





**PERMIT APPLICATION REVIEW FORM FOR  
CABLE, CONDUIT, AND POLE LINE ACTIVITY  
IN FORT BEND COUNTY**

**Fort Bend County  
Engineering Department**  
301 Jackson Suite 401  
Richmond, Texas 77469  
281.633.7500  
Permits@fortbendcountytexas.gov

- ☐ Right of Way Permit  
☒ Commercial Driveway Permit

Permit No: 2018-24060

The following "Notice of Proposed Cable, Conduit, and/or Pole Line activity in Fort Bend County" and accompanying attachments have been reviewed and the notice conforms to appropriate regulations set by Commissioner's Court of Fort Bend County, Texas.

**(1) COMPLETE APPLICATION FORM:**

- |                                     |  |
|-------------------------------------|--|
| <input checked="" type="checkbox"/> | a. Name of road, street, and/or drainage ditch affected. |
| <input checked="" type="checkbox"/> | b. Vicinity map showing course of directions             |
| <input checked="" type="checkbox"/> | c. Plans and specifications                              |

**(2) BOND:**

- |                                     |  |   |                    |
|-------------------------------------|--|---|--------------------|
| <input type="checkbox"/>            | County Attorney, approval when applicable. |   |                    |
| <input type="checkbox"/>            | Perpetual bond currently posted.           | Bond No: _____  | Amount: _____      |
| <input checked="" type="checkbox"/> | Performance bond submitted.                | Bond No: <span style="background-color: black; color: black;">XXXXXXXXXX</span> | Amount: \$5,000.00 |
| <input type="checkbox"/>            | Cashier's Check                            | Check No: _____   | Amount: _____      |

**(3) DRAINAGE DISTRICT APPROVAL (WHEN APPLICABLE):**

\_\_\_\_\_  
Drainage District Approval

\_\_\_\_\_  
Date

**We have reviewed this project and agree it meets minimum requirements.**

\_\_\_\_\_  
Permit Administrator

10/29/2018

\_\_\_\_\_  
Date



**PERFORMANCE BOND COVERING ALL CABLE, CONDUIT AND/OR POLE LINE  
ACTIVITY IN, UNDER, ACROSS OR ALONG FORT BEND COUNTY ROAD,  
COMMERCIAL DRIVEWAY AND MEDIAN OPENINGS OR MODIFICATIONS  
(AUTHORIZED)**

BOND

App No. 25920

THE STATE OF TEXAS §

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND §

THAT WE, Camden Builders, Inc. whose (address, phone) is 11 Greenway Plaza, Ste. 2400, Houston, Texas 77046, hereinafter called the Principal, and Travelers Casualty and Surety Company of America, a Corporation existing under and by virtue of the laws of the state of CT and authorized to do an indemnifying business in the state of Texas, and whose principal office is located at (name/address/phone) One Tower Square Bond/5PB, Hartford, CT 06183, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought within said state is Christopher Noble and whose address is 1301 E. Collins Blvd., Richardson, TX 75081, hereinafter called the Surety, and held and firmly bound unto, Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of Five Thousand and No/100 Dollars (\$ 5,000.00 ) current, lawful money of the United States of America, to be paid to said Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, to which payment well and truly to be made and done, we, the undersigned, bind ourselves and each of us, our heirs, executors, administrators, successors, assigns, and legal representatives, jointly and severally, by these presents.

THE CONDITION OF THIS BOND IS SUCH THAT, WHEREAS, the above bounden principal contemplates laying, constructing, maintaining and/or repairing one or more cables, conduits, and/or pole lines in, under, across and/or along roads, streets and highways, commercial driveway and median openings or modifications in the County of Fort Bend, and the State of Texas, under the jurisdiction of the Commissioners' Court of Fort Bend County, Texas, pursuant to the Commissioners' Court order adopted on the 1st day of December, A.D. 1980, recorded in Volume 13, of the Commissioners' Court Minutes of Fort Bend County, Texas, regulating same, which Commissioners' Court order is hereby referred to and made a part hereof for all purposes as though fully set out herein;

AND WHEREAS, the principal desires to provide Fort Bend County with a performance bond covering all such cable, conduit and/or pole line activity, commercial driveway and median openings or modifications;

NOW, THEREFORE, if the above bounden principal shall faithfully perform all its cable, conduit and/or pole line activity (including, but not limited to the laying, construction, maintenance and/or repair of cables, conduits and/or pole lines) in, under, across and/or along roads, streets and highways, commercial driveway and median openings or modifications in the County of Fort Bend and State of Texas, under the jurisdiction of the Commissioners Court of Fort Bend County, Texas, pursuant to and in accordance with minimum requirements and conditions of the above mentioned Commissioners' Court order set forth and specified to be by said principal done and performed, at the time and in the manner therein specified, and shall pay over and make good and reimburse Fort Bend County, all loss and damages which Fort Bend County may sustain by reason of any failure or default on the part of said principal, then this obligation shall be null and void, otherwise to remain in full force and effect.

This bond is payable at the County Courthouse in the County of Fort Bend and State of Texas.

It is understood that at any time Fort Bend County deems itself insecure under this bond, it may require further and/or additional bonds of the principal.

EXECUTED this 15th day of October , 2018 .

Camden Builders, Inc.  
PRINCIPAL

BY

Travelers Casualty and Surety Company of America

SURETY

BY Vanessa Dominguez, Attorney-in-Fact

CCM 11-6-2018 # 12E  
Fort Bend County Clerk  
Return Admin Serv Coord RAC  
Permit # 2018-24060



## POWER OF ATTORNEY

Farmington Casualty Company  
Fidelity and Guaranty Insurance Company  
Fidelity and Guaranty Insurance Underwriters, Inc.  
St. Paul Fire and Marine Insurance Company  
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company  
Travelers Casualty and Surety Company  
Travelers Casualty and Surety Company of America  
United States Fidelity and Guaranty Company

Attorney-In Fact No.

232300

Certificate No. 007308958

**KNOW ALL MEN BY THESE PRESENTS:** That Farmington Casualty Company, St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company are corporations duly organized under the laws of the State of Connecticut, that Fidelity and Guaranty Insurance Company is a corporation duly organized under the laws of the State of Iowa, and that Fidelity and Guaranty Insurance Underwriters, Inc., is a corporation duly organized under the laws of the State of Wisconsin (herein collectively called the "Companies"), and that the Companies do hereby make, constitute and appoint

Michael J. Herrod, Wendy W. Stuckey, Lisa A. Ward, Lupe Tyler, Vanessa Dominguez, Melissa L. Fortier, Naomi Harris-Thompson, Misty Wright, and Donna L. Williams

of the City of Houston, State of Texas, their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and acknowledge any and all bonds, recognizances, conditional undertakings and other writings obligatory in the nature thereof on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

IN WITNESS WHEREOF, the Companies have caused this instrument to be signed and their corporate seals to be hereto affixed, this 27th day of July, 2017.

Farmington Casualty Company  
Fidelity and Guaranty Insurance Company  
Fidelity and Guaranty Insurance Underwriters, Inc.  
St. Paul Fire and Marine Insurance Company  
St. Paul Guardian Insurance Company

St. Paul Mercury Insurance Company  
Travelers Casualty and Surety Company  
Travelers Casualty and Surety Company of America  
United States Fidelity and Guaranty Company



State of Connecticut  
City of Hartford ss.

By: Robert L. Raney  
Robert L. Raney, Senior Vice President

On this the 27th day of July, 2017, before me personally appeared Robert L. Raney, who acknowledged himself to be the Senior Vice President of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, and that he, as such, being authorized so to do, executed the foregoing instrument for the purposes therein contained by signing on behalf of the corporations by himself as a duly authorized officer.

In Witness Whereof, I hereunto set my hand and official seal.  
My Commission expires the 30th day of June, 2021.



Marie C. Tetreault  
Marie C. Tetreault, Notary Public



This Power of Attorney is granted under and by the authority of the following resolutions adopted by the Boards of Directors of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company, which resolutions are now in full force and effect, reading as follows:

**RESOLVED**, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President, any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary may appoint Attorneys-in-Fact and Agents to act for and on behalf of the Company and may give such appointee such authority as his or her certificate of authority may prescribe to sign with the Company's name and seal with the Company's seal bonds, recognizances, contracts of indemnity, and other writings obligatory in the nature of a bond, recognizance, or conditional undertaking, and any of said officers or the Board of Directors at any time may remove any such appointee and revoke the power given him or her; and it is

**FURTHER RESOLVED**, that the Chairman, the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President may delegate all or any part of the foregoing authority to one or more officers or employees of this Company, provided that each such delegation is in writing and a copy thereof is filed in the office of the Secretary; and it is

**FURTHER RESOLVED**, that any bond, recognizance, contract of indemnity, or writing obligatory in the nature of a bond, recognizance, or conditional undertaking shall be valid and binding upon the Company when (a) signed by the President, any Vice Chairman, any Executive Vice President, any Senior Vice President or any Vice President, any Second Vice President, the Treasurer, any Assistant Treasurer, the Corporate Secretary or any Assistant Secretary and duly attested and sealed with the Company's seal by a Secretary or Assistant Secretary; or (b) duly executed (under seal, if required) by one or more Attorneys-in-Fact and Agents pursuant to the power prescribed in his or her certificate or their certificates of authority or by one or more Company officers pursuant to a written delegation of authority; and it is

**FURTHER RESOLVED**, that the signature of each of the following officers: President, any Executive Vice President, any Senior Vice President, any Vice President, any Assistant Vice President, any Secretary, any Assistant Secretary, and the seal of the Company may be affixed by facsimile to any Power of Attorney or to any certificate relating thereto appointing Resident Vice Presidents, Resident Assistant Secretaries or Attorneys-in-Fact for purposes only of executing and attesting bonds and undertakings and other writings obligatory in the nature thereof, and any such Power of Attorney or certificate bearing such facsimile signature or facsimile seal shall be valid and binding upon the Company and any such power so executed and certified by such facsimile signature and facsimile seal shall be valid and binding on the Company in the future with respect to any bond or understanding to which it is attached.

I, Kevin E. Hughes, the undersigned, Assistant Secretary, of Farmington Casualty Company, Fidelity and Guaranty Insurance Company, Fidelity and Guaranty Insurance Underwriters, Inc., St. Paul Fire and Marine Insurance Company, St. Paul Guardian Insurance Company, St. Paul Mercury Insurance Company, Travelers Casualty and Surety Company, Travelers Casualty and Surety Company of America, and United States Fidelity and Guaranty Company do hereby certify that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is in full force and effect and has not been revoked.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seals of said Companies this 15th day of October, 2018.

*Kevin E. Hughes*  
Kevin E. Hughes, Assistant Secretary



To verify the authenticity of this Power of Attorney, call 1-800-421-3880 or contact us at [www.travelersbond.com](http://www.travelersbond.com). Please refer to the Attorney-In-Fact number, the above-named individuals and the details of the bond to which the power is attached.

## IMPORTANT NOTICE

To obtain information or make a complaint:

You may call Travelers Casualty and Surety Company of America and its affiliates' toll-free telephone number for information or to make a complaint at:

**1-800-328-2189**

You may contact the Texas Department of Insurance to obtain information on companies, coverages, rights or complaints at:

**1-800-252-3439**

You may write the Texas Department of Insurance:

P. O. Box 149104  
Austin, TX 78714-9104  
Fax: (512) 475-1771  
Web: <http://www.tdi.state.tx.us>  
E-mail: [ConsumerProtection@tdi.state.tx.us](mailto:ConsumerProtection@tdi.state.tx.us)

### PREMIUM OR CLAIM DISPUTES:

Should you have a dispute concerning your premium or about a claim you should contact your Agent or Travelers first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

### ATTACH THIS NOTICE TO YOUR BOND:

This notice is for information only and does not become a part or condition of the attached document and is given to comply with Texas legal and regulatory requirements.

FILED AND RECORDED  
OFFICIAL PUBLIC RECORDS

*Laura Richard*

Laura Richard, County Clerk

Fort Bend County Texas

November 09, 2018 03:08:49 PM

FEE: \$0.00

ADS

2018126344



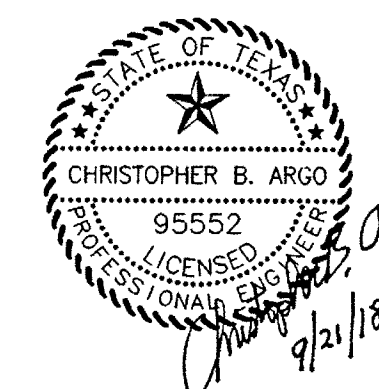
THE MIRAMONTE RESERVE "C"



<u>SHEET No.</u>	<u>DESCRIPTION</u>
C0.01	COVER SHEET
C0.02	EXISTING CONDITIONS
C0.03	PLAT (SHEET 1 OF 2)
C0.03	PLAT (SHEET 2 OF 2)
C1.01	PAVING & GRADING PLAN NO. 1
C1.02	PAVING & GRADING PLAN NO. 2
C1.03	PAVING & GRADING PLAN NO. 3
C2.01	DETENTION POND AND PAVING & GRADING PLAN NO. 4
C2.02	DETENTION POND CALCULATIONS
C2.03	STORM SEWER PUMP STATION
C2.04	DRAINAGE PLAN NO. 1
C2.05	DRAINAGE PLAN NO. 2
C2.06	DRAINAGE PLAN NO. 3
C2.07	DRAINAGE AREA MAP
C2.08	DRAINAGE AREA CALCULATIONS
C3.01	WATER AND SEWER PLAN NO. 1
C3.02	WATER AND SEWER PLAN NO. 2
C3.03	WATER AND SEWER PLAN NO. 3
C3.04	SANITARY SEWER PUMP STATION
C3.05	PIPELINE CROSSING SECTIONS
C4.01	EROSION CONTROL PLAN
C5.01	PROJECT SPECIFIC DETAILS
C5.02	EROSION CONTROL DETAILS
C5.03	CONSTRUCTION NOTES
C5.04-C5.09	CONSTRUCTION DETAILS

**KELLY R. KALUZA & ASSOCIATES, INC.**  
CONSULTING ENGINEERS AND SURVEYORS  
ENGINEERING FIRM No. F-1339  
SURVEYING FIRM No. 10010000  
3014 AVENUE I, ROSENBERG, TX 77471  
(281) 341-0808

SEPTEMBER 2018



FORT BEND COUNTY ENGINEER

ENGINEER: *Neil J. Hay Jr., PE, PDE*  
For RICHARD W. STOLLEIS, P.E.

DATE: *10/3/18*

THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN (1) YEAR FROM DATE OF APPROVAL.

APPROVED: *Cassandra J.*  
DEVELOPMENT COORDINATOR

DATE: *10-2-18*





STATE OF TEXAS :  
COUNTY OF FORT BEND:

We, Divine Farms, LLC, a Texas limited liability company, acting by and through Thomas Mathew, Manager, hereinafter referred to as Owners of the 37.8277 acres shown hereon and described in the above and foregoing map of MIRAMONTE VILLAGE, do hereby make and establish said subdivision and development plan of said property according to all lines, dedications, restrictions, and notations on said map or plat and do hereby dedicate to the use of the public forever, all streets, alleys, parks, water courses, drains, easements, and public places shown thereon for the purposes and considerations therein expressed; and do hereby bind ourselves, our heirs, successors and assigns to warrant and forever defend the title to the land so dedicated.

FURTHER, Owners have dedicated and by these presents do dedicate to the use of the public for public utility purposes forever unobstructed aerial easements. The aerial easements shall extend horizontally an additional eleven feet, six inches (11' 6") for ten feet (10' 0") perimeter ground easements or seven feet, six inches (7' 6") for fourteen feet (14' 0") perimeter ground easements or five feet, six inches (5' 6") for sixteen feet (16' 0") perimeter ground easements, from a plane sixteen feet (16' 0") above ground level upward, located adjacent to and adjoining said public utility easements that are designated with aerial easements (U.E. and A.E.) as indicated and depicted hereon, whereby the aerial easement totals twenty one feet, six inches (21' 6") in width.

FURTHER, Owners have dedicated and by these presents do dedicate to the use of the public for public utility purposes forever unobstructed aerial easements. The aerial easements shall extend horizontally an additional ten feet (10' 0") for ten feet (10' 0") back-to-back ground easements or eight feet (8' 0") for fourteen feet (14' 0") back-to-back ground easements or seven feet (7' 0") for sixteen feet (16' 0") back-to-back ground easements, from a plane sixteen feet (16' 0") above ground level upward, located adjacent to both sides and adjoining said public utility easements that are designated with aerial easements (U.E. and A.E.) as indicated and depicted hereon, whereby the aerial easement totals thirty feet (30' 0") in width.

FURTHER, Owners do hereby covenant and agree that all of the property within the boundaries of this plat shall be restricted to prevent the drainage of any septic tank into any public or private street, road or alley or any drainage ditch, either directly or indirectly.

FURTHER, Owners do hereby dedicate to the public a strip of land twenty (20' 0") feet wide on each side of the center line of any and all bayous, creeks, gullies, ravines, draws, sloughs, or other natural drainage courses located in said plat, as easements for drainage purposes, giving the City of Stafford, Fort Bend County, or any other governmental agency, the right to enter upon said easement at any times for the purpose of construction and maintenance of drainage facilities and structures.

FURTHER, Owners do hereby covenant and agree that all of the property within the boundaries of this plat and adjacent to any drainage easement, ditch, gully, creek or natural drainage way is hereby restricted to keep such drainage ways and easements clear of fences, buildings, planting and other obstructions to the operations and maintenance of the drainage facility and that such abutting property shall not be permitted to drain directly into this easement except by means of an approved drainage structure.

FURTHER, Owners do hereby acknowledge the receipt of the "Orders for Regulation of Outdoor Lighting in the Unincorporated Areas of Fort Bend County, Texas," and do hereby covenant and agree and shall comply with this order as adopted by Fort Bend County Commissioners' Court on March 23, 2004, and any subsequent amendments.

IN TESTIMONY WHEREOF, Divine Farms, LLC, a Texas limited liability company, has caused these presents to be signed by

Thomas Mathew, Manager, thereunto authorized, this \_\_\_\_ day of \_\_\_\_\_, 2018.

Divine Farms, LLC, a Texas limited liability company,

BY: \_\_\_\_\_  
Thomas Mathew, Manager

STATE OF TEXAS :  
COUNTY OF FORT BEND :

BEFORE ME, the undersigned authority, on this day personally appeared Thomas Mathew, Manager of Divine Farms, LLC, a Texas limited liability company, known to me to be the person whose name is subscribed to the foregoing instrument and acknowledged to me that he executed the same for the purposes and considerations therein expressed and in the capacity therein and herein stated, and as the act and deed of said company.

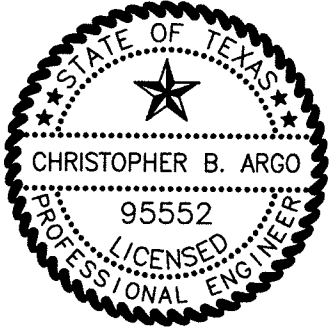
GIVEN UNDER MY HAND AND SEAL OF OFFICE, this \_\_\_\_ day of \_\_\_\_\_, 2018.

Notary Public in and for the State of Texas \_\_\_\_\_

My Commission Expires: \_\_\_\_\_ Notary

I, Christopher B. Argo, a Professional Engineer registered in the State of Texas, do hereby certify that this plat meets the requirements of Fort Bend County to the best of my knowledge.

Christopher B. Argo, P.E.  
Texas Registration No. 95552



I, Brian Nesvadba, an authorized under the laws of the State of Texas to practice the profession of surveying and hereby certify that the above is true and correct; was prepared from an actual survey of the property made under my supervision on the ground; that all boundary corners, angle points, points of curvature and other points of reference have been marked with iron rods having an outside diameter of five-eighths (5/8) inch and a length of not less than three (3) feet unless otherwise noted hereon; and that the plat boundary corners have been tied to the nearest street intersection.

Brian Nesvadba, R.P.L.S.  
Texas Registration No. 5776



This is to certify that the City Council for the City of Stafford, Texas, has approved this plat and subdivision of MIRAMONTE VILLAGE in conformance with the laws of the State of Texas and the ordinances of the City of Stafford as shown and authorize the recording of this plat this \_\_\_\_ day of \_\_\_\_\_, 2018.

BY: \_\_\_\_\_  
LEONARD SCARCELLA, MAYOR

BY: \_\_\_\_\_  
TOMIKA R. LEWIS, CITY SECRETARY

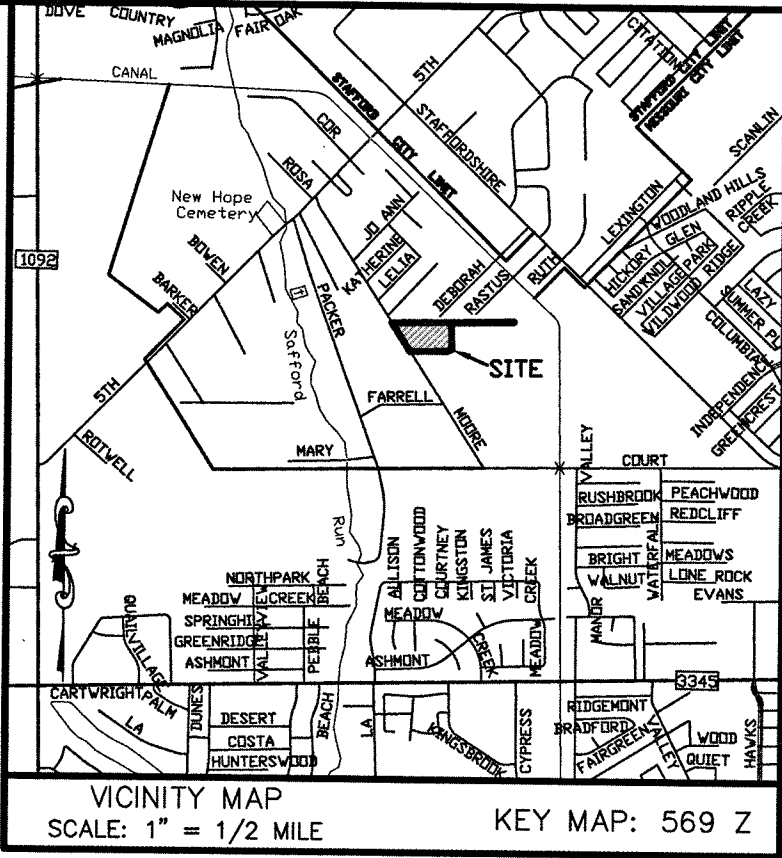
This is to certify that the Planning and Zoning Commission of the City of Stafford, Texas, has approved this plat and subdivision of MIRAMONTE VILLAGE in conformance with the laws of the state and the ordinances of the city as shown hereon and authorized the recording of this plat this \_\_\_\_ day of \_\_\_\_\_, 2018.

BY: \_\_\_\_\_  
XAVIER HERERRA, CHAIRMAN

BY: \_\_\_\_\_  
JOE ROMÉ, SECRETARY

NOTES:

- 1.) BEARINGS AND COORDINATES SHOWN HEREON ARE SURFACE, BASED ON THE TEXAS STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, (NO. 4204, NAD 83), AS OBTAINED FROM THE NGS C.O.R.S. SYSTEM, AND MAY BE CONVERTED TO GRID BY MULTIPLYING BY THE FOLLOWING COMBINED SCALE FACTOR OF 0.99987418822.
- 2.) THE MINIMUM FINISHED SLAB ELEVATION SHALL BE 77.0 FEET ABOVE MEAN SEA LEVEL, OR 18 INCHES ABOVE NATURAL GROUND, WHICHEVER IS HIGHER. THE TOP OF SLAB ELEVATION AT ANY POINT ON THE PERIMETER OF THE SLAB SHALL NOT BE LESS THAN EIGHTEEN (18) INCHES ABOVE NATURAL GROUND. THE TOP OF SLAB ELEVATIONS SHALL BE NO LESS THAN 12" ABOVE EXTREME EVENT PONDING AND SHEET FLOW ELEVATIONS AS CALCULATED IN FUTURE SITE DESIGNS.
- 3.) ALL OF THE PROPERTY SUBDIVIDED IN THE FOREGOING PLAT IS WITHIN THE FORT BEND INDEPENDENT SCHOOL DISTRICT, FIFTH STREET WATER SUPPLY CORPORATION, THE FORT BEND COUNTY DRAINAGE DISTRICT, THE CITY OF STAFFORD'S ETJ, AND FORT BEND COUNTY, TEXAS.
- 4.) THE DRAINAGE SYSTEM FOR THIS SUBDIVISION WITHIN FORT BEND COUNTY IS DESIGNED IN ACCORDANCE WITH THE FORT BEND DRAINAGE CRITERIA MANUAL WHICH ALLOWS STREET PONDING WITH INTENSE RAINFALL EVENTS.
- 5.) ALL DRAINAGE EASEMENTS TO BE KEPT CLEAR OF FENCES, BUILDINGS, VEGETATION AND OTHER OBSTRUCTIONS TO THE OPERATION AND MAINTENANCE OF THE DRAINAGE FACILITY.
- 6.) ALL PROPERTY TO DRAIN INTO THE DRAINAGE EASEMENT ONLY THROUGH AN APPROVED DRAINAGE STRUCTURE.
- 7.) THIS PLAT LIES IN LIGHTING ZONE 3 (L23).
- 8.) ACCORDING TO THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S FLOOD INSURANCE RATE MAP FOR FORT BEND COUNTY, TEXAS, AND INCORPORATED AREAS, COMMUNITY PANEL NO. 48157-C-0285L, EFFECTIVELY DATED APRIL 2, 2014, THIS PROPERTY LIES IN ZONE "X", AN AREA DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.
- 9.) ALL KNOWN PIPELINES OR PIPELINE EASEMENTS WITHIN THE PLATTED AREA ARE SHOWN HEREON.
- 10.) • - INDICATES A SET 5/8" IR W/ CAP STAMPED "TEAM 281-491-2525", UNLESS OTHERWISE NOTED.
- 11.) SIDEWALKS SHALL BE BUILT OR CAUSED TO BE BUILT NOT LESS THAN 5 FEET IN WIDTH ON BOTH SIDES OF ALL DEDICATED RIGHTS-OF-WAY WITHIN SAID PLAT AND ON THE CONTIGUOUS RIGHT-OF-WAY OF ALL PERIMETER ROADS SURROUNDING SAID PLAT, IN ACCORDANCE WITH THE A.D.A.
- 12.) SITE PLANS SHALL BE SUBMITTED TO FORT BEND COUNTY AND ANY OTHER APPLICABLE JURISDICTION FOR REVIEW AND APPROVAL. DEVELOPMENT PERMITS AND ALL OTHER APPLICABLE PERMITS SHALL BE OBTAINED FROM FORT BEND COUNTY PRIOR TO BEGINNING CONSTRUCTION.
- 13.) ALL DRAINAGE EASEMENTS SHOWN ON THE FOREGOING PLAT WILL BE MAINTAINED BY THE PROPERTY OWNERS ASSOCIATION AND/OR THE ADJACENT LOT OWNERS. HOWEVER, FORT BEND COUNTY RESERVES THE RIGHT TO MAINTAIN THESE DRAINAGE FACILITIES, IF NECESSARY.
- 14.) THE DETENTION POND FACILITY SHALL BE MAINTAINED BY THE PROPERTY OWNERS ASSOCIATION. HOWEVER, FORT BEND COUNTY RESERVES THE RIGHT TO MAINTAIN THESE DRAINAGE FACILITIES, IF NECESSARY.
- 15.) THIS PLAT WAS PREPARED RELYING ON A CITY PLANNING LETTER PREPARED BY FIDELITY NATIONAL TITLE AGENCY, INC., DATED JULY 19, 2018, (GF. NO. FAHCS18002515). THE SURVEYOR HAS NOT ABSTRACTED THE SUBJECT PROPERTY.



I, Richard W. Stolleis, P.E., Fort Bend County Engineer, do hereby certify that the plot of this subdivision complies with all of the existing rules and regulations of this office as adopted by the Fort Bend County Commissioners' Court; however, no certification is hereby given as to the effect of drainage from this subdivision on the intercepting drainage artery or parent stream or on any other area or subdivision within the watershed.

Richard W. Stolleis, P.E.,  
Fort Bend County Engineer

APPROVED by the Commissioners' Court of Fort Bend County, Texas this \_\_\_\_ day of \_\_\_\_\_, 2018.

Vincent M. Morales, Jr., Commissioner  
Precinct 1

Grady Prestage, Commissioner  
Precinct 2

Robert E. Hebert, County Judge

W. A. "Andy" Meyers, Commissioner  
Precinct 3

James Patterson, Commissioner  
Precinct 4

I, LAURA RICHARD, COUNTY CLERK IN AND FOR FORT BEND COUNTY, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WITH ITS CERTIFICATE OF AUTHENTICATION WAS FILED FOR RECORDATION IN MY OFFICE ON \_\_\_\_\_, 2018, AT \_\_\_\_ O'CLOCK \_\_M., IN PLAT NUMBER(S) \_\_\_\_\_ OF THE PLAT RECORDS OF SAID COUNTY.

WITNESS MY HAND AND SEAL OF OFFICE, AT RICHMOND, TEXAS THE DAY AND DATE LAST ABOVE WRITTEN.

BY: \_\_\_\_\_  
LAURA RICHARD, COUNTY CLERK  
FORT BEND COUNTY, TEXAS

BY: \_\_\_\_\_  
DEPUTY

FINAL PLAT OF  
**MIRAMONTE  
VILLAGE**

**A 37.8277 ACRE TRACT OF LAND  
IN THE WILLIAM NEAL SURVEY,  
ABSTRACT NO. 64,  
FORT BEND COUNTY, TEXAS**

**1 BLOCK 4 RESERVES 0 LOTS**

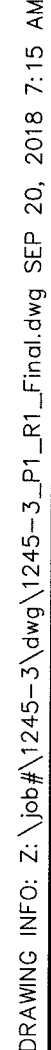
**~ OWNERS ~  
DIVINE FARMS, LLC  
a Texas limited liability company  
615 Overdell Drive  
Sugar Land, Texas 77479  
PHONE: 713-481-0000**

**~ SURVEYOR ~  
TEXAS ENGINEERING AND MAPPING COMPANY**

**12718 Century Drive  
Stafford, Texas 77477  
PHONE: 281.491.2525 FAX: 281.491.2535  
SURVEYING FIRM NO. 10119000 / ENGINEERING FIRM NO. F-28006  
www.team-civil.com  
1245-3  
SEPTEMBER 24, 2018**







LINE TABLE		
LINE	BEARING	DISTANCE
L1	S 87°16'21" W	110.48'
L2	N 65°34'13" E	99.29'

PHONE: 281.491.2525 FAX: 281.491.2535  
SURVEYING FIRM NO. 10119000 / ENGINEERING FIRM NO. F-2906  
[www.team-civil.com](http://www.team-civil.com)  
1245-3  
SEPTEMBER 24, 2018

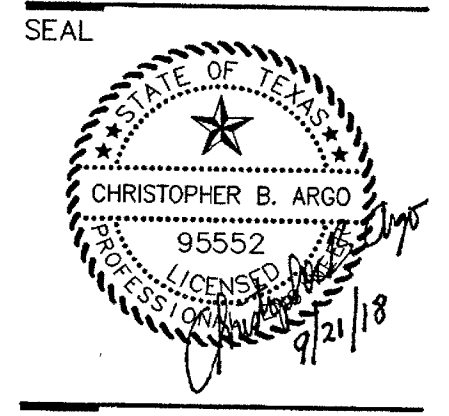
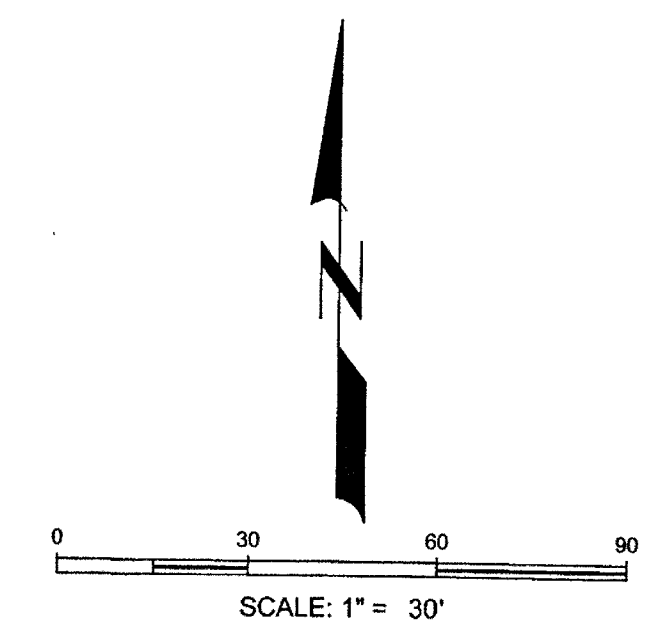
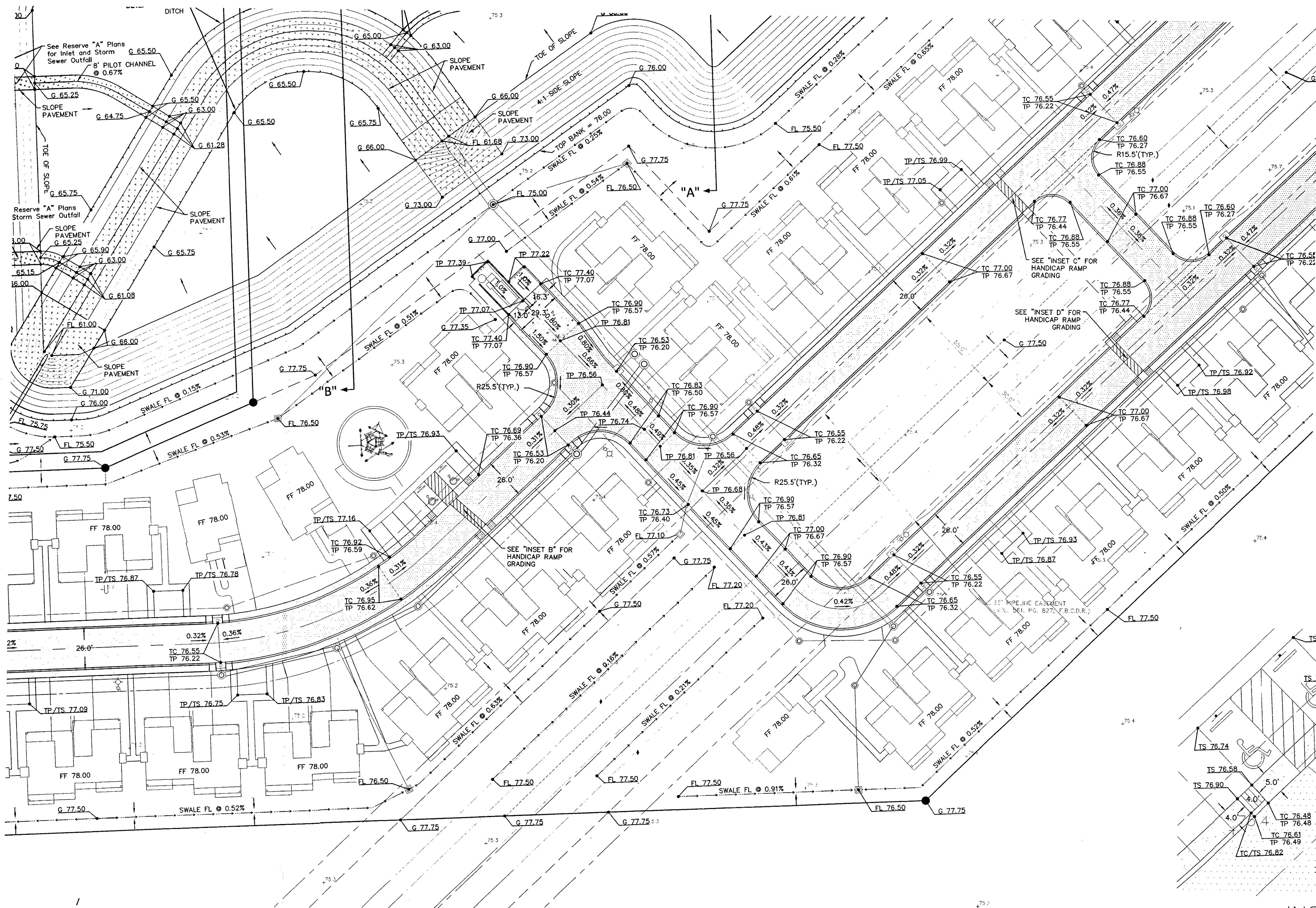
CO.04  
SHEET 2 OF 2



SHEET NUMBER

C1.01

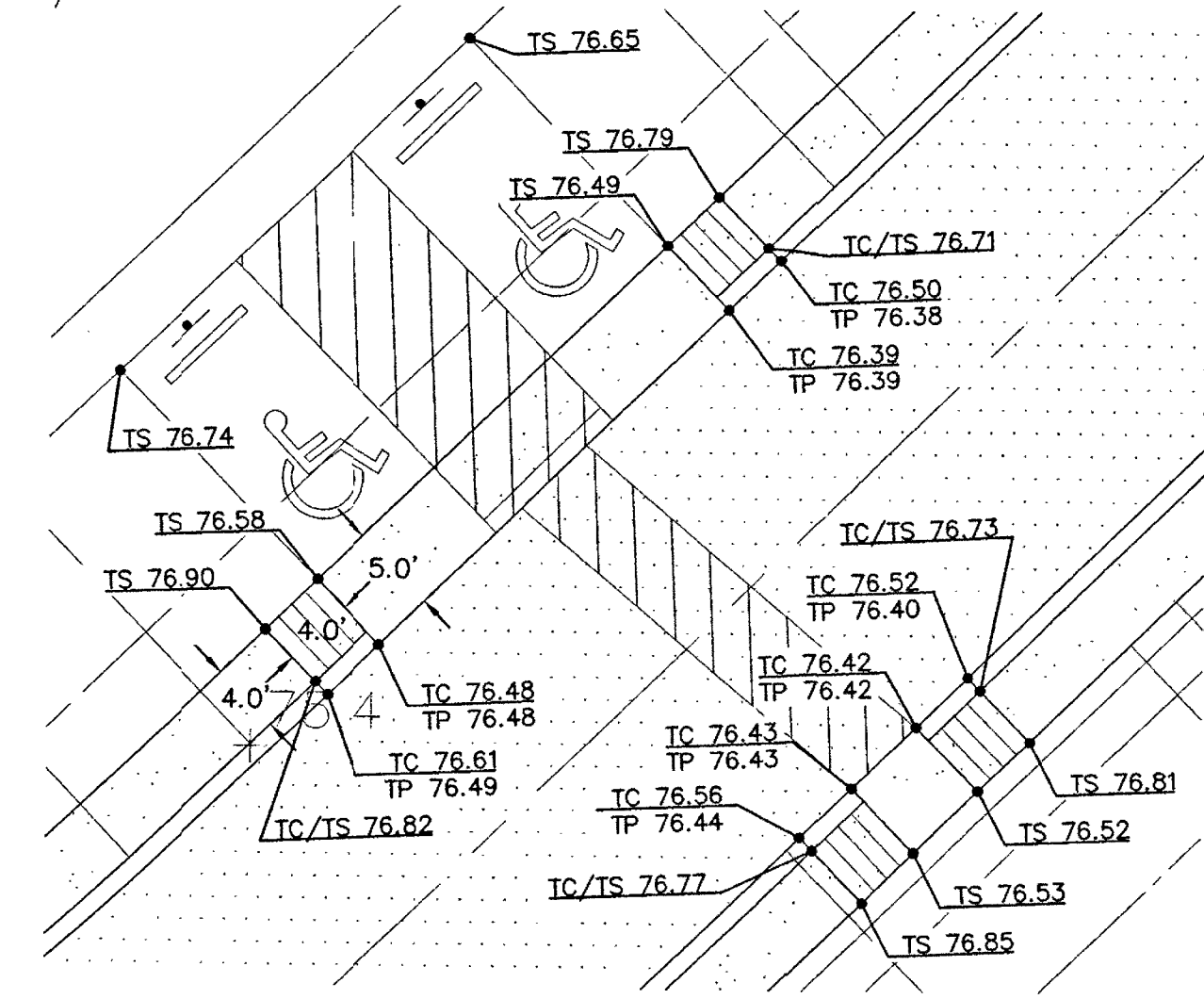




REVISIONS


PROJECT NUMBER  
FBSITE18-005

**Kelly R. Kaluza  
& Associates, Inc.**  
CONSULTING ENGINEERS & SURVEYORS  
REGISTERED FIRM No. F-1389  
SURVEYING LICENSE NO. 010000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH.281.341.0606 FAX.281.341.6333



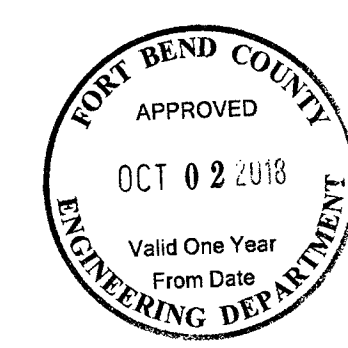
INSET "B"

**LEGEND**

TP XX.XX	TOP OF PAVEMENT ELEVATION
TG XX.XX	TOP OF GRATE ELEVATION
TC XX.XX	TOP OF CURB ELEVATION (ON A 4"x12" CURB, THIS GENERALLY REFERS TO THE 4" HIGH PORTION OF CURB)
G XX.XX	FINISHED GRADE ELEVATION
TS XX.XX	TOP OF SIDEWALK ELEVATION
(ME) XX.XX	MATCH EXISTING ELEVATION
HP	HIGH POINT
→	DRAINAGE SWALE
---	GRADE CHANGE
0.XX%	SLOPE
→	DIRECTION OF FLOW

**LEGEND**

[Pattern]	7" CONCRETE PAVEMENT
[Pattern]	6" CONCRETE PAVEMENT
[Pattern]	4.5" CONCRETE SIDEWALK
[Pattern]	4.5" CONCRETE SLOPE PAVING
[Pattern]	2" ASPHALT PAVEMENT
[Pattern]	MATCH LINE



PROJECT

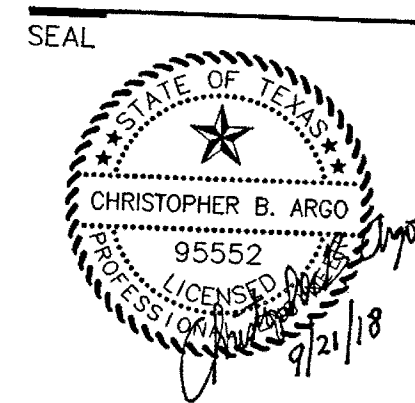
**The Miramonte  
RESERVE 'C'**  
Stafford, Texas

SHEET TITLE  
PAVING & GRADING  
PLAN NO. 2

DATE  
August 21, 2018

SHEET NUMBER  
**C1.02**



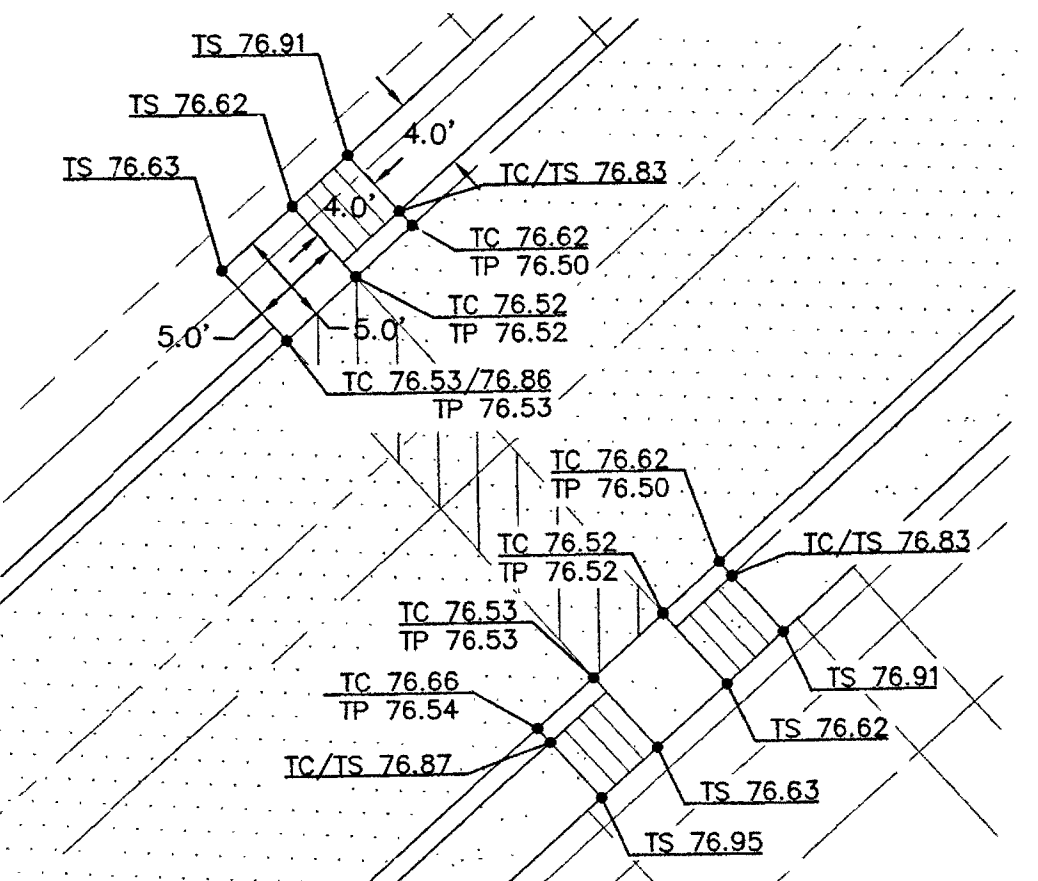


This image shows a single sheet of white paper with horizontal blue or grey ruling lines. The lines are evenly spaced and run across the width of the page. There are approximately 20 lines visible. The paper appears to be a standard notebook page or a sheet of stationery.

**Kelly R. Kaluza  
& Associates, Inc.**  
**CONSULTING ENGINEERS & SURVEYORS**  
ENGINEERING FIRM NO. F-1339  
SURVEYING FIRM NO. 10010000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.6333

**The Miramonte**  
RESERVE 'C'  
Stafford, Texas

## C1.03



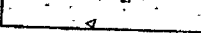
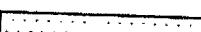
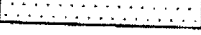
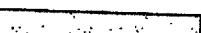
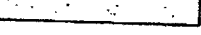
TP XX XX TOP OF PAVEMENT ELEVATION  
TG XX XX TOP OF GRATE ELEVATION  
TC XX XX TOP OF CURB ELEVATION  
(ON A 4"x12" CURB, THIS GENERALLY  
REFERS TO THE 4" HIGH PORTION OF CURB)  
G XX XX FINISHED GRADE ELEVATION  
TS XX XX TOP OF SIDEWALK ELEVATION  
(WF) XX XX MATCH EXISTING ELEVATION

HP HIGH POINT

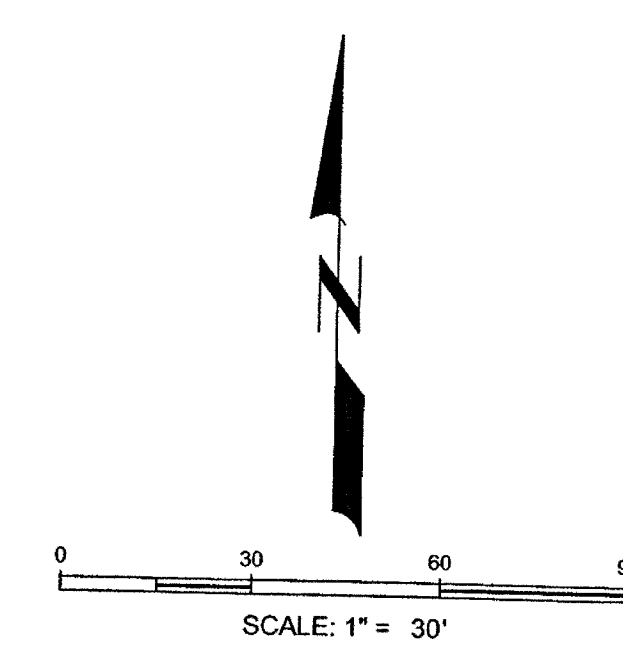
————→ DRAINAGE SWALE  
- - - - - GRADE CHANGE

0.XX% SLOPE

————→ DIRECTION OF FLOW

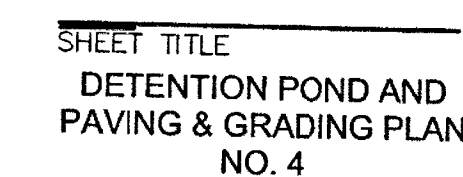
	7" CONCRETE PAVEMENT
	6" CONCRETE PAVEMENT
	4.5" CONCRETE SIDEWALK
	4.5" CONCRETE SLOPE PAVING
	2" ASPHALT PAVEMENT





**Kelly R. Kaluza  
& Associates, Inc.**  
CONSULTING ENGINEERS & SURVEYORS  
ENGINEERING FIRM No. F-1339  
SURVEYING FIRM No. 10010000  
3014 AVENUE  
ROSENBERG, TEXAS 77471  
PH.281.341.0308 FAX.281.341.6333

**The Miramonte**  
RESERVE 'C'  
Stafford, Texas



DATE August 21, 2018  
SHEET NUMBER

## C2.01

DETENTION FACILITY NOTE:

ALL DETENTION FACILITIES, INCLUDING, BUT NOT LIMITED TO, THE DETENTION POND (MOWING, SEEDING, MAINTENANCE OF THE SLOPES AND GRASS, SLOPE PAVING, PILOT CHANNEL, ETC.), THE INTERCEPTOR SWALES, THE PUMP STATION (INCLUDING ELECTRIC SERVICE), AND THE FORCE MAIN, SHALL BE OPERATED AND MAINTAINED IN PERPETUITY BY THE PROPERTY OWNERS ASSOCIATION.

<u>TP XX.XX</u>	TOP OF PAVEMENT ELEVATION
<u>TG XX.XX</u>	TOP OF GRATE ELEVATION
<u>TC XX.XX</u>	TOP OF CURB ELEVATION (ON A 4"x12" CURB, THIS GENERALLY REFERS TO THE 4" HIGH PORTION OF CURB)
<u>G XX.XX</u>	FINISHED GRADE ELEVATION
<u>TS XX.XX</u>	TOP OF SIDEWALK ELEVATION
<u>(MF) XX.XX</u>	MATCH EXISTING ELEVATION
HP	HIGH POINT
—————→—————	DRAINAGE SWALE
- - - - -	GRADE CHANGE
<u>0.XX%</u>	SLOPE
——→	DIRECTION OF FLOW

7" CONCRETE PAVEMENT

6" CONCRETE PAVEMENT

4.5" CONCRETE SIDEWALK

4.5" CONCRETE SLOPE PAVING

2" ASPHALT PAVING

MATCH LINE



### EXISTING 100-YR CONDITIONS

AREA (Acreage in includes all of Reserves A, B, and C)

Area=	19.64 acre		
Coefficient			
Existing Pervious Area $A_p =$	19.64 acre	Existing Impervious Area $A_{ip} =$	0.00 acre
		% impervious	0.00
$C_p =$	0.30	$C_{ip} =$	0.85
$C_p =$	0.30		

#### TRAVEL TIME

Pervious travel distance and velocity		
DIST.1=	650 ft	VEL.1= 0.4 ft/s
Shallow concentrated flow distance and velocity		
DIST.2=	650 ft	VEL.2= 0.75 ft/s
Impervious travel distance and velocity		
DIST.3=	0 ft	VEL.3= 2 ft/s
TC=DIST./VEL.	51.53 min.	TC MINIMUM IS 15 min.

#### INTENSITY

b=	146.18	e=	0.7851
d=	15.12		
i=	5.41 in/hr	C*Ci =	0.375

#### FLOW

Flow: $Q = C^*Ci^*A$	$Ci = 1.25$	Choked Flow	
Existing $Q =$	39.83 cfs	2.447 cfs	
		Flow used for Detention	2.450 cfs

#### EXCESS RAINFALL RUN-OFF

7.34 in.	
144.16 acre-in	

#### TIME TO PEAK

$T_p =$	157.53 min.	1.25 $T_p =$	196.92
---------	-------------	--------------	--------

$T_i = T_p / 10$		$T_i =$	16
		$T_i$ MINIMUM IS 20 min.	

### DEVELOPED 100-YR CONDITIONS

AREA (Acreage in includes all of Reserves A, B, and C)

Total Area=	19.64 acre		
Coefficient			
Proposed Pervious Area $A_p =$	6.34 acre	Proposed Impervious Area $A_{ip} =$	13.30 acre
		% impervious	67.72
$C_p =$	0.3	$C_{ip} =$	0.85
$C_p =$	0.67		

#### TRAVEL TIME

Pervious travel distance and velocity		
DIST.1=	200 ft	VEL.1= 0.4 ft/s
Impervious travel distance and velocity		
DIST.2=	200 ft	VEL.2= 1.5 ft/s
Pipe travel distance and velocity		
DIST.3=	900 ft	VEL.3= 3.0 ft/s
TC=DIST./VEL.	30.56 min.	TC MINIMUM IS 15 min.

#### INTENSITY

b=	146.18	e=	0.7851
d=	15.12		
i=	7.28 in/hr	C*Ci =	0.840567719

#### FLOW

Flow: $Q = C^*Ci^*A$	$Ci = 1.25$
Proposed $Q =$	120.11 cfs

#### EXCESS RAINFALL RUN-OFF

10.70 in.	
210.10 acre-in	

#### TIME TO PEAK

$T_p =$	76.13 min.	1.25 $T_p =$	95.17
---------	------------	--------------	-------

$T_i = T_p / 10$		$T_i =$	8
		$T_i$ MINIMUM IS 20 min.	

### PROVIDED DETENTION VOLUME FOR 100-YR CONDITIONS

elevation	area (SF)	area (Ac)	Volume (Ac-Ft)	Cumulative Volume
76.0	125668	2.88	Freeboard	
75.5	122505	2.81		
75.0	119342	2.74	1.39	20.49
74.0	113119	2.60	2.67	19.11
73.0	106996	2.46	2.53	16.44
72.0	100973	2.32	2.39	13.91
71.0	95050	2.18	2.25	11.52
70.0	89229	2.05	2.12	9.27
69.0	83508	1.92	1.98	7.16
68.0	77887	1.79	1.85	5.18
67.0	72366	1.66	1.72	3.32
66.0	66947	1.54	1.60	1.60

Total 20.49 Ac-Ft

Required 16.84 Ac-Ft

### REQUIRED DETENTION VOLUME

Based on FBCDD - Drainage Criteria Manual - Section 6.4.1

67.72 % Impervious = 16.69 Ac-Ft

Based on Hydrograph = 16.84 Ac-Ft

### MIRAMONTE C VALUE CALCULATIONS

Development Project Area (Reserves A, B, and C)

Area	
Duplex Site Area (Reserve C)	13.06
Multi-Family Area (Reserve A)	6.26
Buffer Area (Reserve B)	0.32
Total	19.64

Duplex (Reserve C) C Value

Area	Units	Total Area	C Value	C * A
Road/Parking/Sidewalk	1.85	1	1.85	0.85
Duplex Units/Drive/Sidewalk	0.0809	32	2.5888	0.85
Single Units/Drive/Sidewalk	0.0449	5	0.2245	0.85
Detention Pond	1.7348	1	1.7348	1.00
Remaining Open Space	6.6619	1	6.6619	0.30
Total		13.06	0.58937	7.697175

Multi-Family (Reserve A), Buffer (Reserve B), and Portion of Duplex (Reserve C) C Value

Area	Units	Total Area	C Value	C * A
Detention Pond	1.18	1	1.18	1.00
Detention Pond Buffer	0.53	1	0.53	0.30
Remaining Area	4.87	1	4.87	0.85
Total		6.58	0.832599	5.4785

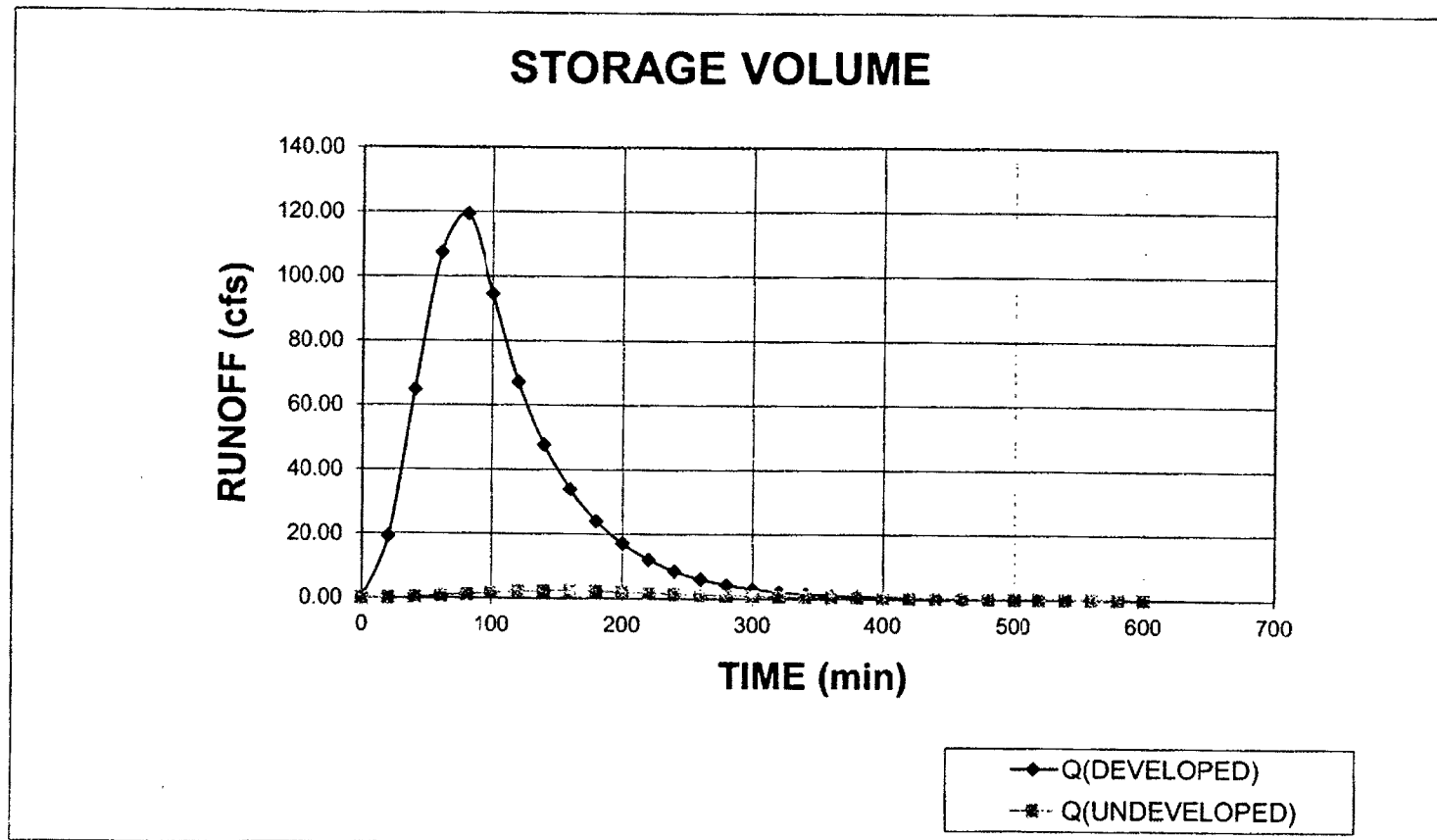
#### SUMMARY C VALUE

Area	C Value	C * A
Duplex Site Area	13.06	0.58937
MF/BA Site Area	6.58	0.832599
Total	19.64	0.670859

### REQUIRED STORAGE FOR 100-YR CALCULATIONS

When $T_i \leq 1.25 T_p$ use	$T_i$ (min)	$Q_{instream}$ (cfs)	$Q_{outstream}$ (cfs)	AREA (cf)
	0	0.00	0.00	0.00
	20	19.32	0.10	23064.65
	40	64.84	0.37	77365.18
	60	107.29	0.78	127810.94
	80	119.35	1.26	141712.68
	100	94.52	1.73	111346.84
	120	67.17	2.12	78061.36
	140	47.74	2.38	54437.52
	160	33.93	2.45	37776.88
	180	24.11	2.33	26141.40
	200	17.14	2.04	18115.71
	220	12.18	1.73	12538.93
	240	8.66	1.47	8626.61
	260	6.15	1.24	5889.45
	280	4.37	1.05	3980.89
	300	3.11	0.89	2655.63
	320	2.21	0.76	1740.17
	340	1.57	0.64	1111.95
	360	1.12	0.55	684.46
	380	0.79	0.46	396.73
	400	0.56	0.39	205.90
	420	0.40	0.33	81.84
	440	0.28	0.28	3.49
	460	0.20	0.24	0.00
	480	0.14	0.20	0.00
	500	0.10	0.17	0.00
	520	0.07	0.15	0.00
	540	0.05	0.12	0.00
	560	0.04	0.10	0.00
	580	0.03	0.09	0.00
	600	0.02	0.08	0.00

REQ'D. STORAGE = 16.84 ac-ft



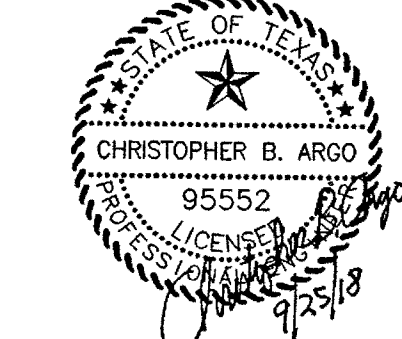
### WEIR CALCULATIONS FOR DETENTION POND OVERFLOW

$$Q = \frac{1.49}{n} AR^{2/3} S_f^{1/2}$$

Mannings Equation for Open Channel Flow

trapezoid	
n=	0.013
Bottom width (ft) =	55
depth (ft) =	0.5
side slopes (x:1) =	10
Slope in direction of flow (ft/ft) =	0.004
Area (SF) =	30.000
Wetted Perimeter =	65.050
Hydraulic Radius - R =	0.461
Q (cfs) =	129.81
100 yr Q (cfs) =	120.11

SEAL



REVISIONS

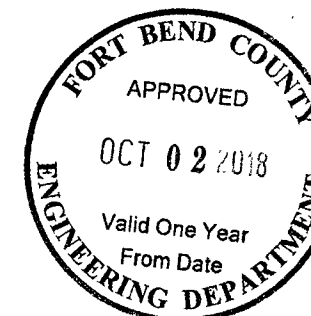
PROJECT NUMBER

FBSITE18-005

Kelly R. Kaluza  
& Associates, Inc.  
CONSULTING ENGINEERS & SURVEYORS  
ENGINEERING FIRM No. F-1539  
SURVEYING FIRM No. 10010000  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.6333

PROJECT

The Miramonte  
RESERVE 'C'  
Stafford, Texas



SHEET TITLE

DETENTION POND  
CALCULATIONS

DATE

August 21, 2018

SHEET NUMBER

C2.02



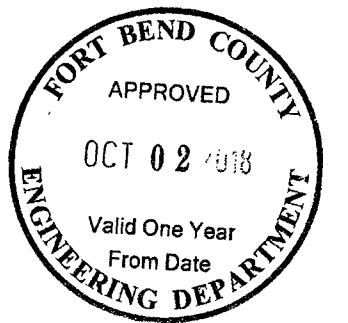
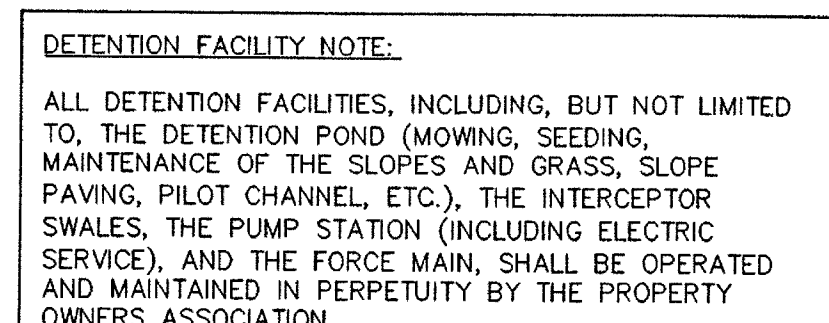
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FBSITE18-005

PROJECT

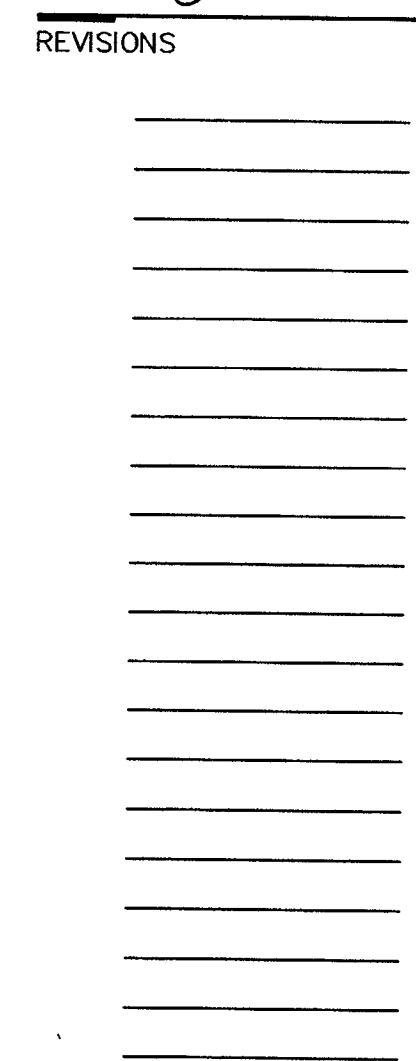
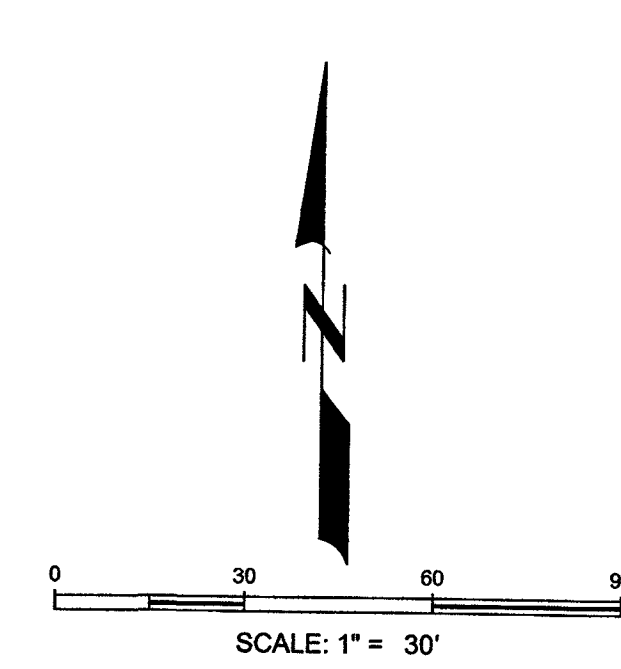
**SHEET TITLE**

**STORM SEWER PUMP  
STATION**

## C2.03











**Kelly R. Kaluza  
& Associates, Inc.**  
**CONSULTING ENGINEERS & SURVEYORS**  
ENGINEERING FIRM No. F-1339  
SURVEYING FIRM No. 10010000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH.281.341.0006 FAX.281.341.8333

**The Miramonte**  
RESERVE 'C'  
Stafford, Texas

## C2.04

STORM SEWER

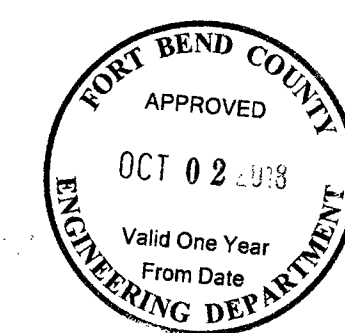
TYPE H-2 CURB INLET  
(SEE DETAIL)

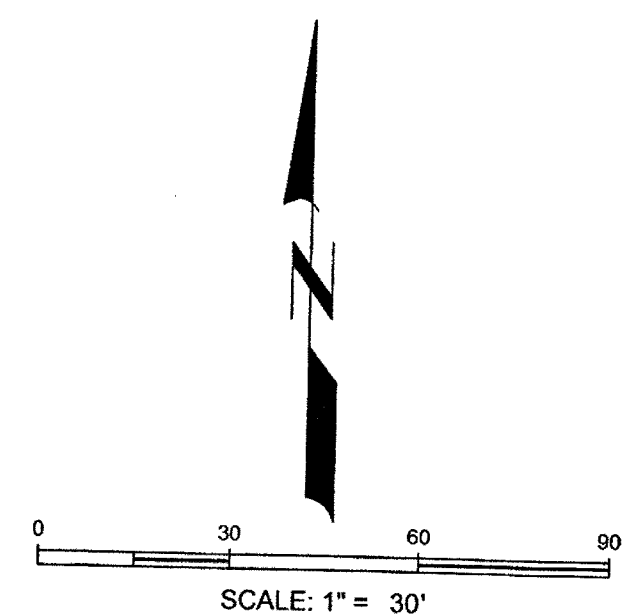
TYPE A INLET

TYPE E INLET

STORM MANHOLE

MATCH LINE





**Kelly R. Kaluza  
& Associates, Inc.**  
**CONSULTING ENGINEERS & SURVEYORS**  
ENGINEERING FIRM NO. E-1339  
SURVEYING FIRM NO. 00010000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH. 281.341.0808. FAX 281.341.6393

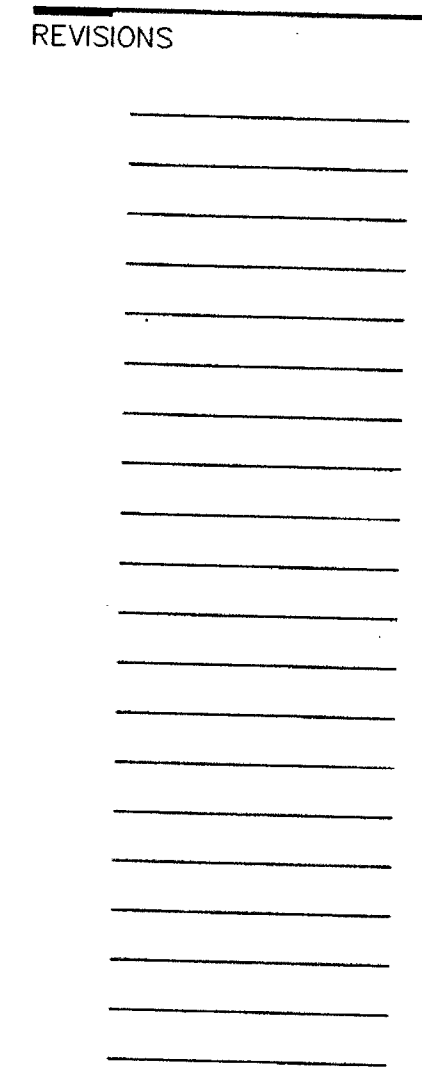
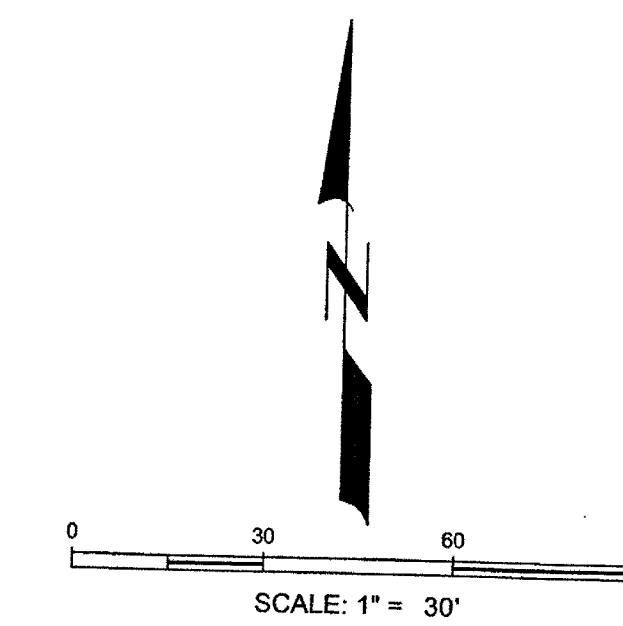
**The Miramonte**  
RESERVE 'C'  
Stafford, Texas

## C2.04

### LEGEND

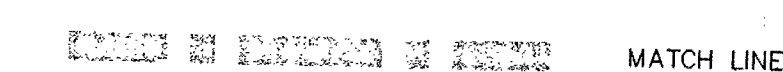
- 
- MATCH LINE





**Kelly R. Kaluza  
& Associates, Inc.**  
**CONSULTING ENGINEERS & SURVEYORS**  
ENGINEERING FIRM NO. F-1339  
SURVEYING FIRM NO. 10010000  
5014 N. MEADOWS  
ROSENBERG, TEXAS 77471  
PH. 281.341.0308 FAX 281.341.6333

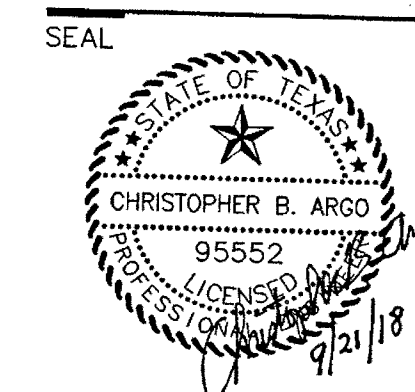
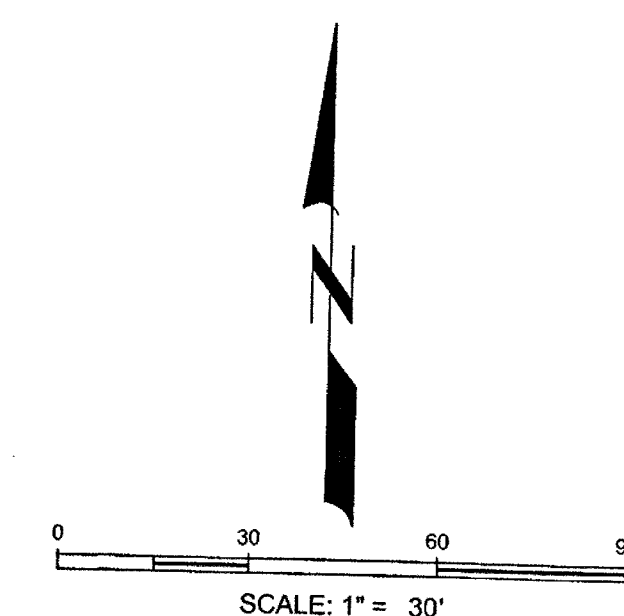
**The Miramonte**  
RESERVE 'C'  
Stafford, Texas



DATE August 21, 2018  
SHEET NUMBER

## C2.05





## REVISIONS

PROJECT NUMBER  
FBSITE18-005

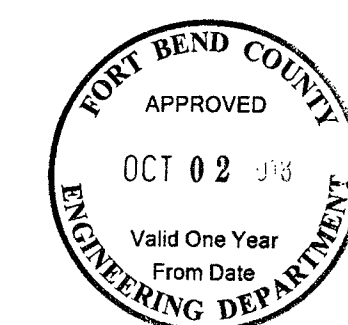
**Kelly R. Kaluza  
& Associates, Inc.**  
**CONSULTING ENGINEERS & SURVEYORS**

---





ENGINEERING FIRM No. F-1339  
SURVEYING FIRM No. 10010000  
3014 AVENUE  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.6933

PROJECT

**The Miramonte**  
RESERVE 'c'  
Stafford, Texas



LEGEND

- |   |                                     |
|---|-------------------------------------|
|  | TYPE H-2 CURB INLET<br>(SEE DETAIL) |
|  | TYPE A INLET                        |
|  | TYPE E INLET                        |
|  | STORM MANHOLE                       |

MATCH LINE


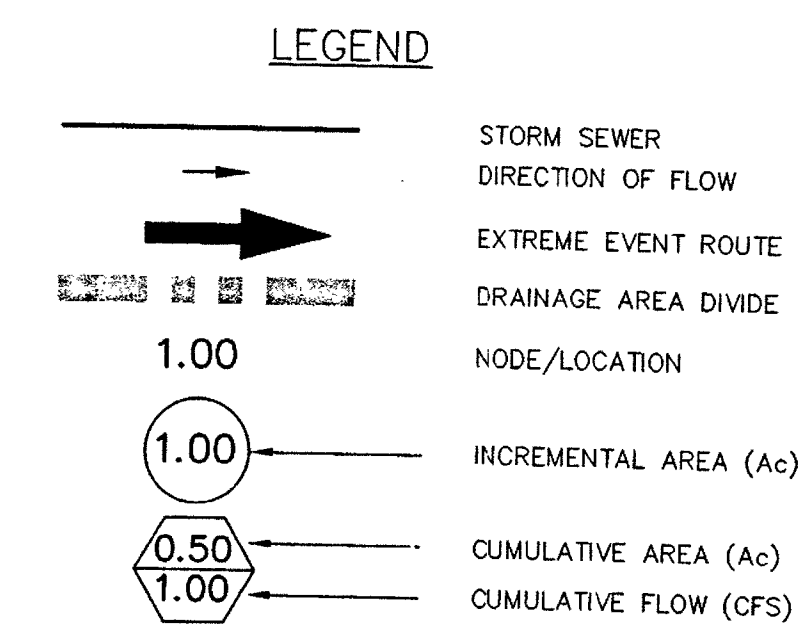
SHEET TITLE

DRAINAGE PLAN NO. 3

DATE August 21, 2018

SHEET 1 NUMBER 1

## C2.06



REVISIONS

PROJECT NUMBER  
FBSITE18-005

**Kelly R. Kaluza  
& Associates, Inc.**  
**CONSULTING ENGINEERS & SURVEYORS**  
ENGINEERING FIRM No. F-1359  
SURVEYING FIRM No. 10010000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.6933

PROJECT

**The Miramonte**  
RESERVE 'c'  
Stafford, Texas

SHEET TITLE

DRAINAGE AREA MAP

DATE August 21, 2018  
SHEET NUMBER

## C2.07



STATE OF TEXAS  
CHRISTOPHER B. ARGO  
95552  
PROFESSIONAL ENGINEER  
9/25/18

[illegible]

**Kelly R. Kaluza  
& Associates, Inc.**  
CONSULTING ENGINEERS & SURVEYORS  
ENGINEERING FIRM NO. F-1339  
SURVEYING FIRM NO. 10010000  
AUSTIN, TEXAS 78741  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.6333

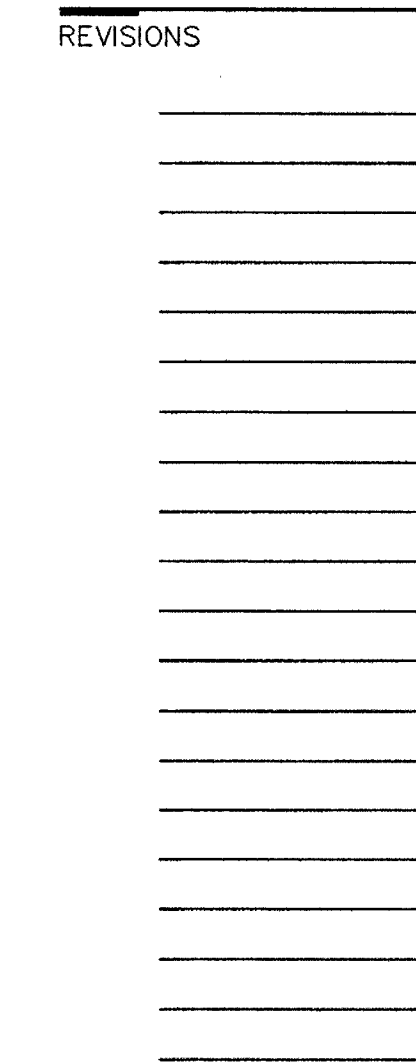
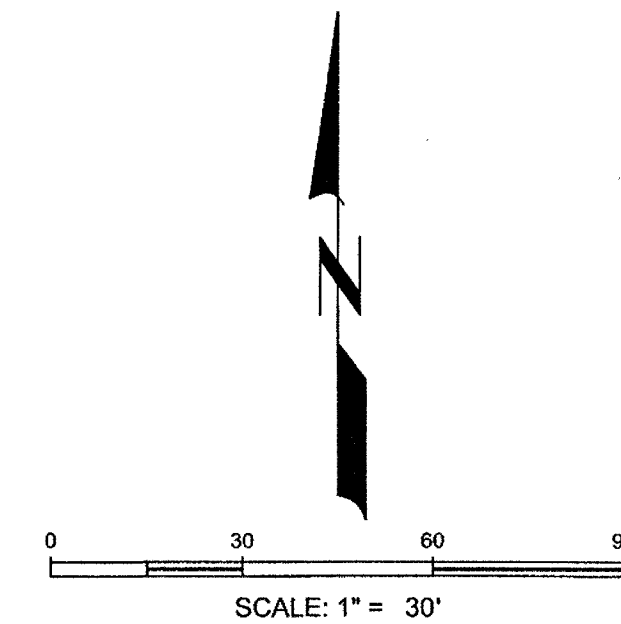
**The Miramonte**  
RESERVE 'C'  
Stafford, Texas

# C2.08

Marronette Duplex Storm Sewer Calcs																																				
																							All based on Q(100) x 1.25													
FROM JUNCTION	TO JUNCTION	ADDED AREA ac	TOTAL AREA ac	TC min	Intensity (3 yr)	Intensity (100 yr)	C	C embd	Adrtl Q cfs	CUM Q(3) cfs	CUM Q(100) cfs	CUM Q(100) x 1.25 cfs	REACH ft	LINE SIZE IN	PIPE THICKNS	SLOPE %	DESIGN Q cfs	V fps	D.S. FALL (ft)	MINOR LOSSES (ft)	FLOWLINE UP-STREAM		DOWN-STREAM	ACT.V Q(3) fps	ACT.V Q(100) x 1.25 fps	SLOPE HYD. GRAD. %	(100-yr x 1.25) delta H	(100-yr x 1.25) ELEV. HYD. GRAD. UP-STREAM	(100-yr x 1.25) DOWN-STREAM	TG/TP @ INLTMH UPSTR	TG/TP-Top Pipe UPSTR	HG DIST INLTMH ft	Inlet Type	Inlet Capacity cfs	Inlet Q(100) cfs	Extra Inlet Capacity cfs
100	102	0.56	0.56	10.00	5.98	11.63	0.60	0.60	0.00	2.01	3.91	4.89	73.00	18	0.21	0.28	5.35	3.03	0.00	0.000	73.00	72.81	1.13	2.78	0.215	0.157	75.36	75.21	76.50	1.98	1.14	A	5.00	3.91	1.09	
100	104	0.56	0.56	10.40	5.98	11.49	0.60	0.60	0.00	1.98	3.93	4.91	73.00	18	0.21	0.28	5.35	3.03	0.00	0.000	72.81	72.65	1.12	2.73	0.208	0.152	75.21	75.08	77.50	3.17	2.29	MH				
104	106	0.38	0.94	10.75	5.81	11.37	0.60	0.60	0.00	3.26	6.41	8.02	27.00	24	0.25	0.37	9.60	3.06	0.50	0.000	72.15	72.05	1.04	2.55	0.125	0.034	75.08	75.04	76.30	2.13	1.22	H2	4.00	2.59	1.41	
106	108	0.30	1.24	10.90	5.78	11.32	0.60	0.60	0.00	4.30	8.42	10.52	5.00	24	0.25	2.00	10.61	3.38	0.00	0.000	72.05	71.95	1.37	3.35	0.215	0.111	75.04	75.03	76.30	2.23	1.26	H2	4.00	2.04	1.96	
108	110	0.00	1.63	10.92	5.77	11.31	0.60	0.60	0.00	5.64	11.06	13.83	260.00	24	0.29	0.13	14.78	3.01	0.00	0.000	71.95	71.61	1.79	4.40	0.371	0.963	75.03	74.07	77.50	3.53	2.47	MH				
110	112	0.00	2.27	11.91	5.57	10.98	0.60	0.60	0.00	7.59	14.96	18.70	73.00	30	0.33	0.11	22.15	3.12	0.50	0.000	71.11	71.03	1.54	3.80	0.206	0.151	74.07	73.92	77.50	3.86	3.43	MH				
112	114	0.00	2.74	12.23	5.51	10.88	0.60	0.60	0.00	9.05	17.89	22.37	56.00	30	0.33	0.11	22.15	3.12	0.00	0.000	71.03	70.97	1.83	4.55	0.295	0.165	73.92	73.75	77.50	3.94	3.58	MH				
114	116	0.00	2.74	12.43	5.47	10.82	0.60	0.60	0.00	8.99	17.79	22.24	135.00	30	0.33	0.11	22.15	3.12	0.00	0.000	70.97	70.92	1.64	4.52	0.292	0.394	73.75	73.36	77.50	4.01	3.75	MH				
116	118	0.00	3.22	12.93	5.38	10.67	0.60	0.60	0.00	10.39	20.61	25.77	69.00	36	0.25	0.09	30.18	3.14	0.50	0.000	70.32	70.26	1.47	3.64	0.148	0.102	73.36	73.36	77.50	4.16	4.14	MH				
118	120	0.00	8.55	13.24	5.32	10.58	0.60	0.60	0.00	27.29	54.25	67.82	8.00	54	0.29	0.12	68.12	4.28	0.00	0.000	61.89	61.88	1.71	4.26	0.118	0.009	66.89	66.88	77.50	11.09	10.61	MH				
120	122	0.00	8.70	13.28	5.31	10.57	0.60	0.60	0.00	27.74	55.16	68.95	126.00	54	0.29	0.12	68.12	4.28	0.00	0.000	61.88	61.73	1.74	4.33	0.122	0.154	66.88	66.73	75.50	9.10	8.62	MH				
122	OF1	0.41	9.97	13.76	5.23	10.43	0.60	0.60	0.00	31.29	82.38	77.97	50.00	60	0.29	0.09	78.13	3.91	0.00	0.000	61.73	61.68	1.59	3.97	0.089	0.044	66.73	66.68	66.68	-0.07	-0.04	E	10.00	2.57	7.43	
124	126	0.39	0.39	10.00	5.98	11.63	0.60	0.60	0.00	1.40	2.72	3.40	59.00	18	0.25	0.26	5.35	3.03	0.00	0.000	73.00	72.85	0.79	1.92	0.104	0.061	75.12	75.06	76.50	1.98	1.38	A	5.00	2.72	2.28	
126	108	0.00	0.39	10.32	5.90	11.52	0.60	0.60	0.00	1.38	2.70	3.37	29.00	18	0.25	0.26	5.35	3.03	0.00	0.000	72.85	72.77	0.78	1.90	0.102	0.030	75.06	75.03	77.50	3.13	2.44	MH				
128	130	0.29	0.29	10.00	5.98	11.63	0.60	0.60	0.00	1.04	2.02	2.53	27.00	18	0.25	0.37	5.35	3.03	0.00	0.000	72.72	72.62	0.59	1.43	0.058	0.016	74.22	74.12	76.22	1.98	2.00	H-2	4.00	2.02	1.98	
130	110	0.35	0.64	10.15	5.94	11.58	0.60	0.60	0.00	2.28	4.45	5.56	5.00	18	0.25	2.00	5.35	3.03	0.00	0.000	72.62	72.52	1.29	3.14	0.278	0.014	74.22	74.07	76.22	2.08	2.10	H-2	4.00	2.43	1.57	
132	112	0.47	0.47	10.00	5.98	11.63	0.60	0.60	0.00	1.68	3.28	4.10	94.00	18	0.25	0.26	5.35	3.03	0.00	0.000	73.00	72.75	0.95	2.32	0.151	0.147	74.50	73.92	76.50	1.98	2.00	A	5.00	3.28	1.72	
134	136	0.26	0.26	10.00	5.98	11.63	0.60	0.60	0.00	0.93	1.81	2.27	27.00	18	0.25	0.37	5.35	3.03	0.00	0.000	72.70	72.60	0.53	1.28	0.046	0.012	74.20	74.10	76.20	1.98	2.00	H-2	4.00	1.81	2.19	
136	116	0.22	0.48	10.15	5.94	11.58	0.60	0.60	0.00	1.71	3.34	4.17	5.00	18	0.25	2.00	5.35	3.03	0.00	0.000	72.60	72.50	0.97	2.36	0.156	0.008	74.10	73.36	76.20	2.08	2.10	H-2	4.00	1.53	2.47	
138	122	0.52	0.52	10.00	5.98	11.63	0.60	0.60	0.00	1.86	3.63	4.54	186.00	18	0.25	0.26	5.35	3.03	0.00	0.000	73.00	72.52	1.05	2.56	0.185	0.344	74.50	66.73	76.50	1.98	2.00	A	5.00	3.63	1.37	
140	122	0.34	0.34	10.00	5.98	11.63	0.60	0.60	0.00	1.22	2.37	2.97	86.00	18	0.25	0.26	5.35	3.03	0.00	0.000	73.00	72.78	0.69	1.68	0.079	0.068	74.50	66.73	76.50	1.98	2.00	A	5.00	2.37	2.63	
142	120	0.15	0.15	10.00	5.98	11.63	0.60	0.60	0.00	0.54	1.05	1.31	14.00	18	0.25	0.75	5.35	3.03	0.00	0.000	72.70	72.60	0.30	0.74	0.015	0.002	74.20	66.88	77.50	3.28	3.30	H2	4.00	1.05	2.95	
144	146	0.42	0.42	10.00	5.98	11.63	0.60	0.60	0.00	1.51	2.93	3.66	84.00	18	0.25	0.26	5.35	3.03	0.00	0.000	73.00	72.78	0.85	2.07	0.121	0.101	74.61	74.51	76.50	1.98	1.89	A	5.00	2.93	2.07	
146	148	0.00	1.08	10.46	5.87	11.47	0.60	0.60	0.00	3.80	7.93	9.29	206.00	24	0.25	0.18	9.60	3.06	0.76	0.000	72.02	71.65	1.21	2.95	0.167	0.345	74.61	74.17	77.50	3.46	2.99	MH				
148	150	0.00	2.12	11.58	5.63	11.09	0.60	0.60	0.00	7.17	14.10	17.83	282.00	30	0.30	0.19	17.88	3.64	0.50	0.000	71.15	70.67	1.46	3.59	0.183	0.517	74.17	73.65	77.50	3.82	3.33	MH				
150	152	0.00	2.93	12.88	5.39	10.69	0.60	0.60	0.00	9.47	18.78	23.48	31.00	36	0.25	0.13	24.05	3.40	0.50	0.000	70.12	70.02	1.34	3.32	0.123	0.038	73.65	73.61	77.50	4.36	3.85	MH				
152	154	0.00	3.31	13.03	5.36	10.64	0.60	0.60	0.00	10.64	21.13	26.41	161.00	36	0.25	0.16	26.68	3.77	0.00	0.000	62.20	61.94	1.50	3.73	0.168	0.260	73.61	73.36	77.50	12.28	11.88	MH				
154	118	0.00	5.33	13.74	5.23	10.43	0.60	0.60	0.00	16.74	33.37	41.71	61.00	42	0.25	0.09	43.99	3.43	0.00	0.000	61.94	61.89	1.74	4.33	0.170	0.104	73.36	73.26	77.50	12.04	4.14	MH				
156	158	0.22	0.22	10.00	5.98	11.63	0.60	0.60	0.00	0.79	1.54	1.92	27.00	18	0.25	0.37	5.35	3.03	0.00	0.000	72.72	72.62	0.45	1.08	0.033	0.009	74.53	74.52	76.22	1.98	1.69	H-2	4.00	1.54	2.48	
158	146	0.44	0.66	10.15	5.94	11.58	0.60	0.60	0.00	2.35	4.59	5.73	5.00	18	0.25	2.00	5.35	3.03	0.00	0.000	72.62	72.52	1.33	2.34	0.295	0.015	74.52	74.51	76.22	2.08	1.70	H-2	4.00	3.06	0.94	
160	162	0.33	0.33	10.00	5.98	11.63	0.60	0.60	0.00	1.18	2.30	2.88	27.00	18	0.25	0.37	5.35	3.03	0.00	0.000	72.72	72.62	0.67	1.63	0.075	0.020	74.22	74.18	76.22	1.98	2.00	H-2	4.00	2.30	1.70	
162	148	0.26	0.59	10.15	5.94	11.58	0.60	0.60	0.00	2.10	4.10	5.12	5.00	18	0.25	2.00	5.35	3.03	0.00	0.000	72.62	72.52	1.19	2.90	0.236	0.012	74.18	74.17	76.22	2.08	2.04	H-2	4.00	1.81	2.19	
164	148	0.45	0.45	10.00	5.98	11.63	0.60	0.60	0.00	1.61	3.14	3.93	84.00	18	0.25	0.26	5.35	3.03	0.00	0.000	73.00	72.78	0.91	2.22	0.139	0.116	74.50	74.17	76.50	1.98	2.00	A	5.00	3.14	1.86	
166	168	0.27	0.27	10.00	5.98	11.63	0.60	0.60	0.00	0.97	1.88	2.36	27.00	18	0.25	0.37	5.35	3.03	0.00	0.000	72.72	72.62	0.55	1.33	0.050	0.013	74.22	74.12	76.22	1.98	2.00	H-2	4.00	1.88	2.12	
168	150	0.54	0.81	10.15	5.94	11.58	0.60	0.60	0.00	2.89	5.63	7.04	5.00	18	0.25	2.00	5.35	3.03	0.00	0.000	72.62	72.52	1.63	3.98	0.445	0.022	74.12	73.65	76.22	2.08	2.10	H-2	4.00	3.75	0.25	
170	172	0.38	0.38	10.00	5.98	11.63	0.60	0.60	0.00	1.36	2.65	3.32	84.00	18	0.25	0.26	5.35	3.03	0.00	0.000	73.00	72.78	0.77	1.87	0.099	0.083	74.50	74.28	76.50	1.98	2.00	A	5.00	2.65	2.35	
172	152	0.00	0.38	10.46	5.87	11.47	0.60	0.60	0.00	1.34	2.61																									












**Kelly R. Kaluza  
& Associates, Inc.**  
CONSULTING ENGINEERS & SURVEYORS

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ENGINEERING FIRM No. F-1339  
SURVEYING FIRM No. 10010000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.8333

The Miramonte  
RESERVE 'C'  
Stafford, Texas



	DOMESTIC WATER LINE
	FLUSHING VALVE ASSEMBLY
	SANITARY SEWER
	SANITARY FORCE MAIN
	SANITARY MANHOLE

DATE August 21, 2018

SHEET NUMBER

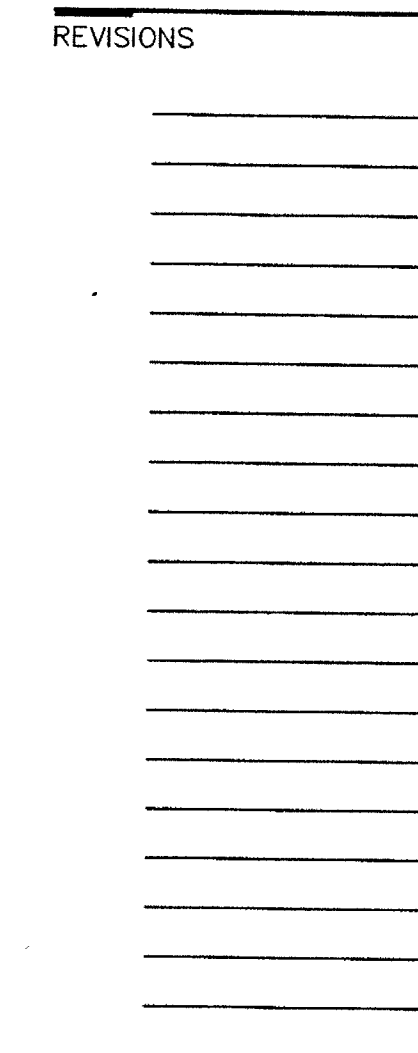
## C3.02











**Kelly R. Kaluza  
& Associates, Inc.**  
CONSULTING ENGINEERS & SURVEYORS

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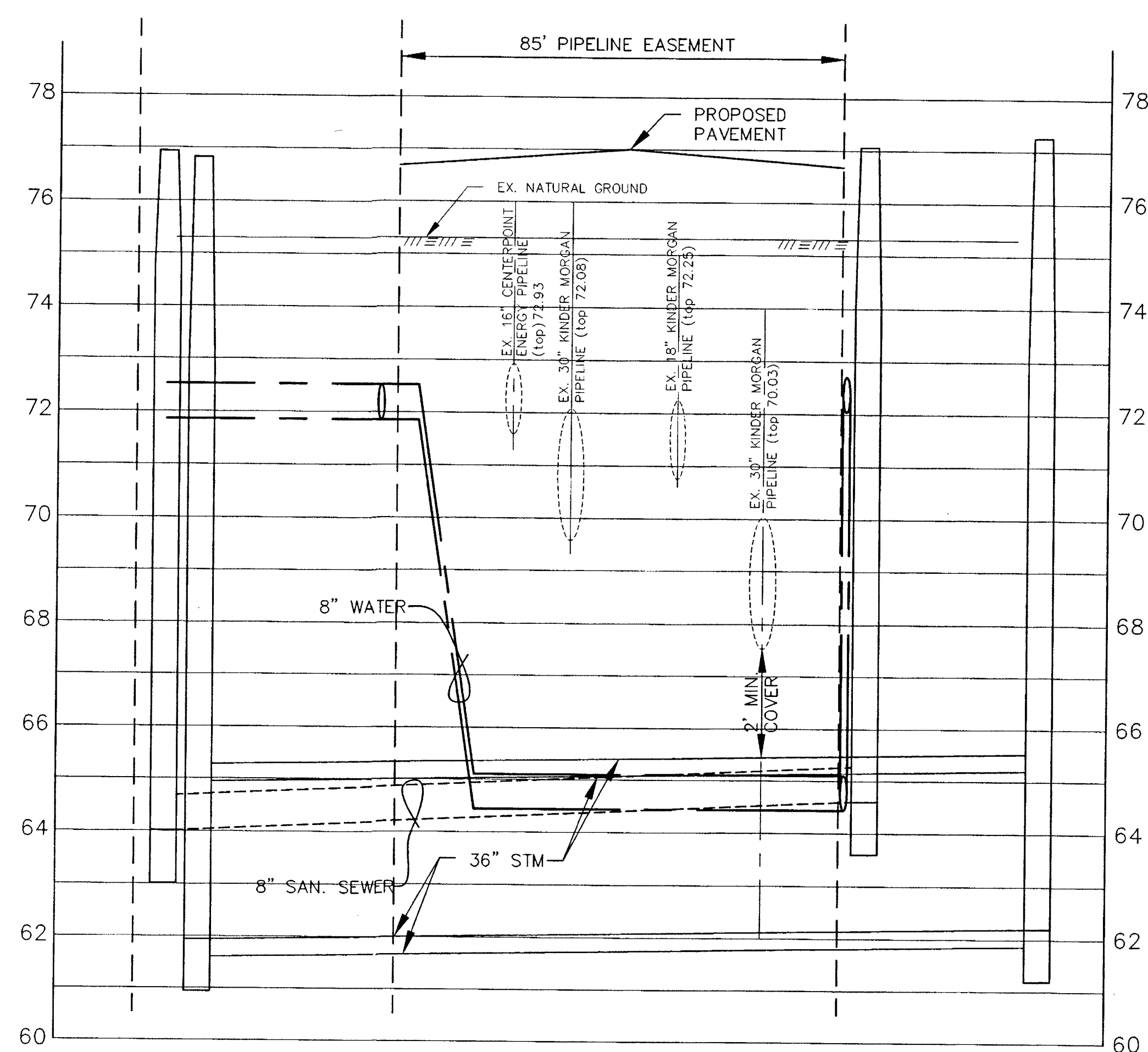
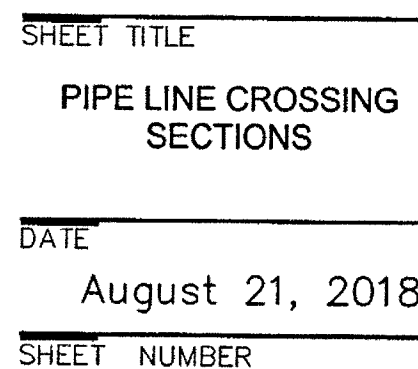
ENGINEERING FIRM No. E-1339  
SURVEYING FIRM No. 10010000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH.281.341.0908 FAX.281.341.6333

PROJECT

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The Miramonte  
RESERVE 'C'

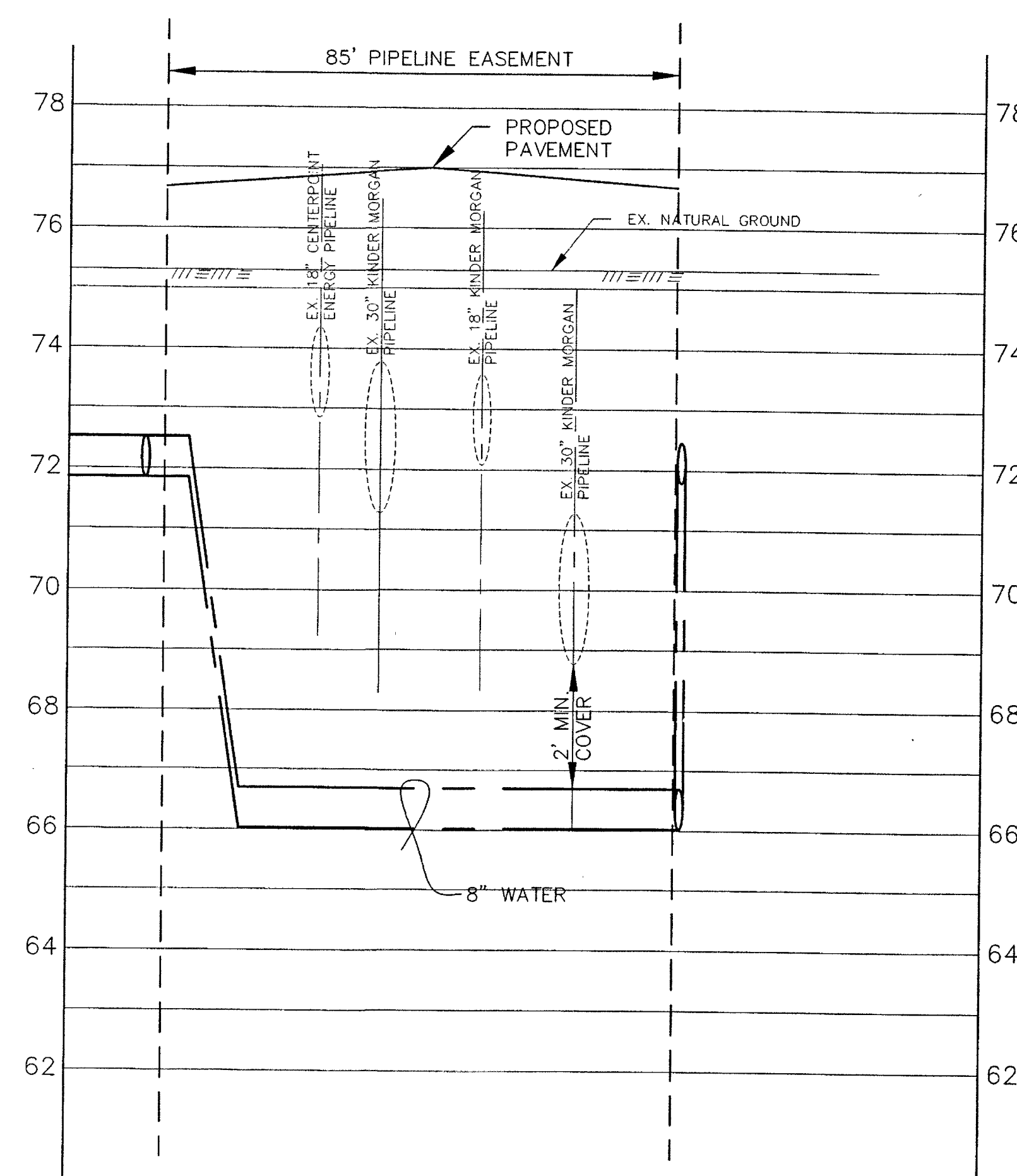
Stafford, Texas



PIPELINE CROSSING SECTION A

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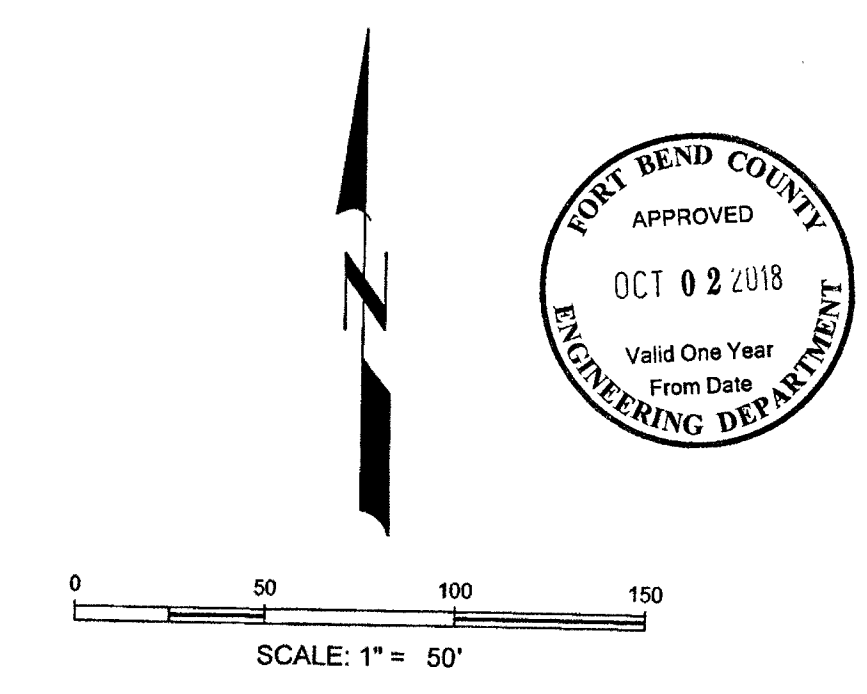
SCALE: 10V=1H



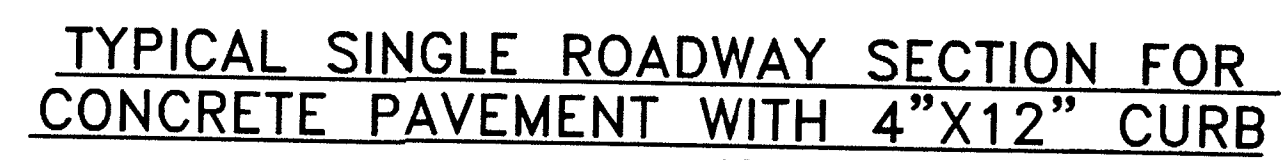
PIPELINE CROSSING SECTION B

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SCALE: 10V=1H







30'+ MAINTENANCE BERM

10'

TOP BANK ELEV. = 76.00

VARIES

100 YR. WATER SURFACE ELEVATION = 74.15

10'

BACKSLOPE SWALE

4:1 SIDE SLOPE

TOE OF SLOPE ELEV. = 66.00

SLOPE VARIES

DETENTION STORAGE

PILOT CHANNEL FL = P&R PLAN

SLOPE VARIES

4:1 SIDE SLOPE

BACKSLOPE SWALE

30' MAINTENANCE BERM

30' DRAINAGE EASEMENT

PROPERTY LINE

Diagram illustrating a cross-section of a drainage ditch with various slopes and berms. Key features include:

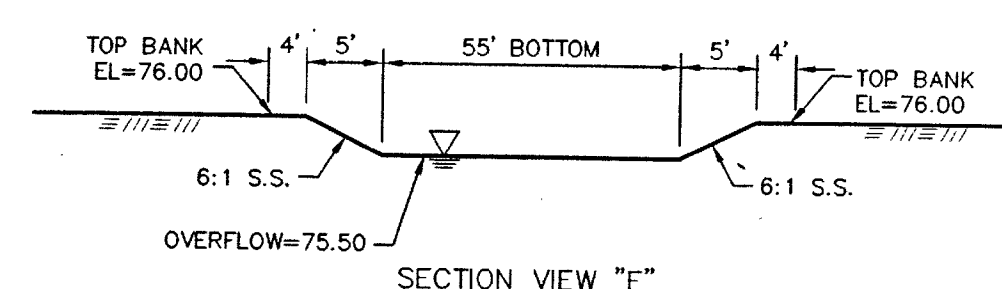
- 30' MAINTENANCE BERM** on the left.
- TOP BANK ELEV. = 76.00**
- 100 YR. WATER SURFACE ELEVATION = 74.15**
- 10' TOE OF SLOPE ELEV. = 66.00**
- 4:1 SIDE SLOPE** (left side)
- SLOPE VARIES** (multiple locations)
- DITCH ELEV. = PER PLAN**
- DETENTION STORAGE**
- 4:1 SIDE SLOPE** (right side)
- BACKSLOPE SWALE**
- 30' MAINTENANCE BERM** on the right.
- 30' DRAINAGE EASEMENT**
- PROPERTY LINE**
- 5' DITCH FL = PER PLAN**
- 45' DITCH FL = PER PLAN**

Diagram illustrating the proposed driveway layout:

- The driveway starts at a **MATCH EXIST.** point.
- It runs up a **4:1** slope to the **FENCE LINE / PROPERTY LINE**.
- The horizontal distance between the fence line and the **BACK OF SIDEWALK** is labeled **VARIES**.
- The horizontal section is divided into **G PER PLAN** and **FL PER PLAN** segments.
- The driveway then runs down a **4:1** slope to the **BACK OF SIDEWALK**.

A diagram of a two-unit duplex. The duplex is represented by two identical rectangular units, each with a small square protrusion on its right side. The word "DUPLEX" is written inside each unit. Above the duplex, a horizontal line is labeled "FENCE LINE". Below the duplex, a horizontal line is labeled "BACK OF SIDEWALK". Arrows indicate wind direction: four arrows point downwards from the fence line towards the duplex, and four arrows point upwards from the duplex towards the back of sidewalk. Additionally, there are four arrows pointing downwards from the duplex towards the back of sidewalk, and four arrows pointing upwards from the back of sidewalk towards the duplex, suggesting a cross-breeze pattern.

SECTION VIEW "E"



6' or 8' (PER PLAN)

PER PLAN

PER PLAN

PER PLAN

PER PLAN

#3 @ 15° E.W.

5"

6'-0"

2'-7"

2'-7"

5"

1"

1"(TYP.)

4"

4"

6"

2-#5 BARS

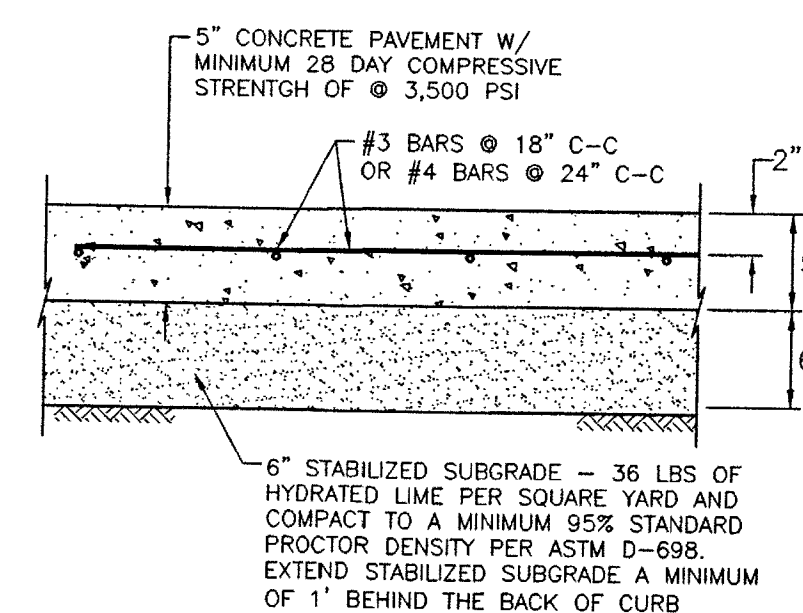
3/4" DIA. HOLE FOR #5 REBAR (18" LG.)  
 DRIVE REBAR INTO 3/4" DIA. PRE-DRILLED HOLE  
 IN PARKING SURFACE. GROUT HOLE IF DIAMETER  
 EXCEEDS 3/4". SET BAR 1" BELOW TOP AND  
 PLUG WITH POLYMERIC SEALANT

Diagram illustrating the dimensions and components of a Reserved Parking sign:

- GREEN LETTERING ON WHITE BACKGROUND
- GREEN BORDER STRIPE AROUND PERIMETER
- WHITE SYMBOL ON BLUE BACKGROUND
- GREEN ARROW
- Dimensions (inches): 2", 2", 1", 2", 6"
- Overall Width: 1'-0"

Diagram illustrating the installation of a Handicapped Reserved Parking Sign:

- Sign:** HANDICAPPED RESERVED PARKING SIGN
- Sign Location:** NOTICE OF PENALTY AND VAN ACCESSIBILITY SIGN (AS REQ'D)
- Sign Height:** SIGN SHALL BE LOCATED NOT MORE THAN 5'-0" FROM EDGE OF PARKING CURB
- Post Height:** 5'-0"
- Post Material:** 2-1/2" GALV. STEEL PIPE STANDARD (GALVANIZED)
- Base:** CONCRETE BASE
- Base Height:** 3'-0"
- Base Width:** 6"
- Post Installation:** POST TO BE INSTALLED 1.0' BEHIND STALL



6" CONCRETE PAVEMENT W/  
MINIMUM 28 DAY COMPRESSIVE  
STRENGTH OF 3,500 PSI

#3 BARS @ 12" C-C  
OR #4 BARS @ 18" C-C


2'

6" STABILIZED SUBGRADE - 36 LBS OF  
HYDRATED LIME PER SQUARE YARD  
AND  
COMPACT TO A MINIMUM 95% STANDARD  
PROCTOR DENSITY PER ASTM D-698.  
EXTEND STABILIZED SUBGRADE A MINIMUM  
OF 1' BEHIND THE BACK OF CURB


7" CONCRETE PAVEMENT W/  
MINIMUM 28 DAY COMPRESSIVE  
STRENGTH OF @ 3,500 PSI

#4 BARS @ 12" C-C

6" STABILIZED SUBGRADE - 36 LBS OF  
HYDRATED LIME PER SQUARE YARD  
AND COMPACT TO A MINIMUM 95% STANDARD  
PROCTOR DENSITY PER ASTM D-698.  
EXTEND STABILIZED SUBGRADE A MINIMUM  
OF 1' BEHIND THE BACK OF CURB



SEAL



CHRISTOPHER B. ARGO  
95552  
EXPIRES 9/21/18

REVISIONS

PROJECT NUMBER  
FBSITE18-005

**Kelly R. Kaluza  
& Associates, Inc.**

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**CONSULTING ENGINEERS & SURVEYORS**

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ENGINEERING FIRM No. F-1339  
SURVEYING FIRM No. 10010000  
10000 W. AVALON  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.6933

PROJECT

The Miramonte  
RESERVE 'C'

Stafford, Texas

SHEET TITLE

PROJECT SPECIFIC DETAILS

DATE August 21, 2018

SHEET NUMBER

## C5.01





File Name: w:\FortLend\SitePlans\2018\FBSITE18-005 (Miramonte Multi-Fam)\DWGS\Miramonte Duplex Details.dwg  
 Layout Tab: 24 NOTES  
 Save date: Friday, September 21, 2018 10:24:15 AM Plot date: Friday, September 21, 2018 10:36:24 AM

1. Connections to public utilities, including water and sanitary sewer, drainage, and streets shall be constructed in conformance with the minimum requirements of Fort Bend Water Control Improvements District No. 2 (WCID No. 2), City of Stafford (Chris Riggs) (281) 261-3946, and Fort Bend County. Contractor shall notify WCID No. 2 forty-eight (48) hours prior to making any connection to existing public utilities, streets, or drainage system.
2. Excess clean soil from construction may be distributed on project site, at location approved by the Architect. All excess debris, trees, and/or waste materials shall be removed from the site and disposed of in an approved landfill or approved equal. All costs shall be at the expense of the contractor.
3. Contractor shall notify all utility companies in the area prior to commencing work in any right-of-way or existing easement. A verification number from the one-call utility coordinating committee will be required.
4. The drawings show as much information as can be reasonably obtained from on the ground observation and existing construction drawings regarding the entire topography, contours, sub-surface soils, as well as the location and nature of pipelines, storm sewers, water lines, natural gas lines, underground cables, etc., however, the accuracy or completeness of such information is not guaranteed.
5. Contractor shall comply with all Occupation, Safety, and Health Act (OSHA) regulations.
6. Contractor must obtain all permits and supply all bonds required by WCID No. 2, Fort Bend County, City of Stafford.
7. All dimensions shown on civil plans are to the back of curb or to the outside wall of any structure, unless otherwise specified.
8. Guidelines set forth in the Texas Manual of Uniform Traffic Control Devices shall be observed.
9. All work shall be done in accordance with applicable national, state, municipal, and local codes.
10. It is the Contractor's responsibility to supervise and coordinate all work to insure the proper execution. All work is to be accomplished in a neat, workmanlike manner, and all excess materials, trash, and debris, etc., shall be removed from the job by the Contractor, at his expense.
11. Prior to bidding the project, the Contractor shall inspect the site and satisfy himself that the above and below ground conditions of the site of this project are acceptable for construction.
12. Overhead power lines exist on the site. Centerpoint Energy has not attempted to mark those lines since they are clearly visible, but you should locate them prior to beginning any construction. Texas law, Section 752, Health and Safety Code, forbids all activities in which persons or things may come within six (6) feet of overhead high voltage lines. Contractors and owners are legally responsible for safety of construction workers under this law. This law carries both criminal and civil liability. To arrange for lines to be turned off or moved, call Houston Lighting and Power Company at (713) 228-7400. Excavations within three feet (3') of existing power poles shall not be allowed. Pipe locations that will require excavation closer than the minimum shall be bored and jacked, with the written approval of the Owner.
13. In the event of conflict between the City of STAFFORD, City of Stafford, requirements and these construction plans, the more stringent requirements will govern.
14. Contractor shall notify the following forty-eight (48) hours prior to beginning construction
  - (1) WCID No. 2 (Jason Kelly) - (281) 499-2041
  - (2) Kelly R. Kuluzza & Associates, Inc. (Duanne Whitehead) - (281) 341-0808
  - (3) City of Stafford (Chris Riggs) - (281) 261-3946
15. Trench safety system is required for all trench construction.

1. All storm sewers shall meet the requirements of Fort Bend County Drainage District and City of Stafford.
2. All storm sewer manhole covers must include the words "storm sewer". All storm sewer manholes shall be adjusted to match finished final grades of pavement or final grading.
3. All storm sewer bedding and backfill shall meet the requirements of the City of Stafford. It is noted that all storm sewer under paving or within one foot (1') of pavement shall be backfilled up to the pavement subgrade with cement stabilized sand (2.0 sacks cement per cubic yard) and compacted to 95% Standard Proctor Density. Storm sewer bedding under pavement area shall conform to Detail S29-S31 and S30-S31.
4. All storm sewer structures such as manholes and inlets under and adjoining paving shall be backfilled with cement stabilized sand to within one foot of finished grade. Cement stabilized sand backfill shall extend twelve inches (12") minimum from the outside wall of all structures.

Pipe Size	Slope (%)	Pipe Size	Slope (%)
6"	1.0	24"	0.18
8"	0.75	30"	0.13
10"	0.55	36"	0.10
12"	0.45	42"	0.08
15"	0.35	48"	0.07
18"	0.25	54"	0.06

6. All areas shall be uniformly graded to positively drain toward inlets, swales, or top of curbs. Contractor shall provide materials, labor, and equipment to perform all grading operations.
7. All storm sewer pipe, including inlet leads, shall be reinforced concrete pipe rubber gasketed, A.S.T.M. C-76, Class III, installed, bedded, and backfilled in accordance with construction details, City of Stafford, and Fort Bend County Drainage District criteria. Contractor shall use mechanical root or mechanical tension in compacting all backfill for the project. Corrugated Polyethylene Pipe ADSN-12 or Hancor H1-C or approved equal meeting AASHTO Designation M294 is an approved alternate to reinforced concrete storm sewer pipe. All cast iron storm sewers shall be constructed of materials as specified for plumbing under buildings. P.V.C. SDR-26 pipe may be used in areas outside of building and pavement areas for roof drain collection system for 4" to 15" storm sewer size. All storm sewer in the public street right-of-way shall be reinforced concrete pipe rubber gasketed.
8. All drainage swales shall be constructed to proper grade and cross-section for positive drainage to inlets. Maximum side slope on all swales shall be 5:1 cross-section unless otherwise approved by Architect. In playground areas maximum side slope on all swales shall be 10:1 cross-section.
9. Contractor to use 18" x 18" catch basin or minimum 18" Nyloplast Drain Basin/Inline Drain or approved equal with light traffic rated covers for all yard inlets.

1. All water lines shall be constructed in accordance with Texas Commission on Environmental Quality, WCID No. 2 and City of Stafford criteria.
2. 8" water lines shall be polyvinyl chloride (PVC), DR18, Class 150, conforming to AWWA C-900, current. Water line size 6" or less shall be Class 200. (No A.C. pipe allowed.)
3. Water lines shall have sand embedment to six (6) inches above the top of pipe.
4. Minimum profile clearance between water lines and other utilities shall be twelve (12) inches.
5. All fire hydrants shall be color coded in accordance with City of Stafford criteria.
6. Flushing valve shall be installed a minimum of ten (10) feet from all sanitary sewers and appurtenances.
7. All fittings and buried portion of flush valves shall be polyethylene encased as per minimum requirements of "Polyethylene Encasement for Gray or Ductile Cast Iron Piping for Water and Other Liquids" ANSI/AWWA C105, as currently revised.
8. All bacteriological samples will be collected by the contractor. The bacteriological test samples will be taken after pressure testing water lines.
9. Only WCID No. 2 shall operate water main valves. The Contractor shall contact WCID No. 2 and coordinate as necessary.
10. Contractor shall contact WCID No. 2 for working of valves and to coordinate setting of line. Contractor shall pressure test all water lines in accordance with City of STAFFORD and WCID No. 2 Criteria.
11. Centerline of flushing valves shall be three (3) feet behind back of curb or edge of pavement.
12. Contractor to purchase, pay for installation, and coordinate the installation of water meters with WCID No. 2. The district will install the water meters.

1. Concrete for driveways, sidewalks, and parking areas for the project shall be Portland Cement Concrete, five and a half (5.5) sacks of cement per cubic yard of concrete. Concrete paving shall have a minimum compressive strength of 3,500 psi. The compressive strength is equivalent to a flexure strength of approximately 550 psi in third-point loading at 28 days.
2. All pavement subgrade shall be stabilized with hydrated lime slurry method. The subgrade for 6" concrete pavement shall be stabilized to 6" depth with hydrated lime. An application rate of 38 lb/yd<sup>2</sup> is anticipated to be sufficient to stabilize the subgrade. This application rate corresponds to 6% to 8% of lime, by dry weight, clay having dry unit weights between 85 lb/ft<sup>3</sup> and 110 lb/ft<sup>3</sup>. For 7" thick concrete pavement, stabilization should extend to 8" depth. An application rate of 42 lb/ft<sup>2</sup> should be sufficient to stabilize clay within the 7" concrete pavement area. The actual percentage of lime and thus application rate, shall be determined by laboratory tests on samples of the subgrade once ground has been achieved. The amount of lime needed to stabilize the soils should be determined according to ASTM C-6276. Lime stabilization shall be performed according to Item 260 of the TxDOT Specifications. Hydrated lime should meet the requirements of TxDOT Standard Specification Item 260. The subgrade should be compacted to at least 95% of the standard maximum dry density (ASTM D-698). The moisture content should be within two percentage points of the optimum moisture content. (See Geotechnical Report)
3. Minimum reinforcing steel for concrete pavement shall conform to ASTM A-615 current Grade 40. Minimum lap at all splices shall be ten (10) inches.
  - 7" Concrete - #4 bars on 18" centers each way.
  - 6" Concrete - #4 bars on 24" centers each way.
  - 5" Concrete - #4 bars on 24" centers each way.
  - 1/2" Sidewalks - #3 bars on 24" centers.
4. Transverse expansion joints are required at maximum spacing of 60'-0" C-C each way, with joints and vertical curb joints to be sealed with liquid rubber conforming to T.H.D. Item 360.2 (7)b Class 1-b (Two component, synthetic polymer, cold-pourable, self-leveling type). Construction or control joints shall not exceed a spacing of twenty (20) feet, center to center, each way. All substitutions shall be approved by the Architect prior to construction. Contractor to furnish joint layout plan for approval.
5. Sidewalks shall have expansion joints on twenty (20) foot centers and tooled control joints at minimum four (4) foot spacing each way or as otherwise required by the Architect.
6. Slopes on concrete shall be one-fourth (1/4) inch per foot, except as shown on the plans.
7. Finished concrete pavement surfaces shall not vary from the proposed grade by more than 1/8 inch in ten (10) feet.
8. At all sowed joints, expose fifteen (15) inches of reinforcing steel. If no reinforcing steel exists, use horizontal dowels.
9. Horizontal dowels shall be No. 6 bars, twenty-four (24) inches long, drilled and embedded eight (8) inches into the center of the existing slab with "Po-Roc" or equal. Dowels shall be twenty-four (24) inch C-C, unless otherwise specified.
0. Testing services shall be performed by a laboratory approved by the Architect.

1. All sanitary sewers shall be constructed in accordance with the Texas Commission on Environmental Quality "Rules and Regulations," WCID No. 2, City of Stafford, and the contract documents.
2. Sanitary sewer outside buildings shall be P.V.C. SDR-26, conforming to the minimum standards of performance of ASTM D-3034, except as otherwise shown on the plans. All ductile iron pipe (D.I.P.) shall be Class 51, bituminous coated, conforming to AWWA C-151 or as otherwise required in the plumbing specification. Exterior of ductile iron pipe to be wrapped in 8 mil polyethylene in accordance with AWWA C-105.
3. Sanitary sewers shall not be placed within ten (10) feet of a fire hydrant.
4. Sanitary sewer manholes shall be constructed of monolithic or precast concrete.
5. All sanitary sewer manhole covers must include the words "sanitary sewer". Precast sanitary sewer manholes shall be constructed as to limit adjustment rings to reduce the potential of infiltration. All precast manhole joints shall be rubber gasketed. All precast adjustment rings to have mastic adjustment material (Ramp-Nek).
6. All sanitary sewer under paving or within one foot (1') of pavement shall be backfilled up to the pavement subgrade with cement stabilized sand (2 sacks cement per cubic yard) and compacted to 95% Standard Proctor Density.
7. All bedding for sanitary sewer outside pavement area shall be Class "A" bedding. All bedding for sanitary sewer under pavement areas shall be Class "A-A" bedding with cement stabilized sand (2 sacks cement per cubic yard) and compacted to 95% Standard Proctor Density, except in wet sand conditions.
8. Minimum grades for sanitary sewer lines shall be as follows:

Pipe Size	Slope (%)
8"	0.44
6"	0.70

3. Sanitary sewer manhole will be set two (2) to three (3) inches above finished ground level and/or grade to divert storm water drainage away from manhole rim.
4. All sanitary sewer lines shall be air tested according to WCID No. 2 specifications and plumbing code prior to connection of service. Contractor shall provide fittings and lead with temporary plug during testing of line. Temporary plug may be removed after testing is complete. A mandrel test shall be performed 30 day after backfilled has been placed prior to acceptance of all installed P.V.C. pipe.
5. Steps in sanitary sewer manholes will not be permitted.
6. Brick manholes and brick adjustment rings are not allowed.
7. Fiberglass manholes are prohibited.
8. Flowlines of sanitary sewer service lines from buildings at manholes may be field adjusted in order to alleviate conflicts with other utilities as long as minimum slope requirements are met.

1. Fort Bend County must be invited to the Pre-Construction Meeting.
2. Contractor shall notify Fort Bend County Engineering Department 48 hours prior to commencing construction and 48 hour notice to any construction activity within the limits of the paving of concrete.
3. Contractor is responsible for obtaining all permits required from Fort Bend County prior to commencing construction of any improvements within County road right of ways.
4. All Improving Improvements shall be constructed in accordance with Fort Bend County Rules, Regulations and Requirements relating to the Approval and Acceptance of Improvements in Subdivisions as currently amended.
5. All road widths, curb radii and curb alignment shown indicates back of curb
6. A minimum longitudinal reinforcement shall be provided in concrete curbs.
7. All concrete pavement shall be 5 1/2" sack cement with a minimum compressive strength of 3500 psi at 28 days. Transverse expansion joints shall be installed at each curb return and at a maximum spacing of 60 feet.
8. All weather access to all existing streets and driveways shall be maintained at all times.
9. 4" x 12" reinforced concrete curb shall be placed in front of single family lots only. All other areas shall be 6" reinforced concrete curb.
10. All intersections shall be constructed in accordance with the place in accordance with the Texas Manual on Uniform Traffic Control Devices. Handicap Ramps shall be provided with steel paving at all intersections and comply with current A.D.A. regulations.
11. Curb headers are required at curb connections to Handicap Ramps, with no construction joint within 5' of ramps.
12. All intersections utilizing Traffic Control measures shall have A.D.A. wheel chair ramps installed.
13. Guidelines are set forth in the Texas "Manual on Uniform Traffic Control Devices", as currently amended, shall be observed. The Contractor shall be responsible for the proper sequencing of construction, including striping and warning devices, etc., during construction - both day and night.
14. All R1-1 stop signs shall be 30"x30" with diamond grade sheeting per Texas manual on uniform traffic control devices.
15. Stop signs shall be 18" high sign flat blade w/reflective green background. Street names shall be upper and lowercase lettering with uppercase letters of 6" minimum and lowercase letters of 4.5" minimum. The letters shall be reflective white. Street name signs shall be mounted on stop sign post.
16. A double sided authorized button shall be placed at all Fire Hydrant locations. The Button shall be placed 12 inches off of the centerline of the street on the same side as the hydrant.

**Note:** Fort Bend County notes supersede any conflicting notes.

**Inspection.** The Project and all parts thereof shall be subject to inspection from time to time by inspectors designated by Fort Bend County. In the event any inspections shall reveal that the Contractor has failed to comply with the terms, conditions, specifications or drawings of the Project, the Contractor shall be liable for the cost of such inspections and for the cost of any rework or repair necessary to correct the deficiencies. Neither failure to inspect nor failure to discover or reject any of the work as not in accordance with the drawings and specifications, requirements and specifications of Fort Bend County or any provision of this Project shall be construed to imply an acceptance of such work or to relieve the Contractor of any of its obligations hereunder.

Notification of pre-construction meeting and all paving activities. email: [construction@fortbendcountytexas.gov](mailto:construction@fortbendcountytexas.gov)  
(provide one set of approved construction plans).

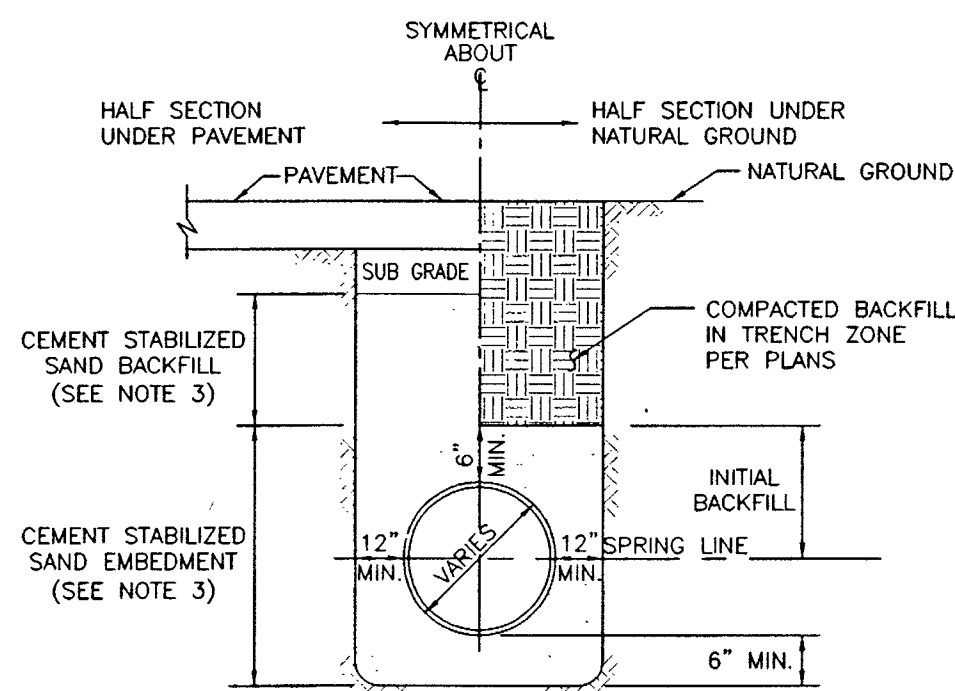
3. All publicly potable water and sanitary sewer facilities are controlled and operated by Fort Bend County Water Control & Improvement District No. 2 (the District) within the boundaries of the District. District requirements, standards, directives and regulations control and supersede others for public water and sanitary sewer construction directives.
2. Permits, approvals and inspections are the responsibility of Owner/Contractor to obtain prior to commencing construction.
3. It shall be the responsibility of the contractor to notify the District's Engineer 48-hours prior to the start of construction (281-499-2041) for approved projects or work.
4. All connections to the District's water and sanitary sewer systems, including sample wells, grease traps, backflow devices, etc.; shall be made in accordance with the District's "Co-Construction for Service Connections". It is the responsibility of the contractor to see that no water or sanitary sewer connection shall be backfilled and water service shall not commence until a representative of the District has inspected and approved the water and sanitary sewer connection and service line.
5. The Contractor shall be fully responsible for any and all damage to the existing public or private utility lines, including but not limited to water lines, wastewater collection systems and storm sewers during construction. All damages shall be repaired in accordance with the District's "Construction Standards for Public Utilities" latest addenda and amendments thereto, with no cost to the public.
6. Both the General Contractor and the Utility Contractor shall obtain a copy of the District's "Construction Standards for Public Service Connections" prior to the start of construction.
7. Any revisions/changes to the utility construction shall be resubmitted to the District. Construction shall be in accordance with plans approved by the District. Public water and wastewater service will be withheld for accounts with water or sanitary sewer construction not in accordance with approved plans or requirements until corrections are made and approved by the District.
8. All connections to the District's water system shall be performed by The District. Connections to the sanitary sewer system must be performed or witnessed by Representatives of the District.
9. Manholes, testing requirements, water meters, valves, and hydrants shall be per District standards and requirements. District specific covers are required for manholes and valves on public lines. All District waterline valves open left (counter clockwise).
10. All waterline tees, hydrants, elbows, and plugs shall be installed with restrained fittings. Restraint may be from thrust blocking or restrained pipe joint (of approved manufacturer). All pipe must include a minimum of two (2) joints of restraint on each side of the fitting. Public fire hydrants shall be manufactured by either Mueller or EJ, supplied with five-inch Storz connect with debris cap, and painted according to District color standards. All fire and backflow equipment in vaults must be in a reinforced concrete vault, placed outside of structures and near the public right-of-way property edge or adjacent to but not obstructing a District assessable easement. The vault must be installed on stabilized compacted sub-base material.
11. An expansion joint is required at all boundaries in proposed concrete pavement placed over existing District utility easements to facilitate concrete removal and restoration for gravity line maintenance. If a section of pavement crosses twice, a deformed metal strip joint is allowed for the second crossing.

1. ALL METER VAULTS MUST BE PLACED ON STABILIZED BEDDING TO PREVENT SETTLEMENT OR MOVEMENT OF VAULT.
2. PRIVATE HYDRANTS MUST BE PAINTED YELLOW FOR PROTECTIVE COATING, AND INCLUDE ISOLATION VALVE, AND FIVE-INCH HYDRO STORZ CONNECTION.
3. THE DISTRICT MUST WITNESS AND INSPECT THE WORK PRIOR TO BACKFILLING AND BE PROVIDED A MINIMUM OF 48-HOURS PRIOR TO COMMENCING AND WORK.
4. LIFT STATION FORCE MAIN CONNECTION TO AN EXISTING PUBLIC SANITARY SEWER MANHOLE MUST BE CURED ABOVE THE BENCH AND SEALED WITH A RESILIENT BOOT CONNECTION. NO CORES OR PENETRATIONS WILL BE PERMITTED INTO THE EXISTING MANHOLE BENCH. DISTRICT STANDARD LID CASTINGS AND PROTECTIVE COATINGS ARE REQUIRED.
5. AS SANITARY SEWER MANHOLES WILL BE A PRIVATE THE COVER CASTING MUST STATE SANITARY OR SIMILAR CASTING CITY, DISTRICT OR OTHER GOVERNING AGENCY OWNERSHIP CASTINGS ARE PROHIBITED.
6. ALL CONNECTIONS TO THE FIFTH STREET WATER SUPPLY CORPORATION WATER AND SANITARY SEWER SYSTEMS SHALL BE MADE IN ACCORDANCE WITH THE CORPORATION STANDARDS AND REQUIREMENTS. NO WATER OR SANITARY SEWER CONNECTION SHALL BE BACKFILLED AND WATER SERVICE SHALL NOT COMMENCE UNTIL A REPRESENTATIVE OF THE DISTRICT HAS INSPECTED AND APPROVED THE WATER AND SANITARY SEWER CONNECTION AND SERVICE LID IN ACCORDANCE WITH THE DISTRICT'S RATE ORDER. THE DISTRICT MAY WITHHOLD THE PROVISION OF SERVICE TO THE PROPERTY, IF THESE INSPECTIONS HAVE NOT BEEN MADE.
7. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO WATER LINES, WASTEWATER COLLECTION SYSTEMS AND STORM SEWERS DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH THE DISTRICT'S "CONSTRUCTION AND COMMUNITY BUILDING PRIOR TO OCCUPANCY" IT S THE DISTRICT'S LATEST AMENDMENTS THERETO, WITH NO COST TO THE PUBLIC.
8. AT THE TIME OF INSPECTIONS, IF THE PERMIT CARD IS NOT POSTED, THE INSPECTIONS WILL NOT BE PERFORMED, BUT THERE WILL BE A CHARGE FOR THE TRIP.
9. IN ACCORDANCE WITH TCEQ RULE 290.46, THE DISTRICT IS REQUIRED TO COMPLETE A CUSTOMER SERVICE INSPECTION ON ALL NEW CONSTRUCTION PRIOR TO PROVIDING CONTINUOUS WATER SERVICE TO THE PREMISES. THIS MUST BE COMPLETED FOR EACH NEW CONSTRUCTION PROJECT PRIOR TO OCCUPANCY. IT IS THE DISTRICT'S RESPONSIBILITY TO NOTIFY THE DISTRICT WHEN THE BUILDING IS READY TO BE INSPECTED AT LEAST THREE (3) BUSINESS DAYS PRIOR TO OCCUPANCY.

1. Connection to an existing public sanitary sewer manhole must be cored above the bench and sealed with a resilient boot connection. No damage or penetrations will be permitted into the existing manhole bench. District Standard lid castings and protective coatings are required.
2. Cleanouts placed in pavement must have traffic rated fixtures installed.
3. Contractor on maintain TCEQ required separation and crossing requirements for proposed sanitary sewer service line crossing existing public waterline.
4. All meter and backflow vaults must be placed on stabilized bedding to prevent settling or movement of vault.
5. The District must witness and inspect the work prior to backfilling service lines and be provided a minimum of 48-hours prior to commencing and work.





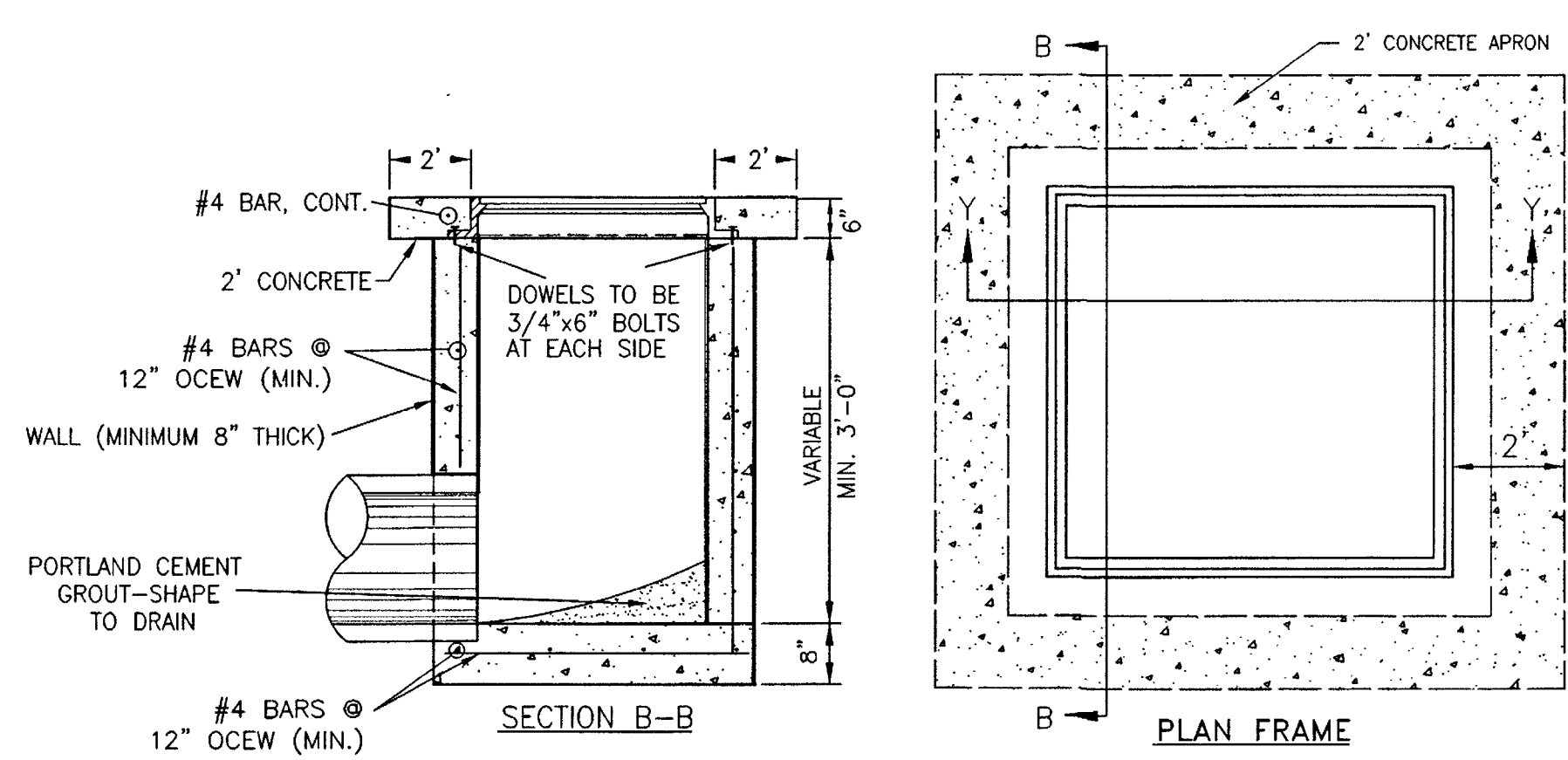


- NOTES:
- BACKFILL SHALL BE NATIVE SOIL, FREE OF DEBRIS, COMPACTED TO 85% STANDARD PROCTOR DENSITY.
  - INITIAL BACKFILL SHALL BE UNIFORMLY GRADED MATERIAL (MAXIMUM SIZE, 3" DIAMETER,) PLACED IN 8" LIFTS AND COMPACTED TO 90% STANDARD PROCTOR DENSITY.
  - EMBEDMENT SHALL BE CEMENT STABILIZED SAND (1.5 SACKS PER CUBIC YARD) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
  - UNDER PAVING OR WITHIN 3' OF PAVEMENT, THE INITIAL BACKFILL AND ALL BACKFILL UP TO THE PAVEMENT SUBGRADE SHALL BE CEMENT STABILIZED SAND (1.5 SACKS PER CUBIC YARD) COMPACTED TO 95% STANDARD PROCTOR DENSITY.
  - TRENCH SHORING, IN ACCORDANCE WITH OSHA, SHALL BE INSTALLED WHERE REQUIRED.
  - SOIL IN THE PIPE ZONE SHALL CONSIST OF NON-WATERBEARING, COHESIVE SOILS WITH A SHEAR STRENGTH OF 1,000 PSF OR GREATER. WHEN WET SAND EXISTS IN THE PIPE ZONE, MODIFIED BEDDING SHALL BE INSTALLED.

## STORM SEWER BEDDING AND BACKFILL

SCALE: N.T.S.

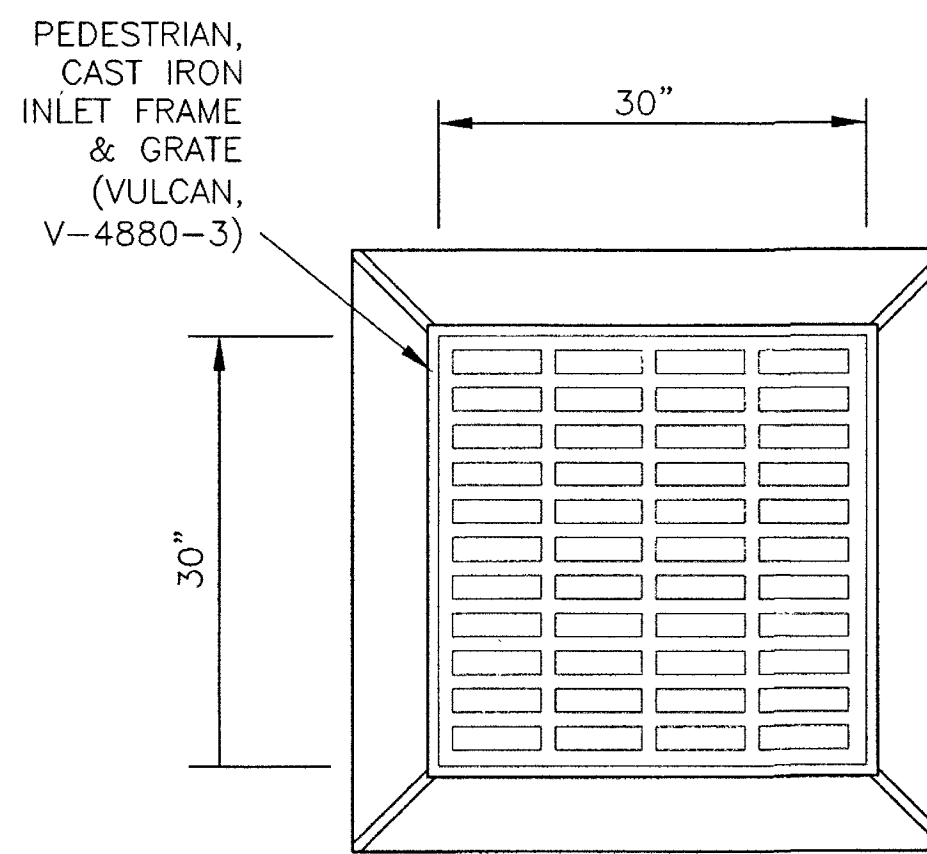
1



### TYPE "A" INLET

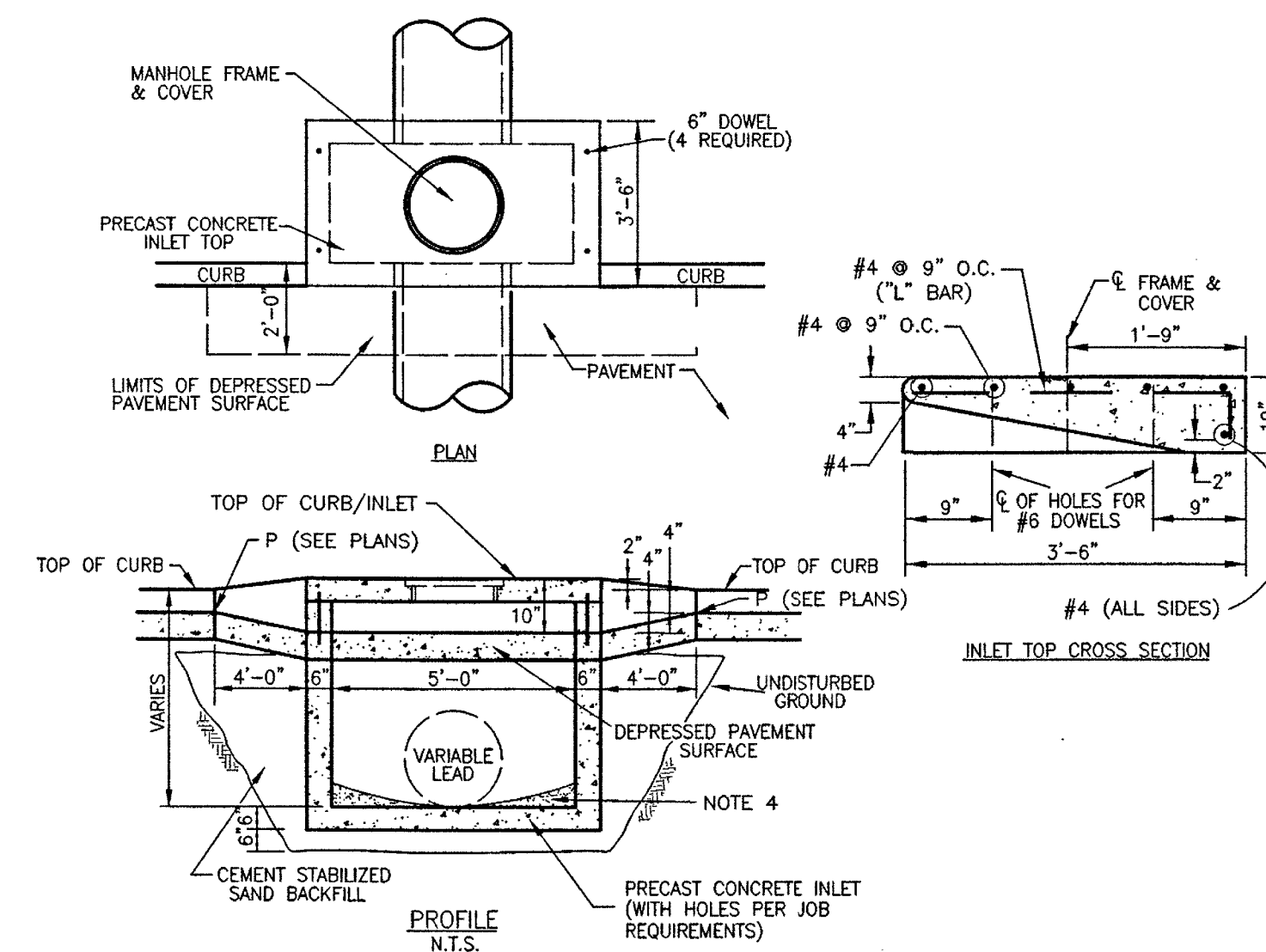
SCALE: N.T.S.

- NOTES:
- INLETS TO BE PRECAST OR CAST IN PLACE ONLY.



### PLAN VIEW

2



### TYPE "H-2" INLET FOR 4'X12' CURB & GUTTER

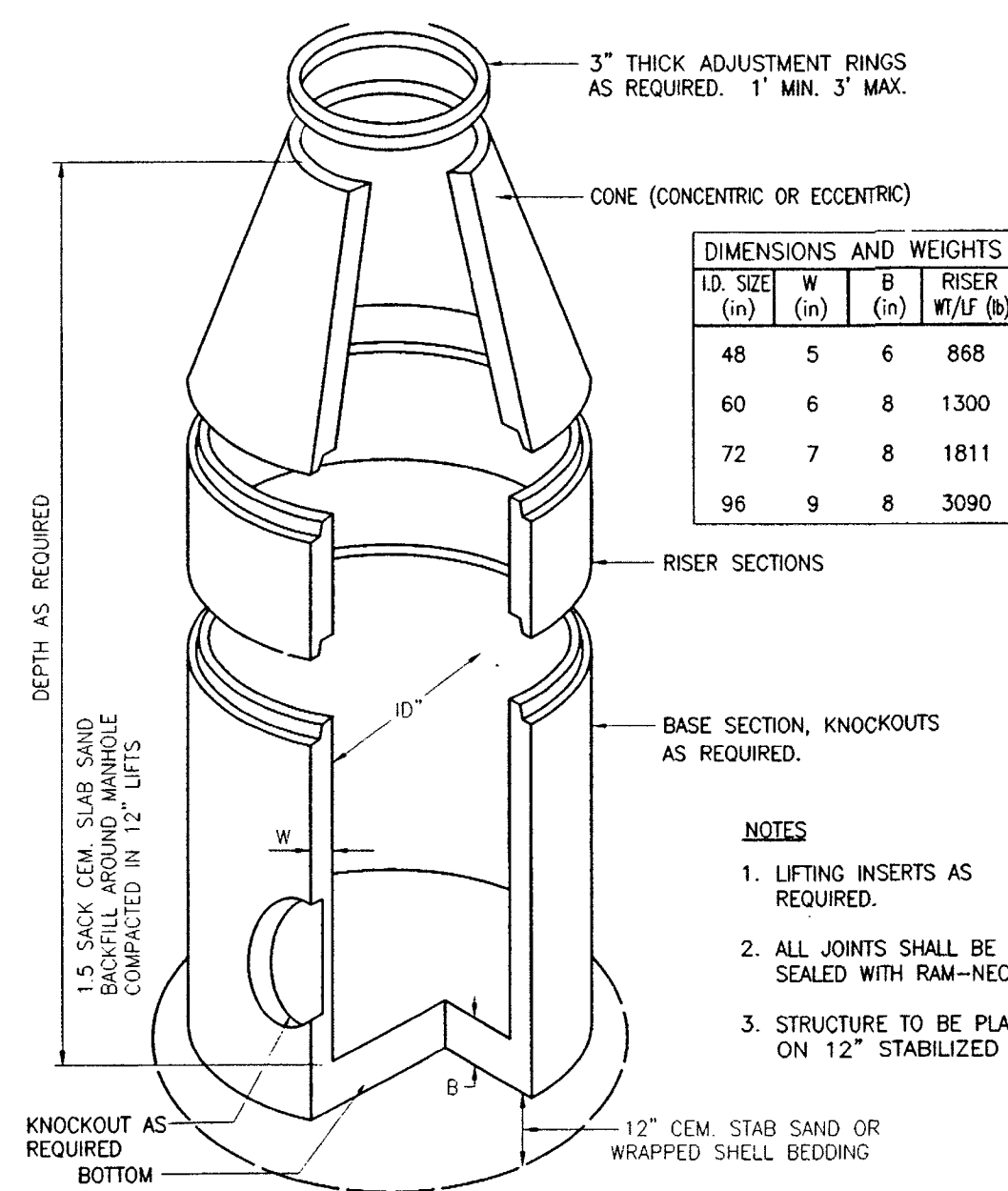
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- NOTES:
- INLET WALLS MAY BE EXTENDED USING PRECAST RISER SECTION.
  - INLET TOPS MUST BE SECURED TO THE INLET WALL USING #6 DOWELS DRILLED AND GROUTED A MINIMUM DEPTH OF 5" INTO THE INLET WALL.
  - INLET BACKFILL SHALL BE CEMENT STABILIZED SAND TO THE TOP OF INLET FIRST STAGE.
  - PORTLAND CEMENT GROUT-SHAPE TO DRAIN.

PROJECT NOTE: IN SIDEWALK AREAS, PROVIDE #3 DOWELS @ 18" O.C. AT INLET WALL/SIDEWALK CONNECTION AND SLOPE TOP OF INLET TO MATCH SIDEWALK (2% CROSS SLOPE).

3

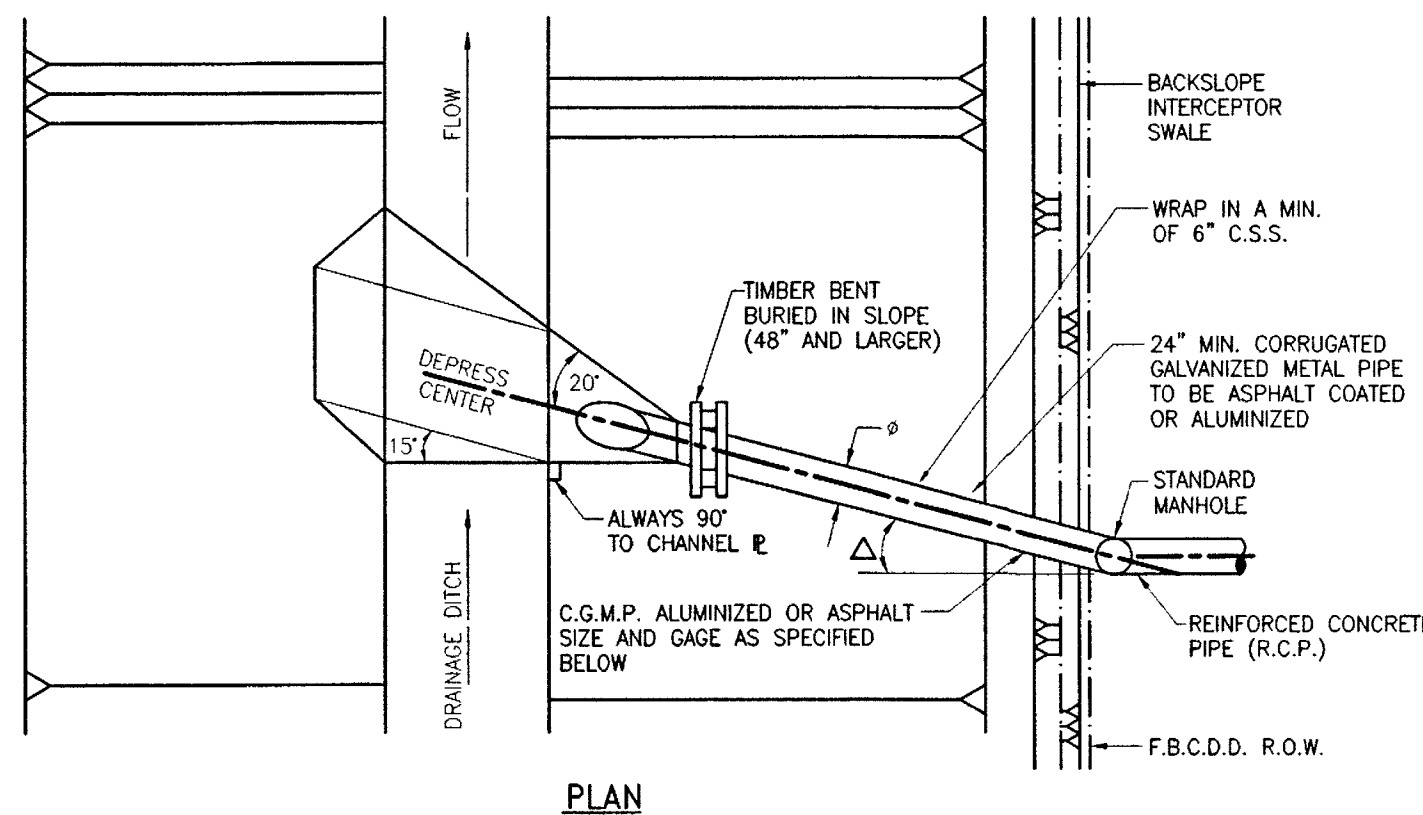
- SPECIFICATIONS:
- CONCRETE: CLASS 1 CONCRETE WITH A DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. RATES FOR H-20 LOADING.
- REINFORCEMENT: STRUCTURAL REINFORCEMENT CONFORMING TO ASTM-C-478.
- C.I. CASTINGS: CAST IRON FRAMES AND GRATES ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48-76 CLASS 35, CITY OF KATY STANDARD.



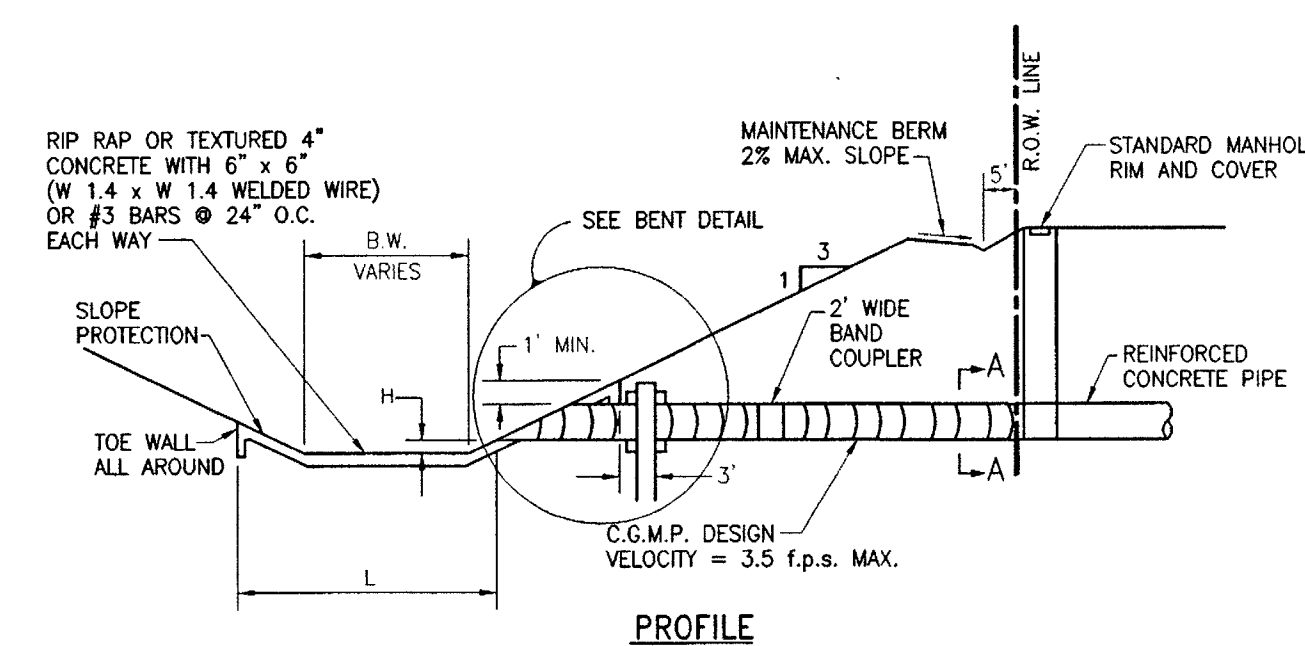
## PRECAST CONCRETE MANHOLE

SCALE: N.T.S.

4



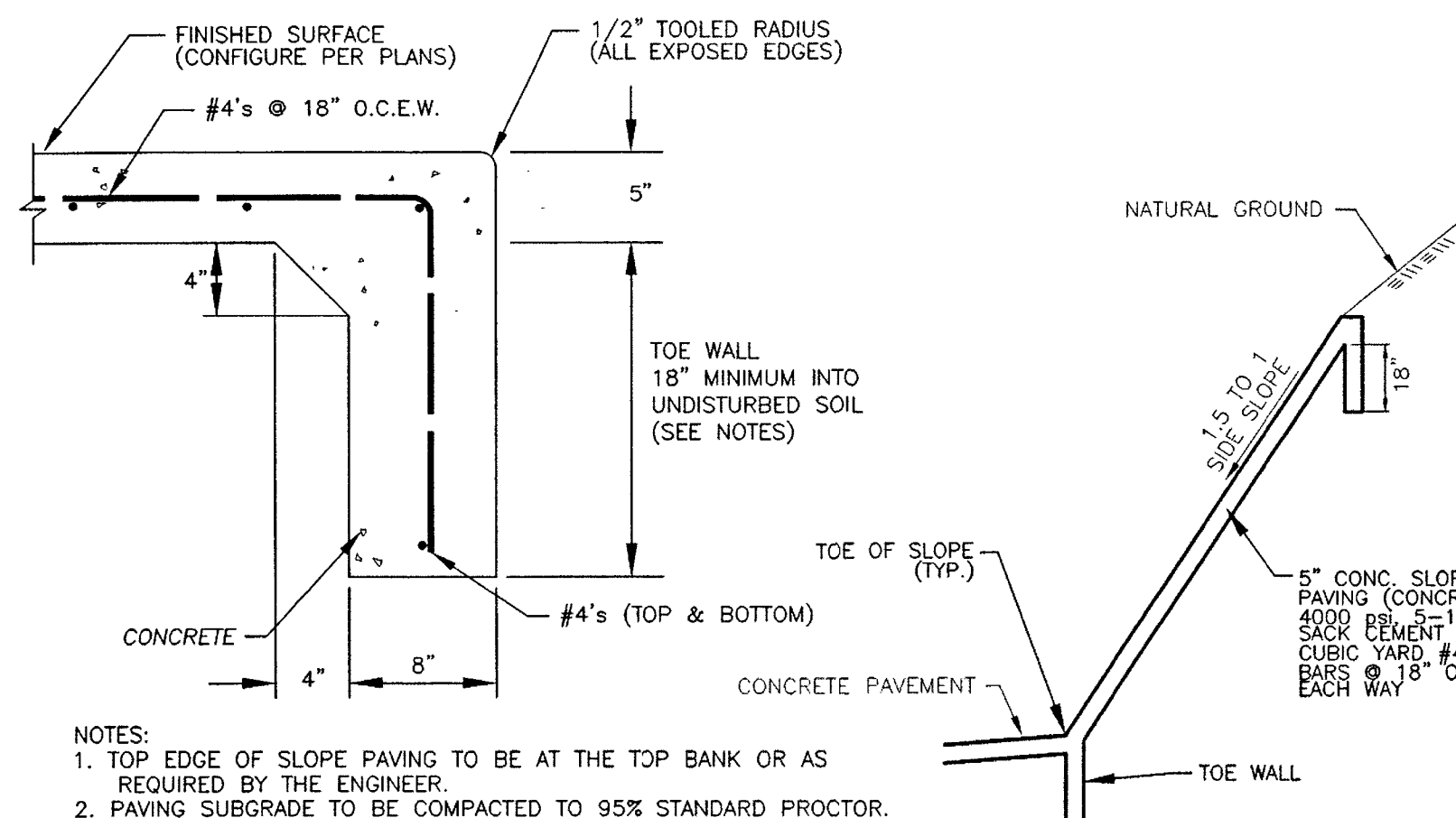
- H: FOR PIPE SIZES 24" TO 42" H=3' MAX. AND 1' MIN. FOR PIPE SIZES 48" AND LARGER H=1' MAX. AND MIN.
- L:  $\frac{B.W.}{PIPE \#} \leq 7'-6"$  L WILL EXTEND ONE PIPE # ABOVE P ON OPPOSITE BANK (MIN.)
- $\frac{B.W.}{PIPE \#} > 7'-6"$  L = 6' OR MIN. 1'-6" INTO B.W. WHICHEVER IS GREATER
- $\Delta$ : PROP. 24" TO 42"  $\Delta = 15'$  PROP. 48" AND LARGER  $\Delta = 30'$



## STORM SEWER OUTFALL

SCALE: N.T.S.

5



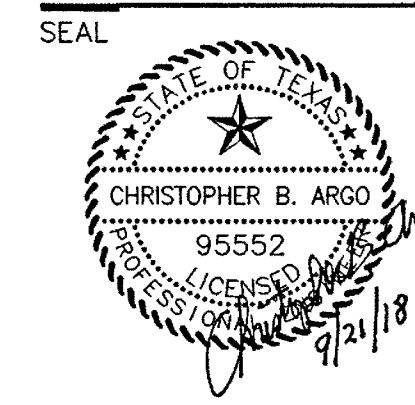
- NOTES:
- TOP EDGE OF SLOPE PAVING TO BE AT THE TOP BANK OR AS REQUIRED BY THE ENGINEER.
  - PAVING SUBGRADE TO BE COMPACTED TO 95% STANDARD PROCTOR.
  - PROVIDE 24" (MINIMUM) TOE WALL ALONG THE BOTTOM OF THE CHANNEL & AT THE UPSTREAM & DOWNSTREAM EDGES. INCREASE TO 36" TOE WALL IN SANDY SOILS.
  - PROVIDE CONTROL OR CONSTRUCTION JOINTS ACROSS THE CHANNEL AT 25 FEET ON CENTER.

NOTE: CONSTRUCTION JOINTS OR CONTROL JOINTS @ 25' O.C. CROSSING ENTIRE SECTION

## CONCRETE SLOPE PAVING

SCALE: N.T.S.

7



### REVISIONS

PROJECT NUMBER  
FBSITE18-005

**Kelly R. Kaluza & Associates, Inc.**  
CONSULTING ENGINEERS & SURVEYORS  
ENGINEERING FIRM NO. P-13399  
SURVEYING FIRM NO. 10010000  
ROSENBERG, TEXAS 77471  
PH.281.341.0908 FAX.281.341.6333

### PROJECT

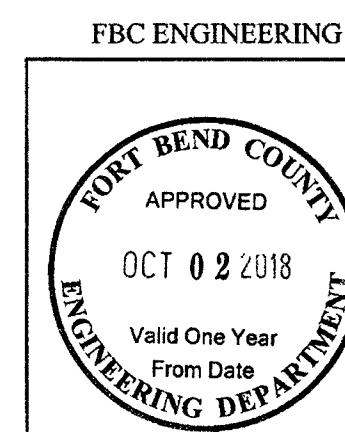
**The Miramonte Reserve 'C'**  
Stafford, Texas

### SHEET TITLE

### CONSTRUCTION DETAILS

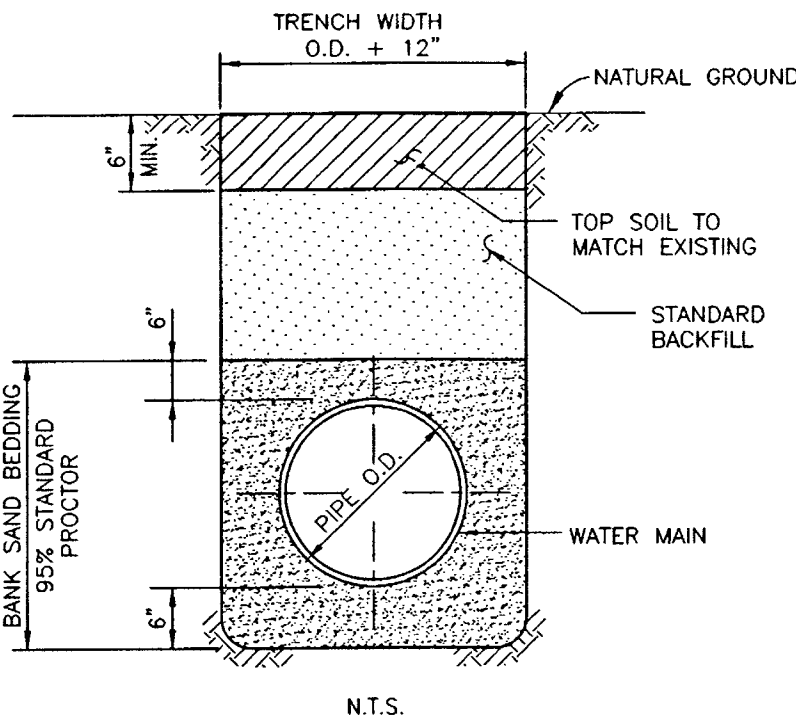
DATE  
August 21, 2018  
SHEET NUMBER

**C5.04**









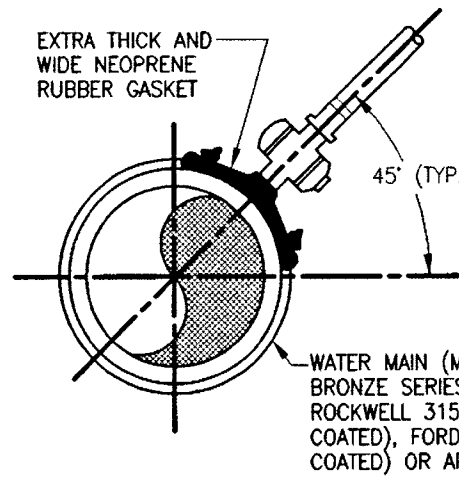
NOTES

- BACKFILL SHALL BE NATIVE SOIL, FREE OF DEBRIS, PLACED IN LIFTS, 8" THICK OR LESS, COMPACTED TO 85% STANDARD PROCTOR DENSITY, EXCEPT AS REQUIRED BELOW.
- BACKFILL UNDER DRIVEWAY AND PUBLIC STREETS SHALL BE CEMENT STABILIZED SAND (1.5 SACKS OF CEMENT PER CUBIC YARD OF SAND), COMPACTED TO 95% STANDARD PROCTOR DENSITY.
- TRENCH SHORING, IN ACCORDANCE WITH OSHA, SHALL BE INSTALLED AS REQUIRED.

## WATER MAIN BEDDING AND BACKFILL

SCALE: N.T.S.

1



NOTES

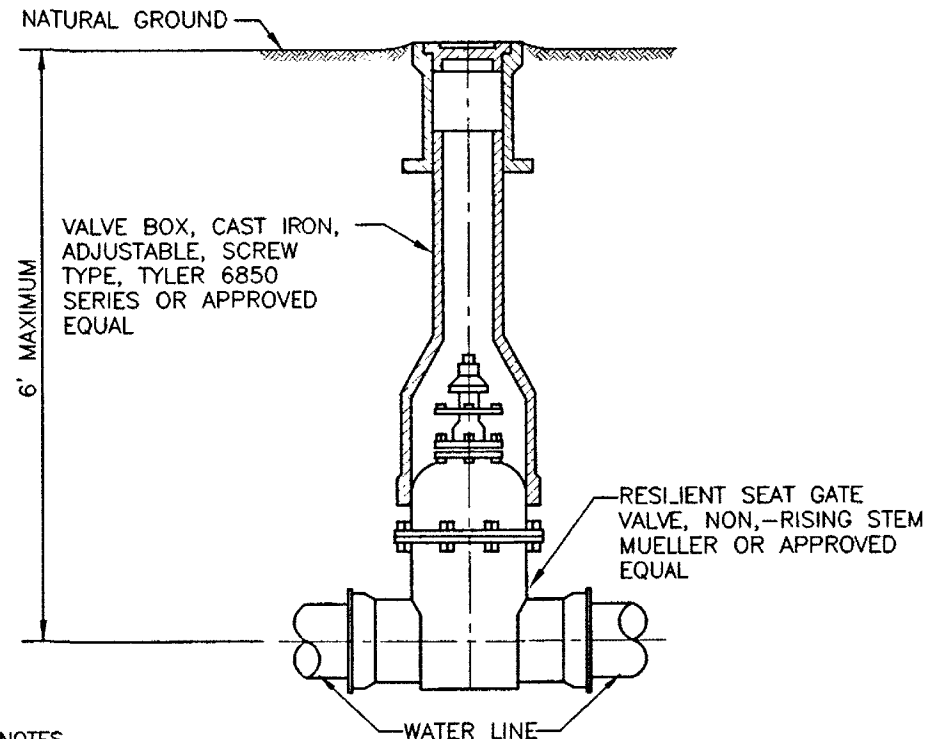
- AWWA GATE VALVE WITH BOX TO BE OPEN LEFT
- TAPPING SLEEVE TO BE EPOXY COATED OR CAST IRON (NO OTHER ACCEPTED)

NOTE: TAPPING SLEEVE IS NOT ALLOWED WHEN TAPPING A MAIN WITH A LINE SIZE LESS THAN TWO DIAMETERS (HALF THE SIZE OF THE MAIN FOR WATER MAIN CONSTRUCTION)

## TAPPING SLEEVE & VALVE DETAIL

SCALE: N.T.S.

2



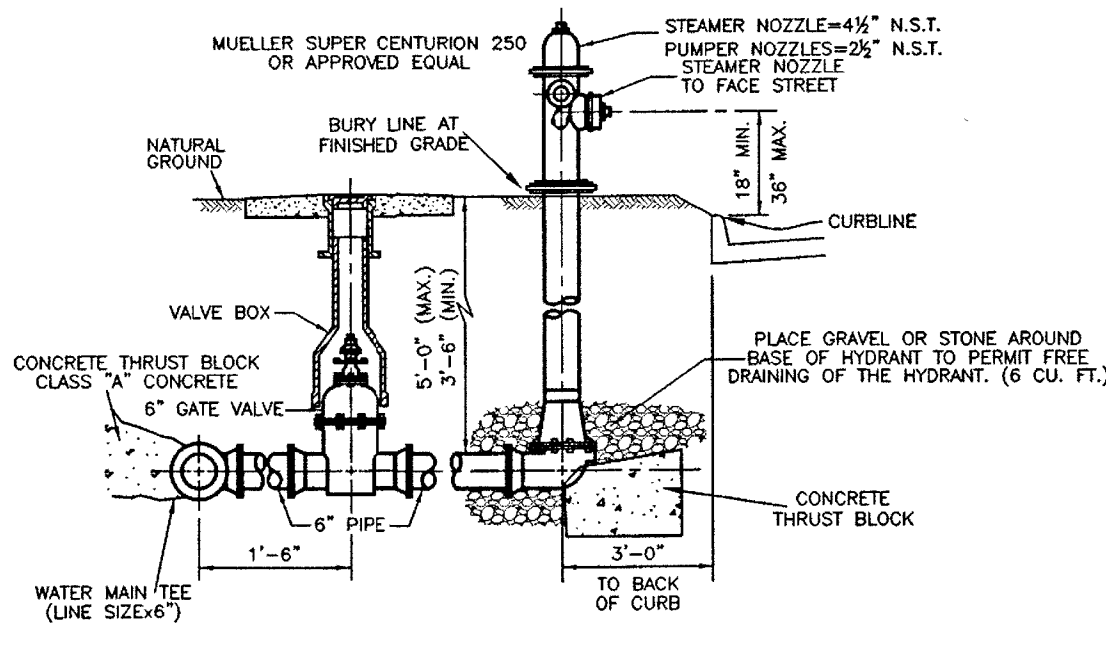
NOTES

- GATE VALVES ON PUBLIC LINES ARE TO BE COUNTERCLOCKWISE TO OPEN.

## GATE VALVE & BOX

SCALE: N.T.S.

3



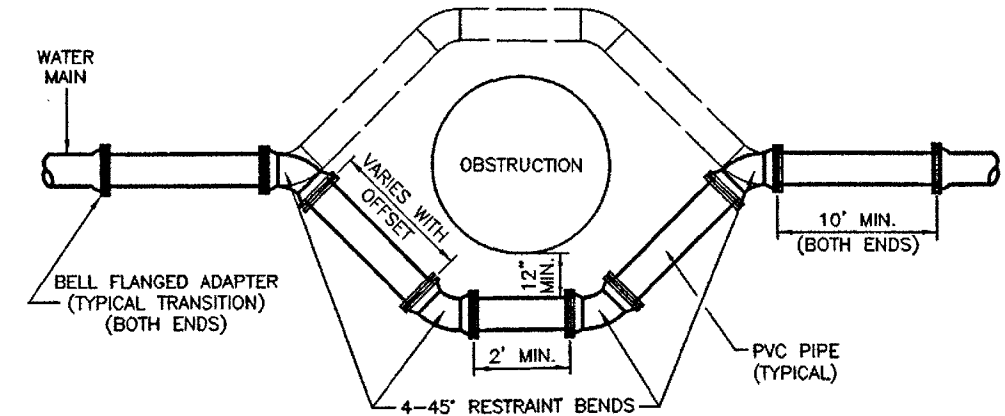
NOTES

- 5/8" ALL-THREAD IS TO BE USED TO TIE THE VALVE TO TEE AND VALVE TO HYDRANT.
- PROVIDE MECHANICAL RESTRAINED JOINTS (EBBA IRON, SERIES 2000PV, OR APPROVED EQUAL).
- A 5" HYDRO-STORZ CONNECTION IS REQUIRED ONE EACH FIRE HYDRANT.
- FIRE HYDRANT MUST INCLUDE AN ISOLATION VALVE.
- PAIN: ALL FIRE HYDRANT YELLOW FOR PROTECTIVE COATING.
- PAIN: BONNET AND CAPS BASED ON MAINLINE SIZE (COLORS: YELLOW-6" AND LESS; WHITE-8", GREEN-10" TO 20", ORANGE-24" TO 60").

## FIRE HYDRANT

SCALE: N.T.S.

4



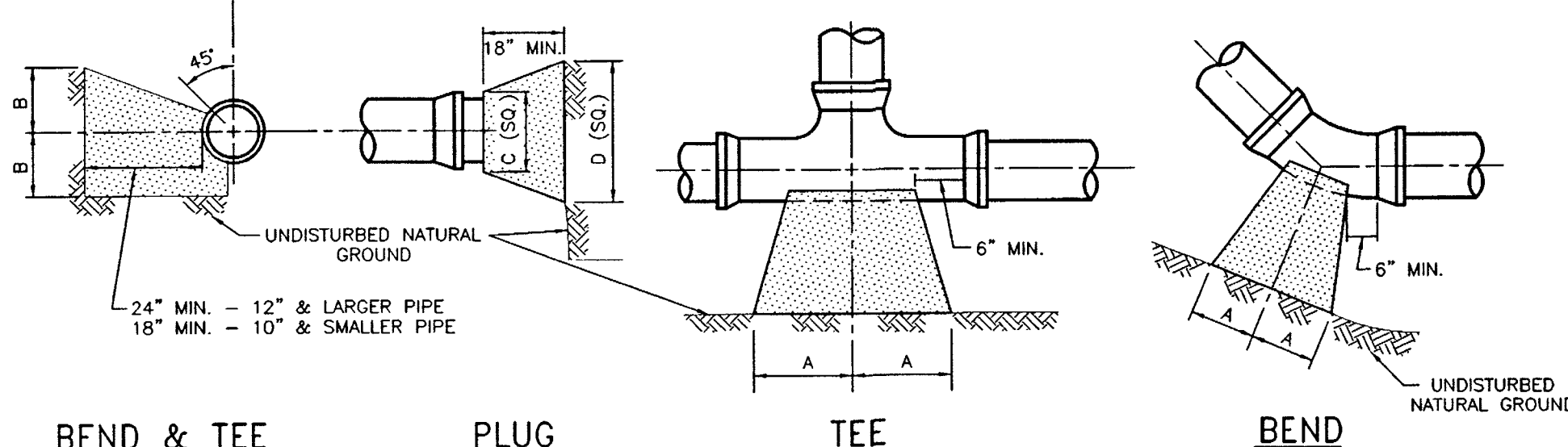
NOTES

- PIPE MATERIAL SHALL BE AWWA C900 PVC, DR-14, 200 PSI WITH INTEGRAL PVC RESTRAINED JOINTS.
- OF-SET ASSEMBLY MUST PASS OVER THE OBSTRUCTION AS LONG AS THE MINIMUM CLEARANCE IS MAINTAINED. SPECIFIC APPROVAL FROM THE UTILITIES DEPARTMENT MUST BE GRANTED FOR THE OFFSET TO PASS UNDER THE OBSTRUCTION.
- MATERIAL AND COATINGS SHALL BE IN ACCORDANCE WITH WATER MAIN STANDARD SPECIFICATIONS.
- RESTRAIN EXISTING PIPING BEYOND OFFSET SECTION AS REQUIRED TO PREVENT MOVEMENT.
- ALL PVC PRODUCTS MUST BE LISTED ON CITY OF RICHMOND'S APPROVED PRODUCTS LIST.

## WATER PIPE OFFSET ASSEMBLY

SCALE: N.T.S.

5



BEND & TEE

PLUG

TEE

BEND

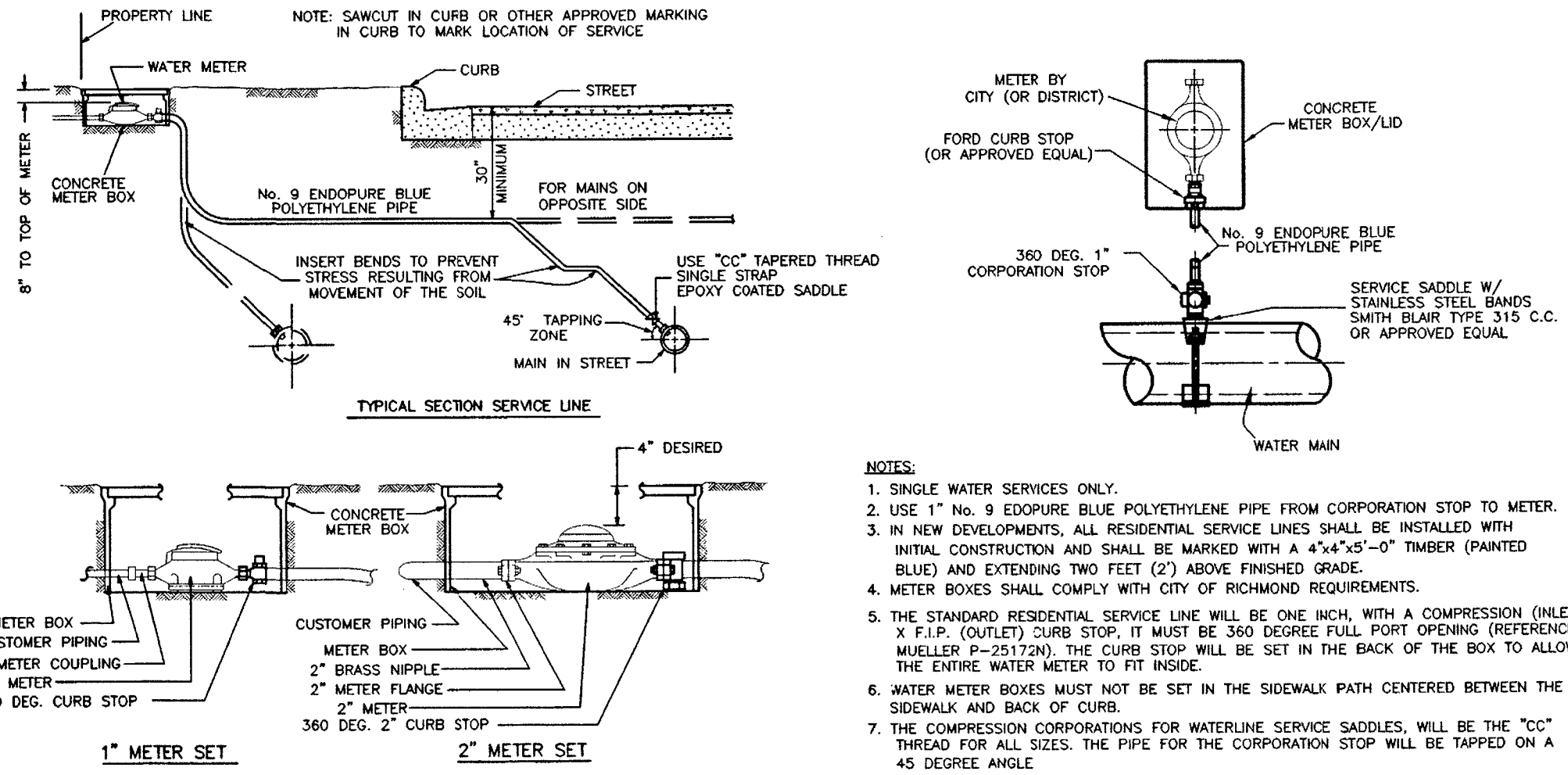
SIZE	90° BEND		45° BEND		22 1/2° BEND		TEES		PLUGS	
	A	B	A	B	A	B	A	B	A	B
2 1/2"	12"	7"	6"	7"	6"	6"	7"	8"	8"	14"
4"	14"	8"	7"	9"	6"	6"	8"	11"	8"	18"
6"	16"	10"	9"	10"	6"	8"	10"	12"	10"	21"
8"	22"	13"	12"	13"	8"	10"	13"	16"	12"	29"
12"	29"	21"	16"	21"	11"	16"	18"	24"	16"	41"
16"	38"	27"	21"	27"	12"	24"	24"	30"	20"	54"

NOTE: THRUST BLOCKS AT TRENCH FACE MUST HAVE A MINIMUM BEARING SURFACE OF 1.0 SQ. FOOT AND THE LEAST DIMENSION SHALL BE NO SMALLER THAN 1.5 TIMES PIPE DIAMETER, BUT NOT LESS THAN 1.0 FT.

## THRUST BLOCK

SCALE: N.T.S.

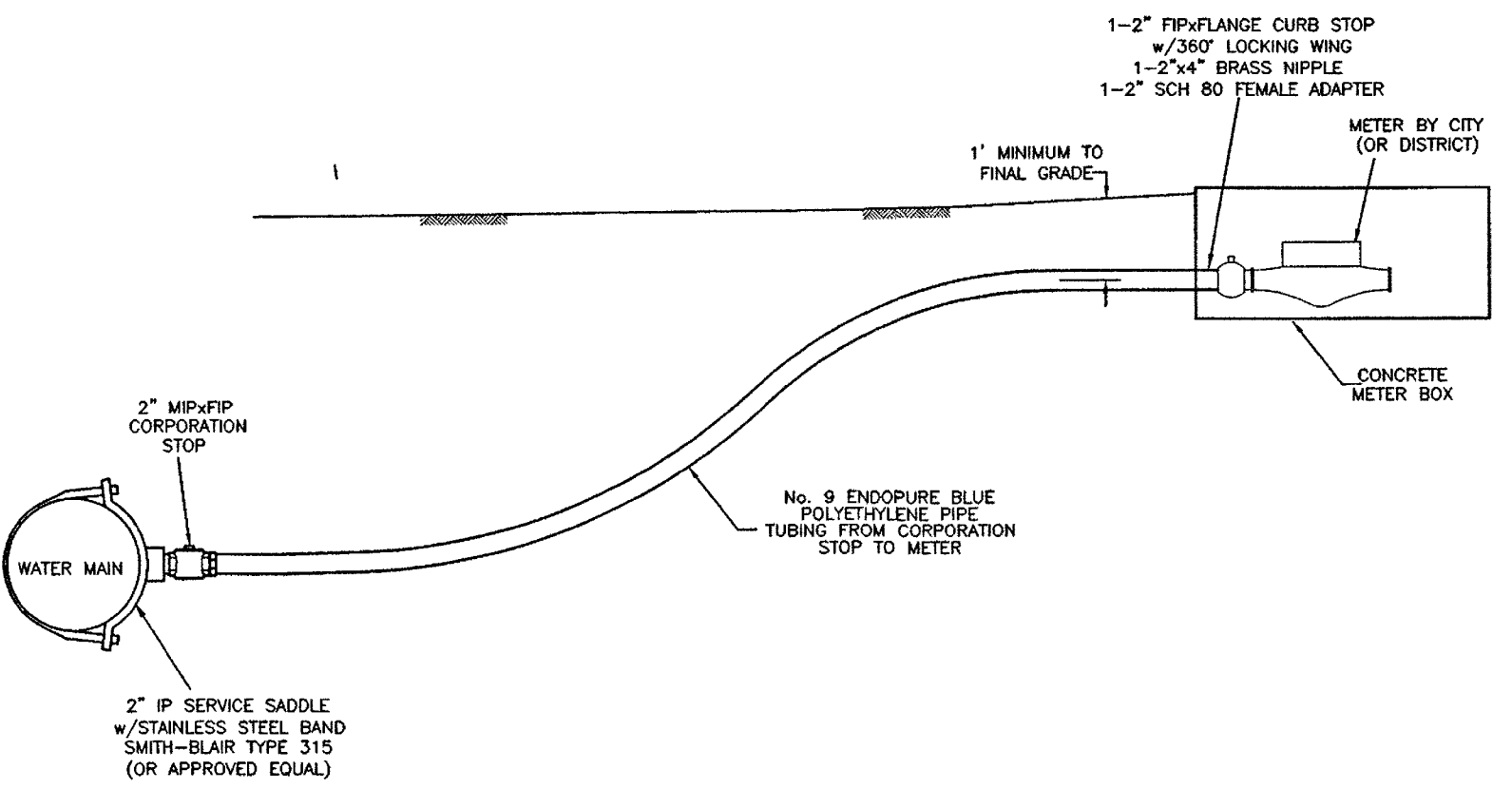
6



## RESIDENTIAL WATER METER AND SERVICE LINE

SCALE: N.T.S.

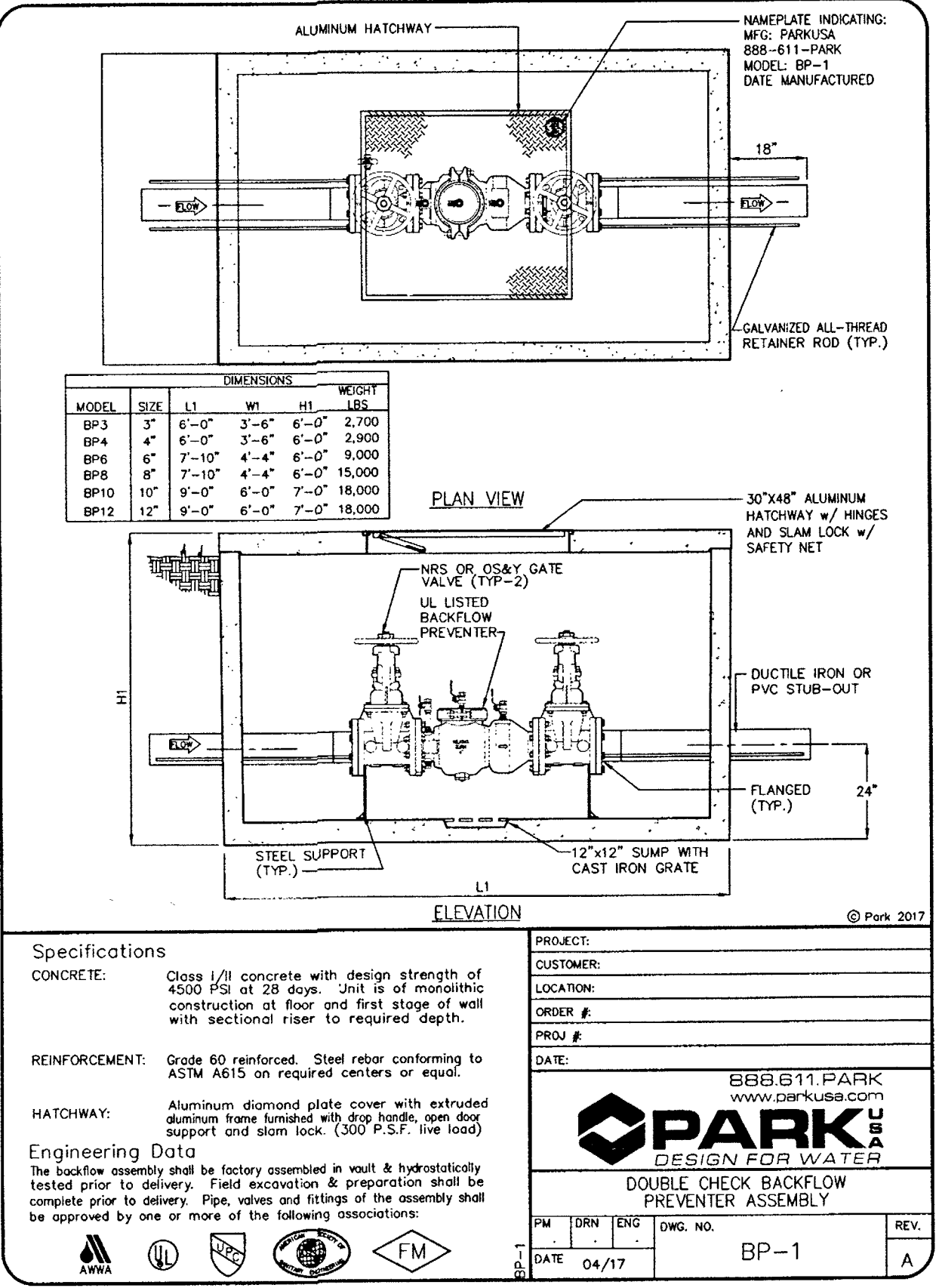
7



## 2" WATER SERVICE CONNECTION

SCALE: N.T.S.

8



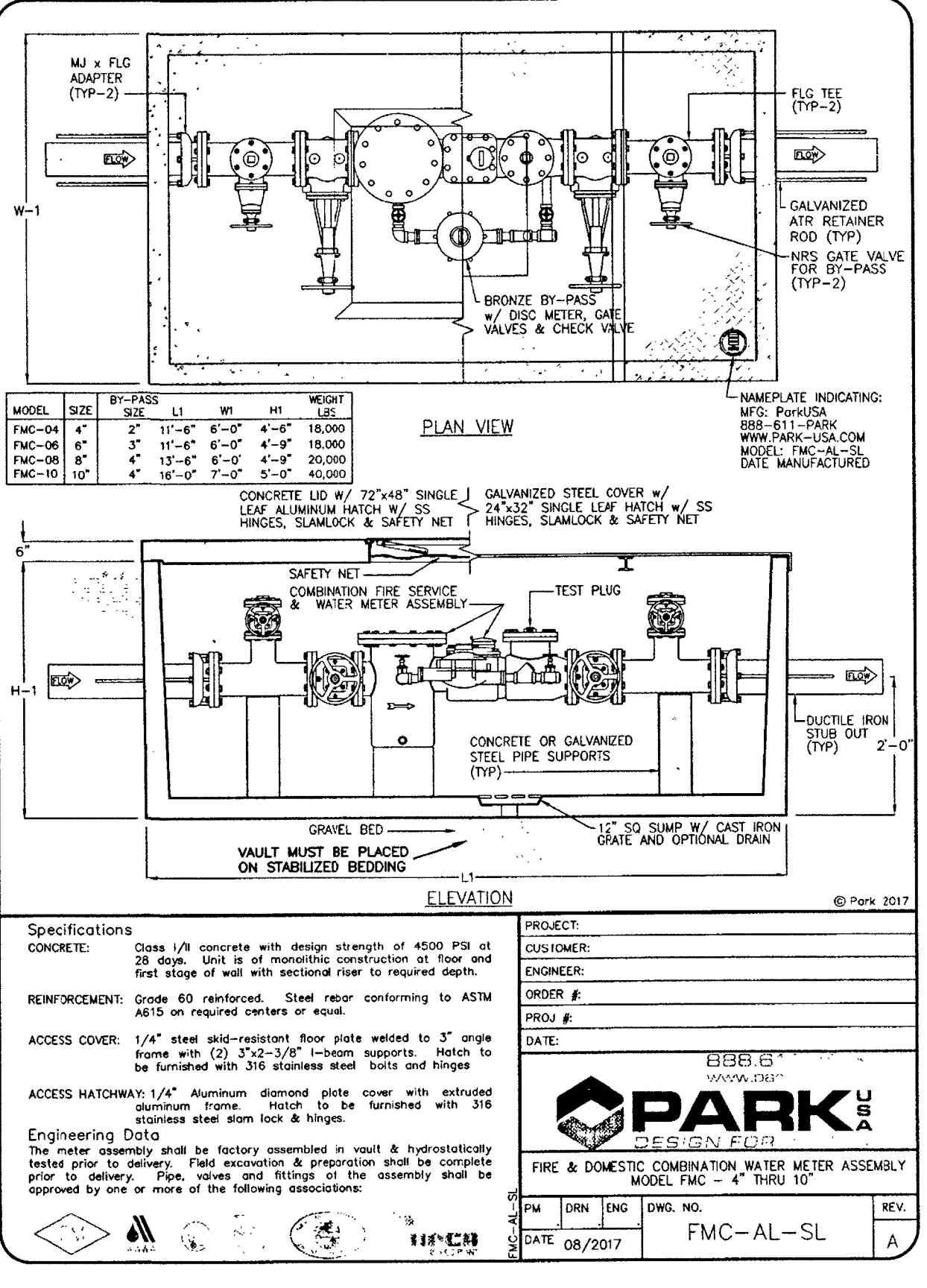
Specifications

CONCRETE: Class 1/1 concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectioned riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

HATCHWAY: Aluminum diamond plate cover with extruded aluminum frame furnished with dog handle, open door support and storm lock (300 P.S.I. line load).

Engineering Data: The backflow assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



Specifications

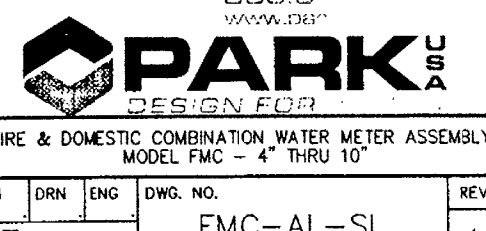
CONCRETE: Class 1/1 concrete with design strength of 4500 PSI at 28 days. Unit is of monolithic construction at floor and first stage of wall with sectioned riser to required depth.

REINFORCEMENT: Grade 60 reinforced. Steel rebar conforming to ASTM A615 on required centers or equal.

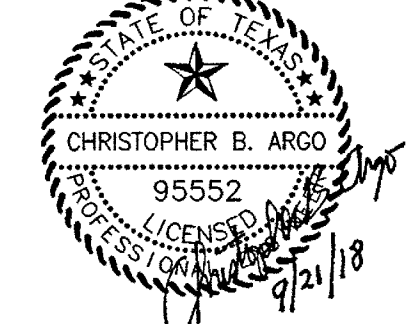
ACCESS COVER: 1/4" steel solid-ventilator floor plate welded to 3" angle frame with (2) 2"x2"x1/2" beam supports. Hatch to be furnished with 316 stainless steel storm lock & hinges.

ACCESS HATCHWAY: 1/4" Aluminum diamond plate cover with extruded aluminum frame. Hatch to be furnished with 316 stainless steel storm lock & hinges.

Engineering Data: The meter assembly shall be factory assembled in vault & hydrostatically tested prior to delivery. Field excavation & preparation shall be complete prior to delivery. Pipe, valves and fittings of the assembly shall be approved by one or more of the following associations:



SEAL



REVISIONS

PROJECT NUMBER  
FBSITE18-005

Kelly R. Kaluza  
& Associates, Inc.  
CONSULTING ENGINEERS & SURVEYORS  
ENGINEERING FIRM NO. 061339  
SURVEYING FIRM NO. 061000  
3014 AVENUE 1  
ROSENBERG, TEXAS 77471  
PH.281.341.0608 FAX.281.341.6393

PROJECT

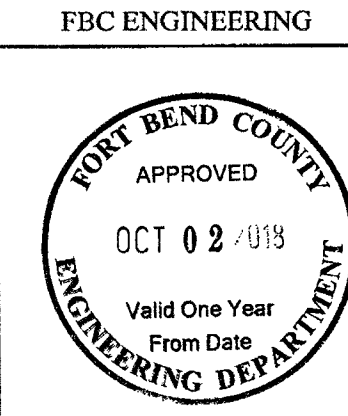
The Miramonte  
RESERVE  
Stafford, Texas

SHEET TITLE

CONSTRUCTION DETAILS

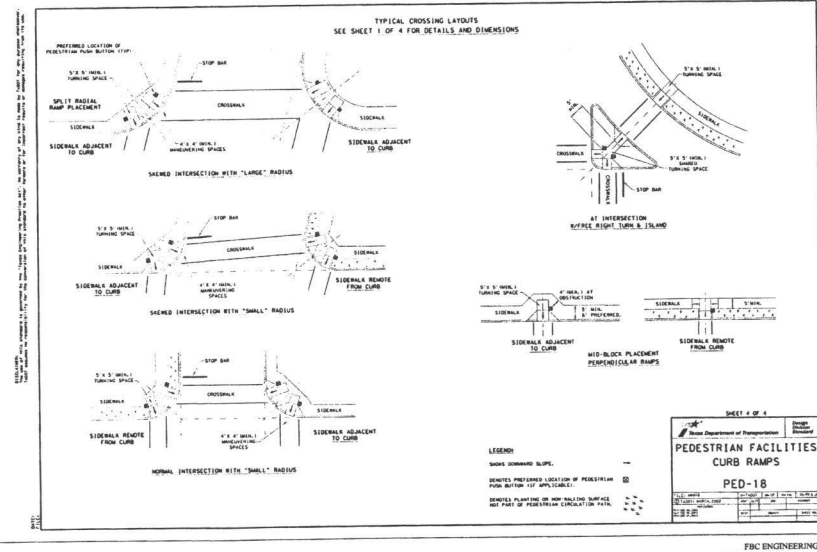
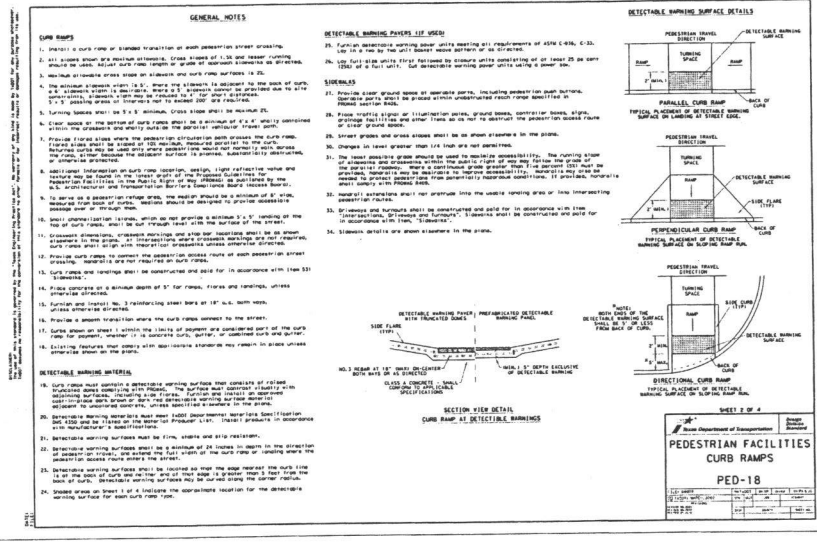
DATE  
August 21, 2018  
SHEET NUMBER

C5.06









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**Kelly R. Kaluza**  
**Associates, Inc.**  
**CONSULTING ENGINEERS & SURVEYORS**  
ENGINEERING FIRM No. F-1339  
SURVEYING FIRM No. 1001000  
3014 AVENUE I  
ROSENBERG, TEXAS 77471  
PH.281.341.0808 FAX.281.341.6333

**The Miramonte**  
RESERVE 'C'  
Stafford, Texas

# C5.09

