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

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

☐ **Right of Way Permit**

☒ **Commercial Driveway Permit**

Permit No: 2018-18974

Applicant: **Lischka Utilities, LP**

Job Location Site: **20000 Beechnut Street, Richmond, TX 77407**

Bond No. [redacted] **Date of Bond:** **4/3/2018** **Amount:** **$5,000.00**

The above applicant came to make use of certain Fort Bend County property subject to, "The Order Regulating the Laying, Construction, Maintenance, and Repair of Buried Cables, Conduits, and Pole Lines, In, Under, Across or Along Roads, Streets, Highways, and Drainage Ditches in Fort Bend County, Texas, Under the Jurisdiction of the Commissioners Court of Fort Bend County, Texas," as passed by the Commissioners Court of Fort Bend County, Texas, of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistant with Chapter 181, Vernon's Texas Statutes and Codes Annoted.

Notes:

1. Evidence of review by the Commissioners Court must be kept on the job site and failure to do so constitutes grounds for job shutdown.
2. Written notices are required:
   a. 48 hours in advance of construction start up, and
   b. When construction is completed and ready for final inspection, submit notification to Permit Administrator thru MyGovernmentOnline.org portal.
3. This permit expires one (1) year from date of permit if construction has not commenced.

On this 3rd day of April, 2018, Upon Motion of Commissioner _____, seconded by Commissioner _____, duly put and carried, it is ORDERED, ADJUDGED AND DECREED that said notice of said above purpose is hereby acknowledged by the Commissioners Court of Fort Bend County, Texas, and that said notice be placed on record according to the regulation order thereof.

Signature

By: Rick J Staigle, PE, PTOE
County Engineer

N/A
By: _____
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Date Recorded _____ Comm. Court No. _____

Clerk of Commissioners Court

By: _____
Deputy

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

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

[ ] **Right of Way Permit**

[X] **Commercial Driveway Permit**

Permit No: 2018-18974

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:

- [X] a. Name of road, street, and/or drainage ditch affected.
- [X] b. Vicinity map showing course of directions
- [X] c. Plans and specifications

(2) BOND:

- [ ] County Attorney, approval when applicable.
- [ ] Perpetual bond currently posted. Bond No: _____ Amount: _____
- [X] Performance bond submitted. Bond No: [redacted] Amount: $5,000.00
- [ ] 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.

Rick J Staigle, PE, PTOE
Permit Administrator

3/23/2018
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)

Grand Vista Section 21
(PO 27060) obo FBCMUD No. 30

BOND NO [redacted]

THE STATE OF TEXAS

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND

THAT WE, Lischka Utilities, LP **whose (*address, phone*) is** P.O. Box 853 Bellville, TX 77418, 979-865-5941 **Texas, hereinafter called the Principal, and** Fidelity and Deposit Company of Maryland, **a Corporation existing under and by virtue of the laws of the state of** MD **and authorized to do an indemnifying business in the state of Texas, and whose principal office is located at (*name/address/phone*)** Fidelity and Deposit Company of Maryland 1299 Zurich Way, 5th Floor , Schaumburg, IL 60196-1056 (847) 605-6000 **whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought whining said state is** Tracey Lee Haley **and whose address is** 15303 Dallas Parkway, Suite 800, Addison, TX 75001 **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 Dollars and 00/100 **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 shaft 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 26th **day of** February, 2018

Lischka Utilities, LP
PRINCIPAL

BY

Fidelity and Deposit Company of Maryland
SURETY

BY Danielle D Johson, Attorney-in-Fact

FIDELITY AND DEPOSIT COMPANY OF MARYLAND INCORPORATED 1890

EXTRACT FROM BY-LAWS OF THE COMPANIES

"Article V, Section 8, Attorneys-in-Fact. The Chief Executive Officer, the President, or any Executive Vice President or Vice President may, by written instrument under the attested corporate seal, appoint attorneys-in-fact with authority to execute bonds, policies, recognizances, stipulations, undertakings, or other like instruments on behalf of the Company, and may authorize any officer or any such attorney-in-fact to affix the corporate seal thereto; and may with or without cause modify of revoke any such appointment or authority at any time."

CERTIFICATE

I, the undersigned, Vice President of the ZURICH AMERICAN INSURANCE COMPANY, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND, do hereby certify that the foregoing Power of Attorney is still in full force and effect on the date of this certificate; and I do further certify that Article V, Section 8, of the By-Laws of the Companies is still in force.

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the ZURICH AMERICAN INSURANCE COMPANY at a meeting duly called and held on the 15th day of December 1998.

RESOLVED: "That the signature of the President or a Vice President and the attesting signature of a Secretary or an Assistant Secretary and the Seal of the Company may be affixed by facsimile on any Power of Attorney...Any such Power or any certificate thereof bearing such facsimile signature and seal shall be valid and binding on the Company."

This Power of Attorney and Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at a meeting duly called and held on the 5th day of May, 1994, and the following resolution of the Board of Directors of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at a meeting duly called and held on the 10th day of May, 1990.

RESOLVED: "That the facsimile or mechanically reproduced seal of the company and facsimile or mechanically reproduced signature of any Vice-President, Secretary, or Assistant Secretary of the Company, whether made heretofore or hereafter, wherever appearing upon a certified copy of any power of attorney issued by the Company, shall be valid and binding upon the Company with the same force and effect as though manually affixed.

IN TESTIMONY WHEREOF, I have hereunto subscribed my name and affixed the corporate seals of the said Companies, this 26th day of February, 2018.

Gerald F. Haley

Gerald F. Haley, Vice President

TO REPORT A CLAIM WITH REGARD TO A SURETY BOND, PLEASE SUBMIT ALL REQUIRED INFORMATION TO:

Zurich American Insurance Co.
Attn: Surety Claims
1299 Zurich Way
Schaumburg, IL 60196-1056

Bond Number [redacted]

Obligee: Fort Bend County, Robert E. Hebert, County Judge

ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND
POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That the ZURICH AMERICAN INSURANCE COMPANY, a corporation of the State of New York, the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, a corporation of the State of Maryland, and the FIDELITY AND DEPOSIT COMPANY OF MARYLAND a corporation of the State of Maryland (herein collectively called the "Companies"), by **Michael P. Bond, Vice President,** in pursuance of authority granted by Article V, Section 8, of the By-Laws of said Companies, which are set forth on the reverse side hereof and are hereby certified to be in full force and effect on the date hereof, do hereby nominate, constitute, and appoint **Danielle D Johnson**, its true and lawful agent and Attorney-in-Fact, to make, execute, seal and deliver, for, and on its behalf as surety, and as its act and deed: **any and all bonds and undertakings,** and the execution of such bonds or undertakings in pursuance of these presents, shall be as binding upon said Companies, as fully and amply, to all intents and purposes, as if they had been duly executed and acknowledged by the regularly elected officers of the ZURICH AMERICAN INSURANCE COMPANY at its office in New York, New York., the regularly elected officers of the COLONIAL AMERICAN CASUALTY AND SURETY COMPANY at its office in Owings Mills, Maryland., and the regularly elected officers of the FIDELITY AND DEPOSIT COMPANY OF MARYLAND at its office in Owings Mills, Maryland., in their own proper persons.

The said Vice President does hereby certify that the extract set forth on the reverse side hereof is a true copy of Article V, Section 8, of the By-Laws of said Companies, and is now in force.

IN WITNESS WHEREOF, the said Vice-President has hereunto subscribed his/her names and affixed the Corporate Seals of the said **ZURICH AMERICAN INSURANCE COMPANY, COLONIAL AMERICAN CASUALTY AND SURETY COMPANY, and FIDELITY AND DEPOSIT COMPANY OF MARYLAND,** this 22nd day of July, A.D. 2015.

ATTEST:
ZURICH AMERICAN INSURANCE COMPANY
COLONIAL AMERICAN CASUALTY AND SURETY COMPANY
FIDELITY AND DEPOSIT COMPANY OF MARYLAND

By: Michael P. Bond
Vice President

By: Eric D. Barnes
Secretary

State of Maryland
County of Baltimore

On this 22nd day of July, A.D. 2015, before the subscriber, a Notary Public of the State of Maryland, duly commissioned and qualified, **Michael P. Bond, Vice President and Eric D. Barnes, Secretary** of the Companies, to me personally known to be the individuals and officers described in and who executed the preceding instrument, and acknowledged the execution of same, and being by me duly sworn, deposeth and saith, that he/she is the said officer of the Company aforesaid, and that the seals affixed to the preceding instrument are the Corporate Seals of said Companies, and that the said Corporate Seals and the signature as such officer were duly affixed and subscribed to the said instrument by the authority and direction of the said Corporations.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed my Official Seal the day and year first above written.

Constance A. Dunn, Notary Public
My Commission Expires: July 9, 2019

Disclosure Statement

NOTICE OF DISCLOSURE FOR AGENT & BROKER COMPENSATION

If you want to learn more about the compensation Zurich pays agents and brokers visit:

http://www.zurichnaproducercompensation.com

or call the following toll-free number: (866) 903-1192.

This Notice is provided on behalf of Zurich American Insurance Company

and its underwriting subsidiaries.

ZURICH

Texas Important Notice

IMPORTANT NOTICE

To obtain information or make a complaint:

You may call Zurich North America's toll-free telephone number for information or to make a complaint at:

1-800-382-2150

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) 490-1007
Web: www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

PREMIUM OR CLAIM DISPUTES:

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

ATTACH THIS NOTICE TO YOUR POLICY:

This notice is for information only and does not become a part or condition of the attached document.

AVISO IMPORTANTE

Para obtener información o para presentar una queja:

Usted puede llamar al número de teléfono gratuito de Zurich North America's para obtener información o para presentar una queja al:

1-800-382-2150

Usted puede comunicarse con el Departamento de Seguros de Texas para obtener información sobre compañías, coberturas, derechos, o quejas al:

1-800-252-3439

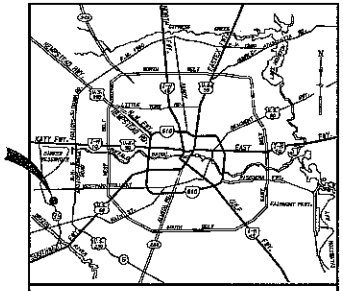
Usted puede escribir al Departamento de Seguros de Texas a:
P.O. Box 149104
Austin, TX 78714-9104
Fax: (512) 490-1007
Sitio web: www.tdi.texas.gov
E-mail: ConsumerProtection@tdi.texas.gov

DISPUTAS POR PRIMAS DE SEGUROS O RECLAMACIONES:

Si tiene una disputa relacionada con su prima de seguro o con una reclamación, usted debe comunicarse con la compañía primero. Si la disputa no es resuelta, usted puede comunicarse con el Departamento de Seguros de Texas.

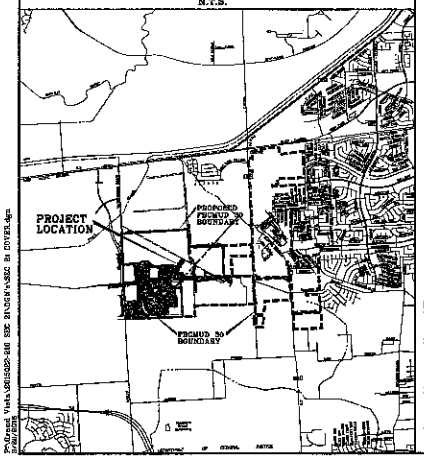
ADJUNTE ESTE AVISO A SU PÓLIZA: Este aviso es solamente para propósitos informativos y no se convierte en parte o en condición del documento adjunto.

CONSTRUCTION PLANS
FOR
WATER, SEWER, DRAINAGE AND PAVING IMPROVEMENTS
FOR
GRAND VISTA SECTION 21
WITHIN
FORT BEND COUNTY M.U.D. No. 30
FORT BEND COUNTY, TEXAS



HOUSTON AREA MAP
N.T.S.

MAP REF: F.H.C. KEY MAP: 525 G, 526 E. ZIP CODE 77407
VICINITY MAP
N.T.S.



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JOB No.: 2015022-201-211 JANUARY 2016

NOTES:
1. ALL BEARINGS ARE BASED ON THE TEXAS STATE PLANE COORDINATE GRID SYSTEM, SOUTH CENTRAL ZONE.
2. PRIOR TO THE CONSTRUCTION OF THESE FACILITIES WITHIN OR BY THE DISTRICT, THE DISTRICT OR ITS ENGINEER WILL GIVE WRITTEN NOTICE BY REGISTERED OR CERTIFIED MAIL TO THE DIRECTOR OF PUBLIC WORKS AND ENGINEERING, CITY OF HOUSTON, STATING THE DATE SUCH CONSTRUCTION WILL COMMENCE.
3. CONTRACTOR SHALL NOTIFY THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING, OFFICE OF THE CITY ENGINEER, 48 HOURS BEFORE STARTING WORK ON THIS PROJECT. PHONE NO. 832-394-8088.
4. CONTRACTOR SHALL NOTIFY FORT BEND COUNTY 48 HOURS BEFORE STARTING WORK AT CONSTRUCTIONFORTBENDCOUNTYTX.GOV

811 Know what's below. Call before you dig.

THE STANDARD SHEET SPECIFICALLY INDENTIFIED BY A (#) HAS BEEN SELECTED BY ME OR UNDER MY RESPONSIBLE SUPERVISION AS BEING APPLICABLE TO THIS PROJECT:
(#) STATEWIDE TxDOT STANDARD
JASON M. ROBINETT P.E. 97274 — DATE 4/12/16

FIRM:
FLOOD INSURANCE RATE MAP: FORT BEND COUNTY, TEXAS AND INCORPORATED AREAS.
PANEL: 130 & 140 OF 575
MAP NO.: 48157C0130L, 48157C0140L
MAP REVISED: APRIL 2, 2014
THIS PROJECT IS LOCATED IN UNSHADED ZONE X, OUTSIDE THE 500-YEAR FLOOD PLAIN.

LOG NO. 15-1673
ILMS NO. 15130569

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.

NOTICE:
For your safety, you are required bt Texas Law to call 811 at least 48 hours before you dig so that underground lines can be marked. This verification does not fulfill your obligation to call 811.

VERIFICATION OF PRIVATE UTILITY LINES

Date: 4/12/16
CenterPoint Energy/ Natural Gas Facilities Verification ONLY
(This Signature verifies that you have shown CNP Natural Gas Lines correctly-not to be used for conflict verification.) (Gas service lines are not shown.)
Signature valid for six months.

Date: 4/12/16
CenterPoint Energy/UNDERGROUND Electrical Facilities Verification ONLY
(This Signature verifies existing underground facilities-not to be used for conflict verification.)
Signature valid for six months.

NOT APPLICABLE — Date:
Approved for AT&T Texas/SWBT Underground Conduit Facilities ONLY.
Signature valid for one year

FORT BEND COUNTY ENGINEER
ENGINEER: FOR RICHARD W. STOLLEIS, P.E.
DATE: 3/29/17
THESE SIGNATURES ARE VOID IF CONSTRUCTION HAS NOT COMMENCED IN ONE (1) YEAR FROM DATE OF APPROVAL
APPROVED: DEVELOPMENT COORDINATOR
DATE: 3/29/17

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

Costello — Engineering and Surveying, 4900 Fairmont Avenue, Suite 650, North Building, Houston, Texas 77002, (713) 783-7788 (713) 783-8400 Fax, TEXAS PE BOARD FIRM REGISTRATION No. 2350
SURVEYED BY: COSTELLO, INC.

4/12/16
STATE OF TEXAS — JASON M. ROBINETT — 97274 — LICENSED — PROFESSIONAL ENGINEER

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER: 4-11-16	TRAFFIC & TRANSPORTATION
WASTEWATER: 4-12-16	STORM WATER QUALITY
STORM: 1-26-17	FACILITIES
STREET & BRIDGE	
CITY ENGINEER	FOR CITY OF HOUSTON USE ONLY CITY DWG NO.:
DIRECTOR OF PUBLIC WORKS AND ENGINEERING 4/4/17	52456

SHEET No: 1 OF 23

F.B.C.M.U.D. No. 30

GRAND VISTA SECTION 21 - JOB NO. 2015022-210-201-211

GENERAL CONSTRUCTION NOTES

1 WATER LINES, WASTEWATER COLLECTION SYSTEMS AND DRAINAGE SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S LATEST EDITION OF "STANDARD CONSTRUCTION SPECIFICATIONS", AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING" WITH ALL SUBSEQUENT AMENDMENTS ADDED THERETO UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN MUST AGREE WITH THE MINIMUM STANDARDS ESTABLISHED IN THE LATEST EDITION OF "INFRASTRUCTURE DESIGN MANUAL". NOTE THAT PLAN SIGNATURES EXPIRE AFTER 1 YEAR AND THE LATEST EDITIONS OF DESIGN RULES, SPECIFICATIONS & MANUALS SHALL GOVERN AS OF THE DATE OF RESIGNING.

2 THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO THE EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO PAVING, WATER LINES, WASTEWATER COLLECTION SYSTEMS AND STORM SEWERS DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "STANDARD CONSTRUCTION SPECIFICATIONS" WITH LATEST ADDENDA AND AMENDMENTS THERETO, WITH NO COST TO THE PUBLIC.

3 THERE WILL BE NO SEPARATE PAYMENT FOR WORK SHOWN ON THESE PLANS UNLESS SPECIFICALLY ESTABLISHED IN THE CONTRACT DOCUMENTS. ALL OTHER IMPROVEMENTS REQUIRED FOR COMPLETION AND ACCEPTANCE OF THE W.S.O. AND PAVING CONTRACTS SHALL BE CONSIDERED INCIDENTAL TO EACH PROJECT UNLESS THE CONTRACTOR NOTIFIES THE ENGINEER IN WRITING PRIOR TO EXECUTING THE CONTRACT.

4 CONTRACTOR SHALL NOTIFY FORT BEND COUNTY ENGINEERING DEPARTMENT TWENTY-FOUR (24) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION VIA EMAIL AT CONSTRUCTIONFORTBENDCOUNTYTX.GOV AND WRITTEN NOTIFICATION FORTY-EIGHT (48) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION.

5 CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY "REGULATIONS OF FORT BEND COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION. PERMITSFORTBENDCOUNTYTX.GOV.

6 CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY FORT BEND COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD RIGHT-OF-WAY.

7 CONTRACTOR SHALL GIVE ENGINEER FIVE (5) WORKING DAYS NOTICE FOR CONSTRUCTION CONTROL STAKING, AND FORTY-EIGHT (48) HOURS NOTICE IN ADVANCE OF BEGINNING CONSTRUCTION.

8 ALL UNSATISFACTORY AND/OR WASTE MATERIALS INCLUDING VEGETATION, ROOTS, CONCRETE, AND DEBRIS SHALL BE HAULED OFF SITE BY THE CONTRACTOR. INCLUDE COST OF THIS WORK, INCLUDING HAUL, IN OTHER ITEMS OF THIS PROJECT.

9 CONTRACTOR SHALL MAINTAIN ADEQUATE DRAINAGE AT ALL TIMES DURING CONSTRUCTION OF PROPOSED FACILITIES.

10 CONTRACTOR SHALL VERIFY LOCATION AND ELEVATION OF EXISTING FACILITIES PRIOR TO CONSTRUCTION OF PROPOSED FACILITIES. CONTRACTOR SHALL NOTIFY UTILITY COMPANIES 48 HOURS PRIOR TO COMMENCEMENT OF CONSTRUCTION. CONTACT 811.

11 CONTRACTOR SHALL CONFINE ALL WORK EFFORTS WITHIN THE DESIGNATED AREA UNLESS SPECIFICALLY AUTHORIZED BY THE OWNER. EXTREME CARE SHALL BE EXERCISED IN ADJACENT PROPERTY TO PROTECT ANY EXISTING TREES, FENCES, LANDSCAPING AND OTHER EXISTING FEATURES.

12 ALL EXISTING LANDSCAPING, SIDEWALKS, FENCES, UTILITIES AND OTHER EXISTING FACILITIES DAMAGED DURING CONSTRUCTION WILL BE REPLACED OR REPAIRED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR AT HIS EXPENSE.

13 ALL CONSTRUCTION WHICH HINDERS TRAFFIC OR REQUIRES TRAFFIC DIVERSION SHALL BE IN CONFORMANCE WITH THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

14 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PURCHASING ANY WATER NEEDED FOR CONSTRUCTION OR TESTING. THE PURCHASE OF WATER FOR CONSTRUCTION OR TESTING WILL BE CONSIDERED INCIDENTAL TO THE VARIOUS OTHER ITEMS OF WORK.

15 ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE COUNTY OF FORT BEND, THE CITY OF HOUSTON, THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, THE ENGINEER, AND THE OWNER.

16 ALL FINAL SANITARY MANHOLE RIM ELEVATIONS ARE TO BE SET AT 0.2-FEET ABOVE FINISHED GRADE. ALL STORM MANHOLE RIM ELEVATIONS SHALL BE SET AT 0 TO 0.2-FEET ABOVE FINISH GRADE, EXCEPT THOSE WITHIN PAVEMENT. ALL EXISTING MANHOLES WITHIN OR ADJACENT TO THE PROJECT ARE TO BE ADJUSTED TO 0.2-FEET ABOVE FINISHED GRADE WHEN GRADING IS COMPLETE. IF THIS NOTE CONFLICTS WITH THE ELEVATIONS OR NOTES ON THE PLANS, THIS NOTE SHALL GOVERN (NO SEPARATE PAY).

17 MAINTAIN A MINIMUM OF 12" CLEARANCE BETWEEN ALL UTILITIES.

18 INCLUDE PRICE OF ALL BEDDING AND BACKFILL REQUIRED FOR WATERLINES, SANITARY SEWERS, AND STORM SEWERS IN PRICE BID PER LINEAR FOOT OF PIPE.

19 ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING FOR ALL STREETS AND BACK LOT EASEMENTS TO BE VERIFIED BY CONTRACTOR FROM APPROVED SUBDIVISION PLAT.

20 FLOW LINE ELEVATIONS AT MANHOLES ARE BASED ON DISTANCE BETWEEN MANHOLES AND NOT CENTERLINE RIGHT-OF-WAY STATIONING.

21 UPON PROJECT COMPLETION AND PRIOR TO FINAL RELEASE OF RETAINAGE, CONTRACTOR SHALL COMPLY WITH ALL REQUIREMENTS OF "PROJECT'S RECORD DOCUMENTS" OF THE CONTRACT AS THEY RELATE TO THE RESPECTIVE CONTRACTOR (NO SEPARATE PAY).

GENERAL CONSTRUCTION NOTES (CONT.)

22 DELIVERY TICKETS FOR ALL MATERIALS (E.G. CONCRETE, CEMENT STABILIZED SAND, ETC.) SHALL BE MAINTAINED BY THE CONTRACTOR AND UPON REQUEST, BE MADE AVAILABLE FOR REVIEW BY THE ENGINEER OR THE OWNER.

23 PRIOR TO FINAL RELEASE OF RETAINAGE, THE CONTRACTOR SHALL PROVIDE A NOTARIZED CERTIFICATION THAT ALL MATERIALS INSTALLED IN THE PROJECT ARE COMPLETE IN PLACE IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS.

24 ALL WATER, SANITARY AND STORM SEWER STUBS ARE TO BE MARKED WITH FOUR (4) FOOT LONG 6" P.V.C. MARKERS WITH A MINIMUM OF TWO (2) FEET EXPOSED. MARKERS ARE TO BE CAPPED.

25 6" PVC IRRIGATION SLEEVES ARE TO BE 2-FEET BELOW SUBGRADE. BACKFILLED WITH CEMENT-STABILIZED SAND AND MARKED BY TURNING UP A 90° BEND, EXPOSED 2' ABOVE FINISHED GRADE AND CAPPED.

26 ALL FILL AREAS SHALL BE PROOF ROLLED AND BE PLACED IN MAXIMUM 8-INCH LIFTS AND COMPACTED TO A MINIMUM OF 95% OF STANDARD PROCTOR DENSITY AT +/-2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.

27 OWNER WILL PROVIDE CONTROL STAKING ONLY. CONTRACTOR TO BE RESPONSIBLE FOR ALL CONSTRUCTION STAKING SUPERVISED BY A LICENSED SURVEYOR IN THE STATE OF TEXAS. SURVEYOR MUST CARRY ERROR AND OMISSIONS INSURANCE. INCLUDE THE COST FOR CONSTRUCTION STAKING IN THE BASE BID (NO SEPARATE PAY).

28 UTILITY CONTRACTOR SHALL HAUL, SPREAD AND COMPACT UTILITY SPOIL AS DIRECTED BY THE ENGINEER.

29 ALL TRENCHES UNDER OR WITHIN 3' OF BACK OF CURB SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND TO THE BOTTOM OF PAVEMENT SUBGRADE.

30 THESE PLANS PREPARED BY COSTELLO, INC., DO NOT EXTEND TO OR INCLUDE DESIGNS OR SYSTEMS PERTAINING TO THE SAFETY OF THE CONTRACTOR OR ITS EMPLOYEES, AGENTS, OR REPRESENTATIVES IN THE PERFORMANCE OF THE WORK. THE SEAL OF THE LICENSED PROFESSIONAL ENGINEER(S) HEREON DOES NOT EXTEND TO ANY SUCH SYSTEMS THAT MAY NOW OR HEREAFTER BE INCORPORATED IN THESE PLANS. THE CONTRACTOR SHALL PREPARE OR OBTAIN THE APPROPRIATE SAFETY SYSTEMS, INCLUDING THE PLANS AND SPECIFICATIONS REQUIRED BY THE HOUSE BILLS 652 AND 655 ENACTED BY THE TEXAS LEGISLATURE IN THE 70TH LEGISLATURE REGULAR SESSION AND CURRENT OSHA STANDARDS FOR TRENCH SAFETY. DESIGN OF TRENCH SAFETY SYSTEMS, SEALED BY A LICENSED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO EXECUTION OF A CONTRACT FOR THIS WORK.

WATER MAIN RELATED WATER LINE CONSTRUCTION NOTES

1 ALL POTABLE WATER LINES, AFTER INSTALLATION, SHALL BE THOROUGHLY DISINFECTED ACCORDING TO A.W.W.A STANDARD C-651 AND THEN FLUSHED BEFORE BEING PLACED INTO SERVICE. WATER SAMPLES SHALL BE COLLECTED FOR BACTERIOLOGIC ANALYSIS, (A MINIMUM OF ONE (1) SAMPLE PER EVERY 1000' OF LINE) AND LINES WILL NOT BE ACCEPTED FOR SERVICE UNTIL WATER SAMPLES MEET THE REQUIREMENTS OF THE TEXAS DEPARTMENT OF HEALTH.

2 ALL WATER AND RECLAIMED WATER LINES 4" TO 12" SHALL BE POLYVINYL CHLORIDE (P.V.C.) CONFORMING TO A.W.W.A. STANDARDS C-900-07 OR AS CURRENTLY REVISED. ALSO THE RECLAIMED WATER LINE SHALL BE PURPLE PVC CONSTRUCTED WITH GREEN AND SILVER METAL TAPE 2' ABOVE THE TOP OF PIPE (TAPE MUST BE OVERHEAD LINE). ALL HYDROSTATIC WATER TESTS SHALL CONFORM TO A.W.W.A. C-605 IN ACCORDANCE WITH C.O.H. REGULATIONS. PRESSURE TESTS FOR ALL WATER MAINS SHALL BE AT 125psi FOR A DURATION OF 8 HOURS.

3 MAINTAIN MINIMUM NINE (9) FOOT HORIZONTAL CLEARANCE BETWEEN OUTSIDE OF SANITARY SEWER MANHOLES AND WATER LINE. MAINTAIN MINIMUM ONE (1) FOOT HORIZONTAL CLEARANCE BETWEEN OUTSIDE OF SANITARY SEWER MANHOLES AND RECLAIMED WATER LINE. MAINTAIN MINIMUM (9) FOOT HORIZONTAL CLEARANCE BETWEEN RECLAIMED WATER LINE AND WATER LINE

4 ALL WATER AND RECLAIMED WATER LINES SHALL BE ENCASED WITH BANK SAND. WATER AND IRRIGATION LINES WITHIN SIDE LOT EASEMENTS SHALL BE BACKFILLED WITH BANK SAND. NO SEPARATE PAY.

5 WATER AND RECLAIMED WATER LINE TRENCHES UNDER PAVEMENT ON WITHIN THREE (3) FEET OF BACK OF ALL CURBS SHALL BE BACKFILLED WITH CEMENT STABILIZED SAND TO PAVEMENT SUBGRADE.

6 CENTERLINE OF FLUSHING VALVES SHALL BE LOCATED 3'-0" FROM BACK OF CURB WITH THE BASE AT THE ELEVATION INDICATED ON THE DETAIL SHEET 15 (DRAWING NO. 02520-01).

7 FLUSH VALVES ARE TO HAVE 4' MINIMUM BURY, BUT IT IS THE CONTRACTOR'S ULTIMATE RESPONSIBILITY TO ADJUST WATER FACILITIES TO OBTAIN PROPER VERTICAL LOCATION OF FLUSH VALVE IN RELATION TO THE TOP OF CURB AFTER PAVEMENT CONSTRUCTION. SEE DETAIL ON SHEET 15.

8 CONTRACTOR TO ALLOW A MINIMUM OF 12 INCHES CLEARANCE BETWEEN PROPOSED WATER AND RECLAIMED WATER LINES AND EXISTING AND PROPOSED UTILITIES.

9 ALL GATE VALVES ARE TO BE RESILIENT-SEATED GATE VALVES AS PER A.W.W.A. C-509.

10 WHEREVER POSSIBLE, ALL MAIN LINE GATE VALVES ARE TO BE LOCATED OPPOSITE PAVING CURB RETURNS AS INDICATED ON THE CONSTRUCTION PLANS.

11 4-INCH THROUGH 12-INCH WATER AND RECLAIMED WATER LINE FITTINGS SHALL BE DUCTILE IRON COMPACT FITTINGS AS PER A.W.W.A. C-153.

12 MINIMUM OF ONE JOINT OF PIPE SHALL BE INSTALLED BETWEEN GATE VALVE AND PLUG ON DEAD-END LINES.

13 CONTRACTOR SHALL WITHIN DOWN TIME OF THE EXISTING WATER LINES WHEN MAKING ADJUSTMENTS AND TIES TO THE LINES.

14 ALL WATER MAIN BLOW-OFF VALVES ARE TO BE LOCATED AS INDICATED ON THE PLANS AT A LOT LINE AND 3-FEET OFF THE BACK OF CURB.

15 THE OPENING AND CLOSING OF ALL WATER AND IRRIGATION VALVES ON THE EXISTING SYSTEM SHALL BE PERFORMED BY THE DISTRICT OPERATOR ONLY. CONTACT REBECCA MANCUSO1 WITH MUNICIPAL DISTRICT SERVICES AT 281-240-6803.

STORM SEWER CONSTRUCTION NOTES

1 STORM SEWERS SHALL BE REINFORCED CONCRETE PIPE (C-76, CLASS III) AND SHALL BE INSTALLED, BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS NOS. 02317-02, 02317-05, 02317-05, 02317-06, AND 02317-07 (OCT. 2002) AS APPLICABLE UNLESS OTHERWISE SHOWN ON THE DRAWINGS.

2 ALL STORM SEWERS CONSTRUCTED IN SIDELOT EASEMENT SHALL BE R.C.P. (C-76, CLASS III) AND SHALL BE EMBEDDED IN ACCORDANCE WITH THE CITY OF HOUSTON DRAWING NOS. 02317-02, 02317-03, 02317-05, 02317-06, AND 02317-07 AS APPLICABLE.

3 ALL SEWERS UNDER PROPOSED OR FUTURE PAVEMENT AND TO A POINT THREE (3) FEET BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE BACKFILLED WITH 2 SACKS CEMENT STABILIZED SAND FOR TOP TO SUBGRADE TO WITHIN ONE (1) FOOT BELOW SUBGRADE. THE REMAINING DEPTH OF TRENCH SHALL BE BACKFILLED WITH SUITABLE EARTH MATERIAL.

4 ALL TRENCH BACKFILLS SHALL BE IN MAXIMUM 8" LIFTS, WITH TEST TAKEN AT 100 FOOT INTERVALS ON EACH LIFT AND MECHANICALLY COMPACTED TO A DENSITY OF NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM-698/AASHTO T99).

5 CIRCULAR AND ELLIPTICAL REINFORCED CONCRETE PIPE SHALL BE INSTALLED USING RUBBER GASKET JOINTS CONFORMING TO ASTM C-443 AND ASTM C877 RESPECTIVELY.

6 ALL STORM SEWER PIPES AND INLET LEADS SHALL BE 24" AND LARGER R.C.P.(C-76, CLASS III).

7 ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE SHOWN.

8 CONTRACTOR SHALL PROVIDE 12" MINIMUM CLEARANCE AT STORM SEWER AND WATER CROSSINGS.

9 ADJUST MANHOLE COVERS TO GRADE CONFORMING TO REQUIREMENTS OF SECTION 02065-ADJUSTING MANHOLES, INLETS AND VALVE BOXES TO GRADE.

10 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING, MAINTAINING, AND RESTORING ANY BACK SLOPE DRAINAGE SYSTEM DISTURBED AS A RESULT OF HIS WORK.

11 ALL DITCHES SHALL BE REGRADED TO PROPOSED ELEVATIONS TO ENSURE PROPER DRAINAGE. ALL OUTFALLS SHALL BE PROPERLY BACKFILLED AND COMPACTED. ALL DISTURBED AREA SHALL BE REGRADED, SEEDED, AND FERTILIZED.

12 ALL DRIVEWAYS WILL BE LOCATED TO AVOID EXISTING CURB INLET STRUCTURES.

13 ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE FINAL DRAFT OF STORMWATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY FORT BEND/HGAC; AND THE CITY OF HOUSTON ALL IN COMPLIANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.

14 EXISTING PAVEMENTS, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO FORT BEND COUNTY STANDARDS.

15 CONDITION OF THE ROAD WHEN RIGHT-OF-WAY, UPON COMPLETION OF JOB, SHALL BE AS GOOD AS OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK.

16 STATIONING FOR TYPE "C" INLETS IS AT THE CENTERLINE OF THE MANHOLE PORTION OF THE INLET.

17 BEDDING AND BACKFILL IS TO BE CONSIDERED SUBSIDIARY TO PAY ITEMS FOR PIPE AND INLETS AND SHALL NOT BE PAID FOR DIRECTLY. BANK SAND BACKFILL SHALL BE USED FOR ALL STORM SEWERS LOCATED IN SIDELOT EASEMENTS. MINIMUM 20' EASEMENTS SHALL BE GIVEN.

18 ALL STORM SEWER MANHOLES SHALL BE STANDARD TYPE "C" UNLESS OTHERWISE NOTED.

SANITARY SEWER CONSTRUCTION NOTES

1 ALL SANITARY SEWERS SHALL BE CONSTRUCTED AND TESTED IN ACCORDANCE WITH CITY OF HOUSTON DESIGN MANUAL, SANITARY SEWERS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING STANDARD CONSTRUCTION SPECIFICATIONS; AND STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING. A MANDREL TEST WILL BE REQUIRED. 5% MAXIMUM DEFLECTION.

2 ALL SANITARY SEWERS IN THIS PROJECT SHALL BE OF GREEN COLOR CONSTRUCTED OF PVC SDR 26 PR160/ASTM D2241 OR AS NOTED ON THE PLANS. ALL JOINTS SHALL CONFORM TO ASTM D-3139. JOINTS SHALL BE BELL AND SPIGOT TYPE WITH RUBBER GASKET CONFORMING TO ASTM F-477. CHEMICALLY WELDED PVC PIPE JOINTS ARE NOT ACCEPTABLE. ALL SANITARY SEWER SERVICE LEADS TO BE CONSTRUCTED OF SDR 26 (PR 160) PVC UNLESS OTHERWISE NOTED.

3 BEDDING AND BACKFILL SHALL BE CONSIDERED SUBSIDIARY TO PAY ITEM FOR PIPE, AND SHALL NOT BE PAID FOR DIRECTLY. ALL PIPES ARE TO BE BEDDED AS PER DRAWING NO. 02317-01 AND/OR DRAWING NO.02317-03.

4 ALL SANITARY SEWERS UNDER OR WITHIN THREE (3) FEET OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED WITH 2 SACKS CEMENT STABILIZED SAND FOR TOP TO PAVEMENT SUBGRADE.

5 NO BRICK MANHOLES WILL BE ALLOWED ON SANITARY SEWERS.

6 SANITARY MANHOLE COVERS SHALL BE LABELED "SANITARY".

7 IN AREAS WHERE THE COVER BETWEEN THE TOP OF SANITARY SEWER PIPE AND EXISTING NATURAL GROUND IS LESS THAN 4 FEET, THE UTILITY CONTRACTOR SHALL PLACE ADDITIONAL COMPACTED SOIL OVER THE SANITARY SEWER AS REQUIRED TO PROVIDE A MINIMUM COVER OF 4 FEET.

8 AT ALL LOTS NOT ACCESSIBLE TO A MANHOLE, WHERE FLOW LINE IS GREATER THAN 8'-0" BELOW FINISHED GRADE, PROVIDE A 6" STANDARD SANITARY SEWER STACK. LOCATION TO BE MARKED AS PER GENERAL NOTE 24.

9 SANITARY SEWER MANHOLE RIM ELEVATIONS SHALL BE SET AT 0.2-FEET ABOVE FINISHED GRADE. IF THIS NOTE CONFLICTS WITH THE ELEVATION SHOWN ON THE PLANS, THIS NOTE SHALL GOVERN.

10 WHEN MAKING A TIE TO AN EXISTING SANITARY SEWER MANHOLE, THE UTILITY CONTRACTOR SHALL PLUG THE DOWNSTREAM END OF THE PROPOSED SANITARY LINE WITH A WATERTIGHT MECHANICAL PLUG. THIS PLUG SHALL REMAIN IN PLACE UNTIL FINAL ACCEPTANCE BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ) IS OBTAINED. (NO SEPARATE PAY).

11 CITY OF HOUSTON SIGNATURES AFFIXED TO PLANS SHALL BE VALID FOR 1 YEAR ONLY AFTER THE DATE OF SAID SIGNATURES. ANY CHANGES MADE TO PLANS AFTER SAID DATE WILL REQUIRE REPLACEMENT AND OR UPDATE OF THE SIGNATURES ON THE PLANS. WHEN THE SIGNATURES ARE BEING UPDATED, DESIGN CHANGES MAY BE ORDERED FOR ANY UNBUILT ITEMS FOUND ON THE PLANS.

12 IN WET SAND AREAS USE SPECIAL BEDDING & MANHOLE SUPPORT AS PER CURRENT CITY OF HOUSTON DETAILS.

SANITARY SEWER CONSTRUCTION NOTES CON'T.

13 DUCTILE IRON PIPE SHALL BE LINED WITH 40 TO 60 MILS OF POLYETHELENE OR CERAMIC EPOXY. THE EXTERIOR OF BURIED DUCTILE IRON PIPE AND FITTINGS SHALL HAVE A PRIME COAT AND OUTSIDE ASPHALTIC COATING CONFORMING TO ANSI A21.10. ANSI A21.15 OR ANSI A21.51. PROVIDE MINIMUM OF TWO COMPLETE WRAPS OF 8-MIL-THICK POLYETHYLENE ENCASEMENT MATERIAL IN ACCORDANCE WITH AWWA C105.

PAVING CONSTRUCTION NOTES

1 PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH ALL FORT BEND COUNTY RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE AND THE LATEST REVISIONS AND/OR AMENDMENTS OF SAME. ALL WORK DONE AND MATERIALS FURNISHED SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY FORT BEND COUNTY. THE OWNER'S FINAL ACCEPTANCE OF THE COMPLETE WORK SHALL BE CONTINGENT UPON FORT BEND COUNTY'S FORMAL ACCEPTANCE OF STREETS FOR COUNTY MAINTENANCE.

2 ALL ROAD WIDTHS, CURB RADII, AND CURB ALIGNMENT SHOWN INDICATE BACK OF CURB. T/C, INDICATES TOP OF CURB. T/P, INDICATES TOP OF PAVEMENT.

3 GUIDELINES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE OBSERVED.

4 TRANSVERSE EXPANSION JOINTS SHALL BE INSTALLED AT EACH CURB RETURN AND AT A MAXIMUM SPACING OF 60 FEET. IF THIS NOTE CONFLICTS WITH SPECIFICATIONS OR PAVING DETAILS ON SHEET 14, THIS NOTE SHALL GOVERN.

5 TOP 8" OF SUBGRADE TO BE SCARIFIED AND STABILIZED AS DETERMINED BY FIELD TESTING OF SUBGRADE MATERIAL, AND COMPACTED TO A MINIMUM 95% STANDARD PROCTOR DENSITY AT +/- 2 PERCENTAGE POINTS OF OPTIMUM MOISTURE CONTENT.

6 ALL CURB RADII SHALL BE 25' AND 30' ON MAJOR THOROUGHFARES UNLESS OTHERWISE NOTED. MINIMUM SLOPE AROUND CURB RETURN IS 1.0%.

7 8 & 7-INCH PAVEMENT SHALL BE REINFORCED CONCRETE WITH NO. 4 BARS AT 36" C-C IN LONGITUDINAL DIRECTION, PER BAR SPACING IN TRANSVERSE DIRECTION, REFER TO TABLE 1 ON SHEET 14. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 3500 PSI AT 28 DAYS (3.5 SACKS OF CEMENT PER TON).
SPECIFICALLY:
* ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
* OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FEET OF LIVE HIGH VOLTAGE LINES.

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL CENTERPOINT ENERGY AT (713)207-2222.

ACTIVITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY REQUIRE 48 HOURS NOTICE TO CENTERPOINT PROPERTIES. PLEASE CONTACT GEN SURVEYING & RIGHT OF WAY DIVISION AT (713) 207-6240 OR (713) 207-5753.

8 THE QUANTITY OF STREET CUT IN THE CONTRACT DOCUMENTS IS BASED UPON EXISTING TOPOGRAPHY PRIOR TO UTILITY CONSTRUCTION. THE PAVING CONTRACTOR SHALL INCLUDE ANY CONSIDERATIONS FOR UTILITY SPOIL AS INCIDENTAL TO OTHER ITEMS IN THE PROJECT. THERE WILL BE NO SEPARATE PAYMENT FOR THE PAVING CONTRACTOR TO HANDLE UTILITY SPOIL ON SITE.

9 CROSS SLOPES FOR ROADWAY SECTIONS SHALL BE AS FOLLOWS:
A. LEFT TURN LANE AND-OR CROSSOVER AT ONE-EIGHTH INCH (1/8") PER FOOT.
B. INSIDE TRAFFIC LANES AND CUL-DE-SAC, AND ROUNDABOUTS AT ONE QUARTER INCH (1/4") PER FOOT.

10 CONTRACTOR TO CLEAR AND GRUB ALL FILL AREAS AND ROOT RAKE TO A MINIMUM DEPTH OF ONE FOOT BELOW NATURAL GRADE.

11 WHERE PROPOSED PAVEMENT ENDS AT A CONSTRUCTION JOINT, EXTEND BARS 16". COAT WITH ASPHALT AND WRAP WITH BURLAP1 AT EXPANSION JOINTS. EXTEND DOWELS 5" COAT AND WRAP AS CONSTRUCTION JOINT (NO SEPARATE PAY).

12 WHERE PROPOSED PAVEMENT MEETS EXISTING PAVEMENT, EXISTING REBAR OR DOWELS PROJECTING FROM PAVEMENT SHALL BE CLEANED AND TIED INTO PROPOSED PAVEMENT. WHERE EXISTING REINFORCING IS ABSENT, OR IS IN UNSATISFACTORY CONDITION, EXISTING PAVEMENT SHALL BE DRILLED AT 24-INCHES C-C, AND HORIZONTAL DOWELS WILL BE EMBEDDED 12-INCHES AND EPOXIED. DOWELS SHALL BE NO. 6 BARS, 24-INCHES LONG. THIS WORK WILL BE CONSIDERED INCIDENTAL TO THE VARIOUS OTHER ITEMS OF WORK.

FORT BEND COUNTY GENERAL NOTES

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 AT CONSTRUCTIONFORTBENDCOUNTYTX.GOV.
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 PAVING 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 CONTINUOUS LONGITUDINAL REINFORCING BAR SHALL BE USED IN THE CURBS.
7. ALL CONCRETE PAVEMENT SHALL BE 5% 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. AT ALL INTERSECTION LOCATIONS, TYPE 7 RAMPS SHALL BE PLACED IN ACCORDANCE WITH TXDOT PED-12A STANDARD DETAIL SHEET. A.D.A - HANDICAP RAMPS SHALL BE INSTALLED WITH STREET PAVING AT ALL INTERSECTIONS AND COMPLY WITH CURRENT A.D.A. REGULATIONS.
11. CURB MEASURES 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 PROVIDING ADEQUATE FLAGMEN, SIGNING, STRIPING AND WARNING DEVICES, ETC., DURING CONSTRUCTION - BOTH DAY AND NIGHT.
14. ALL 24-I.D. STOP SIGNS SHALL BE 30" X 30" WITH DIAMOND GRADE SHEETING, PER TEXAS MANUAL ON UNIFORM CONTROL DEVICES.
15. STREET NAME SIGNAGE SHALL BE ON 9" 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 NAMES SIGNS SHALL BE MOUNTED ON STOP SIGN POST.

FORT BEND COUNTY GENERAL NOTES (CONT.)

16. A BLUE DOUBLE REFLECTORIZED 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.

CAUTION: UNDERGROUND GAS FACILITIES

LOCATIONS OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC, WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE

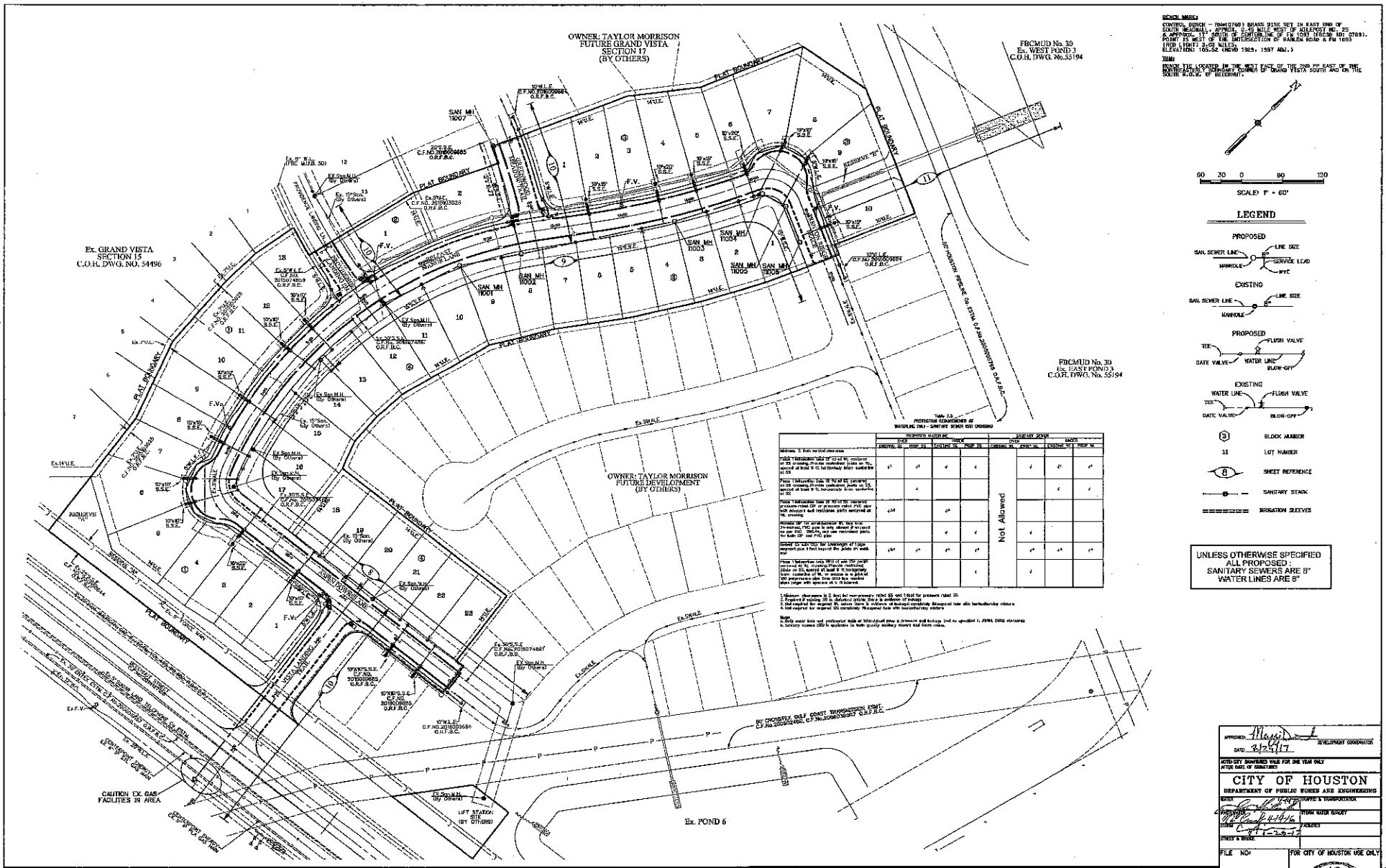


Table 7.3
PROTECTION REQUIREMENTS AT
WATERLINE CROSS - SANITARY SEWER (CS) CROSSING

	PROPOSED WATER MAIN				SANITARY SEWER			
	OVER		UNDER		OVER		UNDER	
	EXISTING SS	PROP. SS	EXISTING SS	PROP. SS	EXISTING WL	PROP. WL	EXISTING WL	PROP. WL
Minimum Clearance (ft)	1.5[1]	1.5[1]	1.5[2]	1.5[2]	Not Allowed	1.5[1]	1.5[2]	1.5[2]
Pipe Length (ft)		18				18		18
Pipe Material	150[3]		150[3]					
Pipe Material				150[3]		150[3]		
Joints								
Joints	150[3]	150[3]	150[3]	150[3]		150[3]	150[3]	150[3]
Pipe Length (ft)				18				

1. Minimum clearance is 1.5 feet for non-pressure rated SS and 1 foot for pressure rated SS.
2. Required if existing SS is defected (broken line) or is unknown if lining.
3. Not required for sewer SS, unless there is evidence of leakage (exposed hole allo bacteriolo/chey mixture
4. Not required for sewer SS completely displaced from with bacteriolo/chey mixture

Note:
a. Both water lines and pressurized mains at intersections shall meet a pressure and leakage test as specified in AWWA C600 standards
b. Sanitary sewers (SS) is applicable to both gravity sewers and force mains.

BENCH MARK:
CONTROL BENCH - (NAM07060) BRASS DISK SET IN EAST END OF SOUTH MEADOWALL, APPROX. 0.40 MILE WEST OF MILEPOST NO. 25 & APPROX. 127 SOUTH OF CENTERLINE OF FM 1093 (BRCSD NO. 07691). POINT IS WEST OF THE INTERSECTION OF HARLEM ROAD & FM 1093 (RED LIGHT) 3.03 MILES.
ELEVATION: 105.52 (NAVD 1929, 1997 ADJ.)

TBM:
BENCH TIE LOCATED IN THE WEST FACE OF THE 2ND PP EAST OF THE NORTHEASTERLY BOUNDARY CORNER OF GRAND VISTA SOUTH AND ON THE SOUTH R.O.W. OF BEECHNUT.

APPROVED: DEVELOPMENT COORDINATOR
DATE: 3/29/17
NOTED CITY DOWNTIMES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
DATE: 1-25-17 — PARKS & TRANSPORTATION
STORM WATER QUALITY
DRAINAGE
STREET & BRIDGE

FILE NO:
FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE
HORZ : 1" = 80'
VERT :
SHEET No: 3 OF 23

NO.	REVISION	DATE	BY

DESIGNED BY: JJP
DESIGN CHECKED BY: JJP
DRAWN BY: JJP, DD
CODO CHECKED BY: JMR
SURVEY CHECKED BY:
QA/QC BY: RS DATE 4-4-17
QA/QC REVISIONS BY: DD

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

WATER & SANITARY SEWER LAYOUT

Jason M. Hoolmed
97274
LICENSED PROFESSIONAL ENGINEER

57456

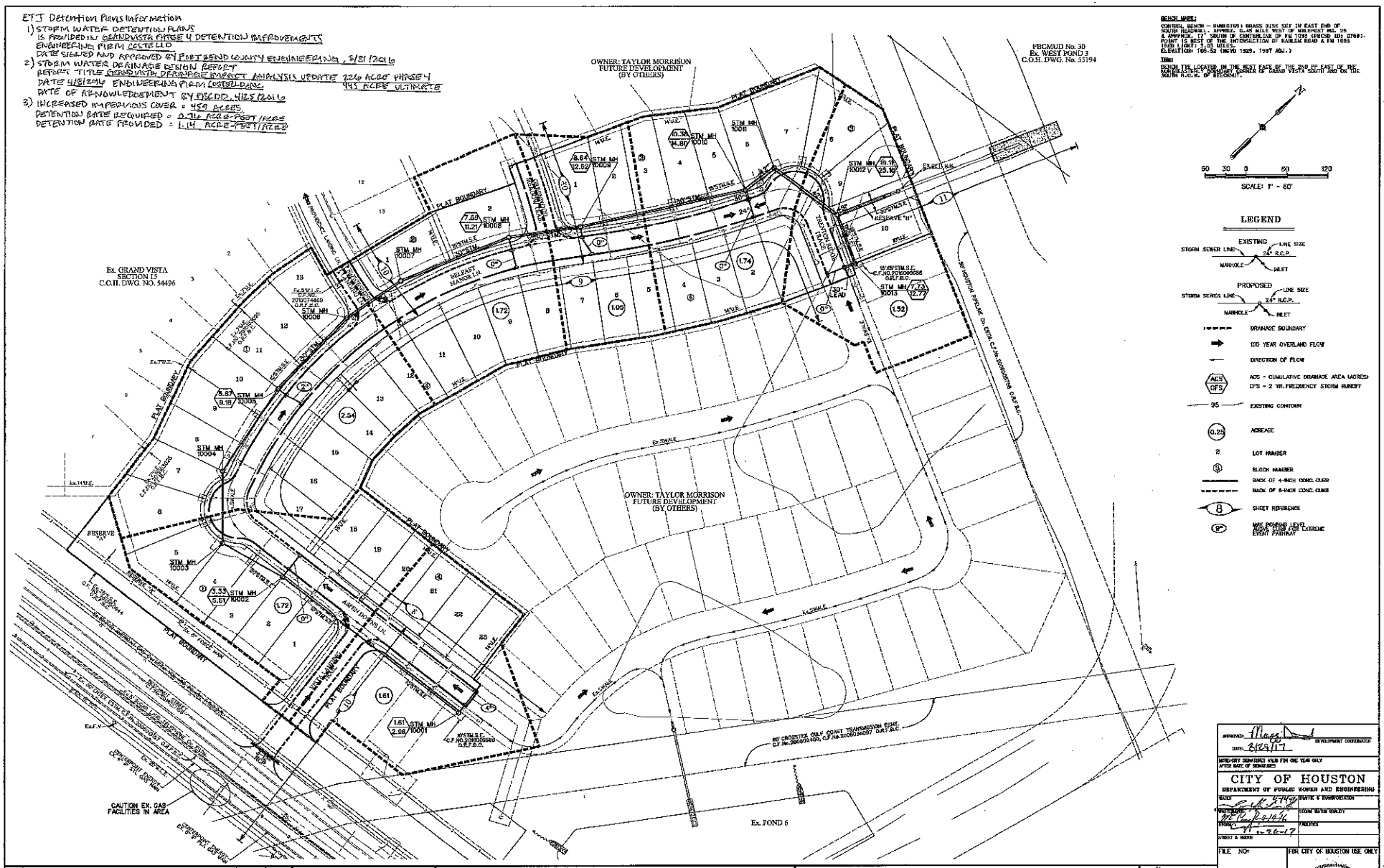
JOB NO. 2016-072-10-00-211

ETJ Detention Plans Information

1) STORM WATER DETENTION PLANS
IS PROVIDED IN GRANDVISTA PHASE 4 DETENTION IMPROVEMENTS
ENGINEERING FIRM COSTELLO
DATE SIGNED AND APPROVED BY FORT BEND COUNTY ENGINEERING 3/31/2016

2) STORM WATER DRAINAGE DESIGN REPORT
REPORT TITLE GRANDVISTA DRAINAGE IMPACT ANALYSIS UPDATE 226 ACRE PHASE 4
DATE 4/8/2016 ENGINEERING FIRM COSTELLO INC. 993 ACRES ULTIMATE
DATE OF ACKNOWLEDGEMENT BY FBCDD 4/25/2016

3) INCREASED IMPERVIOUS COVER = 459 ACRES.
DETENTION RATE REQUIRED = 0.76 ACRE-FEET/ACRE
DETENTION RATE PROVIDED = 1.14 ACRE-FEET/ACRE



BENCH MARK:
CONTROL BENCH – HARRISON'S BRASS DISK SET IN EAST END OF SOUTH PARAPET, APPROX. 0.45 MILE WEST OF MILEPOST MM 28 & APPROX. 17' SOUTH OF CENTERLINE OF FM 1093. (FROM ADJ. 27691. POINT IS WEST OF THE INTERSECTION OF HARLEM ROAD & FM 1093 (FROM LIGHT 3.05 MILES).
ELEVATION: 105.52 (NGVD 1929, 1997 ADJ.)

TBM:
BENCH TIE LOCATED ON THE WEST FACE OF THE 2ND OF FAST OF THE NORTHEASTERLY CORNER BUNDER OF GRAND VISTA SOUTH AND ON THE SOUTH R.O.W. OF REGENCY.

NO.	REVISION	DATE	BY

DESIGNED BY: J.H.
DESIGN CHECKED BY: JRR
DRAWN BY: J.H. DR
COCO CHECKED BY: JRR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-26-17
QA/QC REVISIONS BY: DR

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

PAVING & DRAINAGE LAYOUT

4/27/17
STATE OF TEXAS
Jason A. Robinett
97274
LICENSED
PROFESSIONAL ENGINEER

APPROVED: DEVELOPMENT COORDINATOR
DATE: 5/29/17
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
TRAFFIC & TRANSPORTATION
STORM WATER QUALITY
FACILITIES
4-26-17

FILE NO:
FOR CITY OF HOUSTON USE ONLY

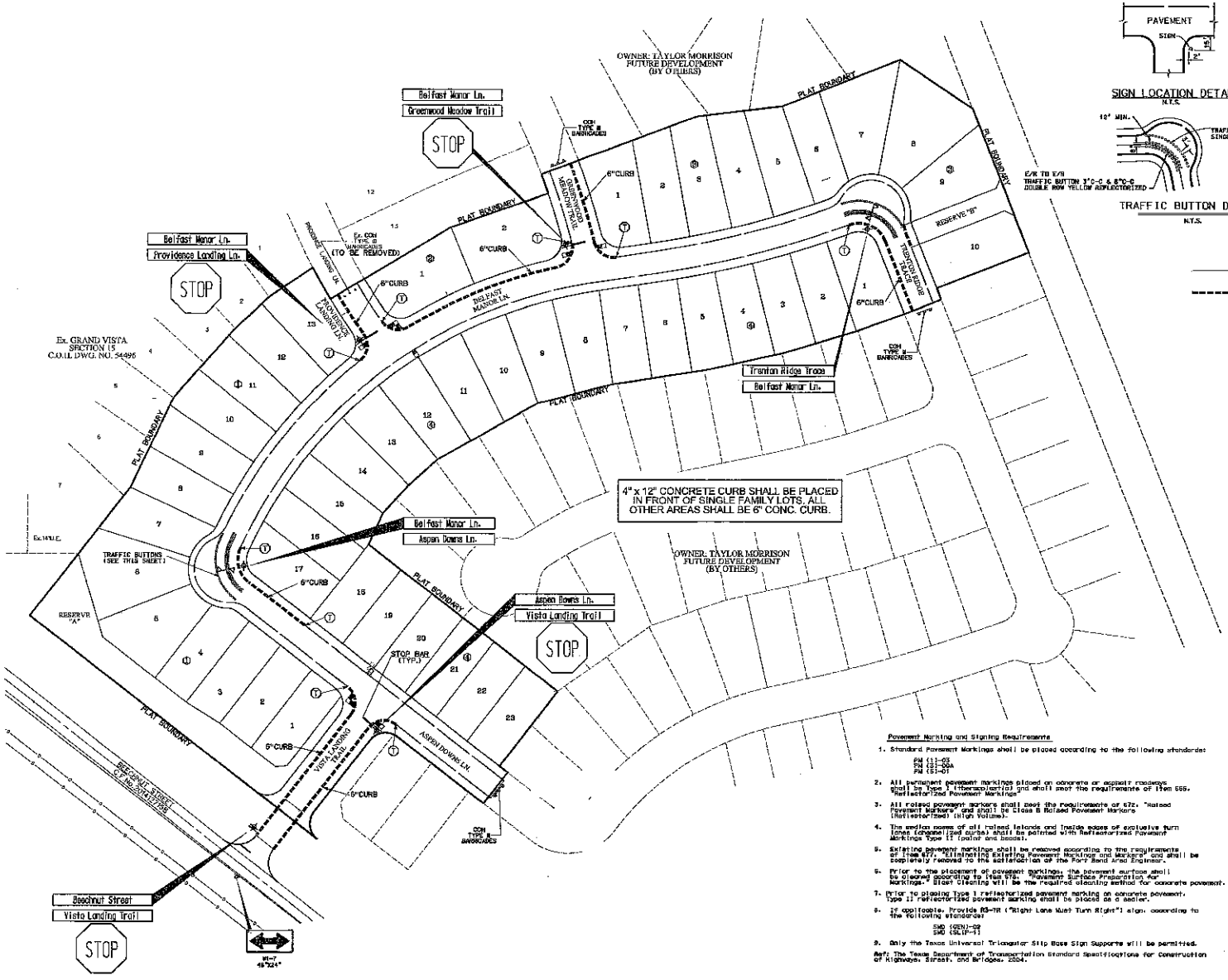
DRAWING SCALE
HORZ: 1" = 80'
VERT:

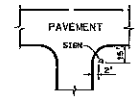
SHEET No: 4 OF 23

5745G.1

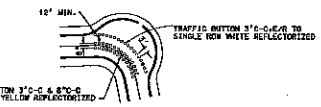
JOB NO. 2016-0721-01

| | | |





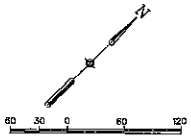
SIGN LOCATION DETAIL
N.T.S.



TRAFFIC BUTTON DETAIL
N.T.S.

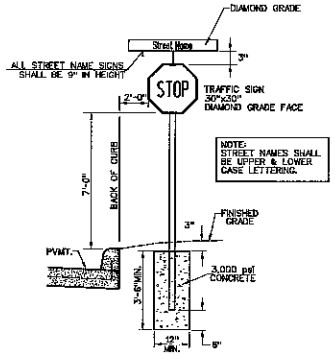
BENCH MARK:
CONTROL BENCH - RWB(07691) BRASS DISK SET IN EAST END OF SOUTH ROADWAY. APPROX. 0.43 MILE WEST OF MILEPOST NO. 25 & APPROX. 17' SOUTH OF CENTERLINE OF FM 1093 (FORMS 1D1 07593). POINT IS WEST OF THE INTERSECTION OF HARLEM ROAD & FM 1093 (RED LIQUIT) 3.63 MILES.
ELEVATION: 105.52 (NGVD 1929, 1987 ADJ.)

TBM:
BENCH TIE LOCATED IN THE WEST FACE OF THE 2ND PP EAST OF THE NORTHEASTERLY BOUNDARY CORNER OF GRAND VISTA SOUTH AND ON THE SOUTH R.O.W. OF BEECHNUT.



LEGEND

- BACK OF 4-INCH CONC. CURB
- BACK OF 6-INCH CONC. CURB
- T - INDICATES VERTICAL CURB TRANSITION FROM 4" TO 6" IN MIN. 5 L.F. TO MAX. 10 L.F.
- STOP SIGN w/STREET NAMES
- STREET NAME SIGN
- 34/T - LOT NUMBER / BLOCK NUMBER
- WHEEL CHAIR RAMPS
- EXIST. COH TYPE III BARRICADE
- 24" WIDE STOP BAR



TRAFFIC SIGN DETAIL
N.T.S.

Pavement Marking and Signing Requirements

1. Standard Pavement Markings shall be placed according to the following standards:
   PM (1)-03
   PM (2)-08A
   PM (5)-01
2. All permanent pavement markings placed on concrete or asphalt roadways shall be Type 1 (thermoplastic) and shall meet the requirements of Item 666, "Reflectorized Pavement Markings".
3. All raised pavement markers shall meet the requirements of 672: "Raised Pavement Markers", and shall be Class B Raised Pavement Markers (Reflective-Red) (High Volume).
4. The median noses of all raised islands and inside edges of exclusive turn lanes (angled) curbs shall be painted with Reflectorized Pavement Markings Type II (paint and beads).
5. Existing pavement markings shall be removed according to the requirements of Item 677, "Eliminating Existing Pavement Markings and Markers" and shall be completely removed to the satisfaction of the Fort Bend Area Engineer.
6. Prior to the placement of pavement markings, the pavement surface shall be cleaned according to Item 678, "Pavement Surface Preparation For Markings." Street Cleaning will be the required cleaning method for concrete pavement.
7. Prior to placing Type 1 reflectorized pavement marking on concrete pavement, Type II reflectorized pavement marking shall be placed as a sealer.
8. If applicable, Provide R3-7R ("Right Lane Must Turn Right") sign, according to the following standards:
   SMD (GEN)-08
   SMD (SLIP-1)
9. Only the Texas Universal Triangular Slip Base Sign Supports will be permitted.

Ref: The Texas Department of Transportation Standard Specifications for Construction of Highways, Streets, and Bridges, 2004.

NO.	REVISION	DATE	BY

DESIGNED BY: J.H.
DESIGN CHECKED BY: [illegible]
DRAWN BY: J.H., J.D.
CODO CHECKED BY: [illegible]
SURVEY CHECKED BY:
QA/QC BY: RCS DATE: 4-4-07
QA/QC REVISIONS BY: DG

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Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10086

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

PAVEMENT MARKING AND SIGNAGE LAYOUT

STATE OF TEXAS
Jason M. Robinett
57274
LICENSED PROFESSIONAL ENGINEER

APPROVED: [illegible] DEVELOPMENT COORDINATOR
DATE: 8/28/07
NOTED BY: BARRICADES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

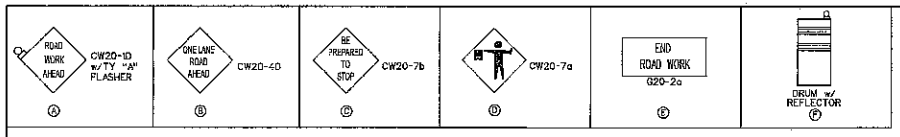
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	FACILITIES
STREET & DRAINAGE	

FILE NO:
DRAWING SCALE
HORIZ : 1" = 60'
VERT :
SHEET No: 6 OF 23

FOR CITY OF HOUSTON USE ONLY
STATE OF TEXAS
57456
PROFESSIONAL ENGINEER

JOB NO. 2070202-010-311

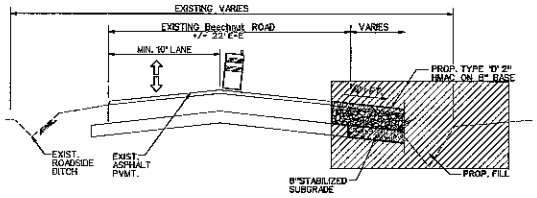


POSTED SPEED LIMIT
35 MPH

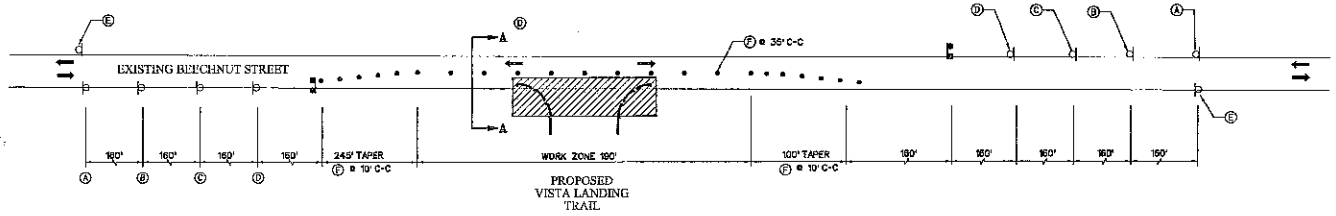
N
N.T.S.

LEGEND

- CONSTRUCTION WARNING SIGN
- CHANNELIZING DEVICE
- CONSTRUCTION ZONE
- DIRECTION OF TRAFFIC FLOW
- FLAGGER



SECTION "A"-"A"
N.T.S.



TRAFFIC CONTROL NOTES

1. Contractor shall provide and install traffic control devices in conformance with Part VI of Texas Manual on Uniform Traffic Control Devices (TMUTCD -Latest Edition with Revisions) during construction.
2. No lanes shall be blocked from 7 A.M. to 9 A.M. and 4 P.M. to 6:30 P.M. Monday thru Friday.
3. Off duty police officers/flaggers are required to direct traffic when lanes are blocked.
4. Contractor shall cover the excavation with steel plates anchored properly during non-working hours and allow normal traffic flow. If covering is not feasible, use Trantex FR 336 EFX 36" delineator or approved equal with sheeting and base epoxied to pavement next to excavation during non-working hours.
5. Approved copies of "Traffic Control Plans" shall be available for inspection at all times.
6. If the contractor chooses to use a different method of traffic control plan during the construction than what is outlined in the contract drawings, (s)he shall be responsible to prepare and submit alternate plans# to Traffic Section of FBCE for approval ten (10) working days prior to implementation. #These plans shall be drawn to scale on reproducible mylars and sealed by a licensed engineer in the state of Texas. Plans will become a part of the contract drawings.
7. If the project is within 400 feet from a signalized intersection, the contractor shall contact FORT BEND COUNTY ENGINEERING DEPARTMENT at CONSTRUCTIONFORTBENDCOUNTYTX.GOV five (5) working days prior to the start of construction.

MISCELLANEOUS TRAFFIC CONTROL NOTES

1. All advanced warning signs to be set prior to start of construction activities and to remain in place until all construction activities are complete and accepted by Fort Bend County. The contractor will coordinate with the Fort Bend County Engineering Department in establishing traffic routes and location of signs.
2. All flaggers shall be in radio contact with each other at all times, as required.
3. All pavement markings covered by overlay shall be replaced before opening to traffic.
4. Advance signing shall be placed a minimum of two weeks in advance to inform of possible delay. Contractor shall notify the Harris County Engineering Department at least two weeks prior to any construction.
5. All portable signing, drums and cones shall be removed at the end of each day.
6. If work zone is needed overnight all cones or tubular markers shall be replaced with drums w/ VP's and temporary pavement markings shall be in place for nighttime operation as directed by the engineer.
7. Access to existing businesses or residences shall be maintained at all times.
8. Traffic control signs may be adjusted to fit field conditions, with approval of the engineer.
9. Contractor shall treat overnight drop-off conditions with a 3:1 or flatter slope wedge capable of supporting vehicle loads.

NO.	REVISION	DATE	BY

DESIGNED BY: JLR
DESIGN CHECKED BY: JMR
DRAWN BY: J.L. R.K.
COGO CHECKED BY: JMR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-4-17
QA/QC REVISIONS BY: DJP

Costello

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Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax

TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

TRAFFIC CONTROL PLAN
FOR BEECHNUT STREET

4/12/17
STATE OF TEXAS
Jason M. Robbins
87274
LICENSED PROFESSIONAL ENGINEER

APPROVED: Mary Daniel DEVELOPMENT COORDINATOR
DATE: 3/29/17
BOND CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	TRAFFIC & TRANSPORTATION
WASTEWATER	FORT BEND COUNTY
STORM	VARIES
STREET & DRAIN	

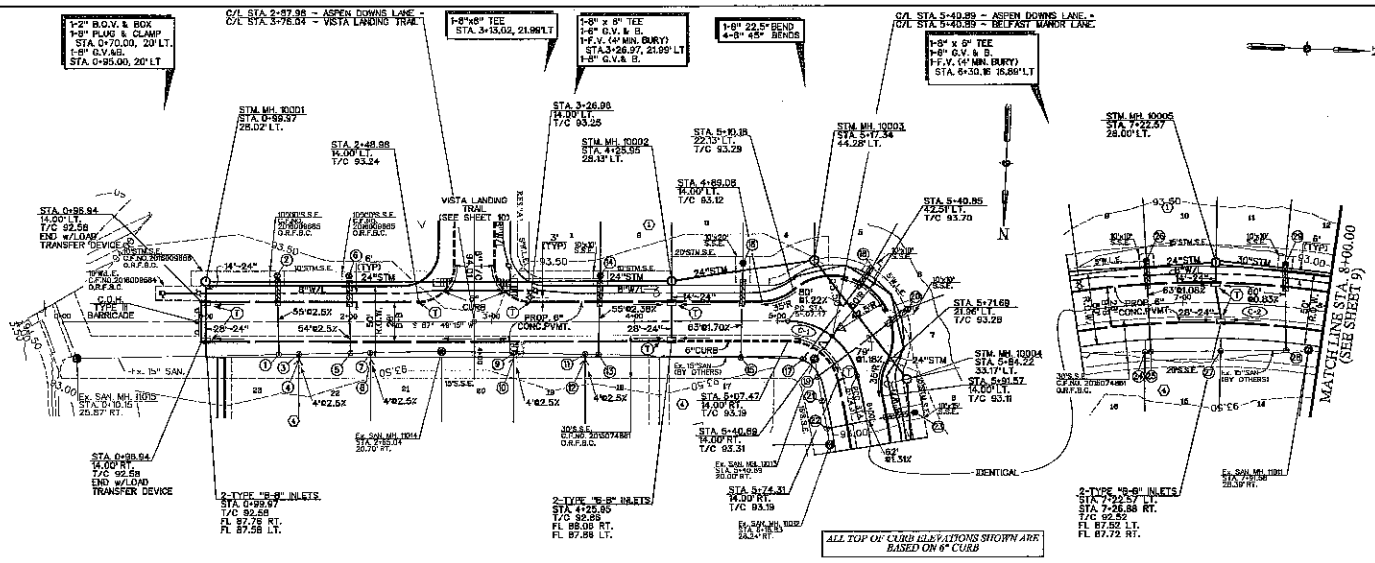
FILE NO:
FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE
HORZ : N/A
VERT :
SHEET No: 7 OF 23

STATE OF TEXAS
JASON M. ROBBINS
57456
PROFESSIONAL ENGINEER

K.B. NO. 201.1502-2.16-101.11

SANITARY SEWER 6" LEADS			
PT	STATION	OFFSET	FLOWLINE
1	1+51.11	23.00' RT	
* 2	1+80.60	32.04' LT	85.20
3	1+85.11	25.72' RT	
4	1+85.24	28.20' RT	88.51
5	2+01.16	02.00' RT	
* 6	2+20.10	32.06' LT	85.27
7	2+15.98	21.71' RT	
8	2+15.27	31.24' RT	88.91
9	3+15.25	21.67' RT	
10	3+15.09	31.25' RT	88.91
11	3+65.37	22.91' RT	
12	3+65.23	29.20' RT	88.61
13	3+74.83	33.13' RT	
* 14	3+75.88	26.17' LT	85.23
15	4+74.47	26.32' RT	
* 16	4+70.95	40.62' LT	85.04
17	5+26.93	23.24' RT	
* 18	5+87.10	39.99' LT	85.09
19	5+61.75	26.42' RT	
* 20	5+59.54	52.19' LT	84.96
21	6+80.91	27.90' RT	
22	6+06.59	28.35' RT	
* 23	6+06.99	34.06' LT	84.73
24	6+71.28	33.27' RT	
25	6+75.51	33.49' RT	
* 26	6+76.44	30.00' LT	84.69
27	7+27.22	33.85' RT	
28	7+79.33	30.40' RT	83.41
* 29	7+88.70	29.44' LT	83.91

* = 6" STACK



BENCH MARK:
CONTROL BENCH – RM#07661 BRASS DISK SET IN EAST END OF SOUTH HEADWALL, APPROX. 0.45 MILE WEST OF WILLOWBY NO. 25 & APPROX. 117 SOUTH OF CENTERLINE OF FM 1093 (PROPOSED ID: 0769). POINT IS WEST OF THE INTERSECTION OF HARLEM ROAD & FM 1093 (NED LIGHT) 0.04 MILES.
ELEVATION: 105.52 (NGVD 1929- 1987 ADJ.)

TIE:
BENCH TIE LOCATED IN THE WEST FACE OF THE 2ND PP EAST OF THE SOUTHEAST CORNER OF GRAND VISTA SOUTH AND ON THE SOUTH BOUND BY DIRECTIONAL.

NOTES

1. UNLESS OTHERWISE NOTED, ALL STORM SEWERS AND INLET LEADS WILL BE PROPOSED REINFORCED CONCRETE PIPE (C-76, CL. III W/PROPOSED TYPE "C" MANHOLES.
2. 1- 18" PVC SANITARY JOINT CENTERED OVER/UNDER ONE 18" PVC WATERLINE JOINT. REFER TO PROTECTION REQUIREMENTS CHART FOR WATERLINE AND SANITARY CROSSINGS ON SHEET 3.
3. ALL CURB RADII SHALL BE 25' UNLESS OTHERWISE NOTED. MINIMUM SLOPE AROUND CURB RETURN 1.0%
4. 4X8X8" CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS. ALL OTHER AREAS SHALL BE 6" CONC. CURB. (SEE SHEET 6.)
5. CONT. TEMP. SHALES WITHIN R.O.W. TO BE MOCKED OUT, PROOF ROLLED & FILLED. (NO SEPARATE PAY)

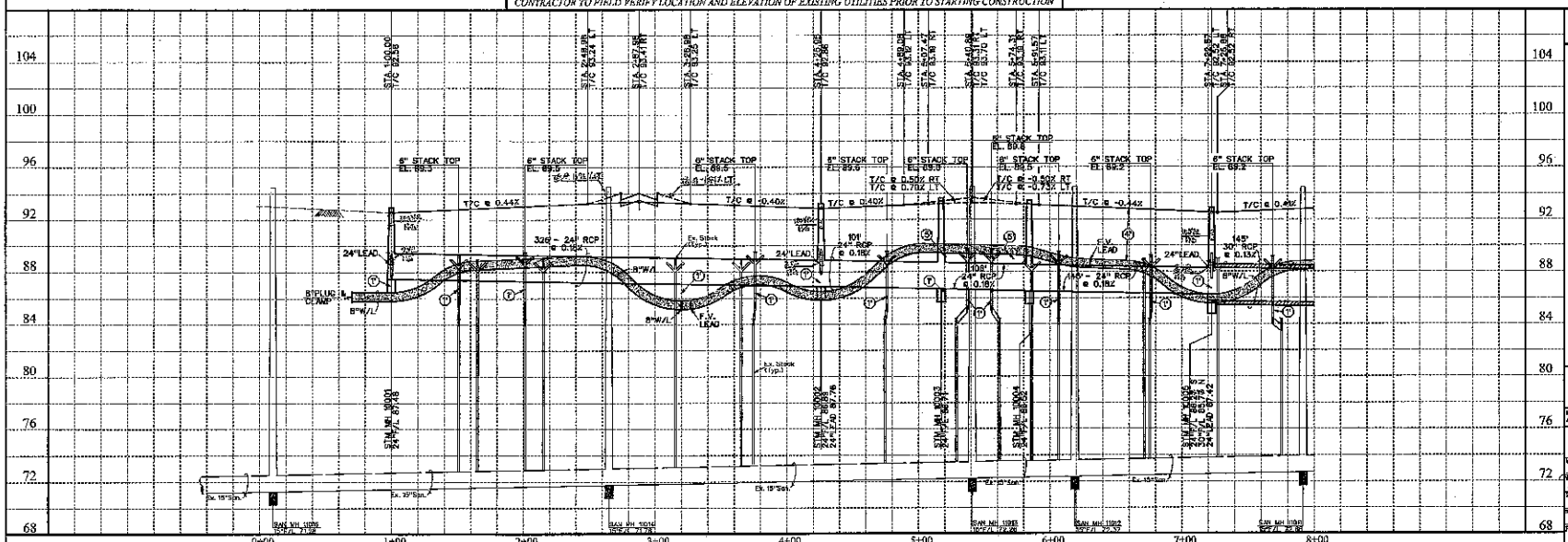
LEGEND

- ● = PROPOSED STACK
- ⊕ = EXISTING STACK
- [X] = INDICATES 1.00' OFFSET @ 45° FROM 6" SAN. TRUNKLINE & 0.28' VERTICAL FEET MODED TO 8" SAN. FLOWLINE. SEE SANITARY SEWER DETAIL SHEET 16.
- (2') = INDICATES MIN. VERTICAL CLEARANCE
- (T) = INDICATES VERTICAL CURB TRANSITION FROM 4" TO 6" W. MIN. 5 L.F. TO MAX. 30 L.F.

ASPEN DOWNS LANE & BELFAST MANOR LANE (50' R.O.W)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION

- 6" TOP OF CURB
- 4" TOP OF CURB



PROTECTION REQUIREMENTS AT WATER LINE - SANITARY SEWER CROSSINGS
(SEE TABLE C-01.5 MANUAL)

CL CURVE DATA

(C-1)
PC: STA. 5+67.47
PT: STA. 5+75.31
Δ= 76° 30'08" (RT)
R = 59.00
L = 80.23
T = 49.48
CB = N 52° 53'11" W
CH = 74.97

(C-2)
PC: STA. 5+74.31
PT: STA. 6+72.30
Δ= 53° 00' 10" (RT)
R = 590.00
L = 597.46
T = 322.41
CB = N 15° 57' 13" E
CH = 573.46

APPROVED: [signature] DEVELOPMENT COORDINATION
DATE: 3/29/17
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
WATER | TRAFFIC & TRANSPORTATION
WASTEWATER | STORM WATER QUALITY
STORM | FACILITIES
STREET & DRAINAGE

NO.	REVISION	DATE	BY

DESIGNED BY: J.H.
DESIGN CHECKED BY: [signature]
DRAWN BY: J.G., J.D.
CODO CHECKED BY:
SURVEY CHECKED BY:
Q/A/QC BY: R.S. DATE: 4-4-17
Q/A/QC REVISIONS BY: D.B.

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

PLAN AND PROFILE
ASPEN DOWNS LANE AND
BELFAST MANOR LANE

4/4/17
STATE OF TEXAS
Jason N. Robinett
87274
LICENSED PROFESSIONAL ENGINEER

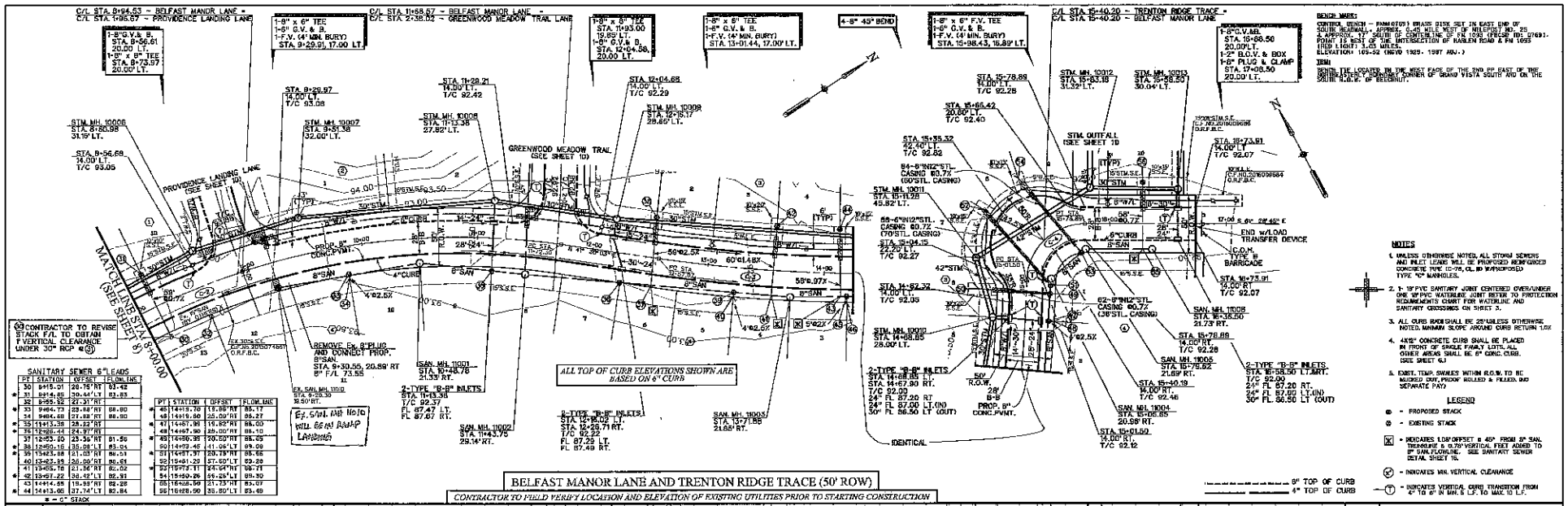
FILE No:

DRAWING SCALE
HORZ : 1" = 40'
VERT : 1" = 4'

SHEET No: 8 OF 23

FOR CITY OF HOUSTON USE ONLY
57456

17126.01.12.26.12 DWG



SANITARY SEWER 6" LEADS

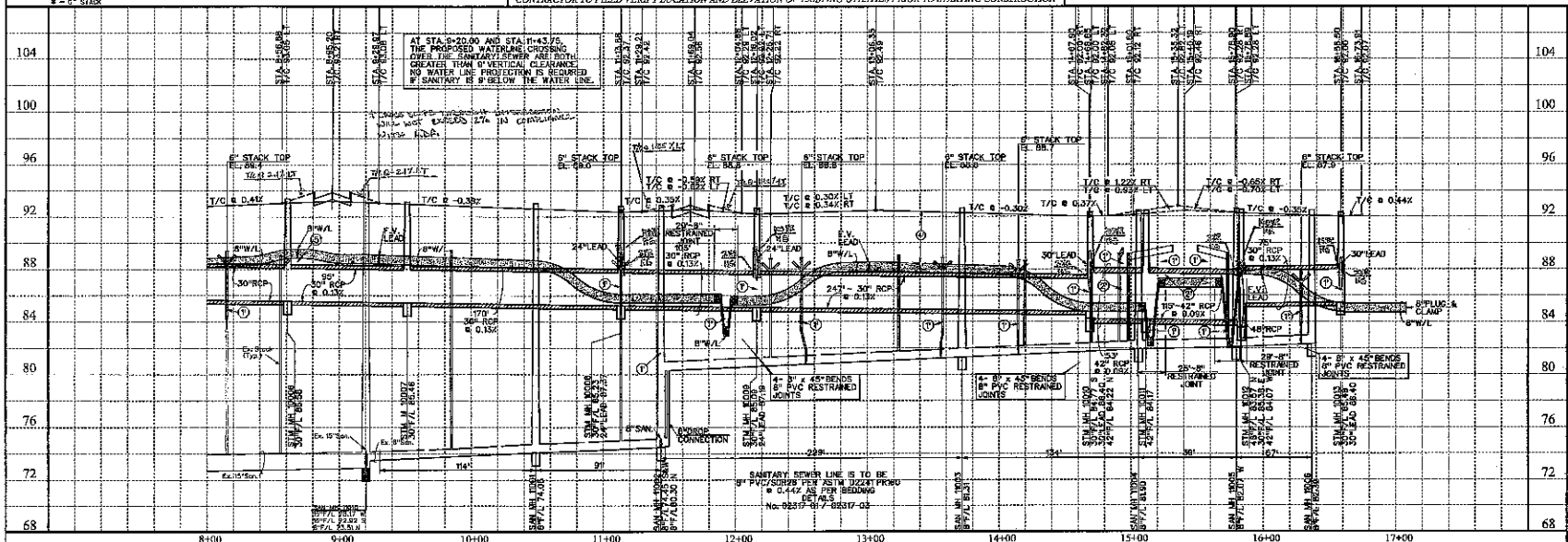
PT	STATION	OFFSET	FLOWLINE
30	8+15.21	20.75' RT	83.42
* 31	8+14.89	30.44' LT	83.83
32	8+55.52	21.31' RT	
* 33	9+04.73	23.68' RT	88.00
34	9+04.68	27.68' RT	88.80
* 35	11+13.38	28.22' RT	
* 36	12+28.44	24.97' RT	
37	12+53.20	23.35' RT	81.56
* 38	12+50.16	35.08' LT	83.04
* 39	13+23.68	21.03' RT	86.51
40	13+23.68	26.00' RT	86.61
41	13+65.78	21.36' RT	86.52
* 42	13+97.22	38.42' LT	82.91
43	14+14.85	19.35' RT	88.28
* 44	14+13.06	37.74' LT	82.84

PT	STATION	OFFSET	FLOWLINE
* 45	14+15.70	19.88' RT	88.17
46	14+15.60	25.00' RT	88.27
* 47	14+67.95	19.82' RT	88.03
* 48	14+67.90	25.00' RT	88.10
* 49	14+80.35	20.00' RT	88.25
50	14+73.46	41.06' LT	89.00
* 51	14+87.37	20.79' RT	88.66
52	15+81.29	37.50' LT	89.28
* 53	15+73.11	24.54' RT	88.71
54	15+50.26	56.26' LT	89.30
55	16+28.50	31.75' RT	89.07
56	16+28.90	38.80' LT	89.49

* = 6" STACK

BELFAST MANOR LANE AND TRENTON RIDGE TRACE (50' ROW)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



PROTECTION REQUIREMENTS AT WATER LINE ~ SANITARY SEWER CROSSINGS
(SEE TABLE C-03.1 MANUAL)

CL CURVE DATA

C-2
PC: STA. 9+74.31
PT: STA. 9+72.30
Δ: 57° 00' 40" (RT)
R = 600.00
T = 597.69
L = 326.41
CB = N 87° 57' 13" E
CL = 313.44

C-3
PC: STA. 12+57.07
PT: STA. 13+01.44
Δ: 70° 13' 17" (LT)
R = 1,000.00
T = 644.40
L = 1,225.54
CB = S 35° 57' 38" E
CL = 1,144.00

C-4
PC: STA. 15+01.59
PT: STA. 15+78.86
Δ: 88° 49' 00" (RT)
R = 50.00
T = 77.49
L = 48.61
CB = N 74° 19' 33" E
CL = 43.90

APPROVED: [signature] DEVELOPMENT COORDINATOR
DATE: 3/24/17

THIS CITY SIGNATURE VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 4-4-16 — DIRECTOR & TRANSPORTATION
DATE: 4-4-16 — STORM WATER QUALITY
DATE: 4-26-17 — STREET & DRAINAGE

FILE NO:

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
HORZ : 1" = 40'
VERT : 1" = 4'

SHEET No: 9 OF 23

NO.	REVISION	DATE	BY

DESIGNED BY: J.L.
DESIGN CHECKED BY: J.M.A.
DRAWN BY: J.L. / R.D.
CODE CHECKED BY: J.M.A.
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-4-17
QA/QC REVISIONS BY: DR

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

PLAN AND PROFILE
BELFAST MANOR LANE AND
TRENTON RIDGE TRACE

STATE OF TEXAS — Jason M. Hoblitt — 97274 — LICENSED PROFESSIONAL ENGINEER

52456

11/17/2016 2:25:55 PM

CONTRACTOR SHALL BACKFILL UNDER THE PAVEMENT w/CEMENT STABILIZED SAND WHERE THE Ex. 8" FM ARE CROSSING

CONTRACTOR TO NOTIFY THE KINDER MORGAN MISSOURI/CITY TEXAS OPERATIONS OFFICE AT 281-889-3802 AND ISSUE A "TEXAS ONE CALL" PHONE No.811 PRIOR TO CONSTRUCTION TO SCHEDULE A KINDER MORGAN DAMAGE PREVENTION INSPECTOR TO BE ON LOCATION WHEN WORK IS BEING CONDUCTED WITHIN 25' OF THE KINDER MORGAN TEJAS 20" HIGH PRESSURE NATURAL GAS PIPELINE

* PAVING HEADER IS FOR STREET TIE-IN FOR FUTURE BEECHNUT EXPANSION

ALL TOP OF CURB ELEVATIONS SHOWN ARE BASED ON 6" CURB

C/L STA 0+94.53 ~ BELFAST MANOR LANE ~
C/L STA 1+66.67 ~ PROVIDENCE LANDING LANE

C/L STA 1+69.57 ~ BELFAST MANOR LANE ~
C/L STA 2+38.02 ~ GREENWOOD MEADOW TRAIL

BENCH MARK

CONTROL BENCH - RAM(#769) BRASS DISK SET IN EAST END OF SOUTH MEADOWLL; APPROX. 0.49 MILE WEST OF MILEPOST No. 25 & APPROX. 11' SOUTH OF CENTERLINE OF FM 1093 (FROSS ID: 07897). POINT IS WEST OF THE INTERSECTION OF HARLEM ROAD & FM 1093 (NED LIGHT) 3.05 MILES. ELEVATION: 103.22 (NGVD 1929, 1997 ADJ.)

TBM

BENCH TIE LOCATED IN THE WEST EDGE OF THE 2ND OF EAST OF THE SOUTHWESTERLY BRIDGE, BETWEEN 8" GRAND VISTA SOUTH AND ON THE SOUTH R.O.W. OF BEECHNUT.

SANITARY SEWER 6" LEADS

PT	STATION	OFFSET	FLOWLINE
1	1+26.17	28.00' RT	

* = 6" STACK

NOTES

1. UNLESS OTHERWISE NOTED, ALL STORM SEWERS AND INLET LEADS WILL BE PROPOSED REINFORCED CONCRETE PIPE (C-76, CL III W/PROPOSED TYPE "C" MANHOLES.
2. 1- 18" PVC SANITARY JOINT CENTERED OVER/UNDER ONE 18" PVC WATERLINE JOINT REFER TO PROTECTION REQUIREMENTS CHART FOR WATERLINE AND SANITARY CROSSINGS ON SHEET 3.
3. ALL CURB RADIUS SHALL BE 25' UNLESS OTHERWISE NOTED. MINIMUM SLOPE AROUND CURB RETURN 1.0%
4. 4X12" CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS. ALL OTHER AREAS SHALL BE 6" CONC. CURB. (SEE SHT 6.)
5. EXIST. TEMP. SWALES WITHIN R.O.W. TO BE MUCKED OUT, PROOF ROLLED & FILLED. NO SEPARATE PAY!

LEGEND

- PROPOSED STACK
- EXISTING STACK
- INDICATES 1.0' OF OFFSET @ 45° FROM 8" SAN. TRUNKLINE & 0.78' VERTICAL FEET ADDED TO 8" SAN. FLOWLINE. SEE SANITARY SEWER DETAIL SHEET 10.
- INDICATES MIN. VERTICAL CLEARANCE
- INDICATES VERTICAL CURB TRANSITION FROM 6" TO 9" IN MIN. 5 L.F. TO MAX. 10 L.F.

6" TOP OF CURB
4" TOP OF CURB

VISTA LANDING TRAIL (50' R.O.W.)

PROVIDENCE LANDING LANE (50' R.O.W.)

GREENWOOD MEADOW TRAIL (50' R.O.W.)

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION

PROTECTION REQUIREMENTS AT WATER LINE - SANITARY SEWER CROSSINGS (SEE TABLE C.O.H. MANUAL)

CL CURVE DATA

C-1	C-2
PC STA 1+00.00	PC STA 1+00.00
PI STA 1+92.67	PT STA 2+38.02
Δ= 7° 33'07" (LT)	Δ= 5° 47'8" (RT)
R = 700.00	R = 900.00
L = 92.67	L = 138.02
T = 46.40	T = 69.02
CB = S 74° 47'33" E	CB = S 58° 10' 07" E
CH = 92.60	CH = 137.88

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.

NOTICE:
For your safety, you are required by Texas Law to contact at least 48 hours before you dig so that underground lines can be marked. The verification does not fulfill your obligation to contact.

VERIFICATION OF PRIVATE UTILITY LINES

Date 4/12/17
CenterPoint Energy/ Reliantco Facilities Verification ONLY
(This Signature verifies that any lines storm CNP Reliantco lines correctly on to the used for conflict verification.) (Gas service lines are not shown.)
Signature valid for six months.

Date 4/12/17
CenterPoint Energy/ONEOK/GCWU Electrical Facilities Verification ONLY
(This Signature verifies existing underground facilities not to be used for conflict verification.)
Signature valid for six months.

Date
Approved for AT&T Texas/SBC Underground Conduit Facilities ONLY.
Signature valid for one year

APPROVED
DATE 3/28/17
DEVELOPMENT COORDINATOR

BOTH CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER | WASTE & TRANSPORTATION
WASTEWATER | STORM WATER QUALITY
STORM | FACILITIES
STREET & DRAINAGE

FOR CITY OF HOUSTON USE ONLY

FILE NO:

DRAWING SCALE
HORZ : 1" = 40'
VERT : 1" = 4'

SHEET No. 10 OF 23

NO.	REVISION	DATE	BY

DESIGNED BY: JJH
DESIGN CHECKED BY: JDG
DRAWN BY: J.H., DR
COGO CHECKED BY: JJH
SURVEY CHECKED BY:
QA/QC BY: RJS DATE: 4-4-17
QA/QC REVISIONS BY: DB

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

PLAN AND PROFILE
VISTA LANDING TRAIL,
PROVIDENCE LANDING LANE AND
GREENWOOD MEADOW TRAIL

STATE OF TEXAS
Jason M. Robinett
57456
LICENSED
PROFESSIONAL ENGINEER
4/12/17

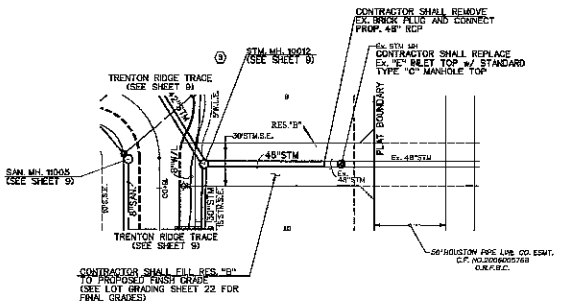
JOB NO. 2012022-18-01-211

BENCH MARK:

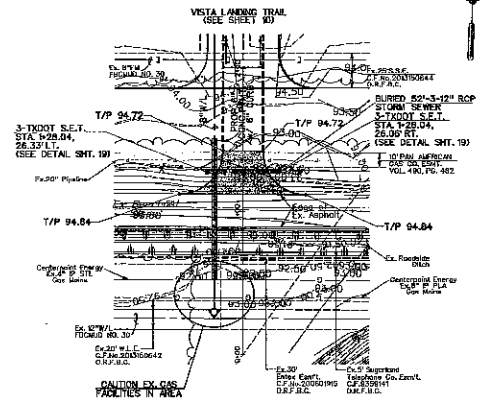
CONTROL BENCH - RWM#07691 BRASS DISK SET IN EAST END OF SOUTH HEADWALL, APPROX. 0.45 MILE WEST OF MILEPOST NO. 25 & APPROX. 17' SOUTH OF CENTERLINE OF FM 1093 (FM#2538, MP: 07691-POINT IS WEST OF THE INTERSECTION OF MARLEM ROAD & FM 1093 (RED LIGHT) 3.55 MILES.
ELEVATION: 106.52 (NAVD 1929, 1981 ADJ.)

TBM:

BENCH TIE LOCATED IN THE WEST FACE OF THE 2ND BF EAST OF THE NORTHEAST ROAD, SOUTHEAST CORNER OF GRAND VISTA SOUTH AND ON THE SOUTH R.O.W. OF BRIGHNUT.



48" STORM SEWER



3 - 12" STORM SEWER

NOTES

1. UNLESS OTHERWISE NOTED, ALL STORM SEWERS AND INLET LEADS WILL BE PROPOSED REINFORCED CONCRETE PIPE (C-76, CL.III) W/PROPOSED TYPE "C" MANHOLES.
2. 1- 12"PVC SANITARY JOINT CENTERED OVER/UNDER ONE 12"PVC WATERLINE JOINT REFER TO PROTECTION REQUIREMENTS CHART FOR WATERLINE AND SANITARY CROSSINGS ON SHEET 3.
3. ALL CURB RADII SHALL BE 25' UNLESS OTHERWISE NOTED. MINIMUM SLOPE AROUND CURB RETURN 1.0%
4. 4X12" CONCRETE CURB SHALL BE PLACED IN FRONT OF SINGLE FAMILY LOTS ALL OTHER AREAS SHALL BE 6" CONC. CURB. (SEE SHEET 6)
5. EXIST. TEMP. SWALES WITHIN R.O.W. TO BE MULCHED OUT, PROOF ROLLED & FILLED. (NO SEPARATE PAY)

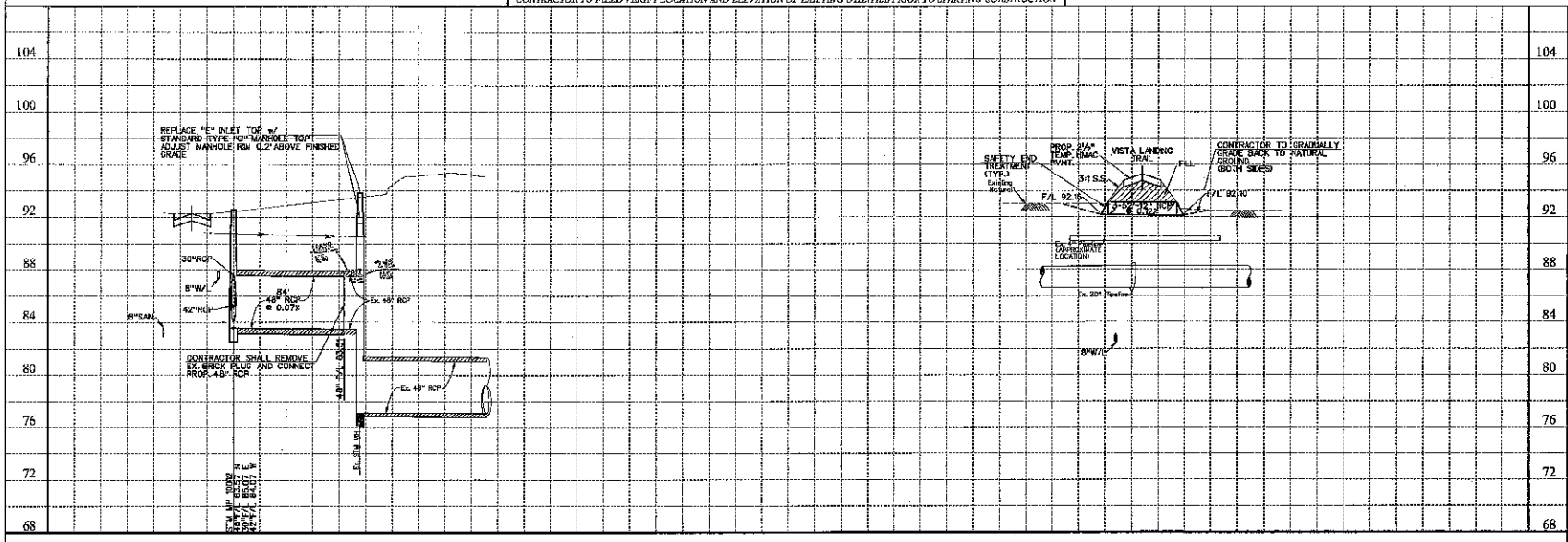
LEGEND

- PROPOSED STACK
- EXISTING STACK

- INDICATES 1.00' OFFSET @ 48" FROM 8" SAN. TRUNKLINE & 6.79' VERTICAL FEET ADDED TO 8" SAN. FLOWLINE. SEE SANITARY SEWER DETAIL SHEET 18.
- INDICATES MIN. VERTICAL CLEARANCE
- INDICATES VERTICAL CURB TRANSITION FROM 4" TO 6" IN MIN. 5 L.F. TO MAX. 10 L.F.

6" TOP OF CURB
4" TOP OF CURB

CONTRACTOR TO FIELD VERIFY LOCATION AND ELEVATION OF EXISTING UTILITIES PRIOR TO STARTING CONSTRUCTION



PROTECTION REQUIREMENTS AT WATER LINE - SANITARY SEWER CROSSINGS (SEE TABLE COLL WRKNG)

CL CURVE DATA

TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT ENERGY AT 713-207-2222.

NOTICE!

For your safety, you are required to Texas Law to contact us least 48 hours before you dig so that underground lines can be marked. This verification does not lengthen obligation to contact.

VERIFICATION OF PRIVATE UTILITY LINES

Date: 4/10/16
CenterPoint Energy/ Interstate Facilities Verification ONLY
This System verifies that you have called CP Interstate Lines correctly. (Not for service provider verification) (line service line not covered) Signature valid for six months.

Date: 4/10/16
CenterPoint Energy/ARKANSAS Gas/Interstate Verification ONLY
This System verifies existing underground facilities not to be used for market Signature valid for six months.

NOT APPLICABLE Date:
Approved for AT&T Texas/SBC Underground Conduit Facilities ONLY.
Signature valid for one year

APPROVED: DEVELOPMENT COORDINATOR
DATE: 3/29/17

NON-CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 12-21-2016 — DIVISION V TRANSPORTATION
APPROVED: — DIVISION WATER QUALITY
DIRECTOR: — DIRECTOR
DEPUTY L. BRUCE

NO.	REVISION	DATE	BY

DESIGNED BY: JLL
DESIGN CHECKED BY: JAR
DRAWN BY: JLL
CODO CHECKED BY: JAR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-4-17
QA/QC REVISIONS BY: DG

Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

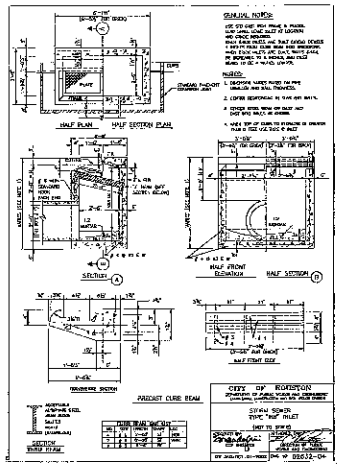
PLAN AND PROFILE
48"STORM SEWER AND
3 - 12" STORM SEWER

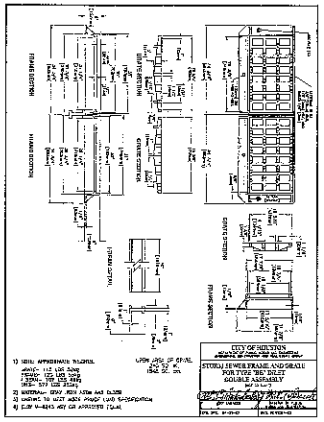
4/10/16
Jason M. Robinet
97274
LICENSED
PROFESSIONAL ENGINEER

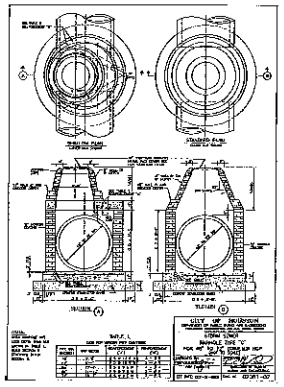
FILE NO:
DRAWING SCALE
HORZ : 1" = 40'
VERT : 1" = 4'
SHEET No: 11 OF 23

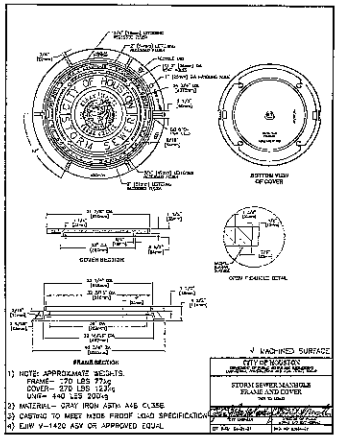
FOR CITY OF HOUSTON USE ONLY
57456

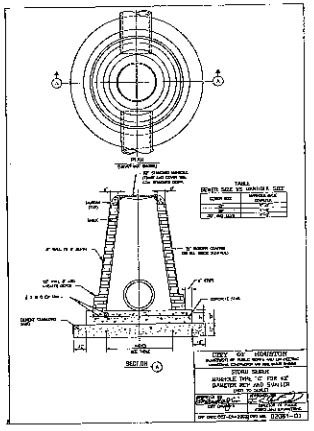
JOB NO. 2015022-240-20.211

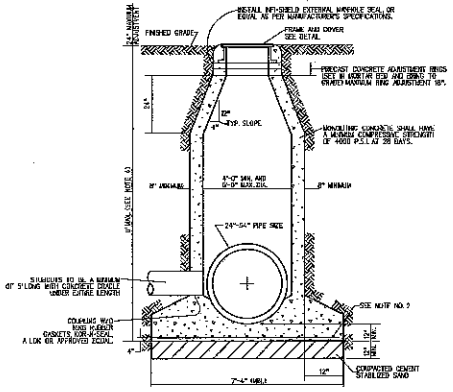












POUR-IN-PLACE MANHOLE

N.T.S.

NOTES:

1. CONCRETE SHALL BE A MONOLITHIC POUR.
2. #4 REBAR TO BE PLACED IN BASE AND @ 12" O-C EW.
3. 2 SACKS PER TON C.S.S. BACKFILL TO BE PLACED AROUND MANHOLE COMPACTED IN 8" LIFTS (MAX).
4. FOR MANHOLE DEPTHS GREATER THAN 8-FEET BELOW FINISHED GRADE, THE DETAIL IS VOID AND IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO SUBMIT A DRAWING DETAIL SEALED BY A PROFESSIONAL ENGINEER PRIOR TO CONSTRUCTION.

APPROVED: DEVELOPMENT COORDINATOR
DATE: 3/25/17

NOTE: CITY SIGNATURES VOID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	STREET & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	PARKS
TRAFFIC & LIGHTING	

FILE NO:	FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE	
HORZ : N.T.S.	
VERT :	
SHEET No: 12 OF 23	

NO.	REVISION	DATE	BY

DESIGNED BY:
DESIGN CHECKED BY: NAR
DRAWN BY: JJ
CODE CHECKED BY: NAR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-4-17
QA/QC REVISIONS BY: DD

Costello

Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax

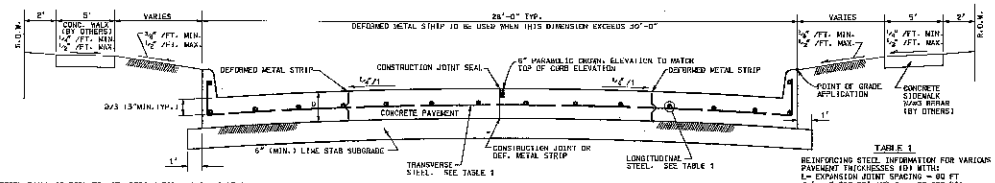
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100466

FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

DRAINAGE DETAILS

4/12/17
STATE OF TEXAS
Jason M. Robinet
97274
LICENSED
PROFESSIONAL ENGINEER

57456



NOTES:
1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM DESIGNATION A615, GRADE 60. FOR ALL 6" & 7" PAVING, USE #5 DEFORMED BARS. 24'-0", 10 LAPS.
2. THE LOCATION OF CONSTRUCTION JOINTS AND DEFORMED METAL STRIPS MAY BE VARIED, WITH THE APPROVAL OF THE CITY ENGINEER, TO SUIT THE PROPOSED CONSTRUCTION METHODS OF THE CONTRACTOR. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0".
3. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED.
4. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.

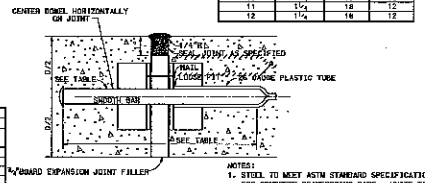
TYPICAL SINGLE ROADWAY SECTION

TABLE 1
REINFORCING STEEL INFORMATION FOR VARIOUS PAVEMENT THICKNESSES (D) WITH:
L= EXPANSION JOINT SPACING = 90 FT
f'c' = 3,500 PSI AND fy = 60,000 PSI

PAVEMENT THICKNESS D (IN)	PAVEMENT WIDTH (FT)	LONGITUDINAL STEEL # 6 BARS NUMBER OF BARS	LONGITUDINAL STEEL # 6 BARS SPACING (IN)	LONGITUDINAL STEEL # 6 BARS END BAR SPACING (IN)	TRANSVERSE STEEL # 4 BARS SPACING (IN)
6	25	17	22.50	4	36
7	25	17	18.25	4	36
7	35	24	18.00	3	36
7	36	25	17.75	3	36
7	37	26	18.25	3	36
7	41	28	18.00	3	36
7	45	31	17.75	3	36

MINIMUM LAP LENGTHS (L):
A. # 4 BARS: L = 22 INCHES
B. # 5 BARS: L = 27 INCHES
C. # 6 BARS: L = 32 INCHES

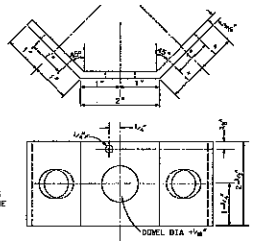
PAVEMENT THICKNESS D (IN)	DOWEL SIZES AND SPACINGS DIAMETER (IN.)	LENGTH (IN.)	SPACING (IN.)
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12



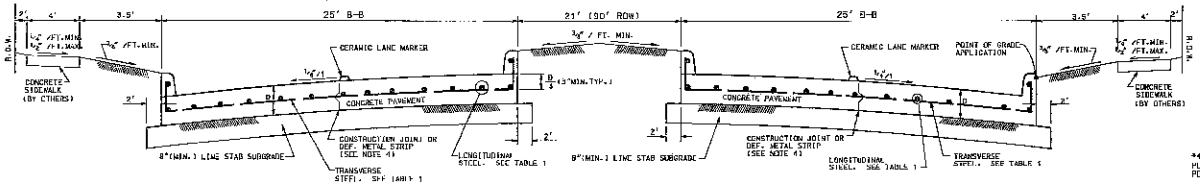
NOTES:
1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED ON 12" CENTERS.
2. CENTER DOWEL VERTICALLY IN CONCRETE BASE. EXTEND THICKENED CONCRETE AS NEEDED TO MAINTAIN 3" MIN. COVER

DOWEL TYPE EXPANSION JOINT

(CANTILEVER TYPE, CAST MALLEABLE IRON LOAD TRANSMISSION UNIT STAR LUG MODEL D-27 OR EQUAL ON 22" C-C ACCEPTABLE AS ALTERNATE)



EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED APPROX. 60'-6" APART.

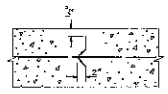


** THIS SLOPE MAY BE INCREASED AT THE DISCRETION OF THE ENGINEER, TO MEET CERTAIN EXISTING FIELD CONDITIONS

TYPICAL DOUBLE ROADWAY SECTION

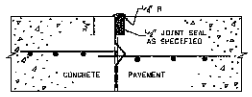
4x12" WIDE CURB AND TRANSITION CURB NOTES:

1. *6-inch concrete curb to be constructed on all applicable roadways and recreational streets. Residential streets may be constructed with either 6-inch concrete curb or 4-inch x 12-inch concrete curb as noted on plans.*
2. *Transitions from 6-inch concrete curb to 4-inch x 12-inch concrete curb to be accomplished within 30 feet, unless otherwise shown. If the 30-foot transition curb is not parallel and flush with the pavement, then reinforcing steel as shown above in Typical detail 4-inch x 12-inch transition curb is to be installed.*



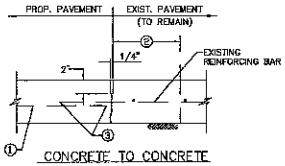
DEFORMED METAL STRIP

THE LOCATION OF CONSTRUCTION JOINTS AND DEFORMED STRIPS MAY BE VARIED, WITH THE APPROVAL OF THE ENGINEER, TO SUIT THE PROPOSED CONSTRUCTION METHODS OF THE CONTRACTOR



CONSTRUCTION JOINT SEAL

N.T.S.

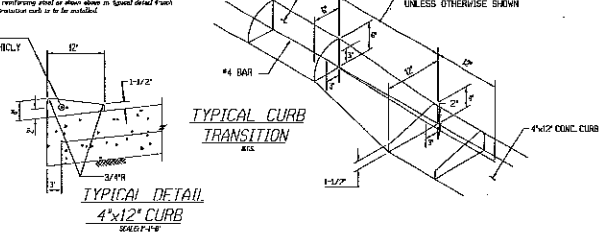


CONCRETE TO CONCRETE STANDARD PAVEMENT TIE-IN

(SEE NOTES)

NOTES FOR TIE-IN:

1. REINFORCING CENTERED IN PROPOSED PAVEMENT, 3" CLEAR AT EDGES.
2. SAW-CUT 2" DEEP AND REMOVE 2" EXISTING PAVEMENT OR PAVEMENT WITH CURB. EXPOSE AND CLEAN EXISTING REINFORCING.
3. 24xBAR DIAMETER LAP OR WELD, IF DIRECTED.
4. IF NO EXPOSED REINFORCING STEEL EXISTS, HORIZONTAL DOWELS SHALL BE #6 BARS, GRADE 60, 30" LONG DRILLED AND EMBEDDED 15" INTO THE CENTER OF THE EXIST CONCRETE SLAB WITH EPOXY OR APPROVED EQUAL. DOWELS SHALL BE PLACED 24" CENTER TO CENTER.



TYPICAL DETAIL 4"x12" CURB

SCALE: 1"=1'-0"

TYPICAL CURB TRANSITION

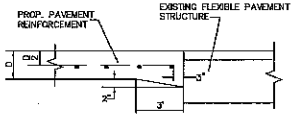
NTS

STRIPING SHOULD COVER THE FULL WIDTH OF THE RAIL. STRIPING OF RAILS, PANELS, ETC. SHOULD SLOPE DOWNWARD AT AN ANGLE OF 45 DEGREES IN DIRECTIONS TRAFFIC IS TO PASS.

WHERE A BARRICADE EXTENDS ENTIRELY ACROSS A ROADWAY, IT IS DESIRABLE THAT THE STRIPES SLOPE DOWNWARD IN THE DIRECTION TOWARD WHICH TRAFFIC MUST TURN IN DETOURING. WHEN BOTH RIGHT AND LEFT TURNS ARE PROVIDED FOR, THE CHEVRON STRIPING MAY SLOPE DOWNWARD IN BOTH DIRECTIONS FROM THE CENTER OF THE BARRICADE.

STRIPING FOR BARRICADE

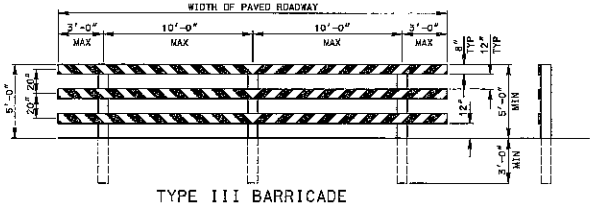
FOR ALL TYPES OF BARRICADES WITH RAILS LESS THAN 3'-0" LONG, STRIPES 4" WIDE SHALL BE USED. IDENTIFICATION MARKINGS MAY BE SHOWN ONLY ON BACK SIDE OF BARRICADE RAILS.



TYPICAL PAVING HEADER

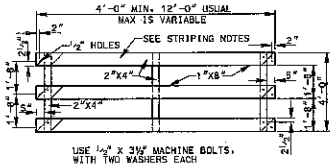
NOTES FOR PAVING HEADER:

1. ADDITIONAL CONCRETE FOR PAVING HEADER SHALL BE CONSIDERED INCIDENTAL TO VARIOUS PAVING BID ITEMS.
2. DISTURBED MATERIAL IN THE FLEXIBLE PAVEMENT WILL BE BACKFILLED WITH ASPHALT CONCRETE PAVEMENT (ACP). THE ACP WILL BE CONSIDERED INCIDENTAL TO VARIOUS PAVING BID ITEMS.



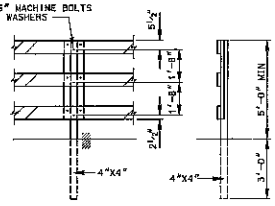
TYPE III BARRICADE FOR END OF ROAD

FOR TYPE III BARRICADE FOR END OF ROAD, THE THREE (3) RAILS SHALL BE REFLECTIVE RED AND REFLECTIVE WHITE STRIPES ON SIDE FACING TRAFFIC (HIGH INTENSITY SHEETING ON BARRICADE OR NICKOLITE)

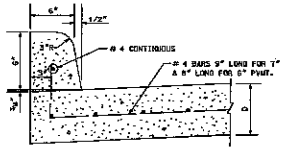


USE 1/2" X 3 1/2" MACHINE BOLTS, WITH TWO WASHERS EACH

PANEL FOR TYPE III BARRICADE



POST FOR TYPE III BARRICADE



CONCRETE CURB

N.T.S.

APPROVED: Mark Witt — DEVELOPMENT COORDINATOR
DATE: 2/25/14
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	DRAINAGE & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM	PARKS
STREET & DRAINAGE	

FILE NO:
FOR CITY OF HOUSTON USE ONLY
DRAWING SCALE
HORZ N.T.S.
VERT .
SHEET No. 13 OF 23

NO.	REVISION	DATE	BY

DESIGNED BY:
DESIGN CHECKED BY: JMR
DRAWN BY: DZ
CODE CHECKED BY: JMR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-24-07
QA/QC REVISIONS BY: DZ

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TBPLS FIRM REG. No. 10046

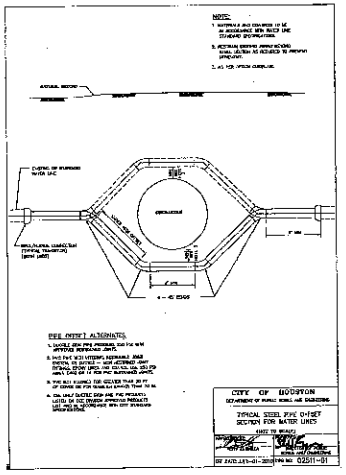
FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

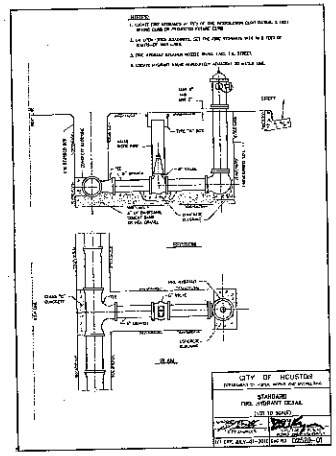
PAVING DETAILS

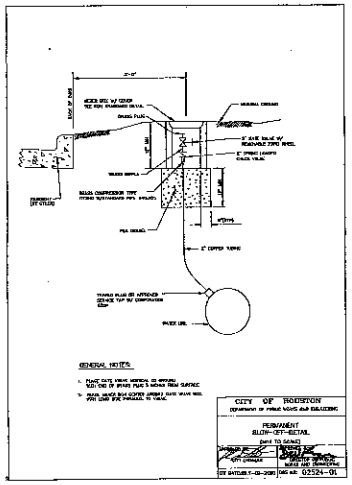
STATE OF TEXAS — Jason M. Rodewald — 97874 — LICENSED PROFESSIONAL ENGINEER — 4/24/14

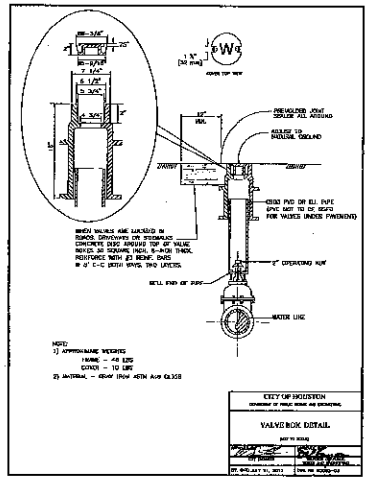
57456

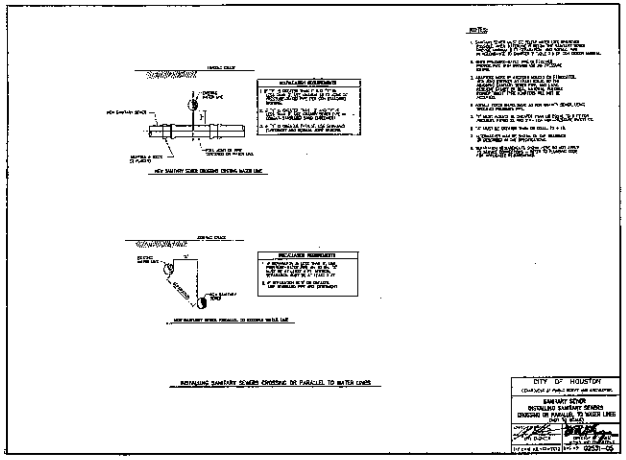
JOB NO. 06-0622-210-311

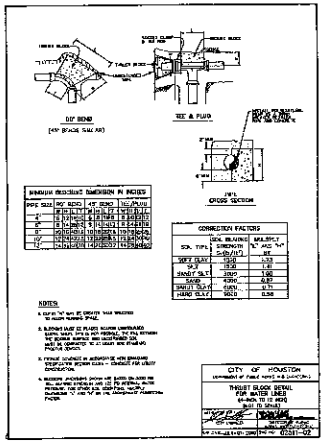


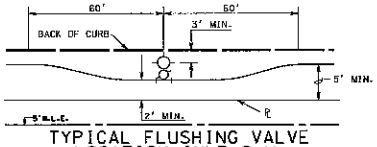












TYPICAL FLUSHING VALVE LOCATION IN R.O.W.
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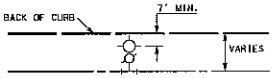

TYPICAL FLUSHING VALVE LOCATION IN MEADIAN
N.T.S.

APPROVED: 3/22/17 DEVELOPMENT COORDINATOR
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER — WASTE & TRANSPORTATION
WASTEWATER — STORM WATER QUALITY
STORM — FACILITIES
STREETS & ROADS

FILE NO:

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
HORZ: N.T.S.
VERT:

SHEET No: 14 OF 23

NO.	REVISION	DATE	BY

DESIGNED BY:
DESIGN CHECKED BY: JAR
DRAWN BY: DG
CODE CHECKED BY: JAR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-14-17
QA/QC REVISIONS BY: DG

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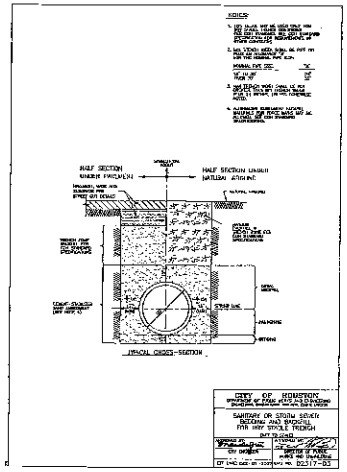
FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

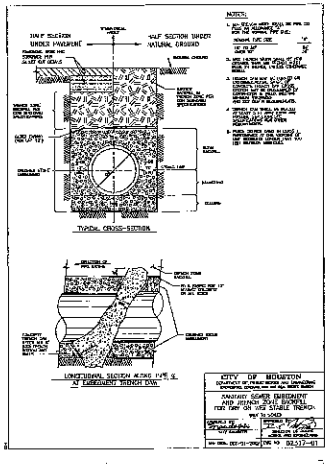
WATER MAIN DETAILS

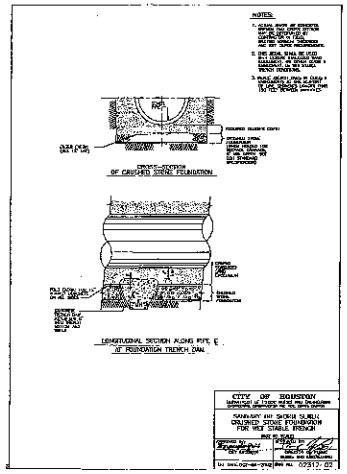
STATE OF TEXAS — Jason M. Robbett — 97234 — LICENSED PROFESSIONAL ENGINEER — 4/12/16

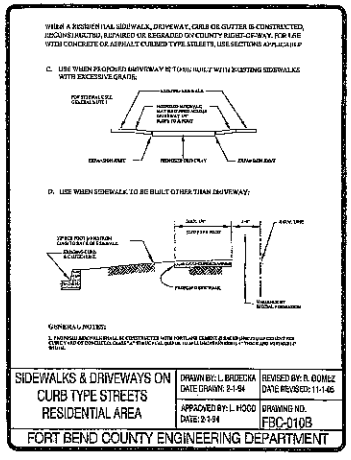
58456

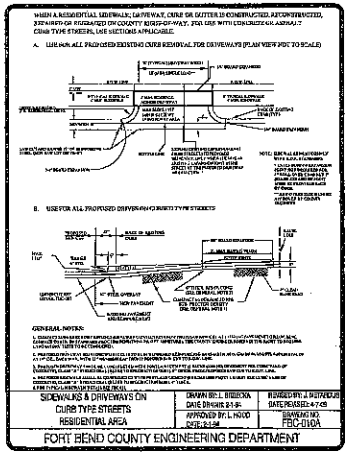
JOB NO. 2915.0123-10-09-1211











APPROVED: DEVELOPMENT COORDINATOR
DATE: 3/23/17
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

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FACILITIES	
STREET & DRAINAGE	

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VERT N.T.S.

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QA/QC BY: DATE: 4-6-17
QA/QC REVISIONS BY: DB

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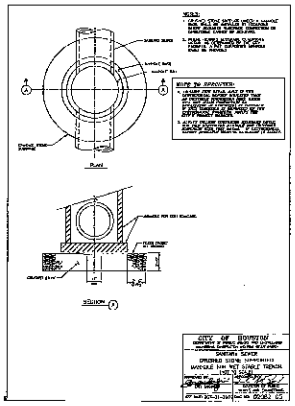
FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

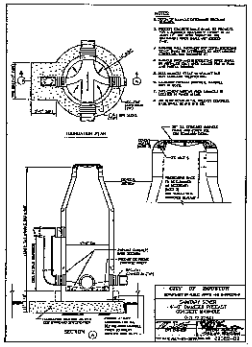
BEDDING DETAILS, FORT BEND COUNTY RESIDENTIAL DRIVEWAYS DETAILS

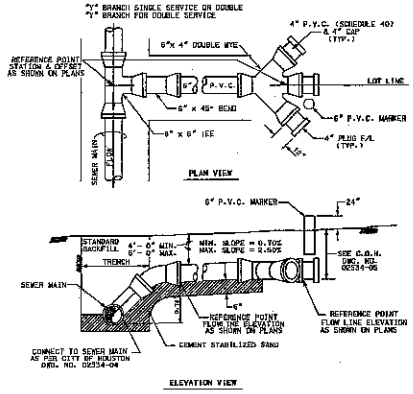
STATE OF TEXAS
JASON M. RODINETT
87274
LICENSED PROFESSIONAL ENGINEER
4/4/17

57456

JOB NO. 2015902-210-00_211







SANITARY SEWER SERVICE CONNECTION

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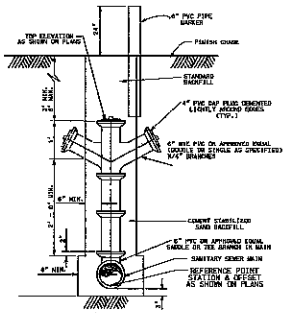

TYPICAL "NEAR SIDE" STACK

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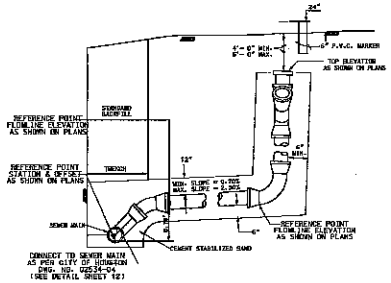

TYPICAL LEAD TO "FAR SIDE" STACK

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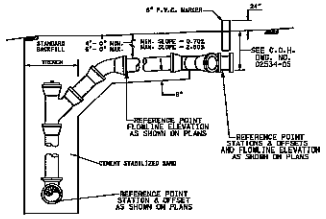
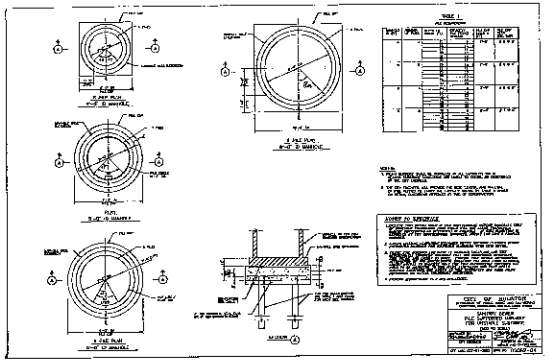
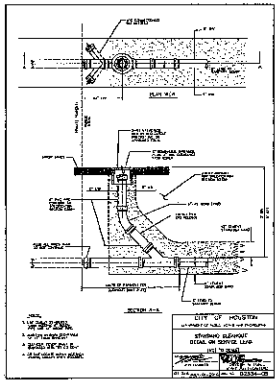
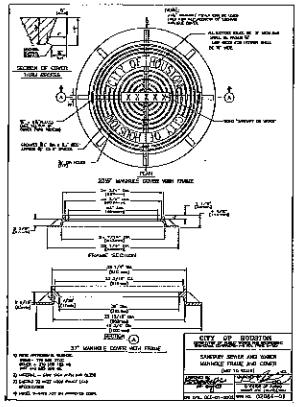


TYPICAL "NEAR SIDE"
STACK W/LEAD TO FAR SIDE

N.T.S.







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DESIGNED BY:
DESIGN CHECKED BY: JMA
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SURVEY CHECKED BY:
QA/QC BY: RC DATE: 4-11-12
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FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

SANITARY SEWER DETAILS

STATE OF TEXAS
Jason M. Robinett
97274
LICENSED
PROFESSIONAL ENGINEER
4/11/12

APPROVED: DEVELOPMENT COORDINATOR
DATE: 5/29/12

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER | TRAFFIC & TRANSPORTATION
WASTEWATER | STORM WATER QUALITY
ROADWAY | FACILITIES
STREET & DRAINAGE

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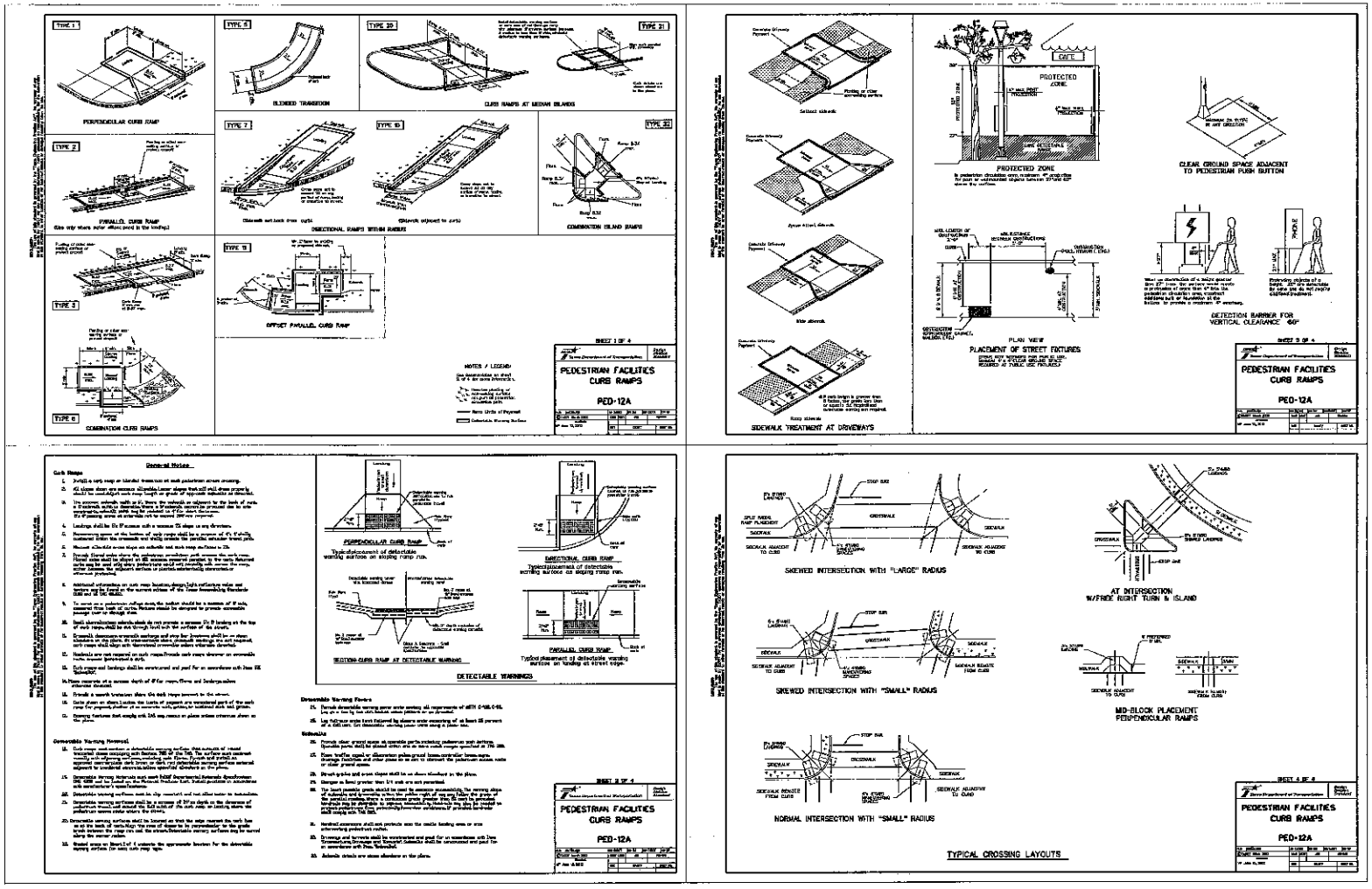
VERT. : N.T.S.

SHEET No: 16 OF 23

STATE OF TEXAS
57456
PROFESSIONAL ENGINEER

JOB NO. 2010102-210-DR-311



NO.	REVISION	DATE	BY

DESIGNED BY:
DESIGN CHECKED BY: JMR
DRAWN BY: DJS
CODE CHECKED BY: JMR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-24-17
QA/QC REVISIONS BY: DJS

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FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

TXDOT - PEDESTRIAN FACILITIES CURB RAMPS (PED-12A)

STATE OF TEXAS
Jason M. Robinski
97274
LICENSED
PROFESSIONAL ENGINEER
4/24/17

APPROVED: Maggie Dalton
DATE: 3/29/17
DEVELOPMENT COORDINATOR
NOTED CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	WATER & TRANSPORTATION
WASTEWATER	STORM WATER QUALITY
STORM 4-26-17	ROUTES
STREET & BRIDGE	

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1-17-00-010-2-2-0-1-1-2-2-0-0-0

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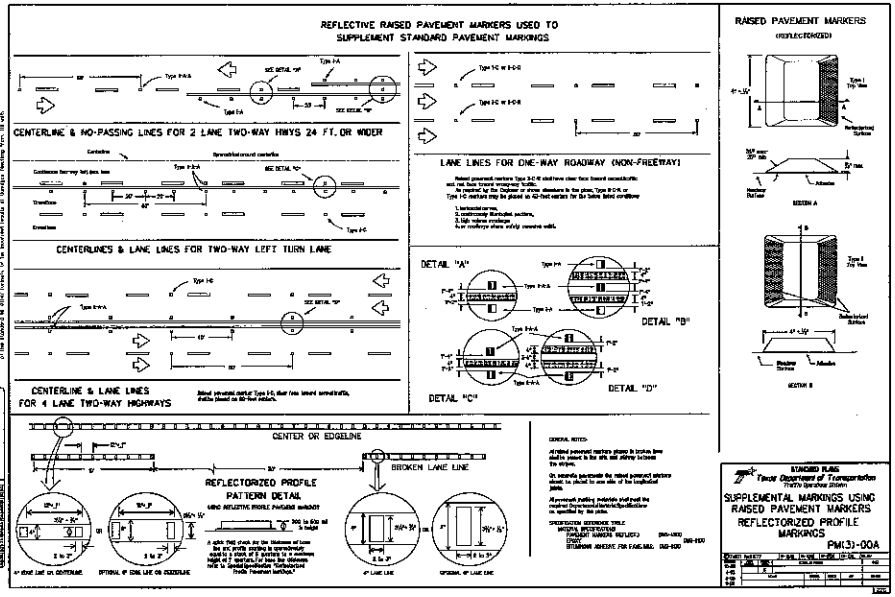
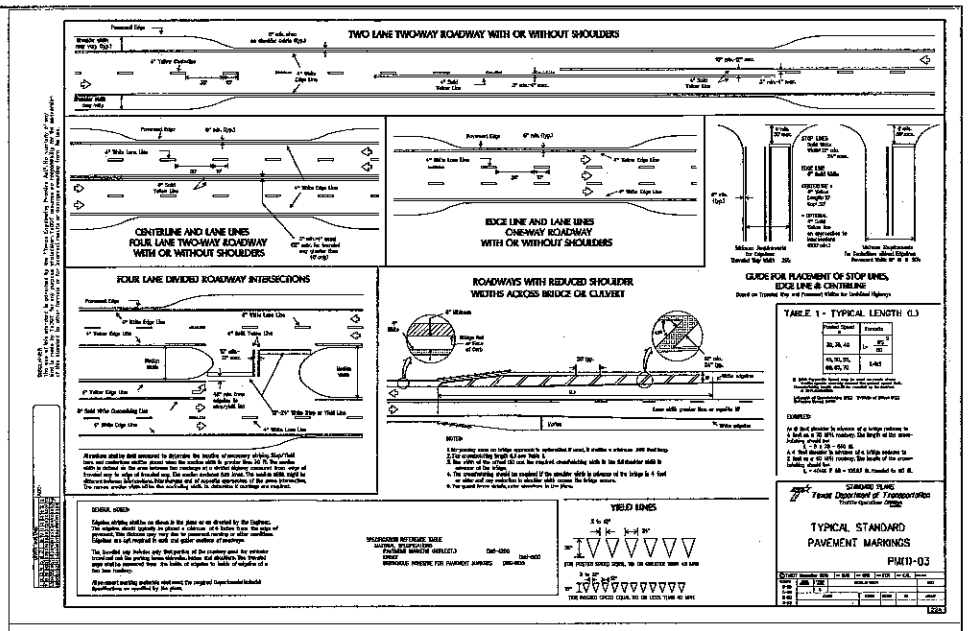




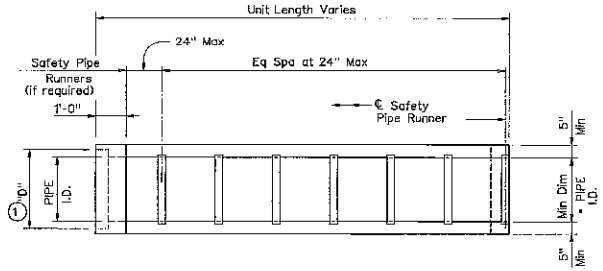
STANDARD PLANS
Texas Department of Transportation
Traffic Operations Division

TYPICAL STANDARD PAVEMENT MARKINGS

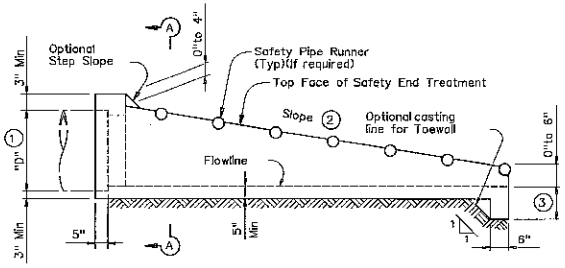
©TxDOT March 2001	DN-	CK- GRB	DW- FDN	CK- CAL
REVISIONS	FEDERAL AID PROJECT			SHEET
	6			
	COUNTY	CONTROL	SECTION	JOB	HIGHWAY

SHEET 18 OF 23

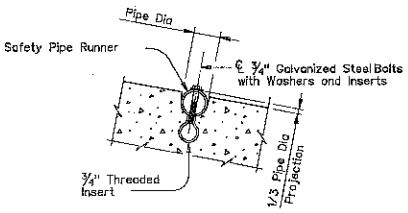
3/25/17



PLAN

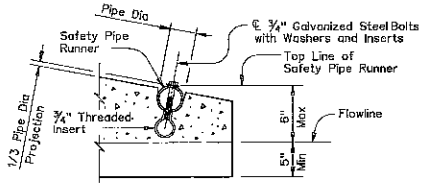


LONGITUDINAL ELEVATION

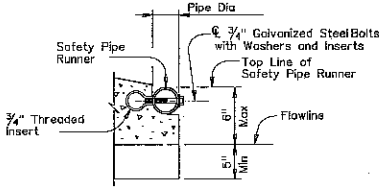


INSTALLATION DETAIL FOR SAFETY PIPE RUNNERS

(If required)



OPTION A



OPTION B

END DETAILS FOR INSTALLATION OF SAFETY PIPE RUNNERS

(If required)

PIPE I.D.	PIPE WALL "B" THICKNESS	"D" (1)	MAXIMUM SLOPE	MINIMUM LENGTH OF UNIT	PIPE RUNNERS REQUIRED		REQUIRED PIPE RUNNER SIZES		
					SINGLE PIPE	MULTIPLE PIPE	NOMINAL DIA.	O.D.	I.D.
12"	2"	17"	6:1	4'-9"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
15"	2 ¼"	20 ½"	6:1	6'-5"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
18"	2 ½"	24"	6:1	8'-0"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
24"	3"	31"	6:1	11'-3"	No	Yes, for >2 pipes	3" STD	3.500"	3.068"
30"	3 ½"	38 ½"	6:1	14'-8"	No	Yes	4" STD	4.500"	4.026"
36"	4"	45 ½"	6:1	17'-11"	Yes	Yes	4" STD	4.500"	4.026"
42"	4 ½"	52 ½"	6:1	21'-2"	Yes	Yes	4" STD	4.500"	4.026"

(1) Dimension "D" is based on ASTM C-76, Class III, Wall "B" thickness. If any other wall thickness is used, dimension "D" must be adjusted accordingly.

(2) Slope as shown elsewhere in the plans. Slope of 6:1 or flatter is required for vehicle safety.

(3) Toewall to be used only when dimension is shown elsewhere in the plans.

(4) The top 4" of void between Precast End Treatments shall be filled with concrete Riprap and shall be considered subsidiary to Safety End Treatment.

(5) Clear distance between pipes shall be adjusted to provide for the minimum distance between safety end treatments.

(6) Cement stabilized bedding and backfill shall be in accordance with the Item, "Excavation and Backfill for Structures". Bedding and backfill shall be considered subsidiary to the Item "Safety End Treatment". When concrete riprap is specified around the safety end treatment, backfill shall be as directed by Engineer.

GENERAL NOTES:

Precast safety end treatment for reinforced concrete pipe may be used for TYPE II end treatment as specified in Item "Safety End Treatment".

When Precast Safety End Treatment is used as a Contractor's alternate to mitered RCP, Riprap will not be required unless noted otherwise on the plans.

Manufacture of this product shall conform to requirements of Item "Safety End Treatment" except as noted below :

A. Minimum reinforcing shall be #4 at 6" (Grade 40) or #4 at 9" (Grade 60) each way or 6 x 6 - W12 x W12 or 5 x 5 - W10 x W10 welded wire fabric.

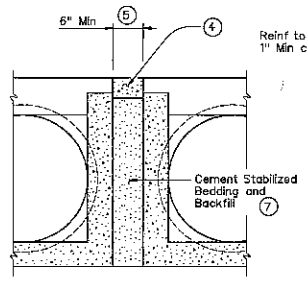
B. Concrete for precast (steel formed) sections shall be Class "C" with a minimum compressive strength of 3600 psi.

At the option and expense of the Contractor the next larger size of Safety End Treatment may be furnished as long as the "D" dimension cost is that of the required size of pipe.

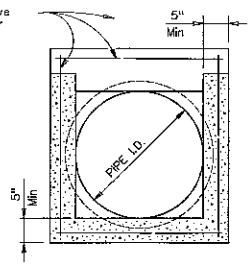
Pipe Runners are designed for a traversing load of 10,000 Lbs at yield as recommended by Research Report 280-2F, "Safety Treatment of Roadside Parallel-Drainage Structures", Texas Transportation Institute, March 1981.

Pipe Runners shall conform to the requirements of ASTM A53 (Type E or S, Grade B), ASTM A500 (Grade B), or API5LX52.

All steel components except reinforcing, shall be galvanized after fabrication. Galvanizing damaged during transport or construction shall be repaired in accordance with the specifications.

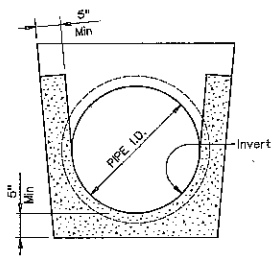


MULTIPLE PIPE INSTALLATION

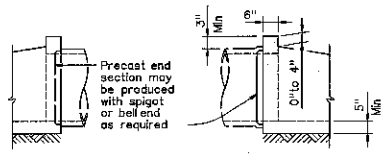


OPTION WITH SQUARE BOTTOM

SECTION A-A



OPTION WITH INVERT BOTTOM



OPTIONAL JOINT

(Showing joint between RCP and Precast Safety End Treatment)

Texas Department of Transportation
Bridge Division

PRECAST SAFETY END TREATMENT

TYPE II ~ PARALLEL DRAINAGE

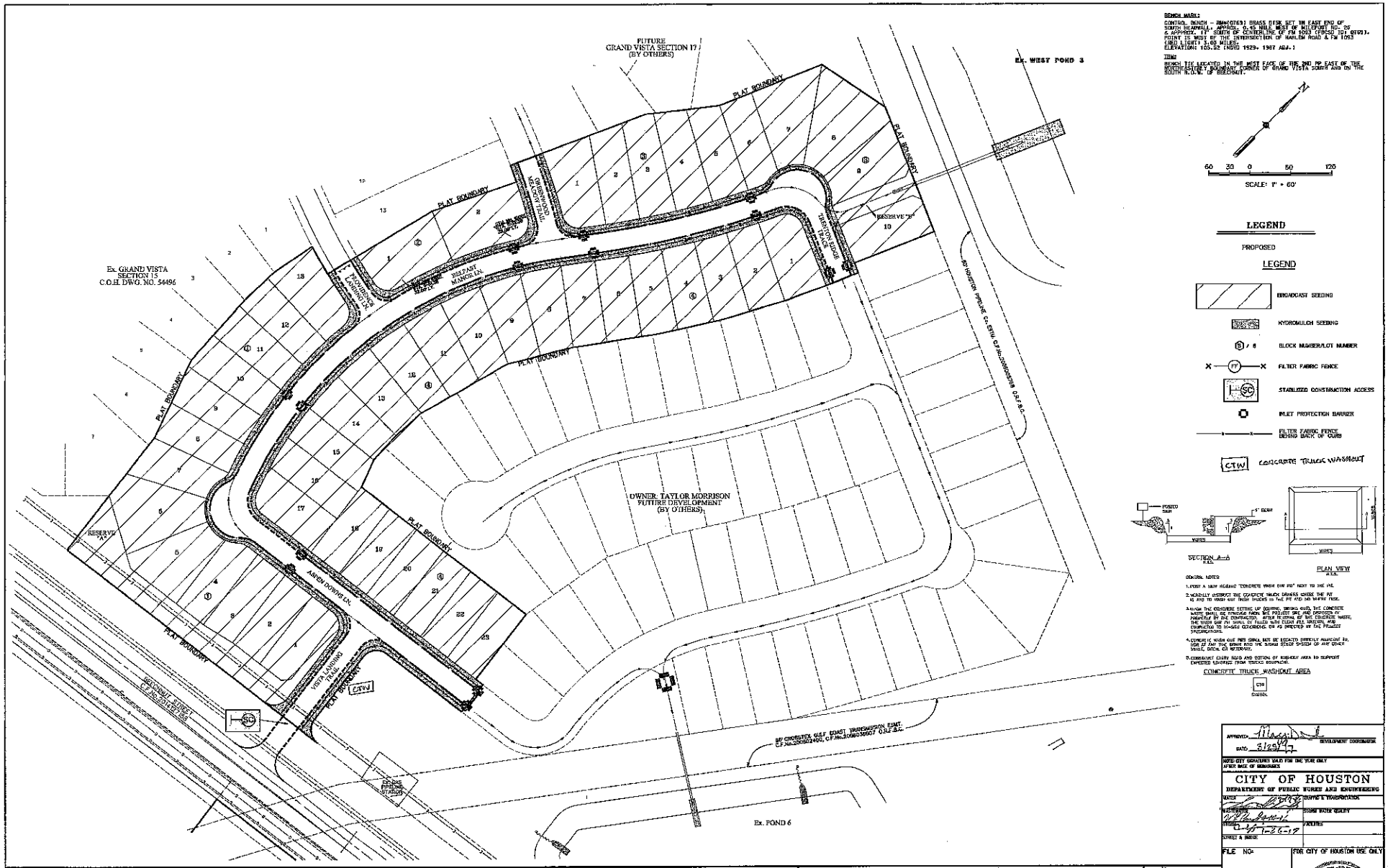
PSET-SP

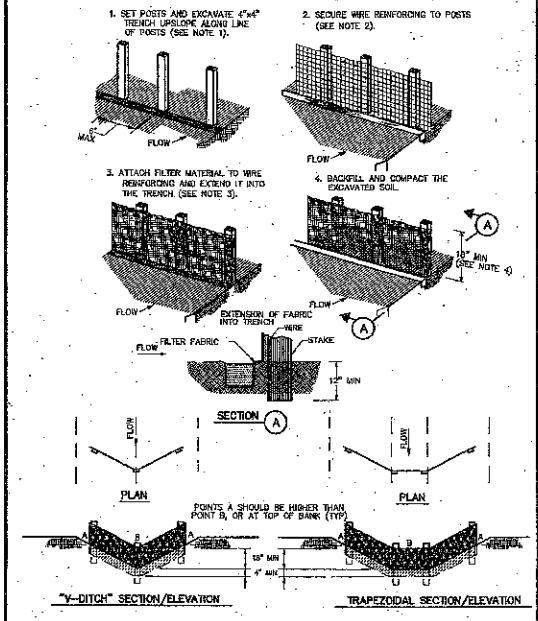
FILE: psetspse.dgn	DN: RLW	CK: KLR	DW: JTR	CK: CAF
©TxDOT December 2003	DISTRICT	FEDERAL AID PROJECT		SHEET
REVISIONS				
	COUNTY	CONTROL	SECT	JOB	HIGHWAY

SHEET 19 OF 23

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

LEVELS DISPLAYED
ACD:


FUTURE
GRAND VISTA SECTION 17
(BY OTHERS)
EX. WEST POND 3
PLAT BOUNDARY
Ex. GRAND VISTA
SECTION 15
C.O.H. DWG. NO. 54496
BELFAST MANOR LN.
PROVIDENCE MANOR LN.
RESERVE "B"
RESERVE "A"
ASHON DOWNS LN.
VISTA LANDING TRAIL
OWNER: TAYLOR MORRISON
FUTURE DEVELOPMENT
(BY OTHERS)
BY HOUSTON PIPELINE Co. ETM C.F.No.20080000008 O.P.R.R.O.
BY CHRONISTER GULF COAST TRANSMISSION EASMT.
C.F.No.20080024000, C.F.No.20080036007 O.P.R.R.O.
BRIDGEWALK STREET
C.F.No.20080036007
Ex. POND 6
CTW
SC
SCALE: 1" = 60'
LEGEND
PROPOSED
LEGEND
BROADCAST SEEDING
HYDROMULCH SEEDING
BLOCK NUMBER/LOT NUMBER
FILTER FABRIC FENCE
STABILIZED CONSTRUCTION ACCESS
INLET PROTECTION BARRIER
FILTER FABRIC FENCE BEHIND BACK OF CURB
CTW CONCRETE TRUCK WASHOUT
SECTION A-A
PLAN VIEW
CONCRETE TRUCK WASHOUT AREA
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
WATER
WASTEWATER
STORM WATER QUALITY
FACILITIES
STREET & DRAINAGE
FILE NO:
DRAWING SCALE
HORIZ : N/A
VERT :
SHEET No: 20 OF 23
FOR CITY OF HOUSTON USE ONLY
57456
Costello
Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 100486
FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21
POLLUTION PREVENTION PLAN
DESIGNED BY:
DESIGN CHECKED BY:
DRAWN BY:
COOD CHECKED BY:
SURVEY CHECKED BY:
QA/QC BY: DATE: 4-4-17
QA/QC REVISIONS BY:
NO. REVISION DATE BY

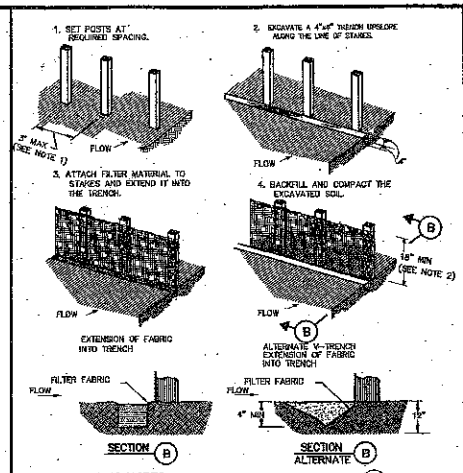


CONSTRUCTION NOTES:

1. SET 2 INCH BY 2 INCH WOODEN STAKES SPACED A MAX OF 6-FEET APART AND EMBEDDED A MIN OF 12 INCHES.
2. WOVEN WIRE REINFORCING TO BE FASTENED SECURELY TO BARRIER POSTS WITH STAPLES.
3. FILTER CLOTH TO BE FASTENED SECURELY TO WOVEN WIRE REINFORCING, WITH TIES SPACED EVERY 24 INCHES AT TOP AND MIDSECTION.
4. MINIMUM HEIGHT OF FILTER SHOULD BE 18 INCHES AND A MAXIMUM OF 36 INCHES ABOVE NATURAL GROUND.
5. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHALL BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
6. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

X—(RFB)—X
SYMBOL

REINFORCED FILTER FABRIC BARRIER

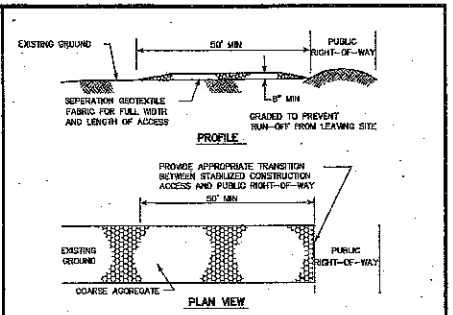


X—(FF)—X
SYMBOL

CONSTRUCTION NOTES:

1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PREASSEMBLED BARRIER WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC BARRIER SHALL HAVE A MIN HEIGHT OF 18 INCHES AND MAX HEIGHT OF 36 INCHES ABOVE NATURAL GROUND.
3. WHEN TWO SECTIONS OF FILTER CLOTH ADJOIN EACH OTHER THEY SHOULD BE OVERLAPPED 6 INCHES AT THE POSTS, AND FOLDED.
4. SEE COH STANDARD SPECIFICATION FOR FILTER FABRIC BARRIER.

FILTER FABRIC BARRIER

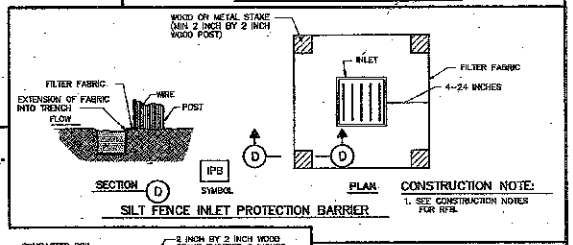


CONSTRUCTION NOTES:

1. LENGTH SHALL BE AS SHOWN ON THE CONSTRUCTION DRAWINGS, BUT NOT LESS THAN 50 FEET.
2. THICKNESS SHALL BE NOT LESS THAN 6 INCHES.
3. WIDTH SHALL BE NOT LESS THAN FULL WIDTH OF ALL POINTS OF INGRESS OR EGRESS.
4. STABILIZATION FOR OTHER AREAS SHALL HAVE THE SAME AGGREGATE THICKNESS AND WIDTH REQUIREMENTS AS THE STABILIZED CONSTRUCTION ACCESS, UNLESS OTHERWISE SHOWN ON THE CONSTRUCTION DRAWINGS.
5. STABILIZED AREA MAY BE WIDENED OR LENGTHENED TO ACCOMODATE A WASHING AREA. AN OUTLET SEDIMENT TRAP MUST BE PROVIDED FOR THE WASHING AREA.
6. COH STANDARD SPECIFICATION FOR STABILIZED CONSTRUCTION ACCESS.
7. STABILIZED CONSTRUCTION ACCESS SHALL BE MAINTAINED FREE OF SEDIMENT FOR THE DURATION OF THE PROJECT.

(SC)
SYMBOL

STABILIZED CONSTRUCTION ACCESS

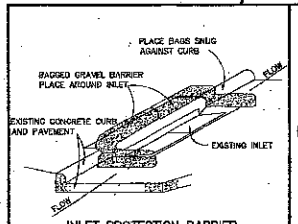


IPB
SYMBOL

SILT FENCE INLET PROTECTION BARRIER

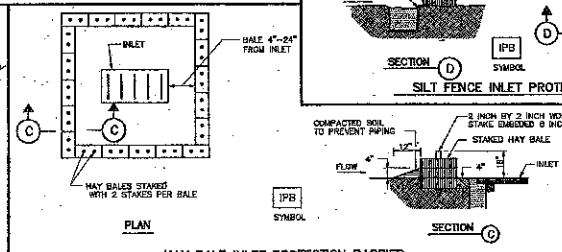
CONSTRUCTION NOTE:

1. SEE CONSTRUCTION NOTES FOR RFB.



INLET PROTECTION BARRIER

(FOR STAGE II INLETS)
BAGGED GRAVEL BARRIER



IPB
SYMBOL

HAY BALE INLET PROTECTION BARRIER

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STORM WATER POLLUTION PREVENTION PLAN DETAILS

(NOT TO SCALE)

APPROVED: CITY ENGINEER — APPROVED: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JULY-01-2010 | DWG NO: 01571-01

APPROVED: DEVELOPMENT COORDINATOR
DATE: 5/23/17

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER — TRAFFIC & TRANSPORTATION
WASTEWATER — STORM WATER QUALITY
STORM — FACILITIES
STREET & BRIDGE

FILE NO:

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE
HORZ
VERT N.T.S.

SHEET No: 21 OF 23

NO.	REVISION	DATE	BY

DESIGNED BY:
DESIGN CHECKED BY: JMR
DRAWN BY: DB
COGO CHECKED BY: JMR
SURVEY CHECKED BY:
QA/QC BY: RS DATE: 4-4-17
QA/QC REVISIONS BY: DB

Costello

Engineering and Surveying
9990 Richmond Avenue, Suite 450 N
Houston, Texas 77042
(713) 783-7788 (713) 783-3580, Fax
TBPE FIRM REG. No. 280
TBPLS FIRM REG. No. 10046

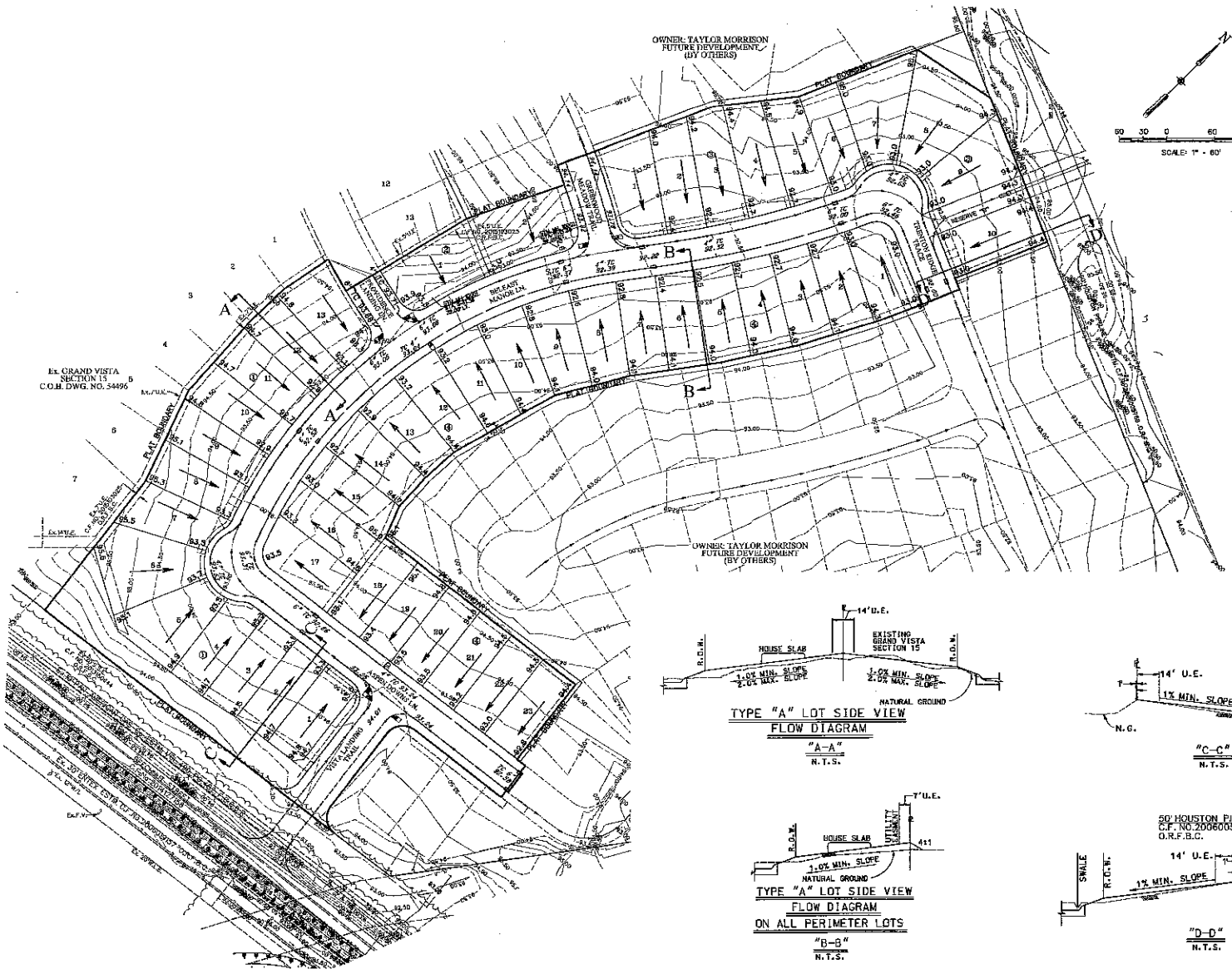
FORT BEND COUNTY MUD. No.30
GRAND VISTA SECTION 21

POLLUTION PREVENTION DETAILS

STATE OF TEXAS — Jason M. Robinett — 57274 — LICENSED PROFESSIONAL ENGINEER

57456

L:\2012\012-0203\DC Dwg\



BENCH MARK:

CENTERL BENCH - 3GMR(07691) BRASS DISK SET IN EAST END OF SOUTH BEADWALL, APPROX. 0.43 MILE WEST OF MILEPOST NO. 25 & APPROX. 17' SOUTH OF CENTERLINE OF FM 1093 (FMCSD ID: 07691). POINT IS WEST OF THE INTERSECTION OF HARLEM ROAD & FM 1093 (RED LIGHT) 3.03 MILES.
ELEVATION: 105.52 (NGVD 1929, 1987 ADJ.)

FBM:

BENCH TIE LOCATED IN THE WEST FACE OF THE END PP EAST OF THE SOUTHEASTERLY BOUNDARY CORNER OF GRAND VISTA SOUTH AND ON THE SOUTH R.O.W. OF BECONUT.

LEGEND

87.5	EXISTING CONTOUR (1' INTERVAL)
87.0	FINISHED GRADE ELEVATION
86.40	PROPOSED TOP OF CURB ELEVATION
	LOT FLOW DIRECTION
	DIRECTION OF SLOPE
11/B	LOT NUMBER / BLOCK NUMBER
	4-INCH CONC. CURB
	6-INCH CONC. CURB

FILL NOTES

1. ALL LOT GRADING SHALL INCLUDE THE ENTIRE WIDTH OF ANY ADJACENT UTILITY EASEMENT.
2. CONTRACTOR SHALL GRADE ALL LOTS TO THE PROPOSED ELEVATIONS SHOWN ON THE PLAN. A MINIMUM OF 6" OF FILL MATERIAL WILL BE REQUIRED ON ALL LOTS. ANY LOT WITH LESS THAN 6" OF FILL WILL BE THE LOT WILL BE CONSIDERED ADDITIONAL WORK AND WILL NOT BE APPROVED TO ACCEPT THE LOT. CONTRACTOR TO PROVIDE THE LOT WITH MORE DEPOSIT UPTO 6" OF MATERIAL. CONTRACTOR TO FOLLOW THE BLOCK LOT ELEVATIONS SHOWN ON THE PLAN AS PER.
3. IN THE EVENT THERE IS NOT ADEQUATE FILL MATERIAL FOR THE LOT TO BE GRADED SUBSTANTially ABOVE THE LEVEL SHOWN ON THE PLAN, THE CONTRACTOR SHALL NOTIFY THE ENGINEER PRIOR TO GRADING TO REDUCE THE LOT GRADING AS STRAIGHT AS POSSIBLE WITH THE AVAILABLE FILL MATERIAL.
4. CONTRACTOR SHALL GET OWNER OR ENGINEERS APPROVAL PRIOR TO REMOVING ANY TREES. CONTRACTOR WILL BE RESPONSIBLE FOR REPLACING TREES REMOVED WITHOUT APPROVAL. THE CONTRACTOR WILL BE RESPONSIBLE FOR REPAIRING ANY DAMAGE TO STREETS, CURBS, COMPLETION OF LOT GRADING, ANY STRAIGHT TOPSOIL AND/OR STOCKPILED SOIL WILL BE SPREAD EVENLY OVER THE GRADED LOTS.
5. ALL AREAS TO RECEIVE FILL SHALL BE PROOF-ROLLED TO REJECT ANY SOFT OR POORLY COMPACTED MATERIAL. ANY REJECTED AREAS IN EXCESS MUSTHAVE CONDITIONED AND COMPACTED TO A LEVEL NOT EXCEEDING 2 INCHES IN THICKN

N

60 30 0 60 120

SCALE: 1"= 60'

LEGEND

- SET 5/8 - INCH IRON ROD WITH PLASTIC CAP STAMPED "COSTELLO INC" UNLESS OTHERWISE NOTED
- FOUND 5/8 - INCH IRON ROD UNLESS OTHERWISE NOTED
- 1 - INDICATES LOT NUMBER
- (1) - INDICATES BLOCK NUMBER
- (A) - INDICATES RESERVE
- INDICATES STREET NAME BREAK

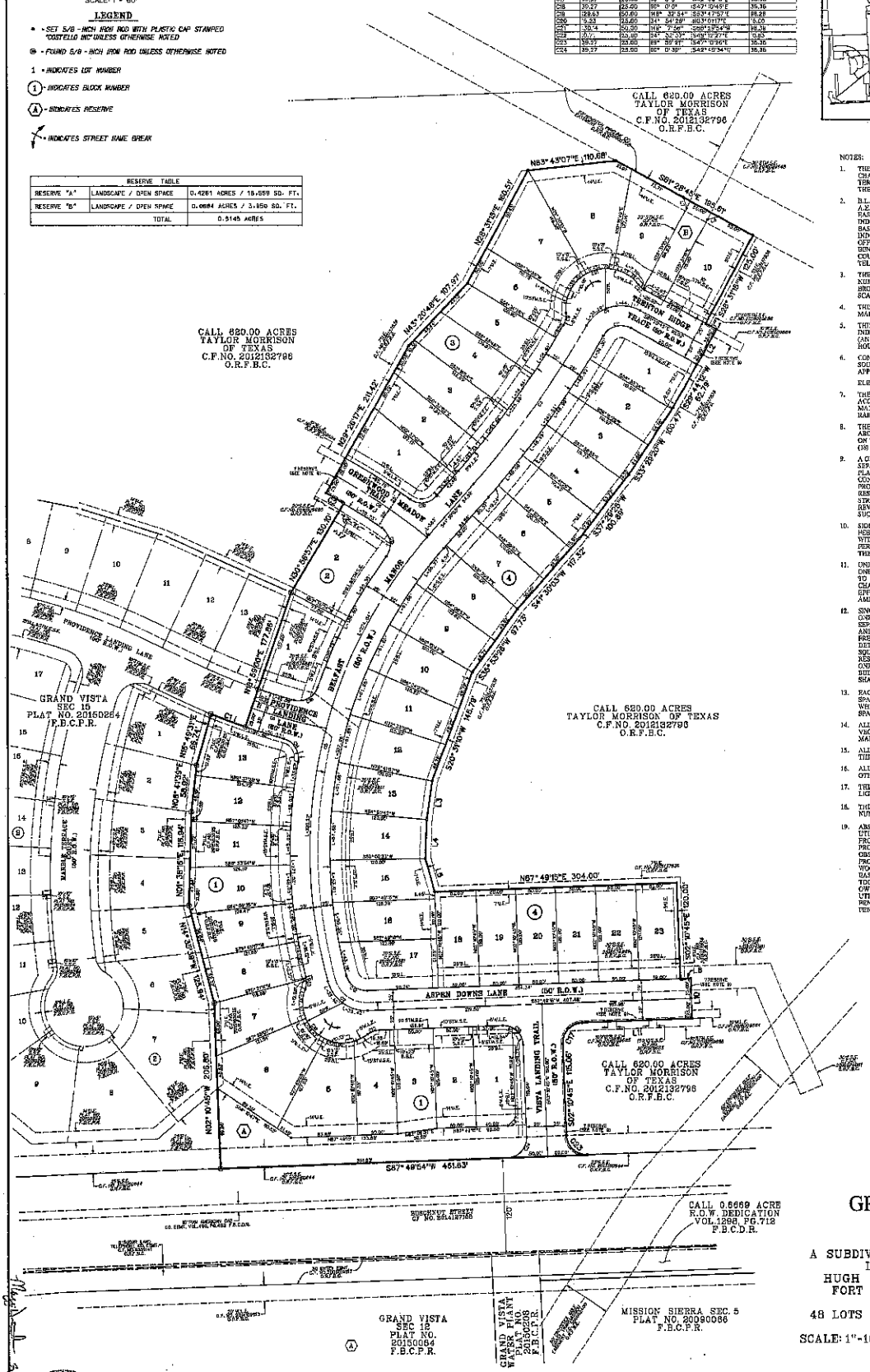
RESERVE TABLE		
RESERVE "A"	LANDSCAPE / OPEN SPACE	0.4261 ACRES / 18,559 SQ. FT.
RESERVE "B"	LANDSCAPE / OPEN SPACE	0.0884 ACRES / 3,850 SQ. FT.
TOTAL		0.5145 ACRES

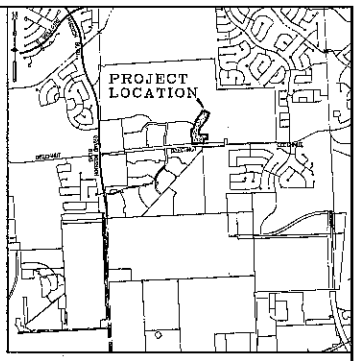
LINE DATA TABLE

NUMBER	DIRECTION	DISTANCE (FEET)
L1	S81°28'45"E	15.41
L2	N29°31'55"W	50.00
L3	S58°13'40"W	48.78
L4	S02°10'45"W	48.78
L5	S15°45'15"E	13.24
L6	N87°49'15"E	15.33
L7	N15°28'45"W	14.14
L8	N73°31'15"E	14.14
L9	N47°49'15"E	14.14
L10	S02°10'45"E	60.00
L11	S87°49'15"W	137.98

CURVE DATA TABLE

NUMBER	ARC LENGTH (FEET)	RADIUS (FEET)	DELTA ANGLE	CHORD DIRECTION	CHORD LENGTH (FEET)
C1	45.87	775.00	3° 23'39"	S69°46'16"E	45.86
C2	25.92	675.00	1° 42'16"	S59°42'40"E	25.92
C3	244.42	1200.00	11° 40'11"	N35°39'37"E	244.00
C4	77.45	550.00	8° 47'23"	S74°10'53"W	69.90
C5	597.68	800.00	43° 9'45"	S12°37'34"W	583.48
C6	98.47	750.00	7° 32'7"	S74°43'33"E	98.00
C7	60.85	200.00	18° 38'50"	S53°03'08"E	61.87
C8	38.08	800.00	2° 43'12"	N05°19'07"W	38.07
C9	15.05	575.00	1° 30'23"	S01°39'27"E	15.05
C10	35.80	25.00	82° 52'12"	N33°29'08"E	32.41
C11	35.70	25.00	82° 18'25"	S74°10'33"W	34.85
C12	33.42	25.00	76° 35'8"	S53°53'11"W	30.96
C13	15.66	25.00	36° 53'35"	S86°52'25"W	15.41
C14	37.78	50.00	43° 12'41"	N35°08'18"W	33.85
C15	38.96	25.00	87° 32'55"	N08°23'41"W	35.24
C16	37.53	25.00	86° 1'8"	N82°11'31"E	34.11
C17	39.27	25.00	90° 0'0"	N43°49'15"E	35.36
C18	39.27	25.00	90° 0'0"	S46°10'45"E	35.36
C19	28.63	50.00	32° 32'54"	S33°43'57"E	28.28
C20	9.33	25.00	21° 24'29"	N60°01'01"E	9.28
C21	30.14	50.00	34° 7'56"	S58°52'54"W	29.70
C22	20.7	25.00	24° 30'37"	N49°11'37"E	20.53
C23	39.27	25.00	90° 0'0"	S46°10'45"E	35.36
C24	39.27	25.00	90° 0'0"	S42°49'15"W	35.36





VICINITY MAP
KEY MAP 5260

NOTES:

1. THIS PLAT IS BASED ON A CITY PLANNING LETTER PREPARED BY CHARTER TITLE COMPANY, DATED , 2015 AND IS SUBJECT TO ALL TERMS, CONDITIONS, LEASES AND ENCUMBRANCES STIPULATED THEREIN.
2. B.L. INDICATES BUILDING LINE; U.E. INDICATES UTILITY EASEMENT; A.E. INDICATES AERIAL EASEMENT; S.S.E. INDICATES SANITARY SEWER EASEMENT; ST.M.E.R. INDICATES STORM SEWER EASEMENT; D.E. INDICATES DRAINAGE EASEMENT; F.M.E. INDICATES FORCE MAIN EASEMENT; W.L.E. INDICATES WATER LINE EASEMENT; H.L&P INDICATES HOUSTON LIGHTING AND POWER; O.R.P.B.C. INDICATES OFFICIAL RECORDS OF FORT BEND COUNTY; F.B.C.P.R. INDICATES FORT BEND COUNTY PLAT RECORDS; P.B.C.D.R. INDICATES FORT BEND COUNTY DEED RECORDS; S.W.B.T. INDICATES SOUTHWESTERN BELL TELEPHONE; S.C.E. INDICATES SANITARY CONTROL EASEMENT.
3. THE COORDINATES SHOWN HEREON ARE TEXAS SOUTH CENTRAL ZONE NUMBER 4204 STATE PLANE GRID COORDINATES (NAD 83) AND MAY BE BROUGHT TO SURFACE BY APPLYING THE FOLLOWING COMBINED SCALE 1.0001857L.
4. THIS PROPERTY LIES WITHIN ZONE "X" AS PER FLOOD INSURANCE RATE MAPS, MAP NUMBER 48157C0140 L DATED APRIL 02, 2014.
5. THIS PROPERTY LIES WITHIN FORT BEND COUNTY, AND FORT BEND INDEPENDENT SCHOOL DISTRICT, FORT BEND COUNTY MUD NO. 30 (ANNEX 2015), FORT BEND COUNTY ESD NO. 100 AND THE CITY OF HOUSTON ETJ.
6. CONTROL BENCHMARK: RM G769: BRASS DISK SET IN EAST END OF SOUTH MEADOWALL APPROX. 0.25 MILE WEST OF MILEPOST NO. 25 & APPROX. 17' SOUTH OF CENTERLINE OF FM 1093.

   ELEVATION: 175.52 (NGVD 1929, 1987 ADJ.)
7. THE DRAINAGE SYSTEM FOR THIS SUBDIVISION IS DESIGNED IN ACCORDANCE WITH THE FORT BEND COUNTY DRAINAGE CRITERIA MANUAL WHICH ALLOWS STREET PONDING DURING INTENSE RAINFALL EVENTS.
8. THE TOP OF ALL FLOOR SLABS SHALL BE A MINIMUM OF 92.50 FEET ABOVE MEAN SEA LEVEL. 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.
9. A ONE-FOOT RESERVE DEDICATED TO THE PUBLIC IN FEE AS A BUFFER SEPARATION BETWEEN THE SIDE OR END OF STREETS IN SUBDIVISION PLATS WHERE SUCH STREETS ABUT ADJACENT ACREAGE TRACTS, THE CONVEYING OF SUCH DEDICATION BEING THAT WHEN THE ADJACENT PROPERTY IS SUBDIVIDED BY A RECORDED PLAT, THE ONE-FOOT RESERVE SHALL THEREUPON BECOME VESTED IN THE PUBLIC FOR STREET RIGHT-OF-WAY PURPOSES AND THE FEE TITLE THERETO SHALL REVERT AND REVEST IN THE DEDICATOR, HIS HEIRS, ASSIGNS, OR SUCCESSORS.
10. 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.
11. UNLESS OTHERWISE INDICATED, THE BUILDING LINE (B.L.) WHETHER ONE OR MORE, SHOWN ON THIS SUBDIVISION PLAT ARE ESTABLISHED TO EVIDENCE COMPLIANCE WITH THE APPLICABLE PROVISION OF CHAPTER 42 CODE OF ORDINANCES, CITY OF HOUSTON, TEXAS, IN EFFECT AT THE TIME THIS PLAT WAS APPROVED, WHICH MAY BE AMENDED FROM TIME TO TIME.
12. SINGLE FAMILY RESIDENTIAL SHALL MEAN THE USE OF A LOT WITH ONE BUILDING DESIGNED FOR AND CONTAINING NOT MORE THAN TWO SEPARATE UNITS WITH FACILITIES FOR LIVING, SLEEPING, COOKING, AND EATING THEREIN. A LOT UPON WHICH IS LOCATED A FREE-STANDING BUILDING CONTAINING ONE DWELLING UNIT AND DETACHED SECONDARY DWELLING UNIT OF NOT MORE THAN 900 SQUARE FEET ALSO SHALL BE CONSIDERED SINGLE FAMILY RESIDENTIAL. A BUILDING THAT CONTAINS ONE DWELLING UNIT ON ONE LOT THAT IS CONNECTED BY A PARTY WALL TO ANOTHER BUILDING CONTAINING ONE DWELLING UNIT ON AN ADJACENT LOT SHALL BE SINGLE FAMILY RESIDENTIAL.
13. EACH LOT SHALL PROVIDE A MINIMUM OF TWO OFF-STREET PARKING SPACES PER DWELLING UNIT ON EACH LOT. IN THOSE DISTANCES WHERE A SECONDARY UNIT IS PROVIDED ONLY ONE ADDITIONAL SPACE SHALL BE PROVIDED.
14. ALL DRAINAGE EASEMENTS TO BE KEPT CLEAR OF FENCES, BUILDINGS, VEGETATION AND OTHER OBSTRUCTIONS TO THE OPERATION AND MAINTENANCE OF THE DRAINAGE FACILITY.
15. ALL PROPERTY TO DRAIN INTO THE DRAINAGE EASEMENT ONLY THROUGH AN APPROVED DRAINAGE STRUCTURE.
16. ALL EASEMENTS SHOWN ON LOT LINES ARE CENTERED UNLESS OTHERWISE NOTED.
17. THE PLAT LIES WITHIN ZONE "LZ1" OF THE FORT BEND COUNTY LIGHTING ORDINANCE ZONE, DATED JUNE, 2014.
18. THIS PLAT IS SUBJECT TO AGREEMENTS RECORDED IN CLERK'S FILE NUMBERS 2012132800 AND 2013132801 OF THE F.B.C.R.P.
19. ABSENT WRITTEN AUTHORIZATION BY THE AFFECTED UTILITIES, ALL UTILITY AND AERIAL EASEMENTS MUST BE KEPT UNOBSTRUCTED FROM ANY NON-UTILITY IMPROVEMENTS OR OBSTRUCTIONS BY THE PROPERTY OWNER. ANY UNAUTHORIZED IMPROVEMENTS OR OBSTRUCTIONS MAY BE REMOVED BY ANY PUBLIC UTILITY AT THE PROPERTY OWNER'S EXPENSE. WALL WOODEN POSTS AND PANELED WOODEN FENCES ALONG THE PERIMETER AND BACK TO BACK EASEMENTS AND ALONGSIDE REAR LOTS LINES ARE PERMITTED. THEY TOO MAY BE REMOVED BY PUBLIC UTILITIES AT THE PROPERTY OWNER'S EXPENSE SHOULD THEY BE AN OBSTRUCTION. PUBLIC UTILITIES MAY PUT SAID WOODEN POSTS AND PANELED WOODEN FENCES BACK UP, BUT GENERALLY WILL NOT REPLACE WITH NEW FENCING.

GRAND VISTA SEC 21

A SUBDIVISION OF 10.5437 ACRES
LOCATED IN THE
HUGH ROGERS SURVEY, A-309
FORT BEND COUNTY, TEXAS

48 LOTS 4 BLOCKS 2 RESERVES

SCALE: 1"=100' DATE: FEBRUARY, 2016

PLANNER:
KERRY R. GILBERT & ASSOCIATES, INC.
Land Planning Consultants
23501 CINCO RANCH BLVD., SUITE A-250
KATY, TEXAS 77494
(281) 579-0340

OWNER:
TAYLOR MORRISON OF TEXAS INC.
RUSSELL BRAUN P.E., VICE PRESIDENT
3200 W. BAY HOUSTON PARKWAY N., STE 100
HOUSTON, TEXAS 77041
PHONE 281-555-0026

Costello
ENGINEERING AND SURVEYING
9990 RICHMOND AVENUE, SUITE 450 NORTH BUILDING
HOUSTON, TEXAS 77042
(713) 783-7788 (713) 783-3580 Fax
TEXAS PE BOARD FIRM REG. NO. 280
TBPLS FIRM REG. NO. 10064

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