



**REVIEW BY FORT BEND COUNTY  
COMMISSIONERS COURT**

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

☐ Right of Way Permit  
☒ Commercial Driveway Permit  
Permit No: 2016-11064

**Applicant:** Riverstone Storage, LP / Osborn & Vane Architects

**Job Location Site:** 4815 L J Parkway, sugar land, TX 77479

**Bond No.** [REDACTED] **Date of Bond:** 12/13/2016 **Amount:** \$10,000.00

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 inconsistent with Chapter 181, Vernon's Texas Statutes and Codes Annotated.

**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 24th day of January, 2017, Upon Motion of Commissioner Meyers, seconded by Commissioner Morales, 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**

Presented to Commissioners Court and approved.

By: Charles O. Ay  
for County Engineer

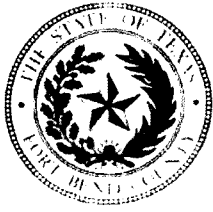
Date Recorded 2-1-17 Comm. Court No. 15R

N/A  
By:

Drainage District Engineer/Manager

Clerk of Commissioners Court

By: Ronda Willis  
Deputy



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

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

- ☐ Right of Way Permit  
☒ Commercial Driveway Permit

Permit No: 2016-11064

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:**

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

**(2) BOND:**

- ☐ County Attorney, approval when applicable.
- ☐ Perpetual bond currently posted.      Bond No: \_\_\_\_\_ Amount: \_\_\_\_\_
- ☒ Performance bond submitted.      Bond No: [REDACTED]      Amount: \$10,000.00
- ☐ 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.**

*Charles O. AM*

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

*1/17/17*  
\_\_\_\_\_  
Date

**PERFORMANCE BOND COVERING ALL CABLE, CONDUIT AND/OR POLE LINE  
ACTIVITY IN, UNDER, ACROSS OR ALONG FORT BEND COUNTY ROADS**

**AUTHORIZED**

BOND NO. [REDACTED]  
THE STATE OF TEXAS §  
COUNTY OF FORT BEND §

KNOW ALL MEN BY THESE PRESENTS:

THAT WE, Riverstone Storage, LP whose address is 4815 LJ Parkway Sugar Land, TX 77479, Texas, hereinafter called the Principal, and SureTec Insurance Company, a Corporation existing under and by virtue of the laws of the State of Texas and authorized to do an indemnifying business in the State of Texas, and whose principal office is located at 1330 Post Oak Blvd., Suite 1100 Houston, TX 77056, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought within said State is Steven D. Nelson and whose address is 9737 Great Hills Trail, Suite 320, Austin, TX 78759, hereinafter called the Surety, are 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 Ten Thousand Dollars (\$ 10,000.00) 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 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;

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 in the County of Fort Bend and State of Texas, under the jurisdiction of the Commissioners Court of Fort Bend County, Texas, pursuant to and in accordance with minimum requirements and conditions of the above mentioned Commissioners' Court order set forth and specified to be by said principal done and performed, at the time and in the manner therein specified, and shall pay over and make good and reimburse Fort Bend County, all loss and damages which Fort Bend County may sustain by reason of any failure or default on the part of said principal, then this obligation shall be null and void otherwise to remain in full force and effect.

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

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

EXECUTED this 13th day of December, 2016.

Riverstone Storage, LP

PRINCIPAL

*[Signature]*  
BY

SureTec Insurance Company

SURETY

*[Signature]*  
BY Gloria M. Villa, Attorney in Fact

CCM 1-24-17 # 15K  
Fort Bend County Clerk  
Return Admin Serv Coord KAC

4 PGS  
BOND  
2017010163

<p><b>SureTec Insurance Company</b> <b>THIS BOND RIDER CONTAINS IMPORTANT COVERAGE INFORMATION</b></p>
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**Statutory Complaint Notice/Filing of Claims**

To obtain information or make a complaint: You may call the Surety's toll free telephone number for information or to make a complaint or file a claim at: 1-866-732-0099. You may also write to the Surety at:

SureTec Insurance Company  
9737 Great Hills Trail, Suite 320  
Austin, Tx 78759

You may contact the Texas Department of Insurance to obtain information on companies, coverage, rights or complaints at 1-800-252-3439. You may write the Texas Department of Insurance at

PO Box 149104  
Austin, TX 78714-9104  
Fax#: 512-490-1007  
Web: <http://www.tdi.state.tx.us>  
Email: [ConsumerProtection@tdi.texas.gov](mailto:ConsumerProtection@tdi.texas.gov)

**PREMIUM OR CLAIM DISPUTES:** Should you have a dispute concerning your premium or about a claim, you should contact the Surety first. If the dispute is not resolved, you may contact the Texas Department of Insurance.

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# SureTec Insurance Company

## LIMITED POWER OF ATTORNEY

**Know All Men by These Presents,** That SURETEC INSURANCE COMPANY (the "Company"), a corporation duly organized and existing under the laws of the State of Texas, and having its principal office in Houston, Harris County, Texas, does by these presents make, constitute and appoint

Gloria M. Villa

its true and lawful Attorney-in-fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings or other instruments or contracts of suretyship to include waivers to the conditions of contracts and consents of surety for:

**Principal:** Riverstone Storage, LP

**Obligee:** Fort Bend County Judge

**Amount:** \$ 10,000.00

and to bind the Company thereby as fully and to the same extent as if such bond were signed by the President, sealed with the corporate seal of the Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney-in-Fact may do in the premises. Said appointment is made under and by authority of the following resolutions of the Board of Directors of the SureTec Insurance Company:

*Be it Resolved,* that the President, any Vice-President, any Assistant Vice-President, any Secretary or any Assistant Secretary shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

*Attorney-in-Fact* may be given full power and authority for and in the name of and of behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements or indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be binding upon the Company as if signed by the President and sealed and effected by the Corporate Secretary.

*Be it Resolved,* that the signature of any authorized officer and seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signature or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached. (Adopted at a meeting held on 20<sup>th</sup> of April, 1999.)

**In Witness Whereof,** SURETEC INSURANCE COMPANY has caused these presents to be signed by its President, and its corporate seal to be hereto affixed this 21st day of March, A.D. 2013.

SURETEC INSURANCE COMPANY

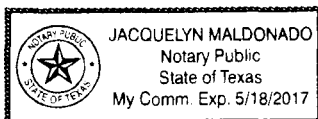
By:   
John Knox Jr., President

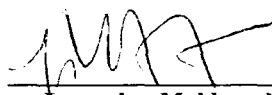
State of Texas  
County of Harris

ss:



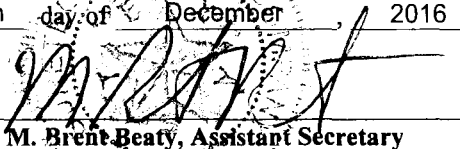
On this 21st day of March, A.D. 2013 before me personally came John Knox Jr., to me known, who, being by me duly sworn, did depose and say, that he resides in Houston, Texas, that he is President of SURETEC INSURANCE COMPANY, the company described in and which executed the above instrument; that he knows the seal of said Company; that the seal affixed to said instrument is such corporate seal; that it was so affixed by order of the Board of Directors of said Company; and that he signed his name thereto by like order.



  
Jacquelyn Maldonado, Notary Public  
My commission expires May 18, 2017

I, M. Brent Beaty, Assistant Secretary of SURETEC INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Company, which is still in full force and effect; and furthermore, the resolutions of the Board of Directors, set out in the Power of Attorney are in full force and effect.

Given under my hand and the seal of said Company at Houston, Texas this 13th day of December, 2016, A.D.

  
M. Brent Beaty, Assistant Secretary

Any instrument issued in excess of the penalty stated above is totally void and without any validity.  
For verification of the authority of this power you may call (713) 812-0800 any business day between 8:00 am and 5:00 pm CST.

FILED AND RECORDED  
OFFICIAL PUBLIC RECORDS

*Laura Richard*

Laura Richard, County Clerk  
Fort Bend County, Texas

January 30, 2017 09:57:35 AM

FEE: \$0.00 TS1  
BOND

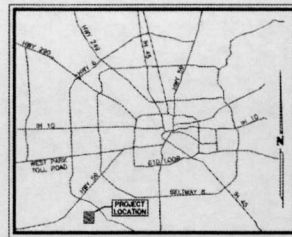
2017010163



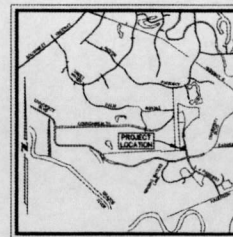
# CIVIL PLANS FOR RIVERSTONE STORAGE

LOCATED IN  
CITY OF SUGARLAND ETJ, FORT BEND COUNTY, TEXAS  
PLAT NAME: CABRERA DRIVE RESERVES AT RIVERSTONE

KEYMAP NO. 609N  
ZIP CODE: 77479



VICINITY MAP  
N.T.S.



LOCATION MAP  
N.T.S.

## PLANS SUBMITTAL/REVIEW LOG

DATE	DESCRIPTION
05/23/2016	SUBMITTAL TO GOVERNMENT AGENCY -NOT FOR CONSTRUCTION
06/14/2016	SUBMITTAL TO GOVERNMENT AGENCY -NOT FOR CONSTRUCTION
08/01/2016	SUBMITTAL TO FRCMUD 128 & THE CITY OF SUGARLAND -NOT FOR CONSTRUCTION

## PROJECT TEAM:

**DEVELOPER**  
EACI COMMERCIAL REAL ESTATE, LLC  
ATTN: BROCKE GENTRY  
9123 ELIZABETH ROAD, SUITE 108  
HOUSTON, TX 77055  
713.458.5151

**ARCHITECT**  
GOSWAMI & VANE ARCHITECTS, INC.  
ATTN: JASON CHAPMAN  
2000 BERRING, SUITE 410  
HOUSTON, TX 77057  
713.781.5282

**CIVIL ENGINEER**  
ALJ LINDSEY, LLC  
6111 FM 1960 WEST, SUITE 208  
HOUSTON, TEXAS 77060  
281.301.5955  
CONTACT: LESTER JONES

**MUD OPERATOR**  
SI ENVIRONMENTAL  
ATTN: BRIAN BARR  
6420 READING ROAD  
HOUSTON, TX 77471  
832.490.1500

ACCORDING TO MAP NO. 48201C1000L OF THE FEDERAL EMERGENCY MANAGEMENT AGENCY'S  
FLOOD INSURANCE RATE MAPS FOR FORT BEND COUNTY AND INCORPORATED AREAS, DATED  
JUNE 18, 2007, THE SUBJECT TRACT IS SITUATED WITHIN: SHADED ZONE "X"

## FORT BEND COUNTY ENGINEER

ENGINEER: Richard W. Stollers, P.E.  
FOR RICHARD W. STOLLERS, P.E.

DATE: 9/20/16

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

APPROVED: Maggie DEVELOPMENT COORDINATOR

DATE: 9/19/16

## INDEX OF SHEETS

SHEET NO.	DESCRIPTION
CIVIL ENGINEERING (ALJ LINDSEY, LLC)	
C0.0	COVER SHEET
C0.1	GENERAL NOTES
C0.2	TOPOGRAPHIC SURVEY
C0.3	PLAT (1 OF 2)
C0.4	PLAT (2 OF 2)
C1.0	DEMOLITION PLAN
C1.1	DIMENSION CONTROL PLAN
C2.0	UTILITY PLAN
C3.0	STORM SEWER PLAN
C4.0	GRADING PLAN (1 OF 2)
C4.1	GRADING PLAN (2 OF 2)
C5.0	PAVING PLAN
C6.0	EROSION CONTROL PLAN
C7.0	CONSTRUCTION DETAILS (1 OF 2)
C7.1	CONSTRUCTION DETAILS (2 OF 2)
SL-01	SUGAR LAND GENERAL NOTES (1 OF 2)
SL-02	SUGAR LAND GENERAL NOTES (2 OF 2)
SL-03	SUGAR LAND CONSTRUCTION DETAILS (1 OF 16)
SL-04	SUGAR LAND CONSTRUCTION DETAILS (2 OF 16)
SL-05	SUGAR LAND CONSTRUCTION DETAILS (3 OF 16)
SL-06	SUGAR LAND CONSTRUCTION DETAILS (4 OF 16)
SL-07	SUGAR LAND CONSTRUCTION DETAILS (5 OF 16)
SL-08	SUGAR LAND CONSTRUCTION DETAILS (6 OF 16)
SL-09	SUGAR LAND CONSTRUCTION DETAILS (7 OF 16)
SL-10	SUGAR LAND CONSTRUCTION DETAILS (8 OF 16)
SL-11	SUGAR LAND CONSTRUCTION DETAILS (9 OF 16)
SL-12	SUGAR LAND CONSTRUCTION DETAILS (10 OF 16)
SL-13	SUGAR LAND CONSTRUCTION DETAILS (11 OF 16)
SL-14	SUGAR LAND CONSTRUCTION DETAILS (12 OF 16)
SL-15	SUGAR LAND CONSTRUCTION DETAILS (13 OF 16)
SL-16	SUGAR LAND CONSTRUCTION DETAILS (14 OF 16)
SL-17	SUGAR LAND CONSTRUCTION DETAILS (15 OF 16)
SL-18	SUGAR LAND CONSTRUCTION DETAILS (16 OF 16)

CALL BEFORE YOU DIG  
TEXAS ONE CALL SYSTEM  
1-800-4-A-S-6000  
IN HOUSTON  
(713)-223-4567

ALJ Lindsey  
Civil Engineer  
No. 102153  
Exp. 12/31/2018  
FBI-1-1208



01 AUGUST 2016

COVER SHEET

RIVERSTONE STORAGE  
CITY OF SUGARLAND ETJ, FORT BEND  
COUNTY, TEXAS

SHEET  
C0.0

PLAT NAME: CABRERA DRIVE RESERVES AT RIVERSTONE

#### GENERAL NOTES

- [illegible]

GRADING NOTES

- GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL VERIFY THE SATISFACTORY OF ALL EXISTING AND PROPOSED SITE CONDITIONS INCLUDING GRADES AND ELEVATIONS, AND LOCATIONS OF ALL EXISTING AND PROPOSED UTILITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DISCREPANCIES.
2. BEFORE STARTING CONSTRUCTION, CONTRACTOR SHALL VERIFY BENCHMARK ELEVATION AND NOTIFY ENGINEER IF ANY DISCREPANCY AND/OR CONFLICT IS FOUND.
3. CONTRACTOR SHALL ENSURE THERE IS POSITIVE DRAINAGE FROM THE PROPOSED BUILDINGS AND NOT PONDING IN PAVED AREAS, AND SHALL PROTECT PROJECT TO REMAIN FREE OF UNDESIRABLE PONDING IN THE EXISTING AND PROPOSED GRADES PRIOR TO PLACEMENT OF UTILITIES.
4. CONTRACTOR SHALL PROTECT ALL MANHOLE COVERS, VALVE COVERS, LAINT LOTS, FIRE HYDRANTS, POWER POLES, AND UTILITIES, AND TELEPHONE COLUMNS.
5. ALL EXISTING CROPPED VEGETATION, SEEDBANK, AND SOIL DESTRUCTION SHALL BE REMOVED AND DISPOSED OF BY CONTRACTOR. DISPOSAL SHALL BE IN AN APPROVED LOCATION.
- FOR BUILDING AND DRAINAGE PREPARATION AND GENERAL AESTHETIC IMPROVEMENTS, REFER TO THE GEOGRAPHIC REPLY PREPARED BY THE METROPLANNING COMMISSION, DATED FEBRUARY 2016 (PROJECT NUMBER 0001615). ALL MATERIAL, SPECIFICATIONS AND TESTING SHALL BE ADHERED TO AS SHOWN IN THE REPLY. CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITS TO PREPARE DATA IMPACTED BY THE REPLY.
- TRANSITION: UTILITY NOTES
1. CONTRACTOR SHALL CALL THE TEXAS ONE CALL AND ONE-STOP AT LEAST 72 HOURS PRIOR TO COMMENCING DEMOLITION OR CONSTRUCTION OF ANY TYPE OF WORK THAT MAY AFFECT OR INTERFERE WITH ANY EXISTING UTILITIES, DOWNED OR HOT WATERS, AND FOR ANY DAMAGE TO THESE UTILITIES.
2. CONTRACTOR SHALL INSTALL LINE DEEPS FOR GREY UTILITY CONDUITS WHERE A BEND IS GRAPHICALLY SHOWN.
- FED. REG. 128.102(a)
1. CONTRACTOR SHALL MAINTAIN A 5' x 5' ENVIRONMENTAL (SIC) 480-100, TO HOLD PRIOR TO CONNECTING TO ANY OTHER FUGRO 10-128 WATER, SATURATED, OR STORM SEWER FACILITY. ALL CONNECTIONS TO EXISTING UTILITIES MUST BE INSPECTED BY AND MET WITH THE APPROVAL OF THE DISTRICT SUPERVISOR.
2. CONTRACTOR SHALL OBTAIN A PERMIT BEFORE FOR USE IN OBTAINING CONSTRUCTION WATER. ALL CONNECTIONS WORKING IN THE DISTRICT WILL BE SUBJECT TO A BROADBAND/STATIONARY MONITORING PROGRAM.
3. CONTRACTOR SHALL COORDINATE WITH THE DISTRICT OPERATOR TO COORDINATE ANY REQUIRED FINAL UTILITY ADJUSTMENTS TO FUGRO 128 FACILITIES (MANHOLE TOPS, GATE VALVES, AND FLOW VALVES) IN ORDER TO COORDINATE WITH FINAL SITE DRAINAGE. THE COST FOR SUCH UTILITY ADJUSTMENTS WILL BE BORNE BY THE DISTRICT.

CITY OF SUGARLAND GENERAL NOTES SHALL BE USED FOR ALL CONSTRUCTION (SEE SHEET SL-D1) WHEN THESE NOTES CONFLICT, THE MORE CONSERVATIVE OF THE TWO SHALL APPLY

### PAYING AND STOPPING NOTES

- [illegible]

### SANITARY SEWERS

- [illegible]

## SWEEP NOTES

- [illegible]

NOTE: FORT BEND COUNTY NOTES SUPERSEDE ANY CONFLICTING NOTES

INSPECTION: THE PROJECT AND ALL PARTS THEREOF SHALL BE SUBJECT TO INSPECTION FROM TIME TO TIME BY INSPECTORS DESIGNATED BY FORT BEND COUNTY. NO SUCH INSPECTORS SHALL RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER. ANOTHER FAILURE TO INSPECT NOR FAILURE TO DISCOVER OR REJECT ANY OF THE WORK AS NOT IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS, REQUIREMENTS AND SPECIFICATIONS OF FORT BEND COUNTY ON ANY PROVISION OF THIS PROJECT SHALL BE CONSTRUED TO IMPLY AND ACCEPTANCE OF SUCH WORK OR TO RELIEVE THE CONTRACTOR OF ANY OF ITS OBLIGATIONS HEREUNDER.

AUTHORIZATION IS VALID FOR 1 YEAR

..... *Maria*

APPROVED: Thayer  
DEPARTMENT COORDINATOR

ALJLindsey

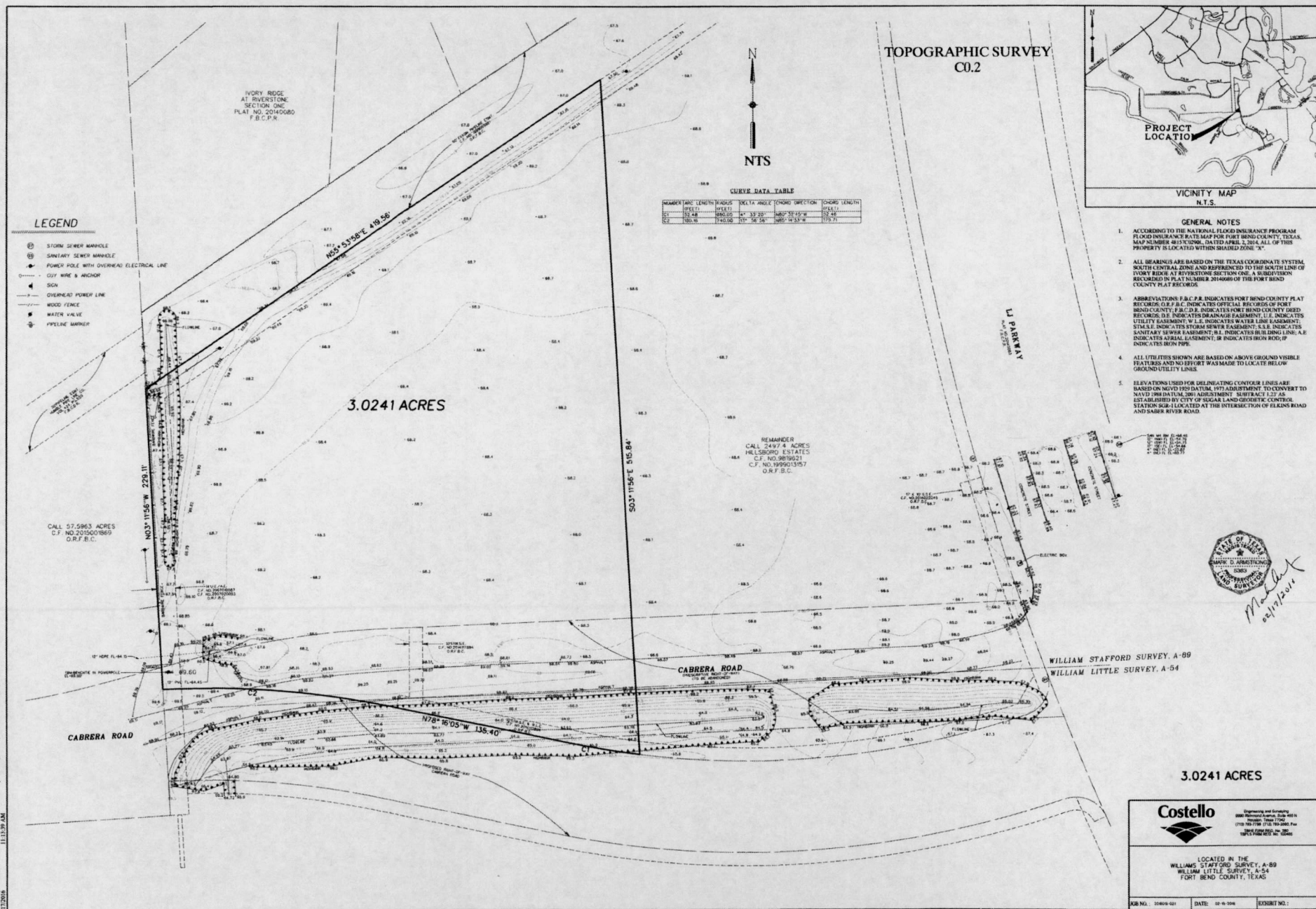
01 AUGUST 2016

GENERAL NOTES

## RIVERSTONE STORAGE

SHEET  
C0.1





STATE OF TEXAS  
COUNTY OF FORT BEND

WE, HILLSBORO ESTATES L.L.C., A TEXAS LIMITED LIABILITY COMPANY, ACTING BY AND THROUGH LARRY D. JOHNSON, ITS MANAGER, AND F.W. REICHERT III, VICE PRESIDENT, OF HILLSBORO ESTATES L.L.C., A TEXAS LIMITED LIABILITY COMPANY, HEREBY REFERRED TO AS OWNERS OF THE 7.2715 ACRE TRACT DESCRIBED IN THE ABOVE AND FOREGOING PLAT OF CABRERA DRIVE RESERVES AT RIVERSTONE, DOES HEREBY MAKE SUBDIVISION OF SAID PROPERTY ACCORDING TO THE UNENCLINED LOT, BUILDING LINES, AND EASEMENTS THEREON SHOWN AND DELINEATE SAID SUBDIVISION AS CABRERA DRIVE RESERVES AT RIVERSTONE, LOCATED IN THE WILLIAM LITTLE SURVEY, A-89, FORT BEND COUNTY, TEXAS, AND HEREBY DEDICATES TO THE PUBLIC USE AS SUCH, ALL STREETS AND EASEMENTS SHOWN THEREON FOREVER AND DOES HEREBY WAIVE ANY CLAIMS FOR DAMAGES OCCASIONED BY THE ESTABLISHING OF GRADERS AS APPROVED FOR THE STREETS DEDICATED OR OCCASIONED BY ALTERATION OF THE SURFACE OF ANY PORTION OF STREETS TO CONFORM TO SUCH GRADERS, AND DOES HEREBY BIND ITSELF, AND ITS SUCCESSORS AND ASSIGNS TO MAINTAIN AND DEFEND FOREVER THE TITLE TO THE LAND SO DEDICATED.

FURTHER, OWNERS HAVE DEDICATED AND BY THESE PRESENTS DO DEDICATE TO THE USE OF THE PUBLIC FOR PUBLIC UTILITY PURPOSES FOREVER UNRESTRICTED AERIAL EASEMENTS. THE AERIAL EASEMENTS SHALL EXTEND HORIZONTALLY AN ADDITIONAL SIX INCHES SIX INCHES (11' 6") FOR TEN FEET (10' 0") PERIMETER GROUND EASEMENTS ON SEVEN FEET SIX INCHES (17' 6") FOR FOURTEEN FEET (14' 0") PERIMETER GROUND EASEMENTS ON FIVE FEET SIX INCHES (15' 6") FOR SIXTEEN FEET (16' 0") PERIMETER GROUND EASEMENTS FROM A PLANE SIXTEEN FEET (16' 0") ABOVE GROUND LEVEL UPWARD, LOCATED ADJACENT TO AND ADJOINING SAID PUBLIC UTILITY EASEMENTS THAT ARE DESIGNATED WITH AERIAL EASEMENTS (A.E.) AS INDICATED AND DEPICTED HEREON, WHEREBY THE AERIAL EASEMENTS TOTAL TWENTY-ONE FEET SIX INCHES (21' 6") IN WIDTH.

FURTHER, OWNERS HAVE DEDICATED AND BY THESE PRESENTS DO DEDICATE TO THE USE OF THE PUBLIC FOR PUBLIC UTILITY PURPOSES FOREVER UNRESTRICTED AERIAL EASEMENTS. THE AERIAL EASEMENTS SHALL EXTEND HORIZONTALLY AN ADDITIONAL TEN FEET (10' 0") FOR TEN FEET (10' 0") BACK-TO-BACK GROUND EASEMENTS ON EIGHT FEET (8' 0") FOR FOURTEEN FEET (14' 0") BACK-TO-BACK GROUND EASEMENTS ON SEVEN FEET SIX INCHES (17' 6") FOR SIXTEEN FEET (16' 0") BACK-TO-BACK GROUND EASEMENTS FROM A PLANE SIXTEEN FEET (16' 0") ABOVE GROUND LEVEL UPWARD, LOCATED ADJACENT TO BOTH SIDES AND ADJOINING SAID PUBLIC UTILITY EASEMENTS THAT ARE DESIGNATED WITH AERIAL EASEMENTS (A.E.) AS INDICATED AND DEPICTED HEREON, WHEREBY THE AERIAL EASEMENTS TOTAL THIRTY FEET (30' 0") IN WIDTH.

FURTHER, WE DO HEREBY ACKNOWLEDGE THE RECEIPT OF THE "OWNERS OF REGULATION FOR THE REGULATION OF OUTDOOR LIGHTING IN THE UNINCORPORATED AREAS OF FORT BEND COUNTY, TEXAS" AND DO HEREBY COVENANT AND AGREE AND SHALL COMPLY WITH THIS ORDER AS ADOPTED BY FORT BEND COUNTY COMMISSIONER'S COURT ON MARCH 23, 2004, AND ANY SUBSEQUENT AMENDMENTS.

IN TESTIMONY WHEREOF, HILLSBORO ESTATES L.L.C., A TEXAS LIMITED LIABILITY COMPANY, HAS CAUSED THESE PRESENTS TO BE SIGNED BY LARRY D. JOHNSON, ITS MANAGER, AND F.W. REICHERT III, ITS VICE PRESIDENT, THEREunto AUTHORIZED.  
THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2016.

HILLSBORO ESTATES L.L.C.,  
A TEXAS LIMITED LIABILITY COMPANY

BY: LARRY D. JOHNSON, MANAGER BY: F.W. REICHERT III, VICE PRESIDENT

STATE OF TEXAS  
COUNTY OF FORT BEND

BEFORE ME, THE UNDERSIGNED AUTHORITY, ON THIS DAY PERSONALLY APPEARED LARRY D. JOHNSON, MANAGER, AND F.W. REICHERT III, VICE PRESIDENT, OF HILLSBORO ESTATES L.L.C., A TEXAS LIMITED LIABILITY COMPANY, KNOWN TO ME TO BE THE PERSONS WHOSE NAMES ARE EXECUTED THE SAME FOR THE PURPOSES AND CONSIDERATIONS HEREIN EXPRESSED AND TO THE CAPACITY THEREIN AND HEREBY STATES, AND AS THE ACT AND DEED OF SAID LIMITED LIABILITY COMPANY.

GIVEN UNDER MY HAND AND SEAL OF OFFICE, THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2016.

NOTARY PUBLIC IN AND FOR  
THE STATE OF TEXAS  
MY COMMISSION EXPIRES: \_\_\_\_\_

I, MARK D. ARMSTRONG, A REGISTERED PROFESSIONAL LAND SURVEYOR OF THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS SUBDIVISION IS TRUE AND CORRECTLY WAS PREPARED FROM AN ACTUAL BOUNDARY SURVEY OF THE PROPERTY MADE BY ME OR THE SURVEYOR UNDER MY SUPERVISION ACCORDING TO THE REQUIREMENTS OF THE TEXAS BOARD OF PROFESSIONAL LAND SURVEYORS THAT THE PLAT DEDICATED AND DELINEATED AREAS OF CABRERA DRIVE RESERVES AT RIVERSTONE, A-89, FORT BEND COUNTY, TEXAS, AND HEREBY WAIVE ANY CLAIMS FOR DAMAGES OCCASIONED BY THE ESTABLISHING OF GRADERS AS APPROVED FOR THE STREETS DEDICATED OR OCCASIONED BY ALTERATION OF THE SURFACE OF ANY PORTION OF STREETS TO CONFORM TO SUCH GRADERS, AND DOES HEREBY BIND ITSELF, AND ITS SUCCESSORS AND ASSIGNS TO MAINTAIN AND DEFEND FOREVER THE TITLE TO THE LAND SO DEDICATED.

MARK D. ARMSTRONG, R.P.L.S.,  
TEXAS REGISTRATION NO. 53623

I, CHAD E. HANBUSH, A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS, DO HEREBY CERTIFY THAT THIS PLAT MEETS ALL REQUIREMENTS OF THE CITY OF SUGAR LAND AND FORT BEND COUNTY.

CHAD E. HANBUSH  
LICENSED PROFESSIONAL ENGINEER  
TEXAS REGISTRATION NO. 65466

THIS IS CERTIFY THAT THIS IS A MINOR PLAT UNDER THE PROVISIONS OF THE TEXAS LOCAL GOVERNMENT CODES SECTION 212.004 AND MEETS ALL THE REQUIREMENTS OF THE SUBDIVISION REGULATION SECTION 212.004 AND THE SUBDIVISION REGULATION SECTION 212.004 OF THE CITY OF SUGAR LAND HAS APPROVED AND AUTHORIZES THE RECORDING OF THIS PLAT  
THIS \_\_\_\_\_ DAY OF \_\_\_\_\_, 2016.

BY: JAMES A. THOMPSON, MAYOR BY: GLENDA GUNDERMAN, CITY SECRETARY  
BY: ALLEN BOGARD, CITY MANAGER

1. ELEVATIONS USED FOR DELINEATING CONTOUR LINES ARE BASED ON NAVD 1988 DATUM, 2001 ADJUSTMENT.

2. THIS PLAT WAS PREPARED FROM INFORMATION FURNISHED BY STEWART TITLE TITLE AND INSURANCE COMPANY, EFFECTIVE DATE BEGINNING APRIL 11, 2016. THE SURVEYOR HAS NOT ABSTRACTED THE ABOVE PROPERTY.

3. THIS PLAT WAS PREPARED FROM INFORMATION FURNISHED BY STEWART TITLE TITLE AND INSURANCE COMPANY, EFFECTIVE DATE BEGINNING APRIL 11, 2016. THE SURVEYOR HAS NOT ABSTRACTED THE ABOVE PROPERTY.

4. APPROVAL OF THIS PLAT WILL EXPIRE ONE YEAR FROM CITY OF SUGAR LAND APPROVAL IF NOT RECORDED IN THE REAL PROPERTY RECORDS OF THE COUNTY OF FORT BEND.

5. THE PIPELINES AND/OR PIPELINE EASEMENTS WITHIN THE LIMITS OF THE SUBDIVISION AND AS SHOWN.

6. ALL LANDSCAPING AND STRUCTURES, INCLUDING FENCES, AT INTERSECTIONS SHALL CONFORM TO THE CITY OF SUGAR LAND AND FORT BEND COUNTY REQUIREMENTS FOR MOTORISTS.

7. NO OWNER OF THE LAND SUBJECT TO AN EASEMENT MAY PLACE, BUILD OR CONSTRUCT ANY BUILDING, BUILDING, STRUCTURE OR OBSTRUCTION OF ANY KIND OVER, UNDER OR FROM THE EASEMENT, PROVIDED THAT SUCH OWNER MAY CROSS OR CROSS THE EASEMENT WITH A ROAD OR DRIVEWAY, PROVIDED THAT THE CROSSING SHALL BE LIMITED TO THE AMOUNT OF PAVING THAT MUST BE PROVIDED TO PROVIDE ACCESS TO THE EASEMENT OF THE CITY TO REPAIR/REPAIR ANY PAVING REMOVED IN THE EXERCISE OF THIS EASEMENT.

8. WOOD SHINGLES ARE HEREBY PROHIBITED WITHIN THIS SUBDIVISION.

9. EASEMENTS SHALL BE CONSTRUCTED AS REQUIRED BY THE CITY OF SUGAR LAND. THE CITY OF SUGAR LAND SHALL BE RESPONSIBLE FOR THE CONSTRUCTION OF ANY KIND OVER, UNDER OR FROM THE EASEMENT, PROVIDED THAT SUCH OWNER MAY CROSS OR CROSS THE EASEMENT WITH A ROAD OR DRIVEWAY, PROVIDED THAT THE CROSSING SHALL BE LIMITED TO THE AMOUNT OF PAVING THAT MUST BE PROVIDED TO PROVIDE ACCESS TO THE EASEMENT OF THE CITY TO REPAIR/REPAIR ANY PAVING REMOVED IN THE EXERCISE OF THIS EASEMENT.

10. CABRERA DRIVE RESERVES AT RIVERSTONE (IES) WITHIN SHADEN ZONE "A" AS PER FIGURE INSURANCE RATE, MAP NUMBER 481520200, DATED APRIL 2, 2014.

11. MASTER NOTE N/A.

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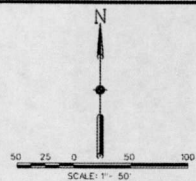
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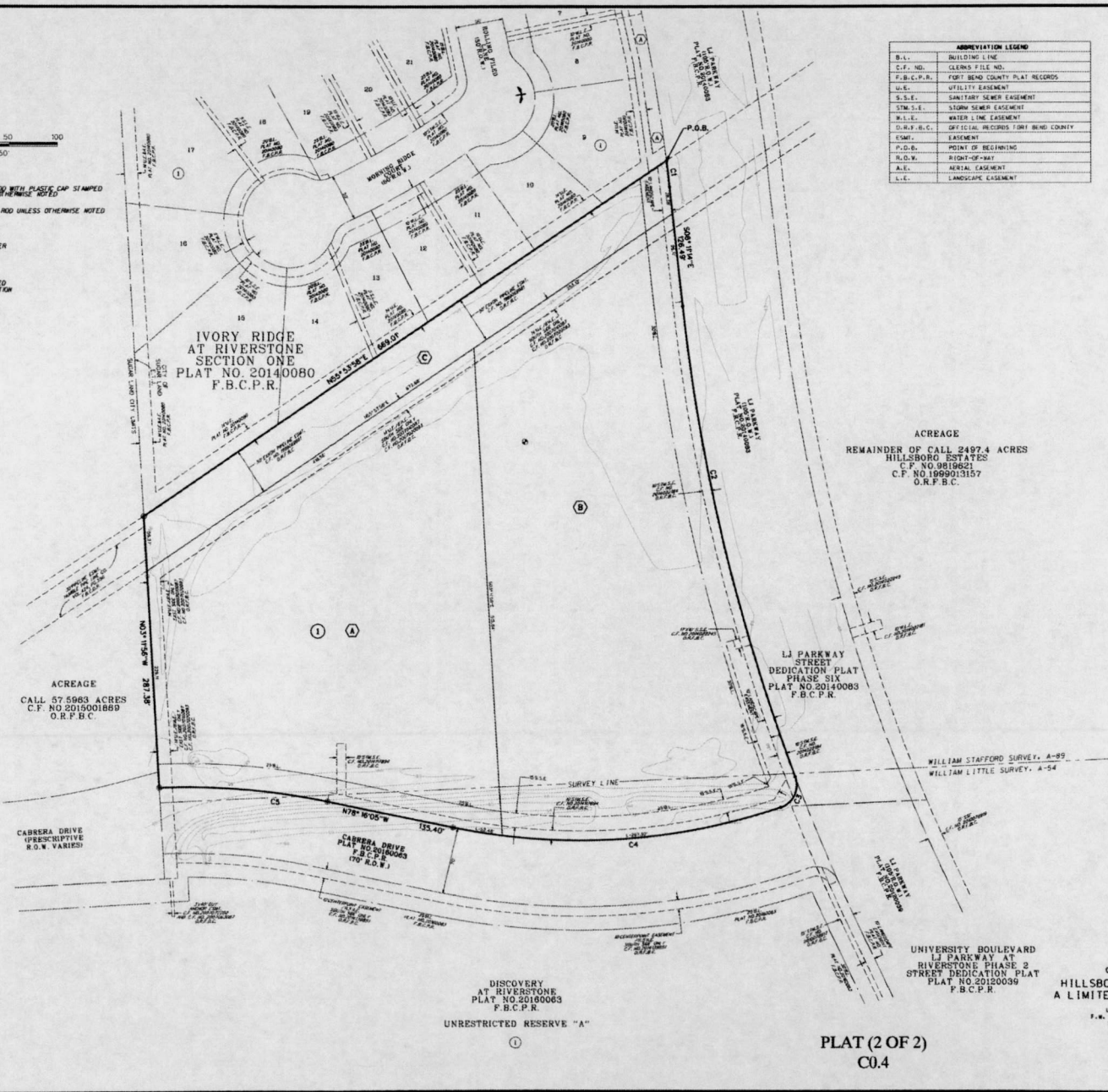
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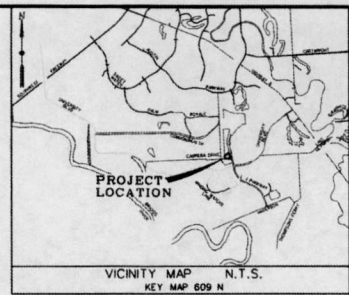




- SET 5/8" - 1" IRON ROD WITH PLASTIC CAP STAMPED "FOOTED" AS UNLESS OTHERWISE NOTED
- FOUND 5/8" - 1" IRON ROD UNLESS OTHERWISE NOTED
- 1 - INDICATES LOT NUMBER
- ① - INDICATES BLOCK NUMBER
- A - INDICATES RESERVE
- PLUGGED AND ABANDONED OR OFF GAS WELL LOCATION



ABBREVIATION LEGEND	
B.L.	BUILDING LINE
C.F. NO.	CLERKS FILE NO.
F.B.C.P.R.	FORT BEND COUNTY PLAT RECORDS
U.E.	UTILITY EASEMENT
S.S.E.	SANITARY SEWER EASEMENT
STW.S.E.	STORM SEWER EASEMENT
W.L.E.	WATER LINE EASEMENT
D.A.P.-B.C.	OFFICIAL RECORDS FORT BEND COUNTY
EASEM.	EASEMENT
P.D.B.	POINT OF BEGINNING
R.O.W.	RIGHT-OF-WAY
A.E.	AERIAL EASEMENT
L.E.	LANDSCAPE EASEMENT



RESERVE TABLE		
RESERVE "A"	COMMERCIAL	3.0241 ACRES
RESERVE "B"	COMMERCIAL	3.4733 ACRES
RESERVE "C"	LANDSCAPE/OPEN SPACE	0.7761 ACRES
TOTAL:		7.2735 ACRES

CURVE DATA TABLE				
STATIONING	CHORD BEARING	CHORD LENGTH	ARC LENGTH	ANGLE
1+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
2+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
3+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
4+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
5+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
6+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
7+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
8+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
9+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"
10+00.00	S 89° 15' 00" E	100.00	100.00	89° 15' 00"

## CABRERA DRIVE RESERVES AT RIVERSTONE

BEING 7.2735 ACRES  
LOCATED IN THE  
WILLIAM STAFFORD SURVEY, A-89 AND  
THE WILLIAM LITTLE SURVEY, A-54,  
SUGAR LAND E.T.J.  
FORT BEND COUNTY, TEXAS

0 LOTS 1 BLOCK 3 RESERVES

SCALE 1"=50' DATE: APRIL 2016

RIVERSTONE DEVELOPMENT

OWNER / DEVELOPER:  
HILLSBORO ESTATES L.L.C.,  
A LIMITED LIABILITY COMPANY

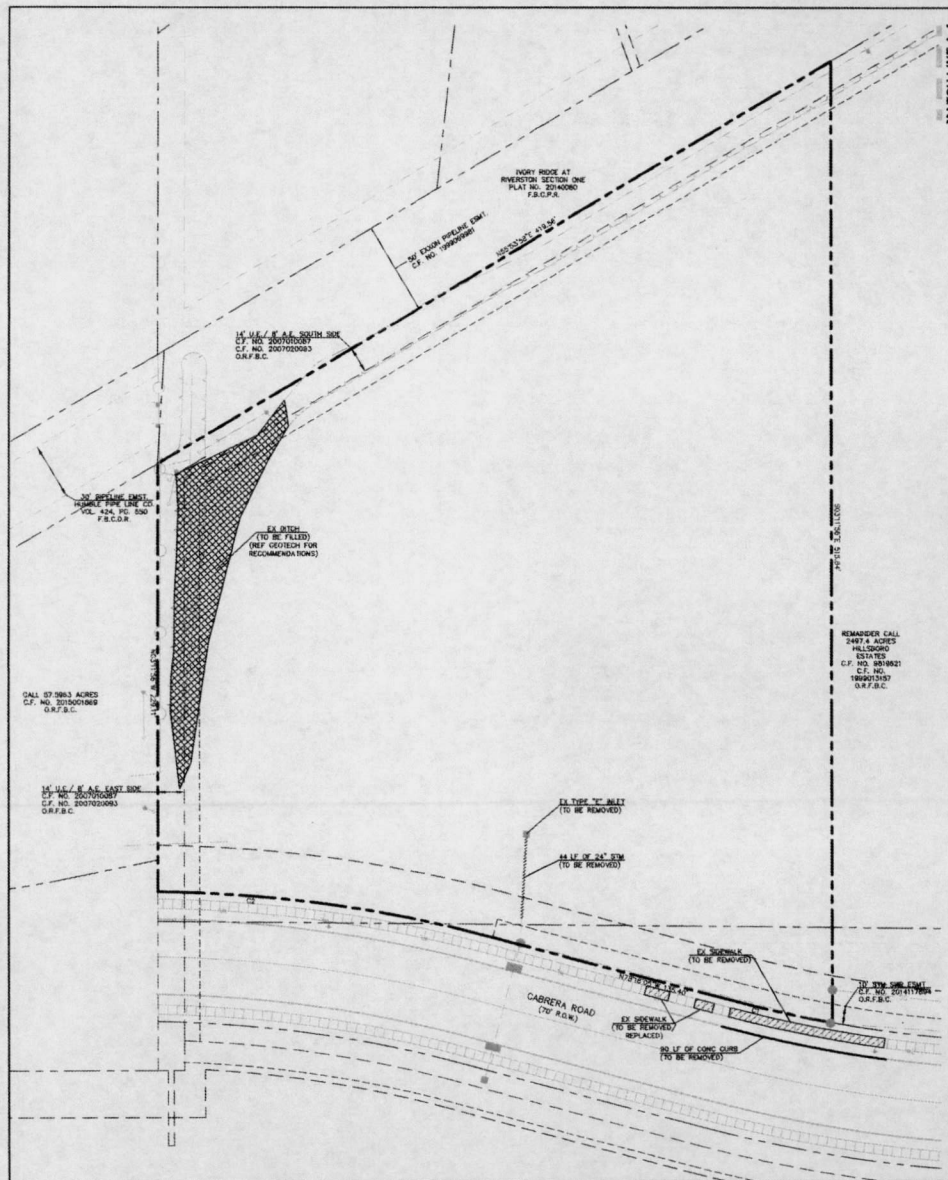
LARRY D. JOHNSON, MANAGER  
P.O. BOX 1111, 1111 PRESIDENT  
5008 RIVERWAY, SUITE 110  
HOUSTON, TEXAS 77056  
PHONE: 281-499-8100



ENGINEER/SURVEYOR:  
3910 RICHMOND AVENUE, SUITE 400  
NORTH RICHMOND, TEXAS 77406  
(713) 281-1111 FAX (713) 281-1112  
TOLP'S FIRM REGISTRATION NO. 380  
TOLP'S FIRM REGISTRATION NO. 100488

DISCOVERY  
AT RIVERSTONE  
PLAT NO. 20160063  
F.B.C.P.R.  
UNRESTRICTED RESERVE "A"  
①

PLAT (2 OF 2)  
C0.4



CURVE TABLE					
CURVE	RADIUS	DELTA	APC	BEARING	CHORD
C1	660.00'	04°33'20"	52.48'	N 80°32'45" W	52.48'
C2	740.00'	13°56'36"	180.14'	N 80°14'33" W	179.71'



BENCHMARK  
 ALL BENCHMARKS SHOWN ON THIS PLAN  
 COORDINATE SYSTEM, SOUTH-CENTRAL ZONE AND  
 REFERENCE TO THE NORTH LINE TO BE FOUND FROM  
 AN INVERSE SECTION (SEE A FOUNDATION  
 RECORD IN PLAT NUMBER 100000 OF THE  
 FORT BEND COUNTY PLAT RECORDS)  
 ELEVATIONS USED FOR DIMENSIONING CONTOUR  
 LINES ARE BASED ON MDS-100 DATUM, 1973  
 ADJUSTMENT TO CONFORM TO NAVD83  
 DATUM, 1983 ADJUSTMENT SUBJECT LIT AS  
 ESTABLISHED BY CITY OF SUGAR LAND SPECIFIC  
 CONTROL STATION L&A LOCATED AT THE  
 INTERSECTION OF EXISTING ROAD AND SUGAR LAND  
 ROAD  
 TEMPORARY BENCHMARK "1"  
 BENCHMARK NUMBER 100000 TO BE FOUND FROM  
 WEST CORNER OF PROPERTY  
 ELEVATION = 86.00' (MDS 1973, 1973 ADJ)

#### LEGEND

EXISTING GAS LINE  
 EXISTING STORM SEWER  
 EXISTING WATER LINE  
 EXISTING SANITARY SEWER  
 EXISTING POWER LINE  
 EXISTING MANHOLE  
 EXISTING CONTOUR  
 FULL DEPTH SAWCUT

#### GENERAL NOTES

1. ALL SAWCUTS TO EXTEND FULL DEPTH OF EXISTING PAVEMENT, AND IN NO CASE SHALL THE PROPOSED CONCRETE PAVEMENT SECTION BE LESS THAN 24 INCHES IN WIDTH. CONTRACTOR TO SAWCUT ALONG CENTER OF EXISTING PAVEMENT AND ADJUST LOCATION OF SAWCUT TO ENSURE ADEQUATE WIDTH OF PROPOSED PAVEMENT.
2. CONTRACTOR IS RESPONSIBLE FOR PROVIDING TRAFFIC CONTROL FOR ALL WORK TO BE DONE IN RIGHT-OF-WAY ACCORDING TO THE LATEST MUTCD REQUIREMENTS.
3. CONTRACTOR TO CLEAN AND GRUB PROJECT SITE AS NECESSARY FOR INSTALLATION OF PROPOSED FACILITIES. CLEANING AND GRUBBING CONSISTS OF REMOVAL AND DISPOSAL OF WEEDS, STUMPS, BRUSH, ROOTS, VEGETATION, LOGS, RUBBISH AND OTHER DETRIMENTAL MATERIAL WITHIN THE DESIGNATED AREA. CONTRACTOR TO REMOVE STUMPS AND ROOTS WITHIN CLEARING LIMITS TO MINIMUM DEPTH OF TWO (2) FEET BELOW NATURAL GROUND ELEVATION. CLEARED AND GRUBBED MATERIAL BECOMES PROPERTY OF THE CONTRACTOR, TO BE EITHER REMOVED FROM THE WORK SITE OR DISPOSED OF AT NO EXTRA COST TO THE OWNER.

MULTIPLE EXISTING PUBLIC AND PRIVATE UTILITY LINES SHOWN ON THESE DRAWINGS  
 REFLECT INFORMATION OBTAINED FROM RECORD DRAWINGS AND  
 MAY NOT INCLUDE ALL EXISTING UTILITIES. CONTRACTOR IS TO USE  
 EXTREME CAUTION DURING ALL CONSTRUCTION ACTIVITIES AND IS  
 SOLELY RESPONSIBLE FOR DAMAGE TO EXISTING UTILITIES.

CALL BEFORE YOU DIG  
 TEXAS ONE CALL PARTICIPATION REQUEST  
 72 HOURS NOTICE BEFORE YOU DIG, DRILL  
 OR BURN - STOP CALL  
 TEXAS ONE CALL SYSTEM  
 1-800-445-6005  
 IN HOUSTON  
 (713)-223-4567

AUTHORIZATION IS VALID FOR 1 YEAR.  
 APPROVED: *Magi Leach*  
 DATE: 9/19/16

DEMOLITION PLAN

RIVERSTONE STORAGE  
CITY OF SUGAR LAND ET AL, FORT BEND  
COUNTY, TEXAS

SHEET  
C1.0

01 AUGUST 2016









CALL BEFORE YOU DIG  
TEXAS ONE CALL PARTICIPANTS REQUEST  
72 HOURS NOTICE BEFORE YOU DIG, DRILL  
OR BLAST - STOP CALL  
TEXAS ONE CALL SYSTEM  
1-800-545-6005  
IN HOUSTON  
(713)-223-4567

AUTHORIZATION IS VALID FOR 1 YEAR.

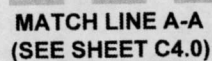
APPROVED: Maggi Dot  
DEPARTMENT COORDINATOR

DATE: 9/19/16

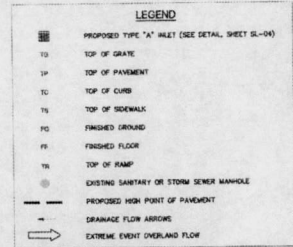




**MATCH LINE B-B  
(SEE THIS SHEET)**



**MATCH LINE B-B**  
**(SEE THIS SHEET)**




- 

MULTIPLE EXISTING PUBLIC AND PRIVATE UTILITY LINES EXIST ON THIS SITE. THE UTILITY LINES SHOWN ON THESE DRAWINGS REFLECT INFORMATION OBTAINED FROM RECORD DRAWINGS AND MAY NOT INCLUDE ALL EXISTING UTILITIES. CONTRACTOR IS TO USE EXTREME CAUTION DURING ALL CONSTRUCTION ACTIVITIES AND IS SOLELY RESPONSIBLE FOR DAMAGE TO EXISTING FACILITIES.

CALL BEFORE YOU DIG  
TEXAS ONE CALL PARTICIPANTS REQUEST  
72 HOURS NOTICE BEFORE YOU DIG, DRILL  
OR BLAST - STOP CALL  
TEXAS ONE CALL SYSTEM  
1-800-545-6005  
IN HOUSTON  
(713)-223-4567

AUTHORIZATION IS VALID FOR 1 YEAR.  
APPROVED: Mary D. J.  
DATE: 9/19/16  
DEVELOPMENT COORDINATOR

<p>RIVERSTONE STORAGE CITY OF COUNTRY EIT, FORT BEND COUNTY, TEXAS</p>	<p>GRADING PLAN (2 OF 2)</p>	<p>01 AUGUST 2016</p>  <p>ALJ Lindsey A. Lindsey, P.E. 1411180 FORT BLVD, SUITE 200 HOUSTON, TEXAS 77057 281.671.1002</p>	<p>DATE: 08/01/2016 DRAWING NO.: 16-017</p>
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DATE: 9/19/00

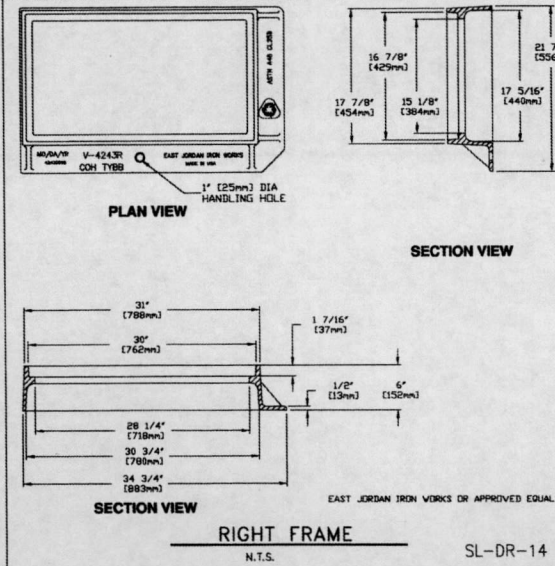
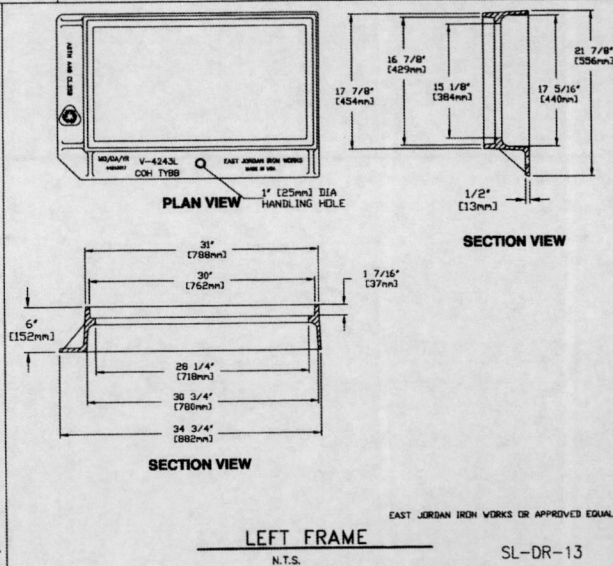
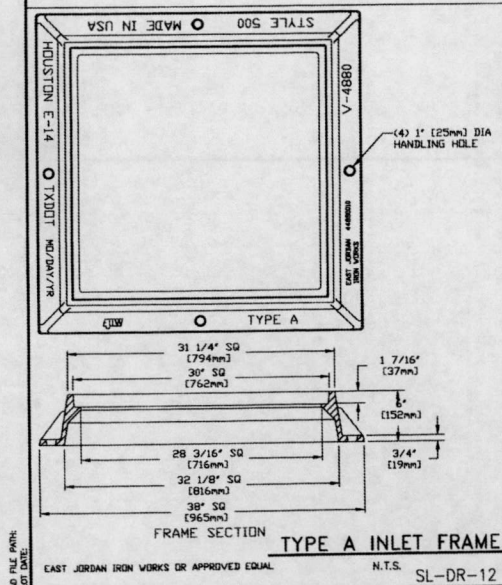
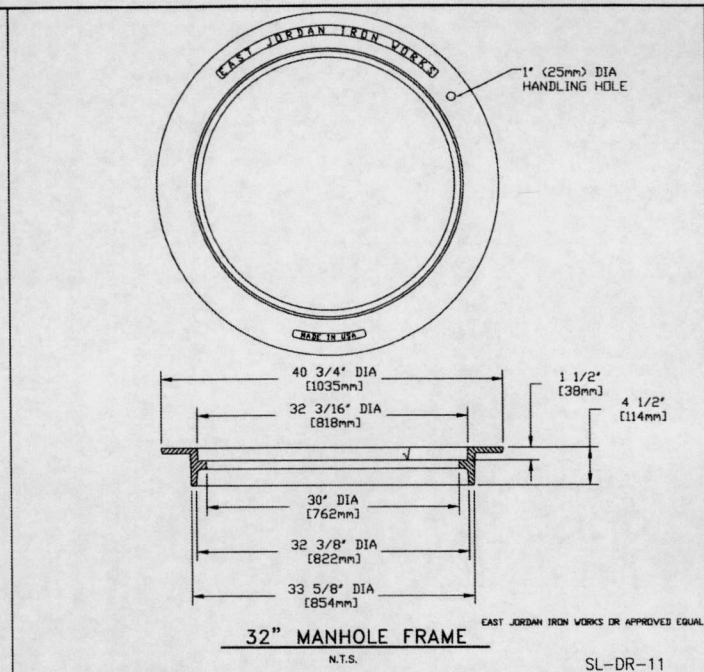
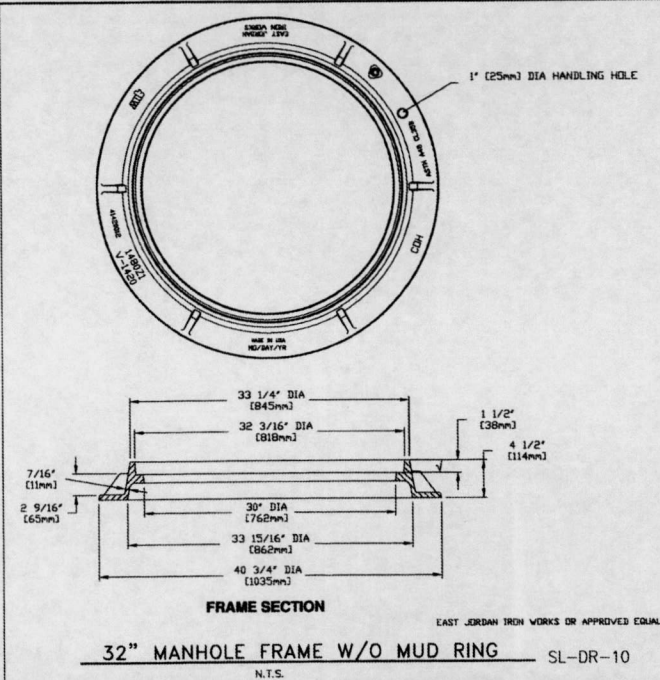
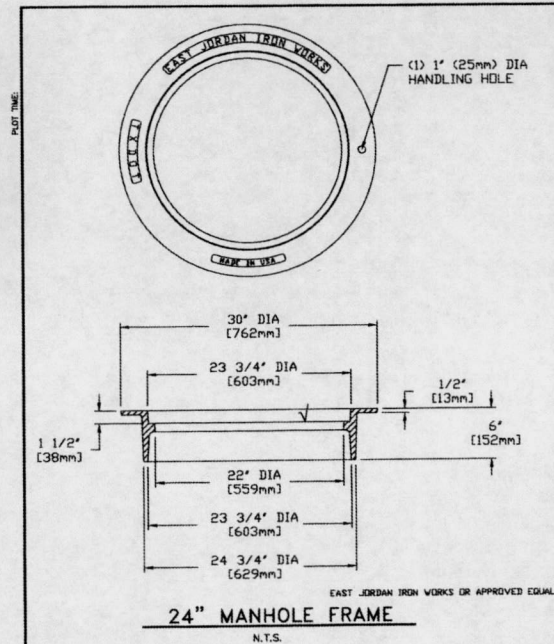









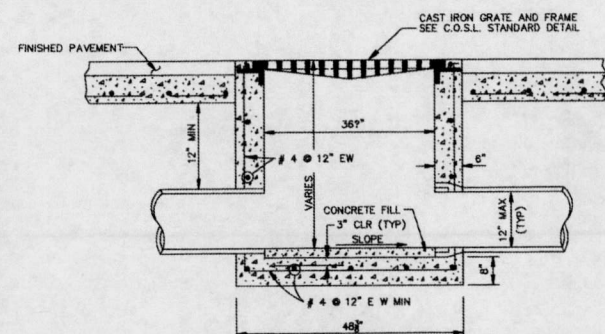




No.	DIST.	REGION			
SEAL:					
DATE _____					
DESIGN ENGINEER: _____					
 <p>CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT</p>					
<u>CONSTRUCTION PLANS FOR:</u>					
<u>RIVERSTONE STORAGE</u>					
<u>STORM SEWER</u>					
<u>CONSTRUCTION DETAILS</u>					
JOB NO.: DRAWN BY: CHECKED BY: SCALE:			SL-03  SHEET OF		

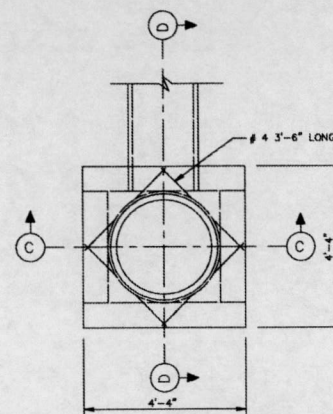
Maggi D 9/19/16



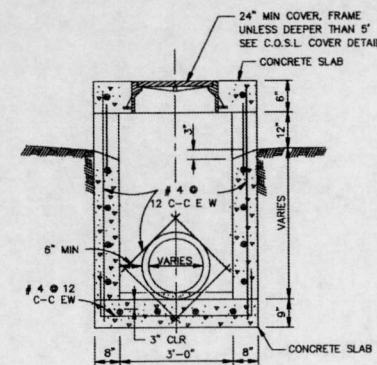


SECTION (C)  
TYPE "D" INLET

SL-DR-24



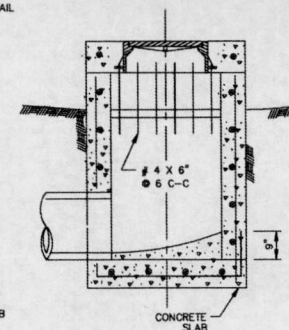
### PLAN



SECTION C

TYPE "E" INLET  
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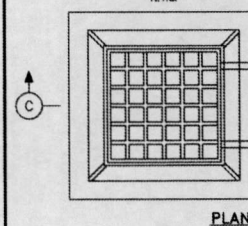
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SECTION (D)

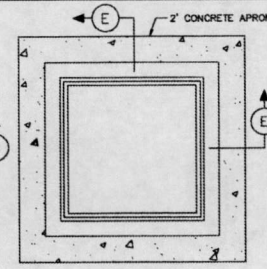
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TYPE "A" INLET  
N.T.S.

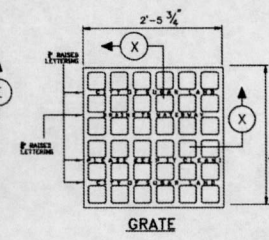
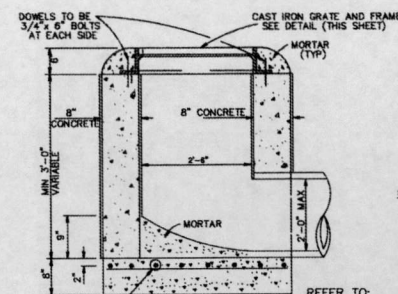
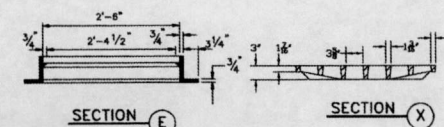
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PLAN



FRAME

GRATESECTION A

SECTION E

SECTION \_\_\_\_\_


GENERAL CONSTRUCTION NOTES:

1. CONCRETE CAST WALLS SHALL HAVE #4 REBAR PLACED @ 12" C-C EW.

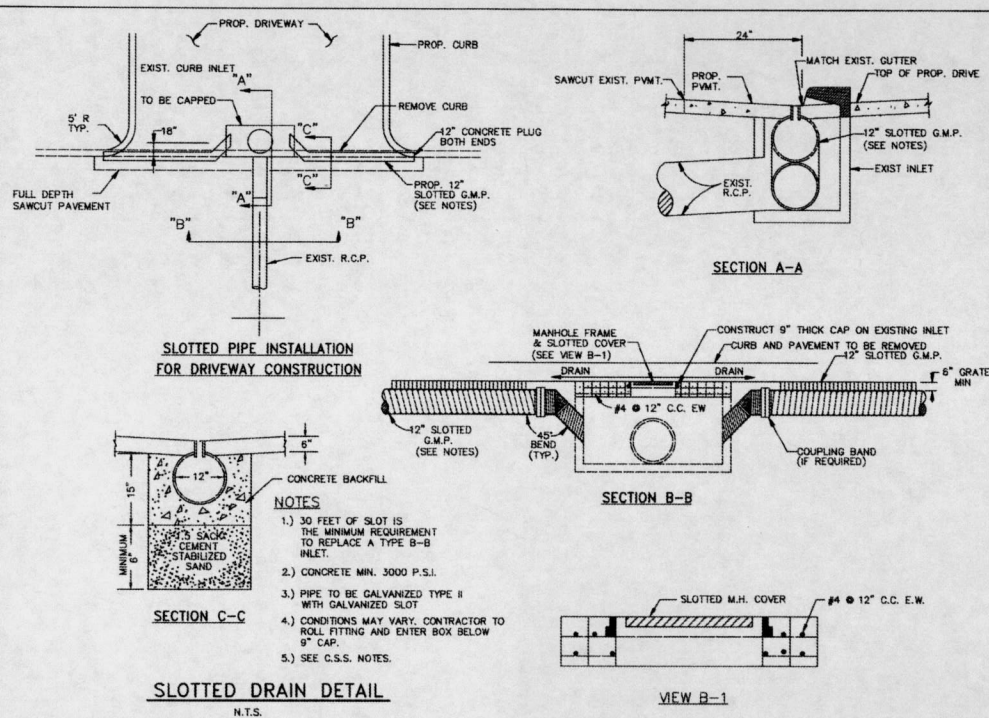
REFER TO:

1. GENERAL NOTES, C.S.S & CONCRETE NOTES.
2. STORM SEWER NOTES

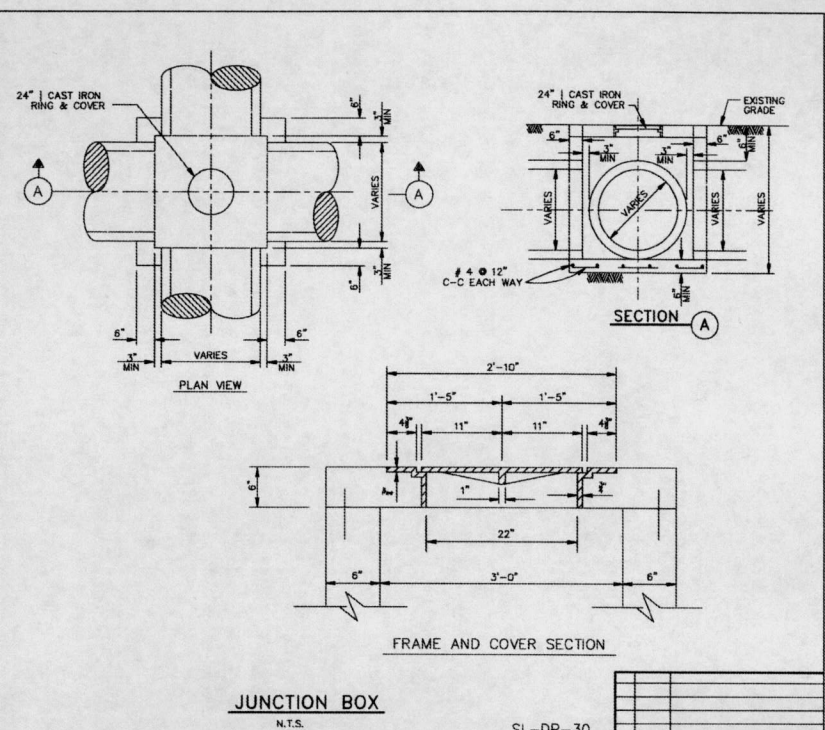
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IN	DIST				BEDNOON				
SEAL:									
						DATE _____			
DESIGN ENGINEER _____									
									
CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT									
<u>CONSTRUCTION PLANS FOR:</u> <u>RIVERSTONE STORAGE</u>									
<u>STORM SEWER INLET</u> <u>CONSTRUCTION DETAILS I</u>									
JOB NO.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:					SL-04				
SHEET					OF				

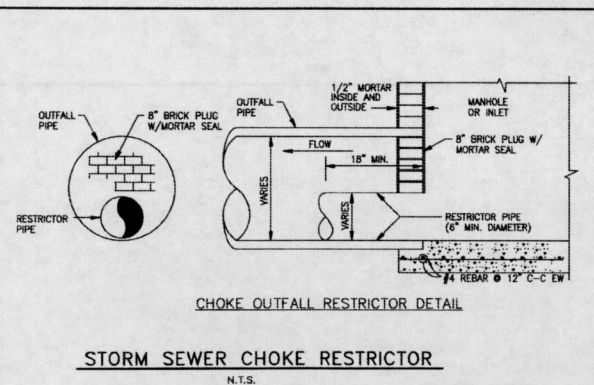
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SL-DR-29



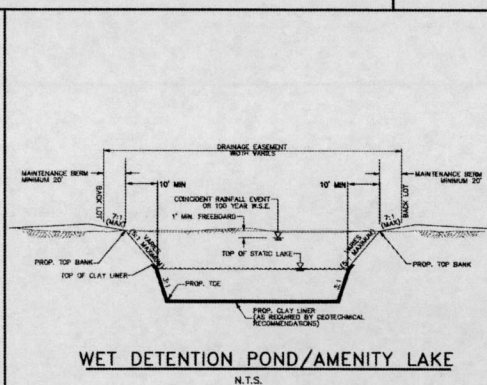
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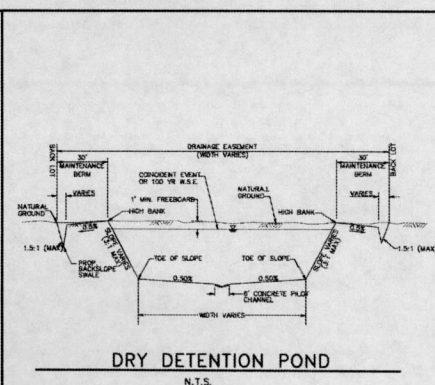
SL-DR-31

**REFER TO:**

1. GENERAL NOTES
2. STORM SEWER NOTES



SL-DR-32

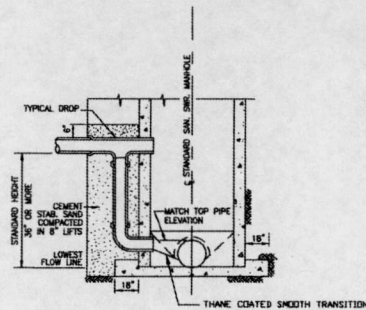


SL-DR-33

CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT	
CONSTRUCTION PLANS FOR: RIVERSTONE STORAGE	
STORM SEWER CONSTRUCTION DETAILS	
JOB No.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-05 SHEET OF

*Maggi* 9/19/16

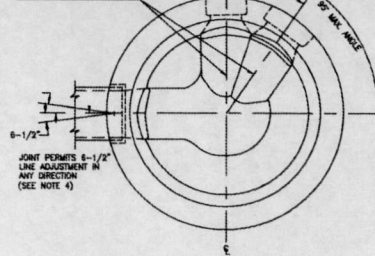




**STANDARD DROP DETAIL**  
(SEE C.S.S. NOTES)

SL-SS-05

TYPICAL CHANNEL ARRANGEMENTS WHEN REQUIRED, FILLETS MAY BE ADDED IN THE FIELD TO DIRECT THE FLOW TO ACCOMMODATE A PARTICULAR NEED.



**PIPING CONNECTIONS DETAIL**

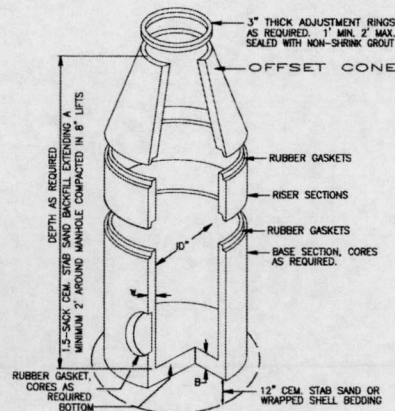
SL-SS-05

- NOTES:**
1. INFLUENT AND EFFLUENT PIPING CONNECTIONS TO MANHOLE SHALL BE ALIGNED TO PREVENT REVERSE FLOW.
  2. INFLUENT AND EFFLUENT CONNECTIONS ARE LIMITED TO A MAXIMUM 90° INCLUDED ANGLE OF CONVERGENCE.
  3. MINIMUM 30° AND MAXIMUM 90° INCLUDED ANGLES MUST BE PROVIDED BETWEEN MULTIPLE INFLUENT CONNECTIONS.
  4. ANGLE OF DEFLECTION AT PIPING JOINTS AS PER MANUFACTURER'S RECOMMENDATIONS.

**NOTES:**

1. CONTRACTOR SHALL CONTACT CITY OF SUGAR LAND ENGINEERING DEPARTMENT AT (281) 275-1780 IF WET SAND OR OTHER UNDESIRABLE SOIL CONDITIONS, HIGH WATER TABLE AND/OR UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED.
2. SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF SUGAR LAND DESIGN STANDARDS SHALL GOVERN.
3. SANITARY SEWER MANHOLES SHALL BE CONSTRUCTED A MINIMUM OF FOUR FEET FROM BACK OF CURB ON CURB AND OUTSIDE ROADWAYS AND THREE FEET FROM EDGE OF TRAVELLED ROADWAY ON THOSE THROUGHDRAWS HAVING NO CURBING, MEASURED FROM OUTSIDE DIAMETER OF MANHOLE. SANITARY SEWER MANHOLES SHALL NOT BE INSTALLED BENEATH STREET PAVING EXCEPT WHERE SPECIFICALLY AUTHORIZED BY CITY ENGINEER AND SO DESIGNATED ON APPROVED CONSTRUCTION DRAWINGS.
4. ALL SUCH MANHOLE COVERS SHALL HAVE THE CITY OF SUGAR LAND EMBLEM AND THE WORDS "SUGAR LAND" AND "SANITARY SEWER" CAST IN FINISHED RELIEF AS DEPICTED IN CITY OF SUGAR LAND STANDARD CONSTRUCTION DETAILS SHEETS. ALL SANITARY SEWER MANHOLES SHALL INCORPORATE INFLOW PROTECTORS.
5. MANHOLE RIM ELEVATIONS SHOWN ON PLANS ARE APPROXIMATE ONLY. CONTRACTORS SHALL ADJUST RIM ELEVATIONS TO 0.4 FEET ABOVE FINISHED GRADE WITHIN RIGHTS-OF-WAY AND EASEMENTS AT EACH MANHOLE LOCATION AFTER FINAL GRADING. ADJUSTMENTS TO MANHOLE RIM ELEVATIONS SHALL BE ACCOMPLISHED BY THE USE OF THROAT RINGS ONLY (MAX. OF 24 INCHES PERMITTED). THE AREA ADJACENT TO SANITARY SEWER MANHOLE LOCATIONS SHALL BE GRADED AWAY FROM SUCH MANHOLES SO AS PREVENT ENTRY OF STORM WATER RUNOFF TO THE SANITARY SEWER SYSTEM.
6. DROP CONNECTIONS ARE REQUIRED WHEN INVERT ELEVATION OF SEWER LINE TO BE CONNECTED EXCEEDS 36 INCHES DISTANCE ABOVE INVERT ELEVATION OF MANHOLE BASE. ALL DROP CONNECTIONS SHALL BE CONSTRUCTED OF SAME MATERIALS AS SEWER AND SHALL BE CONSTRUCTED EXTERIOR TO MANHOLE. PIPE CONNECTIONS TO MANHOLES SHALL BE SO CONSTRUCTED AS TO BE WATERTIGHT AND TO ALIGN UPPER INSIDE PIPE WALL ELEVATIONS OF ALL PIPING CONNECTED TO BASE OF MANHOLE UNIFORMLY, REGARDLESS OF PIPE DIAMETERS. DROP ASSEMBLIES SHALL BE BEDDED IN CEMENT STABILIZED SAND. CEMENT STABILIZED SAND SHALL EXTEND A MINIMUM OF SIX INCHES PAST PIPING LATERALLY FROM BASE OF MANHOLE UPWARD TO A POINT SIX INCHES (MINIMUM) ABOVE THE HORIZONTAL SEWER PIPING WHERE CONNECTED TO THE MANHOLE ABOVE THE VERTICAL DROP.
7. CONNECTIONS TO EXISTING AND/OR NEW SANITARY SEWER MANHOLES CONSTRUCTED OF PRECAST CONCRETE NOT HAVING PRECURED HOLES OF CORRECT DIAMETER, LOCATION AND FIELD CORING ONLY SHALL ACCOMPLISH INVERT ELEVATION. IN NO INSTANCE WILL EITHER MANUAL OR PNEUMATIC CHISELS AND/OR HAMMER DRILLS BE UTILIZED TO BREAK HOLES IN PRECAST CONCRETE MANHOLES, PIPE SEGMENTS OR OTHER PRECAST STRUCTURES SUCH AS LIFT STATIONS.
8. BEDDING AND BACKFILL OF SANITARY SEWER PIPING AND MANHOLES SHALL BE ACCOMPLISHED IN ACCORDANCE WITH CITY OF SUGAR LAND DESIGN STANDARDS. A 1.5-SACK MAX IS REQUIRED FOR ALL CEMENT STABILIZED SAND BEDDING AND SUCH BEDDING SHALL BE INSTALLED IN LIFTS OF EIGHT INCHES MAXIMUM.
9. SOLVENT WELDED JOINTS ARE NOT AN ACCEPTABLE JOINING METHOD FOR SANITARY SEWERS CONSTRUCTED OF PVC PIPING MATERIALS AND LOCATED WITHIN RIGHTS-OF-WAY OR EASEMENTS. RUBBER GASKETED BELL AND SPOOT SANITARY SEWER JOINTS ARE MANDATORY. BELL (DOWN) ENDS OF PIPE SHALL BE INSTALLED ON UPSTREAM SIDE WITH SPOOT (UP) ENDS ORIENTED DOWNSTREAM.
10. SANITARY SEWER SERVICE LEADS SHALL BE EXTENDED TO RIGHTS-OF-WAY AND/OR EASEMENT LINES AS APPLICABLE AND CAPPED/PLUGGED FOR FUTURE CONNECTIONS. SERVICE LEADS ARE TO BE INSTALLED SO AS TO PASS UNDER POTENTIAL WATER PIPING AT CROSSINGS WHERE POSSIBLE.
11. EACH SANITARY SEWER SERVICE LEAD STUB, PLUGGED WYE BRANCH OUTLET AND STACK SHALL BE MARKED WITH A PRESSURE TREATED 4 X 4 TIMBER AT THE TIME OF CONSTRUCTION, BEGINNING AT THE INVERT ELEVATION OF THE STUB OR WYE AND AT AN ELEVATION TWO FEET BELOW THE CAPPED TERMINATION POINT OF THE STACK AND EXTENDING TWO FEET ABOVE FINISHED GRADE. EACH TIMBER MARKER SHALL BE PAINTED RED AND LABELED "SANITARY SEWER STUB", "SANITARY SEWER WYE" OR "SANITARY SEWER STACK" AS APPROPRIATE WITH STUB, WYE BRANCH OUTLET OR STACK SIZE NOTED.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING LOCATION OF ALL EXISTING UTILITIES PRIOR TO EXCAVATION. DURING THE COURSE OF ANY AND ALL CLEANING, GRABBING, FILL, GRADING, EXCAVATION OR OTHER CONSTRUCTION, CONTRACTOR SHALL ENSURE THAT STORM DRAINAGE PATHWAYS ARE MAINTAINED AND REMAIN OPEN TO ENSURE POSITIVE DRAINAGE AND THAT SUCH CONVEYANCES ARE NOT IMPAIRED OR BLOCKED IN ANY WAY. STORM SEWER INLETS SHALL BE PROTECTED FROM ENTRY OF SALT, TRUCK OILS AND ANY SUBSTANCES DELETERIOUS TO THE STORM SEWER SYSTEM AND/OR WATERWAYS RECEIVING STORM WATER RUNOFF. CONTRACTOR SHALL AT COMPLETION OF WORK, FILL LOW SPOTS AND GRADE ALL RIGHTS-OF-WAY AND UTILITY EASEMENTS AND REPAIR/RESTORE DITCHES AS NECESSARY TO MAINTAIN AND/OR ESTABLISH POSITIVE DRAINAGE.
13. ALL SANITARY SEWER PIPING AND BEDDING SHALL BE INSPECTED BY CITY CONSTRUCTION INSPECTOR FOR CONFORMANCE WITH CITY INFRASTRUCTURE STANDARDS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY NOTIFY THE CITY OF ALL CONSTRUCTION ACTIVITIES AND TO CONFORM TO CITY OF SUGAR LAND PUBLIC WORKS DEPARTMENT INSPECTION POLICY.
14. C.S.S. 1" ABOVE PIPE AND 6" BELOW PIPE MAXIMUM.
15. SEE GENERAL NOTES AND C.S.S. NOTES.

SL-SS-07



**SPECIFICATIONS:**

- CONCRETE: CLASS 1 CONCRETE WITH A DESIGN STRENGTH OF 4500 PSI AT 28 DAYS. RATES FOR H-20 LOADING.
- REINFORCEMENT: STRUCTURAL REINFORCEMENT CONFORMING TO ASTM-C-476.
- C.I. CASTINGS: CAST IRON FRAMES AND LIDS ARE MANUFACTURED OF GREY CAST IRON CONFORMING TO ASTM A48-78 CLASS 35.

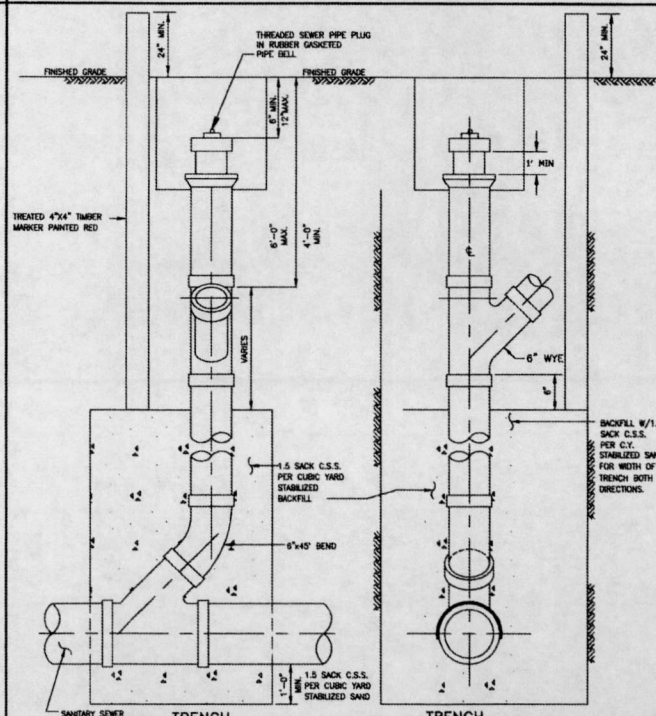
**NOTES:**

1. LIFTING INSERTS AS REQUIRED.
2. ALL JOINTS SHALL BE SEALED WITH APPROVED RUBBER GASKET.
3. STRUCTURE TO BE PLACED ON 12" STABILIZED BASE.
4. C.S.S. SHALL BE BROUGHT TO WITHIN 2'-FT OF TOP OF MANHOLE.
5. PRE-CAST MANHOLE SHALL BE IN COMPLIANCE APPROVED PRODUCT LIST.
6. THANE COAT SHALL BE IN COMPLIANCE WITH APPROVED PRODUCT LIST.
7. INVERTS MUST COMPLY WITH C.O.S.L. DESIGN MANUAL SPECIFICATIONS.
8. INFLOW PROTECTORS REQUIRED ON ALL SANITARY MANHOLES.
9. REFER TO SANITARY MANHOLE LIDS, C.S.S. NOTES, MODIFIED BEDDING DETAILS AND NOTES.

**PRECAST SANITARY MANHOLE**

N.T.S.

SL-SS-03

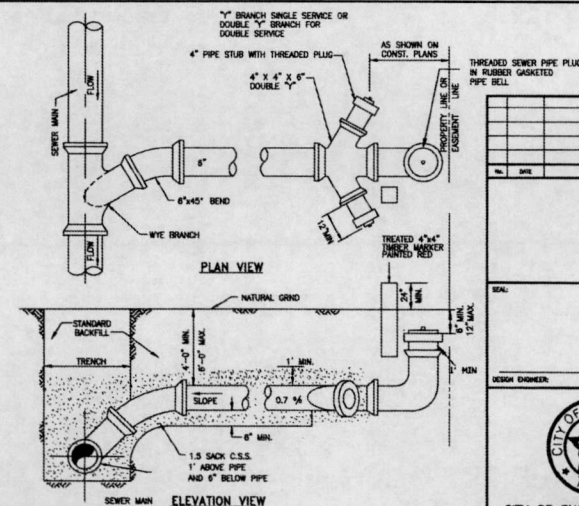


**TRENCH SIDE VIEW  
STACK DETAIL**

N.T.S.

SL-SS-04

- NOTES:**
- A) NO STACKS ON WAYS OVER 18' DEEP OR IN WET SAND CONDITIONS.
  - B) ALL STACK CONNECTIONS SHALL BE IN-LINE FITTINGS.



**SANITARY SEWER SERVICE CONNECTION**  
N.T.S.

SL-SS-06

		DESIGN ENGINEER: _____ DATE: _____	
		CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT	
CONSTRUCTION PLANS FOR: RIVERSTONE TRACE		SANITARY SEWER CONSTRUCTION DETAILS	
JOB NO.: DATE: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-06 SHEET OF	MAGGID 9/19/16	





PILOT LINE

**I**

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGTHS OF EIGHTEEN (18) FEET OR GREATER, HAVING 6 INCHES OF VERTICAL CLEARANCE AND 4 FEET OF HORIZONTAL CLEARANCE

- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.

SL-WA-09

**II**

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE

- WHENEVER POSSIBLE, THE CROSSING SHALL BE CENTERED BETWEEN JOINTS OF THE WASTEWATER LINE.
- MINIMUM WASTEWATER PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- EMBED WASTEWATER LINE IN CEMENT STABILIZED SAND TO AT LEAST 12" INCHES BEYOND EACH JOINT OF CROSSED SECTION OF PIPE.

SL-WA-10

**III**

FOR A LINE TO PASS OVER AN OBSTRUCTION (BUT NOT UNDER IT) MUST HAVE ADEQUATE COVER AND BE APPROVED BY THE ENGINEERING DEPARTMENT.

MIN. PIPE WALL THICKNESS

4"	0.250"
6"	0.250"
8"	0.332"
12"	0.375"
AND LARGER	0.375"

**PVC WATER PIPE OFFSET ASSEMBLY**

SL-WA-11

DETAIL OF WATER LINE CROSSING WASTEWATER FACILITIES WHERE SEPARATION IS LESS THAN 9" (NINE FEET)

**ENCASING PIPE**

- 150 PSI PRESSURE CLASS PIPE
- MINIMUM 18 FEET LONG
- DIAMETER = 2 X WATERLINE DIAMETER
- SPACE AROUND CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS INTERVALS WITH SPACERS)
- CENTERED ON CROSSING
- BOTH ENDS SEALED WITH CEMENT GROUT OR A MANUFACTURED WATER TIGHT SEAL

**MANHOLE CLEARANCE**

SL-WA-12

**ELEVATION**

**CASING SCHEDULE**

CARRIER PIPE	NOMINAL	MIN. WALL THICKNESS (IN.)
6"	12"	0.11
8"	14"	0.15
10"	16"	0.18
12"	18"	0.20

- CASING SIZE AND THICKNESS SHALL CONFORM TO THE MINIMUM REQUIREMENTS AS SHOWN ON CASING SCHEDULE, OTHER PERMITS AS REQUIRED.
- MAINTAIN 8" MINIMUM CLEARANCE BETWEEN THE MAXIMUM OUTSIDE DIAMETER OF CARRIER PIPE AND CASING AT ALL LOCATIONS.
- DIMENSIONS ARE APPROXIMATE ONLY. CONTRACTOR SHALL INSTALL ADEQUATELY SIZED CASING TO ACCOMMODATE THE CARRIER PIPE.

SL-WA-13

**ALTERNATIVE A:**  
PRESSURE RATED WASTEWATER PIPE

SL-WA-14

**ALTERNATIVE B:**  
EXISTING POTABLE WATERLINE CROSSING EXISTING PRESSURE RATED WASTEWATER LINE

SL-WA-15

**ALTERNATIVE C:**  
ENCASE NEW POTABLE WATERLINE UNDER A NEW PRESSURE RATED WASTEWATER LINE

- SAME ENCASMENT CRITERIA AS "ALTERNATIVE B" OR
- NEW WATERLINE (WITHOUT CASING) TO BE CONSTRUCTED OF PVC C-900 (OR-18) DUCTILE IRON WITH MECHANICAL JOINT OR STEEL PIPE WITH WELDED JOINTS.
- BOTH WATERLINE AND WASTEWATER LINE MUST PASS A PRESSURE AND LEAKAGE TEST AS SPECIFIED IN AWWA C900 STANDARDS.

SL-WA-16

**GENERAL NOTES:**

- CONTRACTOR SHALL CONTACT CITY OF SUGAR LAND ENGINEERING DEPARTMENT AT (281) 275-2780 IF WET SAND OR OTHER UNSTABLE SOIL CONDITIONS, HIGH WATER TABLE AND/OR UNDERGROUND OBSTRUCTIONS ARE ENCOUNTERED.
- SHOULD A CONFLICT ARISE BETWEEN INFORMATION DEPICTED ON APPROVED CONSTRUCTION DRAWINGS AND INFORMATION INCLUDED IN PROJECT SPECIFICATIONS, CITY OF SUGAR LAND DESIGN STANDARDS SHALL GOVERN.
- ALL NEW POTABLE WATER LINES AND SANITARY SEWER FORCE MAINS SHALL BE BEDDED IN COMPACTED BANK SAND A MINIMUM OF 8 INCHES BELOW, ABOVE AND TO EITHER SIDE OF SUCH PIPING.
- ALL NEW SANITARY SEWER GRAVITY DRAIN LINES SHALL BE BEDDED IN CEMENT STABILIZED SAND CONFORMING TO THE REQUIREMENTS FOR EITHER CLASS "A" STANDARD BEDDING OR CLASS "A-A" BEDDING AS APPLICABLE. USE OF MODIFIED "A" OR MODIFIED "A-A" BEDDING FOR SANITARY SEWER INSTALLATIONS WHERE WET SAND CONDITIONS ARE ENCOUNTERED AND SEPARATION DISTANCE TO POTABLE WATER LINES IS LESS THAN 9 FEET REQUIRES APPROVAL BY CITY ENGINEER.
- CEMENT STABILIZED BEDDING SHALL BE A MINIMUM 1.5 SACK PER CUBIC YARD C.S.S., INSTALLED IN MAXIMUM LIFTS OF 8 INCHES AND MECHANICALLY TAMPED TO 95% PROCTOR.
- WHERE REQUIRED, SLEEVING (ENCASMENT) OF POTABLE WATER PIPING AND/OR SANITARY SEWER GRAVITY DRAIN LINES AND FORCE MAINS SHALL BE PROVIDED. SUCH SLEEVING (ENCASMENT) SHALL BE CONSTRUCTED OF APPROVED PIPING MATERIALS HAVING A MINIMUM PRESSURE RATING OF 150 PSI AND ANNUAL SPACES AT EACH END SHALL BE SEALED WITH A MATERIAL APPROVED FOR SUCH USE.
- ALL NEW POTABLE WATER LINES SHALL BE SLEEVED (ENCASED) WHERE A MINIMUM OF 9 FEET SEPARATION DISTANCE TO EXISTING OR PROPOSED SANITARY SEWER MANHOLE, LIFT STATION OR WASTEWATER TREATMENT PLANT CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CLOSEST PROXIMITY.
- ALL NEW POTABLE WATER LINES SHALL BE SLEEVED (ENCASED) WHERE LESS THAN 2 FEET VERTICAL OR 4 FEET HORIZONTAL CLEARANCE TO EXISTING OR PROPOSED SANITARY SEWER GRAVITY LINES OR FORCE MAINS CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CLOSEST PROXIMITY.
- ALL NEW POTABLE WATER LINES SHALL BE SLEEVED (ENCASED) WHERE LESS THAN 2 FEET VERTICAL OR 4 FEET HORIZONTAL CLEARANCE TO EXISTING OR PROPOSED SANITARY SEWER GRAVITY LINES OR FORCE MAINS IS UNAVOIDABLE AT POINTS OF CROSSING. SLEEVING (ENCASMENT) IS REQUIRED FOR ALL NEW POTABLE WATER LINES CONSTRUCTED OF PVC PIPING MATERIALS, REGARDLESS OF SEPARATION DISTANCE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
- ALL NEW SANITARY SEWER GRAVITY LINES AND/OR FORCE MAINS CONSTRUCTED OF PVC PIPING MATERIALS SHALL BE SLEEVED (ENCASED) WHERE LESS THAN 2 FEET VERTICAL OR 4 FEET HORIZONTAL CLEARANCE TO EXISTING POTABLE WATER PIPING CANNOT BE MAINTAINED. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CLOSEST PROXIMITY.
- ALL NEW SANITARY SEWER GRAVITY LINES AND/OR FORCE MAINS SHALL BE CONSTRUCTED BELOW EXISTING POTABLE WATER LINES WHERE POSSIBLE. WHERE INSTALLATION ABOVE POTABLE WATER LINES IS UNAVOIDABLE, SLEEVING (ENCASMENT) IS REQUIRED FOR ALL SUCH SANITARY SEWER LINES CONSTRUCTED OF PVC PIPING MATERIALS, REGARDLESS OF SEPARATION DISTANCE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
- WHERE NEW SANITARY SEWER SIZING (24 INCH AND GREATER) PRECLUDES THE USE OF PVC PIPING MATERIALS AND SLEEVING (ENCASMENT) OF THE SANITARY SEWER WOULD OTHERWISE BE REQUIRED BUT IS IMPRACTICAL, THE EXISTING POTABLE WATER PIPING SHALL EITHER BE CUT TO PROVIDE THE REQUIRED MINIMUM CLEARANCES OR SLEEVED (ENCASED) IN LIEU OF SLEEVING (ENCASMENT) THE SANITARY SEWER LINE. SLEEVING SHALL BE A MINIMUM OF 18 FEET IN LENGTH AND CENTERED ON THE POINT OF CROSSING.
- IN NO INSTANCE SHALL A FIRE HYDRANT BE INSTALLED WITHIN 9 LINEAR FEET OF A SANITARY SEWER SYSTEM.
- NOTE: SEPARATION DISTANCES ARE MEASURED FROM THE OUTSIDE DIAMETERS OF EACH PIPE AND FROM THE EXTERIOR SURFACES OF MANHOLES, LIFT STATIONS, WASTEWATER TREATMENT PLANTS AND ASSOCIATED APPURTENANCES.
- REFER TO GENERAL SANITARY, WATER AND C.S.S. NOTES.

SL-WA-18

**IV**  
ENCASED WASTEWATER LINE

NEW POTABLE WATERLINE CROSSING NEW PRESSURE RATED WASTEWATER LINE WITH SEGMENT LENGTHS OF LESS THAN EIGHTEEN (18) FEET

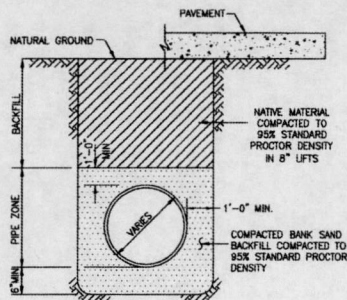
- MINIMUM CASING PIPE STIFFNESS OF 115 PSI AT 5% DEFLECTION.
- MINIMUM CASING PIPE DIAMETER = 2 X WATERLINE DIAMETER.
- THE SPACE AROUND THE CARRIER PIPE SHALL BE SUPPORTED AT FIVE (5) FOOT (OR LESS) INTERVALS WITH SPACERS.
- EACH END CASING IS TO BE SEALED WITH WATER TIGHT NO-SHRINK GROUT OR MANUFACTURED WATER TIGHT SEAL.

SL-WA-17

CAD FILE WITH PLANT DATE

Maggi 9/19/16

PLAN VIEW

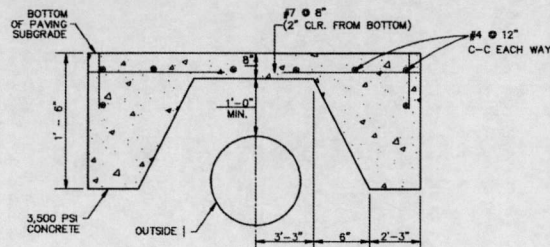


**P.V.C. PIPE BEDDING & BACKFILL**

N.T.S.  
\*SEE CONSTRUCTION NOTES

**SANITARY FORCE MAIN & WATER LINE  
BEDDING AND BACKFILL**

SL-BB-01



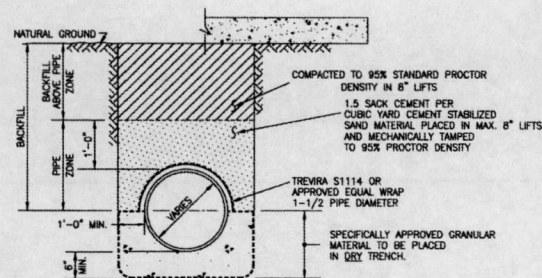
**PROTECTIVE SLAB DETAIL  
ZERO LOAD TRANSFER CONCRETE SLAB**

SL-BB-04

**CONSTRUCTION NOTES**

1. CONTRACTOR SHALL CONTACT SUGAR LAND ENGINEERING DEPARTMENT IMMEDIATELY IF WET SAND CONDITIONS ARE ENCOUNTERED.
2. LIMESTONE AND RECYCLED CONCRETE DIMENSIONS SHOWN ARE TYPICAL BUT MAY BE VARIED BY ORDER OF CITY ENGINEER.
3. LIMESTONE OR RECYCLED CONCRETE SHALL BE IN ACCORDANCE WITH TXDOT SPECIFICATION No. 248 FLEXIBLE BASE, TYPE A, GRADE 2 AGGREGATE.
4. NO BEDDING SHALL BE INSTALLED IN WET CONDITIONS. WHEN WELL POINTING OR IN WET SAND CONDITIONS, MAINTAIN GROUND WATER 1 (FT) BELOW BOTTOM OF TRENCH FOR A MINIMUM OF 24-HRS AFTER BEDDING AND BACKFILL IS IN PLACE.
5. ALL MATERIALS SHALL BE FROM THE APPROVED PRODUCTS LIST UNLESS SPECIFICALLY APPROVED BY THE CITY ENGINEER.
6. SANITARY SEWER BEDDING FOR WET SAND CONDITIONS SHALL BE AS PER MODIFIED "A".
7. ALL SAND BEDDING FOR WATER LINES SHALL BE CLEAN, MECHANICALLY COMPACTED BANK SAND.
8. REFER TO: MANHOLE DETAILS, SANITARY, C.S.S., GENERAL, WATER CROSSING, WATER DISTRIBUTION DETAILS AND NOTES.
9. ALL BEDDING WILL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY.
10. A GEOTECHNICAL REPORT MAY BE REQUIRED TO ANALYZE THE BEARING CAPACITY OF EXISTING SOILS AND MAKE A DETERMINATION IF ADDITIONAL BEDDING AND BACKFILL IS APPROPRIATE.

SL-BB-05



**MODIFIED "A"**

N.T.S.


NOTE: C.S.S. SHALL BE INSTALLED A MIN. 1' ABOVE TOP OF PIPE.

**SANITARY SEWER  
BEDDING AND BACKFILL**

SL-BB-03

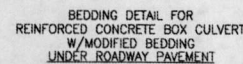
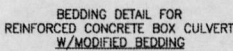
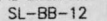
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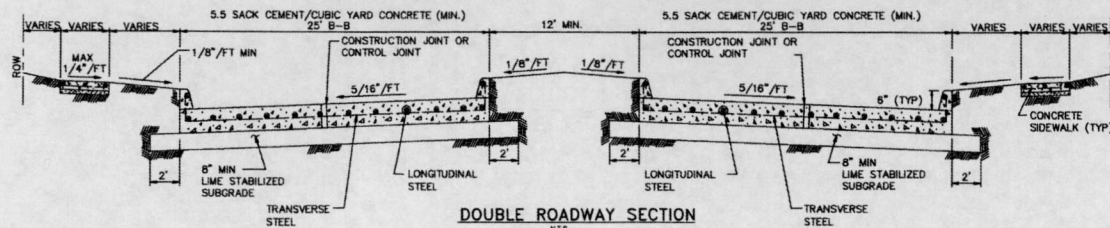
1. GENERAL NOTES
2. C.S.S. NOTES

NO.	DATE	REVISION
DESIGN ENGINEER: _____ DATE: _____		
 CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
CONSTRUCTION PLANS FOR: RIVERSTONE STORAGE		
WATER LINE, SANITARY SEWER FORCE MAIN BEDDING DETAILS		
JOB NO.: DESIGNED BY: DRAWN BY: CHECKED BY: SCALE:	SL-09 SHEET OF	9/19/16

END FILE PATH:  
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SL-BB-15

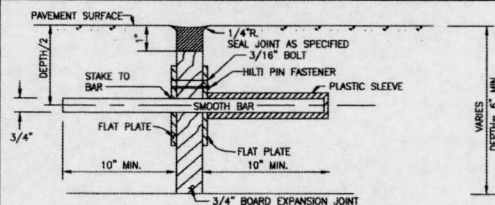


SL-ST-01

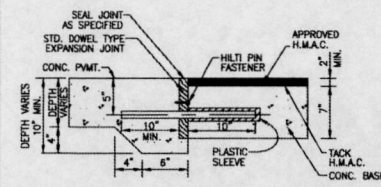
**CONSTRUCTION NOTES:**

1. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES C-C, E.W. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR LOCAL STREETS.
2. 7 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 18 INCHES C-C, IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR STREETS.
3. EIGHT (8) INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 18 INCHES C-C, IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR ARTERIAL STREETS.
4. HARD AGGREGATE IS NOT ALLOWED IN STREET PAVEMENT MIX. ADJUSTURES REQUIRE CITY OF SUGAR LAND PUBLIC WORKS DEPARTMENT APPROVAL.
5. TRANSVERSE EXPANSION JOINTS SHALL BE PLACED AT ALL POINTS OF CURVATURE, POINTS OF TANGENCY AND ALL INTERSECTION CURB RETURN POINTS. MAXIMUM SPACING SHALL BE 200' AND BE SEALED WITH SEALANT CONFORMING TO TxDOT ITEM 360 (A ITEM 438) AND TxDOT DMS-6516, CLASS-2.
6. TRANSVERSE CONTROL JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 20'-0" C-C, AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM-D-1190-74 OR AEGIS-4173-80 FOR PAVEMENT 6" THICK AND GREATER. (ELASTOMERIC TYPE HOT POURED)
7. PAVEMENT FINISH SHALL BE BROOM FINISH. CURING COMPOUND REQUIRED ON ALL CONCRETE.
8. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM QUALITY MANUAL OF THE CITY OF SUGAR LAND. CITY ENGINEER'S APPROVAL.
9. REFER TO GENERAL, C.S.S., AND PAVEMENT NOTES.

SL-ST-12



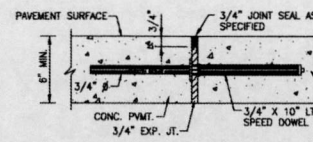
SL-ST-03



**DOWEL TYPE EXPANSION JOINT**

(CONC. PAVING TO CONC. BASE)

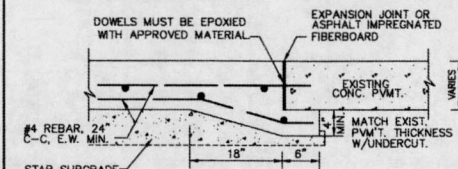
SL-ST-06



**SPEED DOWEL EXPANSION JOINT**

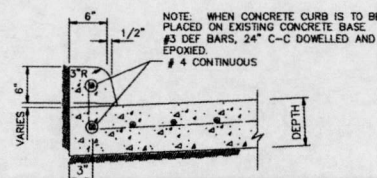
SL-ST-08

DOWELS ARE TO BE IMBEDDED MIN. 12" INTO EXISTING CONCRETE.



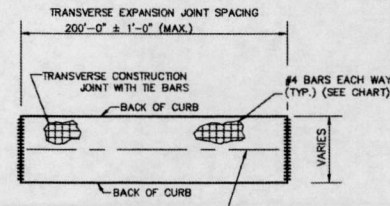
**UNDERCUT DETAIL WITH HEADER**

SL-ST-09



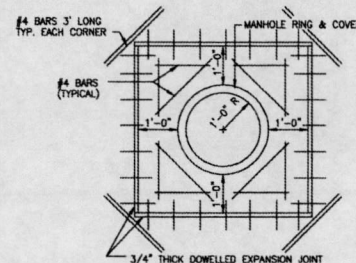
CONSTRUCTION NOTE:  
ALL NEW CURB REQUIRES 3,000 P.S.I. @ 28-DAYS.

SL-ST-04



SL-ST-05

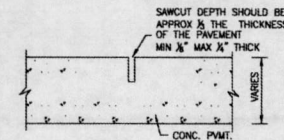
PAVEMENT THICKNESS (C-C)	SPACING (C-C)
6"	24"
7"	18"
8"	18"



**MANHOLE BLOCKOUT**

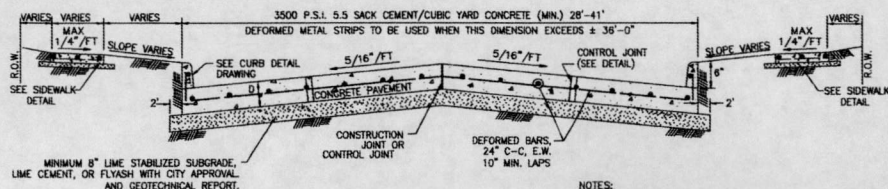
(STORM & SANITARY) IN PAVEMENT

SL-ST-10



**CONTROL JOINT**

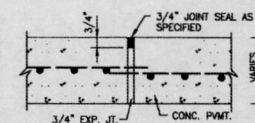
SL-ST-11



SL-ST-02

**SINGLE ROADWAY SECTION**

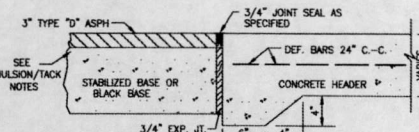
N.T.S.



**CONSTRUCTION JOINT SEAL**

N.T.S.

SL-ST-12



**PAVING HEADER**

(FOR USE IN CONNECTING CONC. PMT. TO ASPHALT PMT.) (PROP. OR EXIST.)

SL-ST-07



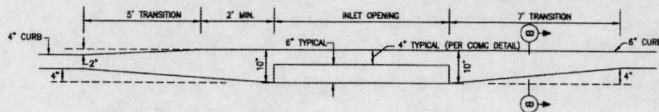
CITY OF SUGAR LAND, TEXAS  
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:  
RIVERSTONE STORAGE

CONCRETE PAVEMENT  
CONSTRUCTION DETAILS

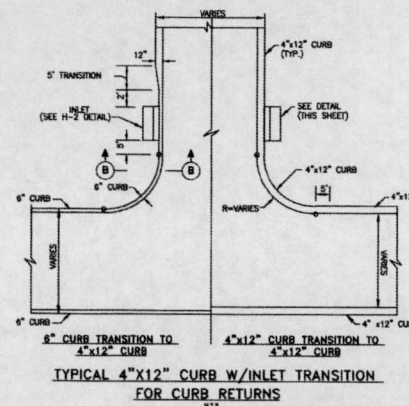
9/19/16





TYPICAL CURB TRANSITION FOR INLET INSTALLATION

SL-ST-13



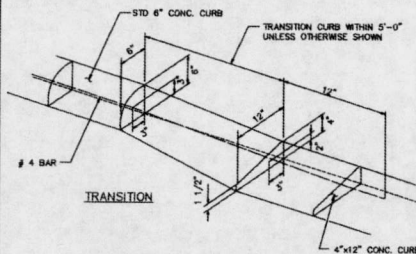
TYPICAL 4'X12" CURB W/INLET TRANSITION FOR CURB RETURNS

SL-ST-14

CONSTRUCTION NOTES:

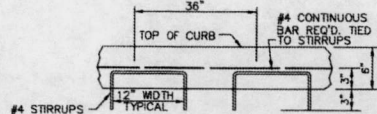
1. 6 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES C-C, E.W. IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR RESIDENTIAL STREETS.
2. 7 INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED CONCRETE WITH #4 BARS 24 INCHES C-C, IS THE MINIMUM ACCEPTABLE PAVEMENT CONSTRUCTION FOR COLLECTOR STREETS.
3. EIGHT (8) INCH, 5.5 SACK CEMENT PER CUBIC YARD CONCRETE, 3500 PSI REINFORCED WITH #4 18" C.C. EACH WAY IS THE MINIMUM ACCEPTABLE FOR ARTERIAL STREETS.
4. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 60'-0" C-C, AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM-D-1190-74 OR AASHTO-M173-60 (ELASTOMERIC TYPE, HOT POURED)
5. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT MAXIMUM SPACING OF 20'-0" C-C, AND VERTICAL CURB JOINTS TO BE SEALED WITH SPECIAL JOINT SEALANT ASTM-D-1190-74 OR AASHTO-M173-60 FOR PAVEMENT GREATER THAN 8" THICK (ELASTOMERIC TYPE, HOT POURED)
6. FOR PAVEMENT FINISH USE BURLAP DRAG OR BELTED FINISH. CURING COMPOUND REQUIRED ON ALL CONCRETE.
7. STORM WATER POLLUTION PROTECTION SHALL BE DESIGNED, CONSTRUCTED, MAINTAINED AND SHALL BE IN TOTAL COMPLIANCE WITH THE STORM WATER QUALITY MANUAL OF THE CITY OF SUGAR LAND.
8. UNSTABLE SUBGRADE SHALL BE EXCAVATED AND REPLACED WITH CEMENT STABILIZED SAND.
9. USE 1"x2" REDWOOD STAKES FOR HEADERS.
10. EDGE ALL SIDES WITH EDGING TOOL.
11. DOWEL SHALL BE 3/4" DIAMETER, WITH MINIMUM 8" PENETRATION (BOTH SIDES).
12. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE CITY OF SUGAR LAND OF ANY BIRDBATH PROBLEMS PRIOR TO CONSTRUCTION OF DRIVEWAY.
13. REFER TO GENERAL, C.S.S., AND PAVEMENT NOTES.
14. 1.0 LBS. OF APPROVED POLYPROPYLENE FIBER MESH PER C/Y IN 4'X12" CURBS REQUIRED.

SL-ST-20



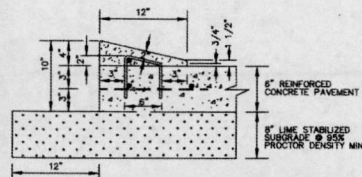
TYPICAL CURB TRANSITION

SL-ST-15



TYPICAL CONCRETE CURB REINFORCING

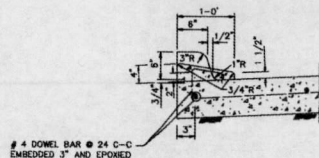
SL-ST-16



4'X12" MOUNTABLE CONCRETE CURB

- NOTES:
1. 1.0 LBS. OF APPROVED NON-METALLIC FIBER MESH PER C/Y IN 4'X12" CURBS.
  2. #3 RE-BAR STIRRUPS TO BE PLACED AT INTERVALS OF 2' (FT) C-C.
  3. #4 RE-BAR LONGITUDINAL SHALL BE TIED TO EACH STIRRUP
  4. MOUNTABLE CURB ONLY ALLOWED ON ≤ 41' (FT), UNGRADED, RESIDENTIAL ROADWAYS WITHIN SUBDIVISIONS.

SL-ST-17



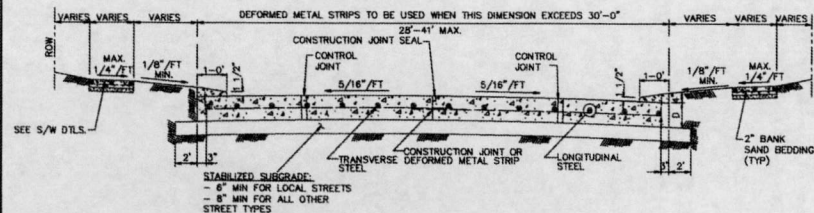
4-INCH x 12-INCH TRANSITION CURB

SL-ST-18

4'X12" MOUNTABLE CONCRETE CURB AND TRANSITION CURB NOTES:

1. 6-INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPALANDES, ISLANDS AND NON-RESIDENTIAL 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. ALL 4-INCH x 12-INCH CONCRETE CURBS TO BE POURED SEPARATE FROM PROPOSED CONCRETE PAVEMENT.
3. TRANSITIONS FROM 6-INCH CONCRETE CURB TO 4-INCH x 12-INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 5 FEET (TYP.), UNLESS OTHERWISE SHOWN. REINFORCING STEEL AS SHOWN IN "4-INCH x 12-INCH TRANSITION CURB" DETAIL IS TO BE INSTALLED.

SL-ST-20



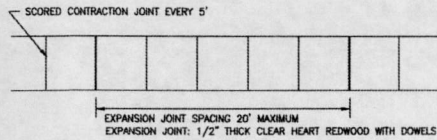
TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH 4'X12" CURB

\* SEE 4' x 12' MOUNTABLE CURB DETAIL (THIS SHEET)

SL-ST-19

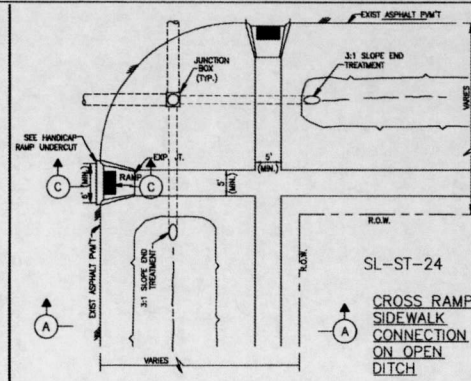
CITY OF SUGAR LAND, TEXAS	
ENGINEERING DEPARTMENT	
CONSTRUCTION PLANS FOR: RIVERSTONE STORAGE	
RESIDENTIAL CURB CONSTRUCTION DETAILS	
JOB No.: DATE: DESIGNED BY: CHECKED BY: SCALE:	SL-12 SHEET OF

Magg J. 9/19/16

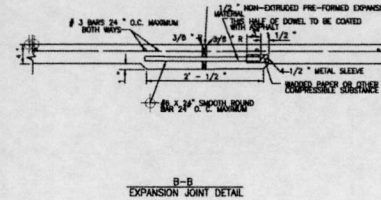


SIDEWALK JOINT DETAILS  
N.T.S.

SL-ST-23



CROSS RAMP  
SIDEWALK  
CONNECTION  
ON OPEN  
DITCH



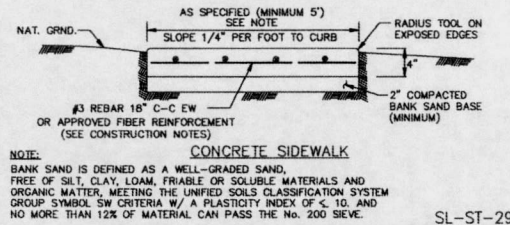
EXPANSION JOINT DETAIL

NOTES:

- EXISTING CURB AND GUTTER TO BE SAW CUT, REMOVED AND REPLACED. DOWEL STEEL FOR MINIMUM REINFORCING OVERLAP OF 10 INCHES (10") DOWELS SHALL BE EIGHTEEN INCHES (18") LONG AND EXPOSED A MINIMUM OF (8") EIGHT INCHES INTO EXISTING PAVEMENT.
- IF SIDEWALKS ARE NEITHER EXISTING NOR PROPOSED, WHEELCHAIR RAMP ACCESS IS REQUIRED. CONCRETE SIDEWALK SURFACE A 1/2" THICK SHALL BE INSTALLED TO PROVIDE ACCESS TO THE PEDESTRIAN PUSH BUTTONS.
- DETECTABLE WARNINGS REQUIRED BY T.A.S. SECTIONS 4.1 AND 4.7 SHALL COMPLY WITH T.A.S. SECTION 4.29
- THE MATERIAL USED TO PROVIDE CONTRAST SHALL BE AN INTEGRAL PART OF THE WALKING SURFACE. DETECTABLE WARNINGS USED ON INTERIOR SURFACE SHALL DIFFER FROM ADJACENT WALKING SURFACES IN RESILIENCY OR SOUND-ON-CANE.
- DETECTABLE WARNING SURFACE SHALL COVER THE ENTIRE WIDTH AND DEPTH OF RAMP.
- DETECTABLE WARNINGS SHALL BE INSTALLED WITH PAVERS IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.
- CONCRETE PAVEMENT UNITS SHALL MEET ALL REQUIREMENTS OF ASTM C-935, C-33, AND SHALL BE PLACED IN A TWO BY TWO UNIT BASKET WEAVE PATTERN, UNLESS SHOWN OTHERWISE IN THE PLANS.
- CONCRETE PAVEMENT UNITS SHALL HAVE A TRUNCATED DOME TOP SURFACE FOR DETECTABLE WARNING TO PEDESTRIANS. DOMES SHALL BE ALIGNED IN THE DIRECTION OF PEDESTRIAN TRAVEL.
- CONCRETE PAVEMENT UNIT COLOR FOR THE RAMP SHALL BE A CONTRASTING COLOR THAT PROVIDES A LIGHT REFLECTIVE THAT SIGNIFICANTLY CONTRASTS WITH THE ADJACENT SURFACES. ADJACENT SURFACES INCLUDE SIDE FLARES.
- CONCRETE PAVEMENT UNITS SHALL BE SAW CUT ONLY, AND ANY CUT UNIT SHALL NOT BE LESS THAN 25% OF A FULL UNIT.

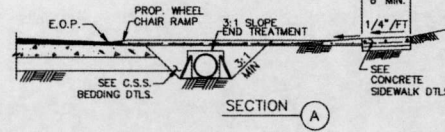
CONSTRUCTION NOTES:

- THE MAXIMUM WIDTH BETWEEN EXPANSION JOINTS SHALL NOT EXCEED 20'-0"
- EXPANSION JOINT IS TO BE 1/2" THICK CLEAR HEART REDWOOD WITH DOWELS.
- SCORED CONTRACTION JOINTS SHALL BE EVERY 5' OR EQUAL TO WIDTH OF SIDEWALK.
- ALL EARTHEN AREAS ARE TO BE SODDED UNLESS SHOWN OTHERWISE ON DRAWINGS.
- 4 INCH, 5 SACK CEMENT PER CUBIC YARD CONCRETE, 3000 PSI REINFORCED CONCRETE WITH #3 BARS, 18 INCHES C-C, FOR SIDEWALKS, #4 BARS 18" C-C FOR WHEEL CHAIR RAMP. THIS IS THE MINIMUM ACCEPTED. MINIMUM 3 LONGITUDINAL BARS, FIBER REINFORCING SIDEWALKS-STEEL AND POLYPROPYLENE BLENDED FIBER REINFORCEMENT SYSTEM SUCH AS NOVOMESH #3 AS MANUFACTURED BY S.L. CONCRETE SYSTEMS (OR PRE-APPROVED EQUAL) MAY BE USED AS AN ALTERNATE TO CONVENTIONAL REBAR REINFORCING AT A DOSAGE RATE OF 24 LBS. PER CUBIC YARD OF CONCRETE.
- USE RADIUS TOOL ON ALL EXPOSED EDGES.
- TOP OF THE SIDEWALK ELEVATION TO BE TOP OF CURB.
- MEMBRANE CURING COMPOUND IS REQUIRED AS DESCRIBED IN ITEM 528 IN THE TxDOT STANDARD SPECIFICATIONS FOR CONSTRUCTION.
- REFER TO GENERAL NOTES AND CONCRETE/PAVING NOTES.
- SIDEWALK EXPANSION JOINTS SHALL CONFORM TO STREET EXPANSION JOINT STANDARDS.



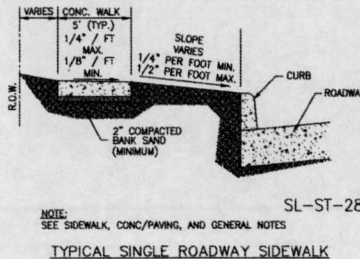
CONCRETE SIDEWALK

SL-ST-26



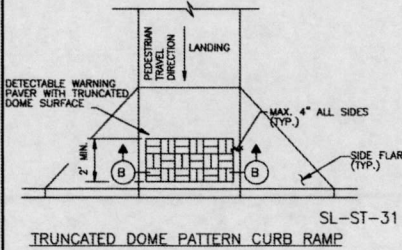
HANDICAP RAMP CURB & GUTTER\*

SL-ST-26



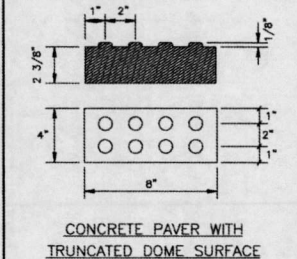
TYPICAL SINGLE ROADWAY SIDEWALK

SL-ST-28



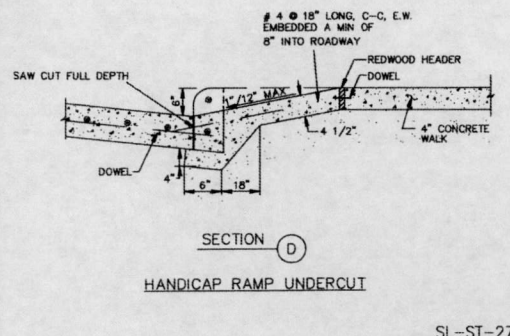
TRUNCATED DOME PATTERN CURB RAMP

SL-ST-31



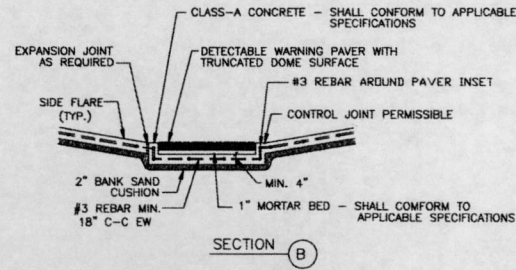
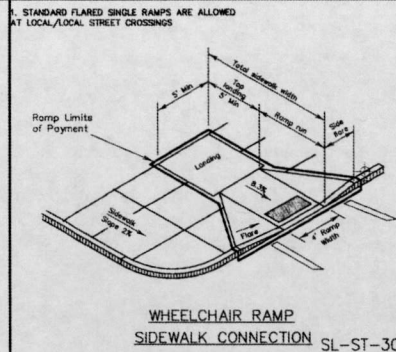
WHEELCHAIR RAMP  
SIDEWALK CONNECTION

SL-ST-30



HANDICAP RAMP UNDERCUT

SL-ST-27



CONCRETE PAVER WITH  
TRUNCATED DOME SURFACE

SL-ST-32

NO.	DATE	REVISION

SCALE:

DATE: \_\_\_\_\_

DESIGNED BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

SCALE: \_\_\_\_\_

JOB NO.: \_\_\_\_\_

DATE: \_\_\_\_\_

DESIGNED BY: \_\_\_\_\_

CHECKED BY: \_\_\_\_\_

SCALE: \_\_\_\_\_

SL-13

SHEET OF



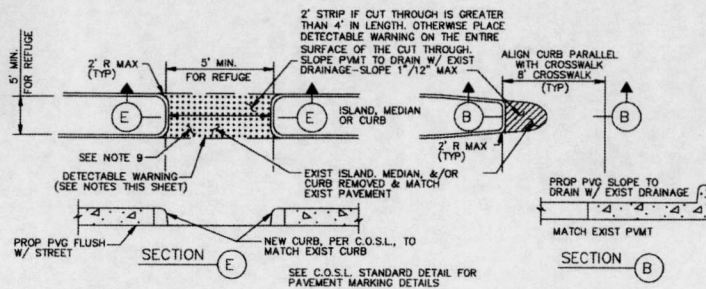
CITY OF SUGAR LAND, TEXAS  
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:  
RIVERSTONE STORAGE

WHEEL CHAIR RAMP &  
SIDEWALK DETAILS I

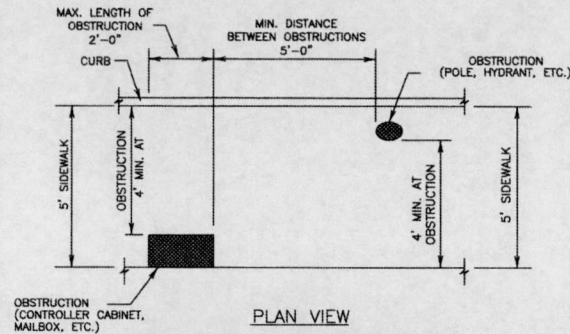
Maggi D. 9/19/16





FOR ISLAND, MEDIAN, OR CURB MODIFICATIONS FOR CROSSWALKS

SL-ST-35



PLAN VIEW  
PLACEMENT OF STREET FIXTURES

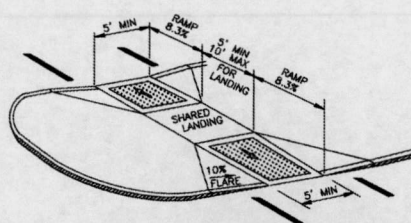
(ITEMS NOT INTENDED FOR PUBLIC USE.  
MINIMUM 4' x 4' CLEAR GROUND SPACE  
REQUIRED AT PUBLIC USE FIXTURES.)

SL-ST-36

NOTES:

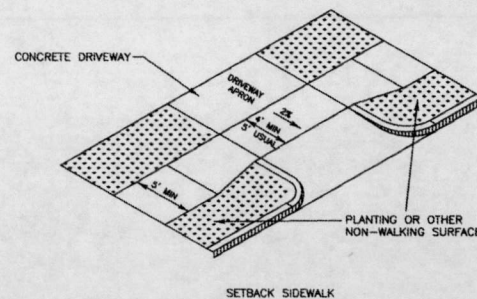
1. ALL SLOPES ARE MAXIMUM ALLOWABLE. THE LEAST POSSIBLE SLOPE THAT WILL STILL DRAIN PROPERLY SHOULD BE USED. RAMP LENGTH OR GRADE OF APPROACH SIDEWALKS MAY BE ADJUSTED AS DIRECTED.
2. THE MINIMUM SIDEWALK WIDTH IS 5' (FEET). THE LANDING SHALL BE 5' x 5' WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION. MAXIMUM ALLOWABLE CROSS SLOPE ON SIDEWALK AND RAMP SURFACES IS 2% USUAL. SIDEWALK CROSS SLOPE EQUALS 1.5%. CHANGES IN LEVEL GREATER THAN 1/4\" (IN.) ARE NOT PERMITTED.
3. WARELAPPING SPACE AT THE BOTTOM OF CURB RAMPS SHALL BE A MINIMUM OF 5' x 5' WHOLLY CONTAINED WITHIN THE CROSSWALK AND WHOLLY OUTSIDE THE PARALLEL VESICULAR TRUNKS, PADS.
4. ANY PART OF THE ACCESSIBLE ROUTE WITH A SLOPE GREATER THAN 1:20 (5%) SHALL BE CONSIDERED A RAMP. IF A RAMP HAS A RISE GREATER THAN 6\" (IN.) OR A HORIZONTAL PROJECTION GREATER THAN 72 INCHES, THEN IT SHALL HAVE HANDRAILS ON BOTH SIDES. WITH THE FOLLOWING EXCEPTIONS:
  - A) HANDRAILS ARE NOT REQUIRED ON CURB RAMPS. CURB RAMPS SHALL BE PROVIDED WHEREVER AN ACCESSIBLE ROUTE CROSSES (PENETRATES) A CURB.
  - B) THE LEAST POSSIBLE GRADE SHOULD BE USED TO MAXIMIZE ACCESSIBILITY. WHERE STRUCTURALLY IMPRACTICAL TO ACHIEVE TEXAS ACCESSIBILITY STANDARDS (TAS) COMPLIANCE, THE RUNNING SLOPE OF SIDEWALKS AND CROSSWALKS, WITHIN THE PUBLIC ROW, MAY FOLLOW THE GRADE OF THE PARALLEL ROADWAY WITHOUT INVOKING TEXAS ACCESSIBILITY STANDARDS (TAS) VARIANCES FOR LANDINGS OR HANDRAILS. WHERE A CONTINUOUS GRADE GREATER THAN 5% MUST BE PROVIDED, HANDRAILS MAY BE DESIRABLE ON ONE OR BOTH SIDES OF THE SIDEWALK TO IMPROVE ACCESSIBILITY. HANDRAILS MAY ALSO BE NEEDED TO PROTECT PEDESTRIANS FROM POTENTIALLY HAZARDOUS CONDITIONS.
5. CURB RAMPS WITH RETURNED CURBS MAY BE USED ONLY WHERE PEDESTRIANS WOULD NOT NORMALLY WALK ACROSS THE RAMP. OTHERWISE, FLARED SIDES SHALL BE PROVIDED. ALL CONCRETE SURFACES SHALL RECEIVE A LIGHT BROOM FINISH UNLESS NOTED OTHERWISE IN THE PLANS.
6. RAMP TEXTURES MUST CONSIST OF TRUNCATED DOME SURFACES, IN ACCORDANCE WITH ADA AND TEXAS DEPARTMENT OF LICENSING AND REGULATIONS (TDLR). TEXTURES ARE REQUIRED TO BE DETECTABLE UNDERFOOT. TEXTURES ALSO SHALL CONTRAST VISUALLY WITH ADJOINING SURFACES. SURFACES THAT WOULD ALLOW WATER TO ACCUMULATE ARE PROHIBITED.
7. ADDITIONAL INFORMATION ON CURB RAMP LOCATION, DESIGN, LIGHT REFLECTIVE VALUE AND TEXTURE MAY BE FOUND IN THE CURRENT EDITION OF THE TEXAS ACCESSIBILITY STANDARDS (TAS) PREPARED AND ADMINISTERED BY THE TEXAS DEPARTMENT OF LICENSING AND REGULATIONS (TDLR).
8. RAISED MEDIANS SEPARATE OPPOSING DIRECTIONS OF TRAFFIC AND PROVIDE A REFUGE AREA FOR PEDESTRIANS UNABLE TO CROSS THE ENTIRE ROADWAY IN THE ALLOTTED SIGNAL PHASE. TO SERVE AS A REFUGE AREA, THE MEDIAN SHALL BE A MINIMUM OF 5' (FT.) WIDE. MEDIANS SHOULD BE DESIGNED TO PROVIDE ACCESSIBLE PASSAGE OVER OR THROUGH THEM.
9. SMALL CHANNELIZATION ISLANDS, WHICH CAN NOT PROVIDE A MINIMUM 5' x 5' LANDING AT THE TOP OF RAMPS, SHALL BE CUT THROUGH LEVEL WITH THE SURFACE OF THE STREET.
10. CROSSWALK DIMENSIONS, CROSSWALK MARKINGS AND STOP BAR LOCATIONS SHALL BE AS SHOWN IN THE PLANS. AT INTERSECTIONS WHERE CROSSWALK MARKINGS ARE NOT REQUIRED, RAMPS SHALL BE ALIGNED WITH THEORETICAL CROSSWALKS, OR AS DIRECTED BY THE ENGINEER.
11. EXISTING FEATURES THAT COMPLY WITH T.A.S. MAY REMAIN IN PLACE UNLESS OTHERWISE SHOWN ON THE PLANS.
12. TRAFFIC SIGNAL OR ILLUMINATION POLES, GROUND BOXES, CONTROLLER BOXES, SIGNS, DRAINAGE FACILITIES AND OTHER ITEMS SHALL BE PLACED SO NOT TO OBSTRUCT THE ACCESSIBLE ROUTE.

SL-ST-40



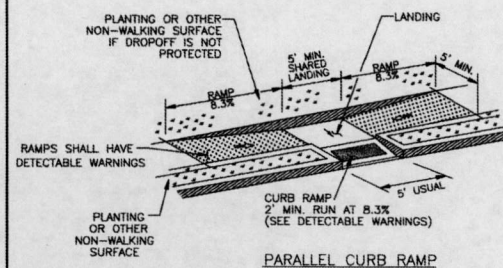
CURB RAMPS AT MEDIAN ISLANDS

SL-ST-37



SIDEWALK TREATMENT AT DRIVEWAYS

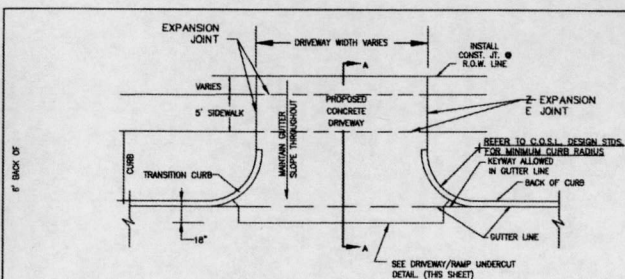
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PARALLEL CURB RAMP

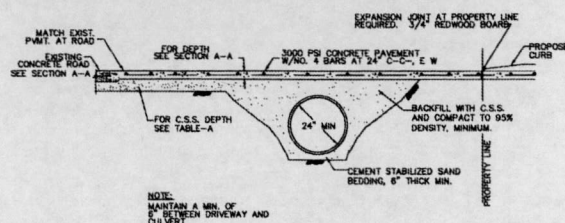
SL-ST-39

SL-14	
DESIGNED BY:	CHECKED BY:
SCALE:	
SHEET OF	
CITY OF SUGAR LAND, TEXAS	
ENGINEERING DEPARTMENT	
CONSTRUCTION PLANS FOR:	
RIVERSTONE STORAGE	
WHEEL CHAIR RAMP & SIDEWALK DETAILS II	
9/19/16	



6" CONCRETE CURB  
DRIVEWAY PLAN  
N.T.S.

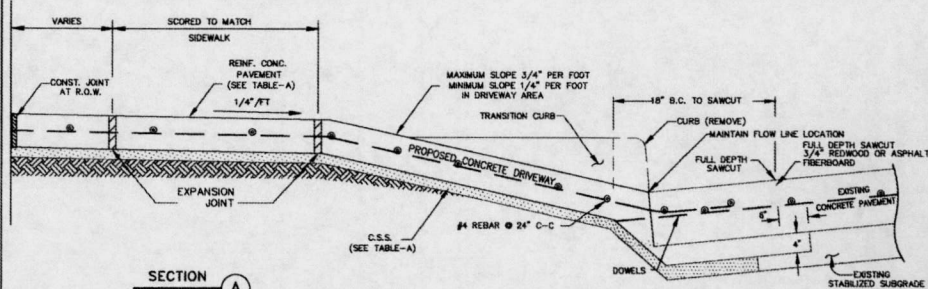
SL-ST-41



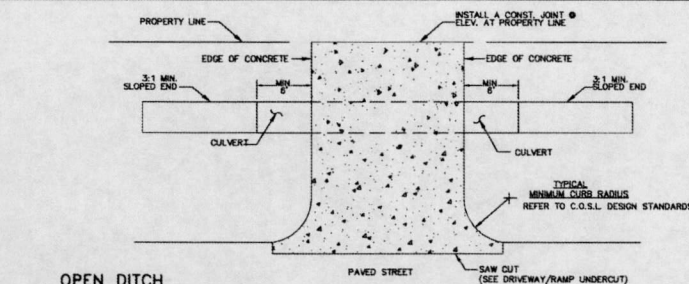
CONCRETE APRON DETAIL - DRIVEWAY PROFILE  
FOR CULVERT DRAINAGE

N.T.S.

- 1.) SAVES CUT & BREAKOUT NO MORE THAN 72 HOURS PRIOR TO PROPOSED CONCRETE PLACEMENT.
- 2.) UNSTABLE SUBGRADE SHALL BE OVER EXCAVATED & REPLACED WITH CONCRETE.
- 3.) IT IS CONTRACTOR'S RESPONSIBILITY TO NOTIFY SUGAR LAND OF ANY BID BATH PROGRAMS PRIOR TO CONSTRUCTION OF DRIVEWAY.
- 4.) USE "1/2" TREATED REDWOOD FOR HEAVER.
- 5.) EDGE ALL SIDES WITH EDGING TOOL, AND BROOM FINISH
- 6.) FOR INDUSTRIAL DRIVES, PAVEMENT SHALL HAVE A DEPTH OF 8" (8").
- 7.) EXPANSION JANT AT PROPERTY LINE REQUIRED. 3/4" REDWOOD BOARDS WITH NO. 4 NAILS MINIMUM.
- 8.) MAXIMUM ALLOWABLE DRIVEWAY GRAD IN PUBLIC R.O.W. IS SIX PERCENT.
- 9.) DRIVEWAY GRAD MUST MEET A.D.A. AND 2.5% SIDEWALK SLOPE. SIDEWALKS MUST BE SLOPED TO MATCH ADJACENT SIDEWALK. IF SLOPE IS CONTRARY THROUGH THE R.O.W. LINE, PROVIDE A 3/4" REDWOOD EXPANSION JANT WITH CONCRETE AT R.O.W. LINE.
- 10.) REFER TO GENERAL, C.S.S., ASPHALT, AND CONCRETE PAVEMENT NOTES.

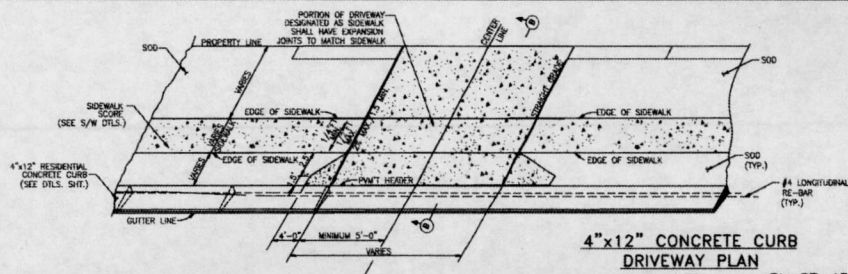


SL-ST-43

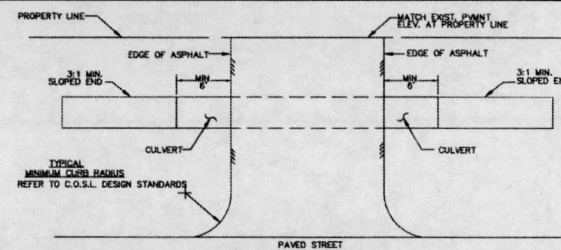


**OPEN DITCH  
CONCRETE DRIVEWAY PLAN**  
(USED ONLY WHEN CONNECTING TO A CONCRETE ROADWAY  
N.T.S.

SL-ST-44

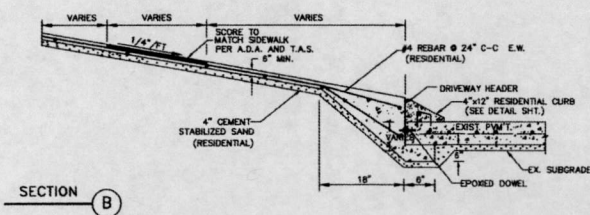


N.T.S. SL-ST-45

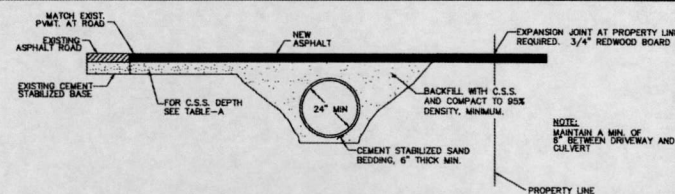


**ASPHALT DRIVEWAY PLAN**  
(USED ONLY WHEN CONNECTING TO AN ASPHALT ROADWAY)  
M.T.S.

SL-ST-46



SL-ST-47



ASPHALT APRON DETAIL - DRIVEWAY PROFILE  
FOR CULVERT DRAINAGE

SL-ST-48

CEMENT STABILIZED SAND 2-SK/C.V.	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM
REINFORCED CONCRETE PAVEMENT 3,000 PSI MIN	
RESIDENTIAL	4" MINIMUM
COMMERCIAL	6" MINIMUM
INDUSTRIAL	8" MINIMUM

### DRIVEWAY PAVEMENT



CITY OF SUGAR LAND, TEXAS  
ENGINEERING DEPARTMENT

CONSTRUCTION PLANS FOR:  
RIVERSTONE STORAGE

## DRIVEWAY CONSTRUCTION DETAILS

JOB No. 1	
DATE:	
DESIGNED BY:	SL-15
DRAWN BY:	
CHECKED BY:	
SCALE:	

Maggie De 9/19/16



1. HYPER-CHLORINATED WATER SHALL NOT BE DISCHARGED TO THE STORM SEWER OR DRAINAGE SYSTEM UNLESS THE CHLORINE CONCENTRATION IS REDUCED TO 1 PPM OR LESS BY CHEMICALLY TREATING THE DECHLORINATE OR BY ON SITE TREATMENT. IF THE CHLORINE CONCENTRATION IS NOT REDUCED TO 1 PPM OR LESS, THE DISCHARGE OF HIGH FLOW RATE AND VELOCITIES SHALL BE DIRECTED TO THE STORMWATER RETENTION BASIN, OR A POND, OR A DRAINAGE CANAL.

2. CHLORINE CAN BURN VEGETATION, SO IT SHOULD NOT BE USED TO WATER VEGETATION THAT IS BEING USED FOR STABILIZATION, VEGETATED FILTERS OR VEGETATED SWALES.

3. HYPER-CHLORINATED WATER MAY BE DISCHARGED TO AN ON SITE TREATMENT SYSTEM, SUCH AS A STORMWATER TREATMENT SYSTEM, OR TO A STORMWATER RETENTION BASIN, OR A POND, OR A DRAINAGE CANAL, GRATED TO FORM A TEMPORARY FILL OR BERMED AREA.

4. FURTHER TREATMENT OF HYPER-CHLORINATED WATER MAY BE ADDED BY AERATION. AIR CAN BE ADDED TO THE WATER BY DIRECTING THE DISCHARGE OVER A ROUGH SURFACE, SUCH AS A ROCK BED, OR BY DIRECTING THE DISCHARGE INTO AN AERATION DEVICE CAN PLACED IN THE DISCHARGE LINE.

5. IF THE DISCHARGE OF HYPER-CHLORINATED WATER IS DIRECTED TO AN ON SITE DISCHARGE, IT MAY REQUIRE SEVERAL HOURS TO A FEW DAYS BEFORE THE WATER IS SAFE TO BE USED FOR IRRIGATION.

6. THE RATE OF CHLORINE DECOMPOSITION IS AFFECTED BY SOIL CONDITIONS AND WEATHER CONDITIONS. ATTENUATION WILL OCCUR QUICKEST DURING WARM, SUNNY, AND DRY PERIODS.

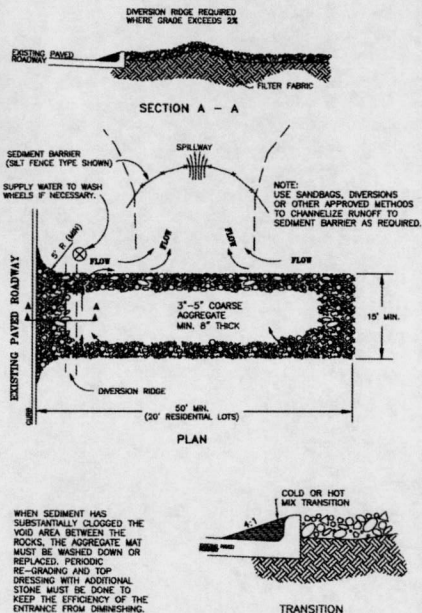
1. THE CONTRACTOR SHALL PROVIDE AN APPROPRIATE NUMBER OF PORTABLE TOILETS BASED ON THE NUMBER OF EMPLOYEES USING THE TOILETS AND
2. FROM SUCH DRAIN, TRENCHES SHALL BE PLACED ON A MINIMUM OF 50 FEET AWAY FROM STORM DRAIN MEETS, COMPLETION, CHANNELS OR SURFACE WATERS. IF UNABLE TO MAINTAIN SUCH DISTANCE, THE CONTRACTOR SHALL PROVIDE ANOTHER CONFIGURATION, PORTABLE TOILETS SHALL BE A MINIMUM OF 30 FEET AWAY FROM STORM DRAIN MEETS, COMPLETION, CHANNELS OR SURFACE WATERS. PRIMARY AND SECONDARY CONTAINMENT SHALL BE PROVIDED IN CASE OF SPILLS.
3. THE CONTRACTOR SHALL PROVIDE ADEQUATE EROSION CONTROL MEASURES TO MAINTAIN TRUCKS WITHOUT DAMAGING EROSION AND SEDIMENT CONTROLS.
4. EROSION OR TRACKING PROBLEMS.
5. SANITARY FACILITIES SHALL BE PROVIDED AND DESIGNED IN A MANNER THAT MINIMIZES THE EXPOSURE OF SANITARY WASTE TO PRECIPITATION AND WIND BLOW OFF.
6. WHEN HINDERS ARE EXPECTED, PORTABLE TOILETS SHALL BE ANCHORED TO PREVENT WIND BLOW OFF.
7. THE COMPANY THAT SUPPLIES AND MAINTAINS THE PORTABLE TOILETS SHALL BE NOTIFIED IMMEDIATELY IF A TOILET IS TIPPED OVER OR DAMAGED IN ANY WAY. THE COMPANY SHALL REMOVE THE TIPPED OR DAMAGED TOILET AND BE VACUATED INTO A SEPTIC TRUCK BY THE COMPANY THAT MAINTAINS THE TOILETS.
8. THE OPERATION OF THE MUNICIPAL SEWAGE TREATMENT PLANT (MS4) SHALL BE PROTECTED FROM THE PORTABLE TOILETS ENTERING THE MS4 OR A NATURAL CHANNEL.
9. SANITARY FACILITIES SHALL NOT BE PERMITTED ON PUBLIC SIDEWALKS, STREETS

- 1. ALL WASTE SOURCES AND STORAGE AREAS SHALL BE LOCATED A MINIMUM OF 50 FEET AWAY FROM INLETS, SNALES, DRAINAGE WALES, CHANNELS AND DITCHES. IF THE SITE CONFIGURATION PROVIDES SUFFICIENT SPACE TO THE RIGHT OF THE INLETS, SNALES, DRAINAGE WALES, CHANNELS AND DITCHES, NO DSO, IN NO CASE SHALL WASTE BE STORED IN THE RIGHT OF WAY.
- 2. ALL WASTE SHALL BE STORED IN A MANNER THAT WILL MINIMIZE ITS EXPOSURE TO PRECIPITATION AND STORMWATER RUNOFF.
- 3. WHENEVER POSSIBLE, MINIMIZE PRODUCTION OF DEBRIS AND TRASH.
- 4. PROTECT ALL EXISTING DRAINAGES IN PROPER DEBRIS AND TRASH STORAGE AND HANDLING PROCEDURES.
- 5. SEPARATELY STORE HAZARDOUS WASTE FROM NON-HAZARDOUS WASTE.
- 6. PROHIBIT LITTERING BY WORKERS AND VISITORS.
- 7. COLLECT LITTER ONLY FROM THE CONSTRUCTION SITE.
- 8. ENFORCE SOLID WASTE HANDLING AND STORAGE PROCEDURES.
- 9. IF FEASIBLE, RECYCLE CONSTRUCTION AND DEMOLITION DEBRIS SUCH AS WOOD, METAL, PLASTIC, GLASS, AND CERAMIC.
- 10. TRASH AND DEBRIS SHALL BE REMOVED FROM THE SITE AT REGULAR INTERVALS TO PREVENT OVERFILLING. EMPTY CONTAINERS WHEN THEY ARE 90 PERCENT FULL OR MORE FREQUENTLY.
- 11. GENERAL CONSTRUCTION DEBRIS MAY BE HAULED TO A LICENSED WASTE TREATMENT AND DISPOSAL FACILITY.
- 12. USE WASTE AND RECYCLING HAULERS/FACILITIES APPROVED BY THE LOCAL MUNICIPALITY.
- 13. CHOPPED TREES AND BRUSH FOR USE AS MULCH IS PREFERRED ALTERNATIVE TO OFFSITE DISPOSAL.
- 14. IF NOT USED FOR MULCH, DEBRIS SHALL BE BURIED, BURNED OR OTHERWISE DISPOSED OF ONSITE.
- 15. CLEARLY MARK ALL DEBRIS AND TRASH CONTAINERS WHICH MATERIALS ARE BEING STORED FOR OFFSITE DISPOSAL.
- 16. THE WASTE MANAGEMENT SUPERVISOR SHALL MONITOR ONSITE SOLID WASTE STORAGE AND HANDLING.

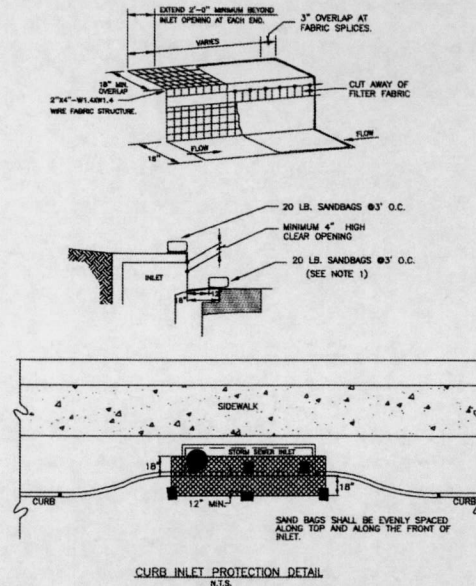
- RECORDS OF RELEASES THAT EXCEED THE REPORTABLE QUANTITY (RQ) FOR OIL AND HAZARDOUS SUBSTANCES SHOULD BE MAINTAINED IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR 146.106.
- EMERGENCY CONTACT INFORMATION AND SPILL RESPONSE PROCEDURES SHOULD BE AVAILABLE TO ALL PERSONNEL AND TO ALL OTHER AGENCIES, PARTNERS AND SUBCONTRACTORS.
- SPILL RESPONSE PROCEDURES SHOULD BE MAINTAINED FOR ALL PESTICIDES, SOLIDS AND OTHER CHEMICALS THAT ARE REGULARLY DISPOSED. MATERIALS IN KITS SHOULD BE BASED ON CONTAINMENT GUIDELINES IN THE MATERIALS SAFETY DATA SHEET (MSDS) AND SHOULD BE BASED ON THE TYPE OF SPILL.
- SPILL KITS ARE INTENDED FOR RESPONSE TO SMALL SPILLS, TYPICALLY LESS THAN 55 GALLONS (208 LITERS) OF LIQUID OR 500 POUNDS (227 KG) OF SOLID.
- SMALL SPILLS OR OTHER RELEASES WARRANT IMMEDIATE RESPONSE BY THE OPERATOR.
- SUSPECTED ABOVE-SITE CONTAMINATION SHOULD BE IMMEDIATELY REPORTED TO THE STATE OF CALIFORNIA DEPARTMENT OF PESTICIDES AND FERTILIZERS.
- THE CONTRACTOR SHOULD BE REQUIRED TO DESIGNATE A SUPERVISOR, SUPERINTENDENT, FOREMAN, SAFETY OFFICER, OR OTHER SENIOR PERSON RESPONSIBLE FOR THE SPILL RESPONSE AND TO TRAIN THAT PERSON IN THE COORDINATOR (SUCR) AND MAKE KNOWLEDGE OF AND BE TRAINED IN CORRECT SPILL RESPONSE PROCEDURES.

1. MINIMIZE THE DISCHARGE OF THE CHEMICAL STABILIZERS BY THE CONTRACTOR LIMITING THE AMOUNT OF STABILIZING AGENT ONSITE TO THAT WHICH CAN BE THOROUGHLY MIXED AND COMPACTED BY THE END OF EACH WORKDAY.
2. STABILIZERS SHALL BE APPLIED AT RATES THAT RESULT IN NO RUN OFF. STABILIZERS SHALL BE APPLIED IMMEDIATELY BEFORE AND DURING MIXING EVENTS.
3. IF ANY EXCESS OTHER THAN WATER TRUCKS AND MIXING EQUIPMENT SHALL BE ALLOWED TO PASS OVER THE AREA TRUCKS SHALL BE STOPPED AT THE COMPLETION OF MIXING THE CHEMICAL.
4. AREA AND EQUIPMENT SHALL BE THOROUGHLY WASHED. WASHES SHALL BE ROUTED TO INTERCEPT CHEMICAL RUNOFF AND REDUCE RUNOFF VELOCITY.
5. DUSTED FABRICS SUCH AS THOSE USED FOR SILT FENCE SHOULD NOT BE USED TO TREAT CHEMICAL RUNOFF, BECAUSE THE CHEMICALS ARE DISSOLVED IN THE WATER AND NOT AFFECTED BY A BARRIER AND THE FABRIC MAY BE DAMAGED BY THE CHEMICALS. THE MINIMUM OPENING SIZE OF THE FABRIC.
6. IF SUCH A CHEMICAL RUNOFF OCCURS, THEY SHALL BE CONSIDERED HAZARDOUS MATERIAL AND SHALL BE MANAGED ACCORDING TO THE CRITERIA OF CHEMICAL MANAGEMENT TO CAPTURE ANY ADDITIONAL LINE OR CHEMICAL RUNOFF.
7. THE CONTRACTOR SHALL INSTALL IMPS TO ALL HETS AND OPENINGS CONNECTED TO THE STORM SEWER SYSTEMS TO PREVENT LEAKS FROM OCCURRING.

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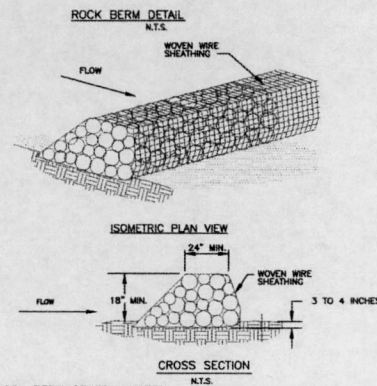


**TEMPORARY STONE CONSTRUCTION ENTRANCE/EXIT**  
N.T.S.



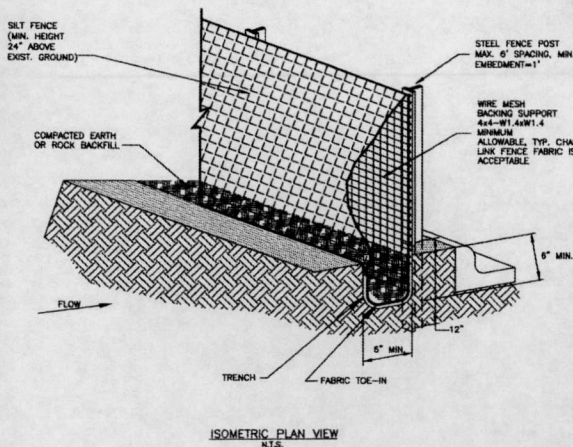
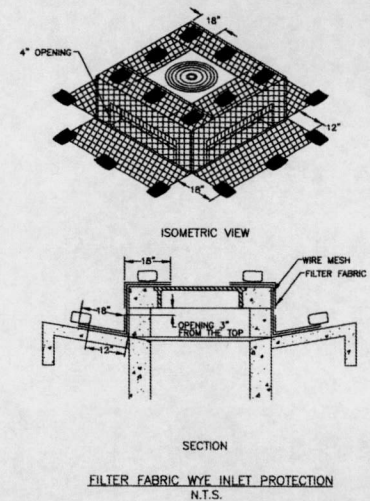
- NOTES:**
- A SECTION OF FILTER FABRIC SHALL BE REMOVED AS SHOWN ON THIS DETAIL TO PROVIDE A 4" MINIMUM CLEAR OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR HOOK RINGS AT THIS LOCATION.
  - INSPECTION SHALL BE MADE BY CONTRACTOR AND SILT ACCUMULATION MUST BE REMOVED WHEN DEPTH REACHES 2".
  - CONTRACTOR SHALL MONITOR THE PERFORMANCE OF INLET PROTECTION DURING EACH RAINFALL EVENT AND IMMEDIATELY REMOVE THE INLET PROTECTION IF THE STORMWATER BEGINS TO OVERTOP THE CURB.
  - INLET PROTECTIONS SHALL BE REMOVED AS SOON AS THE SOURCE OF THE SEDIMENT IS STABILIZED.

INLET OPENING	MINIMUM NUMBER OF SAND BAGS
5'	3
10'	3
15'	3
20'	4



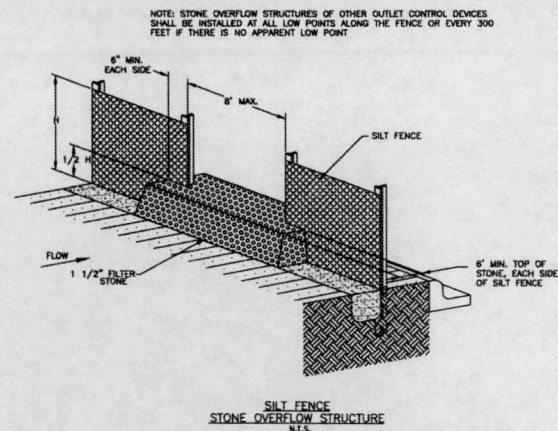
**ROCK BERM GENERAL NOTES**

- USE ONLY OPEN GRADED ROCK 4-8 INCHES IN DIAMETER FOR STREAM FLOW CONDITION. USE OPEN GRADED ROCK 3-5 INCHES IN DIAMETER FOR OTHER CONDITIONS.
- THE ROCK BERM SHALL BE SECURED WITH A WOVEN WIRE SHEATHING HAVING A MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE SIZE OF 20 GAUGE AND SHALL BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP.
- THE ROCK BERM SHALL BE INSPECTED EVERY TWO WEEKS OR AFTER EACH 1/2" RAIN EVENT AND SHALL BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.
- WHEN SILT REACHES A DEPTH EQUAL TO ONE-THIRD OF THE HEIGHT OF THE BERM OR ONE FOOT, WHICHEVER IS LESS, THE SILT SHALL BE REMOVED AND DISPOSED OF PROPERLY.
- WHEN THE SITE IS COMPLETELY STABILIZED, THE BERM AND ACCUMULATED SILT SHALL BE REMOVED AND DISPOSED OF IN AN APPROVED MANNER.
- ROCK BERM SHOULD BE USED AS CHECK DAMS FOR CONCENTRATED FLOW AND ARE NOT INTENDED FOR USE IN PERIMETER PROTECTION.



**SILT FENCE GENERAL NOTES**

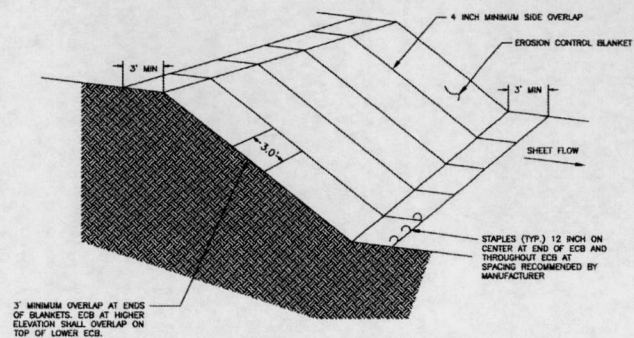
- STEEL POSTS WHICH SUPPORT THE SILT FENCE SHALL BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POST MUST BE EMBEDDED A MINIMUM OF ONE FOOT.
- THE TOE OF THE SILT FENCE SHALL BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWNSLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (e.g. PAVEMENT), WEIGHT FABRIC FLAP WITH ROCK ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.
- THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE Laid IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.
- SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IN TURN IS ATTACHED TO THE STEEL FENCE POST. THERE SHALL BE A 3 FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.
- INSPECTION SHALL BE MADE EVERY TWO WEEKS AND AFTER EACH 1/2" RAINFALL. REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- SILT FENCE SHALL BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.
- ACCUMULATED SILT SHALL BE REMOVED WHEN IT REACHES A DEPTH OF HALF THE HEIGHT OF THE FENCE. THE SILT SHALL BE DISPOSED OF AT AN APPROVED SITE AND IN SUCH A MANNER AS TO NOT CONTRIBUTE TO ADDITIONAL SILTATION.



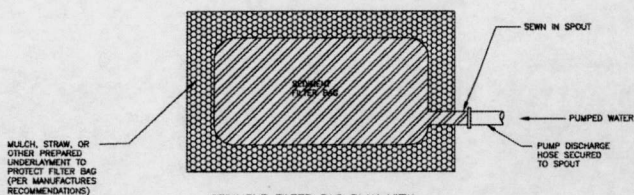
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SHEET		OF	
<p><b>CITY OF SUGAR LAND, TEXAS</b></p> <p>ENGINEERING DEPARTMENT</p> <p>CONSTRUCTION PLANS FOR:</p> <p>RIVERSTONE STORAGE</p> <p>EROSION CONTROL DETAILS - 1</p>			
SL-17		SHEET	

Maggie 9/19/16

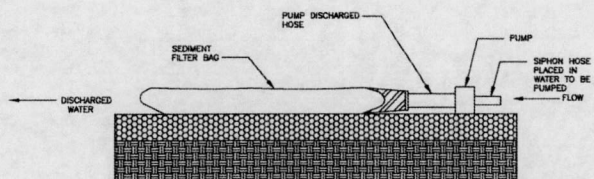




EROSION CONTROL BLANKETS  
N.T.S.



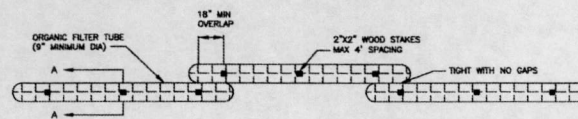
SEDIMENT FILTER BAG PLAN VIEW  
N.T.S.



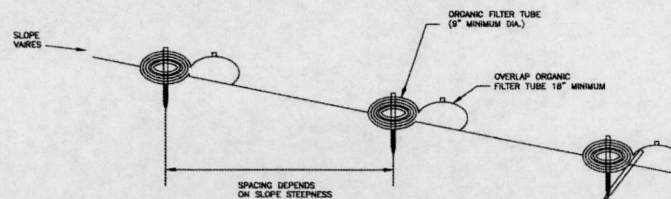
SEDIMENT FILTER BAG PROFILE  
N.T.S.

NOTE: A FILTRATION BAG IS NOT REQUIRED IF THE DRAINAGE SYSTEM CAN BE ADEQUATELY PROTECTED

DEWATERING CONTROLS  
N.T.S.



ORGANIC FILTER TUBE PERIMETER CONTROL PLAN VIEW  
N.T.S.



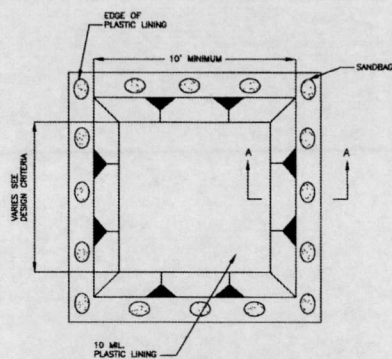
FOR SLOPES OF 2:1 OR STEEPER, A SECOND STAKE AGAINST THE DOWNSLOPE FACE OF THE TUBE MAY BE NEEDED DEPENDING ON SOIL TYPE

ORGANIC FILTER TUBE PERIMETER CONTROL PROFILE  
N.T.S.

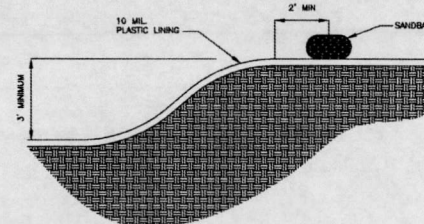
#### ORGANIC FILTER TUBES NOTES

1. TYPE OF NETTING, FILTER MATERIAL, DIAMETER OF TUBE, AND SPACING OF TUBES SHALL BE SPECIFIED BY THE DESIGNER BASED ON THE FOLLOWING SITE PARAMETERS:
  - SIZE OF CONTRIBUTING DRAINAGE AREA
  - STEEPNESS OF SLOPE
  - GROUND CONDITIONS (SOIL OR PAVEMENT)
2. DESIGNER SHALL SHOW ON THE DRAWINGS THE LOCATIONS WHERE TUBE ARE TO BE TURNED UPSLOPE. UPSLOPE LENGTHS SHALL BE MINIMUM OF 10 FEET.

FILTER TUBE  
N.T.S.



CONCRETE WASHOUT PLAN VIEW  
N.T.S.

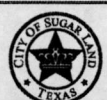


CONCRETE WASHOUT SECTION A-A  
N.T.S.

#### CONCRETE WASHOUT NOTES

1. SANDBAGS MAYBE REPLACED BY A SOIL BERM TO ANCHOR THE PLASTIC BAG

CONCRETE WASHOUT AREA  
N.T.S.

NO.	DATE	REVISION
SHEET		
 CITY OF SUGAR LAND, TEXAS ENGINEERING DEPARTMENT		
CONSTRUCTION PLANS FOR: RIVERSTONE STORAGE		
EROSION CONTROL DETAILS - 2		
JOB NO. DATE DESIGNED BY DRAWN BY CHECKED BY SCALE	9/19/16	SL-18 SHEET OF

Magg 9/19/16