

THE STATE OF TEXAS §
COUNTY OF BRAZORIA §
CITY OF MANVEL §



LARRY AKERY, COUNCIL PLACE 1
LORRAINE HEHN, COUNCIL PLACE 2
NICCOLE TYSON, COUNCIL PLACE 3
ED PERRY, COUNCIL PLACE 4
JASON ALBERT, COUNCIL PLACE 5
JEROME HUDSON, COUNCIL PLACE 6

DEBRA DAVISON, MAYOR
KYLE JUNG, CITY MANAGER
TAMMY BELL, CITY SECRETARY

**NOTICE OF A CITY COUNCIL MEETING
OF THE CITY OF MANVEL
April 17, 2023**

**NOTICE IS HEREBY GIVEN
6:00 P.M. REGULAR SESSION**

Pursuant to Chapter 551, Title 5 of the Texas Government Code, the Texas Open Meetings Act, notice is hereby given that the Manvel City Council will convene a regular meeting at the Manvel City Hall, located at 20031 Hwy 6, Manvel Tx 77578 for the purpose of discussing and if appropriate, take action with respect to the following items:

NOTE: The City Council of the City of Manvel reserves the right to discuss any items in Closed Session whenever authorized under the Texas Open Meetings Act, Chapter 551, of the Texas Government Code. The City Council may discuss the items on this agenda in any order.

This facility is wheelchair accessible and accessible parking spaces are available. Requests for accommodations or interpreter services must be made 48 hours prior to this meeting. Please contact the City Secretary at 281-489-0630 X6 for further information.

Regular Session

Call To Order

Inspirational Reading - Council Member Tyson

Pledge

Pledge of Allegiance and Texas Pledge: "Honor the Texas flag; I pledge allegiance to thee Texas, one state under God, one and indivisible.

Presentations

Proclamation - Child Abuse Awareness Month, April 2023

Public Comments: "Comment Card" Required

o Members of the public with business before the board, NOT scheduled on the agenda as a public hearing (that have submitted a public comment card) may have three (3) minutes to address the board. o The board may not participate in any discussion and cannot vote on the subject you present unless it is listed on the agenda as an action item.

City Manager Update

Update on current events and city issues.

Consent Agenda

1. Accept the infrastructure improvements for Del Bello Lakes Section 8 to begin the two- year maintenance period.
2. Accept the infrastructure improvements for Pomona Section 24 to begin the two-year maintenance period.
3. Approve meeting minutes to date.

Regular Agenda

1. Consideration and possible action to approve the second and final reading of Ordinance 2023-O-16;
AN ORDINANCE AMENDING CHAPTER 35 "LICENSES AND SPECIAL BUSINESS REGULATIONS" OF THE CODE OF ORDINANCES OF THE CITY OF MANVEL, TEXAS, BY AMENDING ARTICLE X "MOBILE FOOD VENDORS" TO CHANGE THE MINIMUM DISTANCE REQUIREMENT BETWEEN A MOBILE FOOD UNIT/TEMPORARY FOOD ESTABLISHMENT FROM 300 TO 100 YARDS AND ADD TWO REQUIREMENTS TO FOOD TRUCK OPERATIONS; REPEALING PROVISIONS IN CONFLICT THEREWITH; PROVIDING A PENALTY IN AN AMOUNT NOT TO EXCEED \$2,000.00 PER DAY FOR EACH DAY OF VIOLATION OF ANY PROVISION HEREOF; AND PROVIDING FOR SEVERABILITY. (Tabled at the 04/03/2023 City Council meeting)
2. Consideration and possible action to approve Master Plan for Avellino;
BEING A SUBDIVISION OF 49.58 ACRES OUT OF THE H.T. & B.R.R. CO. SURVEY, SECTION 71, A-291, BRAZORIA COUNTY, TEXAS AND ALSO BEING A PARTIAL REPLAT OF THE EMIGRATION LAND COMPANY SUBDIVISION AS RECORDED IN VOL. 2, PG. 81-82, B.C.P.R. (Motion to approve by PD&Z
FAILED with a 0/7 vote).
3. Consideration and possible action to direct staff to provide Applicants written statements of the conditions for any conditional approvals, and the reasons for disapproval of any plans or plats that were not approved, per Texas Local Government Code §212.0091.
4. Consideration and possible action to approve the Ninth Amendment to Development Agreement between the City of Manvel, MC288 LLC, Pomona Investment, LLC, Brazoria County Municipal Utility District 39, and Brazoria County Municipal Utility District 40.
5. Consideration and possible action to approve Resolution 2023-R-07;
A RESOLUTION OF THE CITY OF Manvel, TEXAS FINDING THAT CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC'S APPLICATION FOR APPROVAL TO AMEND ITS DISTRIBUTION COST RECOVERY FACTOR PURSUANT TO 16 TEX. ADMIN. CODE § 25.243 TO INCREASE DISTRIBUTION RATES WITHIN THE CITY SHOULD BE DENIED; FINDING THAT THE CITY'S REASONABLE RATE CASE EXPENSES SHALL BE REIMBURSED BY THE COMPANY; FINDING THAT THE MEETING AT WHICH THIS RESOLUTION IS PASSED IS OPEN TO THE PUBLIC AS REQUIRED BY LAW; REQUIRING NOTICE OF THIS RESOLUTION TO THE COMPANY AND LEGAL COUNSEL.

6. Consideration and possible action to approve Resolution 2023-R-08;
A RESOLUTION OF THE CITY OF MANVEL, TEXAS ADOPTING A REVISED DESIGN CRITERIA MANUAL CONTAINING SUBDIVISION IMPROVEMENT STANDARDS FOR ALL DEVELOPMENT WITHIN THE CITY OR ITS EXTRATERRITORIAL JURISDICTION, PURSUANT TO AUTHORITY CONTAINED IN CHAPTER 62, SUBDIVISION ORDINANCE, OF THE CODE OF ORDINANCES OF THE CITY OF MANVEL, TEXAS, CHAPTER 212 OF THE TEXAS LOCAL GOVERNMENT CODE, AND OTHER PROVISIONS OF THE CODE OF ORDINANCES OF THE CITY OF MANVEL, AS AMENDED OR TO BE AMENDED; AND CONTAINING OTHER MATTERS ON THE SUBJECT.
7. Consideration and possible action to approve an Agreement between the State of Texas and the City of Manvel for the authority to construct or have reconstructed signs along the roadways. (In relation to the City's designation of a Superior Water status)

Mayor and Council Comments

Update on current events and city issues.

Additionally, pursuant to Texas Government Code § 551.0415, City Council Members and city staff may make a report about items of community interest during a meeting of the governing body without having given notice of the report.

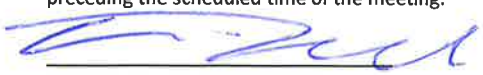
Items of community interest include:

- Expressions of thanks, congratulations, or condolence;
- Information regarding holiday schedules;
- An honorary or salutory recognition of a public official, public employee, or other citizen, except that a discussion regarding a change in the status of a person's public office or public employment is not an honorary or salutory recognition for purposes of this subdivision;
- A reminder about an upcoming event organized or sponsored by the governing body;
- Information regarding a social, ceremonial, or community event organized or sponsored by an entity other than the governing body that was attended or is scheduled to be attended by a member of the governing body or an official or employee of the municipality; and
- Announcements involving an imminent threat to the public health and safety of people in the municipality that has arisen after the posting of the agenda.

Adjourn

CERTIFICATION

I, Tammy Bell, City Secretary for the City of Manvel, do hereby certify that the foregoing Agenda of the Manvel City Council is true and correct and that I posted such notice on the bulletin board at the Manvel City Hall; a place convenient and readily accessible to the public on April 14, 2023 in accordance with the Texas Open Meetings Act (Tex. Gov't. Code §551.001 et.seq). Said notice remained posted for at least 72 hours preceding the scheduled time of the meeting.


TAMMY BELL, CITY SECRETARY
CITY OF MANVEL, TEXAS



From: [Dan Johnson](#)
To: [Kyle Jung](#); [Tammy Bell](#)
Cc: [Jessica Rodriguez](#); [Gilbert Salas](#)
Subject: 04/17/2023 Consent Agenda - Del Bello Lakes Section 8
Date: Monday, April 10, 2023 6:56:15 PM
Attachments: [image001.png](#)

Kyle and Tammy,

In order to begin the **two-year** maintenance period, a final inspection walk-through has been conducted for:

Del Bello Lakes Section 8

The Maintenance Bonds have been submitted to the City Secretary's Office, and the As-Built Construction Plans have been submitted to the Development Coordinator's Office.

In short, we recommend that City Council accept the infrastructure improvements for this project to begin the Maintenance Period.

Please let me know if you need any further information.

~Dan

Daniel S. Johnson, P.E., CFM

Assistant City Manager

City Engineer

20025 Highway 6

Manvel, Texas 77578

(281) 489-0630

www.cityofmanvel.com



#22-002076

From: [Dan Johnson](#)
To: [Kyle Jung](#); [Tammy Bell](#)
Cc: [Jessica Rodriguez](#); [Gilbert Salas](#)
Subject: 04/17/2023 Consent Agenda - Pomona Section 24
Date: Tuesday, April 11, 2023 4:39:56 PM
Attachments: [image001.png](#)

Kyle and Tammy,

In order to begin the **two-year** maintenance period, a final inspection walk-through has been conducted for:

Pomona Section 24

The Maintenance Bonds have been submitted to the City Secretary's Office, and the As-Built Construction Plans have been submitted to the Development Coordinator's Office.

In short, we recommend that City Council accept the infrastructure improvements for this project to begin the Maintenance Period.

Please let me know if you need any further information.

~Dan

Daniel S. Johnson, P.E., CFM

Assistant City Manager

City Engineer

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#22-002076



MANVEL CITY COUNCIL DATA SHEET

MEETING DATE: April 17, 2023

TOPIC: Consideration and possible action to approve Ordinance No. 2023-O-16, which changes the minimum distance requirement from 300 to 100 yards between a mobile food unit (food truck)/temporary food establishment and a restaurant, adds two requirements to food truck operations, adds definitions for “central processing facility”, “commissary”, and “restaurant”, defines how to measure distance between a mobile food unit service area and a restaurant, and corrects typos.

BACKGROUND: The City Council amended Chapter 35, Article X, *Mobile Food Vendors*, on February 6, 2023 by Ordinance No. 2023-O-02. In that amendment, various changes were made to accommodate mobile food units (food trucks) with new regulations adopted for special events. After Ordinance No. 2023-O-02 was approved, staff noticed a typo in a distancing requirement, two regulations left off for food truck operations, and other typos. These changes were meant to be part of the previously adopted ordinance. The changes include:

- 1) Section 35-317: a change from 300 to 100 yards to which a vendor may not set up from a restaurant, unless express written consent from the restaurant owner. Staff proposes to reduce the distance so there are less conflicts but still protecting brick and mortar restaurant investments.
- 2) Section 35-314: two regulations added to the list for food truck operations. The regulations include: a) MFU may only operate from 7:00 a.m. to 10:00 p.m., except for events with extended hours as may be expressly authorized via application and approved by the City, and b) MFU may not vend from the second lane of traffic, and may not double park or impede traffic.
- 3) Section 35-317: an addition of “(8)” when referring to “eight hours”, “six” when referring to “6 inches”, and from “by not limited to...” to “but not limited to...”

At their March 20, 2023, City Council voted to approve Ordinance No. 2023-O-16 with an amendment to food truck operation hours. The operating hours were changed from sunrise to sunset to 7:00 a.m. to 10:00 p.m. The changes were made in the proposed Section 35-314 and existing language in Section 35-315.

At their April 3, 2023, City Council voted to table Ordinance No. 2023-O-16. The Ordinance was tabled so that staff could define “restaurant”, “central preparation facility”, and “commissary”, and define how to measure a mobile food unit service area to a restaurant. Staff has provided definitions for the terms listed above and provided a manner to measure. Staff is proposing to measure the 100 yard distance requirement for mobile food units to restaurants as, mobile food unit service area to the front entrance of a restaurant.

Staff is recommending City Council to approve amended Ordinance No. 2023-O-16 on second and final reading with amendment proposed on March 20, 2023, and recommendations made at the April 3, 2023, meetings.

RECOMMENDATION: The staff recommends approval of amended Ordinance No. 2023-O-16 on second and final reading.

ATTACHMENTS: Ordinance No. 2023-O-16 (amended), Chapter 35, Article X, *Mobile and Temporary Food Vendors*, Clean Draft (04.17.2023), and Chapter 35, Article X, *Mobile and Temporary Food Vendors*, Redline Draft (04.17.2023)

FUNDING ISSUES

- ☒ Not applicable
☐ Not budgeted
☐ Full amount already budgeted
☐ Funds to be transferred from Acct.#

SUBMITTING STAFF MEMBER
Jessica Rodriguez

FINANCE DIRECTOR APPROVAL _____

CITY MANAGER APPROVAL _____



ARTICLE X. MOBILE AND TEMPORARY FOOD VENDORS

Sec. 35-310. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Central Preparation Facility means a facility that is an approved and permitted retail food establishment at which food is prepared, stored, and wrapped; and the Mobile Food Unit is supplied with fresh water and ice; and emptied of wastewater into a proper waste disposal system, and cleaned, including washing, rinsing, and sanitizing of those food-contact surfaces or items not capable of being immersed in the Mobile Food Unit utensil-washing sink. A private residence used as a Central Preparation Facility is prohibited.

Commissary means a licensed and approved location that contains a servicing area and may contain a central preparation facility. Serves may include but are not limited to disposal of waste water, filling of water tank(s), and cleaning equipment.

Food hand cart means a food or drink vending station operating from a non-mechanical, movable cart that is pushed or pulled from one location to the next by hand (e.g. hot dog cart).

Mobile Food Unit (food truck, MFU) means a food or drink vending station operating from a mechanical vehicle or pulled trailer at a fixed location (e.g. taco truck).

Mobile food vendor means any person or entity engaged in selling or serving food or drink from a booth or cart, including, but not limited to, operating any of the following:

- (1) Sidewalk stand; or
- (2) Food hand cart.

Private events mean any event that is on private property, where admission is closed to the general public and where access and view to the general public is limited, including but not limited to a wedding or family event.

Restaurant means a business entity whose primary use is the ability for the general public to pay to sit and eat meals or take-out meals that are cooked and served on the premises. The term restaurant does not include grocery stores, convenience stores, day cares, public or private schools, churches, nonprofit entities, or businesses not generally open for public access.

Sidewalk stand means a drink vending station operating from a non-mechanical booth or stand on or near the sidewalk or in the city right-of-way operated by a person under the age of 18, who only offers lemonade (e.g. lemonade stand).

Temporary food establishment means a food establishment that operates for a period of no more than ten (10) consecutive days in conjunction with a single event or celebration. This may include a stand or a booth.

Sec. 35-311. General prohibition.

Except where specifically authorized by this article, mobile food vendors of any type are expressly prohibited.

Sec. 35-312. Sidewalk stand.

Sidewalk stands are prohibited. There shall be an exception for temporary lemonade sidewalk stands operated by juveniles, which may be operated without a permit for a single period of up to eight hours, limited to one period within one calendar month.

Sec. 35-313. Food hand cart.

Food hand carts are prohibited. There shall be an exception for temporary operation for the following:

- (1) City events;
- (2) City approved Special Events; and
- (3) Private events (where admission is not open to the general public) on private property.

Sec. 35-314. Mobile Food Unit (food trucks).

Mobile Food Units (food trucks) are prohibited. There shall be an exception for temporary operation for the following:

- (1) City events;
- (2) City approved Special Events;
- (3) Private events (where admission is not open to the general public) on private property; and
- (4) City approved Type C Recurring Special Events.

The following requirements shall apply to a mobile food units that are specifically permitted under this article:

- (1) Mobile Food Units must have current valid health license and inspections with the City.
- (2) MFUs must be equipped with the following
 - a. Portable fire extinguishers shall be selected and installed in accordance with NFPA10, International Fire Code (IFC) Section 906, and as adopted and amended by the City of Manvel, as amended from time to time. A minimum of one Class ABC fire extinguisher shall be provided for all mobile food preparation vehicles in accordance with Section 906, as well as a Class K extinguisher that is sized as per Section 906.4 when cooking equipment involves solid fuels or vegetable/animal oils or fats. All fire extinguishers must have a current inspection/service tag from a licensed fire extinguishing company.
 - b. A Type 1 hood installed where cooking operation produce grease-laden vapors, smoke residue, or involve combustible cooking media (vegetable or animal oils and fats).
- (3) Inspection of mobile food units. At the time of the inspection, the mobile food unit shall be completely operable and in full working order.
- (4) Miscellaneous offenses. In addition to the regulations contained above, the following actions are prohibited by mobile food unit operators:
 - a. Operating without a valid servicing record or commissary receipt which must be kept within the mobile food unit at all times;
 - b. Selling or offering for sale non-food items from the mobile food unit;

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- c. Storing or preparing food outside of the mobile food unit (except in a licensed central preparation facility), including but not limited to food prepared and/or stored at a home or residential dwelling;
 - d. Displaying, selling, or serving food outside of the mobile food unit;
 - e. Altering the mobile food unit is such a matter that would prevent or otherwise reduce ready mobility;
 - f. Blocking public right-of-way, a dedicated fire lane, or a public sidewalk;
 - g. Creating/operating a drive-thru in conjunction with the mobile food unit;
 - h. Allowing items such as brooms, hoses, equipment, containers or boxes to be located adjacent to or beneath the mobile food unit;
 - i. Providing or allowing signs or banners not attached to and solely supported by the mobile food unit to be set up at the serving area;
 - j. Allowing trash or debris at the site of the mobile food unit during operation, and leaving the site with trash or debris following operation;
 - k. Allowing any audio speakers or amplification devices to be heard outside of the mobile food unit; or
 - l. Allowing outside furniture such as tables or chairs, to be set up adjacent to the mobile food unit.
- (5) MFU may only operate from 7:00 a.m. to 10:00 p.m., except for events with extended hours as may be expressly authorized via application and approved by the City.
- (6) MFU may not vend from the second lane of traffic, and may not double park or impede traffic.

Sec. 35-315. Mobile Food Unit operating at a Type C Recurring Special Event

In addition to the regulations contained within this Article, the following actions are conditions and regulations of a Mobile Food Unit operating at a Type C Recurring Special Event, as regulated by Chapter 35, Article XII, Special Events.

- (1) Mobile Food Units must have a current health license and inspections issued through the City. Only Mobile Food Units that have a current City inspection and current City medallion will be permitted to operate for a Type C Recurring Special Event.
- (2) Mobile food units must be readily moveable at all times. Altering the mobile food unit is such a matter that would prevent or otherwise reduce ready mobility is prohibited.
- (3) Mobile Food Units may only operate from ~~sunrise until sunset~~ 7:00 a.m. to 10:00 p.m., except for events with extended hours approved by the City with a special event permit.
- (4) Mobile Food Trucks may not vend from the second lane of traffic, and may not double park or impede traffic.
- (5) No water, wastewater, electricity, or utility connection/hookups permitted. Mobile Food Units must have self-contained operations.
- (6) There shall be no overnight parking or operation.
- (7) Mobile Food Units shall only operate on approved surfaces (concrete, asphalt, or crushed gravel). Food vendors may not operate on grass.
- (8) Temporary Food Establishments may not be permitted via a Type C Recurring Special Event.

Sec. 35-316. Temporary food establishment

Temporary food establishments are prohibited. There shall be an exception for the following:

- (1) City events;
- (2) City approved or sponsored events; and
- (3) Private events (where admission is not open to the general public) on private property

The following requirements shall apply to a temporary food establishment vendor that are specifically permitted under this article:

- (1) Every temporary food establishment vendor must have a current valid health permit. Permits are nontransferable. Multiple vendors may not operate under one health permit.
- (2) Except where only prepackage food is offered, every temporary food establishment must have a handwashing station with warm water, soap, drying device, and a waste water retention basin in used before food preparation begins.
- (3) Except where only prepackaged food is offered, every temporary food establishment must have a three (3) compartment warewashing station, labeled (wash, rinse, sanitize), with basins large enough to accommodate the largest utensil.
- (4) Every temporary food establishment utilizing electricity and/or any type of fire element must have appropriate fire extinguisher. Vendors are not allowed to share.

Sec. 35-317. Basic requirements.

The following requirements shall apply to the mobile food unit vendors and temporary food establishment vendors that are specifically permitted under this article:

- (1) Permitted mobile food unit vendors shall operate only on a temporary basis. Temporary shall mean for eight (8) hours or as long as the city event or city-approved event is ongoing.
- (2) There shall be no water, wastewater or electric hookups to the adjacent property.
- (3) There shall be no overnight parking or operation.
- (4) Vehicles and booths must be marked with the vendor's name.
 - (a) No detachable signage shall be permitted for Mobile Food Units, except for one removable sandwich-board sign displaying product and/or pricing information.
- (5) All stationary mobile food unit vendors and temporary food establishment vendors must set out a trash can for patrons while present and must remove all trash from the premises upon departure. Vendor must not allow trash to spill over and must change out trash bags when trash can is full.
- (6) Vendors may not set up within ~~300~~ 100 yards (measured from MFU service location to restaurant's front entrance) of a restaurant, except with express written consent of the restaurant owner. Vendors must have at least ten (10) feet clearance from any building, structure, vehicle, and any combustible materials. Vendors must not block fire lanes or fire access roads.
- (7) Only employees shall be allowed in food preparation areas. Nonessential persons shall not be within any food service, food preparations, or warewashing areas, including ~~by~~ but not limited to children under the age of 18.

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- (8) All food preparation, processing, and service shall be located in/on an approved surface (concrete, asphalt, or crushed concrete). Food vendors may not operate on grass.
- (9) All vendors must meet minimum food safety standards, including
- a. A supervisory person, who has a current valid food manager certificate, must be onsite at all times.
 - b. All food ingredients must be from an approved source, in sound condition, and must be properly stored ~~six~~ (6) inches off the ground.
 - c. A small diameter probe metal thermometer must be provided and all food must be stored at property temperatures.
 - i. Cold Food Holding shall not exceed 41 degrees Fahrenheit
 - ii. Hot Food Holding shall not be less than 135 degrees Fahrenheit
 - d. All employees must wear hand protection and hair restraints when in food preparation/serving areas.
 - e. Only single use articles may be provided for use by the consumer.
 - f. All vendors in service for longer than two (2) hours must have access to a toilet facility.
- (10) The city manager is authorized to sponsor and approve events on behalf of the city. In considering approval or sponsorship for the event, the city manager shall consider the following:
- a. The nature of the event, which must be open to the general public;
 - b. Whether the organizers are in compliance with all city, county and state laws and regulations;
 - c. Whether the organizers have the means, personnel, volunteers, and resources to have a successful event;
 - d. Past history of events by the requesting organization, or similar events by other organizations, and whether there were any health, safety, or sanitation issues; and
 - e. Such other characteristics of the event, including time of year, that may place a burden on city or local law enforcement or first responders.

(Ord. No. 2018-O-52, § 2, 1-22-2019)

Sec. 35-318. Permits and health requirements.

The following requirements shall apply to the mobile food vendors that are specifically allowed under this article:

- (1) *Health Permit.*
- a. All mobile food units, mobile and stationary, must obtain a permit from the city. Each permit will be issued unit-by-unit only after an inspection reveals satisfactory compliance with state law and this article, as applicable. Mobile food unit permits are non-transferable. A change of ownership of a MFU, including a change of legal form of the entity, shall require submission of a new application for a mobile food unit health permit and inspections. A mobile food unit health permit shall become void upon the closing of the sale of the MFU for which a permit was issued. Such permits shall remain the property of the city. Permit fees shall be as prescribed by the city council.

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- b. All temporary food establishment vendors, must obtain a permit from the city. Each permit will be issued vendor-by-vendor and may serve only after an inspection reveals satisfactory compliance with state law and this article, as applicable. Such permits shall remain the property of the city. Permit fees shall be as prescribed by the city council.
 - c. No person shall operate or cause to be operated any mobile food unit (mobile or stationary) or temporary food establishment which does not possess a valid health permit issued by the city. Any person, firm, or establishment who is found to have operated or caused operation without a valid health permit shall be deemed guilty of a misdemeanor and shall, upon conviction by a court of competent jurisdiction, be assessed fines or other punishment as provided by this Code.
 - c. Such permit shall be posted in a conspicuous place where it can be viewed by patrons and shall not be removed or defaced. A health permit issued to a Mobile Food Unit shall be affixed to the truck by the code enforcement officer/health officer. A permit shall set forth the business name, license plate number, mobile food unit license number, and expiration date for said license.
 - d. Every food truck must be readily identifiable by its business name and phone number that are printed, permanently affixed, and prominently displayed on the back of the unit and on the side of the unit from which food is served, in letters not less than three (3) inches in height.
 - e. Sidewalk stands, where allowed by this article, are exempt from permit requirements.
- (2) *Health regulations.* All vendors must obey and be in compliance with all state, county and city health laws and regulations. Compliance with these laws shall be a part of the city permit process.
 - (3) *Food preparation.* No food may be stored or prepared at any location except on the MFU or at the temporary food establishment, in a licensed commissary, or permitted central processing facility as listed on the application submitted for the health permit. Food preparation may not be conducted on MFU while vehicle is in motion.
 - (4) *Fire Marshals' Office and Vehicle inspections.*
 - a. All mobile vendors must have a City of Manvel Fire Marshal's Office current, passed fire inspection that complies with CODE OF ORDINANCES CITY OF MANVEL, TEXAS, Chapter 17 - BUILDINGS AND BUILDING REGULATIONS, DIVISION 8. - FIRE CODE, Sec. 17-243. - Mobile food units of the as adopted by City of Manvel.
 - b. All mobile vendors must pass a vehicle inspection from the fire marshal's office as part of the city permit process. All vendors must obey and be in compliance with the fire code and all other city codes.
 - (5) *Administrative rules.* The city manager or designee shall promulgate rules and regulations to administer the provisions of this article. Such rules and regulations shall not conflict with any applicable provisions of this Code. All rules and regulations so promulgated shall be kept on file for public inspection at the office of the city secretary. A copy of the rules and regulations shall be provided to any person upon payment of the fees prescribed by law.
 - (6) *Violation.* Anyone who intentionally, willfully, recklessly, or with criminal negligence violates this article shall, upon conviction, be guilty of a misdemeanor and shall be assessed fines or other punishment as provided by this Code.
 - (7) *Revocation of health permit.* In addition to the imposition of a criminal penalty, the failure to comply with any of the provisions of this article, or any of the promulgated rules or regulations established thereunder, shall be grounds for the revocation or suspension of the permit, or the refusal to issue or renew any permit required under this Code. If requested by the permittee in writing within seven business days of notice of revocation, the city manager or designee shall hear the cause for

revocation/suspension/non-renewal and determine whether the grounds for such action are justified. The city manager's (or designee's) decision shall be final. The revocation or suspension of any permit shall not prohibit the imposition of a criminal penalty, and the imposition of a criminal penalty shall not prevent the revocation or suspension of a license under this article.

ARTICLE X. MOBILE AND TEMPORARY FOOD VENDORS

Sec. 35-310. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Central Preparation Facility means a facility that is an approved and permitted retail food establishment at which food is prepared, stored, and wrapped; and the Mobile Food Unit is supplied with fresh water and ice; and emptied of wastewater into a proper waste disposal system, and cleaned, including washing, rinsing, and sanitizing of those food-contact surfaces or items not capable of being immersed in the Mobile Food Unit utensil-washing sink. A private residence used as a Central Preparation Facility is prohibited.

Commissary means a licensed and approved location that contains a servicing area and may contain a central preparation facility. Serves may include but are not limited to disposal of waste water, filling of water tank(s), and cleaning equipment.

Food hand cart means a food or drink vending station operating from a non-mechanical, movable cart that is pushed or pulled from one location to the next by hand (e.g. hot dog cart).

Mobile Food Unit (food truck, MFU) means a food or drink vending station operating from a mechanical vehicle or pulled trailer at a fixed location (e.g. taco truck).

Mobile food vendor means any person or entity engaged in selling or serving food or drink from a booth or cart, including, but not limited to, operating any of the following:

- (1) Sidewalk stand; or
- (2) Food hand cart.

Private events mean any event that is on private property, where admission is closed to the general public and where access and view to the general public is limited, including but not limited to a wedding or family event.

Restaurant means a business entity whose primary use is the ability for the general public to pay to sit and eat meals or take-out meals that are cooked and served on the premises. The term restaurant does not include grocery stores, convenience stores, day cares, public or private schools, churches, nonprofit entities, or businesses not generally open for public access.

Sidewalk stand means a drink vending station operating from a non-mechanical booth or stand on or near the sidewalk or in the city right-of-way operated by a person under the age of 18, who only offers lemonade (e.g. lemonade stand).

Temporary food establishment means a food establishment that operates for a period of no more than ten (10) consecutive days in conjunction with a single event or celebration. This may include a stand or a booth.

Sec. 35-311. General prohibition.

Except where specifically authorized by this article, mobile food vendors of any type are expressly prohibited.

Sec. 35-312. Sidewalk stand.

Sidewalk stands are prohibited. There shall be an exception for temporary lemonade sidewalk stands operated by juveniles, which may be operated without a permit for a single period of up to eight hours, limited to one period within one calendar month.

Sec. 35-313. Food hand cart.

Food hand carts are prohibited. There shall be an exception for temporary operation for the following:

- (1) City events;
- (2) City approved Special Events; and
- (3) Private events (where admission is not open to the general public) on private property.

Sec. 35-314. Mobile Food Unit (food trucks).

Mobile Food Units (food trucks) are prohibited. There shall be an exception for temporary operation for the following:

- (1) City events;
- (2) City approved Special Events;
- (3) Private events (where admission is not open to the general public) on private property; and
- (4) City approved Type C Recurring Special Events.

The following requirements shall apply to a mobile food units that are specifically permitted under this article:

- (1) Mobile Food Units must have current valid health license and inspections with the City.
- (2) MFUs must be equipped with the following
 - a. Portable fire extinguishers shall be selected and installed in accordance with NFPA10, International Fire Code (IFC) Section 906, and as adopted and amended by the City of Manvel, as amended from time to time. A minimum of one Class ABC fire extinguisher shall be provided for all mobile food preparation vehicles in accordance with Section 906, as well as a Class K extinguisher that is sized as per Section 906.4 when cooking equipment involves solid fuels or vegetable/animal oils or fats. All fire extinguishers must have a current inspection/service tag from a licensed fire extinguishing company.
 - b. A Type 1 hood installed where cooking operation produce grease-laden vapors, smoke residue, or involve combustible cooking media (vegetable or animal oils and fats).
- (3) Inspection of mobile food units. At the time of the inspection, the mobile food unit shall be completely operable and in full working order.
- (4) Miscellaneous offenses. In addition to the regulations contained above, the following actions are prohibited by mobile food unit operators:
 - a. Operating without a valid servicing record or commissary receipt which must be kept within the mobile food unit at all times;
 - b. Selling or offering for sale non-food items from the mobile food unit;

-
- c. Storing or preparing food outside of the mobile food unit (except in a licensed central preparation facility), including but not limited to food prepared and/or stored at a home or residential dwelling;
 - d. Displaying, selling, or serving food outside of the mobile food unit;
 - e. Altering the mobile food unit is such a matter that would prevent or otherwise reduce ready mobility;
 - f. Blocking public right-of-way, a dedicated fire lane, or a public sidewalk;
 - g. Creating/operating a drive-thru in conjunction with the mobile food unit;
 - h. Allowing items such as brooms, hoses, equipment, containers or boxes to be located adjacent to or beneath the mobile food unit;
 - i. Providing or allowing signs or banners not attached to and solely supported by the mobile food unit to be set up at the serving area;
 - j. Allowing trash or debris at the site of the mobile food unit during operation, and leaving the site with trash or debris following operation;
 - k. Allowing any audio speakers or amplification devices to be heard outside of the mobile food unit; or
 - l. Allowing outside furniture such as tables or chairs, to be set up adjacent to the mobile food unit.
- (5) MFU may only operate from 7:00 a.m. to 10:00 p.m., except for events with extended hours as may be expressly authorized via application and approved by the City.
- (6) MFU may not vend from the second lane of traffic, and may not double park or impede traffic.

Sec. 35-315. Mobile Food Unit operating at a Type C Recurring Special Event

In addition to the regulations contained within this Article, the following actions are conditions and regulations of a Mobile Food Unit operating at a Type C Recurring Special Event, as regulated by Chapter 35, Article XII, Special Events.

- (1) Mobile Food Units must have a current health license and inspections issued through the City. Only Mobile Food Units that have a current City inspection and current City medallion will be permitted to operate for a Type C Recurring Special Event.
- (2) Mobile food units must be readily moveable at all times. Altering the mobile food unit is such a matter that would prevent or otherwise reduce ready mobility is prohibited.
- (3) Mobile Food Units may only operate from 7:00 a.m. to 10:00 p.m., except for events with extended hours approved by the City with a special event permit.
- (4) Mobile Food Trucks may not vend from the second lane of traffic, and may not double park or impede traffic.
- (5) No water, wastewater, electricity, or utility connection/hookups permitted. Mobile Food Units must have self-contained operations.
- (6) There shall be no overnight parking or operation.
- (7) Mobile Food Units shall only operate on approved surfaces (concrete, asphalt, or crushed gravel). Food vendors may not operate on grass.
- (8) Temporary Food Establishments may not be permitted via a Type C Recurring Special Event.

Sec. 35-316. Temporary food establishment

Temporary food establishments are prohibited. There shall be an exception for the following:

- (1) City events;
- (2) City approved or sponsored events; and
- (3) Private events (where admission is not open to the general public) on private property

The following requirements shall apply to a temporary food establishment vendor that are specifically permitted under this article:

- (1) Every temporary food establishment vendor must have a current valid health permit. Permits are nontransferable. Multiple vendors may not operate under one health permit.
- (2) Except where only prepackage food is offered, every temporary food establishment must have a handwashing station with warm water, soap, drying device, and a waste water retention basin in used before food preparation begins.
- (3) Except where only prepackaged food is offered, every temporary food establishment must have a three (3) compartment warewashing station, labeled (wash, rinse, sanitize), with basins large enough to accommodate the largest utensil.
- (4) Every temporary food establishment utilizing electricity and/or any type of fire element must have appropriate fire extinguisher. Vendors are not allowed to share.

Sec. 35-317. Basic requirements.

The following requirements shall apply to the mobile food unit vendors and temporary food establishment vendors that are specifically permitted under this article:

- (1) Permitted mobile food unit vendors shall operate only on a temporary basis. Temporary shall mean for eight (8) hours or as long as the city event or city-approved event is ongoing.
- (2) There shall be no water, wastewater or electric hookups to the adjacent property.
- (3) There shall be no overnight parking or operation.
- (4) Vehicles and booths must be marked with the vendor's name.
 - (a) No detachable signage shall be permitted for Mobile Food Units, except for one removable sandwich-board sign displaying product and/or pricing information.
- (5) All stationary mobile food unit vendors and temporary food establishment vendors must set out a trash can for patrons while present and must remove all trash from the premises upon departure. Vendor must not allow trash to spill over and must change out trash bags when trash can is full.
- (6) Vendors may not set up within 100 yards (measured from MFU service location to restaurant's front entrance) of a restaurant, except with express written consent of the restaurant owner. Vendors must have at least ten (10) feet clearance from any building, structure, vehicle, and any combustible materials. Vendors must not block fire lanes or fire access roads.
- (7) Only employees shall be allowed in food preparation areas. Nonessential persons shall not be within any food service, food preparations, or warewashing areas, including but not limited to children under the age of 18.

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- (8) All food preparation, processing, and service shall be located in/on an approved surface (concrete, asphalt, or crushed concrete). Food vendors may not operate on grass.
- (9) All vendors must meet minimum food safety standards, including
- a. A supervisory person, who has a current valid food manager certificate, must be onsite at all times.
 - b. All food ingredients must be from an approved source, in sound condition, and must be properly stored ~~six~~ (6) inches off the ground.
 - c. A small diameter probe metal thermometer must be provided and all food must be stored at property temperatures.
 - i. Cold Food Holding shall not exceed 41 degrees Fahrenheit
 - ii. Hot Food Holding shall not be less than 135 degrees Fahrenheit
 - d. All employees must wear hand protection and hair restraints when in food preparation/serving areas.
 - e. Only single use articles may be provided for use by the consumer.
 - f. All vendors in service for longer than two (2) hours must have access to a toilet facility.
- (10) The city manager is authorized to sponsor and approve events on behalf of the city. In considering approval or sponsorship for the event, the city manager shall consider the following:
- a. The nature of the event, which must be open to the general public;
 - b. Whether the organizers are in compliance with all city, county and state laws and regulations;
 - c. Whether the organizers have the means, personnel, volunteers, and resources to have a successful event;
 - d. Past history of events by the requesting organization, or similar events by other organizations, and whether there were any health, safety, or sanitation issues; and
 - e. Such other characteristics of the event, including time of year, that may place a burden on city or local law enforcement or first responders.

(Ord. No. 2018-O-52, § 2, 1-22-2019)

Sec. 35-318. Permits and health requirements.

The following requirements shall apply to the mobile food vendors that are specifically allowed under this article:

- (1) *Health Permit.*
- a. All mobile food units, mobile and stationary, must obtain a permit from the city. Each permit will be issued unit-by-unit only after an inspection reveals satisfactory compliance with state law and this article, as applicable. Mobile food unit permits are non-transferable. A change of ownership of a MFU, including a change of legal form of the entity, shall require submission of a new application for a mobile food unit health permit and inspections. A mobile food unit health permit shall become void upon the closing of the sale of the MFU for which a permit was issued. Such permits shall remain the property of the city. Permit fees shall be as prescribed by the city council.

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- b. All temporary food establishment vendors, must obtain a permit from the city. Each permit will be issued vendor-by-vendor and may serve only after an inspection reveals satisfactory compliance with state law and this article, as applicable. Such permits shall remain the property of the city. Permit fees shall be as prescribed by the city council.
 - c. No person shall operate or cause to be operated any mobile food unit (mobile or stationary) or temporary food establishment which does not possess a valid health permit issued by the city. Any person, firm, or establishment who is found to have operated or caused operation without a valid health permit shall be deemed guilty of a misdemeanor and shall, upon conviction by a court of competent jurisdiction, be assessed fines or other punishment as provided by this Code.
 - c. Such permit shall be posted in a conspicuous place where it can be viewed by patrons and shall not be removed or defaced. A health permit issued to a Mobile Food Unit shall be affixed to the truck by the code enforcement officer/health officer. A permit shall set forth the business name, license plate number, mobile food unit license number, and expiration date for said license.
 - d. Every food truck must be readily identifiable by its business name and phone number that are printed, permanently affixed, and prominently displayed on the back of the unit and on the side of the unit from which food is served, in letters not less than three (3) inches in height.
 - e. Sidewalk stands, where allowed by this article, are exempt from permit requirements.
- (2) *Health regulations.* All vendors must obey and be in compliance with all state, county and city health laws and regulations. Compliance with these laws shall be a part of the city permit process.
 - (3) *Food preparation.* No food may be stored or prepared at any location except on the MFU or at the temporary food establishment, in a licensed commissary, or permitted central processing facility as listed on the application submitted for the health permit. Food preparation may not be conducted on MFU while vehicle is in motion.
 - (4) *Fire Marshals' Office and Vehicle inspections.*
 - a. All mobile vendors must have a City of Manvel Fire Marshal's Office current, passed fire inspection that complies with CODE OF ORDINANCES CITY OF MANVEL, TEXAS, Chapter 17 - BUILDINGS AND BUILDING REGULATIONS, DIVISION 8. - FIRE CODE, Sec. 17-243. - Mobile food units of the as adopted by City of Manvel.
 - b. All mobile vendors must pass a vehicle inspection from the fire marshal's office as part of the city permit process. All vendors must obey and be in compliance with the fire code and all other city codes.
 - (5) *Administrative rules.* The city manager or designee shall promulgate rules and regulations to administer the provisions of this article. Such rules and regulations shall not conflict with any applicable provisions of this Code. All rules and regulations so promulgated shall be kept on file for public inspection at the office of the city secretary. A copy of the rules and regulations shall be provided to any person upon payment of the fees prescribed by law.
 - (6) *Violation.* Anyone who intentionally, willfully, recklessly, or with criminal negligence violates this article shall, upon conviction, be guilty of a misdemeanor and shall be assessed fines or other punishment as provided by this Code.
 - (7) *Revocation of health permit.* In addition to the imposition of a criminal penalty, the failure to comply with any of the provisions of this article, or any of the promulgated rules or regulations established thereunder, shall be grounds for the revocation or suspension of the permit, or the refusal to issue or renew any permit required under this Code. If requested by the permittee in writing within seven business days of notice of revocation, the city manager or designee shall hear the cause for

revocation/suspension/non-renewal and determine whether the grounds for such action are justified. The city manager's (or designee's) decision shall be final. The revocation or suspension of any permit shall not prohibit the imposition of a criminal penalty, and the imposition of a criminal penalty shall not prevent the revocation or suspension of a license under this article.

ORDINANCE NO. 2023-O-16

AN ORDINANCE AMENDING CHAPTER 35 “LICENSES AND SPECIAL BUSINESS REGULATIONS” OF THE CODE OF ORDINANCES OF THE CITY OF MANVEL, TEXAS, BY AMENDING ARTICLE X “MOBILE FOOD VENDORS” TO CHANGE THE MINIMUM DISTANCE REQUIREMENT BETWEEN A MOBILE FOOD UNIT/TEMPORARY FOOD ESTABLISHMENT FROM 300 TO 100 YARDS AND ADD TWO REQUIREMENTS TO FOOD TRUCK OPERATIONS; REPEALING PROVISIONS IN CONFLICT THEREWITH; PROVIDING A PENALTY IN AN AMOUNT NOT TO EXCEED \$2,000.00 PER DAY FOR EACH DAY OF VIOLATION OF ANY PROVISION HEREOF; AND PROVIDING FOR SEVERABILITY.

WHEREAS, the City Council of the City of Manvel, Texas, determines it in the best interest of the health, safety, and welfare of the citizens of the City to amend Chapter 35, *Licenses and Special Business Regulations* of the City Code by amending Article X regulating mobile food vendors to change the minimum distance requirement from 300 to 100 yards between a mobile food unit (food truck)/temporary food establishment and a restaurant, add two requirements to food truck operations, and correct typos; and

WHEREAS, the City Council finds that the adoption of this ordinance is in the best interest of the citizens of Manvel; now, therefore,

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF MANVEL, TEXAS:

Section 1. The facts and matters set forth in the preamble of this Ordinance are hereby found to be true and correct.

Section 2. Chapter 35. *Licenses and Special Business Regulations* of the Code of Ordinances of the City of Manvel is hereby amended by amending Article X. *Mobile and Temporary Food Vendors* to read and provide as follows:

“Chapter 35 - LICENSES AND SPECIAL BUSINESS REGULATIONS

....

ARTICLE X. – MOBILE AND TEMPORARY FOOD VENDORS

...

Sec. 35-310. Definitions.

The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

Central Preparation Facility means a facility that is an approved and permitted retail food establishment at which food is prepared, stored, and wrapped; and the Mobile Food Unit is supplied with fresh water and ice; and emptied of wastewater into a proper waste disposal system, and cleaned, including washing, rinsing, and sanitizing of those food-contact surfaces or items not capable of being immersed in the Mobile Food Unit utensil-washing sink. A private residence used as a Central Preparation Facility is prohibited.

Commissary means a licensed and approved location that contains a servicing area and may contain a central preparation facility. Serves may include but are not limited to disposal of waste water, filling of water tank(s), and cleaning equipment.

Food hand cart means a food or drink vending station operating from a non-mechanical, movable cart that is pushed or pulled from one location to the next by hand (*e.g.* hot dog cart).

Mobile Food Unit (food truck, MFU) means a food or drink vending station operating from a mechanical vehicle or pulled trailer at a fixed location (*e.g.* taco truck).

Mobile food vendor means any person or entity engaged in selling or serving food or drink from a booth or cart, including, but not limited to, operating any of the following:

- (1) Sidewalk stand; or
- (2) Food hand cart.

Private events mean any event that is on private property, where admission is closed to the general public and where access and view to the general public is limited, including but not limited to a wedding or family event.

Restaurant means a business entity whose primary use is the ability for the general public to pay to sit and eat meals or take-out meals that are cooked and served on the premises. The term

restaurant does not include grocery stores, convenience stores, day cares, public or private schools, churches, nonprofit entities, or businesses not generally open for public access.

Sidewalk stand means a drink vending station operating from a non-mechanical booth or stand on or near the sidewalk or in the city right-of-way operated by a person under the age of 18, who only offers lemonade (e.g. lemonade stand).

Temporary food establishment means a food establishment that operates for a period of no more than ten (10) consecutive days in conjunction with a single event or celebration. This may include a stand or a booth.

...

Sec. 35-314. Mobile Food Unit (food trucks).

Mobile Food Units (food trucks) are prohibited. There shall be an exception for temporary operation for the following:

- (1) City events;
- (2) City approved Special Events;
- (3) Private events (where admission is not open to the general public) on private property; and
- (4) City approved Type C Recurring Special Events.

The following requirements shall apply to a mobile food units that are specifically permitted under this article:

- (1) Mobile Food Units must have current valid health license and inspections with the City.
- (2) MFUs must be equipped with the following
 - a. Portable fire extinguishers shall be selected and installed in accordance with NFPA10, International Fire Code (IFC) Section 906, and as adopted and amended by the City of Manvel, as amended from time to time. A minimum of one Class ABC fire extinguisher shall be provided for all mobile food preparation vehicles in accordance with Section 906, as well as a Class K extinguisher that is sized as per Section 906.4 when cooking equipment involves solid fuels or vegetable/animal oils or fats. All fire extinguishers must have a current inspection/service tag from a licensed fire extinguishing company.
 - b. A Type 1 hood installed where cooking operation produce grease-laden vapors, smoke residue, or involve combustible cooking media (vegetable or animal oils and fats).
- (3) Inspection of mobile food units. At the time of the inspection, the mobile food unit shall be completely operable and in full working order.
- (4) Miscellaneous offenses. In addition to the regulations contained above, the following actions are prohibited by mobile food unit operators:

- a. Operating without a valid servicing record or commissary receipt which must be kept within the mobile food unit at all times;
 - b. Selling or offering for sale non-food items from the mobile food unit;
 - c. Storing or preparing food outside of the mobile food unit (except in a licensed central preparation facility), including but not limited to food prepared and/or stored at a home or residential dwelling;
 - d. Displaying, selling, or serving food outside of the mobile food unit;
 - e. Altering the mobile food unit is such a matter that would prevent or otherwise reduce ready mobility;
 - f. Blocking public right-of-way, a dedicated fire lane, or a public sidewalk;
 - g. Creating/operating a drive-thru in conjunction with the mobile food unit;
 - h. Allowing items such as brooms, hoses, equipment, containers or boxes to be located adjacent to or beneath the mobile food unit;
 - i. Providing or allowing signs or banners not attached to and solely supported by the mobile food unit to be set up at the serving area;
 - j. Allowing trash or debris at the site of the mobile food unit during operation, and leaving the site with trash or debris following operation;
 - k. Allowing any audio speakers or amplification devices to be heard outside of the mobile food unit; or
 - l. Allowing outside furniture such as tables or chairs, to be set up adjacent to the mobile food unit.
- (5) MFU may only operate from sunrise until sunset, except for events with extended hours as may be expressly authorized via application and approved by the City.
- (6) MFU may not vend from the second lane of traffic, and may not double park or impede traffic.

...

Sec. 35-315. Mobile Food Unit operating at a Type C Recurring Special Event.

In addition to the regulations contained within this Article, the following actions are conditions and regulations of a Mobile Food Unit operating at a Type C Recurring Special Event, as regulated by Chapter 35, Article XII, Special Events.

- (1) Mobile Food Units must have a current health license and inspections issued through the City. Only Mobile Food Units that have a current City inspection and current City medallion will be permitted to operate for a Type C Recurring Special Event.
- (2) Mobile food units must be readily moveable at all times. Altering the mobile food unit is such a matter that would prevent or otherwise reduce ready mobility is prohibited.

- (3) Mobile Food Units may only operate from ~~[sunrise until sunset]~~ 7:00 a.m. to 10:00 p.m., except for events with extended hours approved by the City with a special event permit.
- (4) Mobile Food Trucks may not vend from the second lane of traffic, and may not double park or impede traffic.
- (5) No water, wastewater, electricity, or utility connection/hookups permitted. Mobile Food Units must have self-contained operations.
- (6) There shall be no overnight parking or operation.
- (7) Mobile Food Units shall only operate on approved surfaces (concrete, asphalt, or crushed gravel). Food vendors may not operate on grass.
- (8) Temporary Food Establishments may not be permitted via a Type C Recurring Special Event.

...

Sec. 35-317. Basic requirements.

The following requirements shall apply to the mobile food unit vendors and temporary food establishment vendors that are specifically permitted under this article:

- (1) Permitted mobile food unit vendors shall operate only on a temporary basis. Temporary shall mean for eight (8) hours or as long as the city event or city-approved event is ongoing.
- (2) There shall be no water, wastewater or electric hookups to the adjacent property.
- (3) There shall be no overnight parking or operation.
- (4) Vehicles and booths must be marked with the vendor's name. No detachable signage shall be permitted for mobile food units, except for one removable sandwich-board sign displaying product and/or pricing information.
- (5) All stationary mobile food unit vendors and temporary food establishment vendors must set out a trash can for patrons while present and must remove all trash from the premises upon departure. Vendor must not allow trash to spill over and must change out trash bags when trash can is full.
- (6) Vendors may not set up within ~~[300]~~ 100 yards (measured from MFU service location to restaurant's front entrance) of a restaurant, except with express written consent of the restaurant owner. Vendors must have at least ten feet clearance from any building, structure, vehicle, and any combustible materials. Vendors must not block fire lanes or fire access roads.
- (7) Only employees shall be allowed in food preparation areas. Nonessential persons shall not be within any food service, food preparations, or warewashing areas, including ~~[by]~~ but not limited to children under the age of 18.

- (8) All food preparation, processing, and service shall be located in/on an approved surface (concrete, asphalt, or crushed gravel). Food vendors may not operate on grass.
- (9) All vendors must meet minimum food safety standards, including
- a. A supervisory person, who has a current valid food manager certificate, must be onsite at all times.
 - b. All food ingredients must be from an approved source, in sound condition, and must be properly stored six inches off the ground.
 - c. A small diameter probe metal thermometer must be provided and all food must be stored at property temperatures.
 - 1. Cold food holding shall not exceed 41 degrees Fahrenheit.
 - 2. Hot food holding shall not be less than 135 degrees Fahrenheit.
 - d. All employees must wear hand protection and hair restraints when in food preparation/serving areas.
 - e. Only single use articles may be provided for use by the consumer.
 - f. All vendors in service for longer than two hours must have access to a toilet facility.
- (10) The city manager is authorized to sponsor and approve events on behalf of the city. In considering approval or sponsorship for the event, the city manager shall consider the following:
- a. The nature of the event, which must be open to the general public;
 - b. Whether the organizers are in compliance with all city, county and state laws and regulations;
 - c. Whether the organizers have the means, personnel, volunteers, and resources to have a successful event;
 - d. Past history of events by the requesting organization, or similar events by other organizations, and whether there were any health, safety, or sanitation issues; and
 - e. Such other characteristics of the event, including time of year, that may place a burden on city or local law enforcement or first responders.

...

Secs. 35-319—35-329. Reserved.”

Section 3. This Ordinance shall in no manner amend, change, supplement, or revise any provision of any ordinance of the City of Manvel, save and except the change described above.

Section 4. **Repealer.** All ordinances or parts of ordinances inconsistent or in conflict herewith, are, to the extent of such inconsistency or conflict, hereby repealed.

Section 5. **Severability.** In the event any clause, phrase, provision, sentence, or part of this Ordinance or the application of the same to any person or circumstance shall for any reason be adjudged invalid or held unconstitutional by a court of competent jurisdiction, it shall not affect, impair, or invalidate this Ordinance as a whole or any part or provision hereof other than the part declared to be invalid or unconstitutional; and the City Council of the City of Manvel, Texas, declares that it would have passed each and every part of the same notwithstanding the omission of any such part thus declared to be invalid or unconstitutional, whether there be one or more parts.

Section 5. Any person who shall intentionally, knowingly, recklessly, or with criminal negligence violate any provision of this Ordinance shall be deemed guilty of a misdemeanor and upon conviction, shall be fined in an amount not to exceed \$2,000.00. Each day of violation shall constitute a separate offense.

PASSED AND APPROVED on first reading this the _____ day of _____, 2023.

PASSED, APPROVED, AND ADOPTED on second and final reading this the _____ day of _____, 2023.

Debra Davison, Mayor

Attest:

Tammy Bell, City Secretary

Approved as to Form:

Robert Gervais, City Attorney



City of Manvel

P. O. Box 187
20025 HWY 6
Manvel, Texas 77578

(281) 489-0630
Fax (281) 489-0634

AGENDA REQUEST

REQUEST MUST BE MADE ACCORDING TO THE SUBMITTAL SCHEDULE

Meeting Requested: (Please check applicable meeting)

Planning, Development & Zoning	☐	City Council	☐	Both	☒
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Date of Request: April 10, 2023 PDZ & April 17, 2023 CC

YOUR REQUEST WILL BE PLACED ON THE NEXT AVAILABLE MEETING DATE. MEETINGS ARE SECOND AND FOURTH MONDAYS FOR PLANNING, DEVELOPMENT & ZONING AND FIRST AND THIRD MONDAYS FOR CITY COUNCIL. THE AGENDAS ARE POSTED TO THE GENERAL PUBLIC AT MANVEL CITY HALL AND ON OUR WEBSITE AT www.cityofmanvel.com. THE AGENDA IS POSTED AND WILL REMAIN POSTED CONTINUOUSLY FOR AT LEAST 72 HOURS PRECEDING THE SCHEDULED TIME OF THE MEETING. PLEASE CHECK THE BOARD FOR YOUR MEETING SCHEDULE. WE STRONGLY ENCOURAGE YOU TO ATTEND THE MEETING FOR QUESTIONS AND ANSWERS. IF YOU ARE UNABLE TO ATTEND ACTION MAY BE TABLED UNTIL THE FOLLOWING MEETING.

Person to Speak: Brad Sweitzer

Daytime Phone: 713-784-4500 Fax Number: N/A

E-mail Address: bsweitzer@ehrainc.com

Description of Request and Physical Address:

Consideration and possible action to approve Master Plan for Avellino, being a
Subdivision of 49.58 acres out of the H.T. & B.R.R. Co. Survey, Section 71, A-291,
Brazoria County, Texas and also being a partial replat of the Emigration Land
Company Subdivison as recorded in Vol. 2, Pg. 81-82, B.C.P.R.

Plats:

Preliminary _____

Final _____

ALL DOCUMENTATION AND FEES ASSOCIATED WITH THIS AGENDA REQUEST MUST BE SUBMITTED ACCORDING TO THE MEETING SUBMITTAL SCHEDULE WHICH CAN BE FOUND ON OUR WEBSITE. BY SIGNING THIS AGENDA REQUEST FORM I ACKNOWLEDGE THAT I HAVE READ AND UNDERSTAND THIS AGENDA REQUEST FORM.

Brad Sweitzer

SIGNATURE

3/13/23

DATE



DEVELOPMENT SERVICES DEPARTMENT

20025 Highway 6, Manvel, TX 77578 | Ph: 281-489-0630

FINAL REPORT TO CITY COUNCIL **PLAT APPLICATION**

Plat Name:	Avellino - Master Plan
Applicant:	Brad Sweitzer - EHRA Engineering
PD&Z Meeting Date:	April 10, 2023
City Council Meeting Date:	April 17, 2023
Submitted By:	Jose Abraham, City Planner
Report Approved by:	Dan Johnson, Assistant City Manager/ City Engineer Jessica Rodriquez, Director of Development Services
Recommendation:	<u>Denial</u>

BACKGROUND/ REVIEW NOTES

- *This proposed plat is a Master Plan for Avellino which is located along the southern side of Rodeo Palms Parkway abutting Foxtail Palms Subdivision to the east. This Master Plan also serves as the Preliminary Plat.*
- *The subject site is located within the City of Manvel ETJ and is part of Brazoria County Municipal Utility District (MUD) No. 47.*
- *The proposed plat subdivides a 49.58-acre tract into 140 residential lots, 13 blocks, and 5 reserves.*
- *Reserve acreage is used for landscaping, open space, recreation, park, utility purposes, lift station, and detention.*
- *The Avellino Section 1 - Preliminary Plat was previously submitted in 2021, however, the application was later withdrawn.*
- *This development will have no on-site sewage facilities because it will be served by the Brazoria County MUD No. 42 wastewater treatment plant. The applicant has not been able to provide an agreement between MUD No. 47 and MUD No. 42 regarding this.*

PLANNING, DEVELOPMENT, AND ZONING COMMISSION RECOMMENDATION

The Planning, Development and Zoning Commission voted zero (0) "Yeas" to seven (7) "Nay" to recommend approval of the *Avellino - Master Plan*, therefore, the Commission is forwarding a recommendation to deny the *Avellino - Master Plan* to the City Council.

STAFF RECOMMENDATION

The City staff recommends denial of this proposed *Avellino - Master Plan*.

continued on next page



DEVELOPMENT SERVICES DEPARTMENT

20025 Highway 6, Manvel, TX 77578 | Ph: 281-489-0630

This plat submittal does not address following deficiencies pertaining to Chapter 62, *Subdivision Ordinance*, *Design Criteria Manual*, and associated *Development Agreement*:

1. Provide a signed copy of any agreement or related document substantiating Note 15 which states that the development will be served by MUD No. 42 (Section 62-1 (3)).

GENERAL NOTES:

- Bearing orientation is based on the Texas State Plane Coordinate System of 1983, South Central Zone as determined by GPS measurements.
- The Coordinates shown hereon are Texas South Central Zone No. 4204 state plane grid coordinates (NAD 83) and may be brought to surface by applying the following scale factor: 1.0
- According to the Federal Emergency Management Agency Flood Insurance Rate Map, Brazoria County, Texas, Community Panel No.480290110K, dated December 30, 2020, the property lies within Zone X.

This flood statement does not imply that the property or structures thereon will be free from flooding or flood damage. On rare occasions floods can and will occur and flood heights may be increased by man-made or natural causes. The location of the flood zone was determined by scaling from said FEMA map. The actual location, as determined by elevation contours, may differ. Edminster, Hinshaw, Russ & Associates, Inc. d/b/a EHRA, assumes no liability as to the accuracy of the location of the flood zone limits. This flood statement shall not create liability on the part of Edminster, Hinshaw, Russ & Associates, Inc. d/b/a EHRA.
- B.C.C.F. Indicates Brazoria County Clerk's File.
B.C.P.R. Indicates Brazoria County Public Records.
B.C.M.U.D. Indicates Brazoria County Municipal Utility District.
O.P.R.R.P. Indicates Official Public Records of Real Property.
B.L. Indicates Building Line.
D.E. Indicates Drainage Easement.
E.T.U. Indicates Extraterritorial Jurisdiction.
M.H. Indicates Manhole.
P.G. Indicates Page.
P.A.E. Indicates Permanent Access Easement.
P.O.B. Indicates Point of Beginning.
P.U.E. Indicates Public Utility Easement.
P.V.T. Indicates Private.
R. Indicates Radius.
R.O.W. Indicates Right-Of-Way.
S.S.E. Indicates Sanitary Sewer Easement.
S.T.M.S.E. Indicates Storm Sewer Easement.
U.E. Indicates Utility Easement.
V.O.L. Indicates Volume.
W.L.E. Indicates Water Line Easement.
X indicates change in street name.
- The property subdivided in the foregoing plat lies in Brazoria County, the City of Manvel, E.T.U. Brazoria County M.U.D. No. 47, Alvin Independent School District, and Brazoria County Drainage District #4.
- Property within the boundaries of this plat and adjacent to any drainage easement, ditch, gully, creek, or natural drainage way shall hereby be restricted to keep such drainage ways and easements clear of fences buildings, plantings, and other obstructions.
- Contour lines shown hereon are based on the NGS Benchmark E 306 being noted hereon.
- Preliminary, this document shall not be recorded for any purpose and shall not be used or viewed or relied upon as a final survey document
- All right-of-way within the boundary of the plat shall be public and shall be maintained by Brazoria County Municipal Utility District No. 47.
- All street pavement within the boundary of the plat will be concrete.
- All streets within the boundary of the plat shall consist of two undivided lanes, except for Avellino Drive and Rodeo Palms Parkway. Avellino Drive and Rodeo Palms Parkway will be four lanes and divided.
- One foot reserve dedicated to the public in fee as a buffer separation between the side or ends of streets where such streets abut adjacent property, the condition of such dedication being that when the adjacent property is subdivided or re-subdivided in a record plat the one foot reserve shall hereupon become vested in the public for right-of-way purposes and the fee title there shall revert to and revest in the dedicators, his heirs, assigns, or successors.
- The 40' wide unimproved roads on the West and East boundary will be fully abandoned prior to any plat recordation within this project.
- This development is subject to the terms and conditions of Interlocal Agreement between Brazoria County and Brazoria County Municipal Utility District No. 47.
- This development will have no on-site sewage facilities because it will be served by the Brazoria County Municipal Utility District No. 42 wastewater treatment plant.
- Reserve B, with an area of 1.46 acres, shall be dedicated to the City of Manvel for park purposes.
- This Master Plan of Avellino also serves as the preliminary plat.
- Approval of the master plan shall expire three years after Council approval, unless within the three-year period, the subdivider has commenced construction of the improvements in the final construction plans approved by the City.

BRAZORIA COUNTY DRAINAGE DISTRICT NO. 4 NOTES:

- Any governmental body for purposes of drainage work may use drainage easements and fee strips provided the DISTRICT is properly notified.
- Permanent structures, including fences and permanent landscaping, shall not be erected in a drainage easement, access easement, or fee strip.
- Maintenance of detention facilities is the sole responsibility of the owner of the property. The DISTRICT will provide maintenance of regional facilities owned and constructed by the DISTRICT, or sub regional facilities constructed by developer(s) for which ownership has been transferred to the DISTRICT with the DISTRICTS approval. The DISTRICT is responsible only for the maintenance of facilities owned by the DISTRICT unless the DISTRICT specifically contracts or agrees to maintain other facilities.
- Contractor shall notify the DISTRICTS Inspector at least forty-eight (48) hours before beginning work and twenty-four (24) hours before placing any concrete.
- The DISTRICTS personnel shall have the right to enter upon the property for inspection at any time during construction or as may be warranted to ensure the detention facility and drainage system are operating properly.
- Appropriate cover for the side slopes, bottom, and maintenance berm shall be established prior to acceptance of the construction by the DISTRICT. At least 95% germination of the grass must be established prior to acceptance of construction by the DISTRICT.
- No building permit shall be issued for any lot within this development until the detention facility has been constructed and approved by the DISTRICT.
- The DISTRICTS approval of the Final Drainage Plan (and Final Plat if required) does not affect the property rights of third parties. The developer is responsible for obtaining and maintaining any and all easements, fee strips, and/or any other rights-of-way across third parties' properties for purposes of moving excess runoff to the DISTRICTS drainage facilities as contemplated by the Final Drainage Plan and Final Plat.
- Drainage Easements shall be used only for the purposes of constructing, operating, maintaining, repairing, replacing, and reconstructing of a drainage facility, and any and all related equipment and facilities together with any and all necessary incidentals and appurtenances thereto in, upon, over, across, and through the Easement Area. The DISTRICT'S successors, assigns, agents, employees, workmen, and representatives shall at all present and future times, have the right and privilege of ingress and egress in, upon, over, across, and through the Easement Area.
- Access Easements shall be used for ingress and egress to the DISTRICTS drainage facilities and shall be kept clear of any and all obstructions.
- An As-Built Certificate and As-Built Survey are required to be submitted to the DISTRICT before a Certificate of Compliance can be issued. Contract the DISTRICT'S Inspector for further clarification.
- All drainage plans and plats shall be conformance with the DISTRICTS Rules, Regulations & Guidelines. Board approval of a drainage plan or plat does not constitute permission to deviate. Deviation from the DISTRICTS Rules, Regulations & Guidelines is only authorized and allowed by a separate Request for Variance which was approved by the Board. Any Board approved variance shall be referenced on the plan cover page and on the appropriate sheet where applicable. The use of the term "Guidelines" herein does not affect the mandatory nature of these Rules, Regulations & Guidelines.

OWNER CONTACT INFORMATION

KB Home Lone Star Inc.
11314 Richmond Avenue
Houston, TX 77082
Phone: 281-668-3947

BENCHMARK(S):

NGS MONUMENT # E 306 DISK SET IN TOP OF CONCRETE MONUMENT, LOCATED 2.0 MILES WEST OF MANVEL, 2 MILES WEST ALONG THE GULF, COLORADO AND SANTA FE RAILWAY FROM THE STATION AT MANVEL, BRAZORIA COUNTY, 0.2 MILE WEST OF A SHELL-ROAD CROSSING, 5-1/2 FEET NORTHWEST OF MILE POLE 38, 39 FEET SOUTH OF THE SOUTH RAIL, 33 FEET NORTH OF THE CENTERLINE OF A DIRT ROAD, 6.7 FEET NORTH OF THE RIGHT-OF-WAY FENCE, 3 FEET WEST OF A WHITE WOODEN WENT POST AND SET IN THE TOP OF A CONCRETE POST ABOUT FLUSH WITH THE GROUND.
ELEV =52.00 (NAVD 88) 1991 ADJUSTMENT

THIS IS TO CERTIFY THAT THE CITY COUNCIL OF THE CITY OF MANVEL, TEXAS, HAS APPROVED THIS PLAT OF
AVELLINO MASTER PLAN IN CONFORMANCE WITH THE LAWS OF THE STATE OF TEXAS AND THE ORDINANCES OF THE
CITY OF MANVEL AS SHOWN HEREON AND AUTHORIZES THE RECORDING OF THIS PLAT THIS
DAY OF _____, 2023.

MAYOR

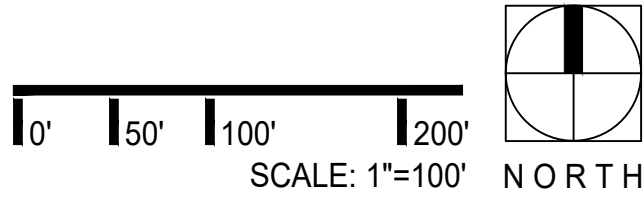
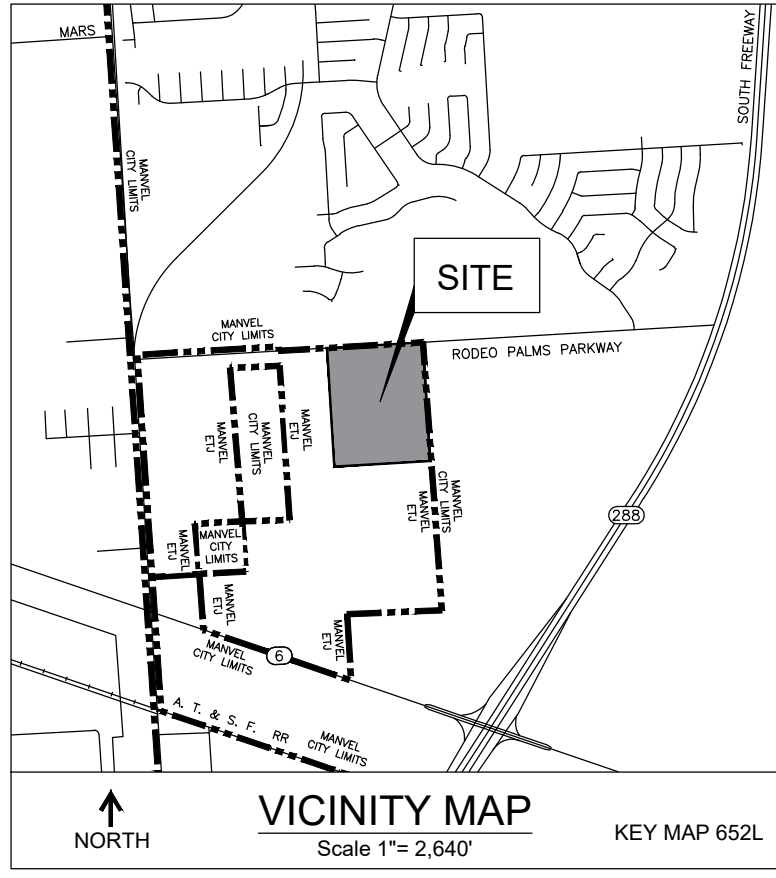
THIS IS TO CERTIFY THAT THE PLANNING, DEVELOPMENT AND ZONING COMMISSION OF THE CITY OF MANVEL, TEXAS,
HAS RECOMMENDED APPROVAL FOR THE PLAT OF AVELLINO MASTER PLAN IN CONFORMANCE WITH THE LAWS OF
THE STATE OF TEXAS AND THE ORDINANCES OF THE CITY OF MANVEL AS SHOWN HEREON AND AUTHORIZES THE
RECORDING OF THIS PLAT THIS
DAY OF _____, 2023.

PLANNING DEVELOPMENT AND ZONING COMMISSION CHAIR

PARK LAND DEDICATION

NO. OF PROPOSED LOTS	PARK LAND ACREAGE REQUIRED*	PARK LAND ACREAGE PROVIDED*
140	1.40	1.46

*1 ACRE REQUIRED PER 100 LOTS
**PARK LAND PROVIDED IN RESERVE "B"



AREA TABLE			
BLOCK	LOT	LOT WIDTH AT R.O.W.	AREA (SQ. FT.)
1	1	60.08'	7,075
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
2	1	60.00'	7,200
	2	61.07'	7,058
	3	60.00'	6,777
	4	60.00'	14,760
3	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
4	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
5	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
6	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
7	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
8	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
9	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
10	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
11	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
12	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
13	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
14	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
15	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
16	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
17	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
18	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
19	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
20	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
21	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
22	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
23	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
24	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
25	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
26	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
27	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
28	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
29	1	60.00'	7,200
	2	60.00'	7,200
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	4	60.00'	7,200
30	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
31	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
32	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
33	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
34	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
35	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
36	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
37	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
38	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
39	1	60.00'	7,200
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	3	60.00'	7,200
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42	1	60.00'	7,200
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	4	60.00'	7,200
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	4	60.00'	7,200
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	3	60.00'	7,200
	4	60.00'	7,200
51	1	60.00'	7,200
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	3	60.00'	7,200
	4	60.00'	7,200
52	1	60.00'	7,200
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	3	60.00'	7,200
	4	60.00'	7,200
53	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
54	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
55	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
56	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
57	1	60.00'	7,200
	2	60.00'	7,200
	3	60.00'	7,200
	4	60.00'	7,200
58	1	60.00'	7,200
	2	60.00'	7,200

NINTH AMENDMENT TO DEVELOPMENT AGREEMENT

This NINTH AMENDMENT TO DEVELOPMENT AGREEMENT (this "Amendment"), is made and entered into as of _____, 2023 (the "Effective Date"), by and between the CITY OF MANVEL, TEXAS, a municipal corporation and home rule city of the State of Texas (the "City"), MC288 LLC, a Texas limited liability company and POMONA INVESTMENT, LLC, a limited liability company (collectively, the "Developer"), BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 39, and BRAZORIA COUNTY MUNICIPAL UTILITY DISTRICT NO. 40, each a body politic and corporate and a governmental agency of the State of Texas organized under the provisions of Article XVI, Section 59 of the Texas Constitution (together, the "Districts").

RECITALS

WHEREAS, the City and Land Development Company, Ltd., entered into that certain Development Agreement, dated March 13, 2006, and has been amended on September 9, 2013, January 26, 2015, March 1, 2016, August 22, 2016, June 4, 2018, December 16, 2019, March 15, 2021 and December 6, 2021 (as amended, the "Development Agreement"), relating to the development of land described therein (the "Land") located within the City's extraterritorial jurisdiction ("ETJ"), and the creation of the Districts on the Land; and

WHEREAS, the Districts were created and have consented to the Agreement, and be bound by its terms; and

WHEREAS, Land Development Company, Ltd. has assigned its rights and obligations under the Development Agreement to the Developer; and

WHEREAS, the Developer has requested revisions to the Pomona Master Plat; and

WHEREAS, the Developer, the City and the Districts wish to amend the Development Agreement as provided in this Amendment; now therefore

AGREEMENT

For and in consideration of these premises and of the mutual promises, obligations, covenants, and benefits herein contained, the parties contract and agree as follows:

1. Amendments. The Development Agreement is hereby amended as provided in this Section.

- a. Section 2.04(c) is amended with the following sentences:

- “2.04. Development Plan.

- The City provides a variance to the Land to allow a multifamily structure with a maximum number of 650 units, which is approximately 19 units/acre. The City also allows a variance to the multifamily units to reach forty-seven (47) feet in height. The City limits the multifamily structure to a three-story structure with a typical minimum ceiling height of nine (9) feet for each story of the structure.

- b. Section 2.04(g) is added with the following sentences:

- “2.04 (g). Sidewalks. The City is providing a variance to the subdivision ordinances and construction of sidewalks. The City is allowing a variance as shown in **Exhibit “A”** to the Ninth Amendment to the Development Agreement, as more adequately shown and described in the attached and incorporated herein. Specifically, the attachments in **Exhibit “A”** provide for the variances allowed by the City on sizing and exclusion of certain sidewalks in the following sections:

- Section 13;
 - Section 22;
 - Section 27;
 - Section 28 park; and
 - Kirby Drive.”

2. Development Agreement. Except as specifically amended hereby, the Development Agreement remains in full force and effect in accordance with its terms.

Executed and approved, effective as of the date written above.

CITY OF MANVEL

ATTEST:

By: _____
Mayor

City Secretary

THE STATE OF TEXAS §
 §
COUNTY OF BRAZORIA §

This instrument was acknowledged before me on _____, 2023, by _____, in her capacity as mayor of the City of Manvel, Texas.

Notary Public, State of Texas

(NOTARY SEAL)

THE STATE OF TEXAS §
 §
COUNTY OF BRAZORIA §

This instrument was acknowledged before me on _____, 2023, by _____, in her capacity as city secretary of the City of Manvel, Texas.

Notary Public, State of Texas

(NOTARY SEAL)

BRAZORIA COUNTY MUNICIPAL
UTILITY DISTRICT NO. 39

ATTEST:

Secretary

By: Donna Davis
Vice President

THE STATE OF TEXAS

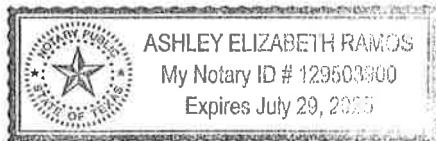
§

COUNTY OF HARRIS

§

§

This instrument was acknowledged before me on January 24, 2023 by Donna Davis, in the capacity as Vice President of Brazoria County Municipal Utility District No. 39.



Ashley E. Ramos
Notary Public, State of Texas

(NOTARY SEAL)

THE STATE OF TEXAS

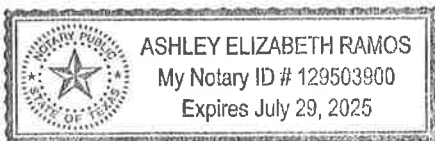
§

COUNTY OF HARRIS

§

§

This instrument was acknowledged before me on January 24, 2023 by Floyd Hodges, in the capacity as Secretary of Brazoria County Municipal Utility District No. 39.



Ashley E. Ramos
Notary Public, State of Texas

(NOTARY SEAL)

BRAZORIA COUNTY MUNICIPAL
UTILITY DISTRICT NO. 40

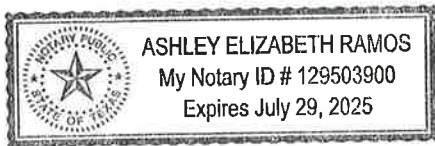
By: 
President

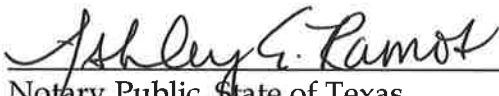
ATTEST:

Secretary

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS §

This instrument was acknowledged before me on February 7, 2023, by Allie Skinner in the capacity as President of Brazoria County Municipal Utility District No. 40.

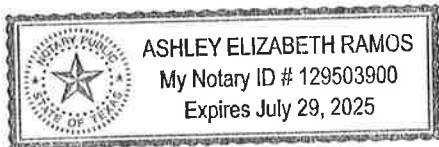


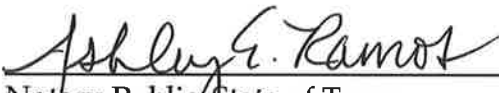

Notary Public, State of Texas

(NOTARY SEAL)

THE STATE OF TEXAS §
 §
COUNTY OF HARRIS §

This instrument was acknowledged before me on February 7, 2023, by C.M. Eastland in the capacity as Secretary of Brazoria County Municipal Utility District No. 40.




Notary Public, State of Texas

(NOTARY SEAL)

MC288, LLC

By: 

Name: Russell Bynum

Title: General Manager - Houston

THE STATE OF TEXAS

§

§

COUNTY OF Brazoria

§

This instrument was acknowledged before me on April 11, 2023, by Russell Bynum, in the capacity as General Manager - Houston of MC288, LLC, on behalf of said company.



Notary Public, State of Texas

(NOTARY SEAL)

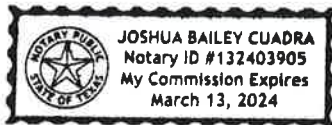
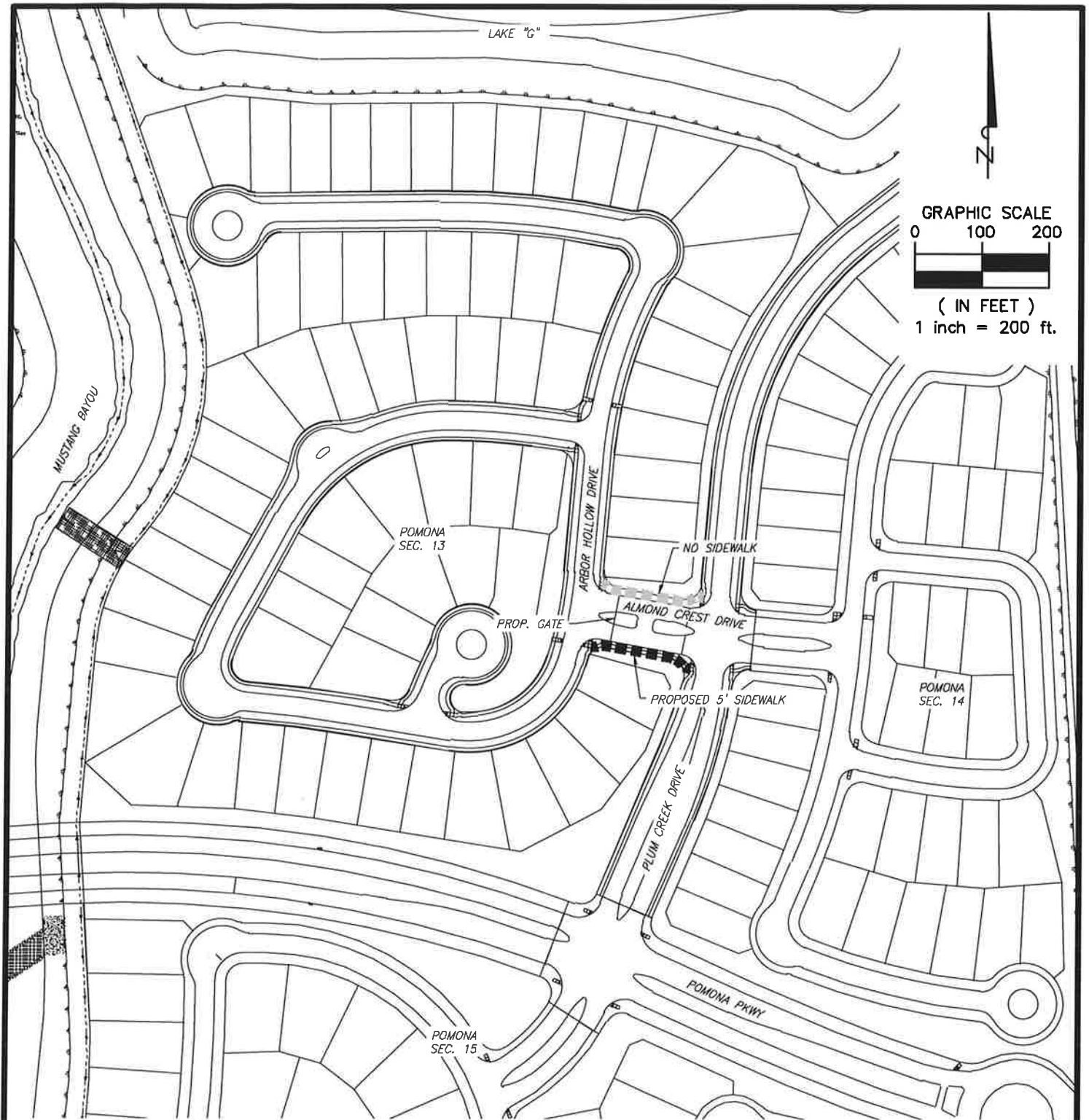


Exhibit A



LEGEND

- PROPOSED 5' SIDEWALK
- NO SIDEWALK

POMONA

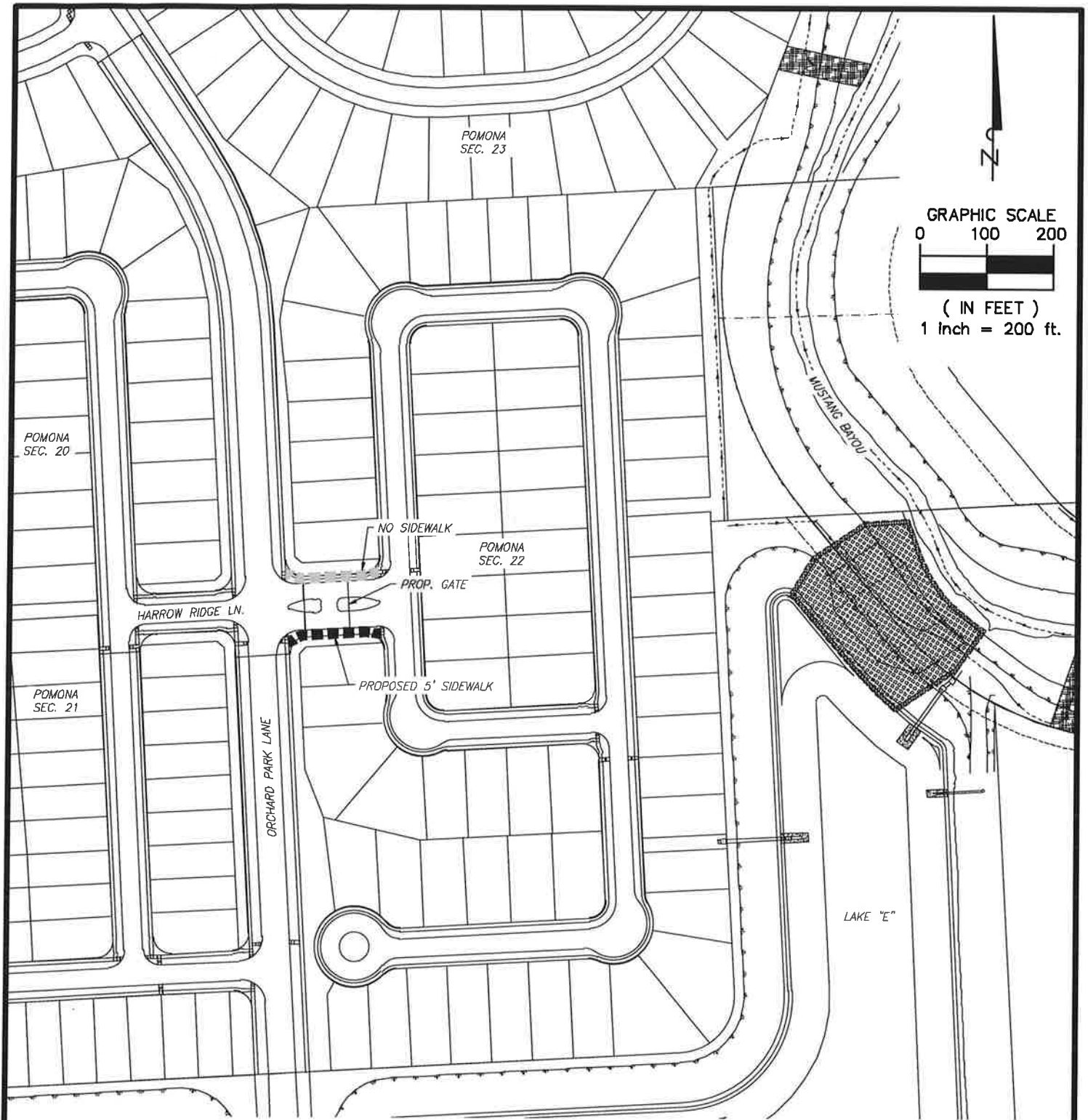
SECTION 13 ENTRY SIDEWALK

LJA Engineering, Inc.

1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449

Phone 713.953.5200
Fax 713.953.5026
FRN-F-1386





LEGEND

- PROPOSED 5' SIDEWALK
- NO SIDEWALK

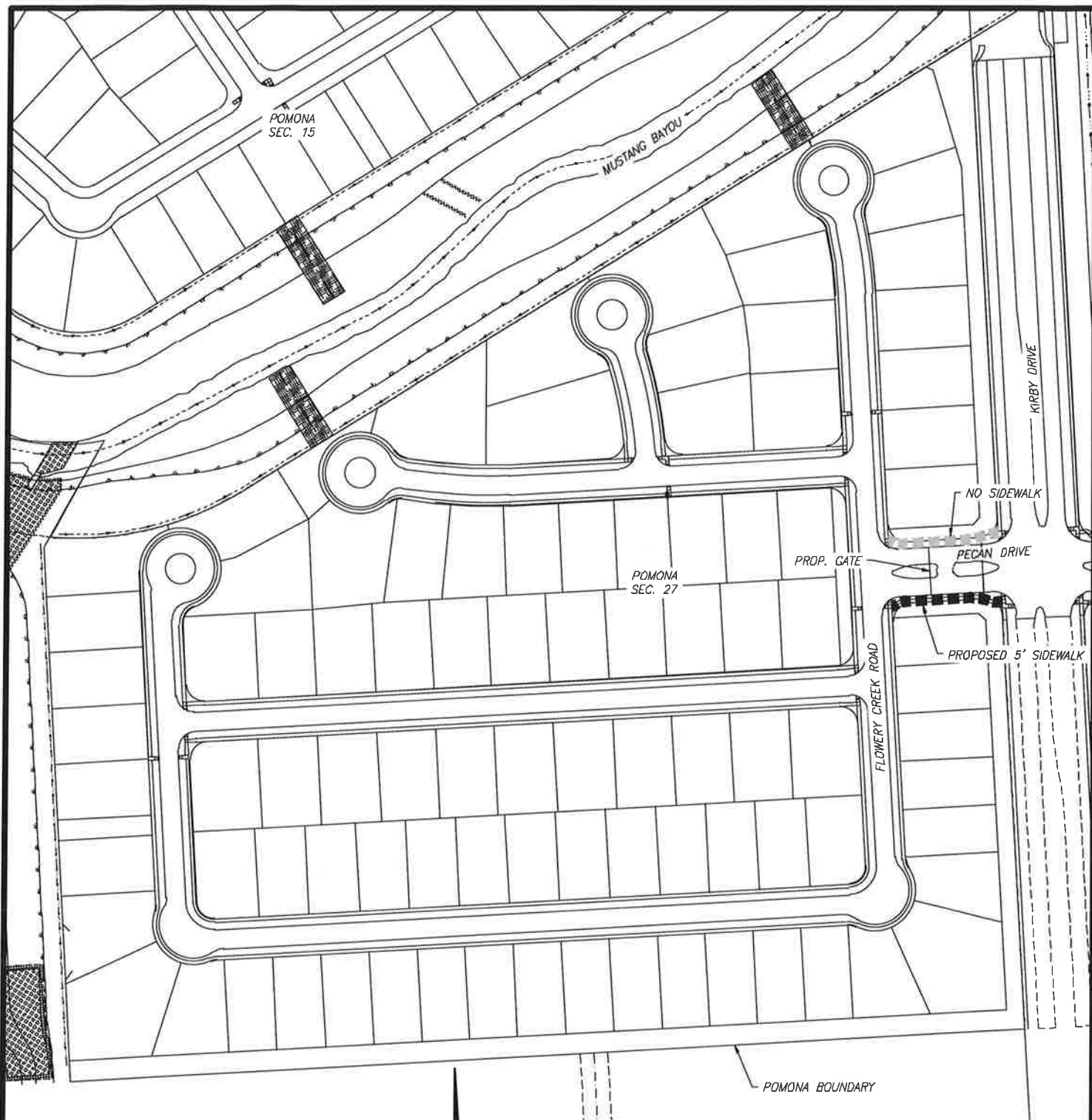
POMONA SECTION 22 ENTRY SIDEWALK

LJA Engineering, Inc.

1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449

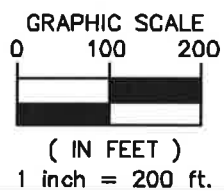
Phone 713.953.5200
Fax 713.953.5026
FRN-F-1386





LEGEND

- PROPOSED 5' SIDEWALK
- NO SIDEWALK



POMONA

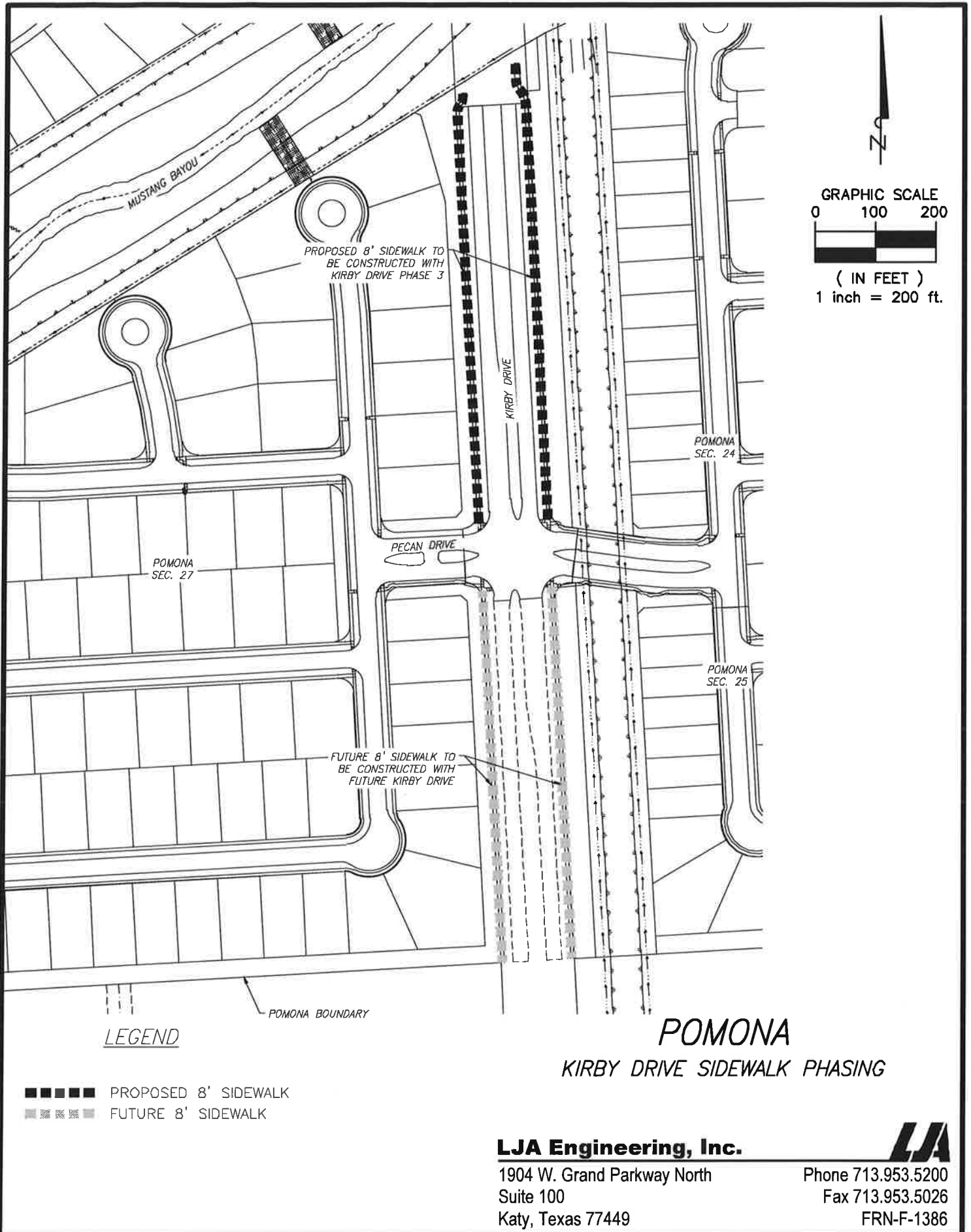
SECTION 27 ENTRY SIDEWALK

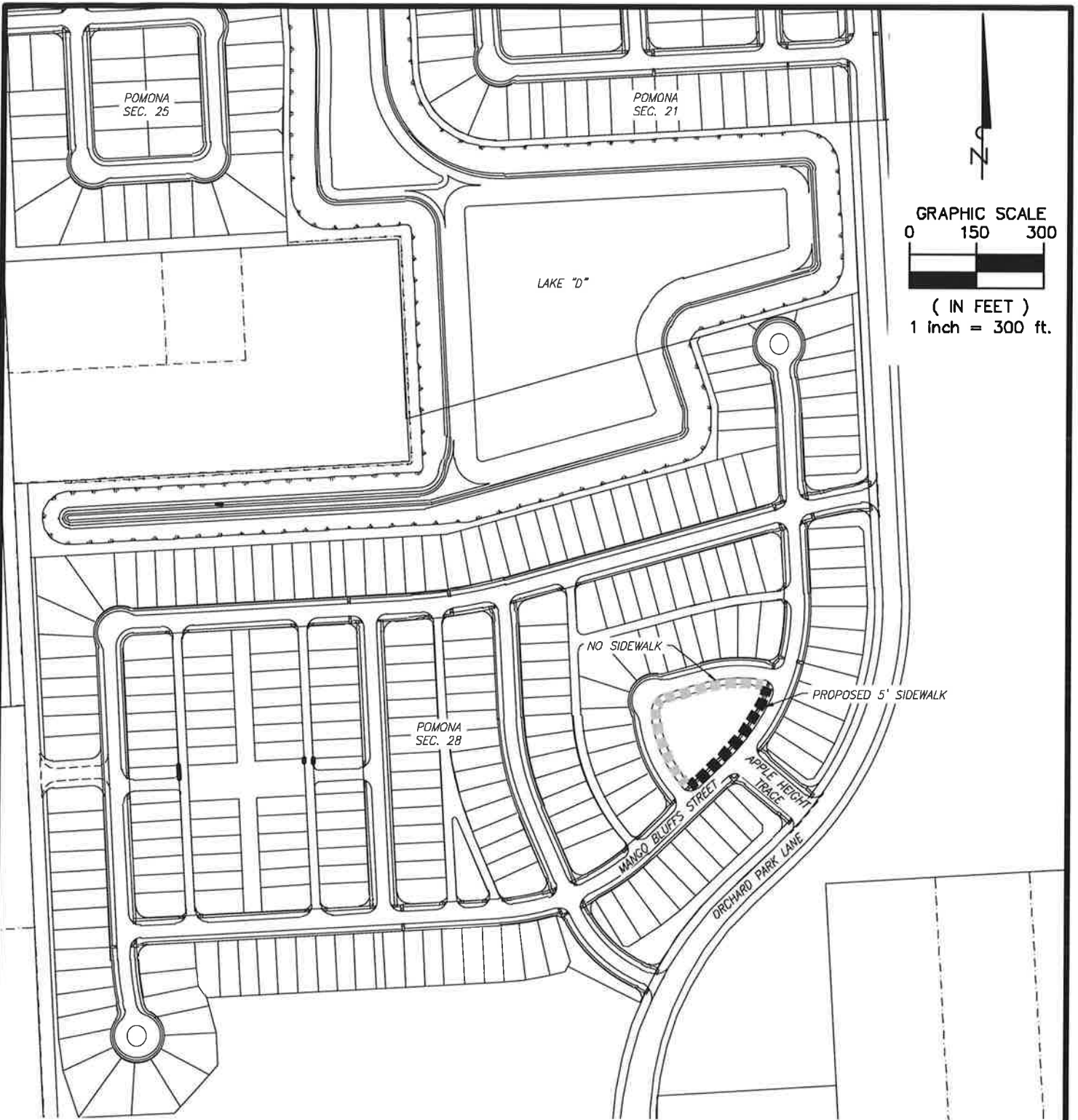
LJA Engineering, Inc.

1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449

Phone 713.953.5200
Fax 713.953.5026
FRN-F-1386







LEGEND

- PROPOSED SIDEWALK
- NO SIDEWALK

POMONA SECTION 28 PARK SIDEWALK

LJA Engineering, Inc.

1904 W. Grand Parkway North
Suite 100
Katy, Texas 77449

Phone 713.953.5200
Fax 713.953.5026
FRN-F-1386

RESOLUTION NO. 2023-R-07

A RESOLUTION OF THE CITY OF MANVEL, TEXAS FINDING THAT CENTERPOINT ENERGY HOUSTON ELECTRIC, LLC'S APPLICATION FOR APPROVAL TO AMEND ITS DISTRIBUTION COST RECOVERY FACTOR PURSUANT TO 16 TEX. ADMIN. CODE § 25.243 TO INCREASE DISTRIBUTION RATES WITHIN THE CITY SHOULD BE DENIED; FINDING THAT THE CITY'S REASONABLE RATE CASE EXPENSES SHALL BE REIMBURSED BY THE COMPANY; FINDING THAT THE MEETING AT WHICH THIS RESOLUTION IS PASSED IS OPEN TO THE PUBLIC AS REQUIRED BY LAW; REQUIRING NOTICE OF THIS RESOLUTION TO THE COMPANY AND LEGAL COUNSEL.

WHEREAS, the City of Manvel, Texas ("City") is an electric utility customer of CenterPoint Energy Houston Electric, LLC ("CenterPoint" or "Company"), and a regulatory authority with an interest in the rates and charges of CenterPoint; and

WHEREAS, the City is a member of the Gulf Coast Coalition of Cities ("GCCC") (such participating cities are referred to herein as "GCCC"), a coalition of similarly situated cities served by CenterPoint that have joined together to efficiently and cost effectively review and respond to electric issues affecting rates charged in CenterPoint's service area; and

WHEREAS, on or about April 5, 2023, CenterPoint filed with the City an Application for Approval to Amend its Distribution Cost Recovery Factor ("DCRF") pursuant to 16 Tex. Admin. Code § 25.243 seeking a total DCRF Revenue Requirement of \$162,548,833, which is a \$84,571,868 increase to the Company's Revenue Requirement approved in its most recent DCRF proceeding, Public Utility Commission Docket No. 53442; and

WHEREAS, all electric utility customers residing in the City will be impacted by this ratemaking proceeding if it is granted; and

WHEREAS, GCCC is coordinating its review of CenterPoint's DCRF filing with designated attorneys and consultants to resolve issues in the Company's application; and

WHEREAS, the GCCC's members and attorneys recommend that GCCC members deny the DCRF.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF _____, TEXAS:

Section 1. That the rates proposed by CenterPoint to be recovered through its DCRF charged to customers located within the City limits are hereby found to be unreasonable and shall be denied.

Section 2. That the Company shall continue to charge its existing rates to customers within the City.

Section 3. That the City's reasonable rate case expenses shall be reimbursed in full by CenterPoint within 30 days of presentation of an invoice to CenterPoint.

Section 4. That it is hereby officially found and determined that the meeting at which this Resolution is passed is open to the public as required by law and the public notice of the time, place, and purpose of said meeting was given as required.

Section 5. That a copy of this Resolution shall be sent to Denise Gaw, CenterPoint Energy Service Company, LLC, 1111 Louisiana Street, Houston, Texas 77002 and to Thomas Brocato, General Counsel to the Gulf Coast Coalition of Cities, at Lloyd Gosselink Rochelle & Townsend, P.C., 816 Congress Avenue, Suite 1900, Austin, Texas 78701.

PASSED AND APPROVED this _____ day of _____, 2023.

Mayor

ATTEST:

City Secretary

APPROVED AS TO FORM:

City Attorney

RESOLUTION NO. 2023-R-08

A RESOLUTION OF THE CITY OF MANVEL, TEXAS ADOPTING A REVISED DESIGN CRITERIA MANUAL CONTAINING SUBDIVISION IMPROVEMENT STANDARDS FOR ALL DEVELOPMENT WITHIN THE CITY OR ITS EXTRATERRITORIAL JURISDICTION, PURSUANT TO AUTHORITY CONTAINED IN CHAPTER 62, SUBDIVISION ORDINANCE, OF THE CODE OF ORDINANCES OF THE CITY OF MANVEL, TEXAS, CHAPTER 212 OF THE TEXAS LOCAL GOVERNMENT CODE, AND OTHER PROVISIONS OF THE CODE OF ORDINANCES OF THE CITY OF MANVEL, AS AMENDED OR TO BE AMENDED; AND CONTAINING OTHER MATTERS ON THE SUBJECT.

* * * * *

WHEREAS, the city has determined that there is a need for comprehensive and concise guidelines covering improvements constructed during the subdividing and development of property within the City of Manvel and its extraterritorial jurisdiction, and such is authorized by provisions of the Code of Ordinances of the City of Manvel and Texas Local Government Code Chapter 212; and

WHEREAS, the City of Manvel has determined that all related improvement standards and requirements should be incorporated into one document, entitled Design Criteria Manual, that is separate from the Subdivision Ordinance itself, to allow for more timely modification if necessary; and

WHEREAS, attached hereto is a revised Design Criteria Manual containing the minimum subdivision improvement standards and minimum standards for development within the City of Manvel and its extraterritorial jurisdiction. These are only minimum requirements, and additional requirements may be imposed as determined by the city;

BE IT RESOLVED BY THE CITY OF COUNCIL OF THE CITY OF MANVEL, TEXAS:

Section 1. Pursuant to the City of Manvel Subdivision Ordinance, Chapter 62 of the City Code of Ordinances, Chapter 212 of the Texas Local Government Code, and other provisions of the Code of Ordinances of the City of Manvel, as amended or to be amended, the City Council hereby adopts the revised “Design Criteria Manual,” attached hereto as Exhibit “A” dated _____ and incorporated herein by this reference, and directs that the standards and related documents contained and referred to therein shall control and determine the minimum standards for improvements constructed during the subdividing and development of property within the City of Manvel, Texas.

Section 2. The City Secretary or her designee is hereby directed to maintain copies of the Design Criteria Manual and related documents and make them available upon request, for a reasonable fee, to any individual who requests one.

PASSED, APPROVED, AND RESOLVED by the City Council of the City of Manvel, Texas this _____ day of April 2023.

Debra Davison, Mayor

ATTEST:

Tammy Bell, City Secretary



CITY COUNCIL AGENDA

Date: 4/17/2023

Agenda Item: Resolution 2023-R-08

Item/Subject: Resolution 2023-R-08 Design Criteria Manual

Initiating Department/Presenter: Development

Presenter: Dan Johnson

Proposed updates to the Design Criteria Manual;

1. Page 4: Added a scale to the Vicinity Map consistent with Plats.
2. Page 6: Included a pdf version of construction plans to the process.
3. Page 17: Added **Sewper Coat** as an approved alternative to Raven Liner.
4. Page 21: Standardized water line easement width to 20', consistent with Ordinance.
5. Page 29: Standardized water line easement width to 20', consistent with Ordinance.
6. Page 30: Added **East Jordan** fire hydrants as an approved alternative to Mueller fire hydrants.
7. Page 39: Clarified sidewalk requirements to be consistent with Master Thoroughfare Plan and other Ordinances.
8. Page 58: Clarified site plan submittal requirements.
9. Page 60: Added the allowance for **asphalt residential driveways** on asphalt streets.
10. Page 62: Clarified **one-way aisle width** in parking lots with 45 degree and 60 degree angle parking to be consistent with Ordinance.
11. Page 62: Clarified provisions for **asphalt parking lots**.
12. General: Updated "Public Works Department" to "Community Services."

ACTION TAKEN BY COUNCIL

Motion Second APPROVAL ☐ YES ☐ NO Vote TO	READINGS PASSED ☐ 1 st ☐ 2 nd	OTHER

CITY OF MANVEL DESIGN CRITERIA MANUAL

April 17, 2023



Approved by:

**Manvel City Council
Subdivision Ordinance**

Resolution 2022-R-17

Originally adopted as
Resolution 2008-R-04 on April 28, 2008
and Revised:

1. December 15, 2008
2. August 23, 2010
3. September 26, 2011
4. December 10, 2012
5. December 9, 2013
6. January 12, 2015
7. January 25, 2016
8. April 11, 2016
9. April 24, 2017
10. January 29, 2018
11. April 2, 2018
12. August 5, 2019
13. June 7, 2021
14. October 17, 2022

CITY OF MANVEL DESIGN CRITERIA MANUAL

Table of Contents

Section	Title
1	Graphic Requirements
2	Wastewater
3	Water
4	Paving
5	Drainage
6	Site Development
7	Modifications

SECTION 1 GRAPHIC REQUIREMENTS

1.0 GENERAL

1.01 CHAPTER INCLUDES:

Graphic requirements for all construction drawings including City of Manvel (public) projects, non-City of Manvel (private) projects, and all utility projects without a current Franchise Agreement.

1.02 REFERENCES – Refer to the City of Manvel Website for additional information.

1.03 DEFINITIONS

CADD (Computer Aided Drafting Design) - the preparation of documents utilizing computer facilities for the production of drawings, plans, prints and other related documents.

1.04 DESIGN REQUIREMENTS

- A. Provide a cover sheet for all projects involving three or more design drawings (excluding standard detail sheets). Plan sheet numbers shall be shown on the cover sheet or area key map. Include a vicinity map, at a scale of 1"=1/2 mile, to identify project locations. Also provide approval block for the City of Manvel with a note stating that approval is valid for 2 years from date of signatures.
- B. Drawings shall be prepared on nominal 24-inch x 36-inch overall drawings.
- C. Show service area on cover sheet or area map.
- D. The engineer shall also submit, at the time of plan approval, an electronic version (*in .pdf, and .dwg, format*) of the CADD drawings on CD of the development showing all lot lines and associated lot information, rights-of-way, easements, contours, utilities, and all drainage and paving improvements.
- E. Details of special structures (not covered by approved standard drawings, such as stream or gully crossings, special manholes, or junction boxes, etc.) shall be drawn with vertical and horizontal scales equal to each other.
- F. Each set of construction drawings shall contain paving and utility key drawings indexing specific plan and profile sheets. Standard City drawings, where applicable, shall be included. All sheets shall have standard title blocks. Where applicable, show Brazoria County key drawings and numbers.
- G. Draw key overall layouts to a minimum scale of 1 inch = 100 feet.
- H. Plan stationing must run from left to right, except for short streets or lines originating from a major intersection, where the full length can be shown on one sheet.

- I. A north arrow is required on all sheets and should be oriented either toward the top or to the right. This requirement is waived under the following conditions:
 - 1. A storm or wastewater sewer whose flow is from west to east or from south to north.
 - 2. A primary outfall ditch drainage facility whose flow is from west to east or from south to north.
 - 3. Stationing is intended to start from the cardinal points of the compass and proceed in the direction of construction.
- J. Standard scales permitted for plans and profiles of paving and utility construction drawings are as follows:
 - 1. Major thoroughfares, streets with esplanades over 400 feet in length, or special intersections:
1 inch = 20 feet horizontal, 1 inch = 2 feet vertical
 - 2. Minor or residential single-family streets:
1 inch = 20 feet horizontal, 1 inch = 2 feet vertical
1 inch = 40 feet horizontal, 1 inch = 4 feet vertical
1 inch = 50 feet horizontal, 1 inch = 5 feet vertical
 - 3. Scales above are minimum; larger scales may be used to show details of construction.
- K. Each sheet shall have a benchmark elevation and description defined, and a current flood zone determination statement.
- L. The seal, date, and original signature of the Registered Professional Engineer responsible for the drawings shall be required on each sheet developed by the engineer. The engineer may use a stamped or embossed imprint for his/her seal; however, the embossed imprint must be shaded such that it will reproduce on prints.
- M. A copy of the proposed final plat conforming to the approved Preliminary Plat for new developments shall be included with the final drawings when submitted for final approval.
- N. If a roadway exists where drawings are being prepared to improve or construct new pavement or a utility, label the existing roadway width, surface type, and thickness, if available without destruction of pavement. Pavement thickness can be ascertained by coring with the core hole grout filled to protect pavement prior to construction.
- O. Show all streets and road alignment on drawings.
- P. Develop drawings to accurate scale showing proposed pavement, typical cross sections, details, lines and grade, and all existing topography within street right-of-way, and any easement contiguous with the right-of-way. At the intersection, the cross-street details shall be shown at sufficient distance (20-foot minimum distance outside the primary roadway right-of-way) in each direction along cross street for designing adequate street crossings.

- Q. Match lines between plan and profile sheets shall not be placed or shown within cross street intersections including cross street right-of-way.
- R. Natural ground profiles shall be shown as follows:
1. For non-City of Manvel (privately-funded) projects, center line profiles are satisfactory except where a difference of 0.50 feet or more exists from one right-of-way or easement line to the other, in which case, dual profiles are required.
 2. For City of Manvel (publicly funded) projects, provide natural ground profiles for each right-of-way line. Easement profiles shall conform to S below.
- S. Basic plan and profile sheets shall contain the following information:
1. Identify all lot lines, property lines, easements, right-of-way, and drainage outfalls.
 2. Label each plan sheet as to street/easement widths, pavement widths, pavement thickness where applicable, type of roadway materials, curbs, intersection radii, curve data, stationing, existing utilities (type and location), and any other pertinent feature affecting design.
 3. Show all utility lines 4 inches in diameter or larger within the right-of-way or construction easement in profile view. Show all utility lines, regardless of size, in the plan view including fiber optic cables.
 4. Graphically, show flow line elevations and direction of flow for all existing ditches.
 5. Label proposed top of curb grades except at railroad crossings. Center line grades are acceptable only for paving without curb and gutters.
 6. Curb return elevations for turnouts shall show in profiles.
 7. The center line elevation at the property line of all existing driveways shall be shown in profile.
 8. Station all esplanade noses or the center line of all esplanade openings with esplanade width shown - both existing and proposed.
 9. The design of both roadways is required on all paving sections with an esplanade.
 10. Station all PCs, PTs, radius returns, and grade change PIs in plan view. Station all radius returns and grade change PIs in profile with their respective elevations.
 11. Show Hydraulic Grade Line (HGL) and identify Ponding Depth on profile drawings.
- T. Provide a pollution prevention plan with legend. See Site Development (Section 6) under Design Requirements.
- U. Submit 3 printed sets of construction plans on 24" x 36" paper in addition to pdf file for review: (1) Engineering, (2) Community Services, and (3) Fire Marshal.

- V. Approved plans will be valid for a period of 2 years and a note shall be included on the cover sheet indicating same. No extension will be granted. If work has not commenced by the 2-year expiration date, the plans will need to be resubmitted and reviewed and new plan review fees paid. The “commencement of work” shall be defined by the following milestones:
1. Preconstruction Meeting has occurred with the selected contractor
 2. Civil Site Improvement Permits have been acquired by the selected contractor
 3. Construction Equipment has been mobilized to the Site.
- W. Identify sidewalks, water meters, sewer taps, manholes, fire hydrants, and water valves on Site Plans for residential and commercial projects.
- X. For all projects located within a MUD, a Water and Sewer Utility Availability Summary Table shall be provided with/within every plan and plat submittal. The Table will include a summary of currently platted lots and corresponding connections, along with reserved connections and planned future connections. It will also include the current capacity of the water and wastewater facilities (plant(s), lift stations, etc.) within the MUD.

SECTION 2 WASTEWATER

1.0 GENERAL

1.01 CHAPTER INCLUDES:

Criteria for the design of wastewater collection systems.

1.02 REFERENCES

Texas Commission on Environmental Quality (TCEQ) - "Design Criteria for Domestic Wastewater Systems" - Texas Administration Code - Chapter 217 and "Design Criteria for Sewerage Systems" Chapter 317 (current revision).

1.03 DEFINITIONS

This Chapter addresses the design of the wastewater collection systems within the public right-of-way or a dedicated public easement. Sanitary sewers located on private property that are not in a dedicated easement, are under the jurisdiction of the Plumbing Code, and will be addressed/reviewed by the Building Official. Where used in these regulations, the following terms shall be construed to carry the meanings given below:

- A. Public Sewer - A closed conduit that conveys wastewater flow and which is located within the public right-of-way or dedicated public easement. A public sewer (or public sewer system) is intended to serve more than one (1) "owner" or occupant.
- B. Private Sewer - A closed conduit that conveys wastewater flow and is constructed and maintained by a private entity(s) (i.e., homeowner's association). Private sewers may be located in areas such as a private street or common area. Private sewers are subject to the design and construction requirements of the Plumbing Code and must discharge to a public sewer.
- C. Sewer Main - A sewer that receives the flow from one or more lateral sewers.
- D. Lateral Sewer - A sewer running laterally down a street, alley, or easement, which receives only the flow from the abutting property.
- E. Service Lead - A sewer that branches off a public sewer and extends to the limits of the public right-of-way. It shall be construed as having reference to a public sewer branching off from a main or lateral sewer to serve one or more houses, single-family lots, or other types of small land tracts situated in the same block with the said main or lateral sewer, but not directly adjacent thereto. Such a line shall never exceed 150 feet in length. If the sewer is designed to serve more than two houses, or the equivalent of two single-family residences along a street, a lateral sewer as defined above shall be constructed.
- F. Service Connection - A private sewer from a single source to the main or lateral sewer in the street, alley, or easement adjacent thereto. Service connections are covered by the Building Code. It will be owned and maintained by the owner of the property being served by said sewer.
- G. Project Area - The area within the immediate vicinity of the public sewer to be constructed.

- H. Stack - A riser pipe constructed on main or lateral sewers which are deeper than 8 feet to facilitate construction of service leads or service connections.
- I. Force Main - A pressure-rated conduit (i.e., ductile iron pipe, pressure-rated PVC, etc.) that conveys wastewater from a pump station to a discharge point.

1.04 DESIGN REQUIREMENTS

A. Easements for wastewater lines.

1. Wastewater lines shall be located within street right-of-way, permanent access easements with overlapping public utility easements, easements adjacent to street rights-of way or recorded wastewater easements.
2. When outside of a public street right-of-way or permanent access easement with an overlapping public utility easement, easements must be dedicated and restricted for wastewater lines only.
3. When possible, easements should be adjacent to public rights-of-way.
4. Easements containing wastewater lines must be at least 20-feet wide and the wastewater line must be centered in the easement.
5. Wastewater lines along State rights-of-way shall be installed outside of the right-of-way in a separate 20-foot minimum adjacent easement.
6. No back-lot easements will be allowed for the installation of wastewater lines.

B. Drawings

1. Before any main or lateral sewer is constructed and before a permit will be issued for the construction of same, plans and profiles of the proposed sewer shall be prepared and submitted to the City for approval.
2. The plan view will show the exact location of the proposed line in the street, alley or easement with respect to the edge of the particular right-of-way, the transit base line, and any nearby utilities, major landscaping, and other structures affecting construction.

C. Main and Lateral Sewers

1. Sewers in curved easements, easements defined by property lines and combined easements containing other public utilities must be shown both in detailed plan and profile views.
2. The profile should show other underground and surface utilities and facilities, both in parallel and at crossings; the size, grade of the proposed line, the elevation of same to hundreds of a foot at all manholes, changes of grade and dead-ends; and the proposed finished grade over the sewer. It should show the actual ground line as it exists prior to construction of the sewer. Where proposed fill or cut is contemplated, the proposed new ground line should be shown as a separate line from the actual ground line. Type of pipe and bedding shall comply with City of Manvel Standard Specifications and Standard Details.

3. Where sewers are to be placed between existing pavement and the street right-of-way (or interior easement line) or under existing pavement or topping, show the existing ground line at both sides (or the closest side or sewers near the edge) of the right-of-way or adjacent sewer easement.

D. Sewer mains - plan and profile required

1. Sanitary sewer layouts for residential subdivisions should use a minimum horizontal scale of 1 inch = 40 feet with a vertical scale of 1 inch = 4 feet, or as allowed per Section 1, 1.04, J. A scale of 200 feet per inch may be used provided the following information is shown on the layout:
 - a. All easements containing or buffering sanitary sewers are shown at points of size change; all manhole locations are shown.
 - b. The sewer alignment shall accurately reflect the relative location of the sewer as shown on the detailed plan view.
 - c. All service leads that cross-street pavement or serve adjacent property are to be shown on the layout. The detail plans and profiles shall show the flow lines of all service leads at the street or easement right-of-way.
 - d. The number and size of the lots depicted on both the overall sewer layout sheet and the individual plan and profile sheets shall match the number and size of the lots depicted on the final plat after recordation.
 - e. On the overall sanitary sewer layout sheet, the size and direction of flow for all existing and proposed sewers shall be shown.
 - f. The location of the proposed sewer within the public right-of-way, a dedicated easement adjacent to the public right-of-way, or side lot easement (if allowed by the City).
 - g. The overall sanitary sewer layout sheet shall show the area, in acres, which the proposed sewer(s) is (are) designed to serve. Include a location map that references the average to nearby major thoroughfare and boulevard streets. The scale of the location map shall be 1 inch = 2,000 feet or less.
2. Commercial subdivision sanitary sewer layouts for large areas and with a scale of 400 feet or more per inch must have an additional set of layouts at not more than 200 feet per inch, with match lines and a small index map showing which portion of the overall layout that each sheet's layout represents.
3. Acceptable horizontal scales for the detailed plan and profile views are 10 feet, 20 feet, 40 feet and not more than 50 feet maximum per inch. Horizontal scale for major thoroughfares and boulevards shall be 1 inch = 20 feet or less.
4. Acceptable vertical scales for detailed profile views are 2 feet, 4 feet, and not more than 5 feet maximum per inch unless otherwise approved. Vertical scale for major thoroughfares and boulevards shall be 1 inch = 2 feet or less.

5. The plan view shall show, at a minimum, the following information for the project area:
 - a. All topographical features;
 - b. Stationing for the proposed sewers;
 - c. All existing utilities (i.e., telephone, gas, power, etc.);
 - d. Any significant landscaping and/or other structures which might impact construction and/or construction related activities;
 - e. The width and type of all existing and proposed easements;
 - f. All proposed service leads;
 - g. The limits of bore and/or tunnel;
 - h. Locations where pressure pipe is to be installed for water line crossings;
 - i. Drawings for residential subdivisions shall show the proposed location, by stations, of all service leads, service connections, and stacks. The distance from the sewer or transit base line station to the nearest existing manhole shall be shown in the plan view or on an additional sewer layout sheet with a scale no more than 1 inch = 100 feet.

6. The profile view shall show, at a minimum, the following information for the project area:
 - a. Underground and/or surface utilities/facilities which are either parallel to the proposed sewer or cross the proposed sewers;
 - b. The proposed sewer's diameter and grade for each manhole section;
 - c. The flow line elevation for all sanitary sewers at each manhole;
 - d. The rim elevation of all existing and proposed manholes;
 - e. The flow line elevation at each sheet "break" (i.e., from one sheet to another);
 - f. Type of pipe bedding/backfill shall be noted on each plan/profile sheet;
 - g. The finished grade for proposed and existing pavement where "fill" and/or "cut" is proposed, the proposed new ground line should be shown as a separate line from the existing ground line;
 - h. The existing ground line for the "near side" of the public right-of-way where a sewer is to be placed between the edge of existing pavement and the edge of the public right-of-way;
 - i. The existing ground line at the centerline of the proposed sanitary sewer where a sanitary sewer is to be placed within an existing easement. Show any proposed and/or existing pavement.
 - j. The flow line elevation of all service leads where it crosses the edge of the public right-of-way or the dedicated easement adjacent to the public right-of-way;
 - k. The limits of bore and/or tunnel;
 - l. Locations where pressure pipe is to be installed for water line crossings;
 - m. The location of special backfill and/or proposed stacks shall be identified by "stations" indicated on the design plans.
 - n. The location of stacks shall be labeled with stations.

E. Service leads

1. Service leads shall be at the property line between two (2) adjoining lots, or as directed by the City. A single 6-inch service lead located at the property line between two (2) adjoining lots would serve two (2) single-family residences with a wye placed at the end of the service lead. Do not extend the wye clean-outs beyond the edge of either the public right-of-way or dedicated easement.
2. Any service lead extension of more than 50 feet parallel to the street right-of-way shall be treated as a lateral sewer.
3. Service leads from developments with more than 17,500 gallons-per-day flows shall discharge into a proposed or existing manhole. Where the flow line of the service is 24 inches or greater above the flow line of the manhole, provide a standard external drop to manhole.
 - a. Service leads shall be provided to serve each lot within proposed development inside the City limits.
 - b. Service leads shall be 6 inches in diameter (minimum). If the length of a service lead exceeds 100 feet or the width of the public right-of-way by more than 20 feet, the minimum diameter shall be 8 inches and a manhole shall be utilized for connection to the public sewer.
 - c. Service leads with a diameter of 6 inches shall utilize "full body" fitting (extruded or factory-fabricated) for connection to the proposed public sewer or an approved saddle-type connector for connection to an existing public sewer.
 - d. Saddle-type connectors shall be installed with the "stub" oriented between the "spring line" (3 o'clock and 9 o'clock positions) and 45 degrees from the "spring line" ("1:30" and "10:30" positions). Tees (aka, "full body fittings") shall be oriented in the same manner.
 - e. The service lead shall be designated to minimize the use of bends, as site conditions will permit.
 - f. Service leads exceeding the limits defined in 1.04.E.2. shall have a manhole at each end; as well as, a plan/profile drawing for each right-of-way crossing. All, or part, of these service leads which are located in a public right-of-way, alley or dedicated sanitary sewer or public utility easement may be treated as a public sewer; depending upon the location of the terminal manhole and any intermediate manholes.
 - g. For all existing lots (which are not served in accordance with these guidelines) that need a service lead, if the distance to the nearest existing sewer is less than 50 feet, the service lead is under the jurisdiction of the Plumbing Code.
4. Service leads shall not be connected to a force main. (Grinder pumps are not allowed.)

F. General Requirements

1. Sanitary sewers within the City of Manvel's jurisdiction shall allow for orderly expansion of the system and shall conform to the Master Wastewater Plan for the City of Manvel.
2. Sewers shall be sized based on the minimum requirements set out in this standard and the standard wastewater flow rates as established by the City of Manvel and shall be no less than 315 gallons per connection per day.

3. All sewers shall conform to the minimum requirements of the Texas Department of Health, "Design Criteria for Sewerage Systems".
4. Sewers shall be separated from water lines by a minimum of nine (9) feet. Sewers crossing utilities other than water, a minimum of six (6) inches of clearance must be maintained.
5. The public sanitary sewer, as maintained by the City of Manvel, shall be defined as all sewers, including stacks and service leads, that serve more than one sewer connection, that are located in public easements or street rights-of-way, and that are installed in accordance with these Standards.
6. Sanitary lines greater than 6 inches require stacks with 5 feet minimum cover. (Stacks are to be shown on plans with stations). Place stacks and wyes or tees as shown. Where no stacks are shown, it is the responsibility of the licensed plumber to place a City approved saddle for connection to the line and the responsibility of the City Inspector to determine that such saddle is water tight and properly installed.
7. Materials and construction to conform to latest City of Manvel specifications with all amendments thereto, including standard leak test.
8. Unless noted otherwise, all public sewers and service leads shall be embedded in cement stabilized sand; to 6 inches below the pipe, 12 inches above the pipe and to 6 inches on each side. All such bedding shall be compacted to 95% standard proctor density. The cross-section so described herein shall be termed the "embedment zone."
9. Backfill all excavation areas/trenches under or within 1-foot of existing or proposed pavement with cement-stabilized sand from the top of the pipe "embedment zone" to the bottom of the subgrade. Cement-stabilized sand must develop 100-psi compression at 48 hours. Backfill shall be compacted to 95% standard proctor density.
10. The location of all proposed stacks shall be shown by stations in the drawings.
11. Construction notes shall designate the kind and class of pipe with exceptions to the construction notes to be shown on the plan and profile sheets.
12. Non-sanitary sewer easements or fee strips such as pipeline, power company, drainage district, railroad, etc., are in and of themselves insufficient and unacceptable to permit laying to sanitary sewers and/or force mains across or along the underlying private property or restricted non-sanitary use type of public property.
13. All public sanitary sewers shall be located within a public right-of-way (ROW) or easement.
14. Where an easement for a public sewer ends at a public right-of-way, the last manhole shall be extended into the public right-of-way at a minimum of 2 feet beyond the property line; or as close to the public right-of-way as possible due to acceptable clearances required for other utilities (i.e., water line and storm sewers).

15. The drawings for the sewer shall show the location of any existing known pipe or duct that might interfere with the construction of the sewer and call to the attention of the City any known obstacles that might be encountered in constructing the sewer in any location under consideration. The Professional Engineer shall determine the existence of pipes, ducts and/or obstacles from a visual survey on the ground plus research of all public records and private records when available.
16. All sanitary sewer mains shall be constructed utilizing SDR 26.
17. Sanitary sewer lines shall be centered in sanitary sewer line easements.
18. In subdivisions platted or created after January 1, 1988, for single-family dwellings where each lot maintains an individual water well supply and an on-site sewage facility (OSSF) the sewage disposal plan shall show the approved water well location and sanitary control easement around the well within a 100 feet radius in which no subsurface sewage system may be constructed.
19. No back-lot easements will be allowed for the installation of sanitary sewer lines.
20. All new wastewater lines to be installed with tracer wire for future line locates, unless lines are deeper than 10 feet.

G. Line Size

1. The minimum pipe diameter for a public sanitary sewer shall be 8 inches.
2. Four-inch service leads shall be confined to the limits of the lot, which they serve and shall serve only the equivalent of one single-family lot. No 4- inch sewer shall be laid in any street, alley, or right-of-way.
3. Six-inch service leads shall not serve more than the equivalent of two single-family lots or other types of small land tracts.
4. Four-inch and six-inch service leads for single-family residential lots shall have a minimum grade of 0.70 percent.
5. For commercial service leads such as street bores, submit a copy of the approved plumbing drawings to establish the required size of the line. The minimum size lead shall be 6 inches.
6. All main and lateral sewers will end in manholes, except for special and/or unusual situations and subject to specific approval by the City.
7. All sewer lines shall be laid at a size and depth to conform to designs permitting an orderly expansion of the sewer system of the City and so as to avoid a duplication of lines in the future.
8. The City shall be the final judge as to sizes and depths required and exceptions to "lateral service leads" as previously defined.

H. Line Depth

1. The sewer should be laid with the top of the pipe a minimum of 3 feet below finished grade or top of curb, whichever is lower.
2. Sewer laid in street rights-of-way with curb and gutter paved streets shall have a minimum cover of 4 feet from the top of the pipe to the top of the curb to anticipate future sewer extension.
3. Sewers laid in street right-of-way with crowned roads and side ditches shall have a minimum cover of 5 feet from the average ground line at the adjacent street right-of-way to the top of pipe.
4. Where the minimum cover as specified in paragraphs H, 1,2, and 3 above is not possible, the sewer shall be laid in Class 150 (150 psi) pressure pipe or rigid factory-made pipe with cement stabilized sand as shown in standard detail. Ductile iron pipe shall be lined with either a polyethylene or polyurethane coating as approved by the pipe manufacturer and applied by either the pipe manufacturer or an approved application. The minimum liner thickness shall be 40 mil.
5. Maximum depth for sanitary sewer lines shall be 20 feet from average ground surface to pipe invert.

I. Line Grades

The following table lists the minimum grades for 6–30-inch public sewers. The minimum grade is based on a minimum full pipe velocity of 2.0 feet per second (fps). The maximum grade is based on a maximum full pipe velocity of 10.0 feet per second (fps). In both cases, the Manning Formula has been used with an "n" of 0.013. The use of different pipe materials will not alter the use of 0.013 for the purpose of the Design Manual.

Inside Dimension (I.D.) of Pipe in Inches	Minimum Slope (in Percent)
6	0.70
8	0.33
10	0.25
12	0.20
15	0.15
18	0.11
21	0.10
24	0.08
27	0.07
30	0.06

For sewers larger than 30 inches in diameter, the Professional Engineer of record shall determine the appropriate grade utilizing the Manning Formula, $n = 0.013$ and a full pipe velocity of 2.0 fps.

J. Manholes

1. All manholes shall be precast concrete, unless the Professional Engineer submits a "cast in place" manhole design for review and approval by the City Engineer. All precast manholes to incorporate a "boot" type connector for sewer diameters up to 24". For sewer diameters greater than 24 inches, utilize either the "boot" type connector (if available) or an integral gasket. All precast manholes shall conform to the latest ASTM requirements.
2. For all public sewers, manholes shall be placed at all changes in alignment, changes in grade, junction points, and either at street, alley, or easement intersections as designs may require.
 - a. Sewers laid in easements shall have a manhole in each street crossed by the sewer.
 - b. The maximum distance between manholes shall be 350 feet.
 - c. Sewers with the same, or approximate flow line elevation shall intersect each other at a 90-degree angle. However, where a true perpendicular intersection cannot be obtained, and where the "entering" sewer intersects the receiving sewer at, or about, the same flow line, one or more manholes shall be utilized to maintain a minimum angle of 80 degrees at the point of intersection. When the "entering" sewer is on the upstream side of the manhole, the minimum angle between the sewers may be reduced to a 45-degree angle; provided:
 - (1) A distinct flow channel can be maintained within the manhole when the flowline elevations of the sewers are at, or within, one (1) pipe diameter of the smaller pipe; or
 - (2) When the flow line elevation of the "entering" pipe is above the crown of the "primary" sewer and clearance can be provided between the sewers.
 - d. Manholes shall be placed at all dead-end mains and laterals.
 - e. Criteria for connections to, and utilization of, manholes.
 - (1) Where manholes are utilized to facilitate connections between public sewers, when possible, the sewers shall match the manhole's flow line, match the elevation of each other's crown or utilize an "outside" manhole drop.
 - (2) Connections between public sewers at the manhole shall adhere to the following criteria when possible:
 - (a) The elevation of the crown of the discharging sewer shall either match the elevation of the crown of the receiving sewer or be approved as special cases by the City.
 - (b) A standard drop connection is required when the difference in elevation between discharging sewer flowline and receiving flowline is greater than 24 inches.
 - (3) The routing of service connection directly to manholes will be allowed only where the flowline elevation of the existing sanitary sewer is more than 10 feet below grade and there is no available stack and either
 - (a) The lot to be so connected is a single-family, owner-occupied, single lot residence connection to an existing manhole; or
 - (b) The lot to be so connected is a single-family, owner- occupied, single lot residence connecting to a proposed manhole at the end of a cul-de-sac.
 - (4) When routing an approved service connection to a manhole (see Item "3"), the wall penetration shall not be greater than 10 inches in diameter and shall be cored and sealed using grout as approved by the Standard Wastewater Products Committee.

- (5) When routing an approved service connection to a manhole (see Item "3"), the connections shall utilize an external drop and shall adhere to the following criteria:
 - (a) The manhole wall penetration shall be a minimum of 10 feet below the manhole rim elevation and shall not be greater than 10 inches in diameter;
 - (b) The drop shall be 6 inches in diameter and shall be constructed of SDR 26 PVC pipe (ATSM D 3034-94);
 - (c) The drop shall be located 45 degrees from the upstream side of the main sewer;
 - (d) The wall penetration (core) shall be sealed using a "grout" as approved by the City Engineer.
- (6) All public sewers shall terminate in a manhole. Clean-outs will not be utilized except at the end of each service lead.
 - (a) The manhole cover shall have a minimum diameter of 32 inches.
 - (b) All sanitary sewer manholes shall have stainless steel inflow protectors.
- f. Manholes to be coated with Raven 405. Sewper Coat is an approved alternative.
- g. Manholes shall not be located within a driveway, street, or sidewalk.

K. Lift Stations and Wastewater Treatment Plants

1. Lift station design shall comply with the City of Manvel specifications, with a storage volume in the wet well equal to 1.5 times the peak design flow to the lift station. Add 10% to account for volume displaced by pumps.
2. Minimum site size shall be 40 feet by 40 feet. Smaller sites that are adjacent to public rights-of-way are contiguous to green space or similar land use areas, may be approved when adequate odor control provisions are provided.
3. Pumps shall be sized to operate at optimum efficiency. Minimum acceptable efficiency at the operating point will be sixty percent (60%).
4. Operation and maintenance should be considered in the design of the station and the location of the station.
5. Wet well working volume should be sized to allow for the minimum pump cycle of six (6) minutes for each pump.
6. Prior to installation controls and equipment shall be approved by Community Services.
7. Emergency operations shall be considered. Provide fittings and a blind flange that will be readily accessible for emergency bypass pumping.
8. The inlet structure shall be designed to minimize turbulence.
9. The velocity in the Force Main and riser pipes shall be between 3 and 8 fps.
10. The wet well shall be sized to provide adequate clearance between the pumps (refer to manufacturers recommended clearances).

11. A peak factor of four (4) shall be used for Lift Station design.
12. A minimum of two (2) feet of clearance shall be provided between pumps and between pump and wall.
13. Low water levels shall be at least six (6) inches above impeller.
14. Complete immersion of submersible pump motor at low water level is preferred.
15. Tie steel in Lift Station bottom to wall (includes caisson construction situation) to provide watertight wet well.
16. Nuts, bolts, chains and all other metal components within wet well shall be stainless steel.
17. Vent pipe shall be six (6) inches minimum diameter equipped with odor control system.
18. The following Hazen-Williams Coefficient shall be used for various pipe types:

PVC	New	C = 160
	10-year	C = 140
DIP	New	C = 140
	10-year	C = 100
19. Provide minimum 8' board fence (either masonry, cedar or heart redwood) with steel posts in concrete, and a treated 2"x6" (or wider) rot board along the bottom.
20. Entrance drive to be at least fourteen (14) feet wide concrete pavement. Provide enough room to park inside site. Provide rolling gate with minimum 10' wide gate.
21. Indicate method of drainage on site plan. Internal drainage, sheet flow and valley gutter driveways are acceptable. Drain to street or storm sewer, never onto adjacent private property.
22. Locate control panel and wet well hatch above 100-year flood plain. Call out the 100-year flood plain elevation on the plans.
23. Dual stainless steel guide rails (or other pump removal method that avoids entering wet well) are required for submersible pumps.
24. A tee, plug valve (or gate valve), and blind flange assembly is required on the force main on the downstream side of the discharge valves and header. This is required so truck-mounted pumps can bypass the lift station pumps and piping while work is being done.
25. Bedding for PVC force main is bank sand a minimum of 6 inches from all sides of pipe.
26. PVC force mains must be C-900.
27. DIP force mains are to be bedded in bank sand and polyethylene wrapped.
28. When calculating headloss in force main and piping, use of K factors on fittings, with the Hazen-Williams formula, is preferred.
29. Backfill structural excavations (wet well, etc.) with cement stabilized sand.

30. Lift station site plans shall be submitted in scales of 1-inch = 5-feet or 1-inch = 10-feet.
31. Provide a protective coating or concrete additive to interior walls of wet well. Community Services shall approve coating or additive used.
32. Lift station shall be equipped with a telemetry system, approved by City and compatible with existing system. A bubbler system shall be installed and connected to telemetry system to monitor status of lift station.
33. Permanent power supply to lift stations and wastewater treatment plants shall be 3-phase (and 480 volts where possible) and installed prior to City Council acceptance.
34. A system of floats shall be provided to control pumps.
35. A pressure gauge suitable for application shall be installed on each discharge pipe.
36. Emergency backup generator (natural gas or diesel) to be installed on site and hard-wired to the electrical panel, with an automatic transfer switch (permanent installation; not a portable or trailer-mount style). Additionally, a quick-connect style plug to be installed on the panel, as a backup precaution, upon preapproval from Community Services. Generators must be new when installed (not refurbished or previously used).
37. Refer to Section 6 Controlled Access Gate Requirements.

1.05 APPURTENANCES - Reserved

1.06 SUBMITTALS

- A. Preliminary design - submit the following for review and comment:
 1. Copies of any documents which grant approval of exceptions to the City design criteria.
 2. Design calculations for line sizes and grades
 3. Contour map for overall area.
 4. Plan and profile sheets showing proposed improvements (City projects only).
 5. Geotechnical soils report for the project (City projects only).
- B. Final design - submit the following for approval:
 1. Final documents of the above plus plan and profile sheets and Geotechnical soils reports.
 2. Review prints.
 3. Original drawings.

1.07 QUALITY ASSURANCE

- A. Prepare calculations and construction drawings under the supervision of a Professional Engineer trained and Licensed under the disciplines required by the drawings. The final construction drawings must be sealed, signed, and dated by the Professional Engineer responsible for the development of the drawings.
- B. Prior to release of the maintenance bond (and in conjunction with the final walk-thru), the developer shall have all sanitary sewer lines (within the project boundary) inspected with television equipment. Any pipe settlement which causes excess ponding of water in pipeline, any misaligned joints, or other defects shall be cause for rejection. The developer shall provide the City with one copy of the TV videotape and one copy of the TV inspection report. For each segment, the video tape and corresponding written report shall clearly identify:
 - 1. Each line segment being inspected.
 - 2. The size and type of pipe being inspected.
 - 3. Accurate footage of the line segment inspected.
 - 4. Deficiencies in materials, alignment, pipe grade, or any other apparent deficiencies; and
 - 5. Locations of all service connections.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS

- A. Research existing utility and right-of-way information.
- B. Verify that no restrictions exist that will deny approval of the project concept.

2.02 DESIGN ANALYSIS

Calculations of design flow for overall development project. All wastewater components in the City of Manvel and its ETJ shall be designed for a minimum of 315 gallons per equivalent single-family connection.

2.03 DRAWINGS

Drawings shall include layout sheets with contours, plan and profile sheets, and detail sheets for special items and treatment plants.

SECTION 3 WATER

1.0 GENERAL

1.01 CHAPTER INCLUDES:

Criteria for the design of water distribution systems.

1.02 REFERENCES

- A. Texas Commission on Environmental Quality (TCEQ), Water Utilities Division "Rules and Regulations for Public Water Systems," latest revision.
- B. American Water Works Association (AWWA).
- C. National Sanitation Foundation (NSF).
- D. Texas Department of Health.
- E. Texas State Board of Insurance.

1.03 DEFINITIONS

Water Line - Closed conduits designed to distribute potable water for human consumption to various areas and provide fire protection. Line size and fire protection accessory locations are dependent on distance from primary source and quantity of demand.

1.04 DESIGN REQUIREMENTS

- A. Easements for water lines
 - 1. Lines shall be located within street right-of-way, permanent access easements with overlapping public utility easements, easements adjacent to street rights-of way or recorded water line easements.
 - 2. When outside of a public street right-of-way or permanent access easement with an overlapping public utility easement, easements must be dedicated and restricted for water lines only.
 - 3. When possible, easements should be adjacent to public rights-of-way.
 - 4. When possible, water line easements shall be contiguous to a paved access.
 - 5. For water lines located outside of street rights-of-way, the minimum width of easement shall be 20 feet.
 - 6. For water mains located within 5 feet from the right-of-way line, the outside edge of a water line easement shall be located 10 feet from the right-of-way line.

7. Water lines along State rights-of-way shall be installed outside of the right-of-way in a separate 20-foot minimum contiguous easement.
8. No back-lot easements will be allowed for the installation of water lines.
9. Commercial Developments inside the City requiring on-site fire hydrants must provide a minimum 20-foot water line easement for the water line and fire hydrant.
10. Water lines shall be centered in water line easements.
11. When using side lot easements, such easements shall be a minimum of 20 feet in width, located on one lot or centered between lots. If centered between lots, the water line may be centered within the five feet of one lot, or centered in the easement.
12. Location of a water main in an easement not adjoining a public right-of-way shall be prohibited. When approved, these water mains will be centered in a 20-foot wide exclusive easement restricted to water only.

B. Location of water lines

1. Locate water lines within a street right-of-way whenever possible.
2. In the event that a proposed water line cannot be located within the street right-of-way, locate water lines in the center of a dedicated water line easement.
3. When a water line is placed parallel to another utility line, other than a sanitary sewer, the water line shall have a minimum of 4 feet horizontal clearance from outside wall of the water line to the outside wall of the existing utility.
4. All new water lines to be installed with tracer wire for future line locates.

C. Water line size

1. 6-inch lines may be used within cul-de-sacs or if the line is less than 1,000 feet in length and interconnected between two lines which are 8 inches in size or larger. The maximum number of fire hydrants or flushing valves on any length of 6-inch line is one.
2. 8-inch lines may be used for lines over 1,000 feet long or when 2 or more fire hydrants or flushing valves are required.
3. 12 inch and larger lines - lines to be determined by the Professional Engineer (P.E.) and City of Manvel.

D. Dead-end lines shall be avoided.

E. Depth of cover

1. 14 inch and smaller mains and fire lines shall have a minimum cover of 4 feet from top of curb. For open ditch roadway sections, 12 inch and smaller shall be installed at least 3 feet below the ultimate flowline of the ditch or 6 feet below natural ground at the right-of-way line, whichever is deeper.
2. 16 inch and larger mains shall have minimum cover of 5 feet from top of curb. For open ditch roadway sections, 16 inch and larger mains shall be installed at least 3 feet below the flow line of the ditch or 7 feet below natural ground at the right-of-way line, whichever is deeper.
3. Changes in grade to clear other utilities or underground features may be made by deflecting pipe joints. The maximum designed deflection shall be one-half ($\frac{1}{2}$) of the manufacturer's allowable deflection. If a depth greater than 8 feet to the top of the pipes is required, a welded steel section will be used. The standard depth of cover maintained on the water main and the grade change shall be made using the welded steel section. The installation of fittings for vertical deflections or changes in grade shall not be allowed except with specific approval of the City of Manvel.

F. Water line crossings

1. Where a water line crosses another utility (public or private) other than a sanitary sewer, a minimum of 6 inches of clearance must be maintained between the outside wall of the water line and the outside wall of the utility.
2. Elevated Stream and Ditch Crossings
 - a. All water lines shall be steel or restrained joint metallic pipe and shall extend a minimum of 15 feet beyond the last bend or to the right-of-way line, whichever is greater.
 - b. Elevated crossings are preferred to underground crossings.
 - c. Support water lines on existing or proposed bridges. The following criteria may be used when approved in advance by the City Engineer:
 - (1) Have adequate structural capacity.
 - (2) Have sufficient clearance above the bent cap elevation for installation under the bridge.
 - (3) Design elevated crossings with the elevation of the bottom of the water line above the low chord of the nearest adjacent bridge or a minimum of 1 $\frac{1}{2}$ feet above the 100-year flood plain elevation, whichever is higher.
 - (4) Extend pipe from right-of-way to right-of-way for crossings.
 - (5) Provide sufficient span length to accommodate the cross section of future widening of the stream or ditch, if available.
 - (6) Support the line on columns spaced to accommodate the structural capacity of the pipe considering deflection and loading.
 - (7) Base column support design on soil capacity, spacing, loading, and structural requirements.

G. Underground crossings

1. Provide a minimum 3-foot clearance above the top of the pipe to the ultimate flow line of the ditch.
2. Provide sufficient length to exceed the ultimate development of the stream or ditch.
3. All water lines shall be steel or restrained joint pipe and shall extend a minimum of 15 feet beyond the last bend or to the right-of-way, whichever is greater and have valves located on both sides of the crossing.

H. State highway and County Road crossings

1. Extend carrier pipe from right-of-way to right-of-way.
2. Use welded steel pipe or restrained joint pipe in steel casing under existing and future roadways from a point 15 feet outside of the service road or outside of pavement toward the right-of-way, to a similar point on the other side of the highway across the right-of-way. For highway or roadway crossings with open ditch sections, extend the casing from right-of-way to right-of-way.
3. State highway crossings shall be constructed in conformance with the requirements of the Texas Department of Transportation.
4. When additional right-of-way has been acquired or will be required for future widening, the casing, should be carried to within 10 feet of each future right-of-way line.

I. Street crossings

1. All street crossings shall be perpendicular to the right-of-way.
2. All water mains, services and sprinkler line crossings under major thoroughfare boulevards shall be encased using a minimum of PVC pipe, SDR, as shown on the construction detail for "Water Main Encasement." Welded steel pipe may be substituted on street crossings, when specifically approved by the City Engineer.
3. Crossings under existing concrete streets, other than major thoroughfares, shall be constructed by boring and jacking. PVC pipe shall be jacked into place with equipment designed for that purpose. Water may be used to facilitate boring and jacking operations. Jetting the pipe main into place will not be permitted. When conditions exist that warrant an open cut across an existing street, the City may specifically approve the crossing.
4. All open cut installations under existing or proposed streets shall be backfilled as shown in the construction details.
5. All street crossings shall be constructed in accordance with construction plans approved by the City. The City shall inspect all street crossings. All street crossings shall meet the requirements of these standards.
6. All street, road, and creek crossings shall be cased with a larger diameter pipe.

J. Oil and gas pipeline crossings

Do not use metallic pipe when crossing oil or gas transmission lines unless a cathodic system is implemented with City approval. Other pipe may be used, regardless of depth, subject to approval by the City. Maintain minimum 2-foot separation between pipeline and water line.

K. On-site fire loops within commercial and multi-family developments

For developments requiring on-site fire hydrants, comply with the following requirements to allow maintenance and future repair operations:

1. Do not allow placement of structures or equipment pads over easement.
2. Provide 10-foot wide longitudinal pavement joint along easement lines where the water line is located under driveway, parking or street pavement.
3. Locate public fire line within 20' easement, or provide fire line meter at the property line.

L. Additional requirements

1. The carrier pipeline shall extend a minimum of 1 foot beyond the end of the casing to allow flanged joints to be constructed.
2. For welded steel bends, extend steel pipe a minimum of 5 feet beyond the bend.
3. PVC sleeves to be installed under all concrete driveways and streets for future expansion.
4. PVC sleeves to be installed in medians for irrigation lines.
5. Coordinate sleeve size with Community Services.

M. Auger (bore) construction

Use the following general criteria for establishing auger or bore sections:

1. Auger or bore sections shall be clearly shown on drawings.
2. Improved streets - use auger construction to cross the street regardless of surface. Auger length shall be computed as roadway width at proposed bore location plus 5 feet to either side of the roadway, where applicable.
3. Sidewalks - when the water line crosses under a sidewalk in good condition, the sidewalk shall either be bored and jacked or the sidewalk shall be removed and replaced to the City of Manvel criteria, whichever is cost effective. Bore and jack length shall be at least the width of the sidewalk. The proposed type of construction shall be noted on the plans.
4. Bore Pits - Bore pits shall be at least 3 feet from back of curb and 5 feet from the back of curb on a major thoroughfare. All bore pits shall be shored in accordance with OSHA requirements. Bore pits and/or receiving pits to be located in street or driveway paving, shall be shown on plans.

N. Water quality

The layout of the overall water distribution system shall provide maximum circulation of water to prevent future problems of odor, taste, or color due to stagnant water.

1. Provide a source of fresh water at each end or at multiple points of a subdivision. Provide ways to create circulation and place valves and fire hydrants to allow simple flushing of all lines.
2. Avoid dead-ends. When necessary, isolate dead-ends with a line valve, fire hydrant at the line's end, along with an Eclipse 9800i-Genesis Auto Flusher.
3. Where stubs are provided for future extensions, isolate the stubs with a valve and do not allow service connections to stubs until extended. Place one full pipe joint between the valve and stub.
4. Water mains shall be looped unless physically impossible.
5. All materials, which come in contact with public drinking water in any stage, must conform with ANSI/NSF Standard 60.
6. Layout and size of all water mains shall be consistent with the overall layout and phasing plan of the City's water system. The overall water system shall be designed to maintain required TCEQ minimum pressure throughout the system.
7. In an unavoidable dead-end situation, reduce the sizes of pipe successively. Carry an 8-inch pipe to the next to last fire hydrant; use a 6-inch PVC to the end of the line. Provide a fire hydrant at the end of the main.

O. Clearance of water line from other utilities.

1. New water lines parallel to sanitary sewers and force mains
 - a. Locate water lines a minimum of 9 feet horizontally, outside wall to outside wall, when parallel to sanitary sewers or force mains. Use the following procedure when 9 feet of separation cannot be achieved:

When a new water line is to parallel an existing sanitary force main or gravity sanitary sewer and the 9-foot minimum separation distance cannot be maintained, the existing sanitary sewer shall be replaced with lined ductile iron or PVC pipe meeting ASTM specifications, having a minimum working pressure rating of 150 psi or greater and equipped with pressure type joints. The water lines and sanitary sewer shall be separated by a minimum vertical distance of 2 feet, and a minimum horizontal distance of 4 feet, measured between the nearest outside walls of the pipe, and in all cases, the water line shall be located above the sewer. When a water main crosses a utility other than sanitary sewer, a minimum of 6 inches of clearance must be maintained, and the water main shall have one joint of pipe, a minimum 18 feet long, centered on the other utility.

- b. Where a sanitary sewer crosses the water main, and that portion of the sewer within 9 feet of the water is constructed as described in Section 290.44(e) of the TCEQ Rules and Regulations, the water line may be placed no closer than 6 inches from the sewer. The separation distance must be measured between the nearest outside pipe diameters. The water line shall be located at a higher elevation than the sewer, wherever possible and one joint, a minimum of 18 feet long, of the new pipe must be centered on the existing line.
- 2. When water lines are installed in areas, which have existing sanitary sewers, every effort should be made to maintain 9 feet of separation between the outside pipe diameters of the two lines. Where this separation cannot be achieved because of local conditions, which must be fully documented in any planning material submitted, the following spaces shall be observed:
 - a. Where a new water line is to cross, or be installed in parallel with an existing sanitary sewer, and the sewer is constructed as described in Section 290.44(e) of the TCEQ Rules and Regulations, the separation distances specified in those rules shall apply as though the sewer were new.
 - b. Where a new water line is to be installed in parallel to existing clay, truss, or concrete gravity sewer showing no evidence of leakage vertically and 4 feet horizontally, the sanitary sewer need not be disturbed. Should excavation for the water line produce evidence that the sewer is leaking, and then the sewer must be repaired.
 - c. Where a new water main is to cross an existing clay, truss, or concrete gravity sewer showing no evidence of leakage, the sewer need not be disturbed if the water line is to be installed at least 24 inches above the existing sewer. A full joint of the water line, at least 18 feet long, should be centered over the sewer crossing, in this case, so as to provide maximum protection against contamination.
 - d. Existing clay, truss or concrete sewer pipe which shows no evidence of leakage and because of physical limitations must remain at a higher elevation than the proposed intersecting water line or closer than 2 feet may remain undisturbed if the water line is inserted in a joint of pressure type encasement pipe at least 18 foot long and 2 nominal sizes larger than the water line. The encasement pipe should be centered on the sewer crossing and both ends sealed with cement grout. In lieu of this procedure, that portion of the sewer within 9 feet of the water line may be replaced with cast iron or ductile iron pipe with watertight joints as described in Section 290.44(e) of the TCEQ Rules and Regulations, above.
- 3. Sanitary manholes - provide a minimum 9-foot horizontal clearance from outside wall of existing or proposed manholes unless manholes and connecting sewers can be made water tight and tested for no leakage. If a 9-foot clearance cannot be obtained, the water line may be located closer to the manhole when prior approval has been obtained from the City of Manvel by using one of the procedures below; however, in no case shall the clearance be less than 4 feet.
 - a. Water line may be encased in a carrier pipe. Encasement shall be a steel water line in a steel carrier pipe. Open cut and backfilled with cement stabilized sand compacted backfill.
 - b. The water line may be augured past the manhole with one 20-foot section of C-900 PVC pipe 150 psi, installed centered about the existing sanitary manhole with pressure grout using a bentonite/clay mixture.

4. Fire hydrants. Do not install fire hydrants within 9 feet vertically or horizontally of sanitary sewer mains, service leads, and force mains regardless of construction.

P. Water Plants

1. All new storage tanks to be elevated; not ground level. Developer to provide proposed timeline, plan, and funding mechanism for Elevated Storage Tank subject to review and approval by the City.
2. Emergency backup generator (natural gas or diesel) to be installed on site and hard-wired to the electrical panel, with an automatic transfer switch (permanent installation; not a portable or trailer-mount style). Additionally, a quick-connect style plug to be installed on the panel, as a backup precaution, upon preapproval by Community Services. Permanent power supply to water plants shall be installed prior to City Council acceptance. Generators must be new when installed (not refurbished or previously used).
3. Provide minimum 8' board fence (either masonry, cedar or heart redwood) with steel posts in concrete, and a treated 2"x6" (or wider) rot board along the bottom.
4. Entrance drive to be at least fourteen (14) feet wide concrete pavement. Provide enough room to park inside site. Provide rolling gate with minimum 10' wide gate.
5. Indicate method of drainage on site plan. Internal drainage, sheet flow and valley gutter driveways are acceptable. Drain to street or storm sewer, never onto adjacent private property.
6. Refer to Section 6 Controlled Access Gate Requirements.

1.05 APPURTENANCES

A. Valves - Set at maximum distances along line as follows:

1. Six inch (6") through fourteen inch (14") - 1000 feet.
2. Sixteen inch (16") through twenty inch (20") - 2000 feet.
3. The total number of valves at any intersection shall equal the total number of lines leading out from the intersection point minus one, three (3) valves for a cross, and two (2) valves for a tee, unless otherwise specified.

B. Valve Types - All valves shall open counterclockwise and have mechanical joints:

1. Six inch (6") through fourteen inch (14") shall be gate valves.
2. Sixteen inch (16") through twenty inch (20") shall be butterfly valves.

C. Valve Locations

1. All mains shall be valved within the street right-of-way or within a dedicated water line easement. Valves shall not be placed under or within 2 feet of ultimate pavement.

2. Valves are normally located on the projection of intersecting street right-of-way lines or at the curb return adjoining a paved street across the main. Tapping sleeves and valves are excluded from this requirement.
 3. Isolate fire hydrants and flushing valves from the service line with a valve located in the fire hydrant or flushing valve branch. This valve shall not be located in the slope or flowline of ditches on roadside ditch roadways.
 4. Intermediate valves, not located on the projection line of the right-of-way line, shall be located on lot lines or 5 feet from fire hydrants but not set in driveways.
 5. Locate valves a minimum of 9 feet horizontally from sanitary sewer crossings.
 6. Valves shall not be located within a driveway, sidewalk, or street.
- D. Fire hydrants and flushing valves.
1. Spacing
 - a. Single Family Residential Development:
300 foot maximum spacing and at all street intersections
 - b. Non-Residential, Commercial Developments and/or Multi-Family Developments:
300 foot maximum spacing and at all street intersections. Fire hydrants shall be placed to locate a hydrant within 300 feet of all points of each building.
 2. Location in or along street rights-of-way
 - a. Fire hydrants shall be primarily located at street intersections where possible.
 - b. Locate fire hydrants at P.C.s of the intersection curb radius, 3 feet behind the curb or projected future curb.
 - c. On all State highways and roadside ditch roadways, set the fire hydrants within 3 feet of right-of-way lines. Fire hydrants lead valves shall not be located in the slopes or flowlines of ditches.
 - d. Set intermediate fire hydrants on lot lines, as extended to pavement, when located between right of way intersections. These locations may be adjusted 5 feet either way to miss driveways or other obstructions. In either case, do not locate fire hydrants closer than 3 feet from curbed driveways or 5 feet from non- curbed driveways.
 - e. Fire hydrants and flushing valves shall not be installed within 9 feet of a sanitary sewer system under any condition.
 3. Location of fire hydrants or flushing valves outside the street right-of-way
 - a. The City Fire Marshal will establish and approve the location of fire hydrants and flushing valves in apartment complexes and platted private street developments within the City.
 - b. Locate fire hydrants and flushing valves in protected, easily accessible areas behind curb lines.
 - c. For fire hydrants or flushing valves which are located adjacent to water lines constructed in 20-foot-wide water line easements, the fire hydrant or flushing valve shall be centered in a minimum 10'x10' separate easement.
 - d. For commercial and multi-family developments inside the City, provide isolation valves at each end of fire loops requiring on-site fire hydrants.

4. Fire Flow
Fire hydrants must be able to meet current NFPA and adopted Fire Code regulations.
 5. Fire hydrants shall be audited and painted per City specifications
 - a. The barrel (base) and caps shall be baked-on paint Safety Red.
 - b. The bonnet (top) shall be baked-on paint according to the size of the line:

Red	4-inch water line
Yellow	6-inch water line
White	8-inch water line
Green	10-20 inch water line
Orange	24-inch water line and above
 6. 5" built-in Storz connections and dust covers are required on all hydrants.
 7. Fire Department Connections (FDC's) when required shall be remotely located from buildings and have Storz connections. The Fire Department Connection (FDC) shall be located at a point no further than twenty (20) feet from a fire apparatus access road, remotely located at a horizontal distance that is greater than the height of the building on the main street side, and easily accessible to the Fire Department. The location of the FDC shall be such so as to provide hose connections that shall not block access to the building or obstruct other fire apparatus from accessing the building. There shall be an approved sign as specified by the Fire Marshal designating the address served by the FDC. A fire hydrant shall be located within fifty (50) feet of the FDC measured along a fire apparatus road. If there is a conflict between this section and another section of this code, the most restrictive requirement shall apply.
 8. All new fire hydrants to be Mueller A423 Super Centurion with 5" Storz outlet. East Jordan WaterMaster 5CD250 fire hydrants with 5" Storz outlet are an approved alternative.
 9. There shall be a minimum clearance of 3 feet around each fire hydrant.
 10. Fire Department Connections (FDC's) shall be located within 50 feet of a fire hydrant.
 11. Buildings equipped with a standpipe system shall have a fire hydrant within 50 feet of the FDC.
 12. All fire hydrants located in the City and its ETJ shall be identified with a blue reflector affixed to the pavement so that a hydrant is readily visible to arriving fire companies. On unpaved streets, a blue reflector shall be affixed to a post as close as practicable to the edge of the roadway so as to be visible.
- E. Fittings
1. All fittings shall be identified and described on the construction plans.
 2. Fittings are not permitted in fire hydrant leads.
 3. Normally, all water main fittings shall be ductile iron mechanical joints only.
 4. All plugs shall be provided with retention clamps.

5. Polyethylene tube encasement shall conform with the minimum requirements of "Polyethylene Encasement for Gray and Ductile Cast-Iron Piping for Water and Other Liquids", ANSI/AWWA C105, current revision. Soils within the project shall be tested in accordance with Appendix A of ANSI/AWWA C105 to adequately determine the requirements for encasement.
6. Thrust blocking shall be required on all bends, tees, plugs and combinations thereof.
7. All fittings and fire hydrants to be tied together with 3/4-inch stainless steel all- threads and I-bolts or approved equal (i.e., Mega Lugs).

F. Water main service

1. Water main service for lines in or along street rights-of-way.
 - a. Meters 2 inch and smaller - located in rights-of-way, water line easements, or in a minimum 5'x5' separate water meter easement. Meters shall be located in areas with easy access and protection from traffic and adjacent to right-of-way whenever possible.
 - b. Meters 3 inches and larger - located at the property line or in a minimum 10' x 20' separate water meter easement if necessary.
 - (1) Meters shall be located in areas with easy access and protection from traffic and adjacent to rights-of-ways whenever possible.
 - (2) Meters shall not be located in areas enclosed by fences.
 - c. Separate tap and service leads shall be designed for each meter.
 - d. Long service connections to be minimum 1-inch leads within 2-inch PVC casing.
 - e. No water line service shall exceed 150 feet in length.
2. For proposed apartments or town homes in private street developments, provide one master meter sized for the entire development. Exceptions may be granted by the City of Manvel for unusual circumstances. If an exception is approved, do not interconnect multiple meters.
3. All sprinkler and irrigation lines must be equipped with a backflow prevention device according to its application as required by TCEQ. Every new and existing non-single-family residential user is required to install a backflow prevention assembly at any meter servicing such a user's property. The backflow assembly shall be located after the meter for an irrigation system and in a vault near the building for a sprinkler system. A certified tester shall test the backflow prevention assembly annually and submit the results to the City.

1.06 SUBMITTALS

- A. General - Conform to the following submittal requirements in addition to those of general procedure of the City of Manvel.
- B. Water Line Sizes - Submit justification, calculations, and locations for proposed 6-inch lines and for lines 12-inch and larger, for approval by the City of Manvel, unless sizes are provided by the City.
- C. Valves - Submit information for approval by the City of Manvel with justification and locations for use of 16-inch and 20-inch gate valves proposed as substitutes for butterfly valves.

D. Water Meter Service

1. For construction inside city limits, submit an application for meter services and metered sprinkler connections, to the Building Inspections Division, prior to construction.
2. Submit requests for more than one service meter in proposed private street or multi-family developments to the City.
3. All new and replacement water meters to be 3/4-inch Neptune E-Coder R900i unless approved by the City Engineer.

E. Elevated stream or ditch crossings - Submit design calculations for support columns and column spacing.**F. Master Development Plan - For multiple phase developments, submit a master development plan.****G. Backflow Prevention**

1. All irrigation lines must be equipped with backflow prevention devices per TCEQ.
2. A double check backflow prevention assembly is required for 3" and larger lines.
3. Every new and existing non-single-family residential user is required to install a backflow prevention assembly at any meter servicing such a user's property.
4. Refer to Section 71-7 of the City Code.

1.07 QUALITY ASSURANCE

Prepare calculations and construction drawings under the supervision of a Professional Engineer trained and licensed under the disciplines required by the drawings. The final construction drawings must be sealed, signed, and dated by the Professional Engineer responsible for the development of the drawings.

2.0 EXECUTION**2.01 RESEARCH REQUIREMENTS**

- A. Research existing utility and right-of-way information.
- B. Verify that no restrictions exist that will deny approval of the project concept.

2.02 DESIGN ANALYSIS

- A. Water line sizes - Prepare narrative justification and calculations for proposed 6-inch lines and for lines 12-inch and larger, unless sizing is provided by the City of Manvel in advance.
- B. Elevated stream or Ditch Crossings - Prepare design calculations for support columns and column spacing.
- C. Developments of 100 acres or more to provide Regionalization Plan, including interconnection(s) with adjacent properties subject to review and approval by the City.

- D. All water components in the City of Manvel and its ETJ shall be designed for a minimum of 360 gallons per day per equivalent single-family connection.

2.03 DRAWINGS

- A. General: Conform to the following drawing requirements in addition to those of "Graphic Requirements" and the City's standard water line details and standard specifications.
- B. Appurtenances - Identify, describe and enclose in rectangular box on drawings.
 - 1. Valves
 - a. Designate 6-inch through 12-inch gate valves with box as GV&B.
 - b. Provide complete description and size for other valves.
 - 2. Water meters, service leads, and metered sprinkler connections.
 - a. Show the location of service line tees, tapping sleeve and valves, valve boxes, and temporary plugs to be installed to serve future 3-inch or larger meters.
 - b. Develop plan and profile sheets for 4-inch and larger leads and all service connections that cross state rights-of-way (FM1128, SH6, etc.).
- C. Construction features
 - 1. Show all special construction features required to complete the project in a safe, convenient and economical manner.
 - 2. Auger Construction
 - a. If the construction is predominately open cut, all portions of the street that must be augured shall be clearly shown on drawings by location and length. Include designation for sections at trees with 6 inches or larger diameters located within 10 feet of water Line.
 - b. Curbs - Include a requirement on drawings for construction of wheel chair ramps at street intersections where curbs are to be removed or are damaged by water line construction. Conform to the City's standards for ramps.

SECTION 4 PAVING

1.0 GENERAL

1.01 CHAPTER INCLUDES:

Design guidelines for streets, criteria for street paving, and standard paving notes for drawing call outs.

1.02 REFERENCES

- A. AASHTO - American Association of State Highway and Transportation Officials.
- B. ASTM - American Society for Testing Materials.
- C. ACI - American Concrete Institute.
- D. MUTCD - Texas Manual on Uniform Traffic Control Devices.
- E. City of Manvel Transportation Corridor Plan

1.03 DEFINITIONS

- A. Geotechnical Engineer - An engineer certified by the American Association for Laboratory Accreditation (A2LA).
- B. HMAC - Hot Mix Asphaltic Concrete.
- C. Curb and Gutter Sections - Full width concrete pavement with doweled on 4-inch by 12-inch curbs. Curb and gutter sections require inlets and underground storm sewers.
- D. Roadway ditch sections - Ditch sections adjacent to either full width reinforced concrete pavement or asphaltic pavement. Roadside ditch sections do not require underground storm sewers; however, the ditch sections must be designed to accommodate the storm runoff.

1.04 DESIGN REQUIREMENTS

The following design requirements are applicable to all pavement within the City of Manvel, and its ETJ.

- A. General
 - 1. All paving shall be approved by the City of Manvel for all streets within the City.
 - 2. Street design should conform to all applicable planning tools, such as the Texas Manual on Uniform Traffic Control Devices, major thoroughfare plans, master plans, etc. Other considerations for design should include street function, street capacity, service levels, traffic safety, pedestrian safety, and utility locations. These additional considerations may affect the minimum requirements set forth herein. Refer to the City of Manvel Major Thoroughfare Plan and Transportation Corridor Plan.
 - 3. Design shall conform to the City of Manvel Standard Details.

B. Minimum Width Requirements and Paving

1. The minimum ROW width for all streets in the City of Manvel and its ETJ is 60 feet. The minimum pavement width for all developments is:
 - a. Curb and Gutter sections: 28 feet back-to-back of curb (B/B).
 - b. Open-ditch sections: 26 feet edge to edge of pavement.
2. Per the City of Manvel Thoroughfare Plan, a minimum 80 feet ROW is required for the following:
 - a. Charlotte
 - b. Chocolate Bayou
 - c. Dogwood Avenue
 - d. Iowa Lane
 - e. Jordan Road
 - f. Rodeo Drive
 - g. Uzzell Road
3. Per the City of Manvel Thoroughfare Plan, a minimum 100 feet ROW is required for the following:
 - a. Bahler Avenue (CR 100)
 - b. Bissell Road
 - c. Booth Road
 - d. Cemetery Road (Harkey Road)
 - e. Clark Road
 - f. Lewis Lane
 - g. Oil Field Road (County Road 98)
 - h. Scopel Road
4. Per the City of Manvel Thoroughfare Plan, a minimum 120 feet ROW is required for the following:
 - a. Airline Road (County Road 48)
 - b. Bailey Avenue (County Road 101)
 - c. Croix Road (Country Road 58)
 - d. Del Bello Boulevard (Rodeo Palms Parkway / Belcher / County Road 397)
 - e. Kirby Drive
 - f. Manvel Parkway (County Road 94)
 - g. Markham Road
 - h. Masters Road (FM1128 / County Road 67)
 - i. McCoy Road (Meridiana / Peters / Patterson / County Road 89 / Old Chocolate Bayou)
 - j. Pearland Sites Road (County Road 99 / County Road 143)
 - k. Pollard Boulevard (County Road 90)
 - l. Southfork Drive (County Road 59)

C. Minimum Thickness and Reinforcement Requirements for Concrete Pavement

The following requirements are the minimum allowable. Pavement thickness and reinforcement shall be designed by the Professional Engineer responsible for the project based on a current soil analysis and recommendations by a qualified geotechnical engineer.

1. For pavement widths less than or equal to 28 feet B/B of curb:
 - a. Minimum concrete slab thickness shall be 6 inches with $f_c = 4,000$ psi and reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars spaced at 18 inches center to center both ways and minimum lap lengths of 18 inches. Expansion joints shall be placed at the end of each curb return and at a maximum spacing of 60 feet.
 - b. Minimum stabilized subgrade thickness shall be 6 inches.
2. For pavement widths greater than 28 feet B/B and for major arterial thoroughfares:
 - a. Minimum concrete slab thickness shall be 7 inches with $f_c = 4,000$ psi and reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars spaced at 18 inches center to center both ways and minimum lap lengths of 18 inches. Expansion joints shall be placed at the end of each curb return and at a maximum spacing of 60 feet on residential and collector streets, and a maximum spacing of 60 feet on boulevards and major thoroughfares.
 - b. Minimum stabilized subgrade thickness shall be 8 inches.

D. Subgrade Treatment

Geotechnical Engineer shall base depth of subgrade stabilization on structural number (SN) in conjunction with pavement thickness design. Following is a general guidance for subgrade treatment:

1. For subgrade soil conditions with a clay content of 10.0% or higher and plasticity index (PI) of 10 or more, the subgrade shall be stabilized with lime. Subgrade shall be stabilized with a minimum 6% lime by weight, at required thickness and compacted to 95% standard proctor density. Alternative subgrade stabilization may be substituted when specific recommendations are made by the geotechnical engineer for the project, and when specifically approved by the City Engineer.
2. For subgrade soil conditions containing clean sand with no clay content, the subgrade shall be stabilized with cement.

E. Requirements for Intersections, Turnouts, Transitions, and Thoroughfares

1. At a "T" intersection with a street that has not been improved to its ultimate width, concrete pavement should be stopped either at the right-of-way line or the end of the curb return, whichever would require less concrete removal at a future date.
2. For roadway turnouts placed at an existing street intersection, the turnout should be designed to fit the ultimate pavement width of the intersecting cross street and then transitioned to the existing roadway.

3. The usual transition length for meeting an open-ditch street is 50 feet for street widths less than or equal to 28 feet B/B; 75 feet for 37 feet B/B width; and 100 feet for 41 feet B/B width.
 - a. Streets other than concrete shall have transitions with a minimum thickness of 8 inches of lime stabilized subgrade, 6 inches of hot-mix asphaltic concrete base, or approved equal, with 2 inches of hot-mix asphaltic surfacing.
 - b. Concrete streets shall have transitions with a minimum thickness of 6 inches of stabilized subgrade and 6 inches of concrete pavement.
 4. When paving only one roadway of a proposed two-roadway thoroughfare (boulevard section) all left-turn lanes and esplanade crossovers shall be paved to the centerline of the street right-of-way.
- F. Requirements for Roadway Pavement with existing Open-Ditch Sections
1. No new open-ditch drainage systems are permitted.
 2. Minimum grade on ditches shall be 0.20 percent.
 3. Ditch capacity shall be designed to handle runoff as determined by the City Drainage Design Requirements.
 4. The maximum side slope shall not exceed 3:1.
 5. Culverts for roadside ditch only, shall be designed to carry ditch discharge, but not less than 18-inch diameter pipe constructed of reinforced concrete.
 6. The radius for cul-de-sac pavement shall be 50 feet in a 60' radius ROW.
- G. Requirements for Roadway Pavement with Curb and Gutter Sections
1. Inlet spacing:
 - a. Curb inlets shall be spaced and sized to intercept the calculated runoff for the design storm. The water surface elevation at the inlet shall be less than or equal to the top of curb for the design storm flow.
 - b. Maximum travel distance of water in the street to a curb inlet shall be 300 feet on a major thoroughfare and in a commercial area. The maximum travel distance of water in the street permitted in a single-family residential area shall be 500 feet.
 - c. Curb inlets should be located on the intersecting side street at an intersection with a major thoroughfare. Locations on the major thoroughfare at intersections shall be specifically approved by the City Engineer.
 - d. Curb inlets shall have grate inlets lids.
 - e. Backfill around inlets with 1.5 sacks per cubic yard of cement stabilized and to top of first stage inlets.
 2. Minimum gutter gradient shall be 0.30 percent.
 3. Maximum cut from finished grade at property line to top of curb shall be 1.75 feet.
 4. The desired slope for driveways is 2% to 8%. A maximum slope of 10% may be allowed with specific approval of the City.

5. Minimum grade shall be 1 percent fall around intersection turnout for a maximum radius of 25 feet. Grades for larger radius shall be determined on an individual basis.
6. Vertical curves shall be installed when algebraic differences in grades exceed 1 percent. Elevations shall be shown at 10-foot intervals through vertical curves. Maintain a minimum of 0.03-foot elevation change at 10-foot intervals by altering the calculated elevations.
7. The radius for cul-de-sac pavement shall be 50 feet in a 60 feet radius ROW.
8. When a curb and gutter section intersects a drainage ditch, the grade of gutter shall be above the designed water surface of the ditch.
9. Minimum gutter grade for cul-de-sac shall be 0.60 percent.
10. Major thoroughfares shall be in accordance with AASHTO.
11. The amount of cross slope over the pavement section should be shown on the drawings. The usual cross slope is 3/8 inch per foot from curb line to quarter, and 1/4-inch per foot from quarter point to the center line, and 7/8-inch per foot for left-turn lanes.
12. A minimum gradient of 0.40 percent around the longest radius is required on an L-Type street intersection.
13. When meeting an existing curbed street, top of curb grades shall be designed to meet an elevation 6 inches above the existing gutter. At existing inlets, top of curb grades shall be designed to match existing top of curb elevations.
14. Fill lines shall be shown on the drawings. If fill is required and the pavement is adjacent to a nonparticipating property owner, fill easements from this property owner shall be obtained, filed, and a copy of the easements shall accompany the final drawings. Construction of this nature will require back-slope drainage design to prevent trapping storm runoff.
15. Grades should be labeled for all tops of curb. Centerline grades are acceptable for open-ditch sections only.

H. Requirements for Inlets with Curb and Gutter Sections:

1. Type "BB" with grate tops or type "H-2" inlets shall be used on all curb and gutter sections within the City depending on runoff requirements.
2. Inlets should be placed away from the major thoroughfare and on the side streets at street intersections.
3. Attempt to keep the proposed inlets away from esplanade openings and out of major thoroughfare intersections.
4. Inlets shall be placed at the end of pavement in order to eliminate drainage from the pavement gutter into an open-ditch.

5. On open-ditch streets, place stubs with ring grates from inlets to ditches.
- I. Requirements for Curbs and Sidewalks:
1. Standard curb height is 4-inches and 12-inches wide for curb located along outside edges of residential streets. Curb height for streets other than residential shall be 6 inches. The curb height for all esplanades shall be 6-inches.
 2. Sidewalk wheelchair ramps are required at all intersections and driveways. The design and installation of such ramps shall comply with Texas Accessibility Standards Architectural Barriers requirements.
 3. All sidewalks are to be constructed in accordance with the City of Manvel Standard Details and Master Thoroughfare Plan. The design and installation of such sidewalks shall comply with Texas Accessibility Standards Architectural Barriers requirements.
 4. Sidewalks are required along all streets. The developer, prior to the City's final acceptance of the infrastructure, must install sidewalks along reserves and ROW.
 5. Sidewalks may be constructed as part of the issuance of a building permit, for single-lot site development projects where a sidewalk is the only required infrastructure construction. For such projects, a certificate of occupancy shall not be issued prior to City's final acceptance of the sidewalk.
 6. Generally, sidewalks shall have a width of not less than 5 feet. Along streets that do not have a corresponding street type cross-section in the Master Thoroughfare Plan, including streets with open-ditches, sidewalks shall have a width of not less than 5 feet.
 7. Non-residential site development projects within City of Manvel ETJ, shall include a sidewalk within the building setback area if a sidewalk is not permitted within the public right-of-way.
 8. The location of all proposed and existing sidewalks shall be shown on the construction drawings and plan and profile drawings.
- J. Requirements for Miscellaneous Items:
1. The type and amount of subgrade treatment shall be shown on the drawings.
 2. Paving headers shall be placed at the end of all concrete pavements.
 3. All concrete to be removed shall be saw cut before removal.
 4. Sight distance requirements based on the design speed the roadway shall be used for determining lengths of crest vertical curves for all pavements except boulevard sections which shall be designed for 45 mph.
 5. Standard City of Manvel barricades shall be placed at the end of all dead-end streets not terminating in a cul-de-sac.
 6. Submit to the appropriate drainage agency before City approval.

7. A letter of agreement approving the construction plan crossing is required when paving is placed over a transmission pipeline.
8. When meeting existing concrete pavement, horizontal dowels shall be used if no exposed reinforcing steel for interconnection with new pavement exists. Horizontal dowels shall be Grade 60, #6 rebar, 24-inches long, drilled and embedded 12-inches into the center of the existing slab and epoxied. Dowels shall be 18 inches center to center, unless otherwise specified.
9. When concrete is removed for interconnections, the pavement shall be saw-cut, and existing concrete removed, to expose a minimum of 15-inches of reinforcing steel. If no reinforcing steel exists, use horizontal dowels as previously described.
10. Dead-end streets or ends of concrete slabs designed to be extended in the future shall have paving headers and 15-inches of reinforcing steel exposed beyond the pavement, coated with asphalt and wrapped with burlap or paving headers and dowel type expansion joint for future pavement tie.
11. Pavement extensions shall connect to the existing pavement with a pavement undercut and a minimum steel overlap of 18-inches.
12. Concrete pavement thickness design is required for all pavement within industrial areas and on major thoroughfares. Concrete pavement thickness design shall be based on AASHTO design procedures for rigid pavements.
13. The pavement structure for each roadway shall be designed based on soil data from the site and based on the anticipated traffic volume, loading and service life of the proposed pavement structure. The design engineer is responsible for ensuring that the pavement structure is designed to withstand the anticipated loads that are expected on the roadway.
14. Adjust manhole frames and covers within the limits of the pavement to meet the proposed final top of slab.
15. Adjust manhole frames and covers outside the limits of the pavement to conform to the final grading plan.
16. No more than one (1) shrinkage crack shall be allowed in each header section. A shrinkage crack is defined as extending one half or more of the full depth of the concrete (i.e., 3" or more on 6" thick concrete) appearing within 2 years of the final concrete placement. If two (2) or more shrinkage cracks appear in a header, the entire section shall be removed and replaced at contractor's expense.
17. If shrinkage cracks are less than one half of the depth of the concrete (i.e., less than 3" on 6" thickness) then a recommendation letter and data sheets are required from the testing laboratory as to the type of sealant which will be used to seal the shrinkage cracks. This recommendation shall be approved by the City Engineer before application of sealant.
18. Core samples for the sections will be taken no sooner than the twenty-eight (28) day break of the original concrete pour sample.

19. All medians must be sleeved for future irrigation lines.
20. Refer to MUTCD for pavement and curb markings near stopping points, crosswalks, etc.
21. All under-pavement utility crossings to be sleeved.
22. Manholes, fire hydrants and water valves shall not be located within a driveway, sidewalk, or street.

K. Original Manvel Townsite

1. The Original Manvel Townsite (OMT) area is bounded by Cemetery Road on the east, Large Drive on the north, McCoy Road on the west, and the railroad tracks (sitting just north of Bissell Road), on the south.
2. The special regulations in this section shall apply to lots in the OMT zoned Light Commercial or Planned Unit Development (PUD) allowing for commercial land use, where the lot is five (5) acres or less.
3. Roads in the OMT may be constructed with a minimum 26-foot wide asphalt (instead of concrete), with a minimum thickness of 8 inches of lime stabilized subgrade, 6 inches of hot-mix asphaltic concrete base, and 2 inches of hot-mix asphaltic surfacing.
4. Roadside ditches (open ditches) are permitted in the OMT.

1.05 APPURTENANCES – Reserved

1.06 SUBMITTALS – Reserved

1.07 QUALITY ASSURANCE.

- A. All construction drawings and specifications shall be prepared by or under the supervision of a currently Registered Professional Engineer of the State of Texas, and all documents shall be sealed, dated, and signed by the engineer responsible for their preparation.
- B. All geotechnical work shall be performed by or under the supervision of a currently Registered Professional Engineer of the State of Texas disciplined in the science of soil analysis. All reports and documents shall be sealed, dated, and signed by the engineer responsible for their preparation.
- C. The designated laboratory technician must be on the jobsite at all times during the placement of concrete.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS – Reserved

2.02 DESIGN ANALYSIS

- A. All pavement design shall be supported by calculations to establish the required thickness and reinforcement.
- B. The current soils report shall be the basis for design considering the use, loading, and life span of the proposed pavement.

- C. Storm sewer inlets shall be established in such numbers and in such locations as to effectively drain storm water from paved sections. A graphical plot and calculations of the hydraulic gradient shall be furnished by the design engineer.
- D. Open-ditch drainage shall be designed to accommodate the anticipated storm runoff, and all culverts shall be designed to accommodate the expected ditch capacity. Construction drawings shall indicate the direction of flow in the ditches, and profiles of the ditches shall reflect this slope. Anticipated volumes of storm drainage shall be identified in each ditch to enable future culverts to be sized to accommodate anticipated runoff.

SECTION 5 DRAINAGE

1.0 GENERAL

1.01 CHAPTER INCLUDES:

Criteria for the design of storm drainage improvements.

- A. Design requirements - The drainage criteria administered by the City of Manvel and complemented by Brazoria County for newly designed areas provides protection from structural flooding from a 100-year storm event. This is accomplished with the application of various drainage enhancements such as storm sewers, roadside ditches, open channels, detention and overland (sheet) runoff. The combined system is intended to prevent structural flooding from extreme events up to a 100-year storm.
- B. Street Drainage - Street ponding of short duration is anticipated and designed to contribute to the overall drainage capability of the system. Storm sewers and roadside ditch conduits are designed as a balance of capacity and economics. These conduits are designed to convey less intense, more frequent rainfalls with the intent of allowing for traffic movement during these events. When rainfall events exceed the capacity of storm sewer system, the additional run-off is intended to be stored or conveyed overland in a manner that reduces the threat of flooding to structures.
- C. Flood Control - The City of Manvel is a participant in the National Flood Insurance Program. The intent of the flood insurance program is to make insurance available at low cost by providing for measures that reduce the likelihood of structural flooding.
- D. Relationship to the Platting Process - Approval of storm drainage is a part of the review process for planning and platting of new development.

1.02 REFERENCES

- A. City of Manvel Flood Damage Prevention Ordinance subsequent revisions.
- B. Brazoria County Design Criteria Manual

1.03 DEFINITIONS

Conduit - any open or closed device for conveying flowing water.

Drainage Area Map - Area map of watershed, which is subdivided to show each area served by each subsystem.

FEMA - Federal Emergency Management Agency

Hydraulic Grade Line - A line representing the pressure head available at any given point within the drainage system.

In-Fill Development - Development of open tracts of land in areas where the storm drainage infrastructure is already in place and takes advantage of the existing infrastructure as a drainage outlet.

Public storm sewers - Defined as sewers and appurtenances that provide drainage for a public right-of-way, or more than one private tract, and are located in public right-of-way or easement. Private storm sewers provide internal drainage for a reserve or other tract. Private storm sewer connections to public storm sewers shall occur at a manhole or at the back of an inlet. All private storm sewers shall be constructed in conformance with these standards.

Rainfall frequency- Probability of a rainfall event of defined characteristics occurring in any given year. The National Weather Service publishes information on rainfall frequency. For the purpose of storm drainage design, the following frequencies are applicable:

1. 5-year frequency – a rainfall intensity having a 20 percent probability of occurrence in any given year, or nominally likely to occur once every 5 years.
2. 10-year frequency – a rainfall intensity having a 10 percent probability of occurrence in any given year, or nominally likely to occur once every 10 years.
3. 25-year frequency – a rainfall intensity having a 4 percent probability of occurrence in any given year, or nominally likely to occur every 25 years.
4. 100-year frequency - a rainfall intensity having a 1 percent probability of occurrence in any given year, or nominally likely to occur every 100 years.

Redevelopment - A change in land use that alters the impervious cover from one type of development of either the same type or another type, and takes advantage of the existing infrastructure in place as a drainage outlet.

Sheet Flow - Overland storm run-off that is not conveyed in a defined conduit, and is typically in excess of the capacity of the conduit.

1.04 DESIGN REQUIREMENTS

All designs of drainage facilities should meet the requirements of the City of Manvel Standard Specifications and Standard Drawings.

A. Determination of Run-off

1. Design Storm Events - All drainage improvements shall be designed for the following storm frequencies:

Road Side Ditch	5 years
Storm Sewers	5 years
Channels/Storm Sewers/Culverts draining 100 acres or less	25 years
Bridges	100 years
Creeks/Channels/Culverts draining 100 acres or more	100 years

2. The Rational Method shall be used for determining the peak flow rate in the sizing of all drainage improvements.

- a. Time of Concentration (minutes) is the time required for peak runoff from the entire upstream contributing area to reach the point of interest. Time of concentration can be calculated based upon an analysis of the actual travel time from the most remote point in the drainage area. The travel path should be clearly denoted and a sketch included in the design calculations.

$$t_c = D/60V + 10 \text{ (minutes)}$$

$$D = \text{flow distance (ft)}$$

$$V = \text{flow velocity (ft/sec)}$$

For purposes of calculating t_c , use the following velocities:

$$V = 0.5 \text{ ft/sec for overland flow (undeveloped)}$$

$$V = 1.0 \text{ ft/sec for overland flow (developed)}$$

$$V = 1.5 \text{ ft/sec or flow across paved surfaces or along gutter flowlines.}$$

$$V = 2 \text{ ft/sec for flow in ditch or channel}$$

$$V = 3 \text{ ft/sec for flow in storm sewer}$$

- b. Rainfall Intensity (inches/hour) shall be calculated using the following formula:

$$I = \frac{b}{(d + t_c)^e}$$

Values to be used in Manvel are listed below:

Rainfall Frequency	b	d	e
5-year	58.019	9.236	0.712
10-year	57.515	7.777	0.676
25-year	52.780	5.022	0.618
100-year	46.316	1.555	0.533

b, d, and e values are derived from a single frequency rainfall intensity graph.

b = the y-intercept of the straight line

d = a constant used to adjust the relationship to plot as a straight line

e = the slope of the straight line

Source: Brazoria County Drainage Criteria Manual May 2022

- c. The Rational Method is a method for calculating the peak run-off for a storm drain system. The formula for determining the peak flow rate is:

$$Q = C_f CIA$$

Q = Flow rate (cubic feet per second (cfs))

C_f = Frequency factor, if the product of C_f and C exceeds 1.0, use 1.0

C = Runoff Coefficient

I = Rainfall intensity (inches/hour) for a given storm frequency

A = Area (acres)

For the purposes of calculating C_f use the following values:

C_f = 1.00, for storm frequencies of 10 years or less

C_f = 1.10, for storm frequencies of 25 years

C_f = 1.25, for storm frequencies of 100 years

For the purposes of calculating C use the following values:

<u>Land Use Type</u>	<u>Run-off Coefficient</u>
Raw Undeveloped Acres	0.20
Improved Undeveloped Acres (i.e., mowed, filled, re-graded, etc.)	0.30
Park Land	0.40
Residential:	
Single Family Estates (≥ 2 acres)	0.45
Single Family Estates (≥ 1 acre)	0.50
Single Family (< 1 acre)	0.55
Garden Homes	0.65
Multi Family Low	0.75
Multi Family Medium	0.80
Multi Family High	0.85
Mobile Homes	0.85
Commercial	0.90
Industrial	0.95
Pond (detention and amenity)	1.00

Alternatively, the run-off coefficient "C" in the rational method formula can be calculated from the equation:

$$C = 0.6Ia + 0.2$$

C = watershed coefficient

Ia = impervious area/total area

If the alternate form is to be submitted, the calculation of C shall be provided as part of the drainage calculations.

B. Design of storm sewers

1. Design Frequency

a. Newly Developed Areas

The design storm event for sizing storm sewers in newly developing areas will be a 5-year rainfall. In the case where new development will interfere with the natural sheet flow of the land, the storm system must accommodate the runoff. Runoff should not be allowed to run over newly developed lots or streets. Stub out streets next to underdeveloped areas are to stub out storm lines to the limits of the streets.

b. Redevelopment or In-fill Development

The existing storm drain will be evaluated using a 5-year storm, assuming no development takes place. The storm drain will be evaluated with the development in place.

(1) If the proposed redevelopment has a lower or equal impervious cover, no modifications to the existing storm drain are required.

(2) If the hydraulic gradient of the existing storm drain is below the top of the curb, no improvements to the existing storm drain are required.

c. Private Drainage Systems

Storm sewers for private drainage systems should conform to the City of Manvel Standards for public drainage systems.

(1) An approved development permit must be filed with the City of Manvel before any work shall be done on a private drainage system. Part of the development permit include a plan and profile sheets detailing the scope of the work including elevations.

(2) Open ditch areas may be converted into storm sewer lines with the approval of a development permit. Guidelines for the process are available at the City of Manvel.

2. Velocity Considerations

a. All storm drains shall be designed by the application of Manning's Equation and the Continuity Equation:

$$\text{Manning's Equation: } V = (1.486/n) R^{2/3} S^{1/2}$$

V = velocity (ft/sec)

R = hydraulic radius (area in square feet/wetted perimeter in feet)

S = slope of energy line in feet

n = coefficient of roughness

n = 0.013 for concrete pipes,

n = 0.024 for CMP

n = 0.011 for PVC

n = 0.012 for HDPE

Note: All public storm sewers must be constructed of RCP. Manning's roughness coefficients for CMP, PVC, and HDPE are to be used for private storm sewers only. All storm sewer pipes entering City of Manvel ROW shall be RCP.

$$\text{Continuity Equation: } Q = VA$$

Q = discharge (cfs)

V = velocity (ft/sec)

A = cross sectional area of conduit (ft²)

- b. Design velocities shall be 3 feet per second with the pipe flowing full.
- c. Maximum velocities shall not exceed 7 feet per second.
- d. Minimum Storm Sewer Pipe Slopes:

<u>Pipe Diameter</u>	<u>% Slope</u>
18	0.26
24	0.18
30	0.14
36	0.11
42	0.08
48	0.07
54	0.06
60	0.05

For pipe sizes not listed above, the minimum slope should be determined utilizing a design velocity of 3 fps.

3. Pipe Sizes and Placement

- a. Use the storm sewer and inlet leads with at least 24-inch inside diameter or equivalent cross section. Box culverts shall be at least 2 feet x 2 feet. Closed conduits: circular, elliptical, or box, shall be selected based on hydraulic principals and economy of size and shape.
- b. Larger pipes upstream should not flow into smaller pipes downstream unless construction constraints prohibit the use of a larger pipe downstream, or the improvements are outfalling into an existing system, or the upstream system is intended for use in detention.
- c. Match crowns of pipe at any size change unless severe depth constraints prohibit.
- d. Locate storm sewers in public street rights-of-way or in parallel and adjoining easements or in approved easements. Easements must be at least 20-feet wide and the storm sewer must be centered in the easement. Side and back lot easements are discouraged.
- e. Follow the alignment of the right-of-way or easement when designing cast in place concrete storm sewers.
- f. A straight line shall be used for inlet leads and storm sewers.
- g. Center culverts in side lot storm sewer easements.
- h. Storm boxes may substitute for pipes when workable space is an issue.

4. Starting Water Surface and Hydraulic Gradient

- a. The hydraulic gradient shall be calculated assuming the top of the outfall pipe as the starting water surface.
- b. At drops in pipe flowline, should the upstream pipe be higher than the hydraulic grade line, then the hydraulic grade line shall be recalculated assuming the starting water surface to be at the top of pipe at that point.
- c. For the design storm, the hydraulic gradient shall at all times be below the gutter line for all newly developed areas.
- d. Hydraulic grade lines shall be shown on all profile drawings.

5. Manhole Locations

Use manholes for precast conduits at the following locations:

- a. Size or cross section changes.
- b. Inlet lead and conduit intersections.
- c. Changes in pipe grade.
- d. Street intersections.
- e. A maximum spacing of 500 feet measured along the conduit run.
- f. Manholes shall be placed so as not to be located in the driveway area.

6. Inlets

- a. Locate inlets at all low points in gutter.
- b. Valley gutters across intersections are not permitted.
- c. Inlet spacing is generally a function of gutter slope. For minimum gutter slopes, the maximum spacing of inlets shall result from a gutter run of 500 feet from high point in pavement or the adjacent inlet on a continuously graded street section, with a maximum of 1000 feet of pavement draining towards any one inlet location.
- d. Use only Standard Inlets:

Inlet	Application	Capacity
Type A	Parking Lots/Small Areas	2.5 cfs
Type B-B	Residential	5.0 cfs
Type D	Parking Lots	2.0 cfs
Type E	Roadside ditches	20.0 cfs
Type H-2	Residential / Commercial	5.0 cfs
- e. Do not use "Beehive" grate inlets or other "specialty" inlets.
- f. Do not use grate top inlets in unlined roadside ditch.
- g. Place inlets at the end of the proposed pavement, if drainage will enter or leave pavement.
- h. Do not locate inlets adjacent to esplanade openings.
- i. Place inlets on side streets intersecting major streets, unless special conditions warrant otherwise.
- j. On-grade inlets shall be allowed.

C. Consideration of Overland Flow

1. Design Frequency. The design frequency for consideration of overland sheet flow shall consider extreme storm events, which exceed the capacity of the underground storm sewer system resulting in ponding and overland sheet flow through the development to the primary outlet.
2. Relationship of Structure to Street. All structures shall be constructed according to the Flood Damage Prevention Ordinance and should be higher than the highest level of ponding anticipated from the extreme event analysis.

3. Calculation of Flow
 - a. Streets will be designed so that consecutive high points in the street will provide for a gravity flow of drainage to the ultimate outlet.
 - b. The maximum depth of ponding at high points will be the top of curb or the centerline of roads without curb.
 - c. The maximum depth of ponding at low points will be 12-inches above the gutter on curb and gutter roads, or 6 inches above the centerline of roads without curb.
 - d. Sheet flow between lots can be provided only through a defined drainage easement.
 - e. A map shall be provided to delineate extreme event flow direction through a proposed development and how this flow is discharged to the primary drainage outlet.
 - f. In areas where ponding occurs and no sheet flow path exists, then a calculation showing that run-off from the 100-year event can be conveyed and remain in compliance with the other terms of this section must be provided.
 4. Overland Flow shall enter outfall drainage facilities (channels or detention pond) through a storm sewer sized to convey the 100-year event. Calculations shall be submitted for sizing the structure and determining that adequate inlet capacity exists.
- D. Design of Open Channels
1. Design Frequency
 - a. Open channels shall be designed according to methods described in the corresponding Drainage District's Design Criteria Manual.
 - b. Design standards for channel construction should follow the requirements specified in the corresponding Drainage District's Design Criteria Manual.
 - c. Design standards for the outfalls into channels should conform to those in the corresponding Drainage District's Design Criteria Manual.
 2. Determination of Water Surface Elevation.
 - a. Water surface elevations shall be calculated using Manning's Equation and the Continuity equation.
 - b. For the design storm event, the water surface should be calculated to remain within banks and below freeboard.
 3. Design of Culverts
 - a. Head losses in culverts shall conform to TxDOT requirements.
 - b. Generally, only RCP will be approved for culverts in City right-of-way.

E. Design of Roadside Ditches

1. Design Frequency
 - a. The design storm event for the roadside ditch shall be to 0.5 feet below the edge of pavement or the natural ground at the right-of-way line, whichever is lower.
 - b. Design capacity for a roadside ditch shall be to 0.5 feet below the edge of pavement or the natural ground at the right-of-way line, whichever is lower.
 - c. The design must include an extreme event analysis to indicate that structures will not be flooded.
2. Velocity Considerations
 - a. For grass-lined sections, the design velocity shall be 2.0 feet per second during the design event. The maximum velocity shall be 5 fps.
 - b. A grass-lined or unimproved roadside ditch shall have side slopes no steeper than three horizontal to one vertical.
 - c. Minimum grades for roadside ditches shall be 0.2-foot per 100-foot.
 - d. Calculation of velocity will use a Manning's roughness coefficient of 0.040 for earthen sections and 0.025 for ditches with paved inverts.
 - e. Use erosion control methods acceptable to the City when design velocities are expected to be greater than 3 feet per second.
3. Culverts
 - a. Culverts will be placed at all driveway and roadway crossings, and other locations where appropriate.
 - b. Culverts will be designed assuming inlet control.
 - c. Roadside culverts are to be sized based on drainage area. Calculations are to be provided for each block based on design criteria presented in this manual.
 - d. Cross open channels with roadside culverts no smaller than 18 inches in diameter or equivalent. The size of culvert used shall not create a head loss of more than 0.20 feet greater than the normal water surface profile without the culvert.
 - e. Use erosion control methods acceptable to the City when design velocities are expected to be greater than 3 feet per second.
 - f. Sloped end treatments (S.E.T.) must be placed at all driveways. If S.E.T.'s cannot be used due to space constraints, the culvert must be extended 12" on each side of the driveway. A head wall may be used to replace the extension of the culverts.
 - g. HDPE may be used between driveway culverts, but not under driveways or street crossings. All driveway and street culverts to be RCP or RCB.
4. Depth and Size Limitations
 - a. Residential streets - maximum depth not to exceed 3 feet from edge of pavement.
 - b. Roadside ditch bottoms should be at least 2 feet wide.
 - c. Ditches in adjoining and parallel easements shall have the top of bank not less than 2 feet from the outside easement line.
 - d. Roadside ditch side slopes shall not exceed 3 horizontal to 1 vertical.
5. Roadside open-ditch drainage systems will be permitted only within the Original Manvel Townsite, or with City Council approval.
6. Existing roadside open-ditch drainage systems adjacent to new developments to be converted to underground storm sewer system by said developer.

F. Design of Outfalls

1. Shall conform to the corresponding Drainage District's Design Criteria Manual.
2. Detention pond and storm sewer outfalls shall be placed one foot above the flowline of the receiving channel.
3. Outfalls shall be placed 6 inches above the flowline of the receiving roadside ditch.
4. Wet detention ponds may be connected by a submerged pipe.
5. Outfalls must have a means to control erosion and washouts (i.e., concrete paving, interlocking blocks). Riprap is not acceptable.

G. Storm Water Detention

The purpose of storm water detention is to mitigate the effect of new development on an existing drainage system. If 20% or less of the entire property (single SFR lot, not subdivision) will be affected by new impervious cover, then a new or revised drainage plan will not be required.

1. Application of Detention.
 - a. As a normal consideration, storm water detention is required. The use of on-site detention is required in order to mitigate potential damage to existing structures unless the current infrastructure is improved, or the City has developed a plan for a detention facility to serve the overall area.
 - b. Design calculations for sizing the detention basin and related structures must be performed by the applicable method described in the following sections.
 - c. All calculations shall be sealed and signed by a Registered Professional Engineer.
 - d. A concrete parking lot may be used as part of the detention system, provided that the maximum depth of water over the inlet does not exceed nine (9") inches and the maximum depth in the parking stall does not exceed six (6") inches.
 - e. The Rational Method can be used for determining the peak release rate and the peak inflow rate for a detention pond.
2. Calculation of Detention Volume
 - a. The Modified Rational Method may be used to determine the detention storage volume for developments that are 5 acres or smaller.
 - b. A simplified method may be used for determining the amount of detention volume required based upon a rate of 0.65 acre-feet per gross acre. This method may only be used for developments less than 100 acres.
(i.e., 5-acre site $\times$ 0.65 = 3.25 acre-feet)
 - c. The Triangular Hydrograph method may be used for determining the amount of detention volume required for development of 100 acres or less.
 - d. The Unit Hydrograph Method (Small Watershed Method), which calculates the required detention storage volume by determining the difference in volumes between the inflow and outflow hydrographs, may be used for developments less than 100 acres.
 - e. For developments with more than 100 acres, a detailed hydrologic analysis utilizing the HEC-HMS, HEC-RAS Flood Hydrograph method will be required.
3. Calculation of Outlet Size

Outfalls, which utilize a pipe restrictor to control outflow, shall use the orifice equation.

a. Reducer or Restrictor Pipes shall be sized as follows:

(1) Use the following equations to calculate the required outflow orifice:

$$\text{Area of pipe} = \pi d^2 / 4$$

$$Q = CA (2 gh)^{1/2}$$

$$D = Q^{1/2} / 2.25 h^{-1/4}$$

Q = outflow discharge in cfs.

C = 0.8

h = water surface differential (ft)

D = orifice diameter (ft)

A = area of pipe (ft²)

g = gravity (32.2 ft/s²)

(2) For head differential in systems outfalling into a roadside ditch or storm sewer use actual head loss or 1-foot whichever is greater. For all other discharge conditions use 2 feet or difference of 100-year water surface elevation and elevation of 25-year storm in receiving channel, whichever is greater.

(3) For detention systems outfalling into a public storm sewer, the restrictor shall be sized based upon the peak 5-year developed flow.

(4) For detention systems outfalling into a public roadside ditch, the restrictor shall be sized based upon the peak 5-year undeveloped flow.

(5) For detention systems outfalling into creeks, channels or storm sewers sized to carry the 25-year or 100-year storm, the restrictor shall be metered to release the 5-year, 25-year and 100-year undeveloped flows.

(6) Restrictor shall be either the required diameter or the equivalent cross-sectional area. The orifice diameter "D" shall be a minimum of 6 inches.

(7) Detention ponds less than one (1) acre in size shall have a minimum of 4 inches of freeboard. All ponds one (1) acre or larger in size shall have at least one (1') foot of freeboard. When a parking lot is used for detention per 1d. above, freeboard is not required within the parking lot. Freeboard shall be measured from the maximum 100-year water surface elevation and shall not be used in the calculation of storage or mitigation.

4. Detention Pond Structural Requirements

a. Side slopes shall not exceed a slope of 4 horizontally to 1 vertically.

b. Dry ponds with lengths over 50 feet shall have a concrete pilot channel.

c. Concrete pilot channels shall have a minimum width of 4 feet and a minimum thickness of 4 inches with #3 rebar spaced at 12 inches on center each way. The concrete channels shall be constructed of 5-sack cement concrete with a compressive strength of 2500 psi at 28 days. Provide a 1-inch depression per every 1-foot of transverse slope with redwood headers spaced every 40 feet.

d. Appropriate covering (grass, slope paving, etc.) shall be established on side slopes and pond bottom to prevent erosion during periods of maximum water velocity.

e. A concrete gravity spillway, set at the maximum ponding elevation, shall be provided at the detention pond outfall structure.

f. Wet detention ponds and ponds with vertical walls shall provide access for safety and maintenance purposes. Wet detention systems shall have a method in-place to minimize stagnation, such as an aeration system.

g. Dry detention ponds shall not be designed with less than two feet of depth.

5. Ownership and Easements
 - a. Pumped detention or floodplain mitigation facilities are not allowed.
 - b. Maintenance responsibility of the detention facility must be indicated on the plat.
 - c. All properties being served shall have drainage access to the pond.
 - d. A maintenance agreement must be provided when multiple tracts are being served.
 - e. A maintenance berm must be provided around all sides of detention and floodplain mitigation facilities.
 - (1) The minimum maintenance berm width for dry ponds is 20 feet.
 - (2) The minimum maintenance berm width for wet ponds is 30 feet.
6. Off-Site Detention

Off-site detention, such as regional or sub-regional detention, may be used provided:

 - a. The detention facility is in the same watershed or sub-watershed as the developer's site.
 - b. The drainage area is less than 100 acres.
 - c. Excess detention capacity may not be used for mitigation of fill in the flood plain.
 - d. The Developer provides conveyance to the detention facility without having a detrimental effect on any adjacent properties.
 - e. If conveyance is directed through properties not directly owned by the developer, an executed contract or recorded deed between the parties agreeing to the said conveyance must be presented.
 - f. This procedure is approved by both the City and the corresponding drainage entity during preliminary plan review.
 - g. It is the desire of the City of Manvel that regional detention be utilized when available. If new development is within the service area of a publicly owned or operated regional storm water detention facility, connection to such regional facility shall be as required by the drainage master plan applicable to such facility.
7. Redevelopment and Additions
 - a. Additional impervious cover may be added to an existing single-family residential lot (1-time allowance), provided that the cumulative increase does not exceed 20% of the original impervious cover for that lot.
 - b. A drainage plan and detention calculations will be required for any proposed improvements, additions, or redevelopment in excess of the 20% impervious cover allotment.
 - c. All commercial and non-residential new developments, additions, or redevelopment will require a new or revised drainage plan for additional impervious cover.

1.05 RESERVED

1.06 SUBMITTALS

A. Preliminary Design - Submit for Review and Comment

One-line drawings are required as part of the platting process and include:

1. Approximate definition of lots and street patterns.
2. The approximate drainage areas for each system.
3. A definition of the proposed drainage system by single line.
4. The proposed pipe diameters.
5. Any proposed drainage easements.
6. Floodplain boundary, if any.

B. Final Design - Submit the Following for Approval

1. Copies of any documents which show approval of exceptions to the City design criteria.
2. Design calculations for storm line sizes and grades, and for detention facilities, if any.
3. Design calculations for the hydraulic grade line of each line or ditch, and for detention facilities, if any.
4. Contour map and drainage area map of the project.
5. Plan and profile sheets showing storm water design (public facilities only).
6. Projects located within a Flood Plain boundary or within a Flood Plain Management area shall show the Flood Plain boundary or Flood Plain area, as appropriate, on the one-line drawing or drainage area map.
7. Soil boring logs.
8. All drainage plans shall have a current FEMA flood zone determination statement.

C. Signature - Submit the Following for Approval

1. Review prints.
2. Original drawings.
3. Storm water detention maintenance agreement letters.

1.07 QUALITY ASSURANCE

A. Prepare calculations and construction drawings under the supervision of a Professional Engineer trained and licensed under the disciplines required by the drawings. The final construction drawings and all design calculations must be sealed, signed, and dated by the Professional Engineer responsible for the development of the drawings.

B. Prior to release of the maintenance bond (and in conjunction with the final walk-thru), the developer shall have all storm sewer lines (within the project boundary) inspected with television equipment. Any pipe settlement which causes excess ponding of water in pipeline, any misaligned joints, or other defects shall be cause for rejection. The developer shall provide the City with one copy of the TV videotape and one copy of the TV inspection report. For each segment, the video tape and corresponding written report shall clearly identify:

1. Each line segment being inspected.
2. The size and type of pipe being inspected.
3. Accurate footage of the line segment inspected.
4. Deficiencies in materials, alignment, pipe grade, or any other apparent deficiencies.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS – Reserved

2.02 DESIGN ANALYSIS

- A. All projects shall be tied to National Geodetic Survey (NGS) Datum adjustment, which matches the Federal Emergency Management Agency (FEMA) rate maps or the most current NGVD, which matches the FEMA rate maps. In the event GPS surveying is used to establish benchmarks, at least two references to benchmarks relating to the FEMA rate maps must be identified. Equations may be used to translate other datum adjustments to the required adjustment.
- B. Plan sets will include a drainage area map, which shall contain all storm sewer drainage calculations as determined by the Rational Method.
- C. All drainage systems for curb and gutter pavements shall be underground closed conduits; individual residential lot drainage is exempt. Drainage systems for pavements without curb and gutter shall be roadside open-ditch sections.
- D. Soil boring with logs shall be made along the alignment of all storm sewers having a cross section equal to or greater than 72 inches in diameter or equivalent cross section area. Boring should be taken at intervals not to exceed 500 linear feet and to a depth not less than 3 feet below the flow line of the sewer. The required bedding will be determined from the soil boring.
- E. Plan sets shall include the 5-year Hydraulic Grade Line for storm sewers and roadside ditches on the plan and profile sheets. They shall also include the 100-year ponding depth on the plan and profile sheets.
- E. Pumped systems (for detention or floodplain mitigation) are not allowed.

SECTION 6 SITE DEVELOPMENT

1.0 GENERAL

1.01 CHAPTER INCLUDES: Site Development

1.02 REFERENCES

- A. City of Manvel Zoning Ordinance.
- B. City of Manvel Subdivision Ordinance.

1.03 DEFINITIONS

Commission – Planning, Development and Zoning Commission

1.04 DESIGN REQUIREMENTS

A. Site Development Requirements

1. General Requirements

- a. Site development plans for all site developments within the City of Manvel and its ETJ shall be approved by the City prior to construction.
- b. Site developments, not including single family residential, shall include any project that affects public water, wastewater, storm drainage, or paving facilities.
- c. All site developments shall conform to the requirements of these Standards and applicable rules and regulations of the City of Manvel.
- d. All wastewater, drainage and paving site development improvements shall be privately owned, operated and maintained up to and including the connection to the public system.
- e. All water site development improvements shall be privately owned, operated and maintained up to, but not including, the meter and meter vault.
- f. Restore the City of Manvel ROW to existing or better condition.
- g. Private utilities and service lines shall be placed in an easement or on the property being served.
- h. Hours of Construction are 7:00 AM to 9:00 PM, Monday through Saturday.
- i. As-Built Construction Plans (Record Drawings) and a Two-Year Maintenance Bond (in the amount of 100% of the cost of the infrastructure improvements, valid two years from the date the infrastructure is accepted by City Council) shall be required for all public improvements being dedicated to the City.

2. Design Review Requirements for Site Development Plans.
 - a. All site development plans for proposed developments shall be submitted to the City for approval prior to construction. Site development plans shall show all proposed water, wastewater, paving, parking, drainage, street signage, streetlight locations, flood protection facilities, and sidewalks with approved ADA ramps locations.
 - b. A traffic impact study shall be required for any development proposal expected to generate traffic volumes that will significantly impact the capacity and/or safety of the street system. All proposed developments generating volumes of 5,000 trips per day or greater shall meet this criterion. The trip estimate shall be based on the latest version of the Institute of Transportation Engineers, Trip Generation Manual.
 - c. The developer should first schedule a Pre-Development Meeting (PDM) with the City of Manvel. At this meeting, the developer should be able to discuss infrastructure issues and the feasibility of developing the site.
 - d. The next step is to prepare the Civil site plan submittal to be reviewed by staff. The submittal for the site plan requires electronic copy and 3 copies of:
 1. Site Plan
 2. Landscaping Plan
 3. Elevation Plan
 4. Drainage Plan
 5. Utility Plan
 6. Grading Plan
 7. Storm Water Pollution Prevention Plan
 - e. to be provided to Permits Department staff with relevant application forms. The City will typically respond within 2 to 4 weeks of the initial submittal. Submittal to the appropriate drainage agency is required.
 - f. Electronic copy of site development plans shall be submitted to the Permits Department with relevant application form for Building Official's review. The City will typically respond within 2 to 4 weeks of the initial submittal.
3. Building Slab Elevations - Minimum building slab elevations shall conform to the requirements of the City of Manvel Flood Damage Prevention Ordinance.
4. Water Service - Water service lines and meters shall be sized in accordance with requirements set out in Section 3 of the Design Criteria Manual.
5. Sanitary Sewer Service - Sanitary sewer service leads are normally installed during construction of the public sanitary sewer. When a sanitary sewer service lead is to be installed for a site development, refer to the Wastewater Collection System Design Requirements. All lots, tracts, or reserves shall be connected directly to a public sanitary sewer by a single lead. The City shall be contacted for all sanitary sewer connections for commercial projects within the City.
6. Site Drainage Requirements - All commercial, industrial, office, recreational, and multi-family tracts shall have an internal drainage system. The internal drainage system shall connect all site runoff into a storm sewer system that shall connect to the public drainage facilities in the area, except with specific approval.
 - a. The internal site storm sewer shall be connected to a public storm sewer and a manhole or at an inlet adjoining the site. The site drainage outfall shall be connected to the nearest existing drainage system with adequate capacity to serve

- the drainage area. Where extension of the existing drainage system is required, all costs for extension shall be the responsibility of the development.
- b. All internal facilities shall be designed by a Registered Professional Engineer and shall be sized to drain the site in accordance with these standards.
 - c. Drainage calculations shall be submitted with all site development plans. Other supporting data may be required by the City.
 - d. When the site drains directly into a Brazoria County facility and/or into a highway right-of-way, the appropriate governmental entity (entities) shall approve the site development connection to public facilities.
7. Driveways
- a. It is desirable to minimize the number of driveways on all streets in order to reduce the number of conflict points and facilitate traffic flow. It is recognized, however, that certain existing tracts may not be able to fully comply with the following standards due to limited frontage or other constraints.
 - b. When compliance with these criteria is precluded due to the location of driveways on adjoining properties, attempts should be made to obtain alternative access where feasible, including joint access driveways, access easements to adjoining properties or access to intersecting streets.
 - c. If it can be demonstrated to the City that sufficient attempts to secure alternative access have been made and that such access is still not possible, the City may accept a Traffic Impact Analysis performed by a Registered Professional Engineer to permit a deviation to the driveway spacing requirements indicated herein.
 - d. Residential driveways shall be a minimum of 12 feet wide (and a maximum of 24 feet) at the right-of-way line and should be placed away from the property line.
 - e. Residential lots must have a minimum of 120 feet of frontage in order to be eligible for two driveways on the same lot and they shall have 50 feet of separation between them.
 - f. Residential lots should not front on collector streets, thoroughfares, or arterials. For residential lots that do front on collector streets, they must have an internal turnaround or circle drive to minimize conflict points.
 - g. Non-residential driveways shall be 25 feet to 35 feet wide of pavement.
 - h. Driveways shall be spaced with a minimum of 50-foot separation.
 - i. Islands may be allowed within non-residential driveways, but must have a minimum of 12.5' travel lanes, and be pre-approved by the Fire Marshal.
 - j. Driveways on major thoroughfares/boulevard streets shall be placed no closer than 125 feet from the ultimate curb line of an intersecting major thoroughfare or boulevard street.
 - k. Driveways on collector/ minor streets are to be placed no closer than 75 feet from the ultimate curb line of an intersecting major thoroughfare/boulevard street.
 - l. Driveways on major thoroughfares/boulevard streets are to be placed no closer than 75 feet from the ultimate curb line of an intersecting collector commercial/minor street.
 - m. For purposes of determining the separation distance, the back of curb or edge of street shall be used in conjunction with the edge of driveway which is closest and parallel to the street.
 - n. Non-residential tracts with less than 150 feet of frontage on a public street shall have no more than 1 driveway. Non-residential tracts with between 150 and 320 feet of frontage on a public street shall have no more than 2 driveways. Non-residential tracts with between 321 feet and 600 feet of frontage on a public street shall have no more than 3 driveways. Non-residential tracts with over 600 feet of

- frontage on a public street shall have driveways specially designed and specifically approved by the City.
- o. Non-residential driveway connections to the public street shall be approved and inspected by the City of Manvel.
 - p. Driveway radii shall not extend beyond the projection of a property corner to the back of the curb.
 - q. Non-Residential Driveways shall be concrete, installed according to the City of Manvel Construction Details.
 - r. On concrete streets, Residential Driveways shall be concrete, installed according to the City of Manvel Construction Details.
 - s. On asphalt streets, Residential Driveways shall be concrete or asphalt, installed according to the City of Manvel Construction Details.
 - t. Driveways shall be evaluated with respect to signage, landscaping and structures for adequate sight distance.
 - u. A note stating, "Access to adjacent property and common driveways may be required," shall be placed on the site plan.
 - v. Curb returns for driveways shall be, at a minimum:
 - (1) For residential driveways:
 - (a) 5 feet on local streets
 - (b) 10 feet on collector streets, major thoroughfares and boulevards
 - (2) For non-residential driveways:
 - (a) 25 feet on local streets
 - (b) 35 feet on collector streets, major thoroughfares, boulevards and local streets less than 28 feet in width.
 - w. Per Section 59-53 of the Manvel City Code, manholes, fire hydrants, and water valves shall not be located within a driveway, sidewalk, or street.

8. Controlled Access Gate Requirements

- a. Plans for access control systems shall be submitted to the Fire Marshal's Office and approved prior to construction.
- b. All access control gates shall have emergency means of operation in the event of power loss.
- c. Access control gates shall provide a clear, passable width of at least twenty feet.
- d. A Knox® key switch and Click2Enter-I.V4 scanner radio receiver shall be provided for all controlled access gates. The key switch shall operate all gates.
- e. A Knox® pad lock and Click2Enter-I.V4 scanner radio receiver shall be provided for all non-motorized gates.
- f. The location of the key switch shall be approved by the Fire Marshal's Office.
- g. The owner shall maintain all parts of the access system and keep them in good working order.
- h. The Fire Marshal's Office and Police Dispatch shall be notified immediately of any damage to the access system that hinders access including, but not limited to, damage to the key box, lock, or gates.

9. Pollution Prevention

A pollution prevention plan shall be provided for all site development projects.

- a. Filter fabric fence shall be installed at the perimeter of the site before construction is to begin.
- b. Once construction is completed, either filter fabric fence, 5 feet of hydro mulch or sod shall be installed at the back of all curbs, or other Best Management Practices shall be implemented.
- c. Refer to the storm water ordinance for additional requirements.

10. Parking Lot Guidelines

A parking lot layout is required to ensure that adequate off-street parking is provided with the construction, alteration, remodeling or change of use of any building or change in use of land.

- a. Off-street parking spaces shall be located on the same lot, tract, parcel, or premises as the use being served or on other property of the same or less restrictive zoning classification that the owner of the premises being served has a continuing right to use for parking. When the off-street parking spaces are not located on the same lot, tract, parcel, or premises being served, the distance from the center of the parking lot to an entrance to the building or use shall not exceed 300 feet in distance, measured along the shortest available pedestrian route with public access.
- b. Any existing building or use that is enlarged, structurally altered, or remodeled to the extent of increasing or changing the use by more than 50 percent as it existed shall be accompanied by off-street parking for the entire building or use. When the enlargement, structural alteration, or remodeling is to the extent that the use is not increased or changed by more than 50 percent, additional off-street parking shall only be required for the increased or changed floor area or use.
- c. Existing parking spaces may not be used to satisfy additional off-street parking requirements unless the existing spaces exceed the number recommended for the building or use for which the existing spaces are associated. Commercial areas may be phased. Parking from earlier phases may count for future uses.
- d. The Parking Group Table can be found in the Zoning Ordinance, Section 77-45.

- e. The design and dimensions of off-street parking areas shall be in accordance with the following table of minimum dimensions. The minimum size of a parking spaces shall be 10 (ten) feet wide and twenty (20) feet long. All dimensions below are in feet:

	<i>Angle</i>			
	<i>0°</i>	<i>45°</i>	<i>60°</i>	<i>90°</i>
Stall, parallel to aisle	25.0	10.0	10.0	10.0
Stall, perpendicular to aisle	10.0	20.0	20.0	20.0
Aisle width, one-way	25.0	15.0	18.0	25.0
Aisle width, two-way	25.0	25.0	25.0	25.0
Cross aisle, one-way	25.0	25.0	25.0	25.0
Cross aisle, two-way	25.0	25.0	25.0	25.0

- f. Off-street parking spaces shall be clearly marked. Parking spaces abutting an adjoining property line or street right-of-way shall be provided with wheel guards or bumper guards so located that no part of a normally parked vehicle will extend beyond the property line. When wheel guards are used, they shall be centered 2.5 feet from the property line for 90-degree parking, 2.3 feet for 60-degree parking, and 2.0 feet for 45-degree and 30-degree parking.
- g. Approval of the parking area layout and design of all off-street parking areas shall be by the City. The City shall determine that spaces provided are usable, and that the circulation pattern of the area is adequate.
- h. Mixed/Combination of Land Uses - Where a mixed or combination of land uses are proposed, parking shall be calculated based on the respective requirements of each land use. Shared parking is encouraged, if appropriate.
- i. All new parking shall be constructed with concrete, with a minimum slab thickness of 6 inches with $f_c = 3,500$ psi and reinforcement shall be Grade 60, $f_y = 60,000$ psi, #4 deformed reinforcing bars spaced at 18 inches center to center both ways and minimum lap lengths of 18 inches.
- j. Existing asphalt parking lots can remain, be repaired, and be expanded as asphalt parking lots.
11. Fences in any single-family residential district/ or subdivision may not exceed six feet in height except when located on a major thoroughfare where fences shall not exceed eight feet in height. Fences in districts other than single-family residential, may not exceed eight feet in height. Barbed wire fences are only allowed on property at least two acres in size and the barbed wire portion of the fence shall be no higher than 52 inches as measured from the natural ground.
- a. Perimeter fencing adjacent to Major Thoroughfares shall be masonry.
- b. Perimeter fencing adjacent to Detention Ponds and Amenity Lakes shall be ornamental (wrought) iron.
- c. Perimeter fencing to be installed prior to the release of the Maintenance Bond.

12. Driveway Culverts

a. *New Culverts*

- (1) Driveway culverts will be set by Community Services on city-maintained roads.
- (2) The Department will not set culverts in rights-of-way for State roads or on private roads.
- (3) Citizens wishing new culverts to be set are required to furnish reinforced concrete pipe (RCP) of a suitable size as determined by Department personnel. Reasonable notice from citizen is required.
- (4) New culverts will be backfilled with soil or other material available on the site at the time culvert is set. Any material other than in-place soil must be purchased by the citizen from a vendor of their choosing. Clean out openings or grates must be supplied by the citizen if the culvert is longer than 48 feet.

b. *Existing Culverts*

- (1) When drainage projects are undertaken by the Department, culverts may be enlarged if necessary, and replaced with RCP at Department's expense. Installation will be completed as follows:
 - (a) Culverts covered with base material will be re-covered with base material.
 - (b) Asphalt or concrete removed will be replaced with like material (asphalt for asphalt and concrete for concrete).
 - (c) When the Department undertakes projects to re-surface roads with asphalt, asphalt will be tapered outside edge of pavement at existing driveways to avoid abrupt drop off.

c. *Culvert Installation*

- (1) Stake and mark the ditch where you would like to have the culvert set. Call City of Manvel, Permits Department and have a work order prepared. We will send out our Community Services Personnel to measure the ditch; and will call you with the correct size of reinforced concrete pipe you need to purchase.
- (2) Once the size is determined, order the reinforced concrete culvert pipe and have them delivered to the site. The only dirt we typically use to cover pipe is fill dirt (what we usually dig out of the ditch when we set the culverts). After your culverts are delivered to the site, give City Hall a call and we will put in another work order to install the culverts.

d. *Driveway Surface*

- (1) Contractor shall insure that alignment of culvert pipe is not altered during such operation.
- (2) If concrete surfacing is added by citizen's contractor: An expansion joint shall be provided two feet beyond outer edge of pipe on each side of culvert pipe, to facilitate removal of concrete as may be necessary to enlarge pipe during drainage improvement projects.
- (3) No concrete shall be placed within 11 feet of roadway centerline.

13. Streetlights
 - a. All new streetlights within a subdivision to be installed by the developer.
 - b. All monthly electrical charges and any maintenance and operation costs for streetlights within a subdivision to be paid for by the homeowners' association or MUD, as applicable.
 - c. All new streetlights to be LED Modules/Fixtures.
 - d. Refer to City Code 62-114.
 - e. Streetlights to be installed at all intersections, dead-ends, cul-de-sacs, and at a minimum spacing of 250 feet; or consistent with a photometric layout, as approved by the City.
 - f. Streetlights on Streets ($\leq 80'$ ROW) shall have minimum 60-watt LED. Streetlights on Thoroughfares ($> 80'$ ROW) shall have minimum 180-watt LED.
14. Fire Apparatus Access Roads and Fire Lanes
 - a. Fire apparatus access roads and Fire Lanes shall have a radius of 25 feet and unobstructed width of not less than 25 feet exclusive of shoulders, except for approved security gates in accordance with Section 503.6 of the Fire Code, and an unobstructed vertical clearance of not less than 14 feet (4267 mm).
 - b. Fire apparatus access roads shall be designed and maintained to support imposed loads of 80,000 lbs. for fire apparatus and shall be surfaced so as to provide all-weather driving capabilities.
 - c. Fire Lane Marking Striping, signs, or other markings, when approved by the fire code official, shall be provided for fire apparatus access roads to identify such roads or prohibit the obstruction thereof. Striping, signs and other markings shall be maintained in a clean and legible condition at all times and be replaced or repaired when necessary to provide adequate visibility.
 - (1) Striping – Fire apparatus access roads shall be continuously marked by painted lines of red traffic paint six inches (6") in width to show the boundaries of the lane. The words "NO PARKING FIRE LANE TOW-A-WAY ZONE" or "FIRE LANE NO PARKING TOW-A-WAY ZONE" shall appear in four inch (4") white letters at 25 feet intervals on the red border markings along both sides of the fire lanes. Where a curb is available, the striping shall be on the vertical face of the curb.
 - (2) Signs – Signs shall read "NO PARKING FIRE LANE TOW-A-WAY ZONE" or "FIRE LANE NO PARKING TOW-A-WAY ZONE" and shall be 12" wide and 18" high. Signs shall be painted on a white background with letters and borders in red, using not less than 2" lettering. Signs shall be permanently affixed to a stationary post and the bottom of the sign shall be six feet, six inches (6'6") above finished grade. Signs shall be spaced not more than fifty feet (50') apart along both sides of the fire lane. Signs may be installed on permanent buildings or walls or as approved by the Fire Marshal.
 - d. Where a portion of the facility or building hereafter is constructed or moved into or within the jurisdiction is more than 300 feet from a hydrant on a fire apparatus road, as measured by an approved route around the exterior of the facility or building, on-site fire hydrants and mains shall be provided where required by the Fire Marshal.

15. Address Identification. New and existing buildings shall be provided with address identification. The address identification shall be legible and placed in a position that is visible from the street or road fronting the property. Address identification characters shall contrast with their background. Address numbers shall be Arabic numbers or alphabetical letters. Numbers shall not be spelled out. Each character shall be not less than 6 inches (152.4 mm) high with a minimum stroke width of 1/2 inch (12.7 mm). Where required by the fire code official, address numbers shall be provided in additional approved locations to facilitate emergency response. Where access is by means of a private road, buildings do not immediately front a street, and/or the building cannot be viewed from the public way, a monument, or other approved sign with approved 6 inch (152.4 mm) height building numerals or addresses and 4 inch (101.6 mm) height suite/apartment numerals of a color contrasting with the background of the building or other approved means shall be used to identify the structure. Numerals or addresses shall be posted on a minimum 20 inch (508 mm) by 30 inch (762 mm) background on border. Address identification shall be maintained.

Exception: R-3 Single Family occupancies shall have approved numerals of a minimum 4 inches (88.9 mm) in height and a color contrasting with the background clearly visible and legible from the street fronting the property and rear alleyway where such alleyway exists.

16. 2" PVC Conduit shall be installed along Major Thoroughfares for future City of Manvel fiber optic network.
17. A Photometric Plan is required for all Non-Residential Site Plans. The Photometric Plan shall show lighting calculations in foot-candles along all property lines. The maximum allowable light level is 0.5 foot-candles along all property lines.
18. For all projects located within a MUD, a Water and Sewer Utility Availability Summary Table shall be provided with/within every plan and plat submittal. The Table will include a summary of currently platted lots and corresponding connections, along with reserved connections and planned future connections. It will also include the current capacity of the water and wastewater facilities (plant(s), lift stations, etc.) within the MUD.

2.0 EXECUTION

2.01 RESEARCH REQUIREMENTS

- A. Discuss project concepts outlining proposed features and usage with the City.
- B. Research existing utility and right-of-way information.
- C. Verify that no restrictions exist that will deny approval of the project concept.

2.02 DESIGN ANALYSIS – Reserved

2.03 DRAWINGS

- A. The plans shall include an overall drainage layout showing:
 - 1. Total area (in acres) of site to be drained.
 - 2. Area (in acres) drained to each inlet.
 - 3. Contours or an adequate number of spot elevations to indicate area drained to each inlet.
 - 4. Top elevation and flowline elevation at each inlet.
 - 5. Gradient and size on each private storm sewer.
 - 6. Computations to support pipe sizes and grades shown
 - 7. Design velocity for storm sewers shall be 3 feet per second.
 - 8. TX DOT permit shall be required for drainage affecting a state owned/maintained facility. Submit permit with site plan.
 - 9. The drawings shall be prepared and sealed by a Registered Professional Engineer.
 - 10. The size and location of the detention facility shall be indicated on the plans, along with the size and location of the outfall structure.
- B. All drainage plans shall be approved by the appropriate drainage entity prior to City approval.
- C. The site plan shall show all water and sewer service lines, sizes, grades and alignments with appropriate ties into existing public trunk lines.
- D. The site plan shall show all parking areas.
- E. The site plan shall indicate the types and location of all existing and proposed landscaping. Landscaping shall meet the minimum requirements of the Zoning Ordinance. A tree survey is required for first 20 feet of depth adjacent to all proposed streets. If no trees exist, a note to that affect shall be placed on the site plan.
- F. The site plan shall show all proposed and existing building setbacks, locations, heights and square footage of all proposed buildings.
- G. The land use for all adjacent property shall be shown on the site plan.
- H. All parking lot pavement for site plans shall be engineered to provide for regular use of vehicles expected to utilize the parking area and based upon the soil conditions underlying the parking area. A Registered Professional Engineer shall certify the design submitted for approval.
- I. Concrete sidewalks (a minimum of 5 feet wide and 4 inches thick with steel reinforcement) shall be required along all street frontages. The design and installation of such sidewalks shall comply with Texas Accessibility Standards Architectural Barriers requirements. The location of all proposed and existing sidewalks shall be shown on the construction drawings.
- J. Show location of signs, screening walls or fences (indicate height, minimum 8 feet) and dumpsters (with appropriate screening).
- K. No improvements to the right-of-way shall be made without prior City approval. This includes planting trees in the right-of-way of residential and non-residential areas.
- L. In the event that there is a discrepancy in the drainage criteria requirements between the City and the applicable Drainage District, the City Engineer may determine which criteria will apply.

**CITY OF MANVEL
DESIGN CRITERIA MANUAL
SECTION 7 - MODIFICATION FORM**

Variations to technical standards identified in the Design Criteria Manual may be permitted by the City of Manvel City Engineer. The modification proposal must be submitted by a registered Professional Engineer following generally accepted engineering standards and such proposal contains the following information and substantiates the findings in paragraph four (4) below. If an appeal to the City of Manvel City Engineer decision is requested, the Planning Development & Zoning (PD&Z) will review that appeal and make a recommendation to City Council. City Council will have final authority on the approval or denial of the Appeal.

PROJECT NAME: _____
PROJECT ENGINEER: _____

**SUBMITTAL
DATE:**

**This entire form must be completed in its entirety. If form is submitted
incomplete, it will be administratively rejected.**

SUBDIVISION NAME: _____

MODIFICATION LOCATION:

1. Set forth the proposed deviation to the technical standard.

2. Set forth the impact such deviation has on speed differential and street capacity, the likelihood of accidents, the long-term maintenance and operation effect, the degree of functionality and efficiency, the technological advancements involved, and other relevant matters.

3. Show a comparison of the technical standard to the proposed deviation with respect to overall safety and quality, speed differential, street capacity, existing and projected accidents, long-term maintenance and operation, degree of functionality, degree of efficiency, technological advancements, and other relevant matters.

4. Describe all mitigating improvements that reduce the negative impact of the proposed deviation on overall safety and quality, speed differential, street capacity, accident occurrences, long-term maintenance and operation, degree of functionality, degree of efficiency and demonstrating the degree to which the proposed deviation detrimentally affects the foregoing. Other relevant factors, including technological advances, should be explained by describing how they will affect the proposed development. Mitigating improvements can include but are not limited to, traffic control devices, pavement improvements, added acceleration or deceleration lanes or reservoirs, and other on-site improvements.

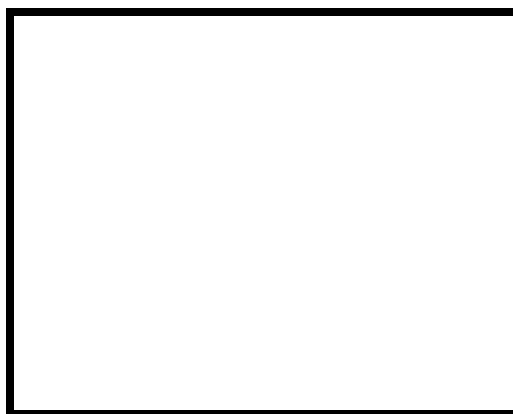
SUMMARY & CONCLUSION/RECOMMENDATION FOR MODIFICATION:

List of Supporting Documentation Attached?

Yes____

No____

Seal of Professional Engineer:



City of Manvel Use ONLY

1. Modification Request:

Approved

Denied

City Engineer

Date

2. Planning Development & Zoning:

Recommended

Not Recommended

Chair

Date

3. City Council:

Approved

Denied

Mayor

Date

STATE OF TEXAS §

COUNTY OF TRAVIS §

CITY PRIDE SIGN AGREEMENT

THIS AGREEMENT, made on the dates hereinafter shown, by and between the State of Texas, hereinafter called the "State," represented by the Executive Director of the Texas Department of Transportation, acting for and in behalf of the Texas Transportation Commission, and the City of Manvel, hereinafter called the "City."

W I T N E S S E T H

WHEREAS, the State owns, operates, and maintains a system of highways for public use and benefit, in the City of Manvel; and

WHEREAS, the City desires and has requested authority to construct or have reconstructed the City Pride Sign along the roadway(s) of (see attached exhibit):

- 1) 300' East of CR48 (South side of Hwy 6) towards State Highway 288
- 2) Hwy 288 Feeder Rd. North towards Hwy 6 (300' past the railroad tracks)
- 3) 300' from Baily Rd. South on 1128
- 4) 300' from CR99, Pearland Site Rd. on Hwy 6 (headed East towards Manvel from Alvin)
- 5) 300' from Magnolia Parkway on 288 heading south towards Manvel

at the location(s) shown on construction plans, attached hereto and made part of this Agreement.

NOW, THEREFORE, in consideration of the premises and of the mutual covenants and agreements of the parties hereto, to be by them respectively kept and performed as hereinafter set forth, and in accordance with Title 43, Texas Administrative Code, Chapter 25, Subchapter H, it is agreed as follows:

A G R E E M E N T

Article 1. General

The State grants to the City permission to construct or to have reconstructed, the City Pride Sign(s) within the right-of-way as shown on construction plans and to be maintained by the City as stipulated in the Municipal Maintenance Agreement with the City of _____, dated _____, 20____.

Article 2. Plans, Specifications and Construction Procedures

A. The City, at no cost to the State, shall prepare or have prepared, complete construction drawings, plans and specifications for the proposed City Pride Sign(s), State approved breakaway sign supports, foundations, appurtenances, and incidental items. No construction work shall be performed on highway right-of-way until these plans and specifications have been approved in writing by the State. After such approval has been given, no changes or alterations shall be made without the written approval of the State.

B. The plans and specifications shall be submitted to the District Engineer, Texas Department of Transportation, (TxDOT District), Texas for approval. Any changes or alterations which become necessary during the course of the work shall also be submitted to the District Engineer for approval.

C. The City, its contractor(s), or agents shall submit a traffic control plan as required and in accordance with the Texas Manual on Uniform Traffic Control Devices to direct and protect vehicular and pedestrian traffic while construction work, including related activities, is in progress. Details and descriptions of these traffic handling measures shall be included in the plans and specifications when submitted for approval. If, during construction, it becomes necessary or desirable to modify the traffic control measures as specified, prior approval must be obtained from the State's District Engineer in (TxDOT District).

D. The City shall construct, or have constructed, at its entire cost and expense, the proposed City Pride Sign(s) and incidental items referred to in paragraphs 1 and 2 above. The State shall have the right to inspect the work on highway right-of-way at any time during the progress of the work, and to make final inspection upon completion. Construction operations will be conducted in a manner acceptable to the District Engineer or their authorized representative. The City, its contractor(s), or its agents shall correct any deficiencies revealed by the State's inspection of the work or of the traffic control and protection measures, where such deficiencies could have an adverse effect on public use of the highway or the safety and convenience of the traveling public.

E. Upon completion of the work authorized herein, the City shall submit copies of the as-built plans and specifications, including any changes or alterations, showing the City Pride Sign(s) in their completed state within 45 days to the State's District Engineer in (TxDOT District) for permanent records of the State.

F. The City agrees to pay all damages accruing to the State, by reason of injuries to the right-of-way, roadbed, pavement, and/or bridge owned by the State, when such damages are caused by the city's construction, operations, maintenance or rehabilitation on said roadway. Whenever funds are paid by the City to the State under this Agreement, the City shall remit a check or warrant made payable to the "Texas Department of Transportation Trust Fund." To the extent allowed by law, the City also agrees to indemnify and save harmless the State from any and all claims, demands, actions or causes of action, due to damage to property or injury to or death of persons arising from or growing out of or in any manner connected with work on said roadway project including, but not limited to, all court costs, attorney fees and other expenses incurred in connection with suits for such damage and shall, if so requested in writing, assist or relieve the State from defending any such suits brought against it. In addition, the City shall require its contractor(s) and subcontractor(s) to secure a policy of insurance in the maximum statutory limits for tort liability, naming the State as an additional insured under its terms, and maintain the required insurance coverages in full force and effect during any period that work is performed on the State right-of-way. Adequate insurance, as a minimum, shall mean the City contractor(s) shall furnish the State with the Texas Department of Transportation's Certificate of Insurance covering the below-listed insurance coverages.

1) Worker's Compensation Insurance Amount – Statutory

2) Comprehensive General Liability Insurance

Amounts	Bodily Injury	\$600,000 combined single limit each
	Property Damage	occurrence and in the aggregate

OR

Commercial General Liability Insurance

Amounts	Bodily Injury	\$250,000 each person
	Property Damage	\$100,000 each occurrence

3) Texas Business Automobile Policy

Amounts	Bodily Injury	\$250,000 each person
	Property Damage	\$100,000 each occurrence

The State shall be included as an "Additional Insured" by Endorsement to policies issued for coverages listed in B and C above. A "Waiver of Subrogation Endorsement" in favor of the State shall be a part of each policy for coverages listed in A, B, and C above. A certified copy of these endorsements shall be submitted to the State with the evidence of coverage. The City and/or its contractor(s) shall be responsible for any deductions stated in the policy.

Article 3. Location

A. One City Pride and/or a Texas Commission on Environmental Quality (TCEQ), Texas Historical Commission (THC), Keep Texas Beautiful (KTB) Sign shall be allowed per eligible highway entrance to the City. A City Pride Sign shall be located on the right-hand side of the roadway unless otherwise approved in writing by the State. A City Pride Sign shall be located between 300 and 800 feet of the city limits at a location approved by the State. A City Pride Sign shall take advantage of the natural terrain, have the least impact on the scenic environment, avoid visual conflict within the State highway right-of-way, have a lateral offset greater than existing guide signs, not block the motorist's view of existing traffic control signs, and be placed in locations other than hanging above the highway.

B. A City Pride Sign shall not be located adjacent to the main lanes of full controlled access highway; however, a City Pride Sign may be located on the right-hand side of the access road.

C. The city may landscape the area adjacent to the City Pride Sign(s) upon written approval of the plans by the State's District Engineer in the (TxDOT District) District. Only small plants, flowers, and shrubbery will be allowed. Permanent structures or items such as large stones, masonry, berms, landscape timbers, etc. shall not be allowed. The State assumes no responsibility for watering, maintenance or damage due to State maintenance and construction activities, fire, theft or vandalism.

Article 4. City Pride Sign

A. The sign face of a City Pride Sign or the combined total area of the attachment signs displayed shall not exceed 80 square feet total. A City Pride Sign shall not contain words, symbols, or messages that:

- 1) May be construed as advertising, including, but not limited to, the offering of products and services.
- 2) Contain notification of municipal ordinances or regulations, or
- 3) Resemble official traffic control devices.

B. Banners, flags, streamers, flashing lights, or other appurtenances shall not be attached to a City Pride Sign or sign supports. Sign supports shall be galvanized metal or painted solid white.

C. A City Pride Sign shall not be illuminated internally or externally.

D. A City pride Sign may contain the name of the city, message, or slogan no greater than eight inches in height. The City may include a seal or symbol that is commonly used to represent the City.

E. If a City Pride Sign requires background material, it shall be painted brown (Sherwin Williams #2315 or equivalent) or have brown reflective material affixed to the sign face meeting State specifications. Lettering upon the brown background shall be white and

may be any script or font. A white 2 inch border is optional. Lettering and border shall be painted white (Sherwin Williams #2130 or equivalent) or have white reflective material affixed to the sign face meeting State specifications.

Article 5. Attachment Signs

- A.** Attachment signs or civic information signs are provided by a non-profit civic organization or governmental entity that display points of interest or geographical, recreational, cultural, or civic information. A civic organization must be located within or have a member who resides in the City, and complies with all applicable law concerning the provisions of public accommodation without regard to race, religion, color, sex, or national origin.
- B.** Attachment signs may be any color or combination of colors and may be in any design or shape. Attachment signs shall not be greater than 48 inches in width and 36 inches in height, and shall not consist of text, symbols, trademarks or a legend message identifying the name or abbreviation of a commercial establishment, service or product, or contain supplemental address or directional information such as meeting dates or locations.
- C.** A civic organization shall apply to the City for permission to display an attachment sign upon the City Pride Sign. The City shall notify/contact the civic organization in writing if the civic organization does not meet the requirements of eligibility as stated herein. The civic organization shall have 30 calendar days after written notification to meet the requirements herein.
- D.** The City shall approve all attachment signs and determine the order, arrangement, and duration of display. Attachment signs shall be placed upon a City Pride Sign and shall not overlap.
- E.** A civic organization shall have only one attachment sign per City Pride Sign unless the City and civic organization agree to said organization's multiple attachment signs upon a City Pride Sign.
- F.** The City shall remove an attachment sign of a participating civic organization if the civic organization ceases to exist, does not meet the requirements stated herein, or has not provided a replacement sign after 60 days of the City or State's written notification that the attachment sign is damaged, broken, faded, or has become a hazard due to failure to build to specifications, inclement weather, inadequate maintenance, accidental damage, or other cause.

Article 6. Miscellaneous

- A.** Signs from the TCEQ, THC, or KTB, Proud Community Program signs, shall be erected and maintained to State specifications at the sole expense of the City. Signs shall not be allowed as attachments to State signs or sign supports.
- B.** Attachment signs not relocated to a City Pride Sign, TCEQ, THC, or KTB signs or other approved locations will be removed by the State at the expense of the City.
- C.** The State shall not require fees from the City for participating in the City Pride Sign Program. The city shall not require fees from the civic organizations or governmental entities for display upon a City Pride Sign.
- D.** While installing or maintaining a City Pride Sign, the City shall cooperate with any State contractor working on the State highway system at that location.

E. In the event that the State determines that it is necessary to repair, construct, reconstruct and/or make any changes in the highway facility for reasons other than those specified herein, the City shall be responsible for all costs necessary for removal and relocation of the City Pride Sign.

F. The City shall remove a City Pride Sign if it has not provided a replacement sign within 60 calendar days of written notification from the State that the sign is damaged, broken, faded or has become a hazard due to failure to build to specifications, inclement weather, inadequate maintenance, accidental or other cause. After 60 days, the City Pride Sign not removed or replaced will be removed by the State at the expense of the city. The State may terminate this agreement upon default of the city.

G. This Agreement shall bind, and shall be for the sole and exclusive benefit of the respective parties and their legal successors.

Each party is signing this agreement on the date stated beside that party's signature.

THE CITY OF _____

Executed on behalf of the City by:

By _____ Date _____

Typed or Printed Name and Title _____

ATTEST:

By _____ Date _____

Typed or Printed Name and Title _____

THE STATE OF TEXAS

Executed for the Executive Director and approved for the Texas Transportation Commission for the purpose and effect of activating and/or carrying out the orders, established policies or work programs heretofore approved and authorized by the Texas Transportation Commission.

By _____ Date _____

_____ District Engineer

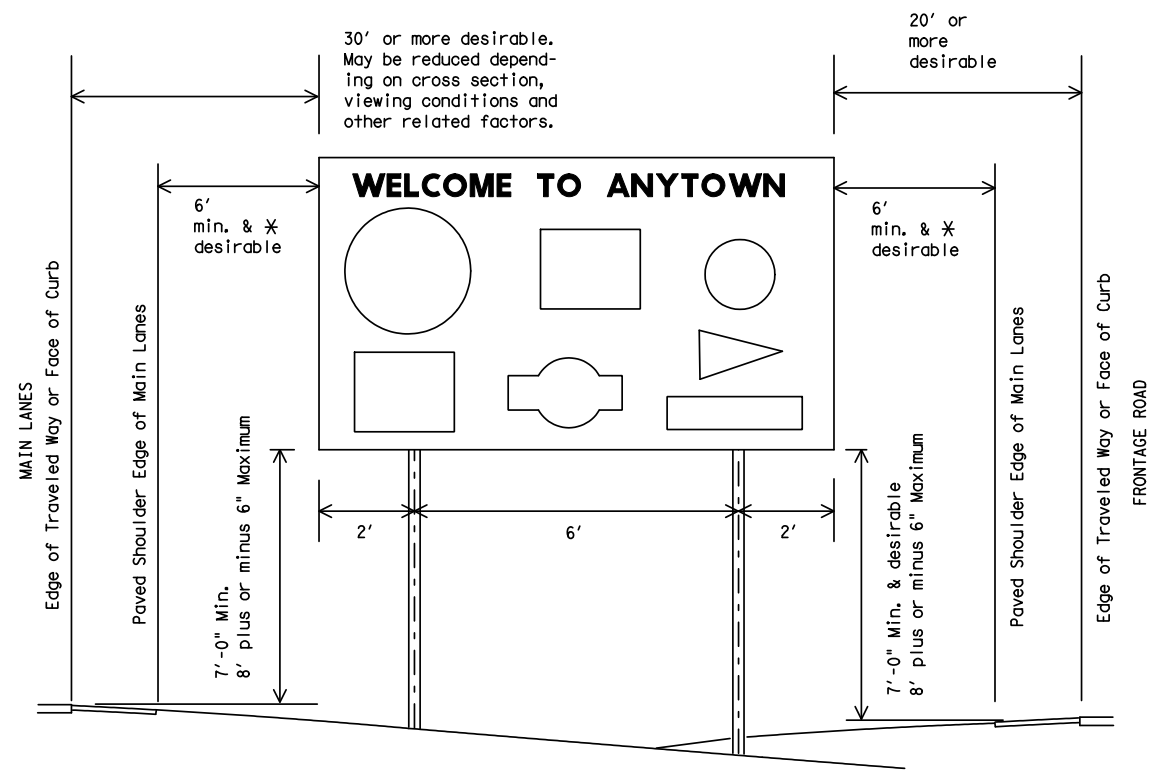
DATE: _____
FILE: _____

© TxDOT January 1997		PK: TxDOT	CK: TxDOT	HW: TxDOT	CK: TxDOT
12-98	REVISIONS	CULT	SECT	JOB	HIGHWAY
		DIST	COUNTY	SHEET NO.	

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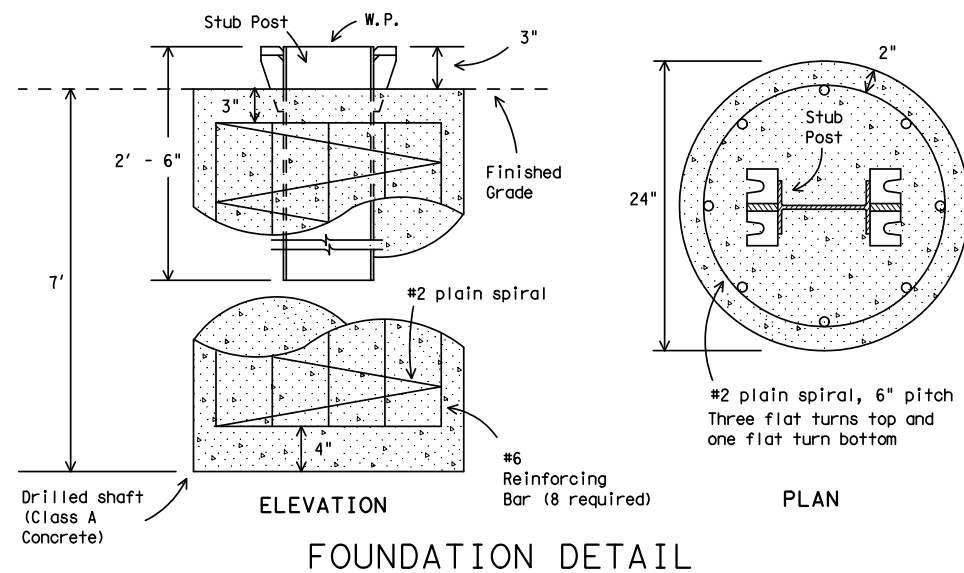
Option C Two Post/Solid Background Max. 80 sq. ft.



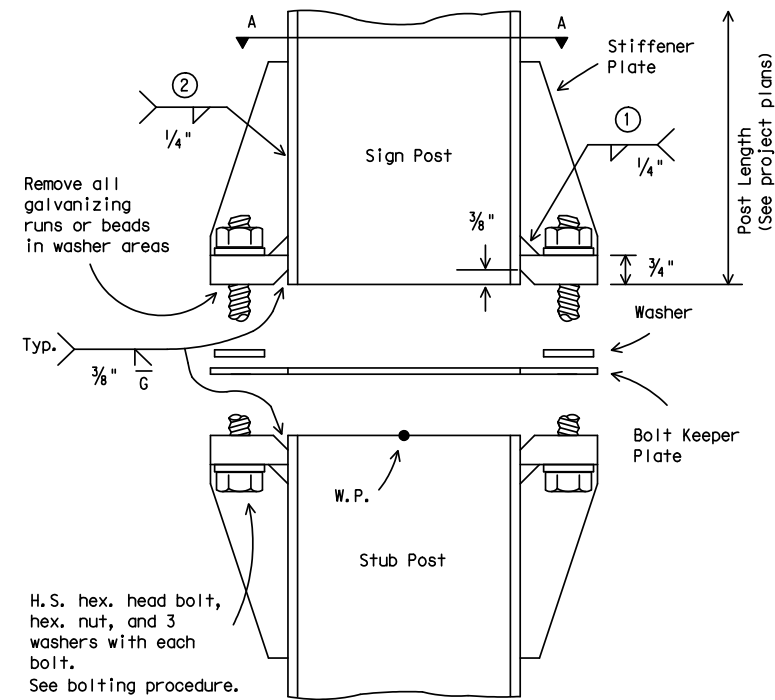
TYPICAL SIGN INSTALLATION AND LOCATION

OPTION C (Two Post)

10. Lateral clearances of signs mounted on median side of main lanes are the same as shown above where space will permit.
11. Where a sign is to be located behind guardrail, an allowable minimum clearance of two feet may be used, measured from the face of the guardrail to the near edge of sign.
12. 6 foot minimum and desirable may be used only in areas of limited lateral clearance and when approved by the Engineer.
13. Post spacing on a two post sign may vary a maximum of plus or minus 10% of total sign width to fit field conditions.
14. Typical maximum dimensions are 10 foot width by 8 foot height, however, TxDOT will consider other shapes and designs upon request. Maximum size of sign face shall not exceed 80 square feet.
15. Background shall be brown in color. If painted it shall match Sherwin Williams #2315 (or equivalent). If reflective sheeting is used it shall meet TxDOT Material Specification D-9-8300.
16. Optional City name, symbols, slogan or combination thereof may be an attachment sign or lettering on the sign face. Lettering may be any style or font, but shall not be greater than 8 inches in height. Lettering and or optional 2 inch border shall be white in color. Paint shall match Sherwin Williams #2130 (or equivalent), if sheeting is used it shall meet TxDOT Material Specification D-9-8300.

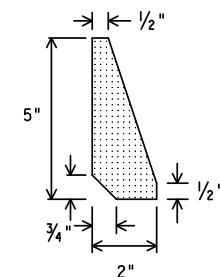


FOUNDATION DETAIL



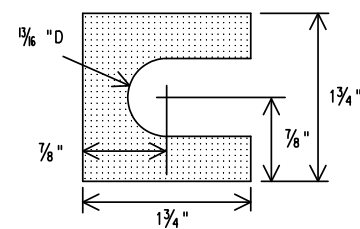
- ① Back up weld to be made before installing stiffener plate
- ② Weld W may be continued across clips to seal joint

W6x15 SIGN POST AND STUB POST



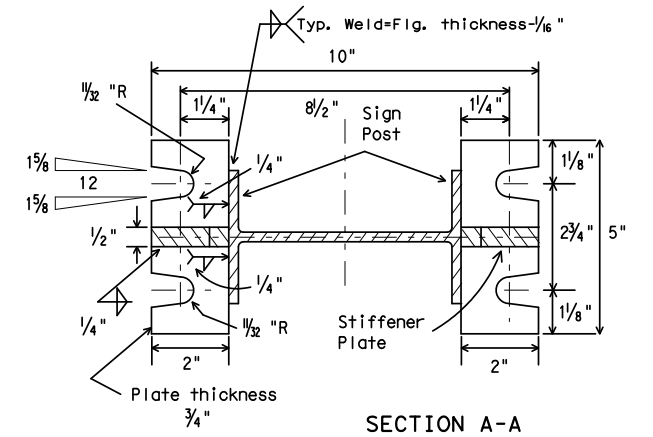
STIFFENER PLATE DETAIL

Steel Plate (thickness = 1/2")

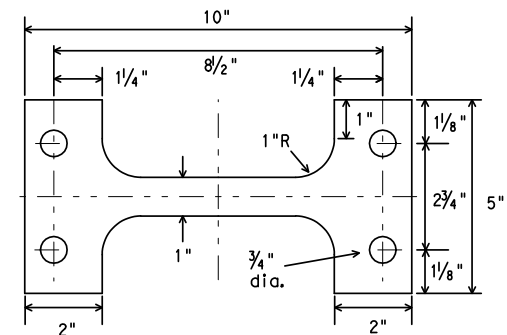


SHIM DETAIL

Furnish two .012"± thick and two .032"± thick shims per post. Shims shall be fabricated from brass shim stock or strip conforming to ASTM B36.



SECTION A-A



BOLT KEEPER PLATE 30 Ga galv. sheet steel

BOLTING PROCEDURE FOR ASSEMBLY OF BASE CONNECTION:

1. Assemble sign post, BOLT KEEPER PLATE and stub post with bolts and three flat washers per bolt as shown.
2. Shim as required to plumb post.
3. Tighten all bolts the maximum possible with a 12 to 15 inch wrench to clean bolt threads and to bed washers and shims.
4. Loosen each bolt in sequence and retighten bolts in a systematic order to the prescribed torque. Do not overtighten.
5. To prevent nut loosening, burr threads of bolt at junction with nut using a center punch.

SIGN SUPPORTS WILL ONLY
BE SPLICED BEHIND THE
SIGN SUBSTRATE

Texas Department of Transportation
Traffic Operations Division

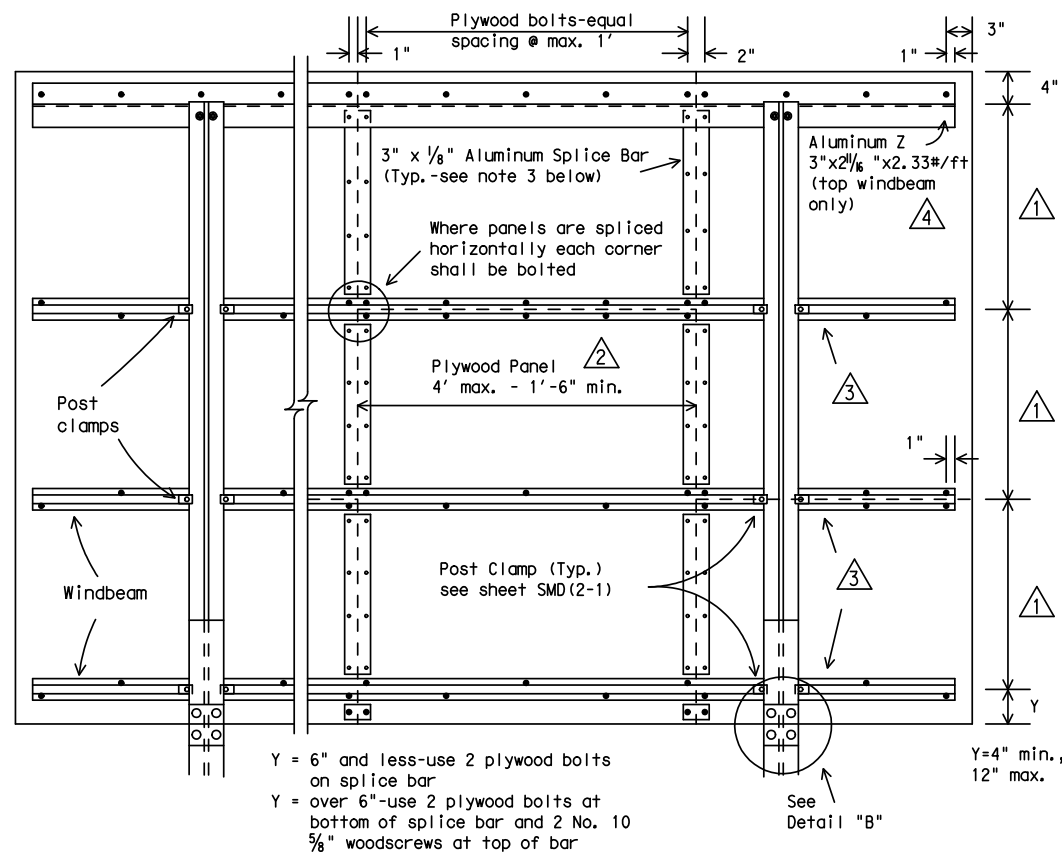
CITY PRIDE SIGN

SHEET 2 OF 3 SMD (CPS-2) -98

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REVISED	CK: TxDOT	REVISED	CK: TxDOT	REVISED

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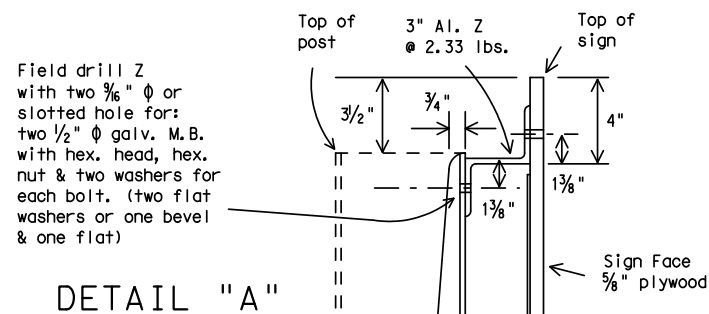
TYPICAL PLYWOOD SIGN ASSEMBLY DETAILS



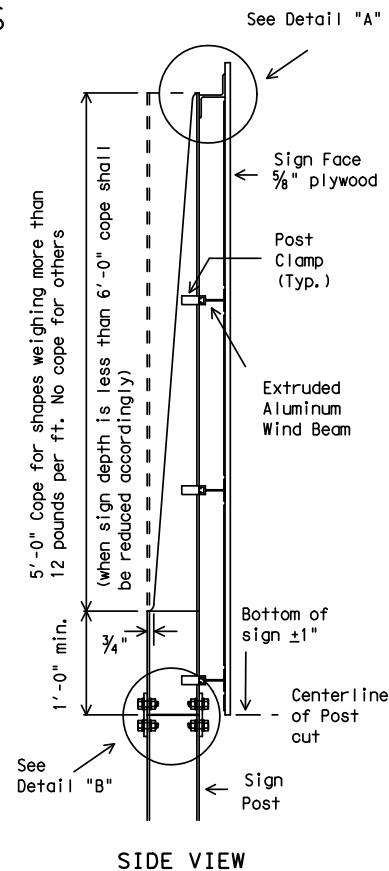
REAR VIEW

NOTES:

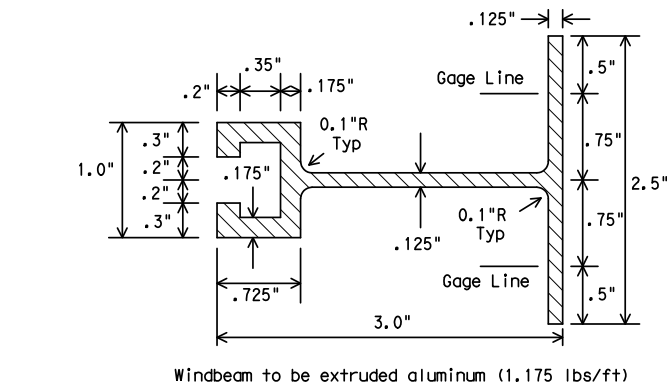
1. A tolerance of plus or minus $\frac{1}{4}$ inch will be permitted in the plan dimensions for fabrication of each single increment sign panel when necessary for squaring. A tolerance of plus or minus $\frac{1}{4}$ inch will be permitted for each increment of a multi-increment sign panel where necessary to secure square, tight-fitting joints.
2. Plywood bolts shall be $\frac{5}{16}$ " x $1\frac{1}{2}$ " elevator type steel with flat or slightly hemispherical head and $\frac{3}{4}$ " minimum thread length. The head shall have a minimum diameter of $\frac{1}{16}$ " and a minimum of two fins on the underside. Each bolt shall be provided with one $\frac{5}{16}$ " steel hex nut, one $\frac{5}{16}$ " steel flat washer, and one $\frac{5}{16}$ " steel lock washer. Bolts, nuts and washers shall be galvanized in accordance with ASTM Designation: B695, Class 50, or A153 Class C or D.
3. Splice bars shall be secured with $\frac{5}{8}$ " long x #10 round head, stainless steel wood screws spaced at 6" maximum along double row spacing with the exception at extreme ends of splice bars, along outside edge of sign, where plywood bolts shall be used as shown. A maximum of one horizontal joint per vertical section will be permitted using a $\frac{1}{8}$ " gap between panels.
4. Splices shall be kept to a minimum. Panels 4'x8' or larger shall be used to the maximum extent possible in the fabrication of any sign. Signs or sign sections which cannot be fabricated from at least a 4'x8' panel shall be of one piece construction.



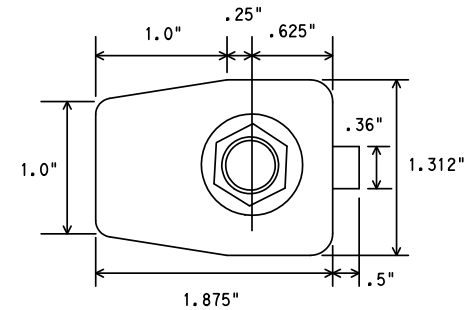
DETAIL "A"



SIDE VIEW

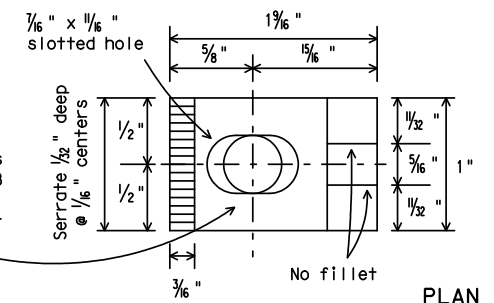


WINDBEAM CROSS SECTION

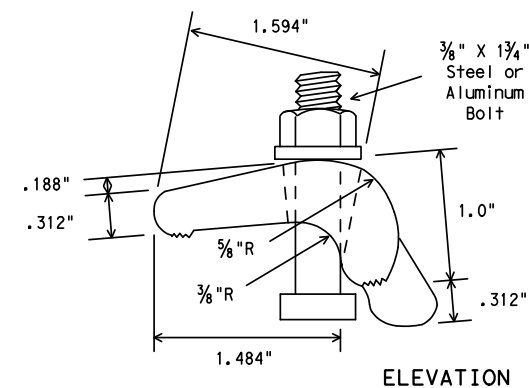


PLAN

NOTE: centerline of hole for 3/8" diameter squarehead bolt x 2 1/4" long with a flat washer and self-locking nut, or lock washer and hex. nut. Bolt head dimensions shall be in accordance with ANSI B 18.2.1 as referred to in the AISC Manual of steel construction. Bolt assembly shall be galvanized.

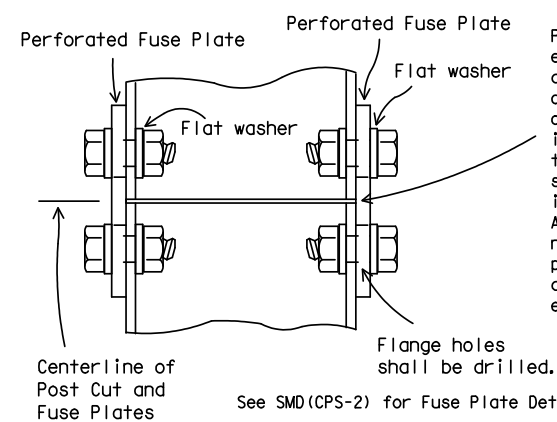


PLAN



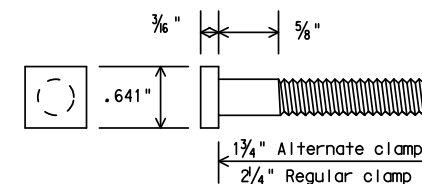
ELEVATION

ALTERNATE POST CLAMP DETAIL



DETAIL "B"

Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface treated with zinc-based solder or zinc-rich paint in accordance with ASTM A780. (Cut surface will not be treated until plate is installed and all bolts fully tightened.)



POST CLAMP BOLT DETAIL

SIGN SUPPORTS WILL ONLY
BE SPLICED BEHIND THE
SIGN SUBSTRATE

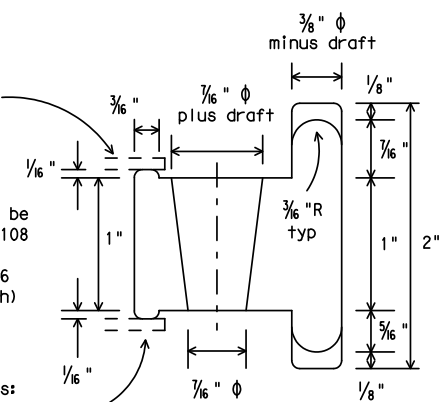
SPECIFICATION REFERENCE TABLE
MATERIALS AND TESTS DIVISION SPECIFICATIONS
SIGN HARDWARE D-9-7120

GENERAL NOTES:

1. Design conforms with AASHTO Specifications for the design and construction of structural supports for highway signs.
2. Materials and fabrication shall conform to the requirements of the Department material specifications.
3. Structural steel shall be high strength steel (HS) in accordance with the Item 442, "Metal For Structures."
4. Parts shall be saw cut either before galvanizing and the galvanized cut cleaned of zinc build-up, or saw cut after galvanizing and the cut surface treated with zinc-based solder or zinc-rich paint in accordance with ASTM A780. (Cut surface will not be treated until plate is installed and all bolts fully tightened.)

Beam flange
of W shapes:
 $\frac{7}{16}$ " leg of
clamp toward
W shapes
15 lbs/ft and
greater.

Post Clamp to be
ASTM B26 or B108
cast Aluminum
alloy 356.0-T6
(.173 lbs each)



ELEVATION

POST CLAMP DETAIL



CITY PRIDE
SIGN

SHEET 3 OF 3 SMD (CPS-3) -98

① TxDOT December 1998 REVISIONS	CHK: TXDOT	CHK: TXDOT	CHK: TXDOT	CHK: TXDOT
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	LIST	CUINITY		SHEET NO.

DATE: _____
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