. It may not be built or designed to provide separate access and/or function as a second residence and all portions of the interior dwelling unit must remain mutually accessible.</p>
Farm	<p>“Farming” or “agricultural use” means a condition or activity which occurs in connection with the production of farm products and includes but is not limited to the production, harvesting, handling or storage of crops used for feed, food, seed or fiber; the care, feeding or housing of livestock; the storage, handling, or application of chemicals or fertilizers including manure from livestock; accessory uses that are secondary to that of the farming activities; and provided further that farming does not include the extraction of minerals or the commercial feeding of garbage or offal to swine or other animals.</p> <p>A parcel must be shown by the owner or occupant to be in current active, income-producing farming or agricultural use to be described as a farm. The owner or occupant may show tax evidence from a certified tax professional. (Note: the standard for the showing of agricultural use is taken from Iowa Department of Revenue and Finance’s regulations found at Iowa Administrative Code 701-71.1(3)). Upon such a showing, the zoning administrator shall issue to the owner a certificate of zoning exemption.</p>
Feedlot/ Confinement Operation	Any parcel of land or premises on which the principal use is concentrated on feeding, farrowing and raising cattle, swine, sheep and poultry within a confined area. An open feedlot is defined as one or more unroofed or partially roofed animal enclosures in which animals are confined. A confinement feeding operation is one or more totally roofed animal enclosures in which animals are confined.
Frontage	All the property on one side of a street between two intersecting streets (crossing or terminating) measured along the line of the street, or if the street is dead-ended, then all of the property abutting on one side between an intersecting street and the dead-end of the street.
Garage, Private	An accessory structure or portion of a building in which one or more vehicles are housed, but in which no service or industry connected with motor vehicles is carried on, other than the leasing of space for the housing of vehicles as permitted herein.
Garage, Public	A building or portion thereof, designed, intended or used for the storage, sale, hiring, care of, repair of motor vehicles, which is operated for commercial purposes.
Gasoline Service Station	Any building or portion thereof, used for the dispensing, sale or offering for sale at retail, automotive fuels, oil and similar supplies, but not for the purpose of making other than minor repairs. When the dispensing, sale or offering for sale at retail is incidental to the conduct of a public garage, the premises shall be classified as a public garage.
Grade	The average level of the finished surface of the ground adjacent to the exterior walls of the building.

Greenhouse	An enclosed structure, designed for the growing of plants on a wholesale or retail basis. A greenhouse shall be considered a commercial use and shall be confined to commercial districts if the primary products offered for sale are other than those grown on the premises.
Group Home	A dwelling, with single kitchen facilities, occupied by a group of six (6) or more persons, living together by joint agreement, on a non-profit, cost-sharing basis.
Hard Cider	The formation of apple juice or cider yielding an alcoholic beverage.
Home Occupation	<p>A home occupation is an occupation carried on by a member or members of the immediate family residing on the premises where the home occupation is conducted. He or she shall have no employees, other than spouse, parent, or children who also reside on the premises where the home occupation is conducted.</p> <p>A home occupation must be a secondary use which is clearly incidental to the use of the dwelling unit for residential purposes or the farming unit for agricultural purposes, and shall be carried on wholly within the house or outbuildings of the premises where conducted. There shall be no display of goods, no advertising and no signs (either stationary or on vehicles) which shall be stored outside, nor shall any structure be constructed or used for the home occupation other than those ordinarily found at a homestead or farmstead. No motor vehicle larger than a one-ton truck shall be used in connection with the home occupation either for delivery of raw materials or finished product. No more than eight motor vehicles per day shall come to or from the premises where the home occupation is being conducted as a result of the home occupation. The home occupation shall not be objectionable or detrimental to the character of the neighborhood and there shall be no offensive noise, vibration, traffic & parking, smoke, dust, odors, heat, or glare produced.</p> <p>It is the objective of the Home Occupation Regulation to allow a resident of this County to conduct a small related or unrelated personal business from his home or farm as long as that business does not alter in any significant way, or be objectionable to the character of the neighborhood in which it is conducted. Interpretation and enforcement of the Home Occupation Regulations shall be consistent with this objective. Home occupations shall be permissive uses in all Zoning Districts if it is a permitted use under property owners Covenants.</p>
Hotel	A building in which lodging or boarding and lodging are provided and offered to the public for compensation and in which ingress and egress to and from all rooms is made through an inside lobby or office supervised by a person in charge at all hours. As such it is open to the public in contradiction to a boarding house, or an apartment which are herein separately defined.
Institution	A building occupied by a nonprofit corporation or a nonprofit establishment for public use.
Junk Yard	An area of any lot or parcel of land which is used for the storage, abandonment, or keeping of junk, including scrap metals, or scrap materials or for the abandonment or dismantling of machinery, motor vehicles or other vehicles, or parts thereof.
Junk Vehicle	A motorized vehicle including autos, trucks, motorcycles, race cars, etc., which does not have a current Iowa Department of Transportation registration and has one of two following conditions: parts have been removed for re-use, salvage, or sale; or the vehicle has been incapable of operating under its own power for more than 30 days.
Kennel	Any lot or premise on which four (4) or more dogs, more than six (6) months of age, are bred, boarded, and/or offered for sale.
Lot	A lot is a parcel of land of at least sufficient size to meet minimum zoning requirements for its intended use, coverage, and area and to provide such yards and other open space as are herein required. Such lot shall have frontage on a public street or private street and may consist of:

- (a) A single lot of record;
- (b) A portion of a lot of record;
- (c) A combination of complete lots of record; of complete lots of record and portions of lots of record; or of portions of lots of record; and
- (d) A parcel of land described by metes and bounds; provided that in no case of division or combination shall any residual lot or parcel be created which does not meet the requirements of this ordinance.

Lot, Corner	A lot abutting upon two (2) or more streets at their intersection.
Lot, Depth of	The mean horizontal distance between the front and rear lot lines.
Lot, Flag	A large lot not meeting minimum frontage requirements and where access to the public road is by a narrow, private right-of-way or driveway.
Lot, Line	Property line bounding a lot.
Lot Line, Front	The line separating the front of the lot from a street. When a lot or building site is bounded by a public street and one or more alleys or private street easements or private streets, the front line shall be the nearest right-of-way line of the public street.
Lot Line, Rear	The lot line opposite and most distant from the front lot line. In the case of triangular or otherwise irregularly shaped lots, a line ten feet in length entirely within the lot, parallel to and at a maximum distance from the front lot line.
Lot, Through	A lot having frontage on two (2) non-intersecting streets, as distinguished from a corner lot.
Lot Area	The total horizontal area within lot lines.
Lot of Record	A lot or parcel of land the deed of which has been recorded in the office of the Recorder for Muscatine County, Iowa prior to the adoption of this Ordinance.
Manufactured Home	A factory built structure, which is manufactured or constructed under the authority of 42 U.S.C., Sec. 5403 and is to be used as a place for human habitation as defined by a dwelling unit, but which is not constructed or equipped with a permanent hitch or other device allowing it to be moved other than for the purpose of moving to a permanent site, and which does not have permanently attached to its body or frame any wheels or axles. Any factory-built structure used for human habitation which does not meet all the above requirements is considered a mobile home and shall be regulated as a mobile home.
Mobile Home	A factory-assembled structure equipped with the necessary service connections, designed so as to be readily transported on its own chassis and designed to be used for residential purposes with or without a permanent foundation. Such a structure shall be considered a mobile home whether or not the original running gear, axles, and tongue or hitch have been removed.
Mobile Home Park	A mobile home park shall mean any site, lot, field, or tract of land upon which two (2) or more occupied mobile homes are harbored, either free of charge or for revenue purposes, and shall include any building, structure, tent, vehicle or enclosure used or intended for use as part of such mobile home park.
Mobile Home Subdivision	A mobile home subdivision shall mean any site, lot, field, or tract of land upon which two (2) or more occupied mobile homes are harbored. The land of the mobile home subdivision is plotted and developed solely for mobile home usage and all of the land of the subdivision is offered for sale by lots.
Modular Housing	Modular housing shall mean a factory-assembled structure which is manufactured or constructed to be used as a place for human habitation but which is not constructed or equipped with a permanent hitch or other device allowing it to be attached or towed

	behind a motor vehicle, and which does not have permanently attached to its body or frame any wheels or axles.
Motel or Tourism Home	A permanent building or group of buildings designed or arranged primarily for temporary occupancy, so laid out as to provide space for parking vehicles used by the traveling public. Such building, or group of buildings may include quarters for the use of operation personnel.
Motor Vehicle Sales Lot	An established place of business for the purposes of buying, selling, or exchanging vehicles of a type required to be registered in the State of Iowa and regulated by Iowa Code Chapter 322.
Native Winery Or Cider Mill	A facility in which the production of wine or hard cider is less than 50,000 gallons per year; and with onsite or contiguous propagated (growth stage) vineyard or orchard of at least two (2) acres. All of the wine or hard cider shall be produced entirely onsite.
Non-Conforming Use	Lawful use of a building or land at the time of the passage of this Ordinance, or amendment thereto, which use does not conform to the provisions of this Ordinance, or the district in which it is located.
Nursery, Plant	An open area where young trees or plants are raised for transplanting and are available for sale on a wholesale or retail basis. Limited accessory structures are permitted, but their use is limited to the care and distribution of the trees and plants grown on the premises. If the primary products offered for sale are other than those grown on the premises, the operation shall be considered a commercial use and shall be confined to Commercial Districts.
Nursing Home	A home for aged, chronically ill or incurable persons in which three (3) or more persons not of the immediate family are received, kept and provided with food or shelter and care, for compensation.
Outdoor Shooting Ranges	Outdoor shooting ranges are any uses that include the firing, shooting or any other discharge of firearms, explosives and all weapons, except those uses or activities specifically excluded below. Firing ranges and weapon ranges not located wholly within a building constructed or modified specifically for that purpose are examples of outdoor shooting ranges. Exceptions to this definition are governmental uses, performing military operations for the government, discharging firearms while legally hunting, agricultural uses, the discharge of firearms for purposes of athletic events, theater or other performing arts, any special events granted prior approval by the County for the discharge of firearms, the legal discharge of explosives for approved construction and mining projects, and licenses, legally used fireworks displays. These provisions do not apply to the discharging of firearms on private property not open to the public or recreational shooting by individuals on property where no fee or formal membership is required.
Parking Lot	A parcel of land devoted to unenclosed parking spaces.
Parking Space	A surfaced area, enclosed in the main building or in an accessory structure or unenclosed, having an area of not less than one hundred eighty square feet (180') exclusive of driveways, permanently reserved for the temporary storage of one (1) automobile and connected with a street or alley by a surfaced driveway which affords satisfactory ingress and egress for automobiles.
Permanent Foundation	A site-built or site-assembled system of stabilizing devices when running gear assembly is removed. It must be capable of transferring design dead loads and live loads required by Federal regulations, and other design loads unique to local home sites, wind, seismic, soil, and water site conditions that may be imposed on the structure. The foundation shall be to a depth of not less than forty-two inches (42") below grade and constructed of materials approved by the most recent edition of the Uniform Building Standards.

Road	All property, other than an alley, dedicated or intended for public or private road, street, highway, freeway, or roadway purposes, or to the public easement thereof.
Road Line	The dividing line between a lot, tract or parcel of land and a contiguous road, street or alley.
Roadside Stand	A structure which is designed for temporary or seasonal use and which is adjacent to a road and is used for sale of farm products, primarily produced or grown on the premises.
Sanitary Landfill	Land utilized for disposing of solid waste in accordance with the rules and regulations of the Environmental Protection Agency and the Iowa Department of Natural Resources.
Seasonal Recreational Cottage	A one-family dwelling or travel trailer intended for seasonal or temporary occupancy only, and not as a year-round family residence. The occupants must maintain a permanent legal residence elsewhere to have the dwelling or travel trailer qualify as seasonal or temporary.
Setback	The required minimum horizontal distance between the building line and the related front, side or rear lot line.
Stable, Public	A building used to lodge or feed four (4) or more horses, and where the horses are boarded for compensation or are offered to the public for riding for compensation.
Story	That portion of a building, other than a cellar, included between the surface of any floor and the surface of the floor next above it or, if there be no floor above it, then the space between the floor and the ceiling next above it.
Story, Half	A partial story under a gable, hip or gambrel roof, the wall plates of which on at least two opposite exterior walls are not more than three feet (3') above the floor of such story, except that any partial story used for residence purposes, other than for a janitor or caretaker or his/her family, or by a family occupying the floor immediately below it, shall be deemed a full story.
Structural Alterations	Any change in the supporting members of a structure such as walls, partitions, columns, beams or girders, or any substantial change in the roof or in the exterior walls, beyond ordinary repairs and maintenance.
Structure	Anything constructed or erected, the use of which requires permanent location on the ground, or attachment to something having a permanent location on the ground.
Substantial Improvement	Any reconstruction, rehabilitation, addition, or other improvement of a structure, which will increase the floor area of an existing building or facility by twenty-five percent or more. This term includes structures which have incurred "substantial damage" regardless of the actual work performed. The term "substantial improvement" does not, however, include either (1) any project for improvement of the structure to correct existing violation of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement officer and which are the minimum necessary to assure safe living conditions or (2) any alteration of a "historic structure" provided that the alteration will not preclude the structures continued designation as a "historic structure".
Subterranean Home	A home which has all but one wall completely covered and landscaped with earth including the roof.
Travel Trailer	A vehicular, portable structure, built on a chassis, designed to be used as a temporary dwelling for travel and recreational purposes.
Wine	As defined by the Code of Iowa, Chapter 123.3 Definitions, or as subsequently amended.

Variance	A modification or variation of the provisions of this Ordinance, as applied to a specific piece of property, where, owing to conditions peculiar to the property and not the result of the actions of the applicant, a literal enforcement of this Ordinance would result in unnecessary and undue hardship.
Yard	An open space on the same lot with a building unoccupied and unobstructed by any portion of the structure from the ground upward, except as otherwise provided in this Ordinance.
Yard, Front	A yard extending across the full width of the lot, lying between the front lot line and the nearest line of the main building wall, other than unenclosed porches, steps or balconies. The front yard of a corner lot shall be considered the side with an assigned street address.
Yard, Rear	A yard extending across the full width of the lot, lying between the rear lot line and the nearest line of the main building wall, other than unenclosed porches, steps or balconies.
Yard, Side	A yard between the side lot line and the nearest line of the main building wall, extending from the front yard to the rear yard.
Zoning Administrative Officer	The individual appointed by the Board of Supervisors to administer and enforce the provisions of this Ordinance.
Zoning Permit	A permit issued by the Zoning Administrative Officer of Muscatine County, Iowa, for the erection, reconstruction or alteration of a building or structure or the use of land.

ARTICLE II: DISTRICTS AND BOUNDARIES

SECTION 1. DISTRICTS

For the purpose of this Ordinance, the unincorporated area of Muscatine County, Iowa, or portions thereof, is hereby divided into nine (9) classes of districts. The use, height and area regulations are uniform in each class of district, and said districts shall be known as:

- "A-1" Agricultural District
- "R-1" Residential District
- "R-2" Residential District
- "R-3" Residential District
- "M-1" Mobile Home District
- "C-1" Commercial District
- "C-2" Commercial District
- "I-1" Light Industrial District
- "I-2" Heavy Industrial District

SECTION 2. OFFICIAL ZONE PLAN

The boundaries of these districts are located and established as shown upon maps designated as the Official Zone Plan of Muscatine County, Iowa, which, with all their notations, designations, references and other matters shown thereon, shall be as much a part of this Ordinance, as if fully described and set forth herein, and which maps are properly attested and on file in the office of the Recorder of Muscatine County, Iowa.

SECTION 3. DISTRICT BOUNDARIES

The boundaries of the various districts established by this Ordinance are road lines, alley lines, property lines, lot lines, section lines, quarter lines, center of river, or other lines shown on the official zone maps. Where boundaries are approximately indicated as property or lot lines, the true location of such lines shall be taken as the boundary lines.

Where the distance to any boundary line from a road line, property line or lot line, is indicated by the Official Zone Plan, such measurements shall control.

SECTION 4. DISINCORPORATION

All territory which may hereafter become part of the unincorporated area of Muscatine County, Iowa, that is regulated by this Ordinance, by the disincorporation of any part thereof, shall automatically be classes as lying and being in the "A-1" Agricultural District until such classification shall have been changed by amendment to this Ordinance, as provided by law.

SECTION 5. ROAD AND PUBLIC WAY VACATION

Whenever any road or other public way is vacated by the official action of the Board of Supervisors of Muscatine County, Iowa, the Zoning District adjoining each side of such road or public way shall automatically extend to the center of such vacation, and all areas included in such vacation shall then and thenceforth be subject to all appropriate regulations of the extended district.

SECTION 6. GENERAL REQUIREMENTS

Except as hereinafter provided:

- 6.1** No person shall use any land, building or structure for any use other than those permitted in the district in which such land, building or structure is located.
- 6.2** No building or structure shall be erected, converted, enlarged, reconstructed or structurally altered to exceed the height limit herein established for the district in which the building is located.
- 6.3** No building shall be erected, converted, enlarged, reconstructed, or structurally altered except in conformity with the area regulations of the district in which the building is located.
- 6.4** No yard or other open space provided about any building for the purpose of complying with the provisions of this Ordinance shall be considered as providing a yard or open space for any other building, nor shall the lot area per family be reduced in any manner except in conformity with the area regulations herein established for the district in which such building is located.
- 6.5** No billboard, bulletin board or temporary sign along any public road shall be located in such a manner as to decrease safety by decreasing the sight distance. In any such district, announcement signs or bulletin boards are permitted, provided such signs or boards do not exceed sixteen square feet (16') in area and are erected upon the premises of a charitable, religious, philanthropic or public institution for its own use and are not erected within twenty-five feet (25') of a road line. No fence, hedge billboard, or wall shall be permitted within two hundred feet (200') of the centerline of a road intersection which cannot be viewed over from a point three feet (3') above the traveled roadway.
- 6.6** Every building hereafter erected or structurally altered shall be located on a lot as herein defined and in no case shall there be more than one main building on one lot unless otherwise provided in this Ordinance.
- 6.7** No building in the rear of any main building on the same interior lot shall be used for residential purposes.
- 6.8** Subsequent to the passing of this Ordinance, a written permit shall be obtained from the Zoning Administrative Officer when required as provided in Article XVI hereof.

ARTICLE III: A-1 AGRICULTURAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The A-1 Agricultural District is intended to encourage the standard agricultural use of those areas which, because of location, soil composition, and other factors, are best suited for agriculture. This District is not intended to be used for new rural subdivisions, but does allow for a limited number of neighborhood and non-agricultural uses, especially near or adjacent to existing urban development and adequately paved roads.

SECTION 2. USES PERMITTED

Property and buildings in an A-1 Agricultural District shall be used only for the following purposes.

- 2.1** Farms.
- 2.2** Feedlots/confinement operations, provided that all feedlots/confinement operations meet the waste treatment requirements of the Iowa Department of Natural Resources.
- 2.3** Public and private forests and wildlife reservations or similar conservation projects.
- 2.4** Roadside stands.
- 2.5** Grain elevators and the usual accessory structures.
- 2.6** Grain bins and buildings for the seasonal or temporary storage of grain.
- 2.7** Plant nurseries.
- 2.8** Accessory structures and accessory uses customarily incident to any of the above uses, but not involving the conduct of a business.
- 2.9** Farmhouses, which are at least ten years old, may be split off and sold in one acre or larger tracts.
- 2.10** Home occupation.
- 2.11** Seed Sales Warehouses and Offices.

SECTION 3. SPECIAL USES PERMITTED

The following special uses may be permitted upon review by the Board of Adjustment in accordance with the provisions contained in Section 4.3 of Article XV.

- 3.1** (Deleted January 1, 1987.)
- 3.2** Seasonal recreational cottages.
- 3.3** Veterinary establishments and kennels, provided the parcel so used is not within seven hundred and fifty feet (750') of an existing residence excluding that of the petitioner on that parcel.
- 3.4** Airports or landing fields.
- 3.5** (Deleted January 1, 1985.)
- 3.6** Sanitary landfills.

- 3.7** Mobile home dwelling for a period of one (1) year with the right of renewal for additional one (1) year periods for those instances where a unique and substantial hardship is found to be in existence for the protection of property or for the care of a person with a severe physical handicap.
- 3.8** Extraction of gravel, sand, stone, clay or other raw materials.
- 3.9** Telecommunications transmission towers.

Telecommunications transmission towers shall be located on private property outside the public road right-of-way and shall observe a minimum setback of 1.1 times the tower height from any property line, road right-of-way or other structure. All towers and supporting ground equipment shall be completely enclosed within a perimeter fence consisting of a minimum of six feet tall chain link with at least three strands of barbed wire (or equivalent as approved by the Zoning Administrator). All applications for new telecommunications transmission towers shall be accompanied by an affidavit certifying that said tower will be dismantled and removed from the property within 90 days of decommissioning and non-use.
- 3.10** Buildings erected or used by a department of federal, state, county and municipal governments.
- 3.11** Temporary public assemblies; such as carnivals and expositions, for a period not to exceed ten (10) days.
- 3.12** Asphalt or ready-mix concrete plant on a temporary basis for road construction.
- 3.13** Public stables.
- 3.14** Greenhouses.
- 3.15** Sewage disposal and treatment facilities.
- 3.16** Sludge disposal from sewage treatment plants which provided treatment wherein sludge is digested and dried, and then plowed under the soil on which it is applied.
- 3.17** Day care centers or day nurseries.
- 3.18** Public schools and private educational institutions having a curriculum comparable to that given in public schools.
- 3.19** Community buildings, hospitals, public parks and public playgrounds.
- 3.20** Golf courses, except miniature golf course, or practice driving ranges operated for commercial purposes.
- 3.21** Billboards and advertising signs.
- 3.22** Churches and cemeteries.
- 3.23** Rural Residence. The Zoning Board of Adjustment may issue a special use permit to establish a rural residence in an Agricultural Use Zone. The intent of this provision is to allow, under certain circumstances, construction of single-family homes in rural Muscatine County without requirement of a farm use. The goal is to minimize conflict with existing and future farm uses, while allowing development of property. In making this determination, the Zoning Board of Adjustment shall consider the following factors:

- a. Proximity to State Regulated Livestock Operations: Livestock Operations have a significant impact on their neighbors, and have a higher potential of conflict with rural residences. Applications which concern property closer than the current specified setback requirements set forth by the Iowa Code from the nearest livestock operation required under state law to submit and implement manure management plans shall be denied. The distance shall be measured in feet from the closest point of the proposed residence to the closest point of the confinement feeding operation structure as that term is defined in Iowa Code section 459.202.
- b. CSR rating of the land: Muscatine County's rich soil is an asset to be valued and protected, while being utilized to its greatest potential. Applications, which the proposed property has a Corn Suitability Rating of 55 or higher as calculated by weighted average of the entire parcel, should generally not be granted. This factor is of high importance.
- c. Proximity to a paved road: Residential development on or within 1 mile traveled distance of a paved road makes the provision of services more efficient and reduces the conflicts caused by crushed rock roads. This factor is of moderate importance.
- d. Proximity to other rural residences: High density and concentration of rural residences should be discouraged, as increasing the potential for conflict with agricultural uses. A separation distance of 1,250 feet should be met between the proposed rural residence and existing neighboring residences, distances less than 750 feet may be denied. If an area is particularly suited for residential use, its rezoning should be considered. This factor is of moderate importance.
- e. Proximity to city limits: Residential development is more efficient when it occurs near already existing infrastructure and services. This factor is of moderate importance.
- f. Other factors: Other factors produced by active agricultural uses create potential for conflict with residential uses. Those include sound, dust, odor, visual appearance and other externalities of active farm operations. A separation distance of 1250 feet should be met between the proposed rural residence and neighboring feedlots, grain dryers and silos. This factor is of moderate importance.

3.24 Electric substations, switching stations, and similar public utility facilities, including all equipment and structures necessary to permit their operation and use.

3.25 Bed and breakfast.

3.26 Native Winery or Cider Mill. Native wineries or cider mills are subject to the following requirements:

- (a) Sale of wine and other items. Wholesale and retail sale of wine for off premises consumption is allowed pursuant to a Class "A" Wine Permit issued by the State of Iowa. Retail sales of items other than wine are allowed as long as the items are directly related to wine and incidental to onsite retail sales.
- (b) Onsite Wine Sampling. Wines may be sampled on the premises where manufactured when no charge is made for sampling and the sampling size is one ounce or less.
- (c) Onsite Wine Consumption. Sale of wine for consumption onsite is allowed pursuant to a Class "C" Native Wine Permit issued by the Board of

Supervisors and must be in accordance with State of Iowa Alcohol Beverages Division regulations.

- (d) Special Event Permit. Any special event at which (1) wine will be sold for onsite consumption, and (2) attendance of more than 35 persons is anticipated requires approval of the Board of Supervisors.

3.27 Youth and religious camps and retreat facilities and uses incidental to these uses.

3.28 Commercial wind energy conversion systems.

3.29 Outdoor Shooting Range

- (a) Permitted in the A-1 Agricultural District with a Special Use Permit approved by the Board of Adjustment. Also requires Zoning Commission review and approval of the proposal according to Chapter 657.9, Code of Iowa.

- (b) All outdoor shooting ranges must be a minimum of 750 feet from the nearest residence or habitable structure and be designed by an architect or professional engineer licensed in the State of Iowa using established guidelines for range design.

- (1) In designing an outdoor shooting range, the primary concern shall be ensuring the health, safety and welfare of the participants, staff, spectators and surrounding inhabitants.

- (2) The construction of the range must be certified by the professional designer that the range was constructed according to the design.

- (c) When applying for a Special Use Permit, the applicant shall provide, in addition to what is otherwise required for a special use permit, the following information:

- (1) Location of the operation.

- (2) Description of the shooting range and operation procedures including:

- (a) Detailed description of the operation.

- (b) Types and calibers of weapons and ammunition proposed to be used and means of weapon and ammunition storage.

- (c) Safety procedures, rules and regulations proposed.

- (d) Days and hours of operation.

- (e) Noise abatement methods and procedures.

- (f) Methods used for range clean up and maintenance including lead abatement and disposal.

- (3) Special considerations for the design of the backstop, berms and the bullet impact areas along with proposed landscaping and buffering are of critical importance. Also, a means of restricting unauthorized access onto the range by perimeter fencing, gates, etc., shall be addressed. An Environmental assessment or an Environmental Impact Statement for the site and an End Use Plan which addresses the issue of lead mitigation and abatement for the range shall be submitted for Board of Adjustment review and consideration.

- (d) For all outdoor shooting ranges, proper legal documents must be presented that outline:
 - (1) Post operation cleanup procedures.
 - (2) Legal responsibility for the environmental pollution that could occur after the facility is closed; and
 - (3) Financial ability to clean up any possible pollution that could occur after the facility is closed.
- (e) The owner/operator may be required to submit a bond or surety which would guarantee and cover any or all of the cost of cleanup necessary after range abandonment or ceasing of its operation.

3.30 Satellite LP Gas Storage and Distribution Sites. The Board of Adjustment may issue a Special Use Permit to establish a Satellite Liquid Propane Storage and Distribution Site in an Agricultural Use Zone. The intent of this provision is to allow, under certain circumstances, the establishment of Satellite Liquid Propane Storage and Distribution Sites that are compatible with existing and future land uses in Agricultural Districts. In making this determination, the Zoning Board of Adjustment **shall** consider the following factors:

- a. Total capacity of the site: The total liquid capacity permitted on a site **shall not** exceed 60,000 gallons.
- b. Proximity to existing structures: Satellite Liquid Propane Storage and Distribution Sites **shall** be located a minimum of 750' from any other existing structure.
- c. Public Road access requirements: Satellite Liquid Propane Storage and Distribution Sites **shall** have frontage to a paved road and be of sufficient area to provide for a complete truck turn around without backing onto or off of the public roadway.
- d. Fencing: All structures **shall** be completely enclosed within a chain link fence with a minimum height of at least 6'. Alternate fencing materials may be considered and allowed by the Zoning Official.
- e. Other Permits required: The owner or operator of the site shall provide Muscatine County Zoning Office with copies of all applicable permits and letters of authorization from the Iowa State Fire Marshall's Office prior to commencing operation of the site. Upon a Special Use Permit being issued by Muscatine County, the owner or operator of the site shall see to it that all required site plan reviews and building permits are obtained from the appropriate authority before any development of the site commences.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

- 4.1 Height Regulations.** No structure shall be erected adjacent to a residential district without providing a set-back from the residential district boundary equal to the height above thirty feet (30') plus the appropriate Agricultural District yard requirement.
- 4.2 Lot Area.** Every lot or tract of land upon which a one-family dwelling or mobile home for hardship purposes is erected shall have an area of not less than one (1) acre. However, seasonal recreational cottages are allowed, when authorized by a special use permit, to be constructed on lots of not less than twenty thousand square feet (20,000 sq. ft.), as provided in Paragraph 4.3 of Article XV.
- 4.3 Lot Width and Yard Setback Requirements.** The following minimum requirements shall be observed.

	<u>Lot Width</u>	<u>Front Yard Depth</u>	<u>Side Yard* Depth</u>	<u>Rear Yard Depth</u>
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One-Family Dwelling	150 ft.	50 ft.	10 ft.	40 ft.
Public, Semi-Public and Public Service Buildings	150 ft.	75 ft.	25 ft.	50 ft.

* 37 feet on corner lots

SECTION 5. ADDITIONAL REGULATIONS

- 5.1 Access to Public Roads. No driveway, frontage road, connection or other access to the public road shall be closer than one thousand feet (1,000') from any other such access on the same side of said public road. When two adjacent residential lots abut and extend along any public road or highway, said lots shall use a common access to said public road or highway. When three or more residential lots adjacent to each other abut and extend along any public road or highway, access to said lots shall be by a frontal road, located parallel to and back of the right-of-way line of the public road. No frontage road shall be located closer than sixty feet (60') from the center of any public road.
- 5.2 Measurement of Lot Area. For the purpose of determining area of residential lots, all measurements shall be exclusive of public road right-of-way.
- 5.3 Flag Lots. Flag lots may be considered when an existing dwelling is being subdivided from other property.

ARTICLE IV: R-1 RESIDENTIAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The R-1 Residential District is intended to provide regulations for those areas within the County designated for subdivisions composed for estate type lots.

SECTION 2. USES PERMITTED

Property and buildings in an R-1 District shall be used only for the following purposes.

- 2.1 Agricultural crops, but not the raising of farm animals or poultry, in lots less than two (2) acres in size.
- 2.2 One-family dwellings.
- 2.3 Churches.
- 2.4 Public and private forests and wildlife reservations or similar conservation projects.
- 2.5 Bulletin boards, and temporary signs of charitable, religious, philanthropic or public institutions pertaining to new construction, lease or sale of the building or premises, but such signs shall be removed as soon as the construction is completed or the building or premises sold or leased.
- 2.6 Accessory structures and accessory uses customarily incidental to any of the above uses, but not involving the conduct of a business.
- 2.7 Home occupation.

SECTION 3. SPECIAL USES PERMITTED

The following special uses may be permitted upon review by the Board of Adjustment in accordance with the provisions contained in Paragraph 4.3 of Article XV.

- 3.1 Seasonal recreational cottages.
- 3.2 Kennels, provided the parcel so used is not within seven hundred and fifty feet (750') of an existing residence, excluding that of the petitioner on that parcel.
- 3.3 Airports or landing fields.
- 3.4 (Deleted January 1, 1985.)
- 3.5 Mobile home dwelling for a period of one (1) year with the right of renewal for additional one (1) year periods for those instance where a unique and substantial hardship is found to be in existence for the protection of property or for the care of a person with a severe physical handicap.
- 3.6 Extraction of gravel, sand, stone, clay or other raw material.
- 3.7 Telecommunications transmission towers.

Telecommunications transmission towers shall be located on private property outside the public road right-of-way and shall observe a minimum setback of 1.1 times the tower height from any property line, road right-of-way or other structure. All towers and supporting ground equipment shall be completely enclosed within a perimeter fence consisting of a minimum of six feet tall chain link with at least three strands of barbed wire (or equivalent as approved by the Zoning Administrator). All applications for new telecommunications transmission towers shall be accompanied by an affidavit certifying that said tower will be dismantled and removed from the property within 90 days of decommissioning and non-use.
- 3.8 Buildings erected or used by a department of federal, state, county and municipal governments.
- 3.9 Cemeteries.
- 3.10 Sewage disposal and treatment facilities.
- 3.11 Day care centers or day nurseries.
- 3.12 Public schools and private educational institutions having a curriculum comparable to that given in public schools.
- 3.13 Community buildings, hospitals, public parks and public playgrounds.
- 3.14 Golf courses, except miniature golf courses, or practice driving ranges operated for commercial purposes.
- 3.15 Bed and breakfast.
- 3.16 Electric substations, switching stations, and similar public utility facilities, including all equipment and structures necessary to permit their operation and use.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

- 4.1 **Height Regulations.** No building shall exceed two and one-half (2-1/2) stories or thirty five feet (35') in height, except as hereinafter provided.
- 4.2 **Lot Area.** Every lot or tract of land upon which a one-family dwelling or mobile home for hardship purposes is erected shall have an area of not less than one (1) acre. However, seasonal recreational cottages are allowed, when authorized

by a special use permit, to be erected on lots of not less than twenty thousand square feet (20,000 sq. ft.), as provided in Paragraph 4.3 of Article XV.

4.3 Lot Width and Yard Setback Requirements. The following minimum requirements shall be observed:

	<u>Lot Width</u>	<u>Front Yard Depth</u>	<u>Side Yard* Depth</u>	<u>Rear Yard Depth</u>
One-Family Dwelling	150 ft.	50 ft.	15 ft.	40 ft.
Public, Semi-Public and Public Service Buildings	150 ft.	75 ft.	25 ft.	50 ft.

* 37 feet on corner lots

ARTICLE V: R-2 RESIDENTIAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The R-2 Residential District is intended to provide regulations for those area within unincorporated communities and adjacent to incorporated areas intended for moderately dense residential development. This district permits residential development on smaller lots than in the R-1 Residential District.

SECTION 2. USES PERMITTED

Property and buildings in an R-2 Residential District shall be used only for the following purposes.

- 2.1 Any use permitted in the R-1 Residential Districts.

SECTION 3. SPECIAL USES PERMITTED

The following special uses may be permitted upon review by the Board of Adjustment in accordance with the provisions contained in Paragraph 4.3 of Article XV.

- 3.1 Mobile home dwelling for a period of one (1) year with the right of renewal for additional one (1) year periods for those instances where a unique and substantial hardship is found to be in existence for the protection of property or for the care of a person with a severe physical handicap.
- 3.2 Buildings erected or used by a department of the federal, state county and municipal governments.
- 3.3 Sewage disposal and treatment facilities.
- 3.4 Day care centers or day nurseries.
- 3.5 Bed and breakfast.
- 3.6 Electric substations, switching stations, and similar public utility facilities, including all equipment and structures necessary to permit their operation and use.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

- 4.1 Height Regulations.** No building shall exceed two and one-half (2-1/2) stories nor thirty-five feet (35') in height, except as hereinafter provided.
- 4.2 Lot Area.** Every lot or tract of land upon which a one-family dwelling or mobile home not served by a central sewage system is erected shall have an area of not less than twenty thousand square feet (20,000 sq. ft.). If a central sewerage system is provided, the lot shall have an area of not less than fifteen thousand square feet (15,000 sq. ft.).
- 4.3 Lot Width and Yard Setback Requirements.** The following minimum requirements shall be observed:

	<u>Lot Width</u>	<u>Front Yard Depth</u>	<u>Side Yard* Depth</u>	<u>Rear Yard Depth</u>
One-Family Dwelling	100 ft.	35 ft.	12 ft.	40 ft.
Public, Semi-Public and Public Service Buildings	100 ft.	52 ft.	25 ft.	50 ft.

* 30 ft. on corner lots

SECTION 5. ADDITIONAL REQUIREMENTS

The developer shall meet the following requirements for lots with areas less than twenty thousand square feet (20,000 sq. ft.).

- 5.1 Provision of Water.** The developer shall provide a community well capable of providing all dwellings an adequate supply of water.
- 5.2 Disposal of Sanitary Sewage.** The developer shall provide a central sewerage system capable of serving all dwellings. Design and construction of the system shall meet the requirement of the Muscatine County Board of Health.

ARTICLE VI: R-3 RESIDENTIAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The R-3 Residential District is intended to provide regulations for those areas adjacent to incorporated areas intended for high density residential development. This district permits all uses permitted in the R-1 Residential District, multi-family dwellings and nursing homes.

SECTION 2. USES PERMITTED

Property and buildings in an R-3 Residential District shall be used only for the following purposes.

- 2.1** Any use permitted in the R-1 Residential District.
- 2.2** Two-family and multiple-family dwellings and apartments.
- 2.3** Nursing homes.

SECTION 3. SPECIAL USES PERMITTED

The following special uses may be permitted upon review by the Board of Adjustment in accordance with the provisions contained in Paragraph 4.3 of Article XV.

- 3.1** Mobile home dwelling for a period of one (1) year with the right of renewal of additional one (1) year periods for those instances where a unique and

substantial hardship if found to be in existence for the protection of property or for the care of a person with a severe physical handicap.

- 3.2 Group homes.
- 3.3 Buildings erected or used by a department of the federal, state, county and municipal governments.
- 3.4 Rooming and boarding houses.
- 3.5 Sewage disposal and treatment facilities.
- 3.6 Day care centers and nurseries.
- 3.7 Bed and breakfast.
- 3.8 Electric substations, switching stations, and similar public utility facilities, including all equipment and structures necessary to permit their operation and use.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

- 4.1 **Height Regulations.** No buildings shall exceed two and one-half (2-1/2) stories nor thirty-five feet (35') in height, except as hereinafter provided.
- 4.2 **Lot Area.** Every lot or tract of land upon which a one-family dwelling, two-family dwelling or multiple-family dwelling is erected shall have an area of not less than fifteen thousand square feet (15,000 sq. ft.) for a one-family dwelling, and five thousand square feet (5,000 sq. ft.) for every additional family.
- 4.3 **Lot Width and Yard Setback Requirements.** The following minimum requirements shall be observed:

	<u>Lot Width</u>	<u>Front Yard Depth</u>	<u>Side Yard* Depth</u>	<u>Rear Yard Depth</u>
One-Family Dwelling	90 ft.	35 ft.	10 ft.	40 ft.

* 25 feet on corner lots

SECTION 5. ADDITIONAL REQUIREMENTS

The developer shall meet the following requirements and those stated in Article XIII, Section 3 of this Ordinance:

- 5.1 **Provision of Water.** The developer shall provide a community well capable of providing all dwellings an adequate supply of water.
- 5.2 **Disposal of Sanitary Sewage.** The developer shall provide a central sewerage system capable of serving all dwellings. Design and construction of the system shall meet the requirements of the Muscatine County Board of Health.

ARTICLE VII: M-1 MOBILE HOME DISTRICT

SECTION 1. GENERAL DESCRIPTION

The M-1 Mobile Home District is intended to provide regulations for those areas in the County designate for mobile home parks and subdivisions.

SECTION 2. USES PERMITTED

Property and buildings in an M-1 Mobile Home District shall be used for only for the following purposes.

- 2.1 Mobile Home Parks.
- 2.2 Mobile Home Subdivisions.
- 2.3 Travel Trailer Parks.

SECTION 3. LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

The following minimum requirements shall be observed:

	<u>Lot Area</u>	<u>Lot Width</u>	<u>Front Yard Depth</u>	<u>Side Yard* Depth</u>	<u>Rear Yard Depth</u>
Mobile Home Parks	5,000 sq. ft.	50 ft.	10 ft.	10 ft.	10 ft.
Mobile Home Subdivisions	7,000 sq. ft.	60 ft.	35 ft.	10 ft.	10 ft.

* 25 feet on corner lots

SECTION 4. PLAN REQUIRED

Each petition for a change to the M-1 zoning classification submitted to the Muscatine County Board of Supervisors shall be accompanied by a mobile home park, mobile home subdivision or travel trailer park plan. Said plan will conform to the requirements of the Muscatine County Subdivision Regulations and the Mobile Home Park and Travel Trailer Park Ordinance.

ARTICLE VIII: C-1 COMMERCIAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The C-1 Commercial District is intended for the provision of business and personal services that serve neighborhood needs. These commercial uses are generally compatible with residential development. This district is a restricted commercial district limited to a narrow range of retail services and convenience goods.

SECTION 2. USES PERMITTED

Property and building in a C-1 Commercial District shall be used only for the following purposes and similar uses.

- 2.1 Agricultural crops but not the raising of farm animals or poultry in lots less than two (2) acres.
- 2.2 Billboards pertaining only to a use conducted or product sold on the premises.
- 2.3 Antique shops.
- 2.4 Bakeries, except wholesale.

- 2.5 Banks.
- 2.6 Barber shops, beauty parlors
- 2.7 Bicycle sales and repair shops, but not motorcycle repair shops.
- 2.8 Book shops.
- 2.9 Catering and delicatessen shops.
- 2.10 Dressmaking, millinery and tailoring shops.
- 2.11 Drug stores or fountains including books and reading matter, stationary, tobacco, and pharmacy.
- 2.12 Dyeing and cleaning pick-up stations.
- 2.13 Electric, radio and television sales and repair shops.
- 2.14 Florist shops.
- 2.15 Food markets including specialty items such as bakery goods, delicatessen goods, meats and confectionery.
- 2.16 Gasoline service stations.
- 2.17 Hardware stores.
- 2.18 Hobby shops.
- 2.19 Laundromats.
- 2.20 Locksmiths and gunsmiths.
- 2.21 Medical and dental clinics.
- 2.22 Milk distributing stations, but not milk processing concerns.
- 2.23 Music stores.
- 2.24 Offices, business & professional.
- 2.25 Paint and wallpaper stores.
- 2.26 Parking lots.
- 2.27 Photographic studios.
- 2.28 Restaurants, cafes, and soda fountains serving non-alcoholic beverages.
- 2.29 Shoe repair shops.
- 2.30 Sporting good stores.
- 2.31 Theaters except open air drive-in theaters.
- 2.32 Accessory structures and uses customarily incidental to any of the above uses.

SECTION 3. SPECIAL USES PERMITTED

The following special uses may be permitted upon review by the Board of Adjustment in

accordance with the provisions contained in Paragraph 4.3 of Article XV.

- 3.1 Billboards and advertising signs.
- 3.2 Buildings erected or used by a department of the federal, state, county and municipal governments.
- 3.3 Boarding houses and rooming houses.
- 3.4 Living and/or sleeping quarters shall be permitted when constructed above the ground floor.
- 3.5 Day care centers or day nurseries.
- 3.6 Restaurants, cafes, soda fountains, bars and taverns serving alcoholic beverages.
- 3.7 Sewage disposal and treatment facilities.
- 3.8 Mortuaries.
- 3.9 Electric substations, switching stations, and similar public utility facilities, including all equipment and structures necessary to permit their operation and use.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENT

- 4.1 **Height Regulations.** No building shall exceed two and one-half (2-1/2) stories nor thirty-five feet (35') in height, except as hereinafter provided.
- 4.2 **Lot Area.** No requirements.
- 4.3 **Lot Width and Yard Setback Requirements.** The following minimum requirements shall be observed.
 - 4.31 Lot Width - None, except when lot is used for residential purposes, then ninety feet (90').
 - 4.32 Front Yard Depth - Twenty-five feet (25'); and thirty-five feet (35') for residential uses.
 - 4.33 Side Yard Depth - None; except where lot adjoins a Residential or Agricultural District, then ten feet (10'); or when a corner lot, then twenty-five feet (25').
 - 4.34 Rear Yard Depth - None; except where lot adjoins a Residential or Agricultural District, then forty feet (40').

SECTION 5. ADDITIONAL REQUIREMENTS

The developer shall comply with the requirements for the provisions of water and disposal of sanitary sewage established by the Muscatine County Board of Health and stated in Section 3 of Article XIII.

ARTICLE IX: C-2 COMMERCIAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The C-2 Commercial District is for personal and business services and general retail trade. The nature of this district is one of relatively high traffic generation and the uses

are not necessarily compatible with residential development. This district is to provide areas in the unincorporated portion of the County where there can be a concentration of general commercial activities.

SECTION 2. USES PERMITTED

Property and buildings in a C-2 Commercial District shall be used only for the following purposes and similar uses.

- 2.1 Any use permitted in the C-1 Commercial District.
- 2.2 Private Clubs.
- 2.3 Amusement places, including: bowling alleys, miniature golf courses, pool halls, dance halls, skating rinks and similar amusement facilities.
- 2.4 Automobile, motorcycle, trailers and farm implement establishments for display, hire, sales and service.
- 2.5 Bars and taverns.
- 2.6 Drive-in eating establishments.
- 2.7 Furniture stores.
- 2.8 Garages, public.
- 2.9 Garden supply and seed stores.
- 2.10 Gift and souvenir shops.
- 2.11 Mobile home sales.
- 2.12 Monument sales.
- 2.13 Motels, tourist homes and hotels.
- 2.14 Plumbing and heating stores.
- 2.15 Restaurants and cafes.
- 2.16 Living and/or sleeping quarters shall be permitted when constructed above the ground floor.
- 2.17 Veterinary establishments and kennels, provided the parcel so used is not within seven hundred and fifty feet (750') of an existing residence excluding that of the petitioner on that parcel.
- 2.18 Rental storage units.

SECTION 3. SPECIAL USES PERMITTED

The following special uses may be permitted upon review by the Board of Adjustment in accordance with the provisions contained in Section 4.3 of Article XV.

- 3.1 Public tracks of trails to be used by motorized vehicles for a fee.
- 3.2 Sewage disposal and treatment facilities.
- 3.3 Billboards and advertising signs.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

- 4.1 Height Regulations.** No structure shall exceed thirty-five feet (35') in height.
- 4.2 Lot Area.** No requirements.
- 4.3 Lot Width and Yard Setback Requirements.** The following minimum requirements shall be observed.
 - 4.31 Lot Width - None**
 - 4.32 Front Yard Depth - Eighty feet (80') or one hundred thirty feet (130') from the centerline of the traveled way, whichever is greater.**
 - 4.33 Side Yard Depth - None; except for corner lots, then fifty feet (50') or one hundred feet (100') from the centerline of the traveled way, whichever is greater; or where lot adjoins a Residential or Agricultural District, then twenty-five feet (25').**
 - 4.34 Rear Yard Depth - None; except when lot adjoins a Residential or Agricultural District, then forty feet (40').**

SECTION 5. ADDITIONAL REQUIREMENTS

The developer shall comply with the requirements for the provision of water and disposal of sanitary sewage established by the Muscatine County Board of Health and stated in Section 3 of Article XIII.

ARTICLE X: I-1 LIGHT INDUSTRIAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The I-1 Light Industrial District permits those industrial and commercial uses which are not objectionable due to the emission of smoke, dust, odor or noise. Residential uses are prohibited.

SECTION 2. USES PERMITTED

Property and buildings in an I-1 Light Industrial District shall be used only for the following purposes.

- 2.1** Agricultural crops but not the raising of farm animals or poultry in lots less than two (2) acres.
- 2.2** Billboards and advertising signs.
- 2.3** Lumber yards.
- 2.4** Storage yards.
- 2.5** Truck terminals.
- 2.6** Wholesale and storage warehouses.
- 2.7** Any commercial or light industrial use which is carried on entirely within buildings, which is not noxious or offensive due to the emission of odors, gas, smoke, or noise, which is not a menace to public health and safety and which will not substantially or permanently injure the appropriate use of neighboring property.

SECTION 3. SPECIAL USES PERMITTED

The following special uses may be permitted upon review by the Board of Adjustment in accordance with the provisions contained in Paragraph 4.3 of Article XV.

- 3.1** Airports or landing fields.
- 3.2** Buildings erected or used by a department of the federal, state, county and municipal governments.
- 3.3** Extraction of gravel, sand, stone, clay or other raw materials.
- 3.4** Telecommunications transmission towers.

Telecommunications transmission towers shall be located on private property outside the public road right-of-way and shall observe a minimum setback of 1.1 times the tower height from any property line, road right-of-way or other structure. All towers and supporting ground equipment shall be completely enclosed within a perimeter fence consisting of a minimum of six feet tall chain link with at least three strands of barbed wire (or equivalent as approved by the Zoning Administrator). All applications for new telecommunications transmission towers shall be accompanied by an affidavit certifying that said tower will be dismantled and removed from the property within 90 days of decommissioning and non-use.

- 3.5** Sanitary landfills.
- 3.6** Sewage disposal and treatment facilities.
- 3.7** Electric substations, switching stations, and similar public utility facilities, including equipment and structures necessary to permit their operation and use.
- 3.8** Commercial wind energy conversion systems.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

- 4.1 Height Regulations.** No structure shall be erected adjacent to a residential district without providing a set-back from the Residential District boundary equal to the height of the building above thirty feet (30') plus the appropriate Light Industrial yard requirement.
- 4.2 Lot Area.** No requirements.
- 4.3 Lot Width and Yard Setback Requirements.** The following minimum requirements shall be observed:
 - 4.31** Lot Width - None
 - 4.32** Front Yard Depth - Forty feet (40').
 - 4.33** Side Yard Depth - None; except for corner lots, then twenty-five feet (25'); or where lot adjoins a Residential or Agricultural District, then ten feet (10').
 - 4.34** Rear Yard Depth. None; except where lot adjoins a Residential or Agricultural District then forty feet (40').

SECTION 5. ADDITIONAL REQUIREMENTS

The developer shall comply with the requirement for the provision of water and disposal

of sanitary sewage established by the Muscatine County Board of Health and stated in Section 3 of Article XIII.

ARTICLE XI: I-2 HEAVY INDUSTRIAL DISTRICT

SECTION 1. GENERAL DESCRIPTION

The I-2 Heavy Industrial District is similar to the I-1 Light Industrial District, except that it permits, as special uses, certain additional, more offensive industrial uses upon the approval of the Board of Adjustment.

SECTION 2. USES PERMITTED

Property and buildings in an I-2 Heavy Industrial District shall be used only for the following purposes:

2.1 Any uses permitted in the "I-1" Light Industrial District.

SECTION 3. SPECIAL USES PERMITTED

The following special uses, and those of similar nature, scope and potential impact, may be permitted upon review by the Board of Adjustment in accordance with provisions contained in Section 4.3 of Article XV.

- 3.1 Acid manufacture.
- 3.2 Bulk plants.
- 3.3 Cement, lime, gypsum or other similar manufacture.
- 3.4 Distillation of bones.
- 3.5 Explosive manufacture and storage.
- 3.6 Fat rendering.
- 3.7 Fertilizer manufacture.
- 3.8 Gas manufacture.
- 3.9 Garbage, offal or dead animal disposal.
- 3.10 Glue manufacture.
- 3.11 Junk yards.
- 3.12 Packing plants and slaughter houses.
- 3.13 Petroleum refining.
- 3.14 Sewage disposal and treatment facilities.
- 3.15 Starch manufacture.
- 3.16 Stockyards.
- 3.17 Airports and landing fields.
- 3.18 Extraction of gravel, sand, stone, clay or other raw materials.

3.19 Telecommunications transmission towers.

Telecommunications transmission towers shall be located on private property outside the public road right-of-way and shall observe a minimum setback of 1.1 times the tower height from any property line, road right-of-way or other structure. All towers and supporting ground equipment shall be completely enclosed within a perimeter fence consisting of a minimum of six feet tall chain link with at least three strands of barbed wire (or equivalent as approved by the Zoning Administrator). All applications for new telecommunications transmission towers shall be accompanied by an affidavit certifying that said tower will be dismantled and removed from the property within 90 days of decommissioning and non-use.

3.20 Sanitary landfills.

3.21 Asphalt plants.

3.22 Ready-mix concrete plants.

3.23 Electric substations, switching stations, and similar public utility facilities, including all equipment and structures necessary to permit their operation and use.

3.24 Steel manufacturing, processing, and fabricating, including the use of equipment and processes incidental thereto.

3.25 Businesses and facilities ancillary or related to or integrated with steel manufacturing, processing, and fabricating facilities, including businesses or facilities which provide materials, supplies, or services to, or process or handle products, by-products, or other substances from such steel facilities, and including businesses or facilities which purchase, process or fabricate steel products.

3.26 Rural electric cooperative power generating stations.

3.27 Commercial wind energy conversion systems.

SECTION 4. BUILDING HEIGHT, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

4.1 Height Regulations. No requirement, except that no structure shall be erected adjacent to an Agricultural, Residential, or Commercial District without providing a setback from such boundary equal to the height of the building above thirty feet (30') plus the appropriate district yard requirement for an Agricultural or Commercial District and a setback from such boundary of no less than one hundred feet (100') plus the appropriate district yard requirement for a Residential District.

4.2 Lot Area. No requirements.

4.3 Lot Width and Yard Setback Requirements. The following minimum requirements shall be observed:

4.31 Lot Width - None

4.32 Front Yard Depth - Forty feet (40').

4.33 Side Yard Depth Twenty-five feet (25') for corner lots. Ten feet (10') where lot adjoins Agricultural District. One hundred feet (100') where lot adjoins Residential District. All other districts, none.

- 4.34 Rear Yard Depth - None; except where lot adjoins Agricultural District, then forty feet (40') or Residential District, then one hundred feet (100').

SECTION 5. ADDITIONAL REQUIREMENTS

The developer shall comply with the requirements for the provision of water and disposal of sanitary sewage established by the Muscatine County Board of Health and stated in Section 3 of Article XIII.

ARTICLE XII: PLANNED UNIT DEVELOPMENT

SECTION 1. GENERAL DESCRIPTION

The Planned Unit Development is intended to provide optional methods of land development in areas of the County where existing topography and other natural physical conditions require flexibility in development design. A Planned Unit Development may consist of conventionally subdivided lots or provide for nontraditional techniques of development, which are consistent with the intent of Muscatine County's Comprehensive Plan and Zoning Ordinance.

SECTION 2. USES PERMITTED

The uses permitted within a Planned Unit Development shall include all types of residential structures and any other uses approved by the Board of Supervisors; provided, that approving such mixed uses, the Board of Supervisors attach such conditions necessary to protect the public welfare.

SECTION 3. AREA, GROSS AREA DENSITY, LOT AREA, LOT WIDTH AND YARD SETBACK REQUIREMENTS

- 3.1 Area Requirement. Planned Unit Development shall comprise a land area of not less than five (5) acres.
- 3.2 Gross Area Density. The gross area density shall be computed by dividing the total area of the subject parcel by the number of lots to be platted. The gross area density shall not be less than the required minimum lot area for the district in which the parcel is located.
- 3.3 Lot Area. The area of each lot to be platted shall be not less than three-fourth (3/4) of the minimum lot area for the district in which the parcel is located.
- 3.4 Lot Width and Yard Setback Requirements. The requirements for lot width, front yard depth, side yard depth and rear yard depth for each lot to be platted shall be not less than three-fourths (3/4) of those required for the district in which the parcel is located.

SECTION 4. ADDITIONAL REQUIREMENTS

The developer shall also meet the following requirements:

- 4.1 Parking Requirements. Off street parking shall be provided as presented in Section 5 of Article XIII, Muscatine County Zoning Ordinance.
- 4.2 Street Improvements. Streets shall meet the requirements outlined in the Muscatine County Subdivision Ordinance.
- 4.3 Disposal of Sanitary Sewage. The developer will make provisions for the safe disposal of sanitary sewage, as outlined in the Muscatine County Onsite Waste Water Ordinance.

- 4.4** Provision of Water. The developer will provide a clean, adequate supply of water for each dwelling unit in the development, as outlined in the Muscatine County Water Wells Ordinance.
- 4.5** Storm Water Management. As outlined in the Muscatine County Zoning Ordinance.

SECTION 5. PLAN SUBMITTAL

The petitioner shall submit to the Zoning Commission and Board of Supervisors a development plan for the entire tract of land. The plan as submitted shall be accompanied by the following:

A written statement that introduces the project and describes in detail any elements of the project that is not readily apparent in the exhibits.

A site plan showing locations of all streets, on-street and off-street parking, buildings and other structures and, where applicable, any bicycle paths and trails; should include lots, boundary lines, dimensions, setbacks, easements, north arrow and written scale.

A plan showing all existing and proposed utility systems including sanitary sewers, onsite waste water systems, storm sewers, water, electric, gas and telephone lines.

Typical elevations showing all four (4) sides of any structure(s) proposed in the plan; should be of detail to show building heights, roof lines, materials, colors, textures and general design; for commercial and industrial projects, conceptual sign plans showing sign type, size and location must be included.

For residential projects, floor plans showing all model types must be submitted; floor plans may also be required for commercial projects.

A table listing land coverage by percentage and acreage for the following: landscaped areas and natural open space, building coverage, parking, streets and sidewalks and recreation areas.

A topographic map of the property showing contour intervals of two feet (2') may be required dependant on project (verify with Zoning Administrator).

A grading plan showing existing and proposed contours and the depth of all cuts and fills; on both the grading plan and topographic map, contour lines should be carried a minimum of fifty (50) feet beyond the project boundaries; the grading plan should show direction of drainage, retaining wall (height and materials), building pad elevations and finished floor elevations.

A landscape plan showing the natural open space, if any, which will remain upon completion of development, all existing trees, and the precise boundaries of additional landscaping; the landscape plan must include the following: species (botanical and species names), dimensions and locations of all proposed trees, shrubs and groundcover, paving materials and fencing materials.

Commercial developments must include a specification of the permitted and conditional uses desired in the development.

For certain developments, a traffic analysis prepared by a licensed traffic engineer may be required.

A statement that if the development plan be approved, proponents of the proposed development will agree to start construction within a reasonable period and that specified phases of the development will be carried out in conformity with said plan upon a reasonably projected time schedule.

SECTION 6. APPROVAL AND ACCEPTANCE PROCEDURE

The following procedures shall be followed in order to secure approval of a Planned Unit Development:

- 6.1** Any owner or development who wished to secure the County Zoning Commission and County Board of Supervisors approval of his/her proposed planned unit development and plat shall submit to the County Zoning Commission and County Board of Supervisors seven (7) print copies and one (1) digital copy, in a format specified by the County Zoning Administrative Officer, of said plan and other required information.
- 6.2** The County Zoning Commission and County Board of Supervisors shall study such development plan, plat and other information received from the Muscatine County Board of Health, the Muscatine Soil Conservation District, and the County Engineer and shall within sixty (60) days of receipt, approve or reject such plan and plat.
- 6.3** The development plan shall not be approved unless it includes a complete plan for soil erosion and sediment control, developed in accordance with the technical standards and specifications of the Muscatine Soil Conservation District and approved by the Soil Conservation District. The developer shall attach a statement to the erosion and sediment control plan certifying that the construction and/or development will be done in accordance with the plan. Within thirty (30) days of the receipt of the materials from the Zoning Administrative Officer, the Soil Conservation District shall notify in writing the Zoning Administrative Officer that the erosion and sediment control plan has been (1) approved, (2) approved subject to modification, or (3) disapproved. If disapproved, the Soil Conservation District shall submit to the Zoning Administrative Officer, a statement setting forth reasons for disapproval, and indicating in what way this plan fails to conform to the technical standards and specifications of the Soil Conservation District.
- 6.4** Upon approval by the County Zoning Commission, said development plan and plat shall be submitted by the Commission to the County Board of Supervisors for final approval and acceptance of all easements. Streets, ways, park or public areas will not be dedicated and accepted by the County as public responsibility unless the County deems the improvements as a necessity for the public good of the County residents. All improvements to be dedicated to the County will meet the specifications and standards of the County Board of Supervisors.
- 6.5** If the County Zoning Commission does not approve the development plan and plat of a planned unit development, the County Board of Supervisors may approve said development plan and plat by a two-thirds (2/3) vote of the entire membership of the Board. Provisions for the acceptance of easements, streets, ways, parks or public areas will be the same as provided in Sub-section 6.4.
- 6.6** The County Zoning Commission and County Board of Supervisors may direct that the owner or developer attend any deliberation on the submitted plat and plan.
- 6.7** The County Zoning Commission and County Board of Supervisors may reject any development plan and plat with specific recommendations to the owner or developer.
- 6.8** Approval of the development plan and plat by the County Board of Supervisors shall be null and void if the plat is not recorded within sixty (60) days after the date of approval unless application for an extension of time is made in writing during said sixty (60) days period to the County Board of Supervisors and approved.

SECTION 7. RECORDING OF DEVELOPMENT PLANS

Following the approval of a final development plan, a copy of the plan and plat shall be filed according to the stipulations of the Muscatine County Subdivision Ordinance. The restrictions on

development and all other responsibility for compliance with the approved plan shall be binding upon all applicants, successors, grantees and shall limit and control the use of the planned development project as set forth herein.

ARTICLE XIII: SUPPLEMENTARY USE REGULATIONS

SECTION 1. RESIDENTIAL USE OF CELLARS AND BASEMENTS

No cellar shall be occupied for dwelling purposes and no basement shall be occupied for dwelling purposes, unless at least one (1) story of the house above the cellar or basement has been enclosed or roofed. This prohibition may be waived on a temporary basis by the Board of Adjustment, and does not include subterranean homes.

SECTION 2. SEASONAL RECREATIONAL COTTAGES

A seasonal recreational cottage may be permitted as a special use in an A-1 Agricultural District or in an R-1 Residential District. Such a seasonal or temporary residence may be located, upon approval by the Board of Adjustment, in accordance with Section 4.3 of Article XV, along a river, lake or stream or in another area suited for recreational use, provided that it complies with the area, lot width, yard, and height requirements of the R-2 Residential District. Each seasonal recreational cottage shall be located on an individually platted lot. There shall be no more than one cottage on each platted lot.

SECTION 3. REVIEW BY BOARD OF HEALTH

Prior to issuing a zoning permit for any residential, commercial or industrial use, the Zoning Administrative Officer, shall have on file a plan which has been approved by the Muscatine County Board of Health showing the location, type and layout of the water supply and sewage disposal systems to serve such use.

SECTION 4. ACCESSORY STRUCTURE AND USES

Accessory structures and uses customarily incidental to that of the main building may be erected or established upon any lot or tract of land, provided they comply with the following:

- 4.1** Accessory structures, which are not a part of the main structure, may be built in a rear yard within five feet (5') of the rear lot line and within five feet (5') of the side lot line, but shall not occupy more than thirty-five percent (35%) of the rear yard.
- 4.2** If any portion of a detached accessory structure is within a side yard of a main building on the same lot, such detached accessory structure shall not be nearer to the side lot line than would be required for the building wall of a main building on the same lot.
- 4.3** No detached accessory structure is permitted within the limits of a front yard.
- 4.4** No detached accessory structure may be placed in any rear yard or any side yard closer than ten feet (10') from the dwelling unless a firewall is constructed and meets all set back requirements.
- 4.5** No accessory structure shall be used for dwelling purposes.
- 4.6** Not more than one vehicle housed in a private garage may be a commercial vehicle or of more than three (3) tons capacity; and not more than three (3) spaces in a private garage may be leased to persons other than the residents on the premises.
- 4.7** An open unenclosed porch or paved terrace may project into a front yard for a distance not exceeding ten feet (10').

- 4.8 A mobile home cannot be used as an accessory structure.
- 4.9 When a property in any District adjoins property being used for agricultural purposes, the property owner of the land adjoining agricultural property shall assume the responsibility of construction and maintenance of a fence along the common boundary between the agricultural property and the adjacent property in any District. The fence shall be of thirty-two inch (32") woven wire construction, with steel or wooden posts set every twelve feet (12'), and with three (3) strands of barbed wire. The non-agricultural property owner must transfer this responsibility to the subsequent property owner of the non-agricultural property.

SECTION 5. PARKING REGULATIONS

- 5.1 **Provisions of Off-Street Parking.** Off-street parking shall be provided for use in conjunction with occupancies of buildings, constructed, converted, or remodeled as hereinafter defined. Off-street parking space for other buildings shall be provided within the building, on the premises, or on a permanently reserved space on another lot, any portion of which is within two hundred feet (200') of said building.
- 5.2 **Minimum Requirements.** The following minimum number of off-street parking spaces shall be provided.
- 5.21 Two (2) off-street parking spaces shall be provided for each family unit within a single-family, two-family, or multiple-family dwelling.
- 5.22 Hotels, motels and lodging houses hereafter erected shall provide one (1) off-street parking for each individual sleeping or living unit plus one (1) off-street parking space for each two (2) employees at work at the same time.
- 5.23 Churches, schools, auditorium, theaters, stadiums or other similar places of public assembly, hereafter erected shall provide one (1) off-street parking space for each three (3) seats of the audience seating capacity provided in the main auditorium or stadium.
- 5.24 Commercial buildings, lodges, clubs and fraternal organizations hereafter erected shall provide one (1) parking space for each two hundred square feet (200') of the floor area of the main building plus one (1) parking space for each two (2) employees at work at the same time.
- 5.25 Office buildings, including professional and private office buildings hereafter erected shall provide one (1) off-street parking space for each two hundred and fifty square feet (250') of floor area in the building.
- 5.26 Public and semi-public buildings and similar institutions hereafter erected shall provide one (1) off-street parking space for each two hundred and fifty square feet (250') of floor area in the building.
- 5.27 Industrial buildings hereafter erected shall provide one (1) off-street parking space for each four hundred square feet (400') of floor area of the main building or for each three (3) employees, whichever is greater.
- 5.28 Off-street parking space shall be provided for any increase in floor area of any existing building in the same ratio as above requirements for the particular use for which the building addition is intended.
- 5.3 **Additional Parking Requirements.** Storage of junk vehicles shall not be parked or stored in any R-1, R-2, R-3 or M-1 District except in a carport or enclosed building.

- 5.4 Loading and Unloading Zones.** Any building erected or converted for any commercial or industrial use shall provide not less than one (1) truck unloading space either within the building or upon the lot and adjacent to the building for each ten thousand square feet (10,000 sq. ft.) of floor area or fraction thereof.

SECTION 6. ACCESS TO COUNTY ROADS

After the effective date of this Ordinance, access to County roads shall be granted to a property owner or subdivider by the County Engineer after he has made a thorough study and heard evidence on the proposal.

SECTION 7. SCREENING OF JUNK YARDS

Junk yards shall be screened from the view of public roadways, be fenced or shrubbery or other natural materials constructed, installed, or planted to a minimum height of eight feet (8').

SECTION 8. PRIVATE IMPROVEMENTS NEAR PUBLIC HIGHWAY RIGHT-OF-WAYS

Wells, septic filter fields, seepage beds, or other private improvements or installations may be prohibited within fifty feet (50') of the right-of-way of a public highway.

SECTION 9. MUNICIPAL SANITARY SEWER REQUIRED WITHIN TWO (2) MILES OF A MUNICIPALITY

Development in the M-1, R-1, R-2, R-3, C-1, C-2, I-1, I-2, and Planning Unit Development Districts within the extraterritorial jurisdiction boundary (2 miles) of a municipality shall be connected to that municipality's sanitary system unless:

- 9.1** The municipality provides an affidavit stating that they cannot serve the district due to technical limitations; or
- 9.2** Other reasons of infusibility are deemed valid by the Zoning Administrative Officer.

SECTION 10. MUNICIPAL WATER REQUIRED WITHIN TWO (2) MILES OF A MUNICIPALITY

Development in the M-1, R-1, R-2, R-3, C-1, C-2, I-1, I-2, and Planned Unit Development District within the extraterritorial jurisdiction boundary (2 miles) of a municipality shall be connected to that municipality's water system unless:

- 10.1** The municipality provides an affidavit stating that they cannot serve the district due to technical limitations; or
- 10.2** Other reasons of infusibility are deemed valid by the Zoning Administrative Officer.

ARTICLE XIV: NON-CONFORMING USES

SECTION 1. NON-CONFORMING USE MAY BE CONTINUED

The lawful use of structures existing on the effective date of this Ordinance, although such use does not conform to the provision hereof, may be continued, but if such non-conforming use is discontinued for a period of one (1) year, any future use of such premises shall be in conformity with the provisions of this Ordinance.

SECTION 2. NON-CONFORMING USE MAY BE EXTENDED

The lawful use of a building existing on the effective date of this Ordinance may be extended throughout the building, provided such building was so arranged or designed for such non-conforming use on the date this Ordinance became effective.

SECTION 3. NON-CONFORMING USE RECONSTRUCTED

No structure which has been damaged by fire, explosion, an Act of God, or the public enemy to the extent of more than sixty-five percent (65%) of its fair market value, shall be restored except in conformity with the regulations of this Ordinance.

SECTION 4. NON-CONFORMING USES SUBSTITUTED

The substitution of one non-conforming use for another will be permitted when such substituted use is of the same or more restrictive type of use and will not increase congestion in the street, or endanger the health, safety, morals or general welfare of the district in which it is located. There shall be no increase in the building or lot area to accommodate such substituted use.

SECTION 5. NON-CONFORMING LOT

If a lot of record has less area or width than is required to meet the requirements of the District within it lies, this lot may be used for any uses permissible within said District.

ARTICLE XV: BOARD OF ADJUSTMENT

SECTION 1. CREATION AND MEMBERSHIP

A Board of Adjustment is hereby established and shall consist of five (5) members appointed by the Muscatine County Board of Supervisors. The five (5) members first appointed shall serve terms of one (1), two (2), three (3), four (4), and five (5) years respectively. Thereafter terms shall be five (5) years and vacancies shall be filled by any member whose term becomes vacant. The County Board of Supervisors shall have the power to remove any member of the Board of Adjustment for cause, upon written charges and after public hearing.

SECTION 2. CHAIRMAN AND MEETINGS

The Muscatine County Board of Supervisors shall name one of the members of the Board of Adjustment as Chairman for the first year, and thereafter such Chairman shall be elected by the Board of Adjustment. Such Chairman shall serve for a term of one (1) year only. All meetings of the Board of Adjustment shall be held at the call of the Chairman and at such other times as the Board of Adjustment may determine. Such Chairman, or in his absence, the Acting Chairman may administer oaths, and compel the attendance of witnesses. All meetings of the Board of Adjustment shall be open to the public.

The Board of Adjustment, shall keep minutes of its proceedings, showing the vote of each member on every questions, or if absent or failing to vote, indicate such fact, and shall keep complete records of its examinations and other official actions. Every rule, regulation, every amendment or repeal thereof, and every order, requirement, decision, or determination of the Board of Adjustment shall be immediately filed in the office of the Zoning Administrative Officer, and shall be a public record. The Board of Adjustment shall adopt its own rules of procedure not in conflict with this Ordinance, or with the Iowa Statute. The Board of Adjustment shall not be compensated, except for necessary expenses.

SECTION 3. APPEALS

The Board of Adjustment shall hear and decide appeals from any review, order, requirements, decision or determination made by the Zoning Administrative Officer in the enforcement of this Ordinance. Such appeal shall be taken within a period of not more than three (3) months, and in the manner prescribed by the rules of the Board of Adjustment, by filing with the Zoning Administrative Officer and with the Board of Adjustment a notice of appeal specifying the grounds thereof, and by paying a filing fee established by the Board of Supervisors to the Treasurer of Muscatine County, Iowa, in care of the Zoning Administrative Officer. When notice of the appeal is filed, the Zoning Administrative Officer shall transmit all of his records, or certified copies thereof, regarding the appeal to the Board of Adjustment, including a carbon copy of his letter to an applicant who has been refused a zoning permit. The Board of Adjustment shall take action upon this appeal within sixty (60) days.

SECTION 4. POWERS

The Board of Adjustment shall have the following powers, and it shall be its duty:

- 4.1** To hear and decide appeals, after a public hearing, where it is alleged that there is error of law in any order, requirement, decision or determination made by the Zoning Administrative Officer in the enforcement of this Ordinance as provided in Section 3 of Article XV.
- 4.2** To permit upon petition by a property owner and after a public hearing, exceptions to the terms of this Ordinance as follows:
 - 4.21** To permit the extension of a district where the boundary line of a district divides a lot held in single ownership at the time of the adoption of this Ordinance.
 - 4.22** To permit, where the boundary line of a district divides a tract of land of not more than ten (10) acres under a single ownership, adjustment of such a line to conform with the topography of the ground where such tract is being subdivided, provided such a variation does not extend for a distance of more than five hundred feet (500'), and does not come closer than three hundred feet (300') to any boundary of a tract.
 - 4.23** To interpret the provisions of this Ordinance in such a way as to carry out the intent and purpose of the plan as shown upon the zoning maps fixing the several districts accompanying and made a part of this Ordinance, where the road layout actually on the ground varies from the road layout as shown on the zoning maps aforesaid.
 - 4.24** To permit the reconstruction of non-conforming building which has been damaged by explosion, fire, Act of God, or the public enemy, to the extent of more than sixty-five percent (65%) of its fair market value, where the Board finds some compelling public necessity requiring the continuance of the non-conforming use, and the primary purpose of continuing the non-conforming use is not to continue a monopoly.
- 4.3** To authorize by special use permit and after a public hearing, the location, construction or structural alteration of any of the buildings, structures or uses cited as Special Uses Permitted in a given district. No action shall be taken by the Board of Adjustment hereunder until they have reviewed the Muscatine County Development Proposal Review checklist, have held a public hearing and have possession of a copy of Approved Permits by the Iowa Department of Environmental Quality and/or Iowa State Board of Health, when these statutes are applicable.

Prior to granting any special use permit, the Board of Adjustment shall determine the effect of the proposed use upon the character of the neighborhood, the adjoining property values, the adequacy of the county road to handle the additional traffic, the potential traffic hazards, the impact on the water table, the handling of sewage wastes and storm water runoff, the potential of increasing the base flood elevation and other matters relating to public safety, public health and general welfare.

- 4.4** To grant upon petition by a property owner and after a public hearing, a variance in the yard requirements of any district where there are practical difficulties or unnecessary hardships in the carrying out of the provision of this Ordinance due to an irregular shape of the lot, topography, or other conditions, provided such variance will not seriously affect any adjoining property or the general welfare.
- 4.5** To authorize, upon petition and after a public hearing, whenever a property owner can show that a strict application of the terms of this Ordinance relating to the use, construction or alteration of buildings, or structures, or the use of land will impose upon him practical difficulties or particular hardships, such variations of the strict application of the terms of this Ordinance as are in harmony with its general purpose and intent, but only when the Board of Adjustment is satisfied that a granting of such variation will not merely serve as a convenience to the applicant, but will alleviate some demonstrable and unusual hardship or difficulty so great as to warrant a variation from the comprehensive plan as established by this Ordinance, and at the same time the surrounding property will be properly protected.

SECTION 5. VOTING

In exercising the above powers, the concurring vote of three (3) members of the Board of Adjustment shall be necessary to reverse any order, requirements, decision or determination of the Zoning Administrative Officer, or to decide in favor of the applicant any matter upon which it is required to pass under this Ordinance. Every variation granted or denied by the Board of Adjustment shall be accompanied by a written finding of fact based on testimony and evidence, and specifying the reason for granting or denying the variation.

SECTION 6. HEARINGS

The Board of Adjustment, shall fix a reasonable time for the hearing of an appeal or petition, and give due notice thereof to the parties, and decide the same within a reasonable time. It shall give at least four (4) but not more than twenty (20) days notice of the time and place of such hearing by insertion in an official newspaper, or a paper of general circulation in the County. At the hearing, any party may appear in person, or by agent, or by attorney. The Board of Adjustment may reverse or confirm, wholly or partly, or may modify the order, requirement, decision, or determination as in its opinion ought to be made, and to that end shall have all the powers of the officer from whom the appeal is taken. Any person or persons jointly or severally aggrieved by a decision of the Board of Adjustment under the provisions of this Ordinance and Chapter 335 of the Code of Iowa, as amended, or any tax payer, or any officer, department or bureau of Muscatine County, Iowa, may present to a court of record a petition, duly verified setting forth that such decision is illegal in whole or in part, specifying the grounds of the illegality. Such petition shall be presented to the Court within thirty (30) days after the filing of the decision by the Board of Adjustment.

SECTION 7. BOARD OF SUPERVISORS REVIEW

The Board of Supervisors may provide for its review of variances granted by the Board of Adjustment before their effective date. The Board of Supervisors may remand a decision to grant a variance to the Board of Adjustment for further study. If remanded, the effective date of the variance is delayed for thirty days from the date of the remand.

ARTICLE XVI: ZONING PERMITS

SECTION 1. PERMITS REQUIRED

No land shall be occupied or used, and no building or structure hereafter erected or structurally altered shall be occupied or used in whole or in part for any purpose whatsoever, until a permit is issued by the Zoning Administrative Officer, stating that the building and use comply with the provisions of this Ordinance; provided, however, that no permit shall be required for agricultural uses.

No change of use shall be made in any building or part thereof, now or hereafter erected or structurally altered, without a permit being issued therefore by the Zoning Administrative Officer. No permit shall be issued to make a change unless the change is in conformity with the provisions of this Ordinance.

The owner of a non-conforming use in existence at the time of passage of this Ordinance shall make application for the permit within twelve (12) months after the effective date of this Ordinance. The application shall be accompanied by affidavits of proof that such non-conforming use was established prior to the enactment of this Ordinance.

SECTION 2. APPLICATION FOR ZONING PERMIT

Each application for a zoning permit shall be on approved forms and shall be accompanied by a plat in duplicate, drawn to scale, showing the actual dimensions of the lot or tract to be built upon or used, the size, shape and location of the structure to be erected, and such other information as may be necessary to provide for the enforcement of this Ordinance.

SECTION 3. SITE PLAN REVIEW

3.1 Purpose. In accordance with the Muscatine County Comprehensive Plan, it is essential that new developments and substantial improvements to existing developments meet established minimum standards for the design of such developments to protect existing developments, to insure adequate provisions for public/private utilities, such as sewer, water, and roads, and promote the health, safety, and general welfare of the public.

3.2 Application. A site plan review is required prior to the issuance of a zoning permit whenever a person, firm, corporation or other group (herein referred to as the 'developer' or 'applicant') wishes to develop or substantially improve a tract of land and/or structure zoned commercial (C-1 or C-2), industrial (I-1 or I-2) or planned unit development. If the proposed use is a principal permitted use within that Zoning District, the Zoning Administrative Officer will review the site plan; for special permitted uses, the site plan will be reviewed by the Zoning Administrative Officer after the Special Use Permit has been issued by the Board of Adjustment.

3.3 Procedure. The developer shall submit a letter of application and three (3) copies of the site plan together with a fee, established by the Board of Supervisors, to the Zoning Administrative Officer, who will determine if all necessary and required information is provided for review. Once all the required information is received, the Zoning Administrative Officer shall immediately forward copies of the Site Plan to the County Engineer and the County Health Officer for their review and recommendations.

3.31 The Zoning Administrative Officer shall review the Site Plan proposal and receive a report from the County Engineer and the County Health Officer. The Zoning Administrative Officer shall make a determination of conditions for approval of the site plan within thirty-five (35) days from its submission. If no action is forthcoming within the thirty-five (35) days,

the site plan shall be deemed approved and a zoning permit shall be issued.

3.32 The developer may appeal the conditions placed on the proposed development by notifying in writing the Board of Supervisors. Such appeal shall be made within thirty (30) days of the Zoning Administrative Officer's decision and shall specify what relief is requested of the Board of Supervisors. The Board shall hear said appeal within fifteen (15) days and act upon the appeal at a regular Board meeting within thirty (30) days of appeal receipt.

3.33 A zoning permit may only be issued after Zoning Administrative Officer approval or decision of the Board of Supervisors on appeal.

3.4 Site Plan Review Standards. The standards of site design listed below are intended only as minimum requirements, so that the general development pattern in rural Muscatine County may be adjusted to a wide variety of circumstances and topography, and to insure reasonable and orderly growth in rural Muscatine County.

3.41 All proposed developments shall conform to the Goals and Policies of the Muscatine County Comprehensive Plan; the Muscatine County Subdivision Ordinance standards and procedure, where applicable; such other County ordinances as may pertain to such developments; and any applicable administrative rules of the Iowa Department of Transportation, Iowa Department of Health, Iowa Department of Natural Resources, and other agencies of the State of Iowa or the United States.

3.42 Entrances, internal roads, and driveways shall be adequately constructed to accommodate the expected traffic. Application shall state the estimated increase in vehicle trips per day by type of vehicle. Entrances and exits onto public streets shall not unduly increase congestion or traffic hazards on the public streets and the proposed site. Applicant may be required to install at applicant's expense turn lanes, street intersection lights, and signs, and other improvements necessary to handle the increased traffic and potential traffic hazards, if required. New or expanded drive entrances require a permit from the County Engineer.

3.43 The proposed development shall be designed with appropriate regard for topography, surface drainage, natural drainage ways and streams, wooded areas, and other naturally sensitive areas which lend themselves to protection from degradation. Applicant may be required to submit engineering studies and plans to state how the applicant will protect the sensitive environment at applicant's expense. A soil erosion control plan, approved by the United States Soil Conservation Service, is required if more than 25,000 square feet of land is proposed to be disturbed during construction. Applicant shall be required to demonstrate application for all required permits from applicable state and federal agencies.

3.44 The proposed development shall be designed with adequate water supply and sewage treatment facilities and storm water drains and structures necessary to protect the public health and welfare by not overloading existing public utilities. Runoff from development shall not be outletted into roadside drainage facilities in excess of the existing runoff prior to development. Applicant may be required to submit engineering plans to show how the applicant will manage storm water runoff from a twenty-five (25) year rainstorm.

- 3.45 The proposed development shall be designed, and the buildings and improvement shall be located within the tract or parcel in such a manner as not to unduly diminish or impair the use and enjoyment of adjoining or surrounding property. And to such end, the developer shall provide for such fences, landscaping and other improvements as are proper and necessary to buffer the proposed use from the existing or surrounding land uses. Particular attention shall be paid to parking lots, loading docks, trash/recycling containers and other potentially unsightly features of the development. Screening (fencing and vegetative) and buffering shall be required where necessary to block or soften views of the development from adjacent property.
- 3.46 The proposed development shall be designed not to unduly increase the public danger of fire, explosion, and other safety hazards on the general public and the persons residing or working in adjoining or surrounding property.
- 3.47 When a development adjoins property used for agricultural or residential purposes, the developer shall assume the responsibility of construction and maintaining a fence along the common boundary between the development and the agricultural or residential property. The fence shall be of thirty-two inch (32") woven wire construction, with steel or wooden posts set every twelve feet (12'), and with three (3) strands of barbed wire. The developer must transfer this responsibility to the subsequent property owner.

3.5 Information on Site Plan. The purpose of the Site plan is to show the facts needed to enable the Zoning Administrative Officer to determine whether the proposed development meets the requirements of this Chapter and complies with the standards listed in subsection D above.

- 3.51 Location map showing relationship to surrounding roads, streams, and public facilities.
- 3.52 Scale of Site Plan shall not be more than one inch (1") to equal fifty feet (50'). Scale shall be shown in legend.
- 3.53 Name and address of land owner and developer.
- 3.54 Date, north marker, name of proposed development.
- 3.55 Existing buildings, utilities, railroads, rights-of-way, easements, location, and name of existing road, stands of trees and drainage ways.
- 3.56 Location and name of adjoining subdivisions, subdivision lots therein, and names of the adjoining landowners.
- 3.57 Existing and proposed contour lines at intervals of two feet (2'), with a minimum of two (2) contours.
- 3.58 Zoning district classification; type of water supply and sewage disposal and storm sewer disposal.
- 3.59 Other information as necessary to describe how the standards in subsection 3.4 above will be satisfied.
- 3.510 Proposed location of buildings, access parking lots, traffic flows, changes in ground-elevation, trees/bushes to be removed and added, signs, lights, waste bins, outdoor storage areas, loading areas, fences/walls, etc.

- 3.7 Enforcement.** The approved site plan shall be binding upon the developer and its successors and assigns; failure to construct, develop, improve or maintain the site in compliance with the approved site plan shall constitute a violation of the Ordinance.

SECTION 4. TEMPORARY PERMITS

The Zoning Administrative Officer may issue a temporary permit for a period not to exceed six (6) months for the use of a mobile home as a temporary office or as a temporary residence while a permanent structure is under construction.

SECTION 5. FEES

The fees for a Zoning Permit and Site Plan Review covering any or all of the requirements outlined in Sections 2 and 3 of Article XVI shall be established by the County Board of Supervisors. Such fee shall be paid to the Treasurer of Muscatine County, Iowa, in care of the Zoning Administrative Officer. If construction, development or improvement is commenced prior to the issuance of a zoning permit, the Zoning Administrative Officer shall double the fee.

SECTION 6. STORM WATER MANAGEMENT

6.1 Where Required.

6.11 The provision of this section shall apply to all residential, commercial and industrial developments and re-developments of five (5) acres or more. No construction on such a site may begin until a Storm Water Management Plan is approved by the Zoning Administrative Officer.

6.12 Implementation of these requirements will be part of the Site Plan Review process for commercial and industrial developments, and part of the requirement of plat approval for residential development.

6.2 Design Criteria.

6.21 All lots and internal streets for residential, commercial and industrial developments or re-developments of five (5) acres or more shall be adequately drained.

6.22 Storm water runoff shall be controlled through enclosed storm sewers or overland drainage.

6.23 Detention facilities sufficient to capture the runoff of a twenty-five (25) year storm shall be located within the development. The release rate of storm water out of the detention facility shall be restricted so as to not exceed the volume produced by a five (5) year storm. The velocity of the water leaving the development shall be reduced so as not to cause erosion.

6.24 Where necessary, drainage easements shall be dedicated to the public; however, the land shall remain privately owned, and such dedication shall not create a public utility, or any obligation on the part of the county for operation, maintenance or repair.

6.25 A drainage easement is required where storm water from a development crosses an adjacent property to reach a natural stream or public drainage facility

6.3 Developer Responsibilities.

- 6.31 The developer or owner shall provide a plan demonstrating compliance with the design criteria, and all other requirements of this section. The plan must be approved by a licensed engineer.
- 6.32 Where the plan calls for the construction of enclosed storm sewers, the approval of the County Engineer is required.
- 6.33 The plan shall set forth developer's proposal for the ownership, operation, maintenance and repair of the facilities.
- 6.34 All components shall be constructed as specified in the approved Storm Water Management Plan, and are collectively referred to herein as the System.

6.4 Continuing Responsibilities.

- 6.41 The components of the Storm Water Management System shall be owned as provided for in the plan. Ownership may be by an individual lot owner or by an Owners Association. The responsibilities assigned herein shall be ongoing, and shall run with the land.
- 6.42 The owner of the System shall be responsible for the operation, maintenance and repair of all components thereof, and the continuing functioning of the System as originally designed and intended.
- 6.43 The owner of the System shall allow County officials reasonable access in order to accomplish periodic inspections of the System.
- 6.44 A System, or component thereof, found not to be functioning as designed and intended, and not repaired or otherwise brought to design standards, is hereby declared to be a public nuisance, and may be caused to be repaired, and the cost thereof assessed to all owners of those properties benefited by the System.

SECTION 7. EROSION AND SEDIMENT CONTROL

- 7.1 **General.** Soil erosion contributes to the impairment of drainageways, increases road and storm sewer and open ditch maintenance costs, contributes to the destruction and obstruction to traveled roadways creating a potential hazard for vehicular traffic, and contributes to contamination and degradation of land surfaces and streams, flooding and dusty conditions. This chapter establishes requirements for grading, filling, fill material, and for obtaining Grading Permits in an effort to control erosion and sediment transport and to prevent pollution. These standards include the use of suitable fill material, stable slope construction, proper site drainage, pollution prevention and usability of public and private easements.
- 7.2 **Applicability.** No person shall engage in land-disturbing activities that include fill in excess of three (3) feet, excavation exceeding five (5) feet or any grading or clearing activity that disturbs an area of twenty thousand (20,000) square feet within the unincorporated parts of Muscatine County unless they have received a Grading Permit. In addition, through the Iowa DNR, owners of certain construction sites are required to obtain permit coverage under rules contained in National Pollutant Discharge Elimination System General Permit No. 2, Storm Water Discharge Associated with Industrial Activity for Construction Activities ("General Permit No. 2").
- 7.3 **Additional Standards.** General Permit No. 2 and the document entitled Iowa Construction Site Erosion Control Manual, issued and administered by the Iowa DNR, are hereby adopted and by reference made part of this Section as if fully set forth herein. Any act these documents require or prohibit, is required or

prohibited by this Chapter. Any future amendments, revisions, or modifications to these documents, incorporated herein, are intended to be made a part of this Section.

7.4 Other Permits Required and Exceptions.

7.41 Filling or construction within flood plain limits as established by the Federal Emergency Management Agency regulated in the Muscatine County Zoning Ordinance will require a separate additional permit under this ordinance, in addition to the permits required by this chapter.

7.5 Exemptions. The following activities are exempt from the permit requirements of this chapter:

7.51 Crop production activities;

7.52 Cemetery graves;

7.53 Emergencies posing an immediate danger to life or property, or substantial flood or fire hazards;

7.54 Public improvements.

7.6 Additional Requirements.

7.61 Filling Requirements

- (1) Clearing and grubbing shall be performed according to Statewide Urban Design Standards.
- (2) Fill material shall be placed according to the SWPPP.
- (3) Interim filling during construction shall be placed in a safe manner. Slope stabilization, inspection and maintenance of erosion control, and soil stabilization where work has been suspended shall be according to SUDAS.
- (4) Finish grading shall be according to plan.

7.62 Unacceptable Fill Materials. Fill materials shall not include hazardous waste, synthetic material, metal, and organic material other than natural topsoil incidental to excavation except as noted below.

- (1) Concrete, brick, tile, and other manufactured inert material shall not be greater than 18" in its greatest dimension, or;
- (2) Where the final location will be below the known water table.

7.63 Tree Removal

- (1) Trees may not be buried.
- (2) Trees may be burned, provided a safe separation distance from nearby dwelling units can be met and proper notification is completed. Trees shall not be brought onsite for burning.

7.64 Concrete Waste Management for any concrete activity

- (1) Washout facilities prevent runoff of concrete wash water which is alkaline and contains high levels of chromium and can increase the pH of area waters.
 - (a) Concrete washout waste must be contained in washout areas. The washout areas shall contain the concrete and liquids when the chutes of concrete mixers and hoppers of concrete pumps are rinsed out after delivery.
 - (b) Saw-cut slurry must be vacuumed or shoveled and removed from the site or disposed of in a concrete washout area.
- (2) Washout areas consolidate solids for easier disposal. These washout areas must be removed and/or cleaned, and dry waste concrete must be disposed of properly.

SECTION 8. STORM WATER POLLUTION PREVENTION PLAN (SWPPP) REQUIRED

Sites with a disturbed area greater than or equal to one (1) acre shall require an acceptable SWPPP meeting the requirements of this chapter, certified by a design professional.

8.1 SWPPP Requirements

Every SWPPP submitted with a grading permit application shall meet the following:

- 8.11** Contain complete 24-hour contact information for the site owner and the person responsible for providing and maintaining sedimentation and erosion control for the site. The permittee shall inform the Zoning, Building & Environmental Office of any change in the contact information.
- 8.12** Comply with all current minimum mandatory requirements for SWPPP's promulgated by the Iowa DNR in connection with NPDES General Permit No. 2 including those published as Summary Guidance for General Permit No. 2 by the Iowa DNR.
- 8.13** Comply with all other applicable state or federal permit requirements in existence at the time of application.
- 8.14** Include a drainage plan accompanied by a drainage report. The drainage report shall at a minimum, demonstrate the design of proposed grading, erosion, and sediment control, if constructed per plan is not expected to adversely impact adjacent properties.
- 8.15** Be prepared by a design professional; and
- 8.16** Include within the SWPPP a signed and dated certification by the person preparing the SWPPP that the SWPPP complies with all necessary requirements.
- 8.17** The SWPPP shall only be modified by a design professional as required in NPDES General Permit No. 2.

SECTION 9. NPDES GENERAL PERMIT NO. 2 REQUIRED

The County shall not allow any land-disturbing activity on a site for which coverage under General Permit No. 2 is required, nor shall the County issue any permit, authorization, or license allowing such activity, until the site owner has obtained coverage for the site under General Permit No. 2 from the Iowa DNR.

- 9.1** Any responsible party who is required to obtain, or has obtained, coverage under General Permit No. 2 shall comply with all the requirements of General Permit No. 2. Failure to do so is violation of this Section.
- 9.2** Completion of work shown in Storm Water Pollution Prevention Plan submitted under the provisions of General Permit No. 2 is a requirement of General Permit No. 2 and failure to complete such work is a violation of this Section.
- 9.3** For sites covered under General Permit No. 2 where the ownership changes, the County must be notified of the title transfer within 30 days, except in the case of single-lot sales, a copy of the notice of transfer shall be included in the SWPPP. For sites that are part of a larger common plan of development such as a housing or commercial development project, if a permittee transfers ownership of all or any part of property subject to a Grading Permit, both the permittee and the transferee shall be responsible for compliance with the provisions of General Permit No. 2 and the Grading Permit for that portion of the project which has been transferred.

SECTION 10. INSPECTION, NOTICE TO COMPLY AND NOTICE OF VIOLATION

10.1 Inspections. The County may inspect the site in response to reports from third parties or at other times, at the County's discretion.

- 10.11** Right of Entry. The Zoning Administrator and authorized employees of the County shall be permitted to enter all properties for the purposes of inspection, observation, measurement, sampling, and testing in

accordance with the provisions of this chapter. The applicant, owner, or titleholder shall be deemed to have consented to such entry by submission of an application for any permit or plan identified in this chapter. Barring or delaying such inspection is a violation of this section.

10.12 The Zoning Administrator or designee shall have access to and be able to copy any records that must be kept under the conditions of General Permit No. 2 within three (3) business days, where a business hour is any hour between 8 a.m. and 4 p.m. on a non-holiday weekday.

10.2 Notice to Comply. The County may issue a Notice to Comply with the responsible party or parties, describing any problems and specifying a date and time by which compliance must be achieved. Failure to achieve compliance by the specified date and time is a violation of this Section.

10.3 Notice of Violation. The Zoning Administrator shall, upon determination of any violation of this Section, issue a Notice of Violation in writing to the responsible party or parties, indicating the nature of the violation and ordering the action necessary to correct it.

10.31 The Notice of Violation may:

- (a) Order the discontinuance of any illegal work, specifying a date and time for such discontinuance; and
- (b) Require the repair and cleanup of any damage done due to failure to comply with General Permit No. 2, specifying a date and time for completion of repair and cleanup; and
- (c) Order the withholding of any building or occupancy permits for the site; and
- (d) Order the discontinuance of any or all work at the site, including at the Administrators discretion work not directly related to the cause and prevention of erosion and sedimentation, except work necessary to achieve compliance and to repair and clean up damage, specifying a date and time for such discontinuance to commence and conditions for such discontinuance to cease.

10.32 Failure to comply with any order in a Notice of Violation is an additional violation. Each day of such failure constitutes a separate violation.

10.33 The Zoning Administrator may modify a Notice of Violation and may authorize, in writing, an extension to the specified dates and times therein.

10.34 The Notice of Violation shall, where necessary or appropriate, recommend to the County Attorney the institution of legal or equitable actions that may be required for the enforcement of this Section.

10.35 Communication to a responsible party's employee, partner, attorney, agent, contractor, or subcontractor shall be regarded as communication to the responsible party for the purpose of this Section.

10.36 Communication to one responsible party shall be regarded as communication to each responsible party for the purpose of this Section.

SECTION 11. REPAIR AND CLEAN-UP DAMAGE

For any site, whether or not covered by a Grading Permit or other storm water discharge permit, the County may clean up eroded sediment or tracked soil deposited on public property if:

11.1 Corrective action has not been completed within 24 hours.

11.2 In the judgment of the Building, Zoning & Environmental Office, damage to the environment is ongoing and prompt corrective action would be intended to reduce such damage.

- 11.3 If the County cleans up such material deposited off site, the Building, Zoning & Environmental Office will invoice the responsible party or parties for the County's actual costs including overhead, which may be recorded as an assessment against the property and constitute a lien thereon.
- 11.4 Failure to pay an invoice under this Article within 30 days shall constitute a violation of this Ordinance.

SECTION 12. ENFORCEMENT

- 12.1 Violation of any provision of this ordinance may be enforced by civil action including an action for injunctive relief.
- 12.2 In any civil enforcement action, administrative or judicial, the County shall be entitled to recover its attorneys' fees and costs from a person who is determined by a court of competent jurisdiction to have violated this ordinance.

ARTICLE XVII: AMENDMENTS

SECTION 1. AMENDMENT PROCESS

The Board of Supervisors of Muscatine County, Iowa, may, from time to time, on their own motion, or on petition, after report by the Muscatine County Zoning Commission, and after public hearing amend, supplement or change by Ordinance the regulations and district herein of subsequently established. The Zoning Commission organized in accordance with Chapter 335.8, Code of Iowa, shall also conduct a public hearing prior to its report to the County Board of Supervisors. At least fifteen (15) days notice of time and place of each hearing held shall be published in an official newspaper, or a paper of general circulation in the County.

In case the Zoning Commission does not approve the change, or in case of a protest against such change signed by the owners of twenty (20) percent or more either of the area included in such proposed change or the area immediately adjacent thereto and within five hundred feet (500') of the boundaries thereof, such amendment shall not become effective except by the favorable vote of at least sixty percent (60%) of all members of the Muscatine County Board of Supervisors.

SECTION 2. FEES

Before any action shall be taken as provided in this Article, the party or parties petitioning, proposing or seeking a change in the district regulations, or district boundaries shall deposit with the Treasurer of Muscatine County, Iowa, in care of the Zoning Administrative Officer, the sum established by the Board of Supervisors to cover the approximate cost of this procedure, and under no condition shall said sum or any part thereof be refunded for failure of said proposed amendment to be enacted into law.

SECTION 3. REVERSION CLAUSE

Unless any lot, tract or parcel of land hereafter granted a zoning reclassification, variance or special use permit is being used or developed for such less restrictive classification within two (2) years from such rezoning the Muscatine County Zoning Commission may, prior to the bona fide commencement of the use or development of said land in its less restrictive classification, after seven (7) days notice, in writing to the then record owner of said land providing a reasonable opportunity to be heard, initiate and recommend to the Board of Supervisors, that said land be rezoned to its zoning classification immediately prior to the change granted.

ARTICLE XVIII: ADMINISTRATION AND ENFORCEMENT

SECTION 1. ZONING ADMINISTRATIVE OFFICER.

The Zoning Administrative Officer of Muscatine County, Iowa, shall be designated by the Muscatine County Board of Supervisors, and it shall be the duty of such Zoning Administrative Officer to enforce this Ordinance.

SECTION 2. POWERS AND DUTIES.

The Zoning Administrative Officer and his duly authorized assistants shall have the following powers and duties:

- 2.1 To issue all Zoning permits and make and maintain records thereof.
- 2.2 To conduct inspection of buildings, structures, and uses of land to determine compliance with the provisions of this Ordinance.
- 2.3 To transmit to the Board of Adjustment and Zoning Commission applications for appeals pursuant to Section 3 of Article XV, special use permits, zoning reclassifications, variances, or other matters on which the Board of Adjustment or Zoning Commission are required to pass; and to act as secretary to the Board of Adjustment and Zoning Commission, maintaining permanent and current records of this Ordinance, including, but not limit to, all maps, special uses, zoning reclassifications, variances, appeals, and applications therefore.
- 2.4 To require all petitioners who have had applications for appeals pursuant to Section 3 of Article XV, special use permits, zoning classifications or variances denied to wait six (6) months prior to resubmitting the proposal for review.

SECTION 3. APPEALS.

Appeals from the decisions of the Zoning Administrative Officer may be made to the Board of Adjustment as provided in Section 3 of Article XV hereof.

SECTION 4. VIOLATIONS AND PENALTIES.

These rule and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

SECTION 5. RESTRAINING ORDER.

In case any building or structure is erected, constructed, reconstructed, altered, repaired, converted, or maintained, or any building, structure or land is used in violation of this Ordinance, the proper authorities of the County, in addition to other remedies, may institute any proper action or proceed in the name of Muscatine County, Iowa, to prevent such unlawful erection, construction, reconstructions, alteration or repair, conversion, maintenance or use, to restrain, correct or abate such violation, to prevent any illegal act, conduct, business or use in or about said premises.

SECTION 6. INTERPRETATION, PURPOSE AND CONFLICT.

Whenever the regulations of this Ordinance require a greater width or size of yards, courts or other open spaces, or require a greater percentage of the lot to be left unoccupied or impose other higher standards than are required in any other Statute or local Ordinance or Regulations, the provisions of this Ordinance shall govern. Whenever the provisions of any other Statute or Local Ordinance or Regulation require a greater width or size of yards, courts or other open spaces, or require a greater percentage of the lot to be left unoccupied or impose other higher standards than are required by this Ordinance, the provisions of such Statute or local Ordinance or Regulation shall govern.

CHAPTER III.

MOBILE HOME PARK AND TRAVEL TRAILER PARK ORDINANCE

SECTION 1. PURPOSE

The development and administration of this Mobile Home Park and Travel Trailer Park Ordinance is related to the administration of the County Zoning Ordinance which divides the County into zoning districts, within which districts the use of land and buildings and bulk and location of buildings and structures in relation to the land are substantially uniform.

SECTION 2. LOCATION

Except for those permitted pursuant to special use permits or variances under the Muscatine County Zoning Ordinance, mobile homes or travel trailers as defined in the Muscatine County Zoning Ordinance, may be occupied and used for dwelling and sleeping purposes only if located and placed in Mobile Home Parks, Mobile Home Subdivisions or Travel Trailer Parks in accordance with the provisions hereof, and the provisions of the Muscatine County Zoning Ordinance and Subdivision Regulations that are applicable to mobile homes and travel trailers. Such parks and subdivisions and their accessory structures shall be located in the M-1 Mobile Home District, as defined in the Muscatine County Zoning Ordinance. Each shall be a minimum of two hundred (200) feet from any residence unless separated by a natural or artificial barrier.

SECTION 3. DEFINITIONS

For the purpose of this Ordinance, certain terms and words are hereby defined in the Muscatine County Zoning Ordinance and Subdivision Regulations.

SECTION 4. PETITION REQUIREMENTS

The petition for change to the M-1 zoning classification to operate a Mobile Home Park or a Travel Trailer Park shall be filed with the Zoning Administrative Officer. The petition in writing, signed by the applicant, shall be filed in triplicate and shall contain the following information:

- 4.1 The name and address of the applicant.
- 4.2 The location and legal description and ownership of the tract upon which the park is to be located.
- 4.3 The petition shall be accompanied by a plot plan, which shall be to a scale of one (1) inch equals one hundred (100) feet and which shall be a drawing showing the numbered trailer spaces, the relationship of the tract to surrounding tracts and structures located thereon and within two hundred (200) feet, locations of streets and driveways, numbered parking spaces, recreation areas, access to public streets and roads, accessory structures and facilities, and utility easements proposed as part of such park.

SECTION 5. STANDARDS

- 5.1 **Minimum Site.** The minimum site for a Mobile Home Park or Travel Trailer Park shall be five (5) acres.
- 5.2 **Mobile Home Density.** A maximum of eight (8) mobile homes shall be permitted on any acre of ground within the Mobile Home Park, with the minimum of five thousand (5,000) square feet in each lot. Each Mobile Home Park lot shall

comply with the provisions of Section 72 of the Muscatine County Zoning Ordinance.

- 5.3 Travel Trailer Density.** A maximum of twenty-five (25) travel trailers shall be permitted on any acre of ground within the Travel Trailer Park.
- 5.4 Park and Recreation Space.** For the first fifteen (15) acres of land occupied by mobile homes, there shall be one (1) acre set aside in the park for recreational purposes and for each additional five (5) acres so occupied there shall be a minimum of an additional one-half (½) acre set aside for recreational purposes. The recreational area requirement shall be proportionally figured on the basis of one (1) acre of recreational area for fifteen (15) acres of land occupied by mobile homes for those tracts less than fifteen (15) acres.
- 5.5 Storm Shelters.** A temporary shelter facility is required for mobile home parks and travel trailer parks with 20 or more mobile homes or travel trailers. The storm shelter should be no less than 4 square feet per person at 2.5 persons per living unit. The facility may be multi-use in nature, designed as part of a community building or other permanent building or structure. The design and construction of the facility should conform with civil defense or emergency management regulations of the State of Iowa.
- 5.6 Roadways, Streets and Driveways.** All roadways, streets and driveways in every Mobile Home Park and Travel Trailer Park shall be suitably graded and constructed to provide proper drainage, safe and convenient access to each mobile home or travel trailer and convenient circulation of vehicles. All streets must conform to the requirements as herein stated and shall be a minimum of 25 feet wide.

Two types of cross sections are provided for, namely: open type ditches for surface drainage and closed ditch sections designed for surface water to be carried in adequately designed storm sewers and intakes as follows:

5.61 Open type ditches for surface drainage specifications:

Shoulder-to-shoulder width; minimum of thirty (30) feet.

Crown - minimum of six (6) inches.

Fore Slopes - minimum of two (2) to one (1).

Ditch bottom width - variable, minimum of four (4) feet.

Back slopes - minimum of one and a half (1 ½) to one (1).

Cross road culverts - size; as required by Talbot's Formula using a maximum rainfall of four (4) inches per hour.

Cross road culverts - type and minimum depth of fill shall meet manufacturer's limitations.

Entrance pipe - diameter; minimum of eighteen (18) inches. Type, either concrete or corrugated metal pipe.

Surfacing - minimum construction; six (6) inches rolled stone base with double bituminous seal coat as per current Iowa Department of Transportation Standard Specifications.

5.62 Closed Ditch Section - designed for surface water to be carried in adequately designed storm sewers and intakes specifications:

Shoulder-to-shoulder - width; minimum of forty-three (43) feet.

Combination curb and gutter - minimum width back to back of curbs; thirty-one (31) feet.

Curb height above gutter - minimum of six (6) inches.

Cross road and entrance culverts - same requirements as set out for open type ditch section.

Surfacing - minimum construction shall be a four (4) inch soil aggregate sub-base, with a six (6) inch rolled stone base and a three (3) inch asphaltic concrete wearing surface, or a six (6) inch unreinforced Portland cement concrete pavement, or a four (4) inch black base and two (2) inch mat.

5.63 The street profiles and drainage connected with such streets shall be determined by a Registered Professional Engineer.

5.64 Streets, roads and driveways shall be lighted at night with not less than 200-watt lamps at intervals of one hundred (100) feet located approximately fifteen (15) feet from the ground, or equivalent lighting approved by the Zoning Administrative Officer.

5.7 Off-street Parking. Off-street parking shall be provided in all parks for the use of park occupants and guests if improved roadways of less than 40 feet wide are installed. Parking spaces shall be hard surfaced and be located as to provide convenient access to mobile home spaces. Off-street parking spaces shall be provided as follows: two (2) automobile parking spaces on each individual mobile home lot or space, at least one (1) automobile parking space on each travel trailer lot or space, and at least one (1) additional automobile parking space for every four (4) travel trailer spaces. In addition, there shall be at least one (1) parking space provided for every two (2) employees of the Mobile Home Park or Travel Trailer Park.

5.8 Spaces. Individual lots or spaces shall be so arranged that there shall be at least a twenty (20) foot clearance in all directions between mobile homes or travel trailers and any additions thereto or accessory structures. No porches, canopied or other additions shall be built onto any mobile home which shall not leave a clearance of twenty (20) clear feet between such mobile home, including such additions thereto and the next mobile home including all additions thereto. No mobile home or travel trailer shall be located nearer than fifty (50) feet from any main traveled street or highway, no nearer than twenty-five (25) feet from any side street, road or driveway, nor any other property line bounding the park.

5.9 Buildings and Other Improvements. Plans and specifications of all buildings and other improvements, including sewage, gas, electricity and water supply, roadways, sanitary facilities and storm shelters constructed or to be constructed within the park shall comply with applicable laws of the State of Iowa, including Section 135D of the Code of Iowa, and with applicable ordinances of Muscatine County, Iowa. Septic tanks and privies for the disposal of sewage for one (1) or more mobile homes or travel trailers are not permitted.

5.10 Other Standards. The Muscatine County Board of Supervisors may impose other conditions of development or use which the Board deems essential to ensure that the development and operation of the Mobile Home Park or the Travel Trailer Park is consistent with the spirit, purpose and intent of this Ordinance, and will not substantially and permanently injure the appropriate use of neighboring property, and will substantially serve the public's convenience and welfare.

- 5.11 Ownership of Park.** Under no circumstances may the owner of a Mobile Home Park or Travel Trailer Park separately sell or transfer any lot or lots in such park. In the event of any such sale or transfer all mobile homes or travel trailers shall be removed from the premises within thirty (30) days of written notice from the Zoning Administrative Officer.
- 5.12 Register of Occupants.** A permanent register of all tenants of the premises shall be maintained and open to the inspection of the Zoning Administrative Officer or his assistants at all times.
- 5.13 Maintenance Covenant.** A covenant shall be filed by the owners in form satisfactory to the Muscatine County Board of Supervisors to perpetuate maintenance of all mobile home park or travel trailer park improvements, including sanitary systems, interior roads, streets and driveways, said covenant to run with the land.
- 5.14 Permit.** A permit shall be obtained from the Zoning Administrative Officer for each mobile home located on the premises. The permit is to be obtained for each new or used mobile home that is brought onto the premises. A fee shall be paid for each such permit charged in accord with the permit fees set by the Muscatine County Board of Supervisors.
- 5.15 Fire Protection.** Fire protection by fire hydrants shall be located within four hundred (400) feet of all mobile homes, travel trailers, or park buildings if water is available from a public system. If the park is on a private system, a riser pipe of at least two (2) inches diameter shall be located within three hundred (300) feet of all mobile homes, travel trailers, or park buildings. Sufficient fire hose of one and one-half (1 ½) inches diameter to all structures shall be provided. A fire alarm system shall be provided.

SECTION 6. FINAL APPROVAL OF PLAN

Upon granting of a zoning change to M-1 Mobile Home District and approval of all necessary plans and specifications by the State of Iowa Department of Public Health, and of any other authority having jurisdiction, a final plot plan to scale certified by a registered professional engineer or registered land surveyor showing the location and area dimensions of all numbered spaces, streets, and driveways, numbered parking spaces, recreation spaces, utility easements, and any other buildings or proposed improvements and all other documents and data required by the County Board of Supervisors or any other authority having jurisdiction, shall be submitted in duplicate to the Zoning Administrative Officer for his review and approval as to the Plan's conformance with all laws, County Ordinances, regulations and decisions of the Board of Health.

SECTION 7. INSPECTION

It shall be the duty of the Zoning Administrative Officer to enforce all of the provisions of this Ordinance. For the purpose of securing enforcement of the provisions of this Ordinance, the Zoning Administrative Officer or any of his duly authorized representatives or any officer of Muscatine County, Iowa shall have authority to enter and inspect any Mobile Home Park or Travel Trailer Park.

SECTION 8. AMENDMENTS

Any regulation or provision of this ordinance may be changed and amended from time to time by the County Board of Supervisors; provided, however, that such changes and amendments shall not become effective until after study and report by the Zoning Commission and until after a public hearing has been held, a public notice of which shall have been given in a newspaper of general circulation in the County at least fifteen (15) days prior to such hearings.

SECTION 9. ADMINISTRATION AND ENFORCEMENT

- 9.1 Violations and Penalties.** These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.
- 9.2 Restraining Order.** In case any building or structure is erected, constructed, reconstructed, altered, repaired, converted, or maintained, or any building, structure or land is used in violation of this Ordinance, the proper authorities of the County, in addition to other remedies, may institute any proper action or proceed in the name of Muscatine County, Iowa, to prevent such unlawful erection, construction, reconstruction, alteration or repair, conversion, maintenance or use, to restrain, correct or abate such violation, to prevent any illegal act, conduct, business or use in or about said premises.
- 9.3 Interpretation, Purpose and Conflict.** Whenever the regulations of this Ordinance require a greater width or size of yards, courts or other open spaces or require a greater percentage of the lot to be left unoccupied or impose other higher standards than are required in any other Statute of Local Ordinance or Regulations, the provisions of this Ordinance shall govern. Whenever the provisions of any other Statute or Local Ordinance or Regulations require a greater width or size of yards, courts or other open spaces, or require a greater percentage of the lot to be left unoccupied or impose other higher standards than are required by this Ordinance, the provisions of such Statute or Local Ordinance or Regulations shall govern.
- 9.4 Validity.** If any section, subsection, sentence, clause or phrase of this Ordinance is for any reason held to be invalid, such decision shall not affect the validity of the remaining portions of this Ordinance.

CHAPTER IV

FLOODPLAIN MANAGEMENT

SECTION 1. DEFINITIONS.

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.

- 1.1 Basement. Any enclosed area of a building which has its floor or lowest level below ground level (subgrade) on all sides. Also see "lowest floor".
- 1.2 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, excavation or drilling operations. Development does not mean "minor projects" or "routine maintenance of existing buildings and facilities" as defined in this section. It also so not include gardening, plowing, and similar practices that do involve filling and/or grading.
- 1.3 Factory-built Home. Any structure, designed for residential use, which is wholly or in substantial part, made, fabricated, formed or assembled in manufacturing facilities for installation or assembly and installation, on a building site. For the purpose of this ordinance, factory-built homes include mobile homes, manufactured homes and modular homes and also include park trailers, travel trailers and other similar vehicles placed on a site for greater than one hundred eighty (180) consecutive days.
- 1.4 Factory-Built Home Park. A parcel or contiguous parcels of land divided into two or more factory-built home lots for rent or sale.
- 1.5 Flood. A general and temporary condition or partial or complete inundation of normally dry land areas resulting from the overflow of streams or rivers or from the unusual and rapid runoff of surface waters from any source.
- 1.6 Flood Elevation. The elevation floodwaters would reach at a particular site during the occurrence of a specific flood. For instance, the 100-year flood elevation if the elevation of floodwaters related to the occurrence of the 100-year flood.
- 1.7 Flood Insurance Rate Map. The official map prepared as part of (but published separately from) the Flood Insurance Study which delineates both the flood hazard areas as the risk premium zones applicable to the community.
- 1.8 Flood Insurance Study. A study initiated, funded, and published by the Federal Insurance Administration for the purpose of evaluating in detail the existence and severity of flood hazards; providing the city with necessary information for adopting a floodplain management program; and establishing actuarial flood insurance rates.
- 1.9 Floodplain. Any land area susceptible to being inundated by water as a result of a flood.
- 1.10 Floodplain Management. An overall program of corrective and preventive measures of reducing flood damages and promoting the wise use of floodplains, including but not limited to, emergency preparedness plans, flood control works, floodproofing and floodplain management regulations.
- 1.11 Floodproofing. Any combination of structural and nonstructural additions, changes or adjustments to structures, including utility and sanitary facilities, which will reduce or eliminate flood damage to such structures.

- 1.12** Floodway. The channel of a river or stream and those portions of the floodplains adjoining the channel, which are reasonably required to carry and discharge floodwaters or flood flows so that confinement of flood flows to the floodway area will not result in substantially higher flood levels and flow velocities.
- 1.13** Floodway Fringe. Those portions of the floodplain, other than the floodway, which can be filled, levied, or otherwise obstructed without causing substantially higher flood levels or flow velocities.
- 1.14** Lowest Floor. The floor of the lowest enclosed area is a building including a basement except when all the following criteria are met:
- a. The enclosed area is designed to flood to equalize hydrostatic pressure during floods with walls or openings that satisfy the provisions of Section 4.1(D)1 and
 - b. The enclosed area is unfinished (not carpeted, dry walled, etc.) and used solely for low damage potential uses such as building access, parking or storage, and
 - c. Machinery and service facilities (e.g., hot water heater, furnace & electrical service) contained in the enclosed area are located at least one foot (1') above the 100-year flood level, and
 - d. The enclosed area is not a "basement" as defined in this section.
- In cases where the lowest enclosed area satisfies criteria a, b, c, and d above, the lowest floor is the floor of the next highest enclosed area that does not satisfy the criteria above.
- 1.15** New Construction. (new buildings, factory-built home parks). Those structures or development for which the start of construction commenced on or after October 17, 1986 (the effective date of the Flood Insurance Rate Map).
- 1.16** One Hundred (100) Year Flood. A flood, the magnitude of which has a one percent (1%) chance of being equaled or exceeded in any given year or which, on the average, will be equaled or exceeded at least once every one hundred (100) years.
- 1.17** Structure. Anything constructed or erected on the ground or attached to the ground, including, but not limited to, buildings, factories, sheds, cabins, factory-built homes, storage tanks, and other similar uses.
- 1.18** Substantial Improvement. Any improvement to a structure which satisfies either of the following criteria:
- a. Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which 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 which have incurred "substantial damage" regardless of the owner or actual work performed. Substantial Improvement also means "cumulative substantial improvement." The term "substantial improvement" does not, however, include either (1) any project for improvement of the structure to correct existing violation of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement officer and which are the minimum necessary to assure safe living conditions or (2) any alteration of a "historic structure" provided that the alteration will not preclude the structures continued designation as a "historic structure".

- b. Any addition which increase the original floor area of a building by twenty-five percent (25%) or more. All additions constructed after April 1, 1987 shall be added to any proposed addition in determining whether the total increase in original floor space would exceed twenty-five percent (25%).
- 1.19** Recreational Vehicle. A vehicle which is: (a) built on a single chassis; (b) 400 square feet or less when measured at the largest horizontal projection; (c) designed to be self-propelled or permanently towable by a light duty truck; and (d) designed primarily not for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.
- 1.20** Substantial Damage. Damage of any origin sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed 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, and not specific to one owner, 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% of the market value of the structure before the damage occurred. For the purposes of this definition, "restoration" is considered to occur when the first repair or reconstruction of any wall, ceiling, floor, or other structural part of the building commences.
- 1.21** Historic Structure. A structure that is: (a) listed individually in the National Register of Historic Places (a listing maintained by the Department of 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 historical 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, 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.
- 1.22** Cumulative Substantial Improvement. Any reconstruction, rehabilitation, addition, or other improvements of a structure that equals or exceeds 50% of the market value of the structure at the time of the improvement or repair, regardless of the owner, when counted cumulatively for 10 years.
- 1.23** Repetitive Loss. 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% of the market value of the structure before the damage occurred .
- 1.24** Existing Construction. Any structure for which the "start of construction" commenced before the effective date of the first floodplain management regulations adopted by the community.
- 1.25** Existing Factory-Built Home Park or Subdivision. A factory-built home park or subdivision for which the construction of facilities for servicing the lots on which the factory-built 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 before the effective date of the first floodplain management regulations adopted by the community.
- 1.26** Expansion of Existing Factory-Built Home Park or Subdivision. The preparation of additional sites by the construction of facilities for servicing the lots on which the factory-built 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.)

- 1.27 Minor Projects. Small development activities (except for filling, grading, and excavating) valued at less than \$ 500.
- 1.28 Routine Maintenance of Existing Buildings and facilities. Repairs necessary to keep a structure in a safe and habitable condition that do not trigger a building permit, provided they are not associated with a general improvement of the structure or repair of damaged structure. Such repairs include:
 - a. Normal maintenance of structures such as re-roofing, replacing roofing tiles and replacing siding.
 - b. Exterior and interior painting, papering, tiling, carpeting, cabinets, counter tops, and similar finish work.
 - c. Basement sealing.
 - d. Repairing or replacing damaged or broken window panes.
- 1.29 Variance. A grant of relief by a community from the terms of the floodplain management regulations.
- 1.30 Violation. The failure of a structure or other development to be fully compliant with the community's floodplain management regulations.

SECTION 2. LEGAL AUTHORITY, FINDINGS OF FACT AND PURPOSE.

- 2.1 Legal Authority. Chapter 331 of the Code of Iowa grants counties the authority, except as expressly limited by the Constitution and if not inconsistent with the laws of the General Assembly, to exercise any power and perform any function it deems appropriate to protect and preserve the rights, privileges, and property of the County or of its residents, and to preserve and improve the peace, safety, health, welfare, comfort, and convenience of its residents.
- 2.2 Findings of Fact.
 - a. The flood hazard areas of Muscatine County are subject to periodic inundation which can result 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 peace, safety, health, welfare, comfort, and convenience of its residents.
 - b. These flood losses, hazards, and related adverse effects are caused by: (1) the occupancy of flood hazard areas by uses vulnerable to flood damages which create hazardous conditions as a result of being inadequately elevated or otherwise protected from flooding and (2) the cumulative effect of obstructions on the floodplain causing increases in flood heights and velocities.
 - c. This ordinance relies upon engineering methodology for analyzing flood hazards which is consistent with the standards established by the Department of Natural Resources.
- 2.3 Statement of Purpose. It is the purpose of this ordinance to protect and preserve the rights, privileges and property of Muscatine County, and its residents and to preserve and improve the peace, safety, health, welfare, and comfort and convenience of its residents by minimizing those flood losses described in Section 2.2(b) with provisions designed to:
 - a. Reserve sufficient floodplain area for the conveyance of flood flows so that flood heights and velocities will not be increased substantially.

- b. Restrict or prohibit uses which are dangerous to health, safety or property in times of flood or which cause excessive increases in flood heights or velocities.
- c. Require that uses vulnerable to floods, including public utilities which serve such uses, be protected against flood damage at the time of initial construction
- d. Protect individuals from buying lands which are unsuited for intended purpose because of flood hazard.
- e. Assure that eligibility is maintained for property owners in the County to purchase flood insurance through the National Flood Insurance Program.

SECTION 3. GENERAL PROVISIONS.

- 3.1** Lands to Which Regulations Apply. The provisions of this ordinance shall apply to all lands and uses which have significant flood hazards. The Flood Insurance Rate Maps (FIRM) for Muscatine County and Incorporated Areas, dated November 4, 2016, which were prepared as part of the Muscatine County Flood Insurance Study, shall be used to identify such flood hazard areas and all areas shown thereon to be within the boundaries of the 100-year flood boundary, the location shall be considered as having significant flood hazards. Where uncertainty exists with respect to the precise location of the 100-year flood boundary, the location shall be determined on the basis of the 100-year flood elevation at the particular site in question. The Muscatine County Flood Insurance Study is hereby adopted by reference and is made a part of this ordinance for the purpose of administering floodplain management regulations.
- 3.2** Compliance. No structure or land shall hereafter be used and no structure shall be located, extended, converted or structurally altered without full compliance with the terms of this ordinance and other applicable regulations which apply to uses within the jurisdiction of this ordinance.
- 3.3** Abrogation and Greater Restrictions. It is not intended by this ordinance to repeal, abrogate or impair any existing easements, covenants, or deed restrictions. However, where this ordinance imposes greater restrictions the provision of this ordinance shall prevail. All other ordinances inconsistent with this ordinance are hereby repealed to the extent of the inconsistency only.
- 3.4** Interpretation. In their interpretation and application, the provision of this ordinance shall be held to be minimum requirements and shall be liberally construed in favor of the governing body and shall not be deemed a limitation or repeal of any other powers granted by State statutes.
- 3.5** Warning and Disclaimer of Liability. The degree of flood protection required by this ordinance is considered reasonable for regulatory purposes and is based on engineering and scientific methods of study. Larger floods may occur on rare occasions. Flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This ordinance does not imply to the areas outside the regulated areas or that uses permitted to the areas outside the regulated areas or that uses permitted within the regulated areas will be free from flooding or flood damages. This ordinance shall not create liability on the part of Muscatine County or any officer or employee thereof for any flood damages that result from reliance on this ordinance or any administrative decision lawfully made thereunder.
- 3.6** Severability. If any section, clause, provision or portion of this ordinance is adjudged unconstitutional or invalid by a court of competent jurisdiction, the remainder of this ordinance shall not be affected thereby.

SECTION 4. FLOODPLAIN MANAGEMENT STANDARDS.

- 4.1** General Floodplain Standards. All uses must be consistent with the need to minimize flood damage and shall meet the following applicable performance standards. Where floodway and 100-year flood data have not been provided in the Flood Insurance Study, the Department of Natural Resources shall be contacted to compute such data.
- a. All structures shall be (1) adequately anchored to prevent floatation, collapse or lateral movement of the structure, (2) be constructed with materials and utility equipment resistant to flood damage, and (3) be constructed by methods and practices that minimize flood damage.
 - b. Residential buildings - All new or substantially improved residential structures shall have the lowest floor, including basement, elevated a minimum of 1.0 foot above the 100-year flood level. Construction shall be upon compacted fill which shall, at all points, be no lower than 1.0 foot above the 100-year flood level and extend at such elevation at least eighteen feet (18') beyond the limits of any structure erected thereon. Alternative methods of elevating (such as piers) may be allowed, subject to favorable consideration by the Board of Adjustment and the Department of Natural Resources, where existing topography, street grades, or other factors preclude elevating by fill. In such cases, the methods used must be adequate to support the structure as well as withstand the various forces and hazards associated with flooding.
 - c. Non-residential buildings - All new or substantially improved non-residential buildings shall have the first floor (including basement) elevated a minimum of 1.0 foot above the 100-year flood level, or together with attendant utility and sanitary systems, be floodproofed to such a level. When floodproofing is utilized, a professional engineer registered in the State of Iowa shall certify that the floodproofing methods used are adequate to withstand the flood depths, pressures, velocities, impact and uplift forces and other factors associated with the 100-year flood; and that the structure, below the 100-year flood level, is watertight with walls substantially impermeable to passage of water. A record of the certification indicating the specific elevation (in relation to North American Vertical Datum (1988)) to which any structures are floodproofed shall be maintained by the Administrator.
 - d. All new and substantially improved structures:
 1. Fully enclosed areas below the "lowest floor" (not including basements) that are subject to flooding shall be designed to automatically equalize hydrostatic floodforces on exterior walls by allowing for the entry and exit of floodwaters. Designs for meeting this requirement must either be certified by a registered professional engineer or meet or exceed the following minimum criteria:
 - (a) A minimum of two openings having a total net area of not less than one square inch (1") for every square foot of enclosed area subject to flooding shall be provided.
 - (b) The bottom of all openings shall be no higher than 1.0 foot above grade.
 - (c) Openings may be equipped with screens, louvers, valves, or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.
 - (d) Such areas shall be used solely for parking of vehicles, building access and low damage potential storage.

2. New and substantially improved structures must be designed (or modified) and adequately anchored to prevent floatation, collapse, or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads, including the effects of buoyancy.
3. New and substantially improved structures must be constructed with electrical, heating, ventilation, plumbing, and air conditioning equipment and other service facilities that are designed and/or located so as to prevent water from entering or accumulating within the components during conditions of flooding.

e. Factory-built homes:

1. Factory-built homes including those placed in existing factory-built home parks or subdivisions shall be anchored to resist floatation, collapse, or lateral movement by providing over-the-top and frame ties to ground anchors. Specific requirements are that: (1) over-the-top ties be provided at each of the four corners of the factory-built home with two additional ties per side at intermediate locations for factory-built homes fifty feet (50') or more in length or one such tie for factory-built homes less than fifty feet (50') in length; (2) frame ties be provided at each corner of the home with five additional ties per side at intermediate points for factory-built homes fifty feet (50') or more in length or four such ties for homes less than fifty feet (50') in length; (3) all components of the anchoring system be capable of carrying a force of 4,800 pounds; and (4) any additions to the factory-built home be similarly anchored.
2. Factory-built homes including those placed in existing factory-built home parks or subdivisions shall be elevated on a permanent foundation such that the lowest floor of the structure is a minimum of 1.0 foot above the 100-year flood level. In addition, the tie down specification of Section 4.1(e)1 must be met and adequate surface drainage and access for a hauler must be provided.
3. New factory-built home parks, expansions to existing factory-built home parks and factory-built home parks where the repair, reconstruction or improvement of the streets, utilities, and pads equals or exceeds fifty percent (50%) or more of the value of the streets, utilities and pads before the repair, reconstruction or improvement has commenced shall provide: (1) lots or pads that have been elevated by means of compacted fill so that the lowest floor of factory-built homes will be a minimum of 1.0 foot above the 100-year flood level, (2) adequate surface drainage, (3) access for a hauler, and (4) ground anchors for factory-built homes.

f. Utility and Sanitary Systems

1. All new and replacement sanitary sewage systems shall be designed to minimize and eliminate infiltration of floodwaters into the system as well as the discharge of effluent into floodwaters. Wastewater treatment facilities (other than on-site systems) shall be provided with a level of flood protection equal to or greater than one (1) foot above the 100-year flood elevation.
2. On site waste disposal systems shall be located or designed to avoid impairment to the system or contamination from the system during flooding.
3. New or replacement water supply system shall be designed to minimize or eliminate infiltration of floodwaters into the system.

Water supply treatment facilities shall be provided with a level of protection equal to or greater than 1.0 foot above the 100-year flood elevation.

4. Utilities such as gas or electrical systems shall be located and constructed to minimize or eliminate flood damage to the system and the risk associated with such flood damaged or impaired systems.
- g. Storage of materials and equipment that are flammable, explosive or injurious to humans, animals or plant life is prohibited unless elevated a minimum of 1.0 foot above the 100-year flood level and either be anchored to prevent movement due to floodwaters or be readily removable from the area within the time available after the flood warning. Other material and equipment must either be similarly elevated or (1) not be subject to major flood damage and be anchored to prevent movement due to floodwaters or (2) be readily removable from the area within the time available after flood warning.
- h. Flood control structural works such as levees, flood walls, etc. shall provide, at a minimum, protection from a 100-year flood with a minimum of 3.0 foot of design freeboard and shall provide for adequate interior drainage. In additions, structural flood control works shall be approved by the Department of Natural Resources.
- i. No use shall affect the capacity or conveyance of the channel or floodway of any tributary to the main stream drainage ditch, or other drainage facility or system.
- j. Subdivision (including factory-built home parks and subdivisions) shall be consistent with the need to minimize flood damages and shall have adequate drainage provided to reduce exposure to flood damage. Development associated with subdivision proposals (including the installation of public utilities) shall meet the applicable performance standards of this ordinance. Subdivision proposals intended for residential development shall provide all lots with a means of vehicular access that will remain dry during occurrence of the 100-year flood. Proposals for subdivisions greater than five (5) acres or fifty (50) lots (whichever is less) shall include 100-year flood elevation data for those areas located within the Floodplain (Overlay) District.
- k. No seasonal recreational cottage shall be moved onto, constructed, or structurally altered on land known to have been flooded unless the lowest floor of such structure is elevated 1.0 foot or more above the level of the 100-year flood.
- l. Detached garages, sheds, and similar structures that are incidental to a residential use are exempt from the base flood elevation requirements where the following criteria are satisfied:
 1. The structure shall be designed to have low flood damage potential. It shall not exceed 600 square feet in size. Those portions of the structure located less than one (1) foot above the base flood elevation must be constructed of flood-resistant materials.
 2. The structure shall be used solely for low flood damage potential purposes such as vehicle parking and limited storage. The structure shall not be used for human habitation.
 3. The structure shall be constructed and placed on the building site so as to offer minimal resistance to the flow of floodwaters.

4. The structure shall be firmly anchored to resist floatation, collapse and lateral movement.
 5. The structure's service facilities such as electrical and heating equipment shall be elevated or floodproofed to at least one (1) foot above the base flood elevation.
 6. The structure's walls shall include openings that satisfy the provisions of Section 4.1(d) 1 of this ordinance.
- m. Recreational vehicles placed on sites within Zones A, A1-30, AE, AO and AH on the flood insurance rate map shall either (1) be on the site for fewer than 180 consecutive days, (2) be fully licensed and ready for highway use, or (3) meet the permit requirements of elevation and anchoring for a factory-built home. A recreational vehicle is ready for highway use if it is on its wheels or jacking system, is attached to the site only by quick disconnect type utilities and security devices, and has no permanently attached additions.

4.2 Special Floodway Provisions. In additions to the General Flood Planning Standards, uses within the floodway must meet the following applicable standards. The floodway is that portion of the floodplain which must be protected from developmental encroachment to allow the free flow of floodwaters. Where floodway data has been provided in the Flood Insurance Study, such data shall be used to define the floodway limits. Where no floodway data has been provided, the Department of Natural Resources shall be contacted to provide a floodway delineation.

- a. No use shall be permitted in the floodway that would result in any increase in the 100-year flood level. Consideration of the effects of any development on flood levels shall be based upon the assumption that any equal degree of development would be allowed for similarly situation lands.
- b. All uses within the floodway shall:
 1. Be consistent with the need to minimize flood damage.
 2. Use construction methods and practices that will minimize flood damage.
 3. Use construction materials and utility equipment that are resistant to flood damage.
- c. No use shall affect the capacity or conveyance of the channel or floodway or any tributary to the main stream, drainage ditch, or any other drainage facility or system.
- d. Structures, buildings and sanitary and utility systems, if permitted, shall meet the applicable General Floodplain standards and shall be constructed or aligned to present the minimum possible resistance to flood flows.
- e. Buildings, if permitted, shall have a low flood damage potential and shall not be for human habitations.
- f. Storage of materials or equipment that are buoyant, flammable, explosive or injurious to human, animals or plant life is prohibited. Storage of other material may be allowed if readily removable from the floodway within the time available after flood warning.
- g. Watercourse alterations or relocation (channel changes and modifications) must be designed to maintain the flood carrying capacity within the altered or relocated portion. In addition, such alterations or relocations must be approved by the Department of Natural Resources.

- h. Any fill allowed in the floodway must be shown to have some beneficial purpose and shall be limited to the minimum amount necessary.
- i. Pipeline river or stream crossings shall be buried in the streams and banks or otherwise sufficiently protected to prevent rupture due to channel degradation and meandering or due to the action of flood flows.
- j. No factory-built homes shall be permitted except in existing factory-built home parks. Tie-down standards of Section 4.1(e)1 shall be met in such cases.

SECTION 5. ADMINISTRATION.

5.1 Appointment, Duties and Responsibilities of Administrator

- a. The Muscatine County Zoning Administrative Officer shall administer and enforce the provisions of this ordinance and will herein to be referred to as the Administrator.
- b. Duties and responsibilities of the Administrator shall include, but not necessarily be limited to, the following:
 - 1. Review all floodplain development permit applications to ensure that the provisions of this ordinance will be satisfied.
 - 2. Review all floodplain development permit applications to ensure that all necessary permits have been obtained from federal, state or local governmental agencies.
 - 3. Record and maintain a record of: (1) the elevation (in relation to North American Vertical Datum (1988)) of the lowest floor of all new or substantially improved buildings or (2) the elevation to which new or substantially improved structures have been floodproofed.
 - 4. Notify adjacent communities and/or counties and the Department of Natural Resources prior to any proposed alteration or relocation of a watercourse and submit evidence of such notifications to the Federal Insurance Administration.
 - 5. Keep a record of all permits, appeals, variances and such other transactions and correspondence pertaining to the administrator of this ordinance.
 - 6. Submit to the Federal Insurance Administrator an annual report concerning the county's participation, utilizing the annual report form supplied by the Federal Insurance Administrator.
 - 7. Notify the Federal Insurance Administration of any annexations or modifications to the County's boundaries.
 - 8. Review subdivision proposals to insure such proposals are consistent with the purpose of this ordinance and advise the Zoning Commission of potential conflicts.

5.2 Floodplain Development Permit Required.

- a. Permit Required. A floodplain development permit issued by the Administrator shall be secured prior to initiation of any floodplain development (any man-made change to improved or unimproved real estate, including but not limited to, buildings or other structures, mining, filling,

grading, paving, excavation or drilling operation) including the placement of factory-built homes.

- b. Application for Permit. Application for a floodplain development permit shall be made on forms supplied by the Administrator and shall include the following information:
 1. Description of the work to be covered by the permit for which application is to be made.
 2. Description of the land on which the proposed work is to be done (i.e. - lot, block, tract, street address or similar description) that will readily identify and locate the work to be done.
 3. Indication of the use or occupancy for which the proposed work is intended.
 4. Elevation of the 100-year flood.
 5. Elevation (in the relation to North American Vertical Datum (1988)) of the lowest floor (including basement) of buildings or of the level to which a building is to be floodproofed.
 6. For buildings being improved or rebuilt, the estimated cost of improvements and market value of the building prior to the improvements.
 7. Such other information as the Administrator deems reasonably necessary for the purpose of this ordinance.
- c. Action on Permit Application. The Administrator shall, within thirty (30) days, make a determination as to whether the proposed floodplain development meets the applicable standards of this ordinance and shall approve or disapprove the application. For disapprovals, the applicant shall be informed, in writing, of the specific reason. The Administrator shall not issue permits for variances except as directed by the Board of Adjustment.
- d. Construction and Use to be as Provided in Application and Plans. Floodplain development permits are based on approved plans and floodplain development permit applications authorize only the use, arrangement and construction set forth in such approved plans and applications and no other use, arrangement or construction. Any use, arrangement, or construction at variance with that authorized shall be deemed a violation of this Ordinance. The applicant shall be required to submit certification by a professional engineer or land surveyor, as appropriate, registered in the State of Iowa, that the finished fill, building floor elevations, floodproofing, or other flood protection measures were accomplished in compliance with the provisions of this Ordinance, prior to the use or occupancy of any structure.

5.3 Variance.

- a. The Board of Adjustment may authorize upon request in specific cases such variances from the terms of this ordinance that will not be contrary to the public interest where, owing to special conditions, a literal enforcement of the provisions of this ordinance will result in unnecessary hardship. Variances granted must meet the following applicable standards.
 1. No variance shall be granted for any development within the floodway which would result in any increase in flood heights during the occupancy of the 100-year flood. Consideration of the effects of any development on flood levels shall be based upon the assumption

that any equal degree of development would be allowed for similarly situated lands.

2. Variances shall only be granted upon: (1) a showing of good and sufficient cause, (2) a determination that failure to grant the variance would result in exceptional hardship to the applicant, and (3) a determination that the granting of the variance will not result in increased flood heights, additional threats to public safety, extraordinary public expense, create nuisances, cause fraud on or victimization of the public.
 3. Variances shall only be granted upon a determination that the variance is the minimum necessary, considering the flood hazard, to afford relief.
 4. In cases where the variance involves a lower level of flood protection for buildings than what is ordinarily required by this Ordinance, the applicant shall be notified in writing over the signature of the Administrator that: (1) the issuance of a variance will result in increased premium rates for flood insurance up to amounts as high as twenty-five dollars (\$25.00) for one hundred dollars (\$100.00) of insurance coverage and (2) such construction increases risks of life and property.
 5. All variances granted shall have the concurrence or approval of the Department of Natural Resources.
- b. In considering applications for a variance, the Board shall consider all relevant factors specified in other sections of this ordinance and:
1. The danger to life and property due to increased flood heights or velocities caused by encroachments.
 2. The danger that materials may be swept onto other land or downstream to the injury of others.
 3. The proposed water supply and sanitation systems and the ability of these systems to prevent disease, contamination and unsanitary conditions.
 4. The susceptibility of the proposed facility and its contents to flood damage and the effect of such damage on the individual owner.
 5. The importance of the services provided by the proposed facility to the County.
 6. The requirements of the facility for a floodplain location.
 7. The availability of alternative locations not subject to flooding for the proposed use.
 8. The compatibility of the proposed use with existing development and development anticipated in the foreseeable future.
 9. The relationship of the proposed use to the comprehensive plan and floodplain management program for the area.
 10. The safety of access to property in times of flood for ordinary and emergency vehicles.
 11. The expected heights, velocity, duration, rate of rise and sediment transport of the floodwater expected at the site.
 12. Such other factors which are relevant to the purpose of this ordinance.

- c. Upon consideration of the factors listed above, the Board may attach such conditions to the granting of variances as it deems necessary to further the purpose of this ordinance. Such conditions may include, but not necessarily be limited to:
 1. Modification of waste disposal and water supply facilities.
 2. Limitation of periods of use and operation.
 3. Imposition of operational controls, sureties, and deed restrictions.
 4. Requirements for construction of channel modifications, dikes, levees, and other protection measures, provided such are approved by the Department of Natural Resources and are deemed the only practical alternative to achieving the purpose of this ordinance.
 5. Floodproofing measures.

SECTION 6. VIOLATIONS AND PENALTIES.

These rules and regulations shall be enforced in accordance with the provisions of Chapter I Administration, Title V Enforcement Ordinance.

SECTION 7. AMENDMENTS.

The regulations and standards set forth in this ordinance may from time to time be amended, supplemented, changed, or repealed. No amendment, supplement, change or modification shall be undertaken without prior approval of the Department of Natural Resources.

CHAPTER V.

INDUSTRIAL TAX EXEMPTION

SECTION 1. PURPOSE

This ordinance provides for a partial exemption from property taxation of the actual value added to industrial real estate, pursuant to Chapter 427B, Code of Iowa (1995).

SECTION 2. AMOUNT OF EXEMPTION

2.1. The actual value added to industrial real estate by new construction of industrial real estate, research-service facilities, warehouses, and distribution centers is eligible to receive a partial exemption from taxation for a period of five (5) years. "Actual value added" as used in this ordinance means the actual value added as of the first of the year for which the exemption is received. The amount of actual value added which is eligible to be exempt from taxation shall be as follows:

for the first year, seventy-five percent (75%)
for the second year, sixty percent (60%)
For the third year, forty-five percent (45%)
For the fourth year, thirty percent (30%)
For the fifth year, fifteen percent (15%)

2.2. The granting of the exemption under this section for new construction constituting complete replacement of an existing building or structure shall not result in the assessed value of the industrial real estate being reduced below the assessed value of the industrial real estate before the start of the new construction added.

SECTION 3. APPLICATION

3.1 An application shall be filed for each project resulting in actual value added for which an exemption is claimed. The application for exemption shall be filed by the owner of the property with the Assessor by February first of the assessed year in which the value added is first assessed for taxation. Applications for exemption shall be made on forms furnished by the assessor and shall contain information pertaining to the nature of the improvement, its cost and other information deemed necessary by the assessor.

3.2. A person may submit a proposal to the Muscatine County Board of Supervisors to receive prior approval for eligibility for a tax exemption on new construction. The Board, by ordinance, may give its prior approval of the tax exemption for new construction if the new construction is in conformance with the Muscatine County Zoning Ordinance and Comprehensive Plan. The prior approval shall also be subject to the hearing requirements of Section 427B.1, Code of Iowa (1995).

3.3. Such prior approval shall not entitle the owner to exemption from taxation until the new construction has been completed and found to be qualified real estate. However, if the tax exemption for new construction is not approved, the person may submit an amended proposal to the Board of Supervisors to approve or reject.

SECTION 4. TERMS DEFINED

The terms 'new construction', 'research service facilities', 'warehouse' and 'distribution center' shall have the meanings attributed to them in Section 427B.1, Code of Iowa (1995).

SECTION 5. LIMITATION ON TAX EXEMPTIONS

A property tax exemption under this ordinance shall not be granted if the property for which the exemption is claimed has received any other property tax exemption authorized by law.

SECTION 6. PRIOR EXEMPTION RATIFIED

Exemptions submitted to and approved by the assessor prior to the effective date of this ordinance but after the termination date of the predecessor hereof are hereby approved and ratified.

CHAPTER VI

CONSTRUCTION CODES AND ENFORCEMENT

SECTION I. PURPOSE.

The purpose of this ordinance is to adopt by reference uniform building and related codes within unincorporated Muscatine County in order to enhance the health, welfare and safety of inhabitants.

SECTION 2. ENACTMENT.

There are hereby adopted in full the following codes, and appendices thereto, which shall be controlling in all matters covered by them within the unincorporated territory of Muscatine County, Iowa:

- 2.1 The International Building Code, 2015 Edition, published by the International Code Council;
- 2.2 The International Residential Code for One- and Two-Family dwellings, 2015 Edition, published by the International Code Council, including Appendices E, F, H, J and M;
- 2.3 The International Plumbing Code, 2015 Edition, published by the International Code Council;
- 2.4 The International Mechanical Code, 2015 Edition, published by the International Code Council; and
- 2.5 The National Electrical Code, 2014 Edition, published by the National Fire Protection Association;

The full provisions of the above-listed codes are incorporated herein by reference without being set out in full as authorized by Section 331.302(12) of the Iowa Code.

SECTION 3. SHORT TITLE.

The above-named codes, as adopted and from time to time amended by the Muscatine County Board of Supervisors shall be known individually as the Muscatine County Building, Residential, Plumbing, Mechanical and Electrical Codes, and collectively as the Muscatine County Construction Codes.

SECTION 4. APPLICABILITY.

The Muscatine County Construction Codes shall be controlling in all matters covered by them within the unincorporated territory of Muscatine County, Iowa. The Muscatine County Construction Codes shall not apply to farmhouses or other farm buildings, which are primarily adapted for use for agricultural purposes, while so used or under construction for that use. A 'farm' is as defined in the Muscatine County Zoning Ordinance.

SECTION 5. AMENDMENTS TO THE MUSCATINE COUNTY CONSTRUCTION CODE.

The following sections of the Muscatine County Construction Code are hereby amended:

5.1 IBC Section (A) 101.1. In place of “Name of Jurisdiction” insert “Muscatine County”. IBC Sections 101.4.1 and 107.3 are amended by replacing the words “ICC Electrical Code” with “2014 National Electrical Code”.

5.2 IBC Section (A) 105.2. Work Exempt from Permit is amended to read:
1. One-story detached accessory structures used as tool and storage sheds, playhouses and similar uses, provided the floor area is not greater than 200 square feet.

IBC Section 105.5 is amended to read:

Expiration. Every permit issued shall become invalid unless the work authorized by such permit is commenced within one year after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of one year after the time the work is commenced. The building official is authorized to grant, in writing, one or more extensions not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

5.3 IBC Section (A) 109.3 is amended to read:
Building Permit Fee. Building permit fee shall include total square footage, number of plumbing and mechanical fixtures, electrical service, etc., for which a permit is being issued, such as electrical, gas, mechanical, plumbing equipment and other permanent systems. Schedule of permit fees is established in accordance with Section (A) 109.2.

5.4 IBC Section (A) 113.1 is amended to read:
General. In order to hear and decide appeals of orders and decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be a Building Board of Appeals consisting of five members, none of who are employees of Muscatine County. One member shall be a registered architect or engineer in the State of Iowa; one member shall be a general construction contractor; one member shall be a licensed electrician; and two members shall be private citizens, all of whom are residents of Muscatine County, Iowa. The Building Official or the building official’s duly authorized representative shall be an ex officio member without a vote and shall act as secretary of the Board. Each appointment or new appointment shall be for a term of three years, with the terms of not more than two members to expire December 31 of any one year.

The Building Board of Appeals shall be appointed by the Board of Supervisors and shall serve without compensation, except mileage. The Board shall adopt reasonable rules and regulations for conducting its business and shall render all decisions and findings in writing to the Building Official for appropriate distribution and filing. The Building Board of Appeals shall make recommendations from time to time to the Board of Supervisors for appropriate legislation with respect to building regulation. Nominal fee for appeal to the Board of Appeals shall be set by resolution of the Board of Supervisors.

SECTION 6. AMENDMENTS TO THE MUSCATINE COUNTY RESIDENTIAL CODE.

The following sections of the Muscatine County Residential Code are hereby amended:

6.1 IRC Section R101.1 is amended as follows: In place of “Name of Jurisdiction” insert “Muscatine County”. IRC Section R107.3 is amended by replacing the words “ICC Electrical Code” with “National Electrical Code 2014”.

6.2 IRC Section R105.5 is amended to read:
Expiration. Every permit issued shall become invalid unless the work authorized by such permit is commenced within one year after its issuance, or if the work authorized by such permit is suspended or abandoned for a period of one year after the time the work is commenced. The building official is authorized to grant,

in writing, one or more extensions not more than 180 days each. The extension shall be requested in writing and justifiable cause demonstrated.

6.3 IRC Section R108.3 is amended to read:
Building Permit Fee. Building permit fee shall include total square footage, number of plumbing and mechanical fixtures, electrical service, etc., for which a permit is being issued, such as electrical, gas, mechanical, plumbing equipment and other permanent systems. Schedule of permit fees is established in accordance with section R108.2.

6.4 **IRC Section R112.1 is amended to read:**
General. In order to hear and decide appeals of orders and decisions or determinations made by the Building Official relative to the application and interpretation of this code, there shall be a Building Board of Appeals consisting of five members, none of who are employees of Muscatine County. One member shall be a registered architect or engineer in the State of Iowa; one member shall be a general construction contractor; one member shall be a licensed electrician; and two members shall be private citizens, all of whom are residents of Muscatine County, Iowa. The Building Official or the building official's duly authorized representative shall be an ex officio member without a vote and shall act as secretary of the Board. Each appointment or new appointment shall be for a term of three years, with the terms of not more than two members to expire December 31 of any one year.

The Building Board of Appeals shall be appointed by the Board of Supervisors and shall serve without compensation, except mileage. The Board shall adopt reasonable rules and regulations for conducting its business and shall render all decisions and findings in writing to the Building Official for appropriate distribution and filing. The Building Board of Appeals shall make recommendations from time to time to the Board of Supervisors for appropriate legislation with respect to the Building Regulations. Nominal fee for appeal to the Board of Appeals shall be set by resolution of the Board of Supervisors.

6.5 IRC Table R301.2(1) is amended to read:

Climatic and geographic design criteria.

GROUND SNOW LOAD	WIND DESIGN				SEISMIC DESIGN CATEGORY	SUBJECT TO DAMAGE FROM			WINTER DESIGN TEMP	ICE BARRIER UNDER-LAYMENT REQUIRED	FLOOD HAZARDS	AIR FREEZING INDEX	MEAN ANNUAL TEMP
	Speed (mph)	Topographic effects	Special wind region	Wind-borne debris zone		Weathering	Frost line depth	Termite					
25	115	No	No	No	A	Severe	42	Moderate to Heavy	-5F	Yes	A, B, C	2000	50.7

A – The date of the jurisdiction’s entry into the National Flood Insurance Program (date of adoption of the first code or ordinance for management of flood hazard areas)
 October 17, 1986

B- The date(s) of the Flood Insurance Study: November 4, 2016

C- The panel numbers and dates of the currently effective FIRMs and FBFMS or other flood hazard map adopted by the authority having jurisdiction, as amended.

5, 9, 10, 15, 17, 20, 28, 30, 50, 55, 60, 70, 100, 125, 127, 130, 131, 135, 140, 145, 169, 175, 179, 180, 183, 184, 185, 186, 187, 188, 189, 191, 192, 193, 225, 250, 275, 281, 282, 284, 300, 301, 303, 325

Effective date: 11/04/2016

- 6.6** Deletion of Section R313, Automatic Fire Sprinkler Systems.
- 6.7** IRC Section R403.14.1 is amended by adding Exception 4. To read:
One story detached accessory buildings of wood or steel frame construction, 1,250 square feet in area or less, may have a concrete slab-on-grade foundation. The slab-on-grade shall be a minimum of four inches thick reinforced concrete and shall be thickened at its entire perimeter to a minimum cross section dimension of 10 inches by 10 inches. Reinforcement of the slab, including the thickened portion, shall be 6 inches by 6 inches, ten gauge welded wire mesh or #4 reinforcing bars 24 inches on center both ways. The slab shall be cast monolithically with the thickened portion. The top of the foundation shall not be less than six (6) inches above finish grade. No section of the concrete foundation shall extend more than 24" above finish grade. No plumbing shall be located in buildings with slab-on-grade foundations without frost protection. Stone and masonry veneer shall not be applied to exterior wall supported by slab-on-grade foundations.

SECTION 7. ADMINISTRATION AND ENFORCEMENT.

- 7.1** Zoning Administrative Officer. The Zoning Administrative Officer of Muscatine County, Iowa, is hereby designated by the Muscatine County Board of Supervisors to enforce the provisions of this ordinance.
- 7.2** Powers and Duties. The Zoning Administrative Officer and his or her duly authorized assistants shall have the following powers and duties:
- a. To issue all permits under this ordinance and make and maintain records thereof. The permits which shall be issued are for the commencement of work and for the occupancy of the building or structure.
 - b. To conduct inspections of buildings, structures, and uses of land to determine compliance with the provisions of this ordinance. The Zoning Administrative Officer shall set forth in the building permit the inspections which are required to be conducted prior to the work being approved and an occupancy permit issued.
 - c. To transmit to the Building Board of Appeals applications for appeals of the rulings of the Zoning Administrative Officer pursuant to this ordinance. The Zoning Administrator shall act as secretary to the Building Board of Appeals, maintaining permanent and current records of permits and other correspondence issued pursuant to this ordinance.
- 7.3** Appeals. Appeals from the decisions of the Zoning Administrative Officer with respect to the issuance or denial of a permit or an interpretation of a code provision under this ordinance may be made to the Building Board of Appeals. Decisions to commence a criminal or civil court proceeding pursuant to this ordinance are not subject to appeal to the Building Board of Appeals.
- 7.4** Violations and Penalties. These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.
- 7.5** Restraining order. In case any building or structure is erected, constructed, reconstructed, altered, repaired, converted, or maintained, or any building, structure or land is used in violation of this ordinance, the County Attorney, in addition to other remedies, may institute any proper action or proceed in the name of Muscatine County, Iowa, to prevent such unlawful erection, construction, reconstruction, alteration or repair, conversion, maintenance or use, to restrain,

correct or abate such violation, to prevent any illegal act, conduct, business or use in or about said premises.

SECTION 8. SAVINGS CLAUSE. If any section, provision or part of this ordinance, or of the Codes hereby enacted by reference, shall be adjudged invalid, illegal or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid, illegal or unconstitutional.

CHAPTER VII.

DIGITAL DATA SUBMISSION STANDARDS

SECTION 1. STANDARDS APPLICABLE

Wherever the Muscatine County Code of Ordinances or state statute requires or allows the submission of plats, site plans or surveys in digital form, they shall be prepared and submitted in accordance with the standards established in this chapter.

SECTION 2. COORDINATE SYSTEM

The coordinate system used for tax parcel mapping by Muscatine County is the Iowa State Plane Coordinate System, South Zone, using the North American Datum of 1983 (NAD83), National Adjustment of 2011, with the North American Vertical Datum of 1988 (NAVD88). Map units are US Survey Feet. GPS Control Monuments used in referencing surveys must be part of Muscatine County's network of survey control. Information pertaining to the Muscatine County GPS Control Monuments is maintained and available on both the Geographic Information Consortium and the Muscatine County Engineer department tab on the Muscatine County website. The Coordinate Information for each GPS Control Monument is provided in both Iowa State Plane Coordinate System South Zone and Iowa Regional Coordinate System, Zone 14: Burlington values.

SECTION 3. PROCEDURES FOR REFERENCING DATA TO COORDINATE SYSTEM

- A. For conventional surveys, surveys must commence and end at two distinct GPS Control Monuments in Muscatine County's survey control network. The control monuments used for reference must be prominently noted in the digital submittal and the basis for bearing should be clearly defined.
- B. For GPS surveys, the survey base station must occupy one GPS Control Monument in Muscatine County's survey control network. At least one other distinct Muscatine County survey control network GPS monuments must be occupied as a check and the basis for bearing should be clearly defined. The Muscatine County GPS Control Monuments used for reference must be prominently noted in the digital submittal unless using one of the continuously operating base station control system available in the County, which should likewise be noted.
- C. Muscatine County recognizes that Iowa Law dictates that all final survey plats must show horizontal distances at existing ground level, whereas tax parcel mapping is projected to the Iowa State Plane Coordinate System, South Zone by County mapping staff, and is scaled to grid dimensions at approximate sea level. Because of the different elevations of the horizontal planes used, distances measured on the ground will always differ from those measured at a sea level elevation. Muscatine County staff will be responsible for scaling the digital submittals from the ground plane to the State Plane grid plane for incorporation into the County mapping system.
- D. To accommodate this scaling procedure, digital data must be submitted in real-world coordinates (i.e., at a scale of 1:1). One point on the boundary of the survey must have or be directly projectable to true State Plane coordinates using standard accepted projections. This point should be distinctly noted in the submittal and its coordinate values provided. In addition, the calculated combination factor needed to convert ground distances to State Plane grid distances in the area of the survey should be supplied with the digital submittal and distinctly noted as should be the basis for the bearing of the lines graphically represented.

SECTION 4. DATA INTEGRITY REQUIREMENTS FOR FINAL PLAT AND SURVEYS

All coincident points on the external boundary of the digital plat or survey submitted must be 'snapped' together, i.e., they must have the same coordinate values without any gaps. Internal angles in the digital extract must remain consistent with those in the original plat. Any coordinate transformations

employed must be limited to only those that translate, rotate and scale the plat or survey. Differences between distances or angles measured in the digital extract submittal with corresponding values displayed as annotation shall not exceed those stipulated by Iowa Law (0.1 foot for distances, 1 minute for angles).

SECTION 5. DATA LAYERING REQUIREMENTS

Individual layers must exist for distinct group of features and their corresponding text annotation. A description of all delivered layer names should also be provided if the names are not self-explanatory. At a minimum, layers provided will consist of the following critical elements required to build tax parcels and to reference the survey to the mapping system: Lot lines; Subdivision boundary; County survey control points used as reference ties.

SECTION 6. FILE FORMATS FOR DIGITAL SUBMISSIONS

Computer-drafted graphic data shall be submitted in an AutoCAD drawing format (*.DWG), utilizing the most current AutoCAD version available or versions no older than three prior to the most current. If AutoCAD software is not available to the submitting party, AutoCAD drawing exchange format (DXF) files of the same release shall be submitted. All drawing elements on the layers must be created in model space only.

SECTION 7. MEDIA REQUIREMENTS FOR DIGITAL MAP SUBMITTALS

Submissions will be accepted on CD-ROM or by electronic mail (E-mail). Digital drawings are to be submitted or emailed to the Auditors Office along with an accompanying hardcopy plot of the official plat.

SECTION 8. CHECKING OF DIGITAL DATA

The digital data will be checked to verify that the standards expressed herein are met. If the standards are not met, additional information may be requested or the submittal may be returned for corrections.

SECTION 9. TIMING

Unless otherwise provided by statute, the timing of digital data submissions shall be as follows:

- A. Preliminary Plats: A computer drafted digital copy of a preliminary plat shall be submitted at the time the application is made and with subsequent revisions. A final revised copy as approved by the Zoning Commission shall be submitted prior to filing for final plat approval.
- B. Final Plats: A computer drafted digital copy of the plat to be submitted prior to the release for filing of record with Muscatine County.
- C. Site plans (except for minor and moderate site plan applications): a computer-drafted digital copy of the site plan submitted for review is required at the time the application is made. After a site plan has been approved, a computer drafted digital copy of the approved final site plan showing all revisions and changes will be submitted prior to a building permit being issued.
- D. Surveys: A computer drafted digital copy of the survey shall be submitted at the time for the filing of record with Muscatine County.

SECTION 10. SAVINGS CLAUSE

If any section, provision or part of this ordinance, or of the Codes hereby enacted by reference, shall be adjudged invalid, illegal or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid, illegal or unconstitutional.

CHAPTER VIII.

COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

The requirements of this Ordinance shall apply to all Commercial Wind Energy Conversion Systems (C-WECS) proposed after the effective date of this Ordinance. C-WECS for which a required permit has been properly issued prior to the effective date of this Ordinance shall not be required to meet the requirements of this Ordinance; provided, that any such pre-existing C-WECS, which does not provide energy for a continuous period of twelve (12) months, shall meet the requirements of this Ordinance prior to recommencing production of energy. Also, no modification or alteration to an existing C-WECS shall be allowed without full compliance with this Ordinance.

SECTION 1. DEFINITIONS.

Aggregated Project	Aggregated projects are those which are developed and operated in a coordinated fashion, but which have multiple entities separately owning one or more of the individual WECS within the larger project. Associated infrastructure such as power lines and transformers that service the facility may be owned by a separate entity but are also included as part of the aggregated project.
Commercial WECS (C-WECS)	A WECS of equal to or greater than [100/40] kW in total name plate generating capacity.
Easement	A legal interest in land, as defined in a document recorded in the office of the Muscatine County Recorder, granted by the owner to another person or entity, which allows that person(s) or entity(ies) the use of all or a portion of the owner's land, generally for a stated purpose, including, but not limited to, access or placement of utilities.
Fall Zone	The area, defined as the furthest distance from the tower base, in which a guyed tower will collapse in the event of a structural failure. This area is less than the total height of the structure.
Feeder Line	Any power line that carries electrical power from one or more wind turbines or individual transformers associated with individual wind turbines to the point of interconnection with the electric power grid, in the case of interconnection with the high voltage transmission systems the point of interconnection shall be the substation serving the WECS.
Meteorological Tower	For the purposes of this Ordinance, meteorological towers are those towers which are erected primarily to measure wind speed and directions plus other data relevant to siting WECS.
Non-Commercial WECS (Non-C-WECS)	A wind energy conversion system consisting of a wind turbine, a tower, and associated control or conversion electronics, which has a rated capacity of not more than 100 kW and which is intended to primarily reduce on-site consumption of utility power.

SECTION 2. COMMERCIAL WIND ENERGY CONVERSION SYSTEMS

2.1 General Requirements.

- a. Color and Finish. Wind turbines shall be painted a non-reflective color. Blades may be black in order to facilitate de-icing. Finishes shall be matte or non-reflective. At C-WECS sites, the design of the buildings and related structures shall, to the extent reasonably possible, use materials, colors, textures, screening and landscaping that will blend the C-WECS to the natural setting and existing environment.

- b. Tower configuration. All wind turbines, which are part of a C-WECS, shall be installed with a tubular, monopole type tower. Meteorological towers may be guyed.
- c. Lighting. C-WECS sites shall not be artificially lighted, except to the extent required by the FAA or other applicable authority. Lighting, including lighting intensity and frequency of strobe, shall adhere to but not exceed requirements established by Federal Aviation Administration permits and regulations.
- d. Signage. The manufacturers or owner's company name and/or logo may be placed upon the compartment containing the electrical generator, of the C-WECS. Wind turbines shall not be used for displaying any advertising except for reasonable identification of the manufacturer or operator of the C-WECS sites.
- e. Feeder Lines. All communications and feeder lines, equal to or less than 34.5 kV in capacity, installed as part of a C-WECS shall be buried except where not possible.
- f. Waste Disposal. Solid and hazardous wastes, including but not limited to crates, packaging materials, damaged or worn parts, as well as used oils and lubricants, shall be removed from the site in a time period as established by the Muscatine County Zoning Office and disposed of in accordance with all applicable local, state and federal regulations.
- g. Minimum Ground Clearance. The blade tip of any wind turbine shall, at its lowest point, have ground clearance of no less than sixty (60) feet.
- h. Signal Interference. The applicant shall minimize and mitigate any interference with electromagnetic communications, such as radio, telephone or television signals caused by any C-WECS.
- i. Federal Aviation Administration. All C-WECS shall comply with FAA standards and permits.
- j. Electrical Codes and Standards. All C-WECS and accessory equipment and facilities shall comply with the National Electrical Code and other applicable Standards.
- k. Setbacks. The following setbacks and separation requirements shall apply to all wind turbines and meteorological towers; provided that the Board of Adjustment may reduce the standard setbacks and separation requirements if the intent of this Ordinance would be better served thereby. All other structures shall comply with the applicable setbacks as allowed by the base zoning district.
 - 1. Inhabited Structures. Each wind turbine and meteorological tower shall be set back from the nearest residence, school, hospital, church or public library, a distance no less than the greater of (a) two (2) times its total system height or (b) one thousand (1,000) feet.
 - 2. Property Lines. At no time shall any part of the wind turbine and meteorological tower overhang an adjoining property without securing appropriate easements from adjoining property owners.
 - 3. Public Right-of-Way. Setbacks from public right-of-way, railroads, powerlines and structures shall be a minimum of 1.1 times the total system height.
 - 4. Communication and Electrical Lines. Each wind turbine and meteorological tower shall be set back from the nearest above-ground public electric power line or telephone line a distance no less than 1.1 times its total system height, determined from the existing power line or telephone line.

- I. Noise. Audible noise due to C-WECS sites operations shall not exceed sixty (60) DBA, when measured at any dwelling, school, hospital, church or public library existing on the date of approval of any special use permit from the property line.
 1. In the event audible noise due to C-WECS operations contains a steady pure tone, such as a whine, screech, or hum, the standards for audible noise set forth in this subsection shall be reduced by five (5) DBA.
 2. In the event the ambient noise level (exclusive of the development in question) exceeds the applicable standard given above, the applicable standard shall be adjusted so as to equal the ambient noise level. The ambient noise level shall be expressed in terms of the highest whole number sound pressure level in DBA, which is succeeded for more than five (5) minutes per hour. Ambient noise levels shall be measured at the exterior of potentially affected existing residences, schools, hospitals, churches and public libraries. Ambient noise level measurement techniques shall employ all practical means of reducing the effect of wind generated noise at the microphone. Ambient noise level measurements may be performed when wind velocities at the proposed project site are sufficient to allow wind turbine operation, provided that the wind velocity does not exceed thirty (30) mph at the ambient noise measurement location.
 3. In the event the noise levels resulting from the C-WECS exceed the criteria listed above, a waiver to said levels may be granted by the Board of Adjustment provided that the following has been accomplished:
 - (i) Written consent from the affected property owners has been obtained stating that they are aware of the C-WECS and the noise limitations imposed by this ordinance, and that consent is granted to allow noise levels to exceed the maximum limits otherwise allowed; and
 - (ii) If the applicant wishes the waiver to apply to succeeding owners of the property, a permanent noise impact easement shall be recorded in the Office of the Muscatine County Recorder which describes the burdened properties and which advises all subsequent owners of the burdened property that noise levels in excess of those permitted by this Ordinance may exist on or at the burdened property.
- m. Safety.
 1. All wiring between wind turbines and the C-WECS substation shall be underground. If the developer can demonstrate the need for an overhead line and the acceptance of landowners for this line, such option may be approved conditionally by the Muscatine County Board of Adjustment.
 2. Wind turbine and meteorological towers shall not be climbable up to 15 feet above ground level.
 3. All access doors to wind turbine and meteorological towers and electrical equipment shall be locked when not being serviced.
 4. Appropriate warning signage shall be placed on wind turbine towers, electrical equipment, and C-WECS entrances.
 5. For all C-WECS, the manufacturer's engineer or another qualified engineer shall certify that the turbine, foundation and tower design of the C-WECS is within accepted professional standards, given local soil and climate conditions.

6. For all guyed towers, visible and reflective objects, such as plastic sleeves, reflectors or tape, shall be placed on the guy wire anchor points and along the outer and innermost guy wires up to a height of eight (8) feet above the ground. Visible fencing shall be installed around anchor points of guy wires. The property owner must sign a notarized acknowledgement and consent form allowing construction of the turbine and guyed wires without fencing as required in this Ordinance to be presented to the Board of Adjustment.
- n. Exceptions to this section may be made for meteorological towers, where concerns exist relative to aerial spray applicators.

2.2 Discontinuation and De-commissioning.

A C-WECS shall be considered a discontinued use after one (1) year without energy production, unless a plan is developed and submitted to the Planning and Zoning Administrator outlining the steps and schedule for returning the C-WECS to service. All C-WECS and accessory facilities shall be removed to four (4) feet below ground level within one hundred eighty (180) days of the discontinuation of use. Each C-WECS shall have a de-commissioning plan outlining the anticipated means and cost of removing C-WECS at the end of their serviceable life or upon becoming a discontinued use. The cost estimates shall be made by a professional engineer licensed in the State of Iowa. The plan shall also identify the financial resources that will be available to pay for the decommissioning and removal of the C-WECS and accessory facilities. The County reserves the right to verify that adequate decommissioning terms are contained in the landowner easement.

2.3 Avoidance and Mitigation of Damages to Public Infrastructure.

- a. Roads. Applicants shall identify all roads to be used for the purpose of transporting C-WECS, substation parts, cement, and/or equipment for construction, operation or maintenance of the C-WECS and obtain applicable weight and size permits from the impacted road authority (ies) prior to construction.
- b. Existing Road Conditions. Applicant shall conduct a pre-construction survey, in coordination with the impacted local road authority (ies) to determine existing road conditions. The survey shall include photographs and a written agreement to document the condition of the public facility. The applicant is responsible for on-going road maintenance and dust control measures identified by the Muscatine County Engineer during all phases of construction.
- c. Drainage System. The Applicant shall be responsible for immediate repair of damage to public drainage systems stemming from construction, operation or maintenance of the C-WECS.
- d. Required Financial Security. The applicant shall be responsible for restoring or paying damages as agreed to by the applicable road authority (ies) sufficient to restore the road(s) and bridges to preconstruction conditions. Financial security in a manner approved by Muscatine County shall be submitted covering 130% of the costs of all required improvements. This requirement may be waived by the Board of Adjustment by recommendation from the Muscatine County Engineer.

2.4 Submittal Requirements.

In addition to the submittal requirements defined for Special Exception Permit applications, all applications for C-WECS must submit the following information (as applicable).

- a. The names of project applicant.
- b. The name of the project owner.
- c. The legal description and address of the project.
- d. A description of the project including: Number, type, name plate generating capacity, tower height, rotor diameter, and total height of all wind turbines and means of interconnecting with the electrical grid.
- e. Site layout, including the location of property lines, wind turbines, electrical wires, interconnection points with the electrical grid, and all related accessory structures. The site layout shall include distances and be drawn to scale.
- f. Engineer's certification(s) as required in these supplemental standards.
- g. Documentation of land ownership or legal control of the property.
- h. The latitude and longitude of individual wind turbines.
- i. A USGS topographical map, or map with similar data, of the property and surrounding area, including any other C-WECS within 10 rotor diameters of the Proposed C-WECS.
- j. Location of wetlands, scenic, and natural areas [including bluffs] within 1,320 feet of the proposed C-WECS.
- k. An acoustical analysis.
- l. FAA Permit Application.
- m. Location of all known communications towers/facilities within 2 miles of the proposed C-WECS.
- n. De-commissioning Plan.
- o. Description of potential impacts on nearby C-WECS and Non C-WECS and wind resources on adjacent properties.
- p. Identification of significant migratory patterns and nesting areas for birds within two (2) miles.

SECTION 3. SAVINGS CLAUSE. If any section, provision or part of this ordinance, or of the Codes hereby enacted by reference, shall be adjudged invalid, illegal or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid, illegal or unconstitutional.

TITLE IV: COUNTY ROADS

CHAPTER I.

AREA SERVICE SYSTEM B ROAD CLASSIFICATION

SECTION 1. PURPOSE. The purpose of this ordinance is to classify certain roads on the area service system in Muscatine County to provide for a reduced level of maintenance.

SECTION 2. DEFINITIONS. For use in this ordinance, certain terms or words herein shall be interpreted or defined as follows:

1. "Area Service System" includes those public roads outside of municipalities not otherwise classified.
 - a. "Area Service System A" roads shall be maintained in conformance with applicable state statutes.
 - b. "Area Service System B" roads shall not require standards of maintenance equal to trunk, trunk collector, or area service system A roads. Area Service System B roads shall not mean what is construed in the normal sense as a driveway or a private lane to a farm building or dwelling.
2. "Board" shall mean the Board of Supervisors of Muscatine County.
3. "Engineer" shall mean the County Engineer of Muscatine County.

SECTION 3. POWERS OF THE BOARD. All jurisdiction and control over Area Service System B roads as provided by this ordinance shall rest with the Board of Supervisors of Muscatine County.

SECTION 4. AUTHORITY TO ESTABLISH. The Board of Supervisors of Muscatine County is empowered under authority of Chapter 309 of the 1981 Code of Iowa as amended by Acts of the Sixty-ninth General Assembly, 1981 Regular Session, House File 786 to classify secondary roads on the area system to provide for a reduced level of maintenance on roads so designated. The Board shall, by resolution, declare its intention to establish an area service system B road in Muscatine County after consultation with the County Engineer.

SECTION 5. NOTICE OF HEARING. The Board shall fix a time and place for a hearing and cause notice to be published as provided by law. The notice shall set forth the termini of the area service system B road as set out in the resolution of the Board, and shall state that all persons interested may appear and be heard at such hearing.

SECTION 6. HEARING-AREA SERVICE SYSTEM B ROAD ESTABLISHED BY RESOLUTION. On the day fixed for the hearing or any day to which the hearing has been adjourned, upon proof to its satisfaction made by affidavit of due publication and posting of the notice of hearing, the Board shall consider any and all relevant evidence and if the Board finds that the proposed Area Service System B road is practicable, it may establish it by proper resolution.

SECTION 7. MAINTENANCE POLICY. Only the minimum effort, expense, and attention will be provided to keep area service system B roads open to traffic. Bridges may not be maintained to carry legal loads but will be posted as appropriate to advise of any load

limitations. For the various maintenance activities, the minimum maintenance on Area Service Level B roads will be as follows:

1. Blading - Blading or dragging will not be performed on a regular basis.
2. Snow and Ice Removal - Snow and ice will not be removed nor will the road surface be sanded or salted.
3. Signing - Except for load limit, posting for bridges signing shall not be continued or provided. All Area Service Level B roads shall be identified with a sign at all points of access to warn the public of the lower level of maintenance.
4. Weeds, Brush and Trees - Mowing or spraying weeds, cutting brush, and tree removal will not be performed. Adequate sight distances will not be maintained.
5. Structures - Bridges and culverts may not be maintained to carry legal loads. Upon failure or loss, the replacement structure will be appropriate for the traffic thereon.
6. Road Surfacing - There will be no surfacing materials applied to area service system B roads.
7. Shoulders - Shoulders will not be maintained.
8. Crown - A crown will not be maintained.
9. Repairs – There will be no road repair on a regular basis.
10. Uniform Width – Uniform width for the traveled portion of the road will not be maintained.
11. Inspections – Regular inspections will not be conducted.

SECTION 8. EXEMPTION FROM LIABILITY. As provided in House File 786, Acts of the 69th General Assembly, 1981 session, the County and officers, agents, and employees of the County are not liable for injury to any person or for damage to any vehicle or equipment, which occurs proximately as a result of the maintenance of a road which is classified as Area Service System B, if the road has been maintained as provided in Section 7 of this ordinance.

CHAPTER II.

SNOW REMOVAL

SECTION 1. PURPOSE. The purpose of this ordinance is to establish Muscatine County's policy and level of service in respect to clearance of snow and ice and maintenance of its secondary road system during the winter months, specifically defined as November through April, as provided in Sections 309.67 and 668.10 (2), Cod of Iowa (1999). This policy and level of service are to be implemented within the amount of money budgeted for this service, and as contained in this County's secondary road budget as submitted to and approved by the Iowa Department of Transportation and adopted by the Board of Supervisors. The clearance of roads at any cost, under any circumstances, day or night, is not the County's policy.

SECTION 2. LEVEL OF SERVICE. Clearance of snow or ice and maintenance of the secondary road system during the winter months is primarily for the benefit of the local residents of this County. Each storm has individual characteristics and must be dealt with accordingly. Except for "emergencies" as determined by the County Engineer's professional judgment on a case by case basis, all clearance of snow or ice, sanding, salting, and other maintenance respecting winter conditions shall be accomplished within the amount of money budgeted for this service and as practicable. The County's existing snow removal equipment will be utilized for this purpose. The rental of equipment is not anticipated. On occasion, County personnel may be rendered unavailable due to the requirements of the Omnibus Transportation Employee Testing Act of 1991.

- A. The portion of the roadway improved for travel will have upon it snow and ice in compacted condition. These conditions may be continuous, or they may be more concentrated on hills, in valleys curves, and/or intersections.
- B. The entire width of that portion of the road improved for travel may not be cleared of snow, ice, compacted snow and ice, or frost.
- C. Snow cleared from that part of the roadway improved for travel shall be placed on or in the adjacent shoulder, ditch, or right-of-way. Snow can be expected to accumulate adjacent to the traveled portion to the extent that a motorist's sight distance to both the left and right may be greatly reduced or impaired. The County shall not be responsible for snow pushed or otherwise placed on the roadway or shoulders by others.
- D. The snow removed from intersections will be piled in its corners in piles of unequal height. The line of sight, sight distance, or visibility of motorists approaching these intersections may be greatly reduced or impaired.

Motorists shall drive their vehicles during these conditions with additional caution and watchfulness, especially in respect to the surface of the roadway, and reduced or impaired visibility, and are advised to reduce their speed at least 25 miles per hour below that legally permitted or advised under normal conditions. In respect to roadways that have only one lane open, further extreme watchfulness and caution should be exercised by the motorist, and their speed should not exceed 10 miles per hour.

- E. During these conditions no additional warning or regulatory signs will be placed warning of impaired sight distances, visibility at intersections, road blockages, one-lane conditions, or that the road surface is slick or slippery, or what the advised speed should be.

SECTION 3. SEQUENCE OF SERVICE.

In the implementation of snow and ice removal and other maintenance of the County's secondary road system during the winter months, the County Engineer shall select the actual sequence of roads to be cleared as provided for in this section of the ordinance, and shall determine when drifting, wind velocity, and additional snow or snowstorms require that the snow removal equipment be removed from the roadway, or that additional clearance of paved routes be accomplished prior to the clearance of gravel and dirt roads. The County Engineer's professional judgment shall prevail unless it is clearly erroneous.

A. Paved Routes.

- (1) The initial effort will be to get all routes open to one-lane traffic as soon as possible and/or practicable. During initial snow removal operations, paved roads may only have one lane plowed for a period of time.
- (2) After tow-lane travel is possible, subsequent snow removal will be carried on during normal working hours.
- (3) The truck mounted snow plows and spreaders will not normally be in operation between the hours of 8:00 P.M. and 4:00 A.M. The trucks may be called off the road if snow and blowing reduces visibility to hazardous working conditions, in the professional judgment of the Engineer.
- (4) When required, due to drifting snow, motor graders may be used to keep the paved roads open and the opening of gravel roads may be delayed.
- (5) It is not the policy of the County to provide a "dry" pavement condition.
- (6) After roads have been plowed as provided in this section, intersections, hills, and curves may, but not necessarily, have placed on them, salt, sand or other abrasive. These intersections, hills and curves may not be resanded, resalted, or have other abrasives replaced on them between snowstorms.

B. Unpaved Roads.

- (1) The initial effort will be to get all routes opened to one-lane traffic as soon as possible and/or practicable after a storm has passed.
- (2) After one-lane travel is possible, subsequent snow removal will be carried on during normal working hours.
- (3) Motor graders and/or truck plows will not normally be in operation between the hours of 8:00 P.M. and 5:00 A.M. The motor graders and/or truck plows may be called off the road if snow and blowing reduces visibility to hazardous working conditions, in the professional judgment of the Engineer.
- (4) Snow may not be removed from roads designated at Level B or C.

C. Private Drives.

The County will not clear snow from private drives. Normal snow removal operations may result in snow being deposited in private drives. Snow from private drives shall not be placed on the roadway or shoulders.

There is no time limit after a snowstorm in which any of the above sequence of clearance, on paved or unpaved roads, shall take place.

SECTION 4. LIMITATION OF SERVICE.

Notwithstanding anything else stated in this ordinance, the policy and level of service provided for in this ordinance shall not include the following, and the following services **shall not be performed**:

- A. Sanding, salting, or placing of other abrasives upon the roadways that are slick, slippery, and dangerous due to the formation of frost.
- B. Sand, salting, or placing other abrasives upon paved roadways due to freezing rain that occurs outside the County's usual working hours.
- C. Placing of additional warning or regulatory signs warning of impaired sight distances, visibility at intersections, road blockages, one-lane conditions, or that the road surface is slick or slippery, or what the advised speed should be.
- D. Sanding, salting, or placing abrasives upon any unpaved road. If, in the opinion of the County Engineer, an "emergency" exists and ice has built up on hills and intersections on the gravel system that slope down to another road so as to become dangerous, abrasive material may be applied at these locations as crew and equipment availability allows and only as a last resort. This condition will not, under any circumstances, take a higher priority than placing of abrasive material on the paved road system and will only be done after the paved roads are cleared of ice and snow. Abrasive material will also only be placed after other mechanical means have been tried and failed, such as scraping with motor graders.
- E. Removing of sand, salt, or other abrasives.

SECTION 5. EMERGENCY.

Service or the level or sequence of service may be suspended by the Engineer during "emergency" conditions. An "emergency" condition shall be considered as one where loss of life is probable, where a serious injury has occurred, or where extensive loss of property is imminent. These conditions shall be verified through the 911 dispatcher or Sheriff's Office. The County may respond to all "emergency" conditions, either during or after a snowstorm.

Any person who makes a false report of an "emergency" to an officer, official, or employee of Muscatine County or who causes a false report to be so made commits a county infraction, enforceable in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

Service or the level or sequence of service shall be further suspended in the event the Governor, by proclamation, implements the State Disaster Plan, or the Chairman of the Board of Supervisors, by proclamation, implements the County Disaster Plan. If such occurs, the County personnel and equipment shall be immediately subject to the direction of the Governor or Chairman of the Board of Supervisors.

SECTION 6. COUNTY ENGINEER.

As used throughout this ordinance, the terms "County Engineer" or "Engineer" mean the Muscatine County Engineer and shall include a designee acting in the Engineer's absence.

CHAPTER III.

NO PARKING ZONES

SECTION 1. NO PARKING ZONE LOCATIONS

Upon the recommendation of the County Engineer and the County Sheriff, the Muscatine County Board of Supervisors may designate, by resolution, certain portions of streets and highways under the jurisdiction of the Board as No Parking Zones. All such No Parking Zones shall be posted with signs so indicating. All resolutions adopted in accordance with this section shall be maintained by the County Engineer, and may be set out graphically on a map or maps maintained by the Engineer.

SECTION 2. TOW-AWAY ZONES

The Board may also designate No Parking Zones where a vehicle parked in violation of this Chapter may be towed immediately at the expense of the vehicle's owner. Such zones shall be posted with signs so indicating.

SECTION 3. PARKING PROHIBITED

No driver of a vehicle shall stop, stand or park the vehicle at any place established pursuant to this Chapter as a No Parking Zone or a Tow-Away Zone and appropriately posted except to avoid conflict with other traffic or in compliance with the directions of a peace officer or traffic-control sign or signal.

SECTION 4. OWNER PRIMA FACIE RESPONSIBLE FOR VIOLATIONS

If any vehicle is found stopped, standing or parked in any manner in violation of the provisions of this Chapter and the identity of the driver cannot be determined, the owner or person in whose name such vehicle is registered shall be deemed prima facie responsible for such violation.

SECTION 5. VIOLATIONS AND PENALTIES

These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.

SECTION 6. SAVINGS CLAUSE

If any section, provision or part of this ordinance, or of the Codes hereby enacted by reference, shall be adjudged invalid, illegal or unconstitutional, such adjudication shall not affect the validity of the ordinance as a whole or any section, provision or part thereof not adjudged invalid, illegal or unconstitutional.

TITLE V: EMERGENCY SERVICES

CHAPTER I.

RURAL ADDRESS SYSTEM ORDINANCE

SECTION 1. PURPOSE. This ordinance mandates the use of a uniform rural address system for resident of all unincorporated areas of Muscatine County in order to establish a familiar system of named roads with street addresses that follow orderly assignments, to promote the accurate and timely provision of emergency services, and to promote the health, safety and welfare of the public.

SECTION 2. DEFINITIONS. For purposes of this Ordinance, terms and words used in the present tense shall include the future, the singular number shall include the plural, and the plural includes the singular. The word "shall" and the word "will" are mandatory; the word "may" is permissive. For purposes of this Ordinance, the following words and terms shall be defined as follows:

Person Shall mean any individual, firm, corporation, unincorporated association or other entity.

Subdivision Shall mean the division of a tract of land into separate lots or parcels for the purpose of transfer of ownership or building development, or land so divided and platted.

Improved Property Shall mean a parcel of real property upon which there is constructed or placed a residence, commercial establishment or mobile home capable of, or designed or intended for human habitation or use.

Unincorporated Area All land located outside the city limits of municipalities which are incorporated with the State of Iowa. Such land is under the jurisdiction of the Muscatine County Board of Supervisors.

Building Official The Muscatine County Zoning Administrative Officer or designated assistant.

County Engineer The Muscatine County Engineer or designated assistant.

Base Maps Shall mean the maps used by the agency coordinating the uniform rural address system in Muscatine County and maintained by the Building Official. Such maps shall indicate all addresses in Muscatine County subject to the provisions of this Ordinance.

Avenues All roadways that generally run north or south, usually a through street, but may end in a dead end.

Streets All roadways that generally run east or west, usually a through street, but may end in a dead end.

Roads All roadways that generally run opposite of the streets or avenues, usually a through street, but may end in a dead end.

Private Road A non-public roadway officially recognized by the Board of Supervisors as an access for vehicles from a public road to a private driveway leading to the principal building. Usually a subdivision road platted on the final plat, serving a number of subdivision lots. These roads are not recognized as public roadways by the State and the County and are, therefore, not maintained as such.

Public Road All land between the right-of-way lines perpetually dedicated to the City, County, State, or Federal Government as an access for vehicles. The term does not include public easements on private property where the roadway has not been dedicated to a

jurisdiction or the jurisdiction has not accepted ownership. These roads are recognized by the State and the County as public roadways and maintained by the appropriate jurisdiction.

SECTION 3. RURAL ADDRESS SYSTEM.

- 3.1 A Rural Address System, including roadway names and residence numbers as set forth in the base maps, is hereby adopted.
- 3.2 The Rural Address System shall apply to the entire unincorporated area of Muscatine County.
- 3.3 The Building Official shall be responsible for the maintenance of the Rural Address System in Muscatine County, including, but not limited to assigning addresses and designating the numbers to be assigned to existing and subsequently constructed residences, commercial establishments, subdivisions and mobile home parks; updating base maps carrying each individual address assignment; updating the rural reference map that is available to the public; enforcing the provisions of this Ordinance, including the institution of such proceedings against persons violating such provisions as may from time to time be necessary to secure the observance of the same; and other duties necessary to insure the effectiveness of the System.

SECTION 4. ADDRESS MARKERS REQUIRED.

- 4.1 Generally. The owner of improved property within the County shall cause said property to be marked as provided by this Ordinance.
- 4.2 Subdivisions. The owner of each improved property in a Subdivision shall install an approved address marker adjacent to the public or private street, road or avenue from which vehicular access is gained to the property, in a uniform, prominent and visible position approved by the building official.
- 4.3 Mobile Home Parks. The owner of each residence in a mobile home park shall install an approved address marker immediately adjacent to the mobile home in a uniform, prominent and visible position approved by the building official.
- 4.4 Rural Residences or Commercial Establishments. The owner of each improved property in unincorporated Muscatine County, not within a subdivision or mobile home park shall install an approved address marker adjacent to the public street, road or avenue from which vehicular access is gained to the property, in a uniform, prominent and visible position approved by the building official.

SECTION 5. APPROVED ADDRESS MARKERS.

- 5.1 Only address markers approved by the building official may be used to comply with this ordinance. In determining the construction specifications of property markers, the building official shall take into account the visibility, durability and cost of the markers.
- 5.2 Address markers shall display the rural address system number assigned to the property by the building official.
- 5.3 Address markers shall be placed as provided in Section 4 of this ordinance, in a specific position approved by the building official. In determining rules regarding the placement of address markers, the building official shall take into account marker visibility and uniformity, such that the intent of the ordinance will be furthered, and to provide ready identification of each property so that timely assistance of law enforcement, fire and ambulance services may be rendered.
- 5.4 The original address markers required herein shall be provided and installed by the building official at no cost to the property owner.

5.5 Address markers shall be maintained and replaced, as necessary, by the property owner. The building official shall make available for purchase replacement address markers at reasonable cost.

SECTION 6. NEW CONSTRUCTION.

The owner of any building, residence, or commercial establishment constructed after the effective date of this Ordinance shall comply with all provisions hereof prior to commencement of such construction.

SECTION 7. VIOLATIONS AND PENALTIES.

These rules and regulations shall be enforced in accordance with the provisions of Title I Administration, Chapter V Enforcement Ordinance.