

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

9h

On this 02 day of DECEMBER, 2014, Commissioners Court came on to be heard and reviewed the accompanying notice of LONE STAR ROAD CONSTRUCTION, LTD.

Job Location KINGSLAND BOULEVARD

Dated 11/24/14 BOND NO. 46BSBGS1867, Permit No. 84722 to make use of certain Fort Bend County property subject to, "A Revised 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, date the 3rd day of August, 1987, recorded in Volume _____ of the Minutes of the Commissioners Court of Fort Bend County, Texas, to the extent that such order is not inconsistent with Article 1436a, Vernon's Texas Civil Statutes. Upon Motion of Commissioner Meyers, seconded by Commissioner Patterson, duly put and carried, it is ORDERED, ADJUGED 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.

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

Mail notices to: Permit Administrator
Fort Bend County Engineering
301 JACKSON STREET
RICHMOND, Texas 77469
281-633-7500

3. This permit expires one (1) year from date of permit if construction has not commenced.

By

[Signature]
County Engineer

By

Mark Vogler
Drainage District Engineer/Manager

Presented to Commissioners Court and approved.

Recorded in Volume 12/2/14
Minutes of Commissioners Court.

Clerk of Commissioners Court

By

[Signature]
Deputy

RENEE MICHULKA

COUNTY OF FORT BEND

Engineering Department

301 JACKSON STREET
RICHMOND, Texas 77469

Johnny Ortega
Permit Administrator

1124 Blume Road
Phone: (281) 633-7500

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

PERMIT NO. 084722

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.

- X (1) Complete Application Form.
- X a. Name of road, street, and/or drainage ditch affected.
- X b. Vicinity map showing course of direction.
- X c. Plans and specifications.

- X (2) Bond:
- District Attorney, approval when applicable.
- Perpetual bond currently posted.
- No. _____
- Amount _____
- X Performance bond submitted.
- No. 46BSBGS1867
- Amount \$82,659.67
- Cashier's Check.
- No. _____
- Amount _____

- _____ (3) Verbal permission given for emergencies, to start construction before approved in Commissioner's Court.

Precinct Engineer Acknowledgment

Date

Precinct Commissioner Acknowledgment

Date

- _____ (4) Adam Wright
Drainage District Approval when applicable

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

Johnny Ortega
Johnny Ortega CFM/ Permit Administrator
(REVISED 5/30/08)

11/19/2014
Date

**NOTICE OF PROPOSED CABLE, CONDUIT AND/OR POLE LINE ACTIVITY
IN, UNDER, ACROSS OR ALONG ROADS, STREETS, HIGHWAYS AND DRAINAGE DITCHES
IN FORT BEND COUNTY**

APPLICANT'S JOB NO. _____
PERMIT No. 84722 PCT. No. _____
BOND No. 46 BSA651867

LONE STAR ROAD CONSTRUCTION, LTD

Formal notice is hereby given that _____
proposes to lay, construct, maintain and/or repair cable, conduit and/or pole line, in, under, across, or along roads, streets, highways and
drainage ditches in Fort Bend County, as follows:

In, Under, or Across Roads and/or Drainage Ditches

Road or Ditch Name	Distance & Direction From Nearest Intersection	Length of Crossing	Bored	Type of Construction			
				Jacked	Driven	Cased	
WILLOW FORK:	200' SOUTH OF KINGSLAND BLVD &	123 LF:	148:			CASED	
	FIELDER VILLAGE						

Along Roads and/or Drainage Ditches

Road or Ditch Name	Distance & Direction From Nearest Intersection	To	Distance

General Description

Construct Kingsland Blvd Bridges across Will Fork drainage and install 12" Waterline parallel with proposed bridges

The Location and description of the proposed installation and appurtenances is more fully shown on the attached detail drawings. The laying, construction, maintenance and/or repair of the proposed installation shall be subject to "A Revised Order Regulating the Laying, Construction, Maintenance and/or Repair of Cables, Conduits, and/or 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 Commissioners Court of Fort Bend County, Texas, dated the 3rd. day of August, 1987, recorded in Volume 639 of the Minutes of the Commissioners Court of Fort Bend County, Texas.

Written notices are required: 1) 48 hours in advance of start of construction and
2) when construction is complete and ready for final inspection.

Mail to: Permit Administrator/Fort Bend County Engineering
301 Jackson Richmond, TX 77469.

Violation of Requirements shall constitute grounds for job shut down.

As of 9/1/2014, we will no longer mail out permits. Instead, we will email them.


Please complete:

Name:
JEREMY HAJOVSKY

Email address:

Jeremy@lonestarroad.com

COMPANY NAME: LONE STAR ROAD CONSTRUCTION LTD
AGENT AND/OR OWNER

NAME & TITLE:  PROJECT MANAGER
(Signature)

DATE: 11-17-2014

ADDRESS: 10333 Windfern Rd

HOUSTON, TX 77064

City

State

Zip

TELEPHONE No. 281-477-0515

(Accessible 24hrs/day, 7 days/week)

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

AUTHORIZED

BOND NO 46BSBGS1867

THE STATE OF TEXAS

§

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND

§

THAT WE, Lone Star Road Construction, Ltd. whose address is 10333 Windfern Road, Houston, TX 77064 Texas, hereinafter called the Principal, And Hartford Fire Insurance Company, a Corporation existing under and by virtue of the laws of the state of Connecticut and authorized to do an indemnifying business in the state of Texas, and whose principal office is located at 690 Asylum Avenue, Hartford, CT 06115, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought whining said state is Charles Recer and Whose address is 3000 Internet Boulevard, Suite 600, Frisco, TX 75034, hereinafter called the Surety, and held and firmly bound unto, Robert e. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of Eight Two Thousand Six Hundred Fifty Nine and 67/100 Dollars (\$82,659.67) current, lawful money of the United States of America, to be paid to said Robert E. Hebert, County Judge of Fort Bend County, Texas, or his successors in office, to which payment well and truly to be made and done, we, the undersigned, bind ourselves and each of us, our heirs, executors, administrators, successors, assigns, and legal representatives, jointly and severally, by these presents.

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

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

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

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

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

EXECUTED this 14th day of November, 2014.

Lone Star Road Construction, Ltd.
PRINCIPAL

BY Brandon Schweitzer, President of Schweitzer Management LLC, its General Partner
Hartford Fire Insurance Company

SURETY.

BY Jillian McKenzie, Attorney-In-Fact

**PERPETUAL BOND COVERING CABLE, CONDUIT AND/OR POLE LINE
ACTIVITY IN, UNDER, ACROSS OR ALONG FORT BEND COUNTY ROADS
(AUTHORIZED)**

BOND NO 46BSBGS1867

THE STATE OF TEXAS

§

KNOW ALL MEN BY THESE PRESENTS:

COUNTY OF FORT BEND

§

THAT WE, Lone Star Road Construction, Ltd. Whose address is the Principal, and 10333 Windfern Road, Houston, TX 77064, a Corporation existing under and by virtue of the laws of the state of Connecticut and authorized to do an indemnifying business in the State of Texas, and whose principal office is located at 690 Asylum Avenue, Hartford, CT 06115, whose officer residing in the State of Texas, authorized to accept service in all suits and actions brought within said State is Charles Recer and whose address is 3000 Internet Boulevard, Suite 600, Frisco, TX 75034, hereinafter called the Surety, are held and firmly bound unto, Robert E. Herbert, County Judge of Fort Bend County, Texas, or his successors in office, in the full sum of Eighty Two Thousand Six Hundred Fifty Nine and 67/100 Dollars (\$82,659.67) current, lawful money of the United States of America, to be paid to said Robert E. Herbert, 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 perpetual 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, constructing, maintaining and/or repair of cable, 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 14th day of November, 2014.

Lone Star Road Construction, Ltd.

PRINCIPAL

BY Brandon Schweitzer, President of Schweitzer Management LLC, its General Partner

Hartford Fire Insurance Company

SURETY

BY Jillian McKenzie, Attorney-In-Fact

POWER OF ATTORNEY

Direct Inquiries/Claims to:

THE HARTFORD

BOND, T-4

ONE HARTFORD PLAZA

HARTFORD, CONNECTICUT 06155

call: 888-266-3488 or fax: 860-757-5835

Agency Code: 61-615323 & 46-508152

KNOW ALL PERSONS BY THESE PRESENTS THAT:

- ☒ Hartford Fire Insurance Company, a corporation duly organized under the laws of the State of Connecticut
☒ Hartford Casualty Insurance Company, a corporation duly organized under the laws of the State of Indiana
☐ Hartford Accident and Indemnity Company, a corporation duly organized under the laws of the State of Connecticut
☐ Hartford Underwriters Insurance Company, a corporation duly organized under the laws of the State of Connecticut
☐ Twin City Fire Insurance Company, a corporation duly organized under the laws of the State of Indiana
☐ Hartford Insurance Company of Illinois, a corporation duly organized under the laws of the State of Illinois
☐ Hartford Insurance Company of the Midwest, a corporation duly organized under the laws of the State of Indiana
☐ Hartford Insurance Company of the Southeast, a corporation duly organized under the laws of the State of Florida

having their home office in Hartford, Connecticut, (hereinafter collectively referred to as the "Companies") do hereby make, constitute and appoint, **up to the amount of unlimited:**

Philip Baker, Edward Arens, Michele Bonnin, Erica Anne Cox, Jillian McKenzie
of

The Woodlands, TX

their true and lawful Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign its name as surety(ies) only as delineated above by ☒, and to execute, seal and acknowledge any and all bonds, undertakings, contracts and other written instruments in the nature thereof, on behalf of the Companies in their business of guaranteeing the fidelity of persons, guaranteeing the performance of contracts and executing or guaranteeing bonds and undertakings required or permitted in any actions or proceedings allowed by law.

In Witness Whereof, and as authorized by a Resolution of the Board of Directors of the Companies on August 1, 2009 the Companies have caused these presents to be signed by its Vice President and its corporate seals to be hereto affixed, duly attested by its Assistant Secretary. Further, pursuant to Resolution of the Board of Directors of the Companies, the Companies hereby unambiguously affirm that they are and will be bound by any mechanically applied signatures applied to this Power of Attorney.



Wesley W. Cowling

Wesley W. Cowling, Assistant Secretary

M. Ross Fisher

M. Ross Fisher, Vice President

STATE OF CONNECTICUT

COUNTY OF HARTFORD

ss. Hartford

On this 12th day of July, 2012, before me personally came M. Ross Fisher, to me known, who being by me duly sworn, did depose and say: that he resides in the County of Hartford, State of Connecticut; that he is the Vice President of the Companies, the corporations described in and which executed the above instrument; that he knows the seals of the said corporations; that the seals affixed to the said instrument are such corporate seals; that they were so affixed by authority of the Boards of Directors of said corporations and that he signed his name thereto by like authority.



CERTIFICATE

Kathleen T. Maynard
Kathleen T. Maynard
Notary Public
My Commission Expires July 31, 2016

I, the undersigned, Vice President of the Companies, DO HEREBY CERTIFY that the above and foregoing is a true and correct copy of the Power of Attorney executed by said Companies, which is still in full force effective as of November 14, 2014.
Signed and sealed at the City of Hartford.



Gary W. Stumper

Gary W. Stumper, Vice President



Inquiries Regarding Claims

Hartford Fire Insurance Company
Hartford Casualty Insurance Company
Hartford Accident and Indemnity Company
Hartford Underwriters Insurance Company

Twin City Insurance Company
Hartford Insurance Company of Illinois
Hartford insurance Company of the Midwest
Hartford Insurance Company of the Southeast

Please address inquiries regarding **Claims** for all surety and fidelity products issued by The Hartford's underwriting companies to the following:

Phone Number : 888-266-3488
Fax - Claims : 860-757-5835 or 860-547-8265
E-mail : claims@1stepsurety.com

Mailing Address : The Hartford
The Hartford Fidelity & Bonding (BOND)
Hartford Plaza
690 Asylum Avenue
Hartford, CT 06115

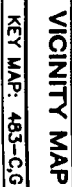
FOR

**WILLOW POINT MUD
FORT BEND COUNTY, TX**

42 MISCELLANEOUS DETAILS
43 PAVING DETAILS
44 PAVEMENT MARKING DETAILS
45 STORM WATER POLLUTION PREVENTION PLAN

JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
6335 Guffin Dr., Suite 100 Houston, Texas 77061 (713) 771-5337

I, James Scott Whyt, a Professional Engineer licensed in the State of Texas do hereby certify that these plans were prepared under my supervision to meet or exceed the specifications and requirements of Fort Bend County, Texas.



I, James Scott Wright, a Professional Engineer licensed in the State of Texas do hereby certify that these plans were

www.digless.org/
Texas811 or 1-800-DIG-TESS
1-800-744-8277

APPROVED: 1 Jan 2010

ENGINEER: W. J. D. J.

FORT BEND COUNTY ENGINEER

1000

10/10/1

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

DEVELOPMENT COORDINATOR

SURRENDERED BY: **FB NO.:**

NOTE: CITY SIGNATURES VALID FOR
AFTER DATE OF SIGNATURES

ALLEN DALE OF SIGNAL FORCES

ONLY ON

DEPARTMENT OF PUBLIC WORKS

DEPARTMENT OF PUBLIC WORKS
WATER & TRAFFIC

INVESTIGATION OF THE EFFECTS OF THE 1997-1998 EL NIÑO ON THE
WATER RESOURCES OF THE SAN JOAQUIN RIVER BASIN

WATER/TEMP	2.1.0.0	STORY 1
------------	---------	---------

61-12-8

Spencer Penning

STORY

1108

FACULTY

8.24.17

STREET & BRIDGE

CITY ENGINEER

FOR OR

•
•
•
•

1

DIRECTOR OF PUBLIC WORKS

AND ENGINEERING

1/10/11.0 57114

James W. Smith

SHEET 9

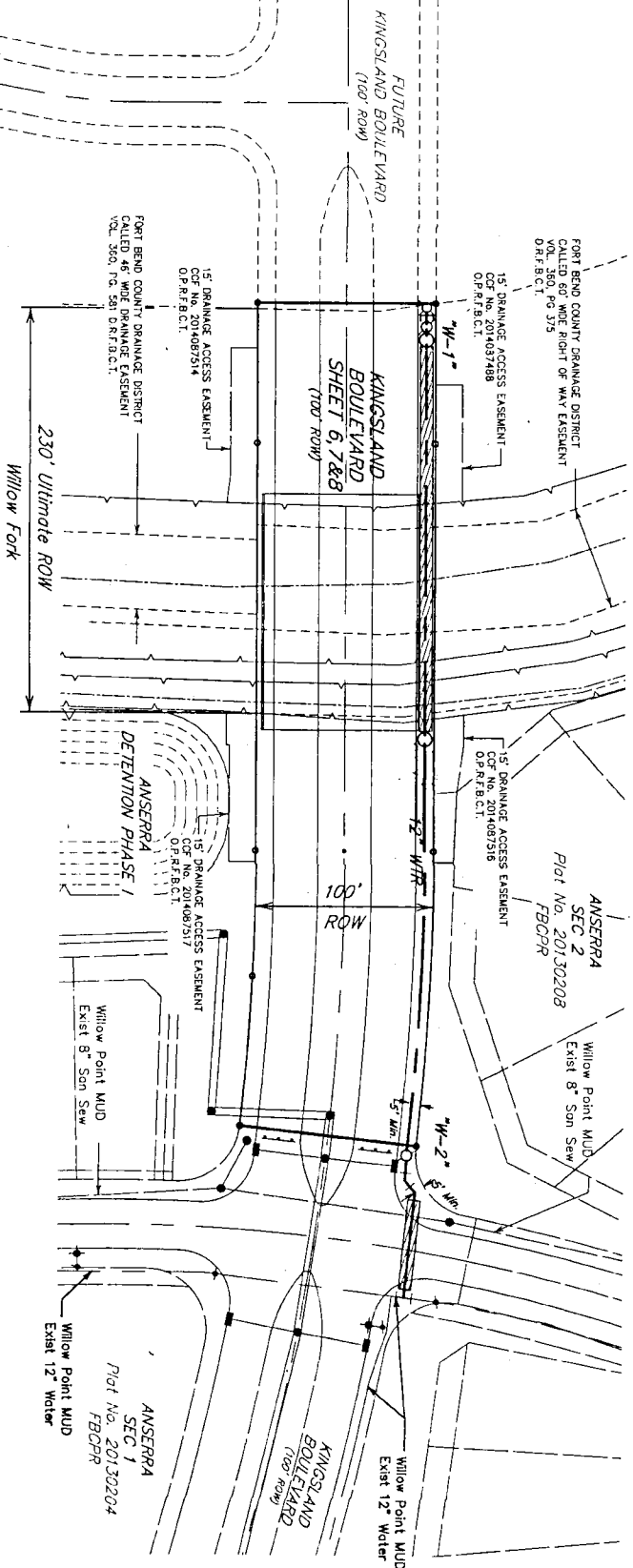
25

--	--

KINGSLAND BOULEVARD BRIDGE - WATER & PAVING FACILITIES

PROPOSED		EXISTING	
WATERLINE w/ GATE VALVE			
FLUSH VALVE w/ GATE VALVE			
PLUG & CLAMP w/ BLOW OFF			
SANITARY SEWER w/ MANHOLE			
SANITARY STACK			
SANITARY LEAD			
STORM SEWER w/ MANHOLE			
STORM SEWER w/ INLET			
SMALL CENTERLINE			
NATURAL GROUND CONTOUR			
UTILITY EASEMENT			
WATERLINE EASEMENT			
SANITARY SEWER EASEMENT			
STORM SEWER EASEMENT			
DRAINAGE EASEMENT			
AERIAL EASEMENT			

KB HOME LONESTAR INC.
RESIDUE CALLED 103.46 AC
C.C.F. NO. 2012111887
O.P.R.F.B.C.T.



THIS TRACTS ARE WITHIN ZONES "X" & "X" SHATED OF THE FLOOD INSURANCE RATE MAP NUMBER 481672004D, FOR FORT BEND COUNTY, TEXAS REVISED April 2, 2014.

ZONE "X" IS DEFINED AS SPECIAL FLOOD HAZARD AREAS UNBUILT BY THE 1% FLOOD, BASE FLOOD ELEVATIONS DETERMINED.

ZONE "X" IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ZONE "X" SHATED IS DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH ELEVATIONS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS OF LESS THAN 10 ACRES, AREAS NOT PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTIES OR STRUCTURES ARE INSURED AGAINST FLOOD FLOODING OR FLOOD DAMAGE, ON RARE OCCASIONS BE CAUSE OF FLOODING, FLOOD DAMAGE MAY OCCUR AND MAY BE CAUSED BY OTHER FACTORS. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SIGNER.

NATIONAL FOREST SERVICE (NFS), UNIVERSITY #A 1508, BERNARD
13.8 MILES WEST OF MT. RAINIER JUNCTION OF U.S. HIGHWAYS
90 & NEW OAK ROAD, MONUMENT BEING 66 FOOT WEST OF
SOUTHERLY CORNER OF SECTION ROAD. ALSO BEING 78 FOOT
EAST OF SOUTHERLY CORNER OF SECTION ROAD AND POWER
POLE. ALSO BEING 13 FOOT SOUTH OF A FENCE CORNER AND POWER
POLE. ALSO BEING 2 FOOT NORTH-NORTHEAST OF A CUY
ANCHOR. ALSO BEING 2 FOOT EAST OF A FENCE. ACCESS TO
ANCHOR IS THROUGH A 5' HIGH LOG CAB.

ELEVATION = 155.85' (NAAD BG ADJUSTMENT)

I.B.M. "A"

SET COTTON PICKER SPINDLE IN POWER POLE. WEST OF
PROPOSED ROWWAY AT INTERSTATE HIGHWAY TO D.O.W.
ELEVATION = 149.88' (NAAD BG ADJUSTMENT)

I.B.M. "B"

SET 1/2" P W/CM MARKED YALOWKEY SURVEYING CONTROL
POINT (#320) IN NORTHERN HORN BANK OF WILLON FORK OF
WEST PROPERTY LINE. 35 FOOT EAST OF SUBJECT TRACT

ELEVATION = 143.85' (NAAD BG ADJUSTMENT)

DATE: 10/7/14

JC JONES & CARTER, Inc.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-4392
6535 Gullhorn Dr., Suite 100 Houston, Texas 77061 (713) 777-5533

**KINGSLAND BOULEVARD BRIDGE
GENERAL CONSTRUCTION LAYOUT**

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
DATE <i>8-27-11</i>	PROJECT & DESCRIPTION
MATERIALS <i>WATER</i>	STATION WATER QUALITY
<i>SHOULD BE TESTED</i>	FACILITIES
SHEET # <i>000000</i>	

JOB NO: 03553-015-00
DATE: AUGUST 2014
DGN. BY: LJT
DWS. BY: HJR/REW
SCALE: 1"=50'

52762

WATERLINE CONSTRUCTION NOTES

1. ALL (PVC 4" INCH THROUGHS TWELVE (12) WATERLINES TO BE CLASS 150 (OR-18) PVC (AWWA C-900) OR DUCTILE IRON AS SPECIFIED. ASBESTOS CEMENT WATERLINES SHALL BE REPLACED FOR THIS PROJECT.
2. TWELVE (12) INCH OR SMALLER WATERLINES SHALL HAVE A MINIMUM COVER OF FOUR FEET. ALL WATERLINES SHALL BE PROTECTED BY A MINIMUM OF 18" OF COVER. IN THE EVENT OF THE WATERLINE FROM THE DEPTH SHOWN ON THE PLANS TO FLUCTUATION OF THE WATERLINE, AND MAINTAIN MINIMUM CLEARANCES. MAXIMUM DEFLECTION OF JOINTS SHALL NOT EXCEED THE PIPE MANUFACTURER'S RECOMMENDATIONS.
3. WATERLINE FITTINGS SHALL BE CAST OR DUCTILE IRON UNLESS OTHERWISE NOTED.
4. WATERLINES SHALL BE CONSTRUCTED SO THAT ALL CROSSES AND TEES WILL NOT BE LOCATED UNDER PROPOSED OR FUTURE PAVING.
5. VALVES SHALL BE LOCATED OPPOSITE PROPERTY CORNERS EXCEPT AS SHOWN ON THE PLANS.
6. MAINTAIN 12" MINIMUM CLEARANCE BETWEEN ALL WATERLINES, STORM SERVICES, AND CURBS UNLESS OTHERWISE NOTED.
7. FOR SPECIAL WATERLINE / SANITARY SEWER CLEARANCES, SEE SANITARY SEWER CONSTRUCTION NOTES.
8. WATERLINES SHALL BE DARK SAND-BEDDED AND BACKFILLED IN ACCORDANCE WITH THE LATEST EDITION OF CITY OF HOUSTON SPECIFICATIONS AND DETAILS.
9. SANITARY PRECAUTIONS MUST BE TAKEN DURING WATERLINE CONSTRUCTION, AS CALLED FOR BY AWWA STANDARDS. PRECAUTIONS INCLUDING KEEPING PIPE CLEAN AND FREE OF DEBRIS, PROTECTING EXISTING UTILITIES, AND PROTECTING EXISTING UTILITIES, ANIMALS, OR OTHER SOURCES OF CONTAMINATION FROM UNFINISHED PIPE LINES AT TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.
10. ALL NEWLY INSTALLED PIPES, JOINTS, AND RELATED PRODUCTS SHALL CONFORM TO AMERICAN NATIONAL STANDARDS INSTITUTE / NATIONAL SANITATION FOUNDATION (ANSI / NSF) STANDARDS AND MUST BE CERTIFIED BY AN ORGANIZATION ACCREDITED BY ANSI.
11. DO NOT INCLUDE SERVICE CONNECTIONS IN THIS CONTRACT. HOWEVER, WHEN REQUIRED, THEY SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF CITY OF HOUSTON SPECIFICATIONS.
12. ALL FILLING VALVES AND VALVE BOXES SHALL BE ADAPTED TO FRESH GRADE.
13. PROVIDE GATE VALVE EXTENSION STEEL PER CITY OF HOUSTON AND/OR AS DIRECTED BY THE ENGINEER.
14. BACKFILL TO BE MECHANICALLY COMPACTED TO NINETY-FIVE (95) PERCENT STANDARD PROCTOR DENSITY AT OPT. TO +5% MOISTURE CONTENT.

PAYING CONSTRUCTION NOTES

1. PAYMENT SHALL BE IN ACCORDANCE WITH THE REGULATIONS OF FORT BEND COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE AND/OR IMPROVEMENTS OF STATE.
2. THE CONSTRUCTION SHALL MEET FORT BEND COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT-CONSTRUCTION CRITERIA AND STANDARDS. THE CONTRACTOR SHALL PROVIDE ADEQUATE PROTECTION AND ADVANCE OF EXISTING CONSTRUCTION.
3. ALL RETAINING SHALL HAVE A 25-FOOT RADII AT FACE OF CURB UNLESS OTHERWISE NOTED.
4. GUIDELINES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE OBSERVED.
5. ALL INTERSECTIONS SHALL BE CONSTRUCTED WITH MEDIAN TRAFFIC CONTROL DEVICES. THE CONVEYOR OF PUBLIC SAFETY, MEDIAN DIVISION DIVISION 161, 170, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952,

UTILITY NOTES

CAUTION: OVERHEAD POWER LINES
OVERHEAD LINES MAY EXIST ON THE PROPERTY. THE LOCATION OF OVERHEAD LINES HAS NOT BEEN SHOWN ON THESE DRAWINGS AS THE LINES ARE CLEARLY VISIBLE, BUT YOU SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE FORBIDS ACTS THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:

ANY ACTION WHERE PERSONS OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND
 OPERATING A CRANE, DRILL, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN TEN (10) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES.

PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR THE VIOLATION OF ANY FEDERAL, STATE, OR LOCAL LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY TO VIOLATORS. VIOLATORS WILL BE FINED OR IMPRISONED OR BOTH, AT THE DISCRETION OF THE COURT. VIOLATIONS WILL BE FORWARDED FOR REMOVED CALL OR REMOVED VIOLATION REPORT AT \$15-\$20-200-2222.

713-207-2222.

ACILITIES ON OR ACROSS CENTERPOINT ENERGY FEE OR EASEMENT PROPERTY
NO APPROVAL TO USE, CROSS OR OCCUPY CENTERPOINT FEE OR EASEMENT PROPERTY IS GIVEN. IF
YOU NEED TO USE CENTERPOINT PROPERTY, PLEASE CONTACT CENTERPOINT SURVEYING & RIGHT OF
WAY DIVISION AT (713) 207-6248 OR (713) 207-5769.

CAUTION: UNDERGROUND ELECTRICAL FACILITIES. UNDERGROUND ELECTRICAL FACILITIES EXIST IN THE AREA OF THIS PROJECT DO NOT BEGUN CONSTRUCTION UNTIL THESE FACILITIES HAVE BEEN LOCATED AND STAKED. TO HAVE THESE UNDERGROUND FACILITIES STAKED, CALL THE UTILITY COORDINATING COMMITTEE AT (773) 223-4567, OR TOLL FREE AT 1-800-689-8344, AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION.

CAUTION: UNDERGROUND GAS FACILITIES

LOCATIONS OF CENTROPUMP ENERGY MAIN LINES (TO INCLUDE CENTROPUMP ENERGY INSTANTANEOUS SERVICE LINES) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES (WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES USUALLY NOT SHOWN, OR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT (713) 223-4397, 1-800-869-8244, OR BY A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

- WHEN CENTERLINE ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 945-8036 OR (713) 945-8037 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

-WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF CENTER POINT ENERGY FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES.

THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.

-FOR EMERGENCIES REGARDING GAS LINES CALL (713) 659-3552 OR (713) 207-4200.

LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

AT&T TEXAS/SWBIT FACILITIES

1. THE LOCATION OF AIRT TEXAS/SWMT FACILITIES BE SHOWN IN AN APPROPRIATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILITIES.
2. THE CONTRACTOR SHALL CALL 1-800-344-8377 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUND LINES FIELD LOCATED.
3. WHEN EXCAVATING WITH DIGGER MACHINES (18") OF THE INDICATED LOCATION OF AIRT TEXAS/SWMT FACILITIES, THE CONTRACTOR SHALL PROVIDE THE APPROPRIATE IDENTIFICATION EXCAVATION PROCEDURES. WHEN BORING, THE CONTRACTOR SHALL EXPOSE THE AIRT TEXAS/SWMT FACILITIES.
4. WHEN AIRT TEXAS/SWMT FACILITIES ARE CHASED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PERCENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES, THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.
5. THE PRESENCE OR ABSENCE OF AIRT TEXAS/SWMT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHALL NOT BE TAKEN TO MEAN THAT THERE ARE NO DIRECTLY BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.
6. PLEASE CONTACT THE AIRT TEXAS DAMAGE PREVENTION MANAGER MR. ROSEVELT LEE, JR. AT (713) 557-4532 OR E-MAIL HIM AT BL22929@AIRTEX.COM IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AIRT TEXAS/SWMT FACILITIES.

AT&T TEXAS/SWBT Approved for underground conduit facilities only
Signature valid for one year.

[illegible]

WILLOW POINT MUD
FORT BEND COUNTY, TEXAS

JONES & CARTER, INC.
ENGINEERS • PLANNERS • SURVEYORS
Texas Board of Professional Engineers Registration No. F-439
3335 Gulton Dr., Suite 100 Houston, Texas 77061 (713) 777-5533
KINGSLAND BOULEVARD BRIDGE

CONSTRUCTION NOTES

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TRAFFIC & TRANSPORTATION

INVESTMENT	1	8-21-98	STROM WATER QUALITY
------------	---	---------	---------------------

Mick Rowley

STORM	FACILITIES
D-688-2114	

STREET & BRIDGE

[illegible]

FILE NO: _____

FOR CITY OF HOUSTON
CITY DWG. NO. _____

JOB NO: 05535-015-G0

DATE _____

DATE: AUGUST 2014
 DON BY: STDGN:
BY: AIR/BSW
DATE:

02762

SCALE: N.T.S.

Country	1950	1960	1970	1980	1990	2000	2010	2020	2030	2040	2050
Japan	7	8	10	12	14	16	18	20	22	24	26
Germany	10	11	12	13	14	15	16	17	18	19	20
France	11	12	13	14	15	16	17	18	19	20	21
Italy	12	13	14	15	16	17	18	19	20	21	22
Spain	13	14	15	16	17	18	19	20	21	22	23
Sweden	14	15	16	17	18	19	20	21	22	23	24
United Kingdom	15	16	17	18	19	20	21	22	23	24	25
United States	16	17	18	19	20	21	22	23	24	25	26
Canada	17	18	19	20	21	22	23	24	25	26	27
Australia	18	19	20	21	22	23	24	25	26	27	28
South Africa	19	20	21	22	23	24	25	26	27	28	29
India	20	21	22	23	24	25	26	27	28	29	30
China	21	22	23	24	25	26	27	28	29	30	31
Indonesia	22	23	24	25	26	27	28	29	30	31	32
Philippines	23	24	25	26	27	28	29	30	31	32	33
Thailand	24	25	26	27	28	29	30	31	32	33	34
Malaysia	25	26	27	28	29	30	31	32	33	34	35
Singapore	26	27	28	29	30	31	32	33	34	35	36
South Korea	27	28	29	30	31	32	33	34	35	36	37
Taiwan	28	29	30	31	32	33	34	35	36	37	38
Hong Kong	29	30	31	32	33	34	35	36	37	38	39
Macau	30	31	32	33	34	35	36	37	38	39	40
Israel	31	32	33	34	35	36	37	38	39	40	41
Poland	32	33	34	35	36	37	38	39	40	41	42
Czech Republic	33	34	35	36	37	38	39	40	41	42	43
Slovakia	34	35	36	37	38	39	40	41	42	43	44
Hungary	35	36	37	38	39	40	41	42	43	44	45
Romania	36	37	38	39	40	41	42	43	44	45	46
Bulgaria	37	38	39	40	41	42	43	44	45	46	47
Greece	38	39	40	41	42	43	44	45	46	47	48
Portugal	39	40	41	42	43	44	45	46	47	48	49
Spain	40	41	42	43	44	45	46	47	48	49	50
France	41	42	43	44	45	46	47	48	49	50	51
Germany	42	43	44	45	46	47	48	49	50	51	52
Italy	43	44	45	46	47	48	49	50	51	52	53
Japan	44	45	46	47	48	49	50	51	52	53	54
United States	45	46	47	48	49	50	51	52	53	54	55
Canada	46	47	48	49	50						

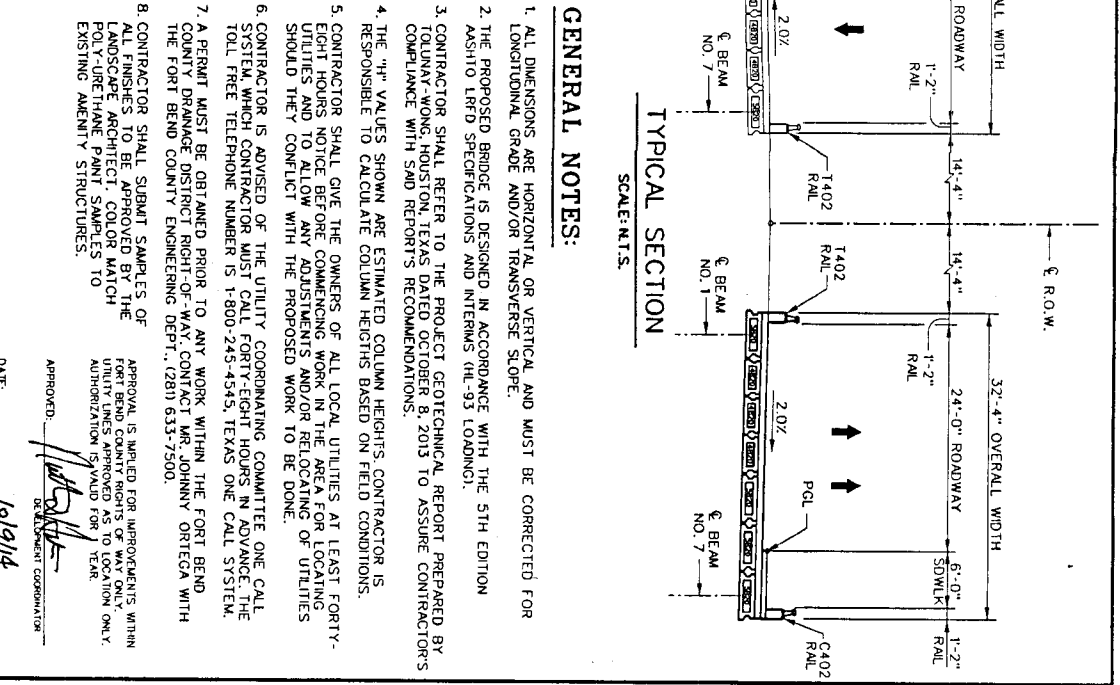
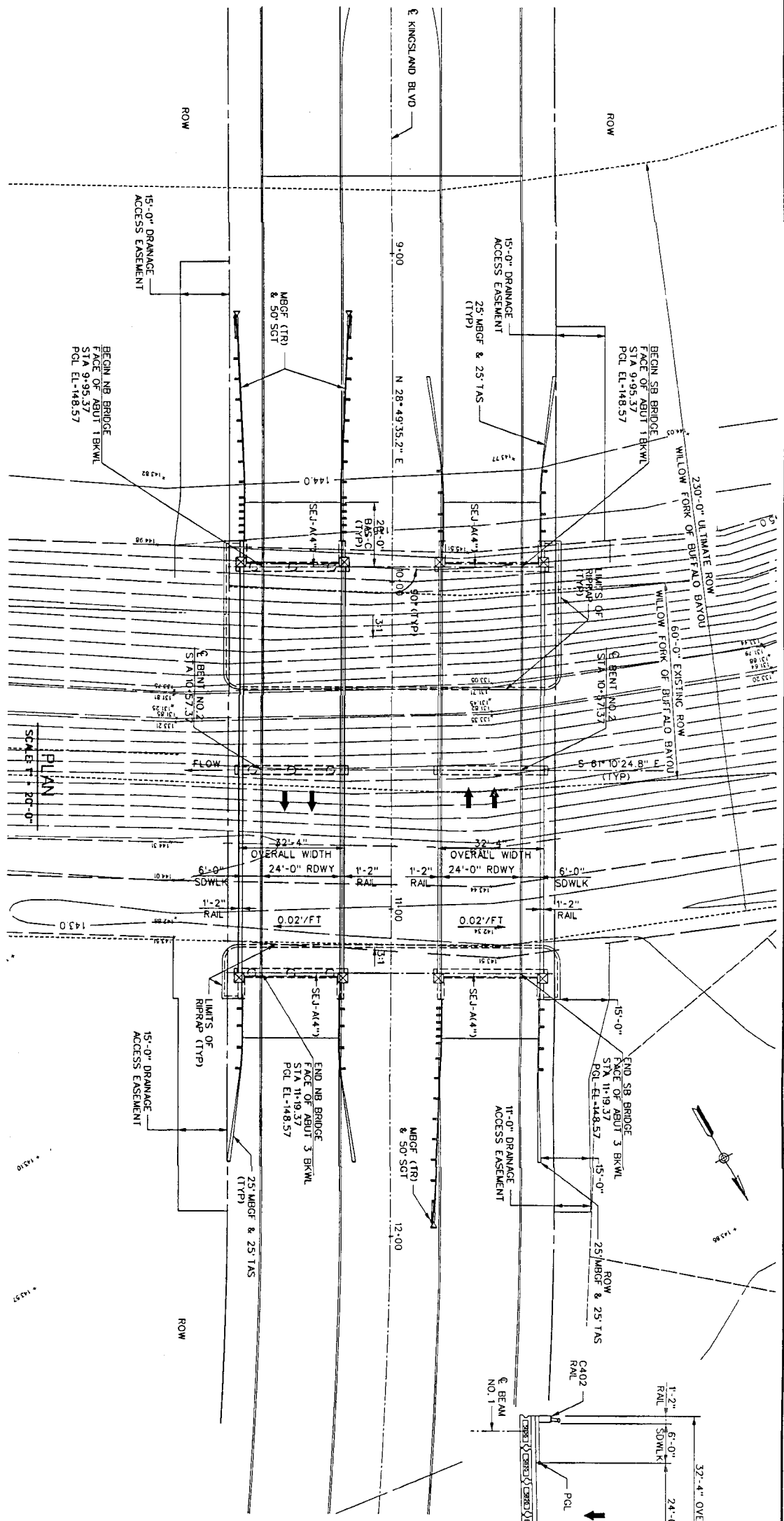
1

SHEET NO. 5 OF 45

--	--

[illegible]

P:\PROJECTS\05535 Wilson Point MUD\015-CO-Kingland Blvd Bridge W&A&D & Paving\Civil\Eng Design\Working Orga\Phase II Land Plan Kingland Boulevard Bridge_FINAL.dwg Aug 13, 2014 ~ 4:39pm L



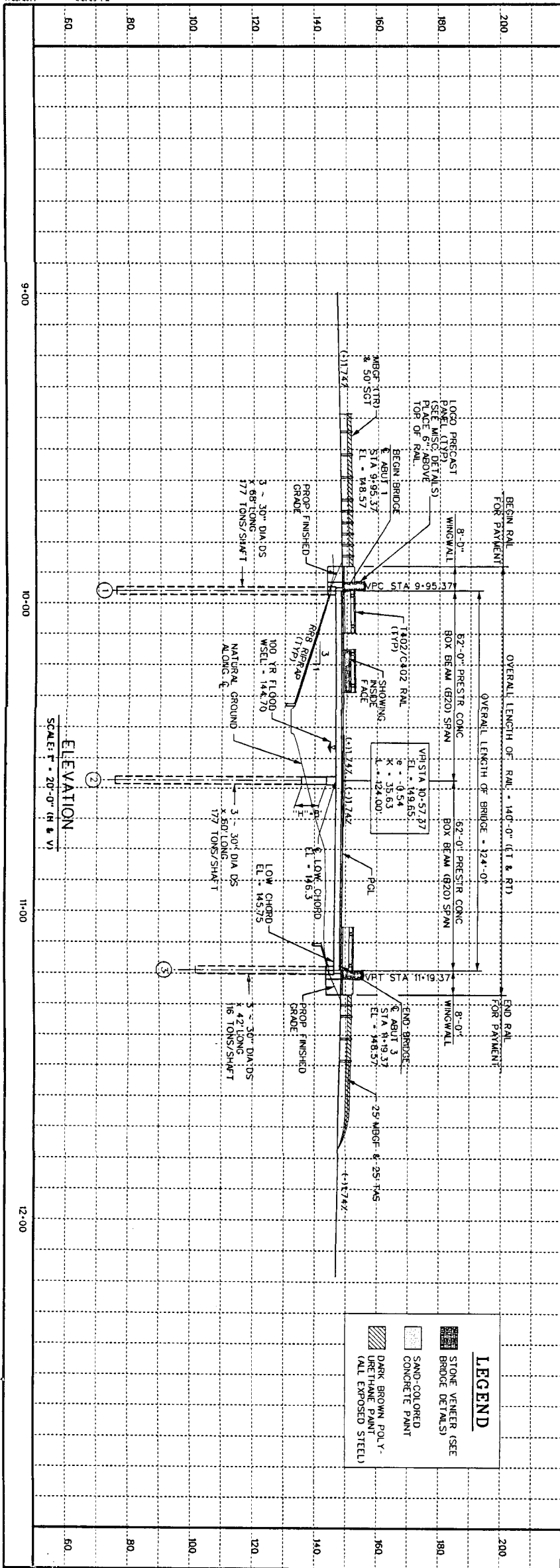
- GENERAL NOTES:**
1. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND MUST BE CORRECTED FOR LONGITUDINAL GRADE AND/OR TRANSVERSE SLOPE.
 2. THE PROPOSED BRIDGE IS DESIGNED IN ACCORDANCE WITH THE 5TH EDITION ASHTO LRFD SPECIFICATIONS AND INTERMS (HL-93 LOADING).
 3. CONTRACTOR SHALL REFER TO THE PROJECT GEOTECHNICAL REPORT PREPARED BY COUNTY-WIDE HOUSTON TEXAS DISTRICT ENGINEERING, INC. IN 2015 TO ASSURE CONTRACTORS COMPLIANCE WITH SAND REPORTS RECOMMENDATIONS.
 4. THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS BASED ON FIELD CONDITIONS. RESPONSIBLE TO CALCULATE COLUMN HEIGHTS BASED ON FIELD CONDITIONS.
 5. CONTRACTOR SHALL GIVE THE OWNERS OF ALL LOCAL UTILITIES AT LEAST FORTY-EIGHT HOURS NOTICE BEFORE COMMENCING WORK IN THE AREA FOR LOCATING UTILITIES TO ALLOW ANY ADJUSTMENTS AND/OR RELOCATING OF UTILITIES SHOULD THEY CONFLICT WITH THE PROPOSED WORK TO BE DONE.
 6. CONTRACTOR IS ADVISED OF THE UTILITY COORDINATING COMMITTEE ONE CALL SYSTEM WHICH CONTRACTOR MUST CALL FORTY-EIGHT HOURS IN ADVANCE. THE TOLL FREE TELEPHONE NUMBER IS 1-800-245-4545, TEXAS ONE CALL SYSTEM.
 7. A PERMIT MUST BE OBTAINED PRIOR TO ANY WORK WITHIN THE FORT BEND COUNTY DRAINAGE DISTRICT RIGHT-OF-WAY. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPT., (281) 633-7500.
 8. CONTRACTOR SHALL SUBMIT SAMPLES OF ALL FINISHES TO BE APPROVED BY THE LANDSCAPE ARCHITECT. COLOR MATCH POLY-URETHANE PAINT SAMPLES TO EXISTING ADJACENT STRUCTURES.

APPROVED: *[Signature]*
DATE: 10/19/14

KB HOMES
ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS

Cosabella, Inc.
7015 West Loop South, Suite 200
Houston, Texas 77056
(713) 861-1111

APPROVAL IS IMPLIED FOR IMPROVEMENTS WITHIN FORT BEND COUNTY RIGHTS OF WAY ONLY. AUTHORIZATION IS VOID FOR YEAR.



LEGEND

- STONE VENEER (SEE BRIDGE DETAILS)
- SAND-COLORED CONCRETE PAINT
- DARK BROWN POLY-URETHANE PAINT (ALL EXPOSED STEEL)

HL-93 LOADING

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

BRIDGE LAYOUT
NB LANES

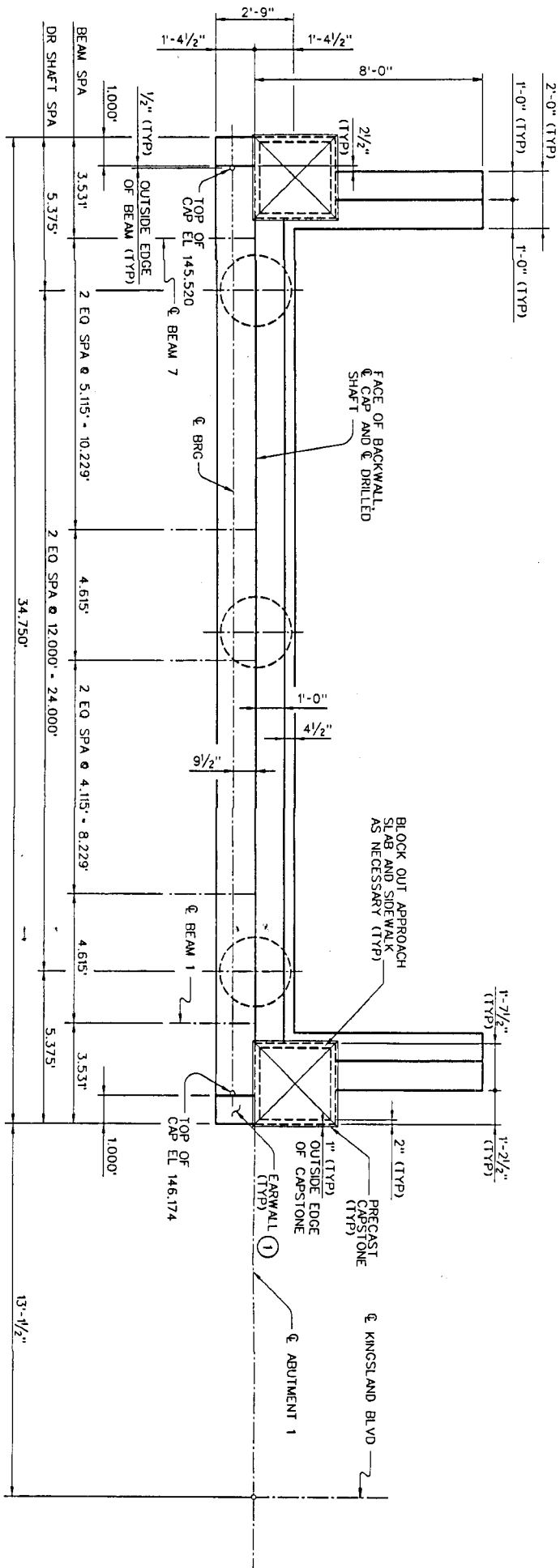
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

FILE NO. _____
JOB NO. _____
DATE: JULY 2014
DESIGN BY: _____
CHECKED BY: _____
SCALE: _____

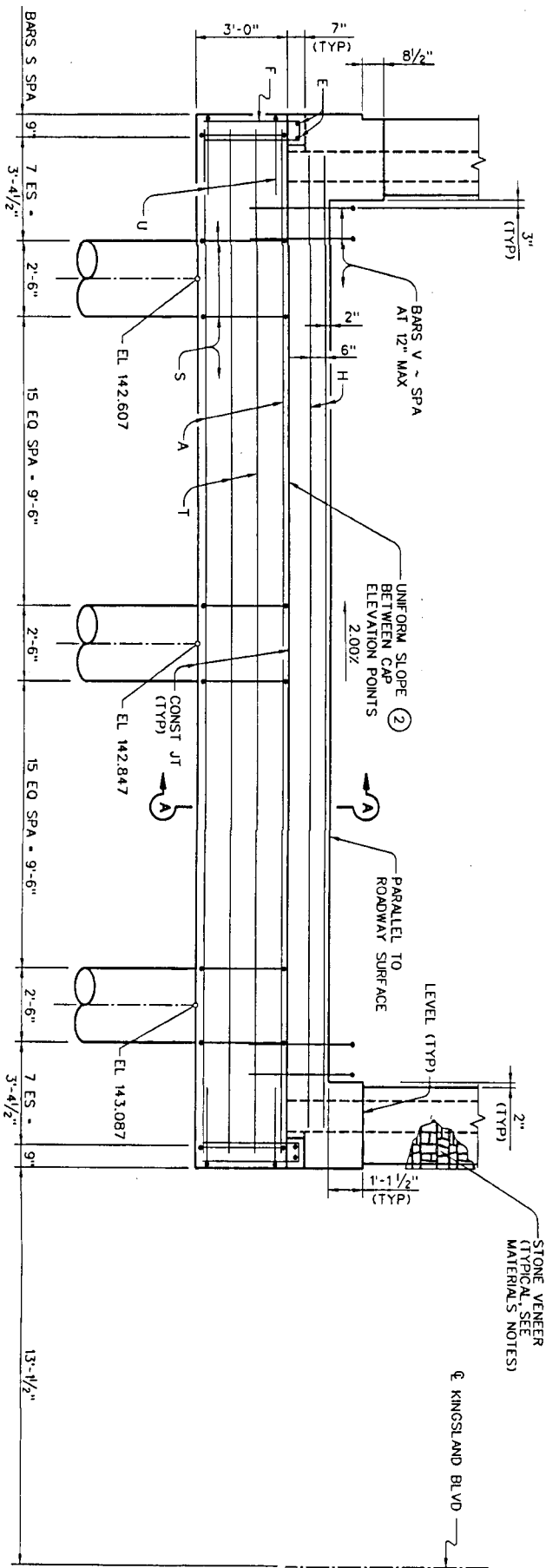
SHEET NO. 9 OF 45

FOR CITY OF HOUSTON USE ONLY
DATE: _____
BY: _____

52762



PLAN
SCALE: 3/8\"/>



ELEVATION
SCALE: 3/8\"/>

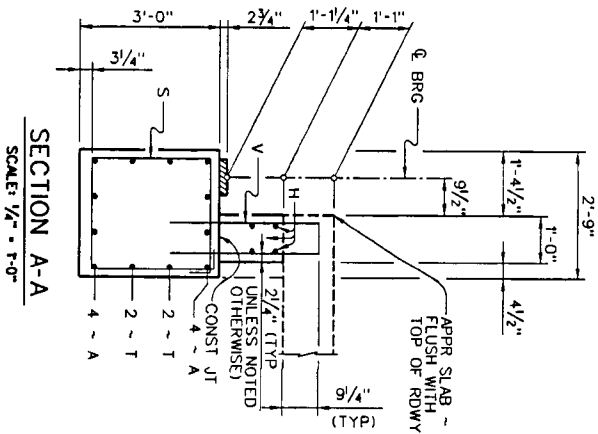
- 1/2\"/>
- SURFACE FINISH FOR THE TOP OF CAP WILL BE A TEXTURED WOOD FLOAT FINISH. THE SURFACE MUST BE LEVEL IN THE DIRECTION OF THE CENTERLINE OF BEAMS.

GENERAL NOTES:

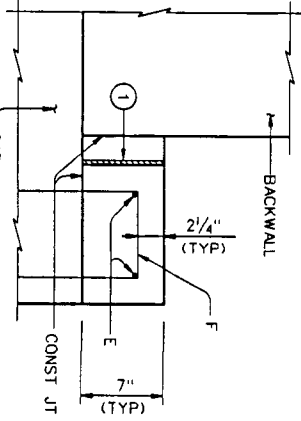
- DESIGNED IN ACCORDANCE WITH 5TH EDITION AASHTO LRFD SPECIFICATIONS AND INTERIMS (HL-93 LOADING).
- CONCRETE STRENGTH f'c = 3,600 PSI.
- ALL REINFORCING MUST BE GRADE 60.
- SEE STANDARD FD FOR ALL FOUNDATION DETAILS AND NOTES.
- SEE APPLICABLE RAIL DETAILS FOR RAIL ANCHORAGE CAST IN WINGWALLS.
- SEE STANDARD CRF FOR RIPRAP ATTACHMENT DETAILS.
- DO NOT CAST EARWALL UNTIL BEAMS ARE ERECTED IN THEIR FINAL POSITION.

MATERIALS NOTES:

- ALL STONE VENEER SHALL BE CHOCTAW RUSTIC LEDGESTONE. ALL STONE SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.
- INSTALL STONE FROM THE BOTTOM UP. STONE SHALL BE PLACED IN HORIZONTAL COURSING WITH DRY STACK APPEARANCE. MORTAR JOINTS SHALL NOT BE EXPOSED.
- MORTAR COLOR SHALL BE LIMESTONE BUFF.
- EXPOSED WINGWALLS AND CAP ENDS SHALL RECEIVE SAND-COLORED CONCRETE PAINT. PAINT SHALL BE SUBSIDIARY TO CLASS "C" CONCRETE. NO DIRECT PAYMENT SHALL BE MADE.



EARWALL ELEVATION DETAIL
SCALE: 1/2\"/>



HL-93 LOADING

WILLIAM E. DUNN
Professional Engineer
No. 89260
State of Texas

FOR CITY OF HOUSTON USE ONLY
SHEET NO. 10 OF 45

52762

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
TRAFFIC & IMPROVEMENT
STREET WATER QUALITY
STANDARD SPECIFICATIONS
SHEET 8.21.1.1

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

APPROVED: *[Signature]*
DATE: 10/9/14
DEPARTMENT COORDINATOR

APPROVAL IS LIMITED FOR IMPROVEMENTS WITHIN
UTILITY LINES APPROVED AS TO LOCATION ONLY.
AUTHORIZATION IS VALID FOR 1 YEAR

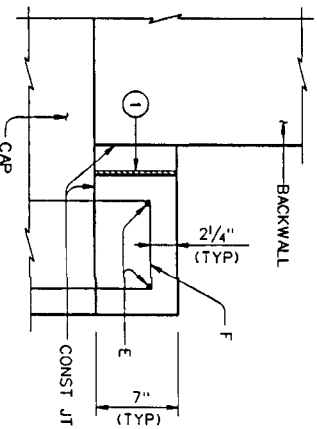
NO. DATE REVISIONS APP
1. 10/9/14

ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS
KINGSLAND BOULEVARD
AT WILLOW FORK
COSTELLO, INC.
Professional Engineer
No. 89260
State of Texas

2015-170 Kingsland Blvd\New Drawings\Kingsland.AB-1N-PE.rev.dgn
7/28/2014 2:28:15 PM

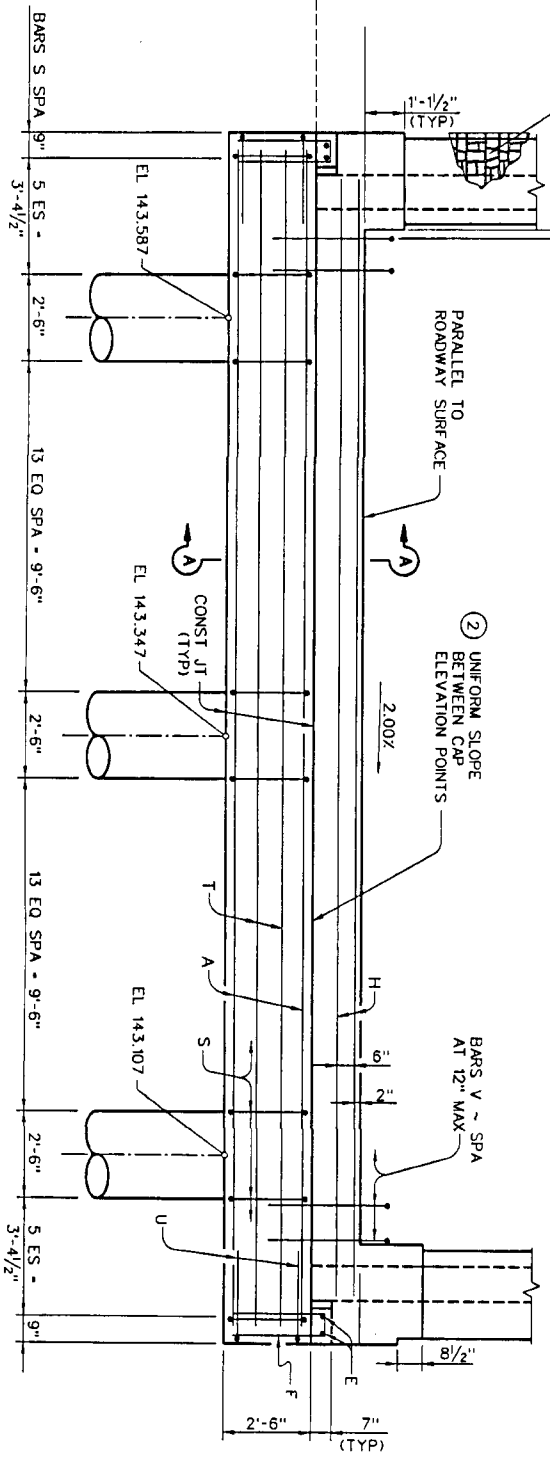
JOB NO. 2013170

EARWALL ELEVATION DETAIL
SCALE: N.T.S.
(SLOPE TOP OF EARWALL AWAY FROM BEAMS)

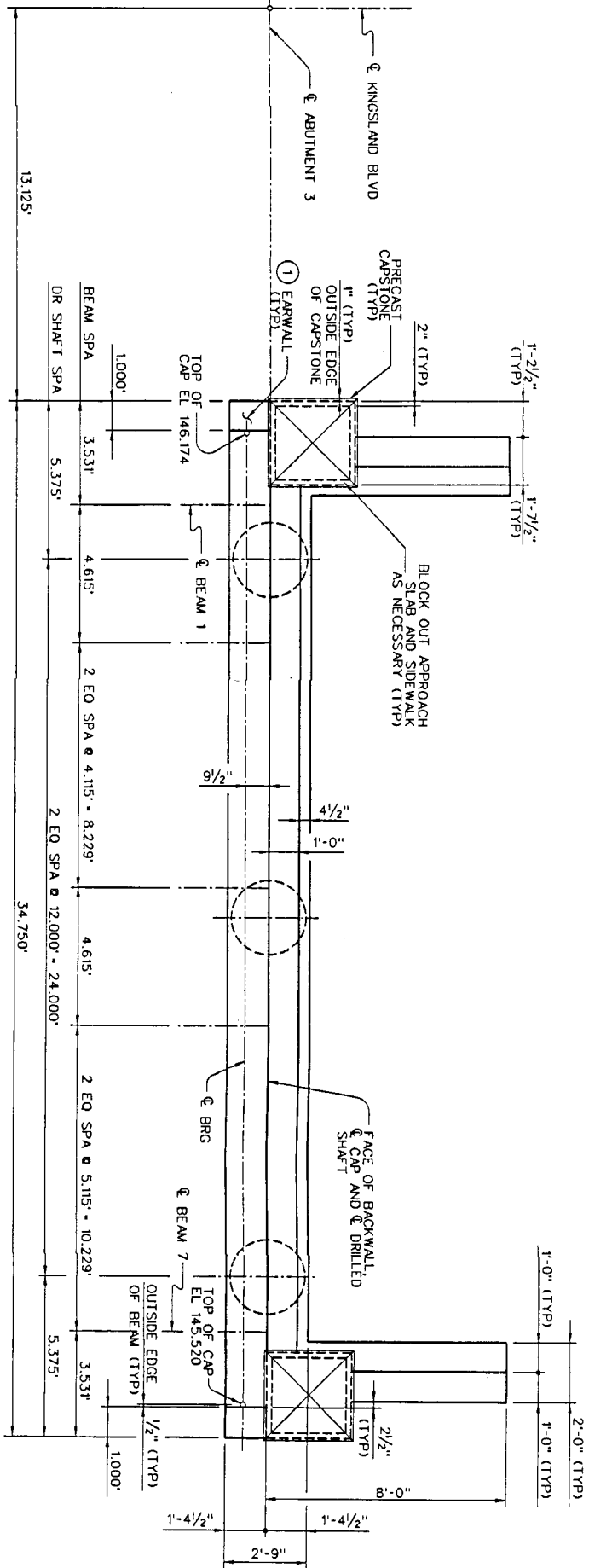


ELEVATION
SCALE: 3/8\"/>

- 1/2\"/>
- SURFACE FINISH FOR THE TOP OF CAP WILL BE A TEXTURED WOOD FLOAT FINISH. THE SURFACE MUST BE LEVEL IN THE DIRECTION OF THE CENTERLINE OF BEAMS.

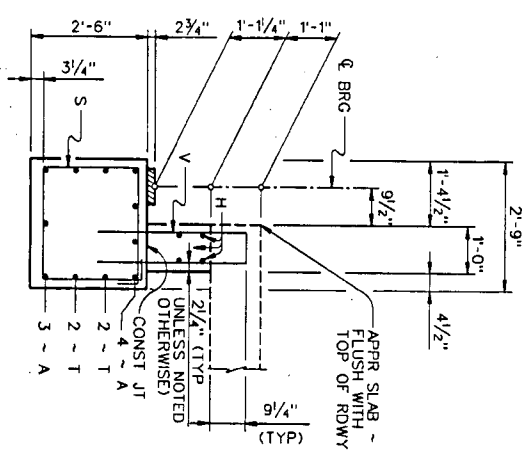


PLAN
SCALE: 3/8\"/>



NOTE:
SEE ABUTMENT 1 FOR ALL NOTES.

SECTION A-A
SCALE: 1/2\"/>



APPROVAL IS LIMITED FOR IMPROVEMENTS WITHIN
LIMITS OF THE PROJECT AND FOR THE YEAR OF
AUTHORIZATION IS VALID FOR 1 YEAR.

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 10/9/14

NO.	DATE	REVISIONS	APP.

KB HOMES
ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS

Cosabella, Inc.
REGISTERED PROFESSIONAL ENGINEER
No. 88260
State of Texas

**ABUTMENT 3 PLAN
& ELEVATION - NB**

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 10/9/14
BY: *[Signature]*
FOR: *[Signature]*

SCALE: 1/2\"/>

STATION: 1+00.00 TO 1+00.00

REVISIONS: 1

FOR CITY OF HOUSTON USE ONLY
DATE: 10/9/14
BY: *[Signature]*
FOR: *[Signature]*

SCALE: 1/2\"/>

STATION: 1+00.00 TO 1+00.00

REVISIONS: 1

FOR CITY OF HOUSTON USE ONLY
DATE: 10/9/14
BY: *[Signature]*
FOR: *[Signature]*

SCALE: 1/2\"/>

STATION: 1+00.00 TO 1+00.00

REVISIONS: 1

FOR CITY OF HOUSTON USE ONLY
DATE: 10/9/14
BY: *[Signature]*
FOR: *[Signature]*

SCALE: 1/2\"/>

STATION: 1+00.00 TO 1+00.00

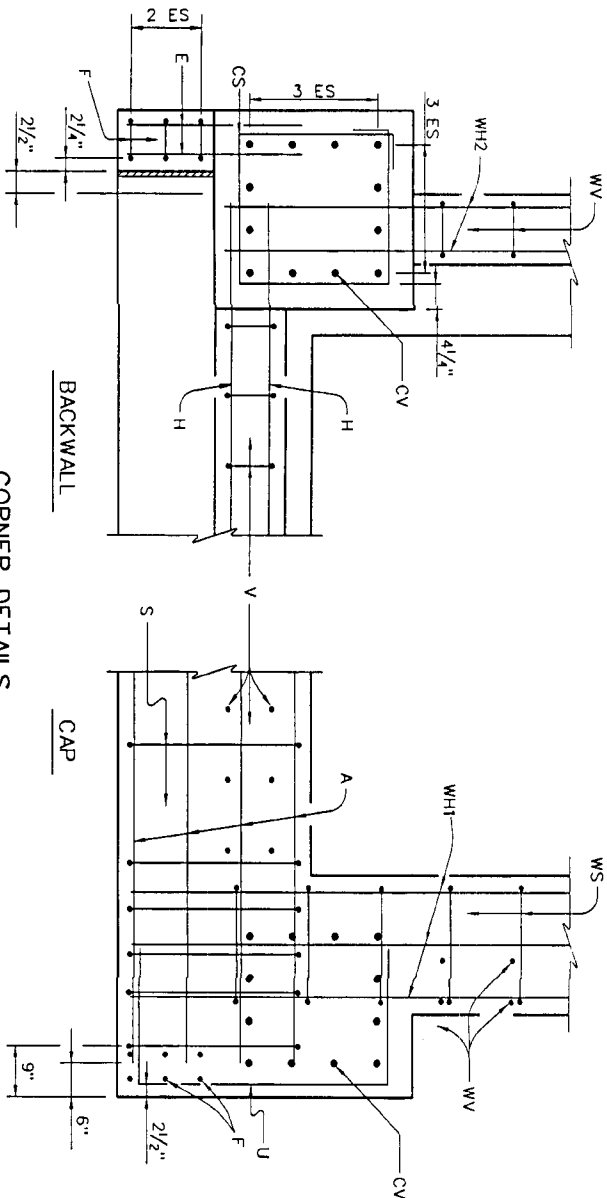
REVISIONS: 1

FOR CITY OF HOUSTON USE ONLY
DATE: 10/9/14
BY: *[Signature]*
FOR: *[Signature]*

SCALE: 1/2\"/>

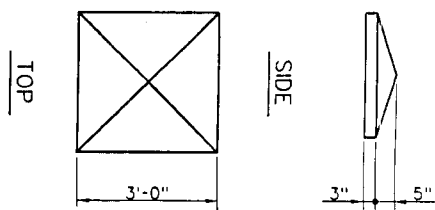
STATION: 1+00.00 TO 1+00.00

HL-93 LOADING
[Signature]
REGISTERED PROFESSIONAL ENGINEER
No. 88260
State of Texas
DATE: 10/9/14
BY: *[Signature]*
FOR: *[Signature]*



CORNER DETAILS
SCALE: N.T.S.

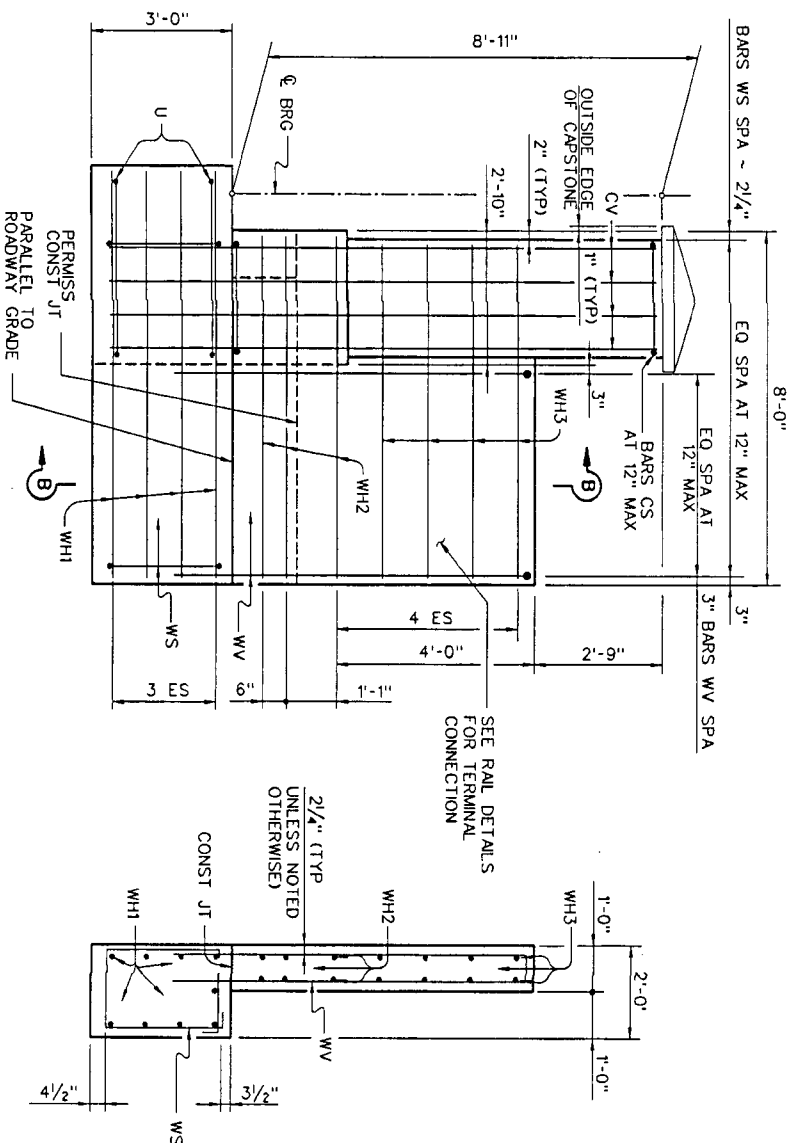
PRECAST CAPSTONE DETAIL
SCALE: N.T.S.



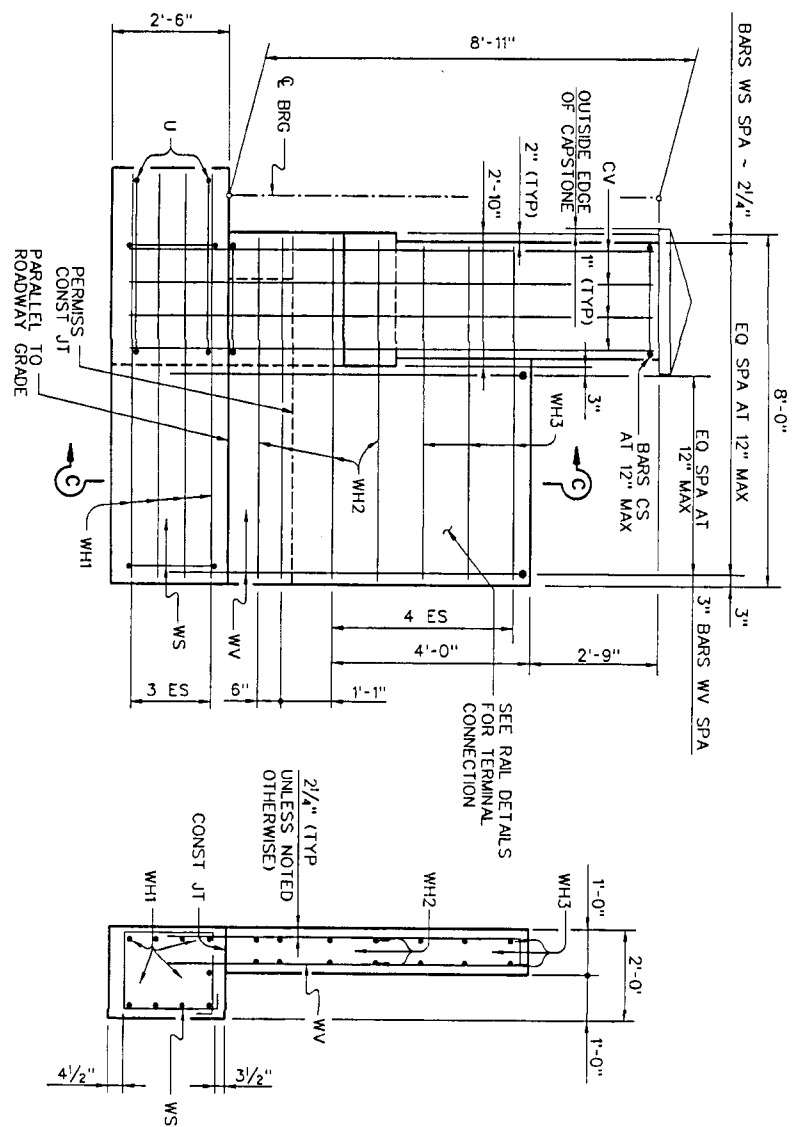
BAR	No.	SIZE	LENGTH	WEIGHT
A	8	• 11	33'- 9"	1,435
CS	20	• 5	9'- 6"	198
CV	24	• 5	11'- 6"	288
E	4	• 5	2'- 5"	10
F	6	• 5	6'- 1"	38
H	4	• 6	32'- 4"	194
S	48	• 5	10'- 10"	542
T	4	• 6	33'- 9"	203
U	4	• 6	8'- 9"	53
V	30	• 5	7'- 4"	230
WH1	18	• 6	9'- 0"	243
WH2	14	• 6	7'- 8"	161
WH3	14	• 6	7'- 6"	158
WS	18	• 5	8'- 11"	168
WV	12	• 5	16'- 0"	200
REINFORCING STEEL x			LB	4,121
CLASS "C" CONCRETE			CY	22.3

BAR	No.	SIZE	LENGTH	WEIGHT
A	7	• 11	33'- 9"	1,255
CS	20	• 5	9'- 6"	198
CV	24	• 5	11'- 0"	275
E	4	• 5	2'- 5"	10
F	6	• 5	6'- 1"	38
H	4	• 6	32'- 4"	194
S	40	• 5	9'- 10"	410
T	4	• 6	33'- 9"	203
U	4	• 6	8'- 9"	53
V	30	• 5	7'- 4"	230
WH1	18	• 6	9'- 0"	243
WH2	14	• 6	7'- 8"	161
WH3	14	• 6	7'- 6"	158
WS	18	• 5	7'- 11"	149
WV	12	• 5	16'- 0"	200
REINFORCING STEEL x			LB	3,777
CLASS "C" CONCRETE			CY	20.0

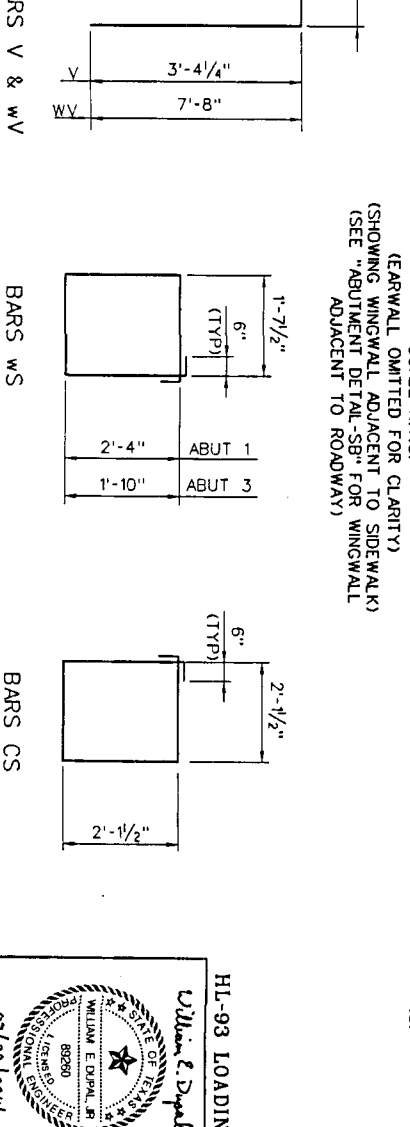
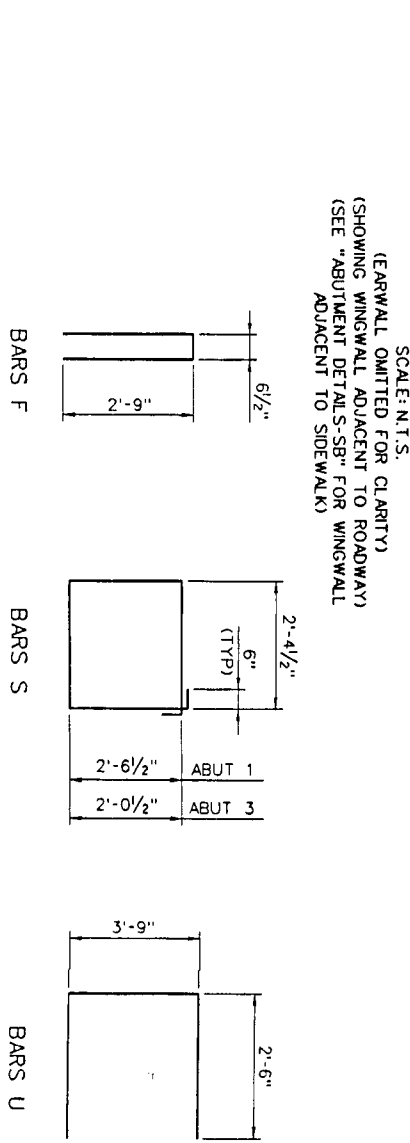
* FOR CONTRACTOR'S INFORMATION ONLY.



SECTION B-B
SCALE: N.T.S.



SECTION C-C
SCALE: N.T.S.



HL-93 LOADING

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
BUREAU OF HIGHWAYS

ABUTMENT DETAILS - NB

APPROVED: *[Signature]*
DATE: 10/19/14

REVISIONS:

NO.	DATE	REVISIONS	APP.
1		KB HOMES ON BEHALF OF WILLOW POINT M.U.D. FORT BEND COUNTY, TEXAS	

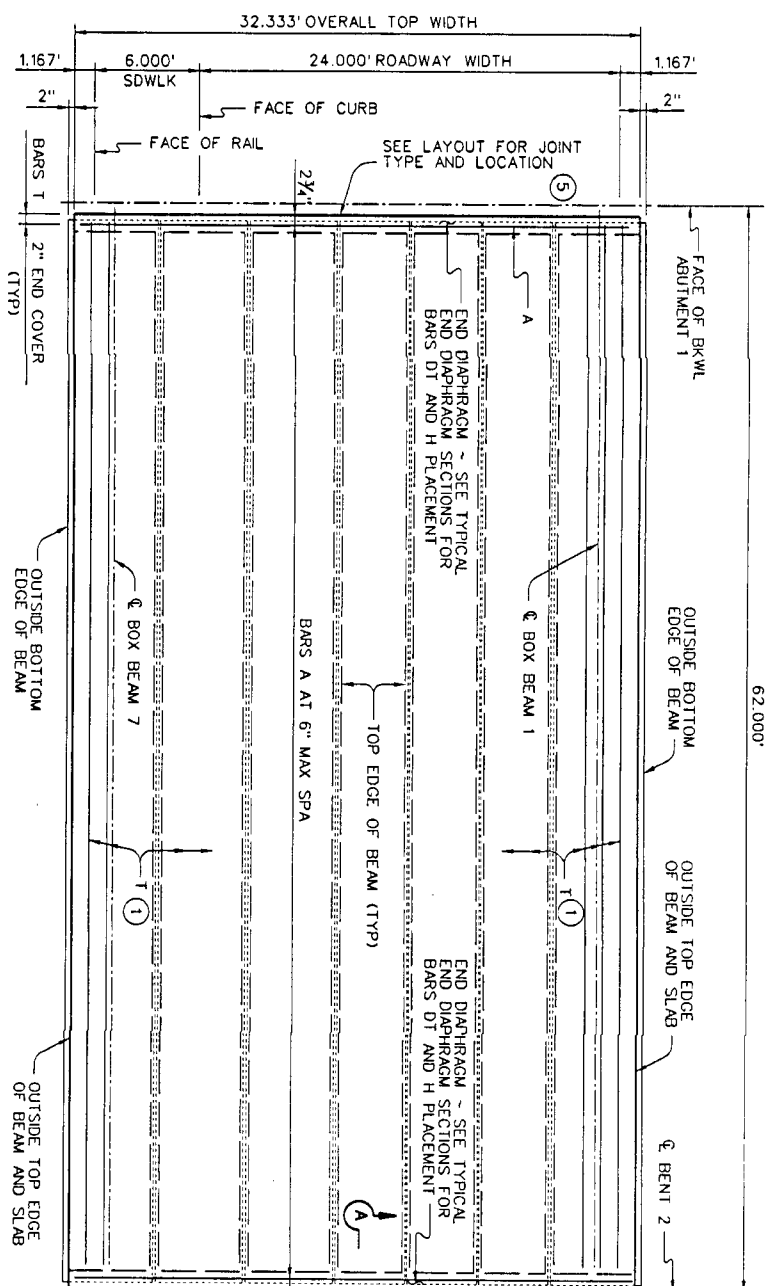
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

FOR CITY OF HOUSTON USE ONLY

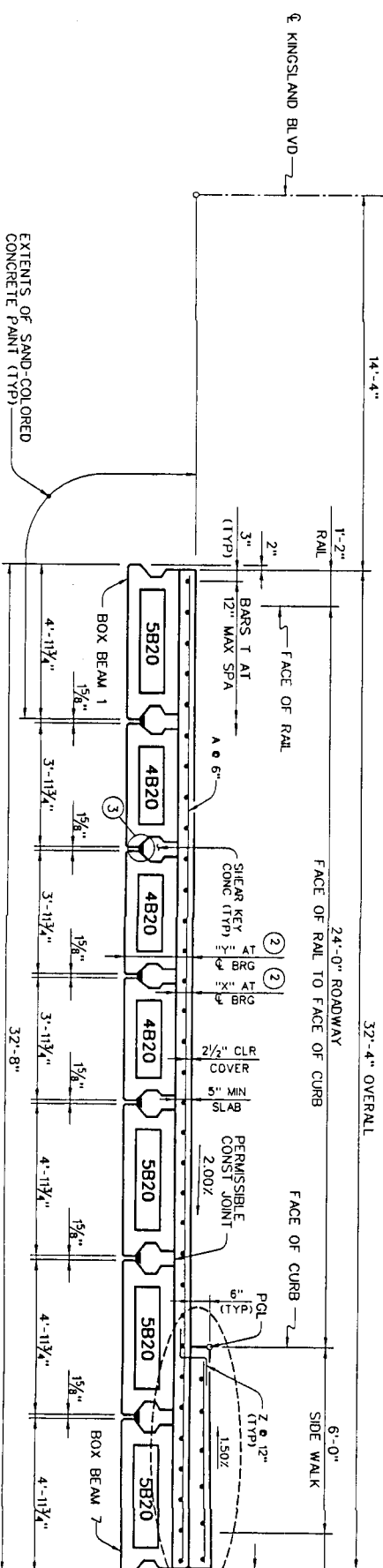
FILE NO. _____
JOB NO. _____
DATE: JULY 2014
CON. BY: _____
DWG. BY: _____
SCALE: _____

SHEET NO. 12 OF 45

52762



PLAN
SCALE: 1/8"=1'-0"
(SPAN 1 SHOWN, OPPOSITE HAND FOR SPAN 2)



TYPICAL TRANSVERSE SECTION (RIGHT SIDE)

BAR TABLE		TABLE OF SECTION DEPTHS			
BAR	SIZE	"X" AT \odot BRG (BACKWARD) (2)	"Y" AT \odot BRG (BACKWARD) (2)	"X" AT \odot BRG (FORWARD) (2)	"Y" AT \odot BRG (FORWARD) (2)
A	#4	0'-6/4"	2'-2/4"	0'-6/4"	2'-2/4"
DT	#4				
H	#5				
T	#4				
Z	#4				

(1) BARS 1 MUST BE CONTINUOUS THROUGH JOINT. SEE SECTION A-A.
 (2) BASED ON THEORETICAL BEAM CAMBER AND THE DEAD LOAD DEFLECTIONS

SPAN	BEAM NO.	POINT	DEAD LOAD DEFLECTIONS (FT)		
			SHEAR KEY	SLAB	TOTAL
ALL	1 & 7	"A"	0.006	0.031	0.037
		"B"	0.008	0.043	0.051
ALL	2 - 4	"A"	0.014	0.033	0.047
		"B"	0.019	0.046	0.065
ALL	5 & 6	"A"	0.011	0.032	0.043
		"B"	0.015	0.045	0.060

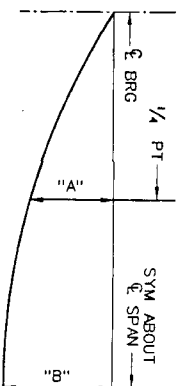
- ① BARS 1 MUST BE CONTINUOUS THROUGH JOINT. SEE SECTION A-A.
- ② BASED ON THEORETICAL BEAM CAMBER AND THE DEAD LOAD DEFLECTIONS OF 5" CAST-IN-PLACE SLAB AND SHEAR KEY.
- ③ FORM BOTTOM OF SHEAR KEYS WITH FOAM BACKER ROD OR OTHER MATERIAL ACCEPTABLE TO THE ENGINEER.

TABLE OF ESTIMATED QUANTITIES						
SPAN	CLASS "S" CONCRETE SHEAR KEY	CLASS "S" CONCRETE (SLAB)	CLASS "S" CONCRETE (SIDEWALK)	SEALED EXPANSION JOINT SEJ-A (4")	* TOTAL REINF STEEL	
NO.	CY	SY	CY	LF	LB	
1	9.9	222.7	10.3	25	4,720	
2	9.9	222.7	10.3	25	4,720	
TOTAL	19.8	445.4	20.6	50	9,440	

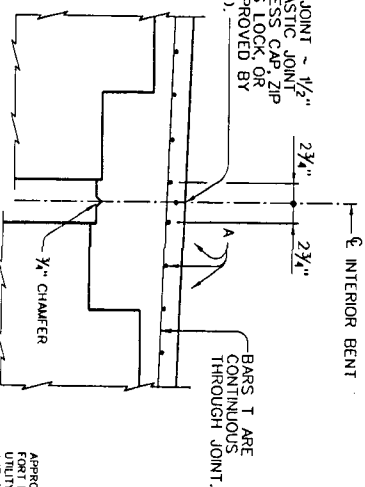
REINF STEEL QUANTITY IS CALCULATED USING APPROX 2.0 LB/SF OF BRIDGE DECK AND 1.6 LB/SF OF SIDEWALK.

GENERAL NOTES:

1. DESIGNED IN ACCORDANCE WITH 5TH EDITION AASHTO LRFD SPECIFICATIONS AND INTERIMS (HL-93 LOADING).
2. CONCRETE STRENGTH f'c = 4,000 psi.
3. ALL REINFORCING MUST BE GRADE 60.
4. BAR LAPS WHERE REQUIRED, SHALL BE AS FOLLOWS:
 *4 - "1'-9"
 *5 - "2'-2"
5. IT IS RECOMMENDED TO ERECT BEAMS ON THE HIGH SIDE OF CROSS-SLOPE FIRST AND PROGRESS TO THE LOW SIDE.
6. SEE RAIL DETAILS FOR REQUIRED RAIL ANCHORAGE.



CONTROLLED JOINT ~ 1/2"
VINYL OR PLASTIC JOINT
FORMER (STRESS CAP, ZIP
STRIP, STRESS LOCK, OR
EQUAL) AS APPROVED BY
THE ENGINEER.



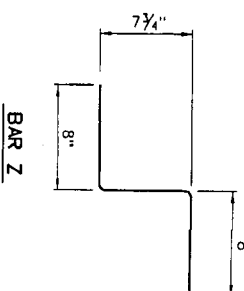
SECTION A-A

NOT TO SCALE

(DIAPHRAM REINFORCING NOT SHOWN FOR CLATITY)

NOTE: DEFLECTIONS SHOWN ARE DUE TO SHEAR KEY AND CONCRETE SLAB ONLY, (E.G. - 5×10^5 KSI), CALCULATED DEFLECTIONS SHOWN ARE THEORETICAL AND ACTUAL DIMENSION MAY BE LESS. DEFLECTIONS MAY BE ADJUSTED BASED ON FIELD OBSERVATION.

DEAD LOAD DEFLECTION DIAGRAM



SLAB PLAN - NB

[illegible]

HL-93 LOADING

William E. Dwyer

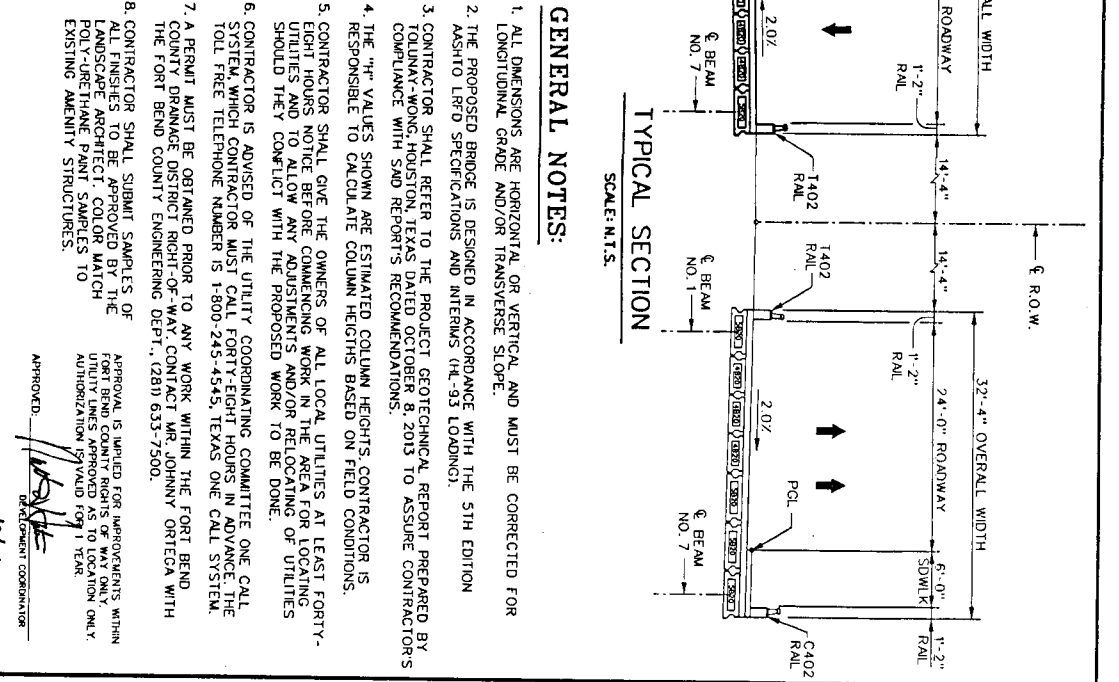
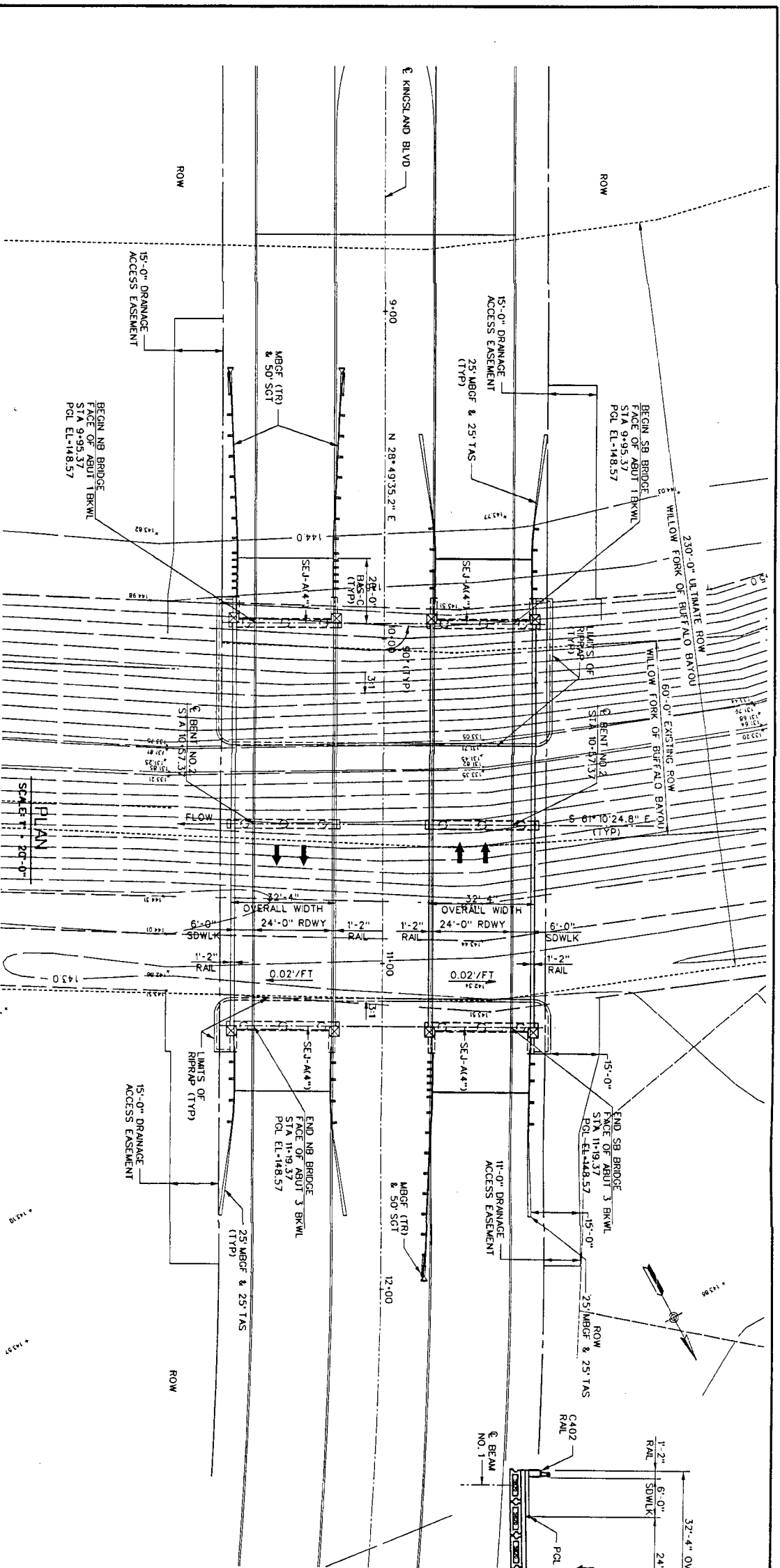


07/28/2014

C.O.H. LOG No. 14-0051

CON. BLK. REV. JAN. 2006

JOB NO. 2013170



- GENERAL NOTES:**
1. ALL DIMENSIONS ARE HORIZONTAL OR VERTICAL AND MUST BE CORRECTED FOR LONGITUDINAL GRADE AND/OR TRANSVERSE SLOPE.
 2. THE PROPOSED BRIDGE IS DESIGNED IN ACCORDANCE WITH THE 5TH EDITION ASHTO LRFD SPECIFICATIONS AND INTERMS (H-93 LOADING).
 3. CONTRACTOR SHALL REFER TO THE PROJECT GEOTECHNICAL REPORT PREPARED BY TOLSON ENGINEERING, TEXAS DATED OCTOBER 8, 2013 TO ASSURE CONTRACTORS COMPLIANCE WITH S&B REPORT'S RECOMMENDATIONS.
 4. THE "H" VALUES SHOWN ARE ESTIMATED COLUMN HEIGHTS BASED ON FIELD CONDITIONS. RESPONSIBLE TO CALCULATE COLUMN HEIGHTS BASED ON FIELD CONDITIONS.
 5. CONTRACTOR SHALL GIVE THE OWNERS OF ALL LOCAL UTILITIES AT LEAST FORTY-EIGHT HOURS NOTICE BEFORE COMMENCING WORK IN THE AREA FOR LOCATING UTILITIES AND TO ALLOW ANY ADJUSTMENTS AND/OR RELOCATING OF UTILITIES SHOULD THEY COMPLY WITH THE PROPOSED WORK TO BE DONE.
 6. CONTRACTOR IS ADVISED OF THE UTILITY COORDINATING COMMITTEE ONE CALL SYSTEM, WHICH CONTRACTOR MUST CALL FORTY-EIGHT HOURS IN ADVANCE THE TOLL FREE TELEPHONE NUMBER IS 1-800-245-4545, TEXAS ONE CALL SYSTEM.
 7. A PERMIT MUST BE OBTAINED PRIOR TO ANY WORK WITHIN THE FORT BEND COUNTY DRAINAGE DISTRICT RIGHT-OF-WAY. CONTACT MR. JOHNNY ORTEGA WITH THE FORT BEND COUNTY ENGINEERING DEPT., (281) 633-7500.
 8. CONTRACTOR SHALL SUBMIT SAMPLES OF ALL FINISHES TO BE APPROVED BY THE LANDSCAPE ARCHITECT. COLOR MATCH THE POLY-URETHANE PAINT SAMPLES TO EXISTING AMENITY STRUCTURES.

APPROVAL IS IMPLIED FOR IMPROVEMENTS WITHIN FORT BEND COUNTY RIGHTS OF WAY ONLY. LANDSCAPE ARCHITECT, COLOR MATCH THE POLY-URETHANE PAINT SAMPLES TO EXISTING AMENITY STRUCTURES.

APPROVED: *[Signature]*
DEVELOPMENT COORDINATOR

DATE: 10/19/14

NO.	DATE	REVISIONS	APP.

KB HOMES
ON BEHALF OF
WILLOW POINT MUD.
FORT BEND COUNTY, TEXAS

Coschella Inc.
22000 Highway 281
P.O. Box 1000
Springtown, Texas 77881
(281) 291-1234

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED BY: *[Signature]*
CHECKED BY: *[Signature]*
DATE: JULY 2014
SCALE: AS SHOWN

BRIDGE LAYOUT
SB LANES

HL-93 LOADING

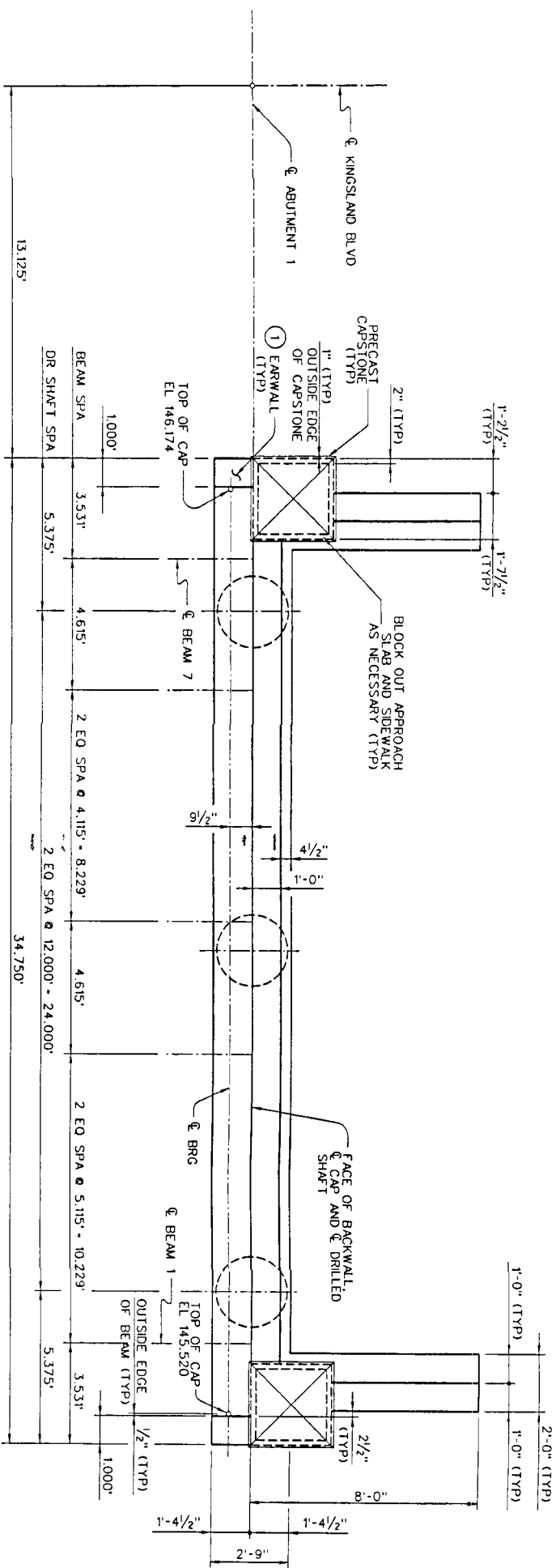
FOR CITY OF HOUSTON USE ONLY
CITY DOWNSIDE

52762

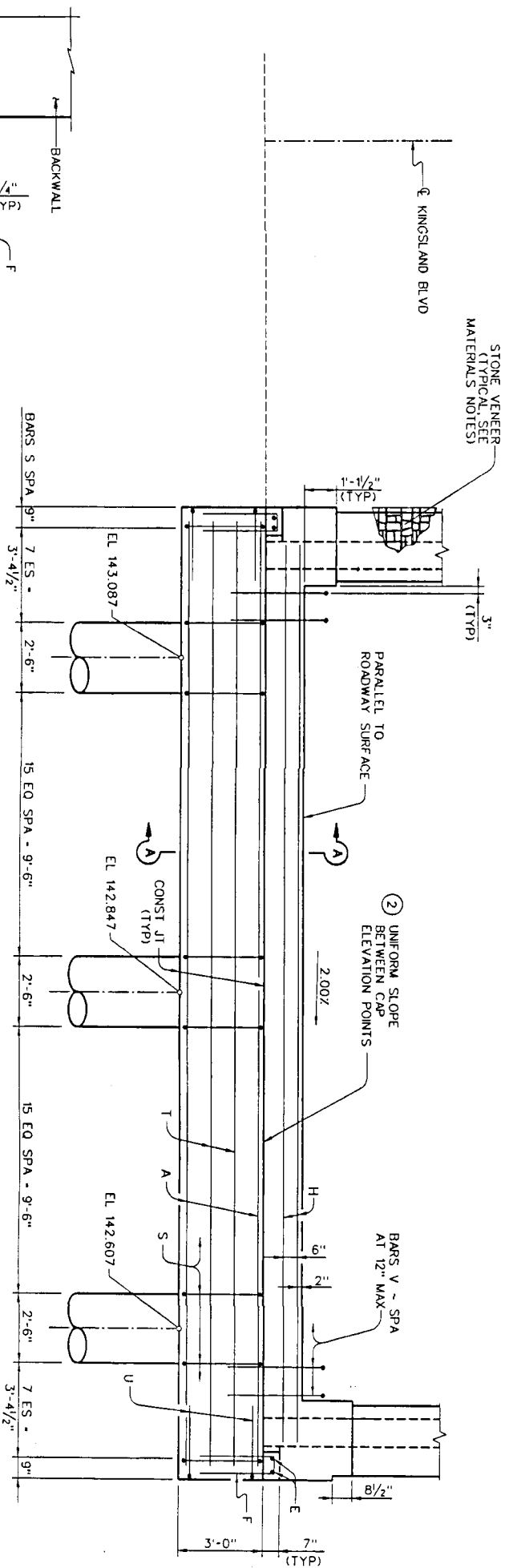
Private Client: 2013-170 Kingland Blvd New Drawings\Kingland_BB-SB-LO.dgn
7/26/2014 2:26:45 PM

C.O.H. LOG NO. 14-0051

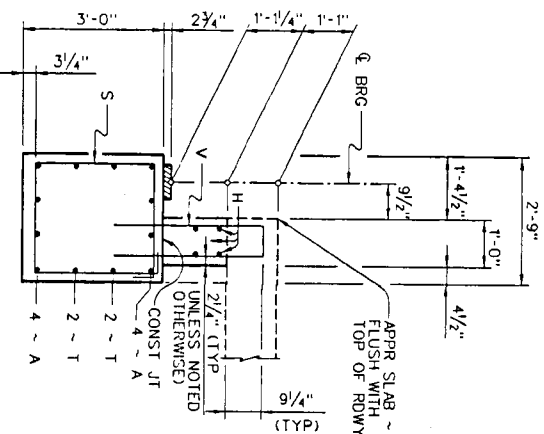
JOB NO. 2013170



PLAN
SCALE: 3/8" = 1'-0"



ELEVATION
SCALE: 3/8" = 1'-0"



SECTION A-A
SCALE: 1/2" = 1'-0"

EARWALL ELEVATION DETAIL
SCALE: N.T.S.
(SLOPE TOP OF EARWALL AWAY FROM BEAMS)

- ① 1/2" PREFORMED BITUMINOUS FIBER MATERIAL BETWEEN BEAM AND EARWALL BOND VERTICAL SIDE OF BEAM.
- ② SURFACE FINISH FOR THE TOP OF CAP WILL BE A TEXTURED WOOD FLOAT FINISH. THE SURFACE MUST BE LEVEL IN THE DIRECTION OF THE CENTERLINE OF BEAMS.

- GENERAL NOTES:
- DESIGNED IN ACCORDANCE WITH 5TH EDITION AASHTO LRFD SPECIFICATIONS AND INTERIMS (HL-93 LOADING).
 - CONCRETE STRENGTH $f'_c = 3,600$ PSI.
 - ALL REINFORCING MUST BE GRADE 60.
 - SEE STANDARD FD FOR ALL FOUNDATION DETAILS AND NOTES.
 - SEE APPLICABLE RAIL DETAILS FOR RAIL ANCHORAGE CAST IN WINGWALLS.
 - SEE STANDARD CRR FOR RRPRR ATTACHMENT DETAILS.
 - DO NOT CAST EARWALL UNTIL BEAMS ARE ERECTED IN THEIR FINAL POSITION.

MATERIALS NOTES:

- ALL STONE VENEER SHALL BE CHOCTAW RUSTIC LEDGESTONE. ALL STONE SHALL BE INSTALLED PER THE MANUFACTURER'S INSTRUCTIONS.
- INSTALL STONE FROM THE BOTTOM UP STONE SHALL BE PLACED IN HORIZONTAL COURSEING WITH DRY STACK APPEARANCE. MORTAR JOINTS SHALL NOT BE EXPOSED.
- MORTAR COLOR SHALL BE LIMESTONE BUFF.
- EXPOSED WINGWALLS AND CAP ENDS SHALL RECEIVE SAND-COLORED CONCRETE PAINT. PAINT SHALL BE SUBSIDIARY TO CLASS "C" CONCRETE. NO DIRECT PAYMENT SHALL BE MADE.

HL-93 LOADING

DATE: JULY 2014

DESIGNED BY: [Signature]

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WILLIAM E. HUGHES
CITY ENGINEER

DATE: JULY 2014

DESIGNED BY: [Signature]

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

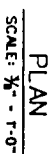
WILLIAM E. HUGHES
CITY ENGINEER

DATE: JULY 2014

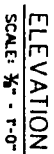
DESIGNED BY: [Signature]

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WILLIAM E. HUGHES
CITY ENGINEER



SCALE: 7/10 - F-0-



SCALE: 1/4" = 1'-0"

- ① 1/2" PREFORMED BITUMINOUS FIBER MATERIAL BETWEEN BEAM AND EAWALL. BOND TO BEAM WITH AN APPROVED ADHESIVE. INSIDE FACE OF EAWALL TO BE CAST WITH VERTICAL SIDE OF BEAM.
- ② SURFACE FINISH FOR THE TOP OF CAP WILL BE A TEXTURED WOOD FLOAT FINISH. THE SURFACE MUST BE LEVEL IN THE DIRECTION OF THE CENTERLINE OF BEAMS.



SCALE: 1/4" = 1'-0"



SCALE: N.T.S.

(SLOPE TOP OF EARWALL AWAY FROM BEAMS)

William E. Dupont

no more than 2000 ft

STATE OF TEXAS

THE UNIVERSITY OF CHICAGO PRESS

WILLIAM E. DUPAL, JR.

89260

07/28/2014

10

C.O.H. LOG No. 14-

SHEET No. 17 of 45

0051

—

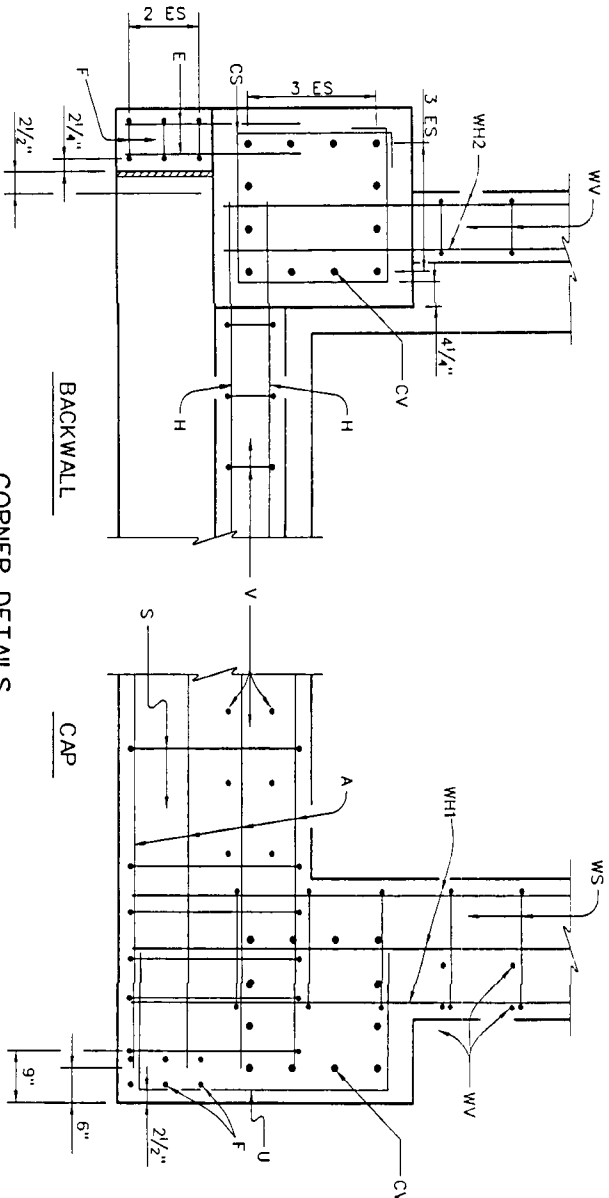
100

COM BLK 15 Y JAN 2

105

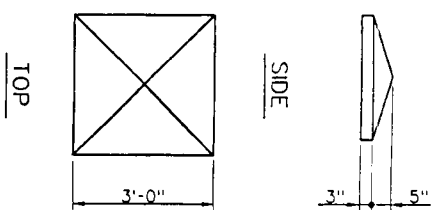
L

9006



CORNER DETAILS
SCALE: N.T.S.

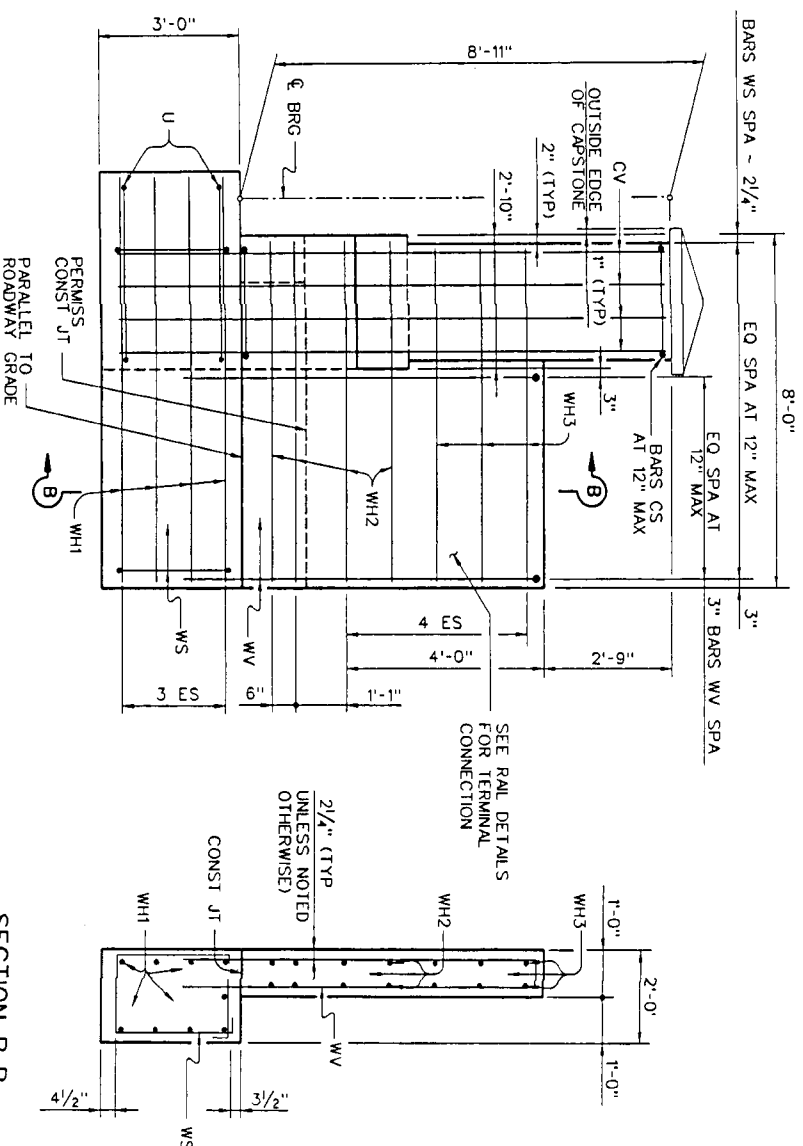
PRECAST CAPSTONE DETAIL
SCALE: N.T.S.



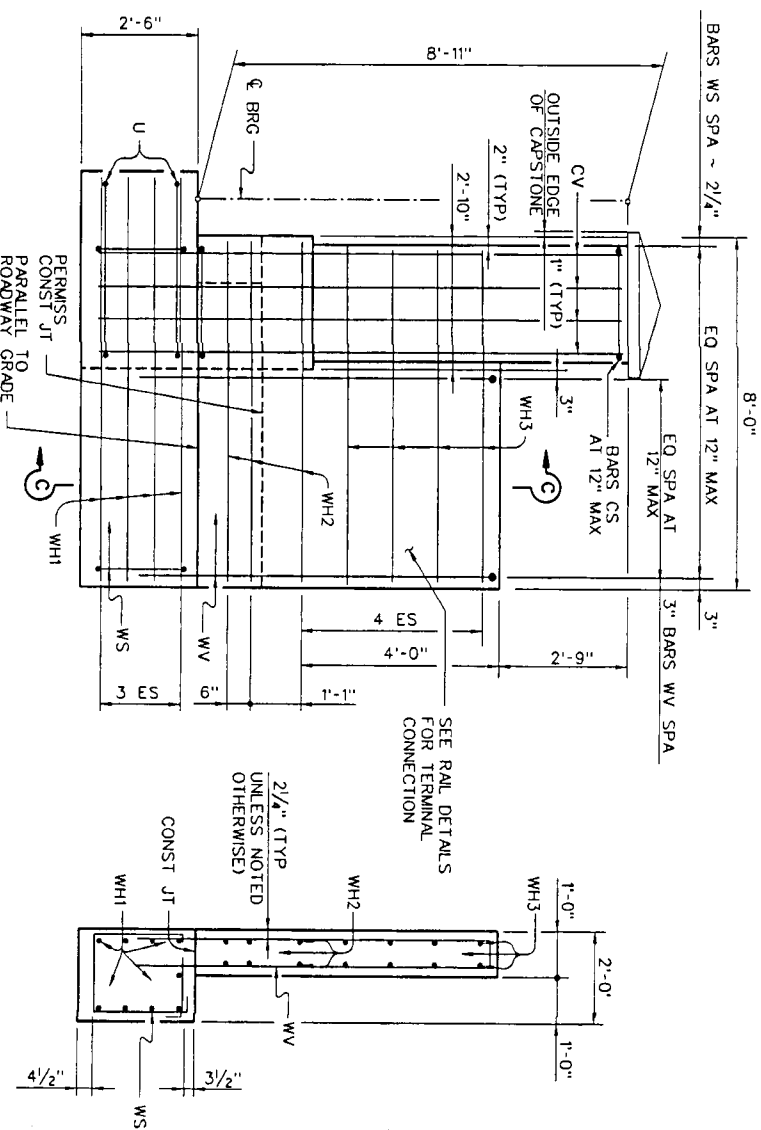
BAR	No.	SIZE	LENGTH	WEIGHT
A	8	#11	33'-9"	1,435
CS	20	#5	9'-6"	198
CV	24	#5	11'-6"	288
E	4	#5	2'-5"	10
F	6	#5	6'-1"	38
H	4	#6	32'-4"	194
S	48	#5	10'-10"	542
T	4	#6	33'-9"	203
U	4	#6	8'-9"	53
V	30	#5	7'-4"	230
WH1	18	#6	9'-0"	243
WH2	14	#6	7'-8"	161
WH3	14	#6	7'-6"	158
WS	18	#5	8'-11"	168
WV	12	#5	16'-0"	200
REINFORCING STEEL x			LB	4,121
CLASS "C" CONCRETE			CY	22.3

BAR	No.	SIZE	LENGTH	WEIGHT
A	7	#11	33'-9"	1,255
CS	20	#5	9'-6"	198
CV	24	#5	11'-0"	275
E	4	#5	2'-5"	10
F	6	#5	6'-1"	38
H	4	#6	32'-4"	194
S	40	#5	9'-10"	410
T	4	#6	33'-9"	203
U	4	#6	8'-9"	53
V	30	#5	7'-4"	230
WH1	18	#6	9'-0"	243
WH2	14	#6	7'-8"	161
WH3	14	#6	7'-6"	158
WS	18	#5	7'-11"	149
WV	12	#5	16'-0"	200
REINFORCING STEEL x			LB	3,777
CLASS "C" CONCRETE			CY	20.0

* FOR CONTRACTOR'S INFORMATION ONLY.



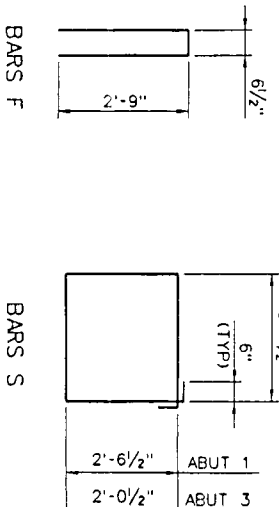
SECTION B-B
SCALE: N.T.S.



SECTION C-C
SCALE: N.T.S.

WINGWALL ELEVATION - ABUTMENT 1
SCALE: N.T.S.

(EARWALL OMITTED FOR CLARITY)
(SHOWING WINGWALL ADJACENT TO SIDEWALK)
(SEE "ABUTMENT DETAILS-NB" FOR WINGWALL
ADJACENT TO ROADWAY)



BAR F

BAR S

BAR U

BAR V & WV

BAR WS

BAR CS

ABUTMENT DETAILS - SB

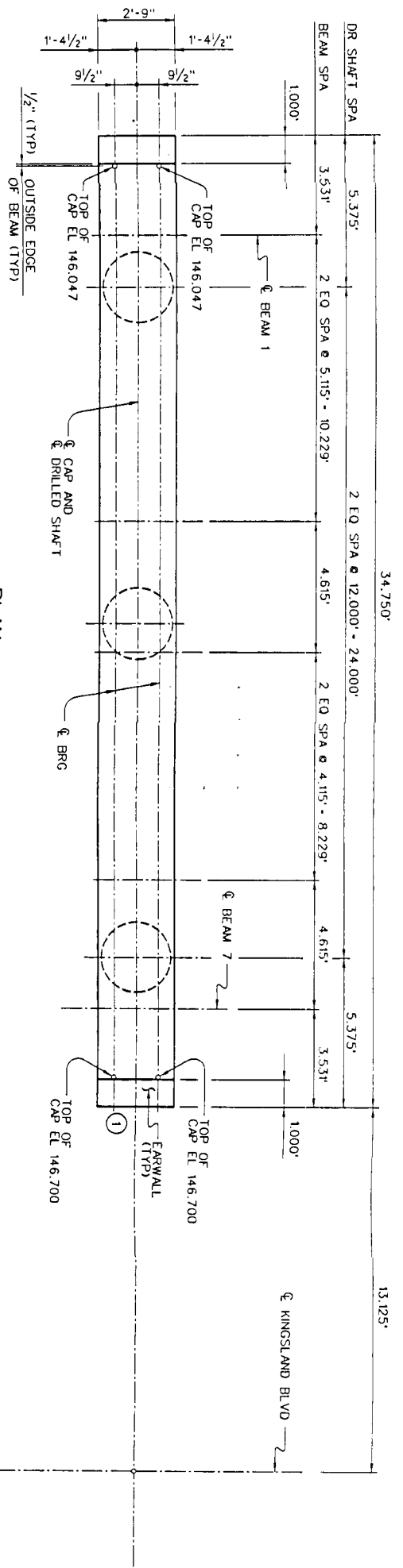
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

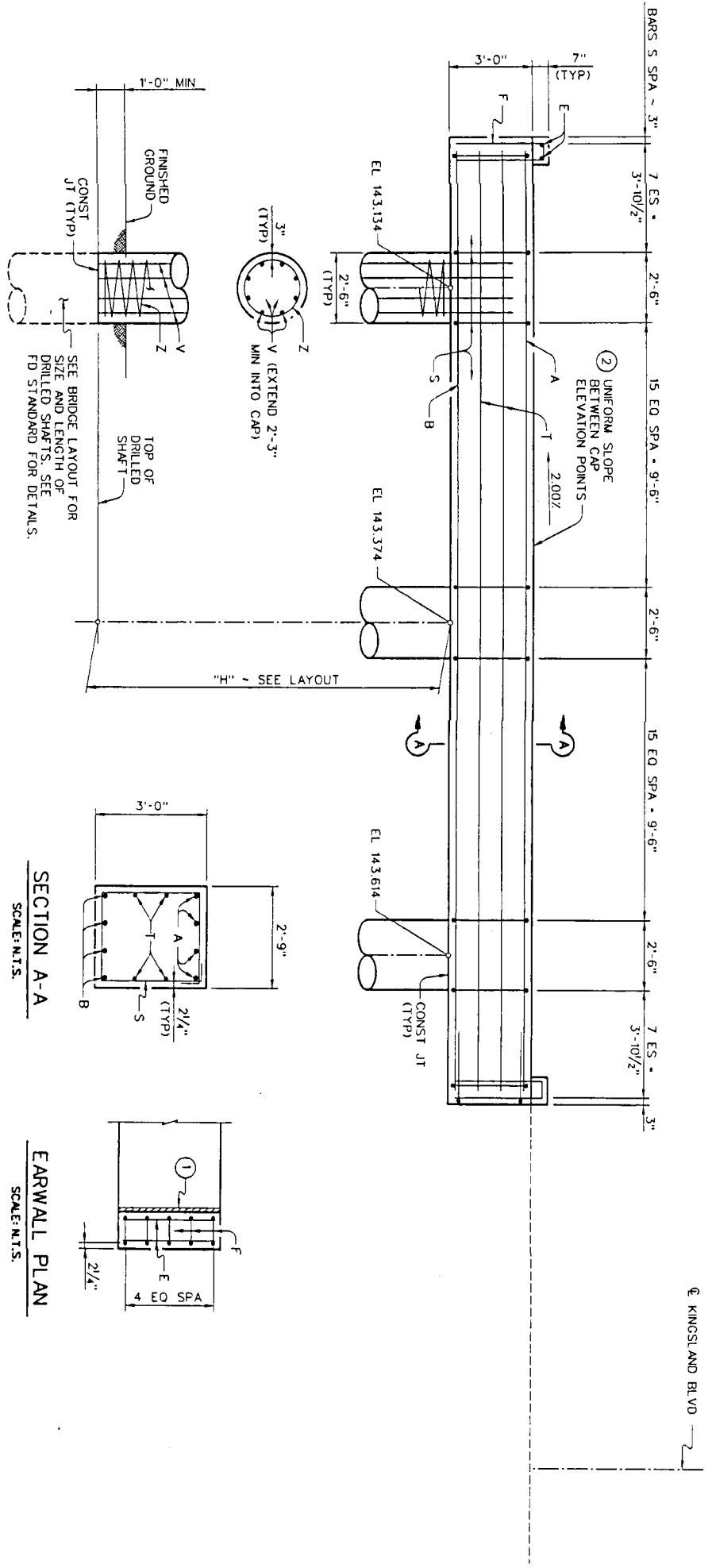
DATE: JAN 2014
JOB NO: 07/28/2014
SCALE: 1/8" = 1'-0"

HL-93 LOADING
C.H. LOG NO. 14-0051

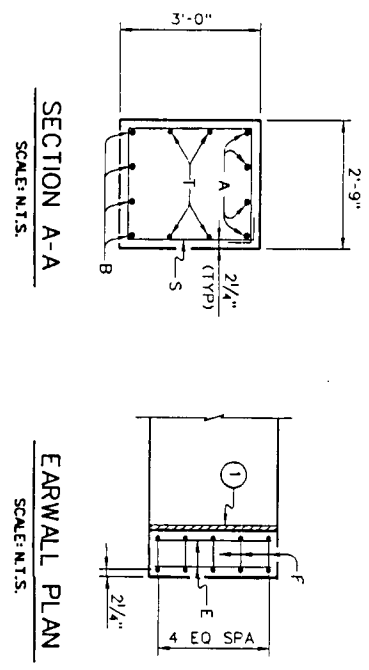




PLAN
SCALE: 1/8" = 1'-0"



ELEVATION
SCALE: 1/8" = 1'-0"



SECTION A-A
SCALE: 1/8" = 1'-0"

EARWALL PLAN
SCALE: 1/8" = 1'-0"

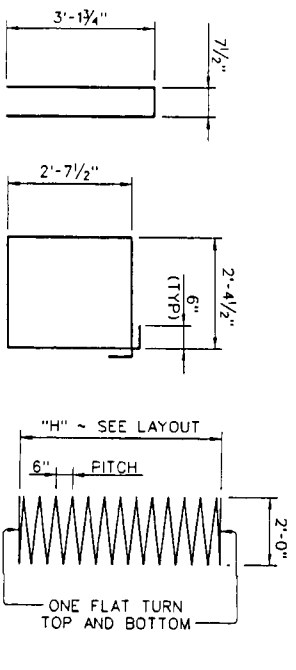


TABLE OF ESTIMATED QUANTITIES				
BAR	NO.	SIZE	LENGTH	WEIGHT
A	4	#11	34'-5"	7.51
B	4	#11	34'-5"	7.51
E	4	# 5	2'-5"	10
F	10	# 5	6'-11"	72
S	48	# 5	11'-0"	551
T	4	# 6	34'-5"	207
V	24	# 9	10'-3"	836
Z	3	# 3	113'-6"	128
REINFORCING STEEL *			LB	3,266
CLASS "C" CONC (CAP)			CY	10.7
CLASS "C" CONC (COLUMNS)			CY	4.4

* FOR CONTRACTOR'S INFORMATION ONLY.

- GENERAL NOTES:
- DESIGNED IN ACCORDANCE WITH 5TH EDITION AASHTO LRFD SPECIFICATIONS AND INTERIMS (HL-93 LOADING).
 - CONCRETE STRENGTH F'C = 3,600 PSI.
 - ALL REINFORCING MUST BE GRADE 60.
 - SEE BRIDGE LAYOUT FOR FOUNDATION TYPE, SIZE AND LENGTH.
 - SEE STANDARD FD FOR ALL FOUNDATION DETAILS AND NOTES.
 - DO NOT CAST EAWALLS UNTIL BEAMS ARE ERECTED IN THEIR FINAL POSITION.
 - ALL EXPOSED CONCRETE EXCEPT BEARING SURFACES SHALL RECEIVE SAND-COLORED CONCRETE PAINT. PAINT SHALL BE SUBSIDIARY TO CLASS "C" CONCRETE. NO DIRECT PAYMENT SHALL BE MADE.

APPROVAL IS APPLIED FOR IMPROVEMENTS WITHIN THE CITY OF HOUSTON. THIS APPROVAL IS VALID FOR ONE YEAR.

APPROVED: *[Signature]*
DATE: 10/19/14

KB HOMES
ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS

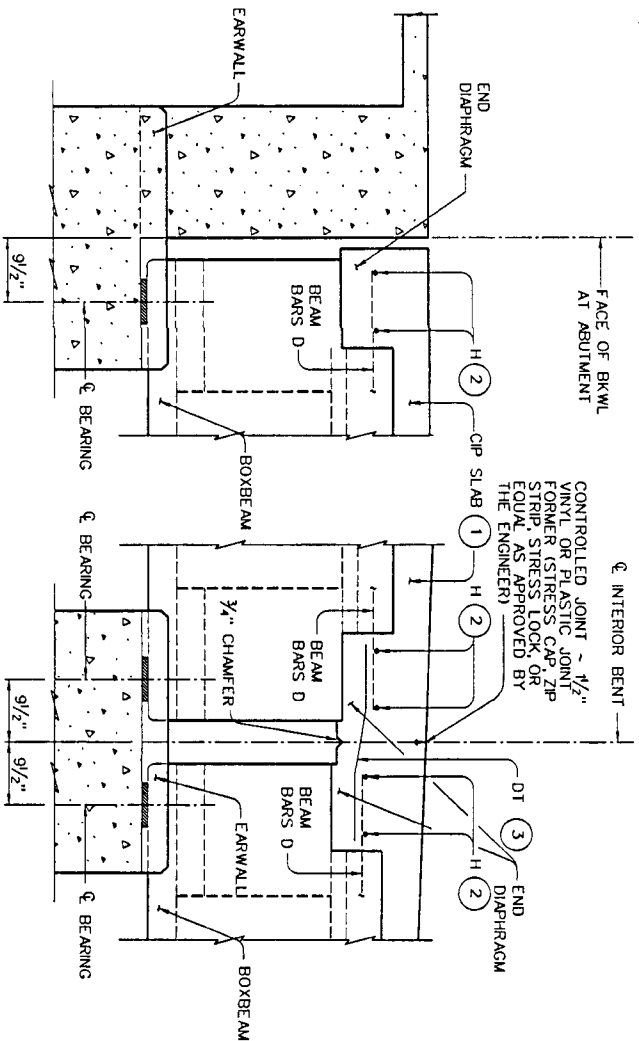
City of Houston
Department of Public Works and Engineering
Date: 10/28/14
By: *[Signature]*
Title: *[Signature]*
Scale: *[Signature]*

HL-93 LOADING

DATE: 07/28/2014

52762

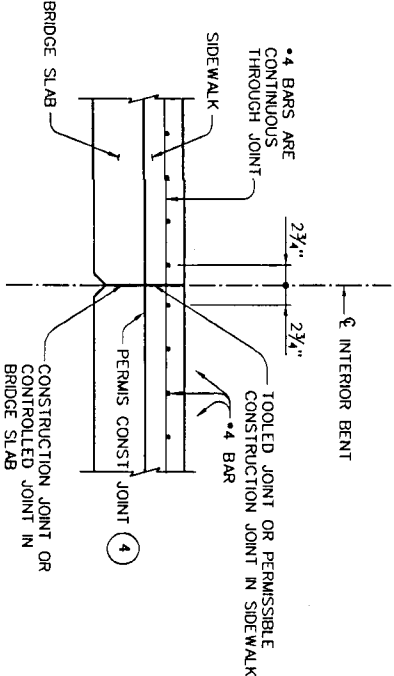
- 1 SLAB REINFORCING OMITTED FOR CLARITY.
- 2 PROVIDE 1 1/2" END COVER TO BARS H. AFTER ALL BEAMS HAVE BEEN PLACED, WELD ONE BAR H TO TWO BARS D AT EACH END OF ALL BEAMS.
- 3 LAP BARS DT 9" MIN WITH EACH BEAM BAR D AT INTERIOR BENTS. BARS DT SHOWN BENT FOR CLARITY ONLY.



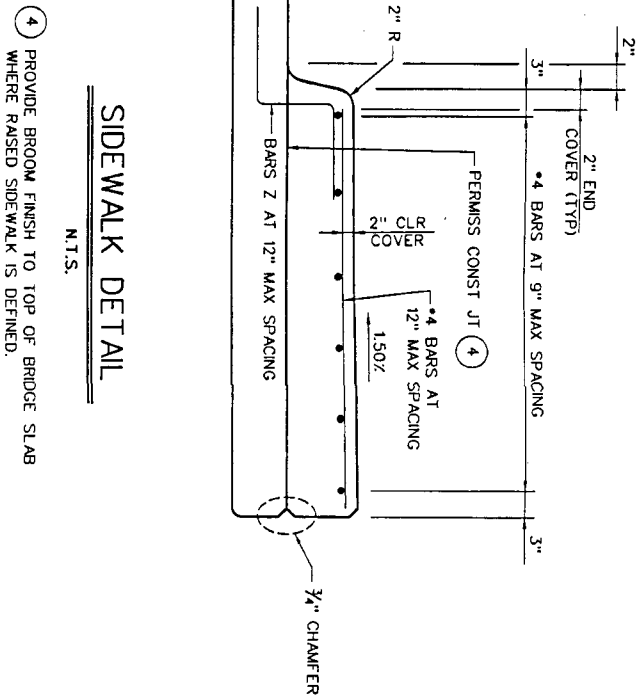
AT ABUTMENT
NOT TO SCALE

TYPICAL END DIAPHRAGM SECTIONS
(ALONG CENTERLINE OF BOX BEAM)

AT INTERIOR BENT
NOT TO SCALE

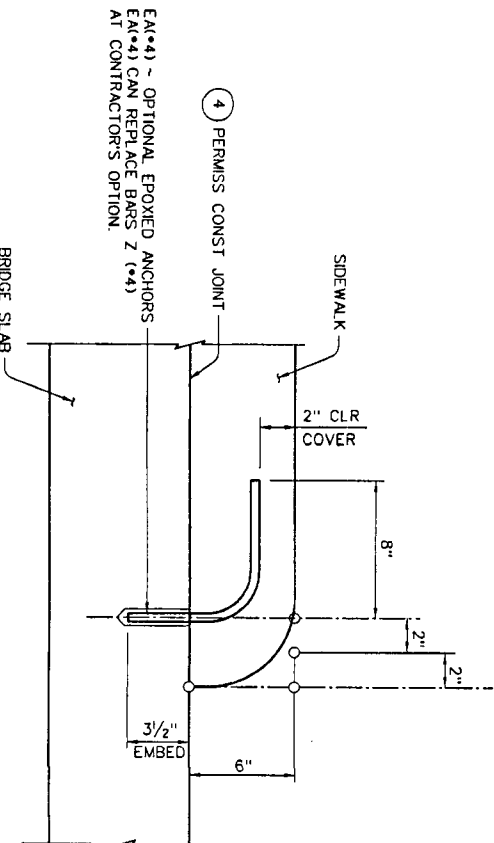


LONGITUDINAL SECTION AT INTERIOR BENT
N.T.S.



4 PROVIDE BROOM FINISH TO TOP OF BRIDGE SLAB WHERE RAISED SIDEWALK IS DEFINED.

SIDEWALK DETAIL
N.T.S.



OPTIONAL EPOXY ANCHORS
N.T.S.

EMBED EA (4) BAR INTO CONCRETE WITH A TYPE III CLASS C EPOXY MEETING THE REQUIREMENTS OF TxDOT DMS-6100. EPOXIES AND ADHESIVES FOLLOW MANUFACTURERS DIRECTIONS FOR INSTALLING THE EPOXIED ANCHOR BARS.

SECTION

SIDE VIEW

FRONT VIEW

LOGO PRECAST PANEL DETAILS

NOTE: 2" THICK PRECAST PANEL WITH 1/4" RECESSED DEPTH GRAPHIC PANEL. TEXT TO BE 1/4" DEPTH SANDBLASTED AT HEIGHT SHOWN. LOGO TO BE CUSTOM GRAPHIC PROVIDED BY LANDSCAPE ARCHITECT. CENTER IN PRECAST PANEL. EQUIDISTANT FROM ALL EDGES. GRAPHIC TO BE INFILL PAINTED WITH LITHOCHROME DARK BROWN.

APPROVAL IS REQUIRED FOR IMPROVEMENTS WITHIN THE CITY OF HOUSTON. APPROVED AS TO LOCATION ONLY. AUTHORIZATION IS VALID FOR 1 YEAR.

APPROVED: *[Signature]*
DEPARTMENT COORDINATOR

DATE: 10/9/14

NO.	DATE	REVISIONS	APP.

KB HOMES
ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS

Costello, Inc.
KINGSLAND BOULEVARD
AT WILLOW FORK

MISCELLANEOUS
DETAILS

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
BRIDGE & INFRASTRUCTURE

HL-93 LOADING

William E. Dwyer

PROFESSIONAL ENGINEER

88260

STATE OF TEXAS

07/26/2014

52762

52762

52762

52762

52762

APPROVAL IS IMPLIED FOR IMPROVEMENTS WITHIN
FORT BEND COUNTY RIGHTS OF WAY ONLY.
UTILITY LINES APPROVED AS TO LOCATION ONLY.
AUTHORIZATION IS VALID FOR 1 YEAR.

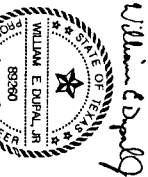
APPROVED: 1/10/2014
DEVELOPMENT COORDINATOR

DATE: 10/9/14

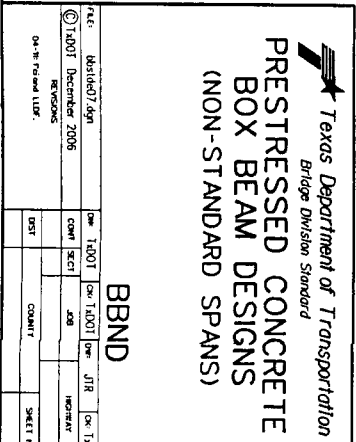
DATE: 10/9/14

Tension = $0.24\sqrt{r'c}$

on of full HL 93.



TXDOT B20 BOX BEAMS ③



(NON-STANDARD SPATIAL)

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 4-22-25

WASTEWATER	06-24-19	STORM WATER QUALITY
------------	----------	---------------------

Signature _____

8-20-14

SIRRI & BROS.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----

FILE NO. _____

2008

DATE: JULY 2014

DOI BY: _____

022762

3	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	4
---	---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	---

8
F

EX/8

0
1
2
3
4

.....

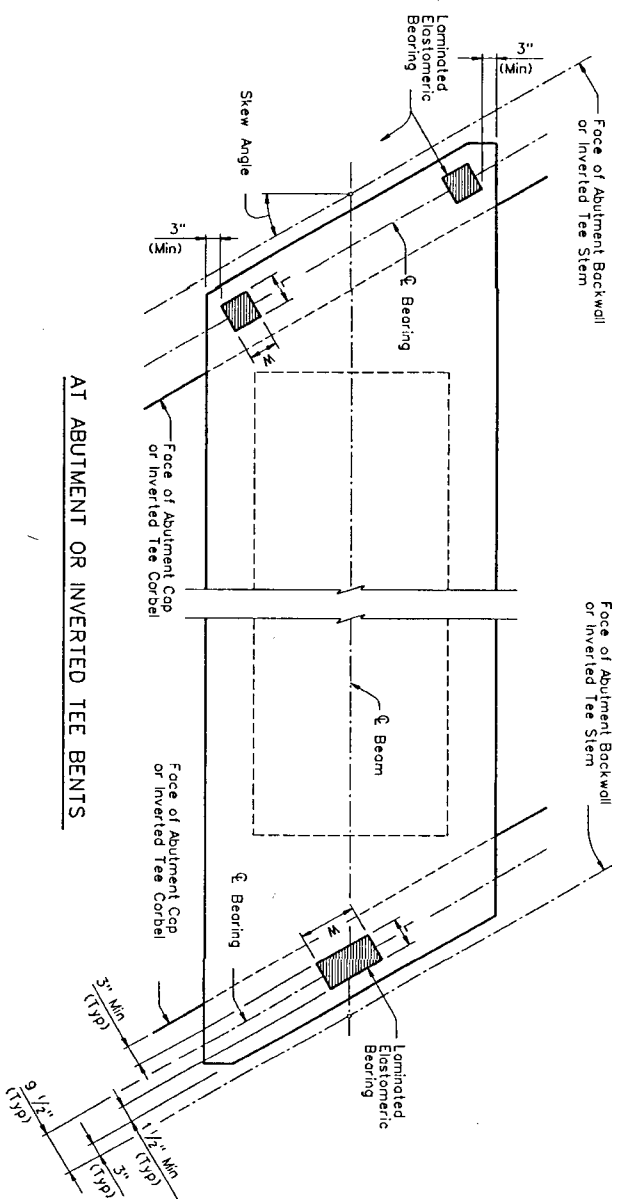
5
 6
 7
 8
 9
 10
 11
 12
 13
 14
 15
 16
 17
 18
 19
 20
 21
 22
 23
 24
 25
 26
 27
 28
 29
 30
 31
 32
 33
 34
 35
 36
 37
 38
 39
 40
 41
 42
 43
 44
 45
 46
 47
 48
 49
 50
 51
 52
 53
 54
 55
 56
 57
 58
 59
 60
 61
 62
 63
 64
 65
 66
 67
 68
 69
 70
 71
 72
 73
 74
 75
 76
 77
 78
 79
 80
 81
 82
 83
 84
 85
 86
 87
 88
 89
 90
 91
 92
 93
 94
 95
 96
 97
 98
 99
 100
 101
 102
 103
 104
 105
 106
 107
 108
 109
 110
 111
 112
 113
 114
 115
 116
 117
 118
 119
 120
 121
 122
 123
 124
 125
 126
 127
 128
 129
 130
 131
 132
 133
 134
 135
 136
 137
 138
 139
 140
 141
 142
 143
 144
 145
 146
 147
 148
 149
 150
 151
 152
 153
 154
 155
 156
 157
 158
 159
 160
 161
 162
 163
 164
 165
 166
 167
 168
 169
 170
 171
 172
 173
 174
 175
 176
 177
 178
 179
 180
 181
 182
 183
 184
 185
 186
 187
 188
 189
 190
 191
 192
 193
 194
 195
 196
 197
 198
 199
 200
 201
 202
 203
 204
 205
 206
 207
 208
 209
 210
 211
 212
 213
 214
 215
 216
 217
 218
 219
 220
 221
 222
 223
 224
 225
 226
 227
 228
 229
 230
 231
 232
 233
 234
 235
 236
 237
 238
 239
 240
 241
 242
 243
 244
 245
 246
 247
 248
 249
 250
 251
 252
 253
 254
 255
 256
 257
 258
 259
 260
 261
 262
 263
 264
 265
 266
 267
 268
 269
 270
 271
 272
 273
 274
 275
 276
 277
 278
 279
 280
 281
 282
 283
 284
 285
 286
 287
 288
 289
 290
 291
 292
 293
 294
 295
 296
 297
 298
 299
 300
 301
 302
 303
 304
 305
 306
 307
 308
 309
 310
 311
 312
 313
 314
 315
 316
 317
 318
 319
 320
 321
 322
 323
 324
 325
 326
 327
 328
 329
 330
 331
 332
 333
 334
 335
 336
 337
 338
 339
 340
 341
 342
 343
 344
 345
 346
 347
 348
 349
 350
 351
 352
 353
 354
 355
 356
 357
 358
 359
 360
 361
 362
 363
 364
 365
 366
 367
 368
 369
 370
 371
 372
 373
 374
 375
 376
 377
 378
 379
 380
 381
 382
 383
 384
 385
 386
 387
 388
 389
 390
 391
 392
 393
 394
 395
 396
 397
 398
 399
 400
 401
 402
 403
 404
 405
 406
 407
 408
 409
 410
 411
 412
 413
 414
 415
 416
 417
 418
 419
 420
 421
 422
 423
 424
 425
 426
 427
 428
 429
 430
 431
 432
 433
 434
 435
 436
 437
 438
 439
 440
 441
 442
 443
 444
 445
 446
 447
 448
 449
 450
 451
 452
 453
 454
 455
 456
 457
 458
 459
 460
 461
 462
 463
 464
 465
 466
 467
 468
 469
 470
 471
 472
 473
 474
 475
 476
 477
 478
 479
 480
 481
 482
 483
 484
 485
 486
 487
 488
 489
 490
 491
 492
 493
 494
 495
 496
 497
 498
 499
 500
 501
 502
 503
 504
 505
 506
 507
 508
 509
 510
 511
 512
 513
 514
 515
 516
 517
 518
 519
 520
 521
 522
 523
 524
 525
 526
 527
 528

0051

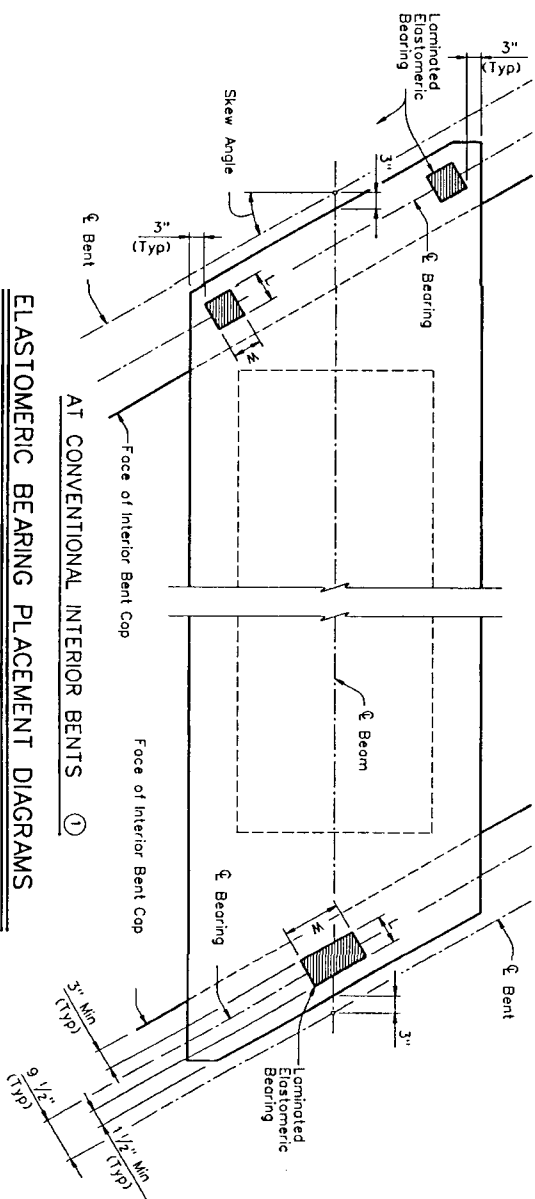
9

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

DATE:
FILE:



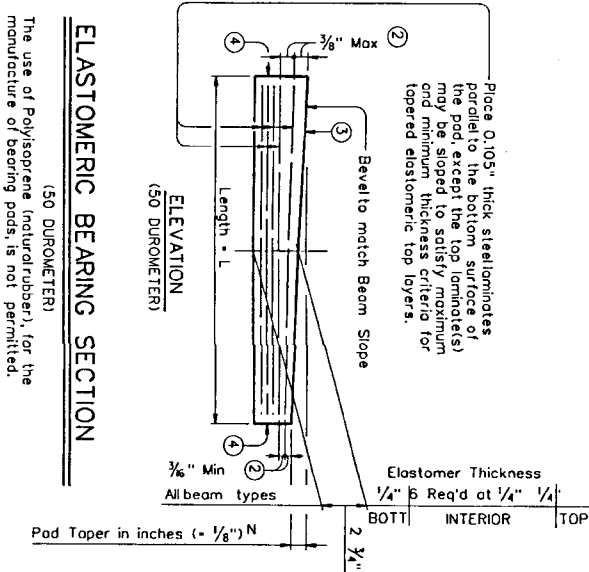
AT ABUTMENT OR INVERTED TEE BENTS



AT CONVENTIONAL INTERIOR BENTS ①

ELASTOMERIC BEARING PLACEMENT DIAGRAMS

The Forward Station Beam End will have one bearing
and the Back Station Beam End will have two bearings.



ELASTOMERIC BEARING SECTION

The use of Polyisoprene (natural rubber) for the manufacture of bearing pads is not permitted.

- ① For Transition Bents with backwall, beams and elastomeric bearings will receive the same treatment as shown for Abutment Bents.
- ② Maximum and minimum layer thicknesses shown are for elastomer only, on tapered layers.
- ③ Indicate BEARING TYPE on all pads. For tapered pads, BEARING TYPE will be located on the high side. The Fabricator will include the value of "N" (amount of taper in 1/8" increments) in this work. Examples: N=0 (for 0" taper) N=1 (for 1/8" taper) N=2 (for 1/4" taper) etc. Fabricated pad top surface slope must not vary from plan by more than (0.0025" N/N. Length)
- ④ Locate Permanent Mark here.

ELASTOMERIC BEARING DIMENSIONS					
BEARING TYPE	BEAM TYPE	ONE BEARING		TWO BEARINGS	
		L	W	L	W
920--"N"	4820	6"	12"	6"	6"
920--"N"	5820	6"	12"	6"	6"
828--"N"	4828	6"	14"	6"	7"
828--"N"	5828	6"	14"	6"	7"
834--"N"	4834	6"	16"	6"	8"
834--"N"	5834	6"	16"	6"	8"
840--"N"	4840	6"	20"	6"	10"
840--"N"	5840	6"	20"	6"	10"

GENERAL NOTES:
Set beams on elastomeric bearings of the dimensions shown. Center bearings as near nominal bearing as possible within limits shown.
Constant thickness bearings may be used for moderate beam slopes up to 0.013 (1/17). For skewed supports, bearings beveled for beam slope may not provide uniform contact. However, predicted contact is considered within allowable tolerances.
Shop drawings for approval required. A bearing layout which identifies location and orientation of all bearings will be developed and submitted to the Engineer. Permanently mark each bearing location on the bearing layout. A copy of the bearing layout is to be provided to the Engineer.
Cost of furnishing and installing elastomeric bearings is to be included in unit price bid for "Prestressed Concrete Box Beams".
Details are drawn showing right for word skew. See Bridge Layout for actual direction.
These details are applicable for skews up to 30 degrees only.

HL93 LOADING

Texas Department of Transportation
Bridge Division Standard
ELASTOMERIC BEARING DETAILS
PRESTR CONC BOX BEAMS

Title: BBEB			
Drawn by: [Signature]	Scale: 1/4" = 1'-0"	Check by: [Signature]	Approved by: [Signature]
Revised: [Signature]	Design: [Signature]	Quantity: [Signature]	Sheet No. [Signature]

APPROVAL IS IMPLIED FOR IMPROVEMENTS WITHIN
FORT BEND COUNTY RIGHTS OF WAY ONLY.
UTILITY LINES APPROVED AS TO LOCATION ONLY.
AUTHORIZATION VALID FOR 1 YEAR.

APPROVED: [Signature]
DEVELOPMENT COORDINATOR

DATE: 10/9/14

NO. DATE REVISIONS APP

KB HOMES
ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS

Cosello, Inc.
KINGSLAND BOULEVARD
AT WILLOW FORK

ELASTOMERIC BEARING DETAILS
PRESTR CONC BOX BEAMS

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

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

DATE: JULY 2014

FOR CITY OF HOUSTON USE ONLY
DIT DING NO. 52762

SCALE: 1/4" = 1'-0"

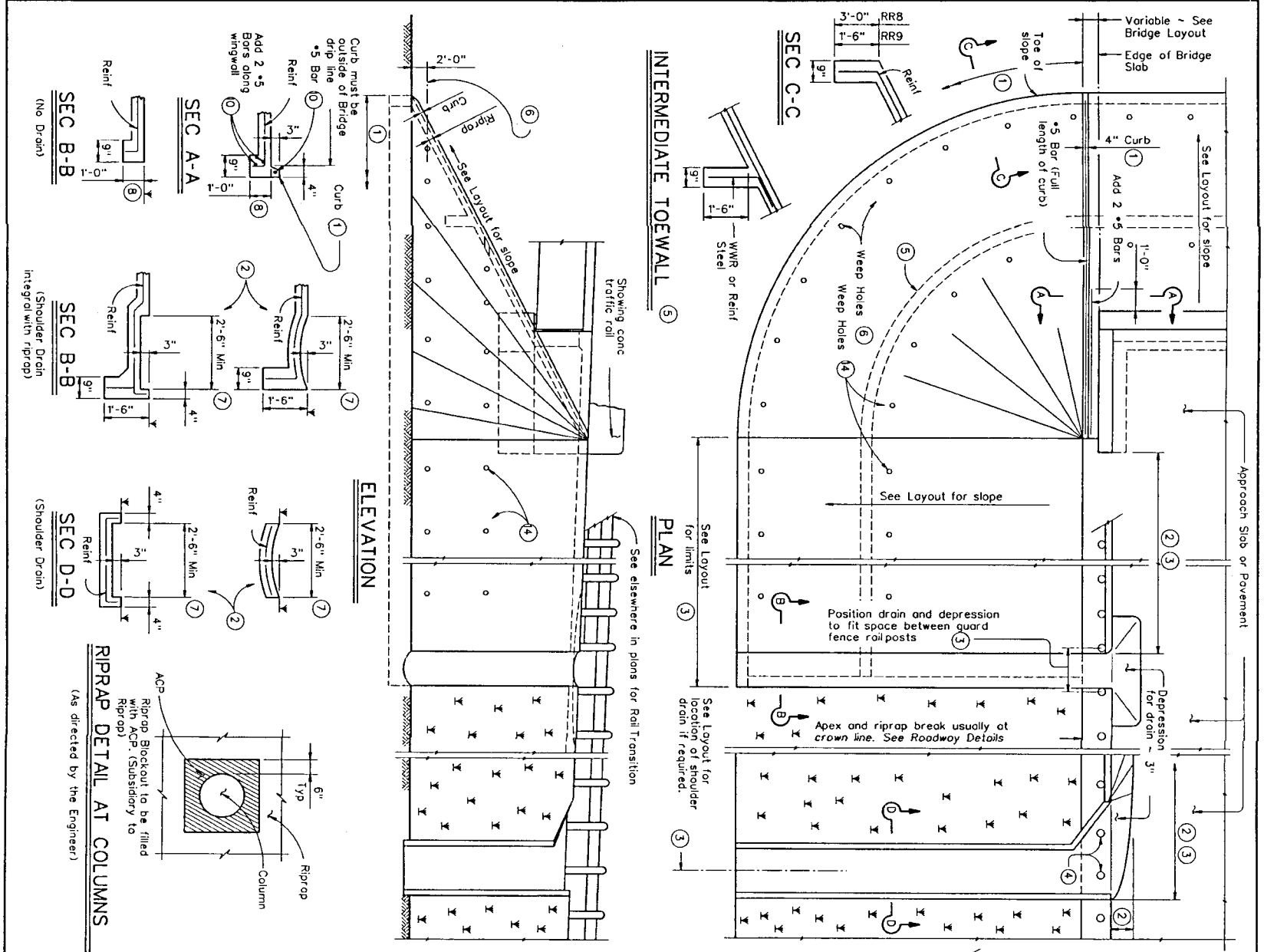
SHEET No. 27 OF 45

JOB NO. 2013170

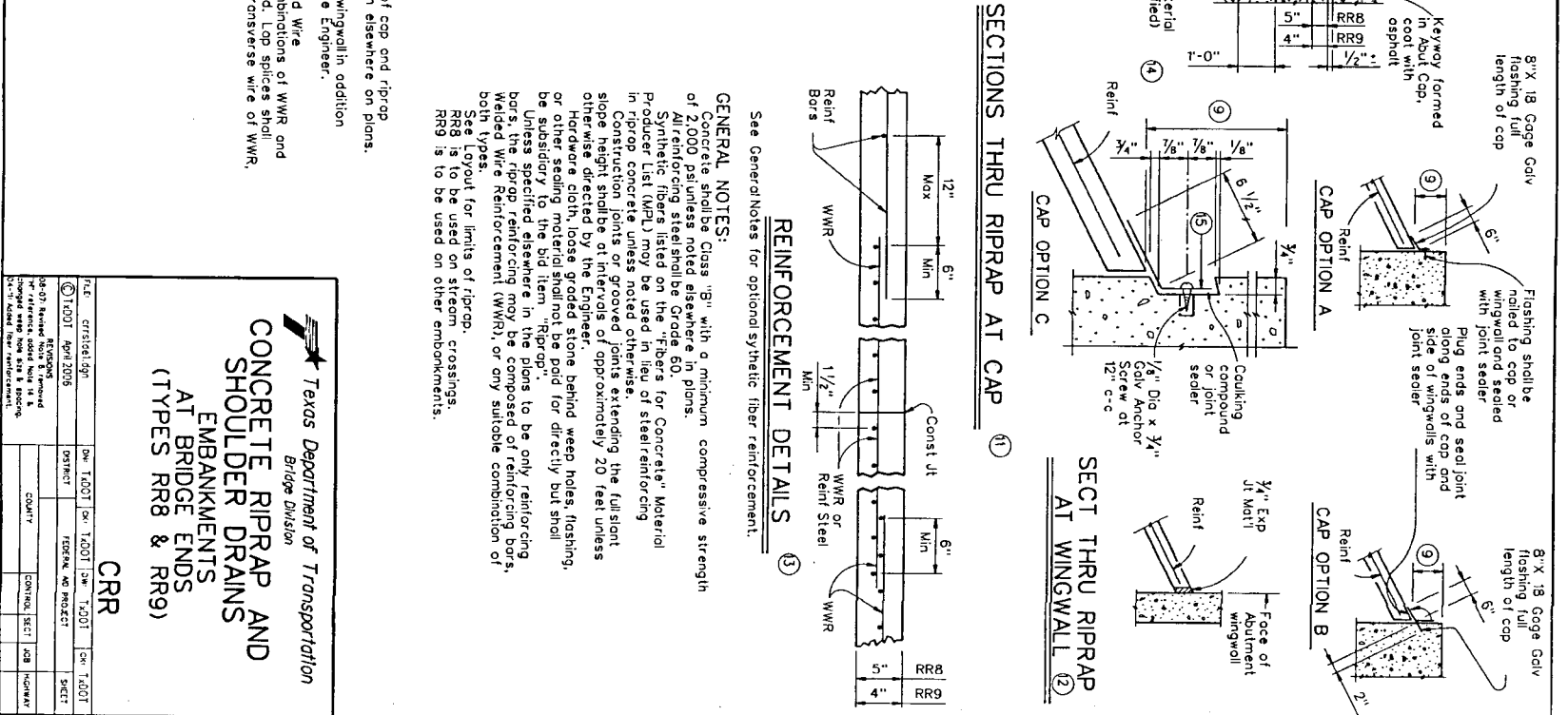
LEVELS DISPLAYED														
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40	41	42	43	44	45
46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75
76	77	78	79	80	81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100	101	102	103	104	105

PATH:

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



- When riprap is shown extended around header on layout, extend slab and toe walls shown and eliminate 4" curb.
- Limits and configuration of drains and depressions shall be as shown elsewhere in plans or as directed by the Engineer.
- Location of shoulder drain must consider limitations imposed by rail transition. Do not locate shoulder drains at expansion joints between approach slab and concrete pavement.
- See details elsewhere in plans for installation of guard fence posts through concrete riprap.
- Provide intermediate toewall only when designated elsewhere in the plans or included in the specifications.
- Provide lower level of 2" dia weep holes of 10 c-c backed by 1 CCF pocket of gravel and galvanized hardware cloth at all locations unless directed by the Engineer to eliminate.
- Wider or other drain configurations shall be used if shown elsewhere in plans or if directed by the Engineer.
- Wall extension may be reduced or modified if approved by the Engineer. Wall extension shall be increased to 1'-6" whenever the optional intermediate toe walls are called for in the plans.
- Top of cap to top of riprap dimension varies as directed by the Engineer. Should be 9" for slab span, box beam, or slab beam bridges.
- 5" bars shown are required even when synthetic fiber reinforcing option is selected.
- The sealing option of the joint between the face of cap and riprap shall be as designated by the Engineer or as shown elsewhere in plans.
- Flashing (shown in Cap Option A) may be used at wingwall in addition to Exp JT Wall if shown on plans or directed by the Engineer.
- Reinforcing bars shall be #3 at 18" Sps c-c. Welded wire reinforcement (WWR) shall be 6X6-W2.9XW2.9. Combinations of WWR and reinforcing bars may be used if both are permitted. Lap splices shall be a minimum of 6 inches, measured from the transverse wire of WWR, and the ends of reinforcing bars.
- If granular materials specified, provide upper level of 2" dia weep holes at 10' c-c backed by galvanized hardware cloth.
- 8" x 18 Gage Galv Sheet Metal



FOR CONTRACTOR'S INFORMATION ONLY:

5" of RR8	• 0.015 CY/SF
4" of RR9	• 0.012 CY/SF
3" Reinf of 18" c-c	• 0.501 Lbs/SF
6X6-W2.9XW2.9	• 0.394 Lbs/SF

REINFORCEMENT DETAILS

See General Notes for optional synthetic fiber reinforcement.

GENERAL NOTES:

Concrete shall be Class "B" with a minimum compressive strength of 2,000 psi unless noted elsewhere in plans.

All reinforcing steel shall be Grade 60.

Synthetic fibers listed on the "Fibers for Concrete" Material in product literature may be used in lieu of steel reinforcing in concrete except as noted otherwise.

Construction joints or grade changes shall be indicated by a slope height shall be of approximately 20 feet unless otherwise directed by the Engineer.

Hardware cloth, loose graded stone behind weep holes, flashing, or other sealing material shall not be paid for directly but shall be subsidiary to the bid item "Riprap".

Unless specified elsewhere in the plans to be only reinforcing bars, the riprap reinforcing may be composed of reinforcing bars, welded wire reinforcement (WWR), or any suitable combination of both types.

See layout for limits of riprap.

RR8 is to be used on stream crossings.

RR9 is to be used on other embankments.

REVISIONS

NO	DATE	REVISIONS	APP
1	10/19/14	KB HOMES	
2		ON BEHALF OF	
3		WILLOW POINT M.U.D.	
4		FORT BEND COUNTY, TEXAS	

APPROVAL

APPROVAL IS IMPLIED FOR IMPROVEMENTS WITHIN FORT BEND COUNTY RIGHTS OF WAY ONLY. AUTHORIZATION IS VALID FOR 1 YEAR.

APPROVED: *[Signature]*

DATE: 10/19/14

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WRITER: *[Signature]*

DATE: 10/19/14

FOR CITY OF HOUSTON USE ONLY

DATE: 10/19/14

SCALE: 1" = 10'

SHEET NO. 28 OF 45

KINGS LAND BOULEVARD

AT WILLOW FORK

CONC RIPRAP AND SHOULD DRAINS

(TYPES RR8 & RR9)

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY

REVISIONS

NO	DATE	REVISIONS	APP
1	10/19/14	KB HOMES	
2		ON BEHALF OF	
3		WILLOW POINT M.U.D.	
4		FORT BEND COUNTY, TEXAS	

APPROVAL

APPROVAL IS IMPLIED FOR IMPROVEMENTS WITHIN FORT BEND COUNTY RIGHTS OF WAY ONLY. AUTHORIZATION IS VALID FOR 1 YEAR.

APPROVED: *[Signature]*

DATE: 10/19/14

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WRITER: *[Signature]*

DATE: 10/19/14

FOR CITY OF HOUSTON USE ONLY

DATE: 10/19/14

SCALE: 1" = 10'

SHEET NO. 28 OF 45

KINGS LAND BOULEVARD

AT WILLOW FORK

CONC RIPRAP AND SHOULD DRAINS

(TYPES RR8 & RR9)

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY

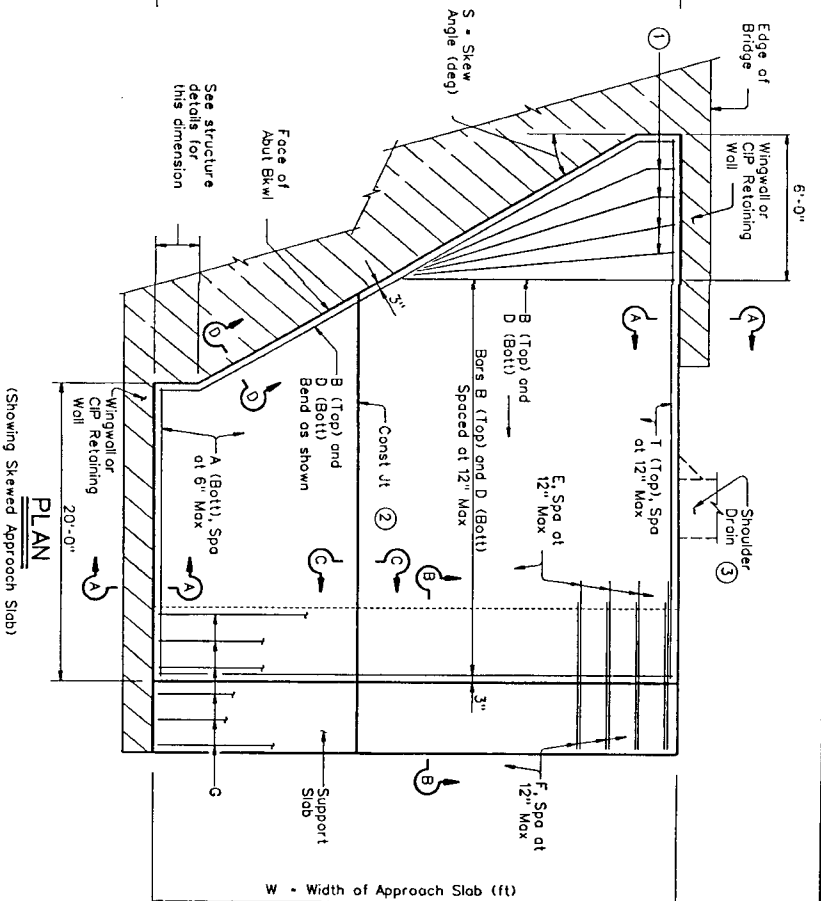
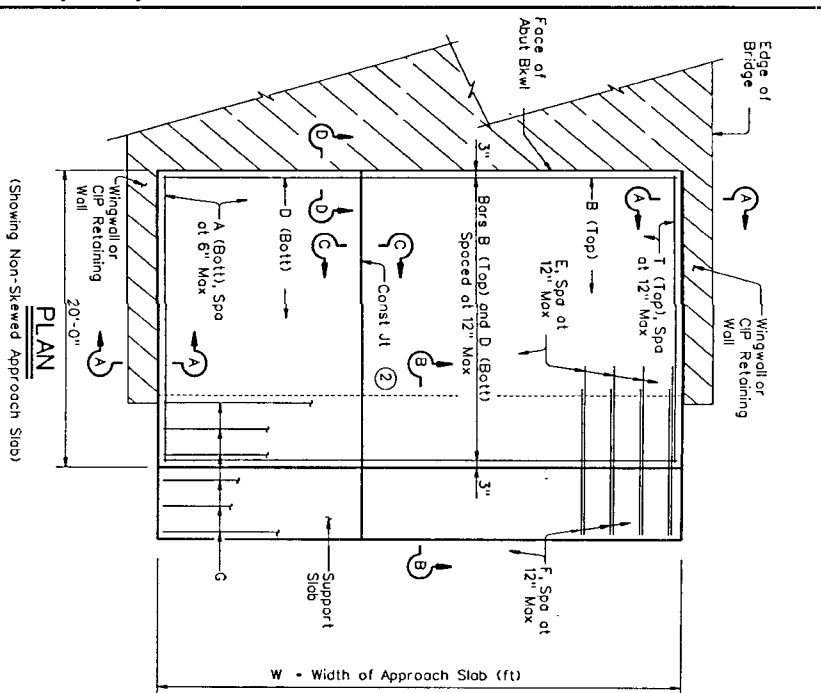
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY

LEVELS DISPLAYED															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64

PATH:

DISCLAIMER:

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



BAR TABLE	
BAR	SIZE
A	#8
B	#5
D	#5
E	#5
F	#5
G	#5
T	#5

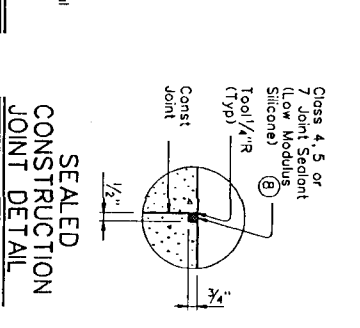
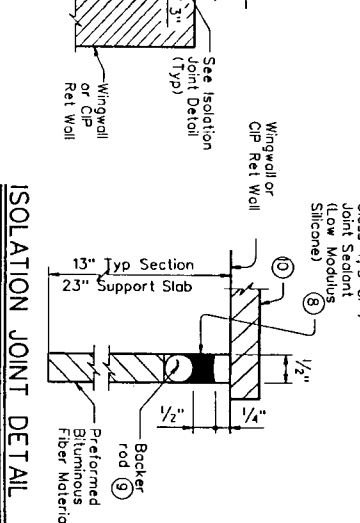
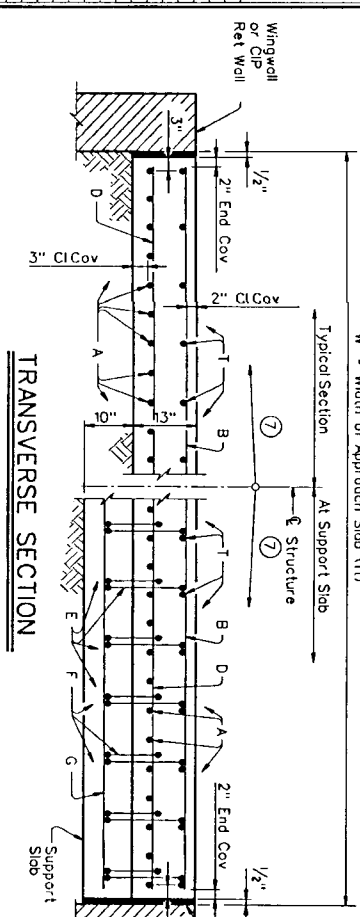
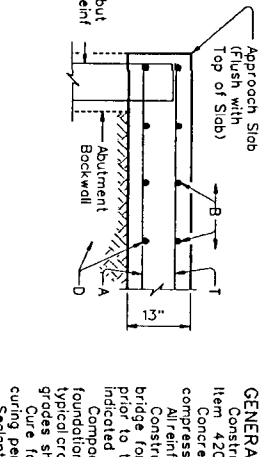
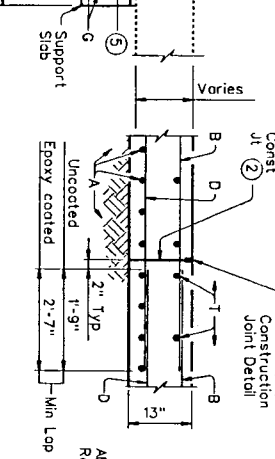
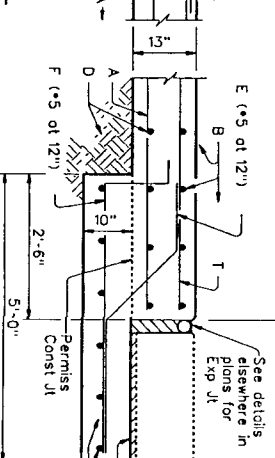
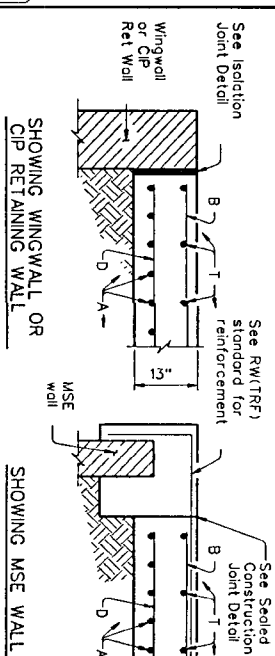
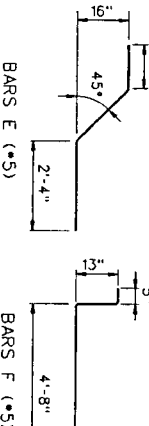
APPROXIMATE QUANTITIES

Rein steel weight • 8.5 Lbs/SF of Approach Slab
• 18.4 Lbs/LF of Support Slab

Area of Appr Slab • 20W • 0.5W (sh S (SF)
(Support Slab not included)

W • Width of Approach Slab (ft)
S • Skew Angle (deg)

1. Place Bars B and D in this region (1'-6" Max Spo, 3" Min Spo). Minimum flared bar length • 2'-6". Bend bars as necessary.
2. Provide longitudinal construction joints that align with longitudinal construction joints in the bridge slab with bridges built in stages. Other longitudinal construction joints must receive approval of the Engineer.
3. See details elsewhere in plans for shoulder drain location and details.
4. For Contractor's information only.
5. On portion of support slab that supports the concrete pavement, adjust top surface elevation if required, to accommodate concrete pavement thickness. Smooth trowel finish. Oil top of support slab with 60 grade oil and apply heavy coat of powdered graphite. Press down one layer of 30" roofing felt.
6. Multiple piece the bars are acceptable at longitudinal construction joints provided minimum laps shown are achieved.
7. See details elsewhere in plans for required cross-slopes.
8. Place in accordance with Item 438.
9. Backer rod should be 25% larger than joint opening and shall be compatible with the sealant.
10. Place 1/2" Performed Bituminous Fiber Material between concrete rolling and top of approach slab as shown when concrete rolling projects over the approach slab.



BRIDGE APPROACH SLAB
CONCRETE PAVEMENT

BAS-C	
REV	DESCRIPTION
1	10/01/14
2	10/01/14
3	10/01/14
4	10/01/14
5	10/01/14
6	10/01/14
7	10/01/14
8	10/01/14
9	10/01/14
10	10/01/14
11	10/01/14
12	10/01/14
13	10/01/14
14	10/01/14
15	10/01/14
16	10/01/14
17	10/01/14
18	10/01/14
19	10/01/14
20	10/01/14
21	10/01/14
22	10/01/14
23	10/01/14
24	10/01/14
25	10/01/14
26	10/01/14
27	10/01/14
28	10/01/14
29	10/01/14
30	10/01/14
31	10/01/14
32	10/01/14
33	10/01/14
34	10/01/14
35	10/01/14
36	10/01/14
37	10/01/14
38	10/01/14
39	10/01/14
40	10/01/14
41	10/01/14
42	10/01/14
43	10/01/14
44	10/01/14
45	10/01/14
46	10/01/14
47	10/01/14
48	10/01/14
49	10/01/14
50	10/01/14
51	10/01/14
52	10/01/14
53	10/01/14
54	10/01/14
55	10/01/14
56	10/01/14
57	10/01/14
58	10/01/14
59	10/01/14
60	10/01/14
61	10/01/14
62	10/01/14
63	10/01/14
64	10/01/14
65	10/01/14
66	10/01/14
67	10/01/14
68	10/01/14
69	10/01/14
70	10/01/14
71	10/01/14
72	10/01/14
73	10/01/14
74	10/01/14
75	10/01/14
76	10/01/14
77	10/01/14
78	10/01/14
79	10/01/14
80	10/01/14
81	10/01/14
82	10/01/14
83	10/01/14
84	10/01/14
85	10/01/14
86	10/01/14
87	10/01/14
88	10/01/14
89	10/01/14
90	10/01/14
91	10/01/14
92	10/01/14
93	10/01/14
94	10/01/14
95	10/01/14
96	10/01/14
97	10/01/14
98	10/01/14
99	10/01/14
100	10/01/14

GENERAL NOTES:

Construct approach slab in accordance with Item 420.

Concrete shall be Class "S" with a minimum compressive strength of 4,000 psi.

Reinforcing steel shall be Grade 60.

Construct the subgrade or subbase from the bridge for a minimum distance of 100 feet prior to the approach slab, unless otherwise indicated on the plans.

Compact and finish the subgrade or foundation for the approach slab to the typical cross-section and to the lines and grades shown.

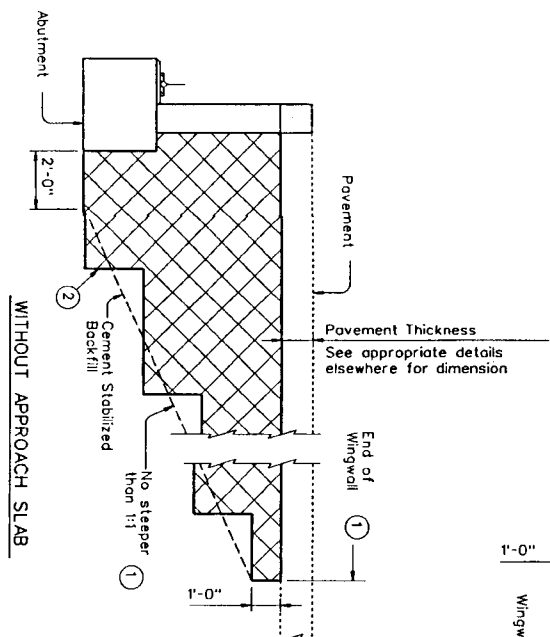
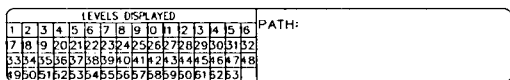
Cure for 4 days using water or membrane curing per Item 420.

Sealant, backer rod and performed bituminous fiber materials subsidiary to approach slab concrete.

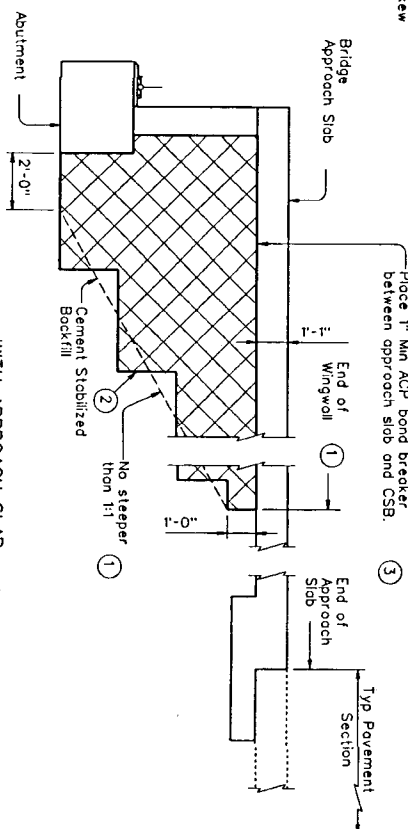
Provide a 1" bondbreaker (asphaltic concrete pavement or asphalt stabilized base) between the approach slab and cement stabilized backfill or cement treated base. Other bondbreakers may be used if approved by the Engineer.

BRIDGE APPROACH SLAB
CONCRETE PAVEMENT

BAS-C	
REV	DESCRIPTION
1	10/01/14
2	10/01/14
3	10/01/14
4	10/01/14
5	10/01/14
6	10/01/14
7	10/01/14
8	10/01/14
9	10/01/14
10	10/01/14
11	10/01/14
12	10/01/14
13	10/01/14
14	10/01/14
15	10/01/14
16	10/01/14
17	10/01/14
18	10/01/14
19	10/01/14
20	10/01/14
21	10/01/14
22	10/01/14
23	10/01/14
24	10/01/14
25	10/01/14
26	10/01/14
27	10/01/14
28	10/01/14
29	10/01/14
30	10/01/14
31	10/01/14
32	10/01/14
33	10/01/14
34	10/01/14
35	10/01/14
36	10/01/14
37	10/01/14
38	10/01/14
39	10/01/14
40	10/01/14
41	10/01/14
42	10/01/14
43	10/01/14
44	10/01/14
45	10/01/14
46	10/01/14
47	10/01/14
48	10/01/14
49	10/01/14
50	10/01/14
51	10/01/14
52	10/01/14
53	10/01/14
54	10/01/14
55	10/01/14
56	10/01/14
57	10/01/14
58	10/01/14
59	10/01/14
60	10/01/14
61	10/01/14
62	10/01/14
63	10/01/14
64	10/01/14
65	10/01/14
66	10/01/14
67	10/01/14
68	10/01/14
69	10/01/14
70	10/01/14
71	10/01/14
72	10/01/14
73	10/01/14
74	10/01/14
75	10/01/14
76	10/01/14
77	10/01/14
78	10/01/14
79	10/01/14
80	10/01/14
81	10/01/14
82	10/01/14
83	10/01/14
84	10/01/14
85	10/01/14
86	10/01/14
87	10/01/14
88	10/01/14
89	10/01/14
90	10/01/14
91	10/01/14
92	10/01/14
93	10/01/14
94	10/01/14
95	10/01/14
96	10/01/14
97	10/01/14
98	10/01/14
99	10/01/14
100	10/01/14



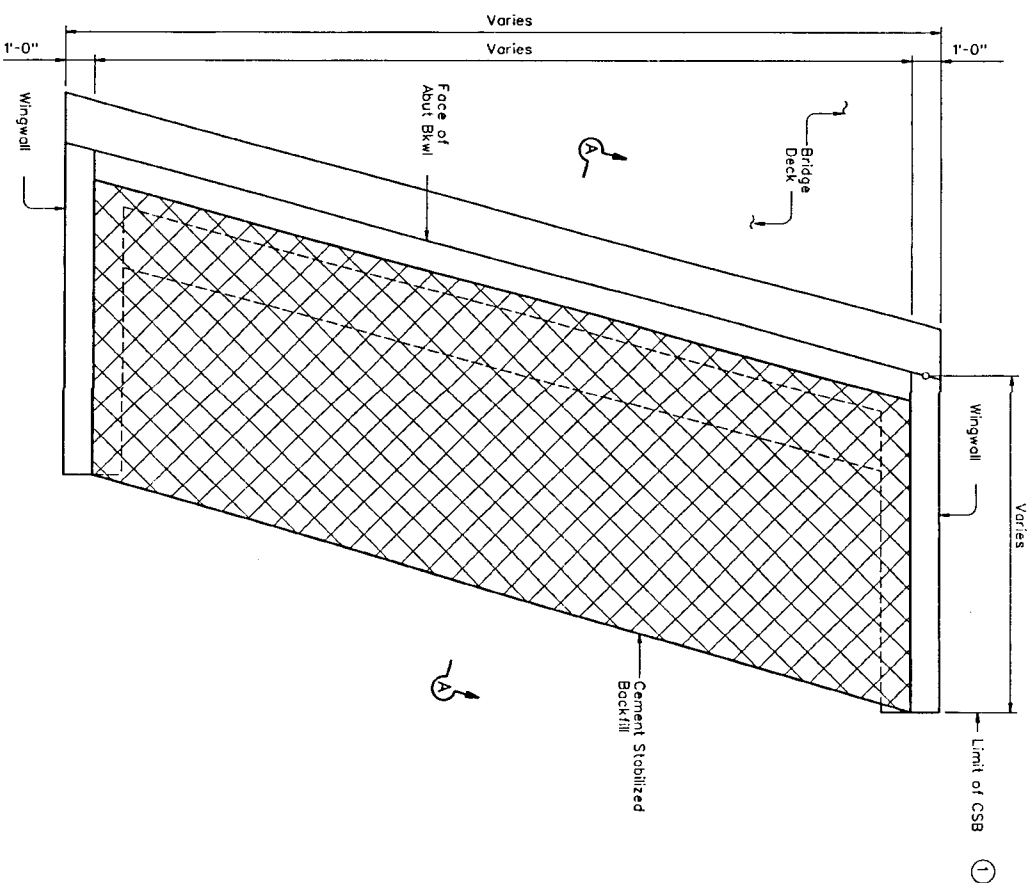
WITHOUT APPROACH SLAB



WITH APPROACH SLAB

SECTION A-A

PLAN




- ① Usual limit of Cement Stabilized Backfill is at end of wingwall. However, extend limits as required to maintain a slope steeper than 1:1 at bottom of backfill.
- ② Bench backfills shown with 12" (approximate) bench depths.
- ③ Other materials can be used as a bond breaker if permitted by the Engineer.
 - 2 layers of 30 lb roofing felt or
 - 2 layers of heavy mil polyethylenesheeting are examples.

GENERAL NOTES:

Provide Cement Stabilized Block fill meeting the requirements of item 400, "Excavation and Backfill for Structures", to the limits shown at bridge abutments.

Details are shown showing left forward skew. See Bridge Layout for actual skew direction. These details do not apply when MSE or Concrete Block retaining walls are used in lieu of wingwalls.

 Texas Department of Transportation Bridge Division	
CEMENT STABILIZED ABUTMENT BACKFILL BRIDGE ABUTMENT	
CSAB	
T&E 11001 April 2006 REVISIONS 08 2007 Water Note 3.	DIV. 11001 DISTRICT COUNTY SECTION, SECT. JOB HIGHWAY
SPEC. 11001 SHEET	SPEC. 11001 SHEET

[illegible]

DATA

APPROVED: 1/20/01

APPROVAL IS IMPLIED FOR IMPROVEMENTS WITHIN
FORT BEND COUNTY RIGHTS OF WAY ONLY.
UTILITY LINES APPROVED AS TO LOCATION ONLY.
AUTHORIZATION IS VALID FOR 1 YEAR.

KB HOMES
ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS

Costello, Inc.
Engineering and Surveying
6800 Rockford Avenue, Suite
Northridge, CA 91329
Hawthorn, Texas 75043
(713) 755-7766 (713) 755-5465
TELEX 92 50405 PIMA
REGISTRATION NO. 265

**CEMENT STABILIZED
ABUTMENT BACKFILL
BRIDGE ABUTMENT**

NOTE: ALL SIGNATURES VALID FOR ONE YEAR UNLESS
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER 4.48-7
TRAFFIC & TRANSPORTATION

TRAFFIC & TRANSPORTATION

June 8.21.11

June 8.21.11

June 8, 1911

[illegible]

FILE NO. _____

FOR CITY OF HOUSTON USE ONLY

CITY DWG NO. _____

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466
---	---	---	---	---	---	---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

100

DATE: JULY 2014

DATE: JULY 2014

DMG BY: _____

DMG BY: _____

SCALE:

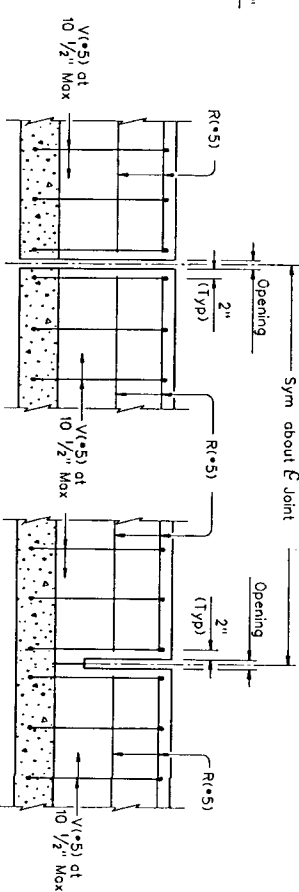
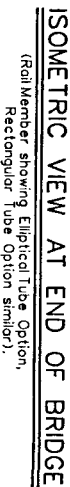
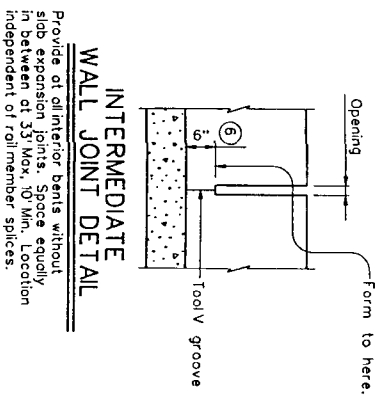
SCALE: _____

11-11-11

SHEET No. 30 OF 45

SHEET No. 30 OF 45


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



ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT	AT SLAB EXPANSION JOINT	AT INTERMEDIATE WALL JOINT

- ① Terminal Connectors and associated hardware are to be paid for under the item "Metal Terminal Board Fence, Welded Guard Fence, Tensioning Hardware, Bridge Deck, Bridge Rail and Extended along the length of bridge unless otherwise shown in the plans.
- ② Rail member sections must have at least two posts but not more than four.
- ③ One shop splice per rail member section is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- ④ Exp it or Splice it as required.
- ⑤ Unless directed otherwise by the Engineer, the fabricator may use the rectangular tube in the ends of the elliptical tube for the rail member.
- ⑥ Increase 2" for stiffeners with overlap.
- ⑦ Bolts must be of sufficient length to extend $\frac{1}{2}L_n$ to $\frac{3}{4}L_n$ beyond nut.

- ③ Bolt recesses are only required when pedestrian sidewalks are adjacent to back of rail.
- ④ additional Bars R(4.5) 3'-8" in length must be placed inside Bars U(4.5) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.

 <div> Texas Department of Transportation Bridge Division </div>									
<div> TRAFFIC RAIL </div>									
<div> TYPE T402 </div>									
DATE: 11/16/2017 4:44 PM		REV: 1.001		LOC: 1.001		SW: JTR		CR: JWH	
C: 1.001 April 2019		DISTRICT:		FED/STATE, AD PROJECT:		SHEET:			
PROJECTS:		COUNTY:		CONTRACT:		SECTION:		JOB:	
ON: 11/16/17 and 11/16/18 NAME: 07-12 Concrete Retention								REMARKS:	

APPROVAL IS IMPLIED FOR APPROVEE'S WITHIN
FOR BENO COUNTY RIGHTS OF WAY ONLY.
UNLESS APPROVED AS TO LOCATION ONLY.
ADMINISTRATION IS VALID FOR 1 YEAR.

APPROVED: [Signature]
DEVELOPMENT COORDINATOR

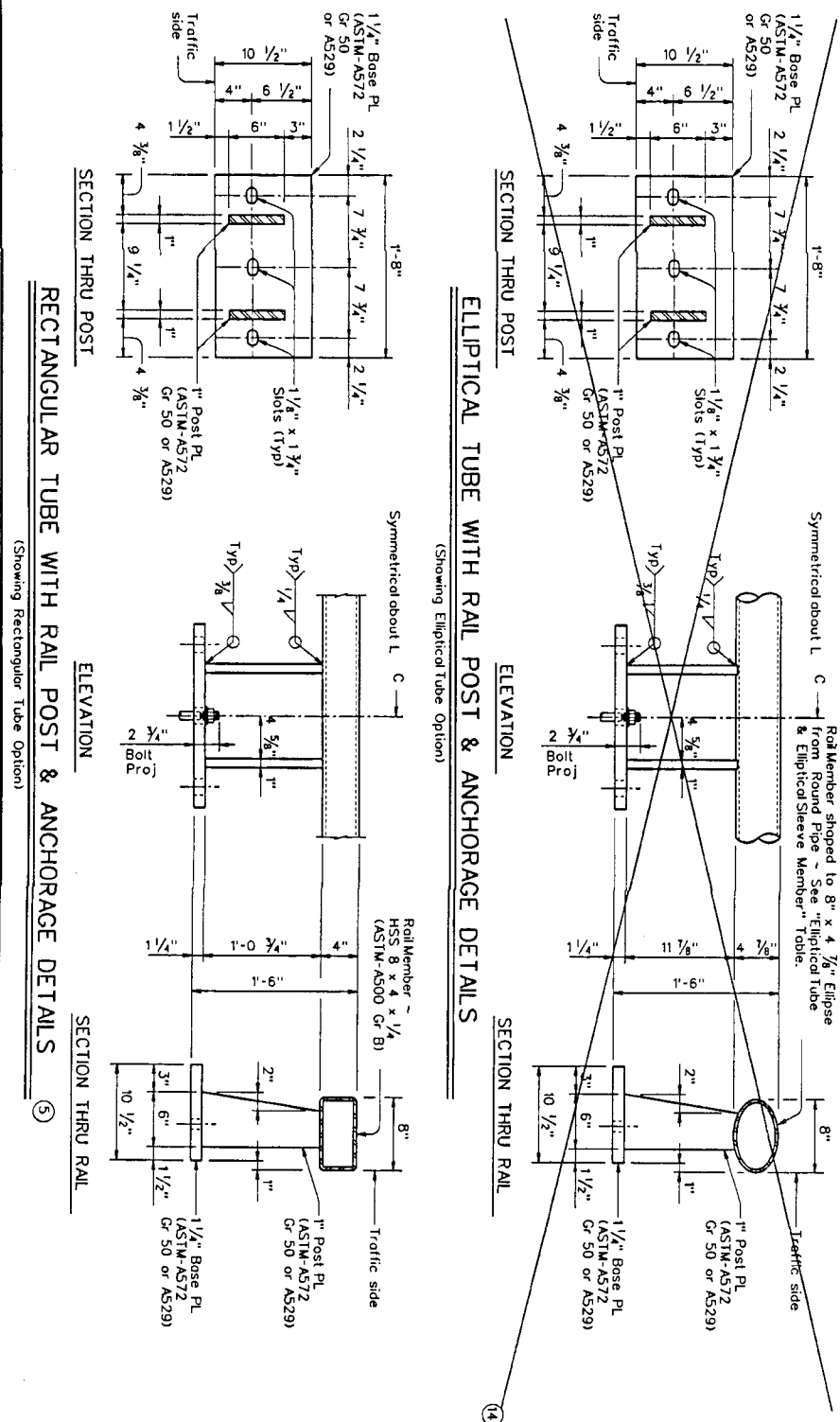
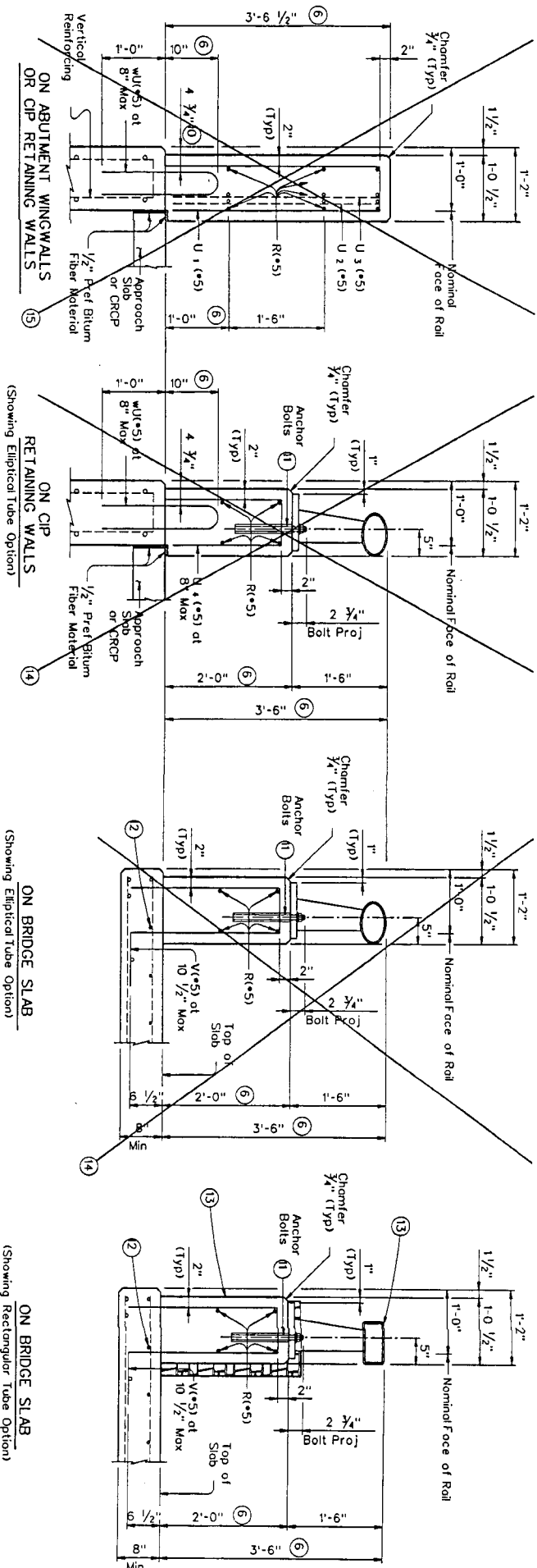
DATE: 10/09/14

NO.	DATE	REVISIONS	APP.

NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES		KINGSLAND BOULEVARD AT WILLOW FORK TRAFFIC RAIL TYPE T402 (1 OF 3)	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING			
MAILED <i>10-27-99</i>	PROJECT & DESCRIPTION		
ISSUED <i>10-27-99</i>	STORM WATER DRAINAGE		
STATION <i>10+00 TO 12+00</i>	QUANTITIES		
SHEET & BOOK			
FILE NO. _____		FOR CITY OF HOUSTON USE ONLY	
JOB NO. _____		CITY DRG NO. _____	

LEVELS DISPLAYED															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64

DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No liability shall be assumed by TxDOT for any use of this standard in any manner other than as intended. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



- ⑤ Unless directed otherwise by the Engineer, the fabricator may use the rectangular tube in lieu of the elliptical tube for the rail member.
- ⑥ Increase 2" for structures with overlay.
- ⑦ 5 1/2" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.
- ⑧ See "Material Notes" for anchor bolt information.
- ⑨ Top longitudinal slab bar may be adjusted laterally 3" plus or minus to fit reinforcing.
- ⑩ Concrete surface of rail shall receive finish consisting of sand-colored concrete paint. All exposed steel shall be painted with dark brown polyurethane paint.
- ⑪ Elliptical tube not allowed.
- ⑫ See Abutment Details.

TEXAS Department of Transportation
Bridge Division

SHEET 2 OF 3

TRAFFIC RAIL

TYPE T402

DATE	10/10/2014	DESIGNED BY	10/10/2014	CHECKED BY	10/10/2014
PROJECT	10/10/2014	REVISIONS	10/10/2014	DATE	10/10/2014
BY	10/10/2014	DATE	10/10/2014	BY	10/10/2014
DATE	10/10/2014	DATE	10/10/2014	DATE	10/10/2014

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

APPROVAL IS LIMITED TO APPROXIMATELY WITHIN
FOOT BRIDGE APPROVED AS TO LOCATION ONLY.
AUTHORIZATION IS VALID FOR ONE YEAR.

APPROVED: *[Signature]*
DATE: 10/19/14
DEPARTMENT COORDINATOR

NO. DATE REVISIONS APP.

KB HONES
ON BEHALF OF
WILLOW POINT M.U.D.
FORT BEND COUNTY, TEXAS

Cosibelo, Inc.
KINGSLAND BOULEVARD
AT WILLOW FORK
TRAFFIC RAIL
TYPE T402
(2 OF 3)

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
DATE: 10/19/14
BY: *[Signature]*
FOR CITY OF HOUSTON USE ONLY
DIT DMC NO.

TEL NO. 281-255-1234
FAX NO. 281-255-1234
E-MAIL: *[Email]*

SCALE: 1" = 1'-0"

SHEET NO. 35 OF 45

52762

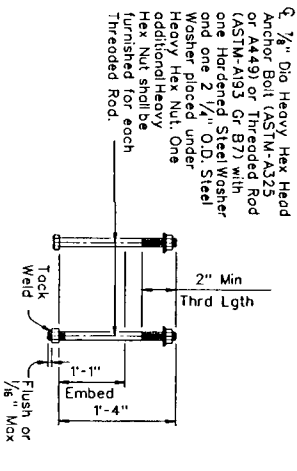
JOB NO. 2013170

LEVELS DISPLAYED															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54

ACC:

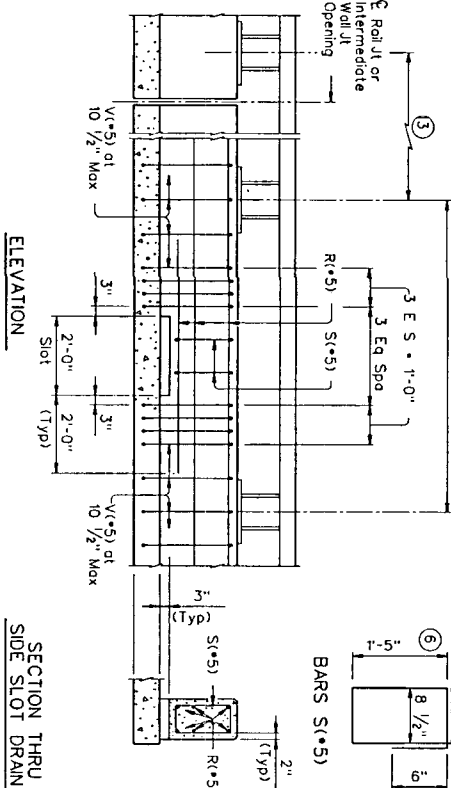
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.

CAST-IN-PLACE ANCHOR BOLT OPTIONS



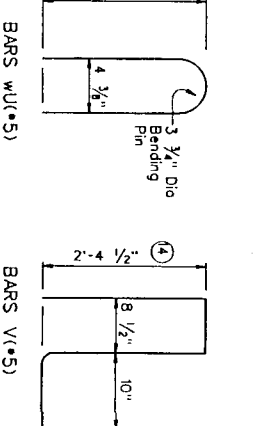
Note: Side Slot Drains must be centered between roll posts within the limits shown. Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rolls used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

OPTIONAL SIDE SLOT DRAIN DETAILS

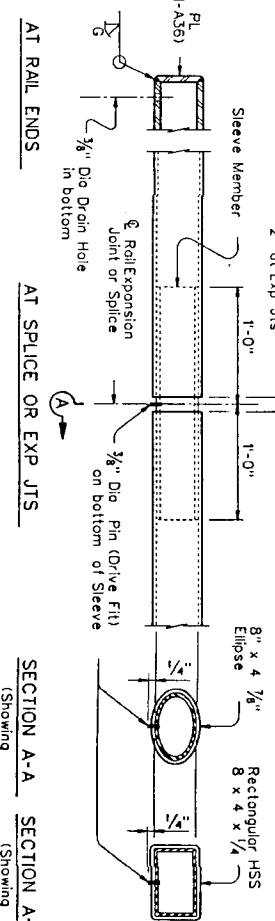
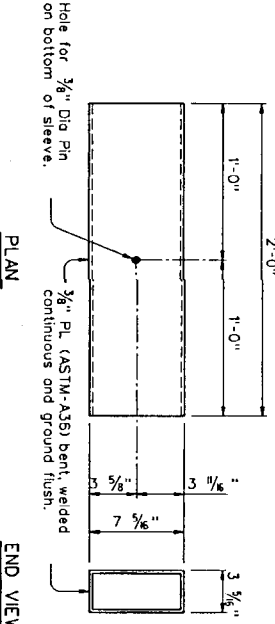


SECTION THRU SIDE SLOT DRAIN

Installed Bars U may rest on top of wall	Bars U(*5)	Bars W(*5)	Bars V(*5)
3'-4 1/2"	3'-1 1/2"	2'-10 1/2"	1'-10"
3'-1 1/2"	2'-10 1/2"	1'-10"	3'-4 1/2"
3'-1 1/2"	2'-10 1/2"	1'-10"	3'-1 1/2"
3'-1 1/2"	2'-10 1/2"	1'-10"	3'-1 1/2"



RECTANGULAR TUBE SLEEVE MEMBER DETAIL



TUBE FABRICATION DETAILS

(See Tube Fabrication Detail)

ELLIPTICAL TUBE & ELLIPTICAL SLEEVE MEMBER

8" x 4 1/8" Ellipse		Elliptical Sleeve Member
Material	Material	Thickness
6" Dia Std Pipe ASTM-A53	ASTM-A53 Gr B	0.353"
6 3/8" O.D Pipe 0.188" AP1-SLX52	A56 or A500 Gr B	0.359"
	AP1-SLX52	0.224"
	ASTM-A53 Gr B	0.359"
	A56 or A500 Gr B	0.325"
	AP1-SLX52	0.188"

Note: Other sections of equal or greater strength are acceptable for elliptical sleeves. The major and minor diameters of the roll member may vary +/- 0.1875" from plan dimension. However, the difference between the outside diameters of the elliptical sleeve and the inside diameters of the roll member must not exceed 0.25 inches.

- Unless directed otherwise by the Engineer, the fabricator may use the rectangular tube in lieu of the elliptical tube for the roll member.
- Increase 2" for structures with overlay.
- See "Material Notes" for anchor bolt information.
- Slots are not allowed in areas where there is a joint in the concrete parapet between roll posts.
- Length shown for 6 1/2" min bar embedment with no overlay. Adjust as required.
- Shop drawings for approval required for tubular steel sections.

RAIL DATA FOR HORIZONTAL CURVES			
RADIUS TO FACE OF RAIL	MAX CHORD LENGTH	OR FABRICATE	CONSTRUCT
Over 2800'	29'-0"	29'-0"	29'-0"
Over 1400' thru 2800'	14'-6"	14'-6"	14'-6"
Over 700' thru 1400'	7'-3"	7'-3"	7'-3"
Thru 700'	Zero	Zero	Zero

CONSTRUCTION NOTES:
This roll may be slip-formed if approved by the Engineer when epoxy adhesive anchor bolts are used.
Cop all open ends of tubular steel sections.
At the contractor's option anchor bolts may be cast with the parapet (See Cast-in-Place Anchor Bolt Options).
Slip-forming parapet is not allowed if anchor bolts are cast with the parapet.
Roll posts must be plumb unless otherwise approved by the Engineer. Steel posts must be square to the top of parapet. Use epoxy mortar under post base plates if gaps larger than 1/8" exist.
Roll member sections must have at least two posts but not more than four.
Round or chamfer all exposed edges of steel components 1/8" by grinding prior to galvanizing.

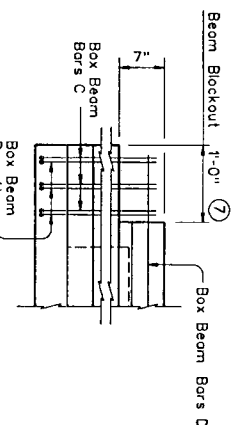
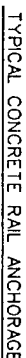
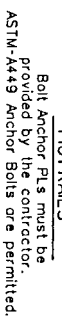
MATERIAL NOTES:
Galvanize all steel components except reinforcing steel.
Anchor bolts must be 3/4" Dia ASTM A193 Grade B7 fully threaded rods with heavy hex nuts, one hardened washer and one (2 1/4" O.D.) steel heavy hex nut. Epoxy adhesive anchor bolts must be 3/4" Dia Type III Class C epoxy adhesive rods into parapet wall with a depth is 8". Anchorage system embedment must be 8" minimum. Contractor must provide evidence to the Engineer that this can be achieved. Evidence of adequate tensile resistance can be based on the manufacturer's published values of ultimate tensile strength (anchor spacing and edge distance must be accounted for). Anchor installation, including hole size, drilling, and clean-out, must be in accordance with the manufacturer's instructions.
Optional cast-in-place anchor bolts must be 3/4" Dia ASTM A325 or A449 bolts (or A193 Gr B7 threaded rods with one lock welded heavy hex nut each) with one heavy hex nut and one lock welded heavy hex nut. Epoxy adhesive anchor bolts must be 3/4" Dia Type III Class C epoxy adhesive rods into parapet wall with a depth is 8". Anchorage system embedment must be 8" minimum. Contractor must provide evidence to the Engineer that this can be achieved. Evidence of adequate tensile resistance can be based on the manufacturer's published values of ultimate tensile strength (anchor spacing and edge distance must be accounted for). Anchor installation, including hole size, drilling, and clean-out, must be in accordance with the manufacturer's instructions.
Use Class "C" concrete. Use Class "C" (HPC) if required elsewhere. Chamfer all exposed corners.
Reinforcing steel must be Grade 60.
Epoxy coat all reinforcement if slab bars are epoxy coated.

GENERAL NOTES:
This rail has been evaluated and accepted to be of equal strength to rollings with like geometry, which have been crash tested to meet NCHRP Report 350 TL-3 criteria. This roll can be used for design speeds of 50 mph and greater when a TL-3 rated guard, fence (transition is used). When a TL-2 rated guard design speed of 45 mph is used, this roll can only be used for design speeds of 45 mph or less.
This rolling cannot be used on bridges with expansion joints providing more than 5" movement.
Roll anchor details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.
Erection drawings showing panel lengths, roll post spacing, and anchor bolt setting must be submitted to the Engineer for approval.
Average weight of rolling with no overlay: 343 pcf total
313 pcf (Conc)
30 pcf (Steel).

Texas Department of Transportation	
Bridge Division	
TRAFFIC RAIL	
TYPE T402	
FILE: T402.dwg	DATE: 10/1/2013
DESIGNED: J. L. B. 10/1/2013	CHECKED: J. L. B. 10/1/2013
APPROVED: J. L. B. 10/1/2013	DATE: 10/1/2013

APPROVAL IS LIMITED TO THE PROJECT AND THE DESIGNER'S RESPONSIBILITY IS LIMITED TO THE DESIGN ONLY. AUTHORIZATION IS VALID FOR 1 YEAR.	DATE: 10/1/14
APPROVED: J. L. B. 10/1/14	REVISIONS: 1
NO. DATE	REVISIONS
1 10/1/14	1. ON BEHALF OF WILLLOW POINT M.U.D. FORT BEND COUNTY, TEXAS
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	
70	
71	
72	
73	
74	
75	
76	
77	
78	
79	
80	
81	
82	
83	
84	
85	
86	
87	
88	
89	
90	
91	
92	
93	
94	
95	
96	
97	
98	
99	
100	


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



Designed in accordance with AASHTO LRFD Specifications. This standard is for use with structures with a 5" minimum cast-in-place concrete slab. See Span Details for estimating slab thickness due to conber and to aid in making adjustments to anchorage projection lengths. This standard only applies to rolls of the outside edge of the bridge and not in conditions where interior rolls and median barriers are used. Rail anchorage hardware, embedded in the beams and required in blockout areas, must be provided by the beam fabricator and reflected in the box beam shop drawings. Rail anchorage bars may be tied bent as required to clear rail reinforcing or provide minimum cover shown on Standard Roll detail sheets.

See Roll standards for approved design speed restrictions, notes and details not shown. This standard does not provide details for Type 180HT, TB855, P41, P42 and P43. Rolls on box beam bridges. Epoxy coat / reinforcement shown on this standard if rail reinforcement is epoxy coated.

- ① Bolts, nuts and washers must be provided by the beam fabricator. Bolt must have a minimum thread length of 7".
- ② Cast-in-place slab thickness varies due to beam camber (3" minimum).
- ③ Excess bolt length has been provided to accommodate a variable slab thickness due to beam camber. If slab thickness on span details exceed 10", increase bolt length accordingly. After bolts have been set and slabs tightened, 4" off bolt projection above slab is OK. If slab is more than 1/2" off point with two coats of zinc-rich paint.
- ④ Bar length shown on roll standard, minus 1 3/4". Adjust bar length for a rolled sidewalk.
- ⑤ Set Roll standard for projection from finish grade or top of sidewalk.
- ⑥ Place additional #5 longitudinal bar.
- ⑦ The beam fabricator must supply all roll anchorage that is required in the blockout area. Firmly secure anchor bolts to the beam at the detailed position (per applicable Roll standard sheet) prior to shipment of the beam. Anchor bolt groups for Type T101 and T6 Rails cannot be centered less than 9" from the centerline of an Open Joint, Sealed Joint, or from the centerline of an Interior Bent with an End Diaphragm condition where no Joint opening is present (See applicable Roll standard and Span sheets). Contractor must verify spacing and location of roll anchor bolts in beam blockouts before diaphragm concrete is placed.



Texas Department of Transportation
Bridge Division Standard

RAIL ANCHORAGE DETAILS

PRESTR. CONC BOX BEAMS (WITH SLAB)

BBRAS

FILE		BRIDGE NO.		DATE		DRAWN BY		CHECKED BY		APPROVED BY	
1-1007		DECEMBER 2008									
04-09, Issued for use 1-84. 01-21, Reapproved Nov. 84.											

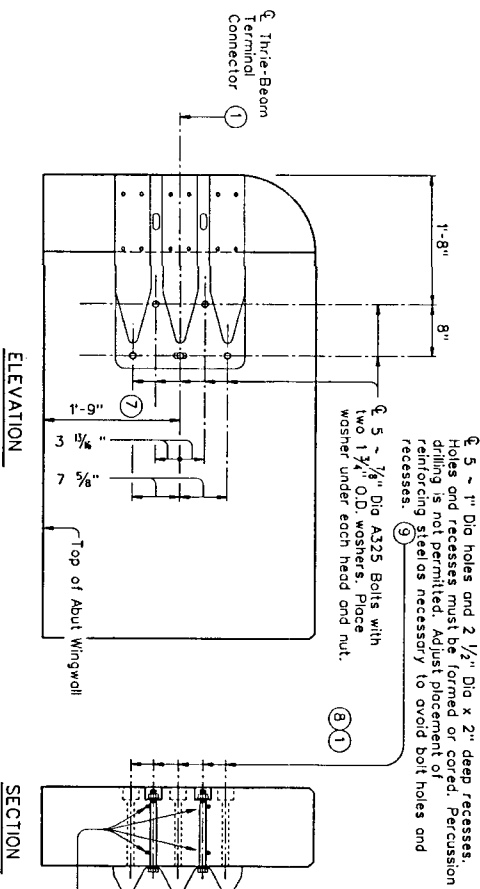
[illegible]

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

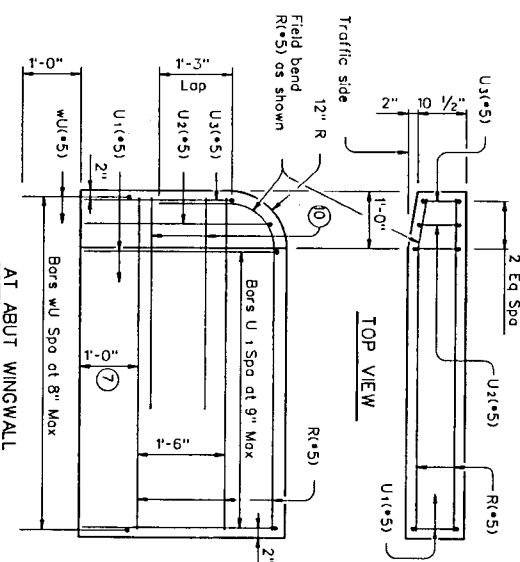
LEVELS DISPLAYED															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38
39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86
87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102

ACC:

TERMINAL CONNECTION DETAILS

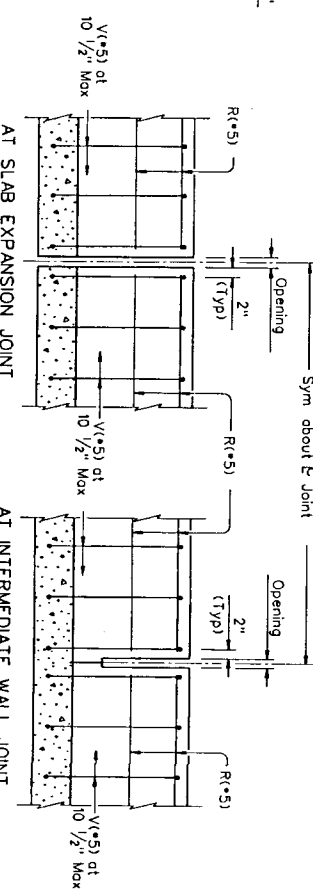


- 1 Terminal Connectors and associated hardware are to be rigid for under the 11m "Metal Beam Guard Fence". Metal Beam Guard Fence Transitions must be bolted to the bridge rail and extended along the embankment unless otherwise shown in the plans.
- 2 Pipe rail sections must have at least two posts but not more than four.
- 3 One shop splice per pipe rail section is permitted with minimum 85 percent penetration. The weld may be square groove or single vee groove. Grind smooth.
- 4 Exp Jt or Splice Jt as required.
- 5 2" Dia Std Pipe (2.375" O.D. 0.154" wall thickness) ASTM-A53 or B or A500 or B. Placed on sidewalk side of rail.
- 6 Unless directed otherwise by the Engineer, the fabricator may use the rectangular tube in lieu of the elliptical tube for the rail member.
- 7 Increase 2" for structures with overtop.
- 8 Bolts must be of sufficient length to extend 1/2" to 3/4" beyond nut.
- 9 Bolt recesses are only required when pedestrian sidewalks are adjacent to back of rail.
- 10 4 additional Bars R(5) 3'-3" in length shall be placed inside Bars U(5) and centered 2'-0" from end of rail when Terminal Connections are required. Field bend as needed.



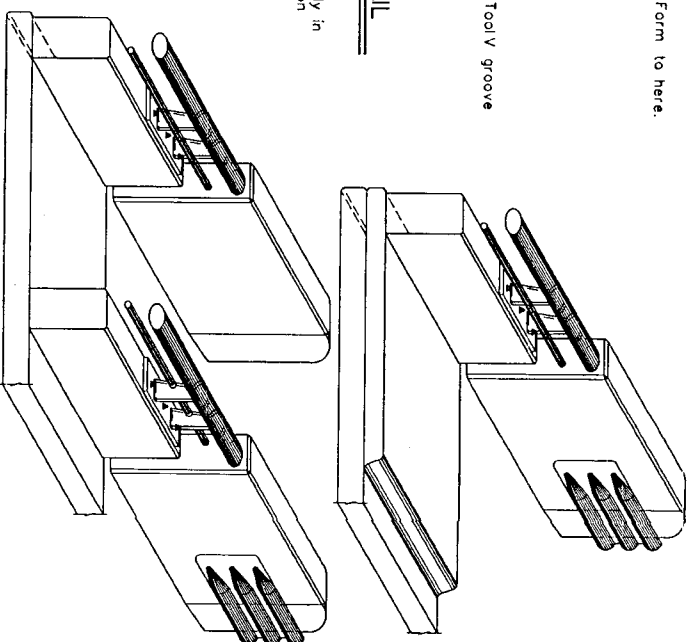
ELEVATION SHOWING TYPICAL REINFORCING PLACEMENT

(Showing without raised sidewalk)



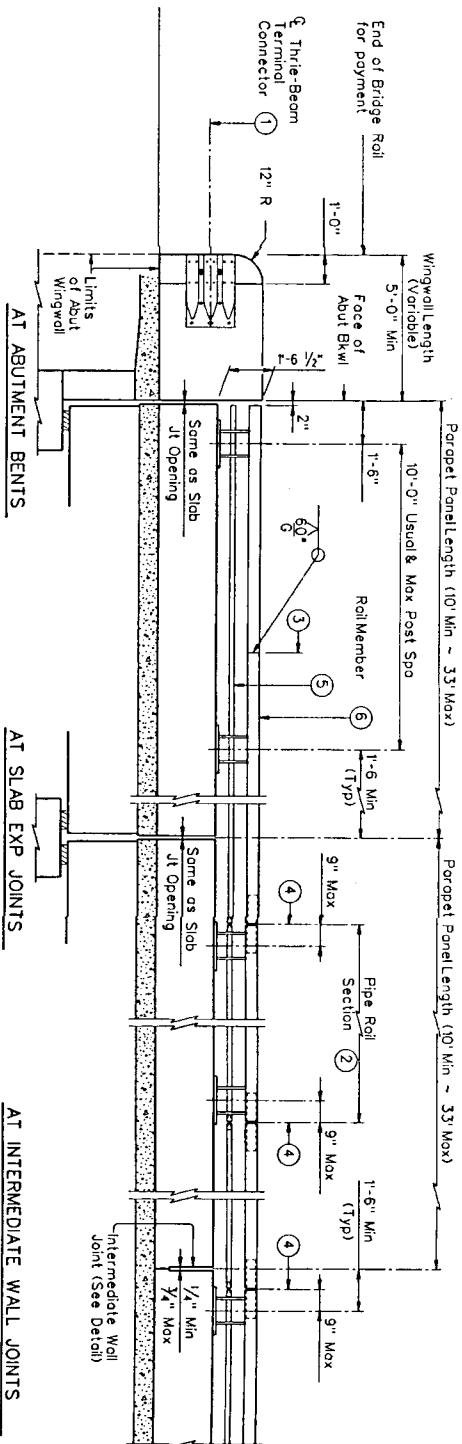
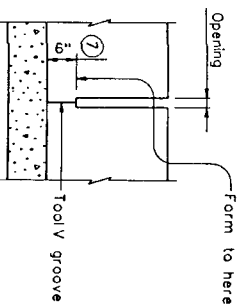
ISOMETRIC VIEWS AT END OF BRIDGE

(Rail Member showing Elliptical Tube Option, Rectangular Tube Option similar).



INTERMEDIATE WALL JOINT DETAIL

(Showing without raised sidewalk)
Provide at all interior bents without slab expansion joints. Space equally in between at 33' Max, 10' Min. Location independent of rail member splices.



ROADWAY ELEVATION OF RAIL

(Rail Member showing Elliptical Tube Option, Rectangular Tube Option similar).

Texas Department of Transportation
Bridge Division

COMBINATION RAIL
TYPE C402

DATE				BY			
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014
19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014	19/02/2014

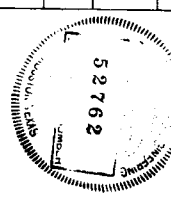
COMBINATION RAIL
TYPE C402
(1 OF 4)

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

APPROVED: *[Signature]*
DATE: 10/9/14

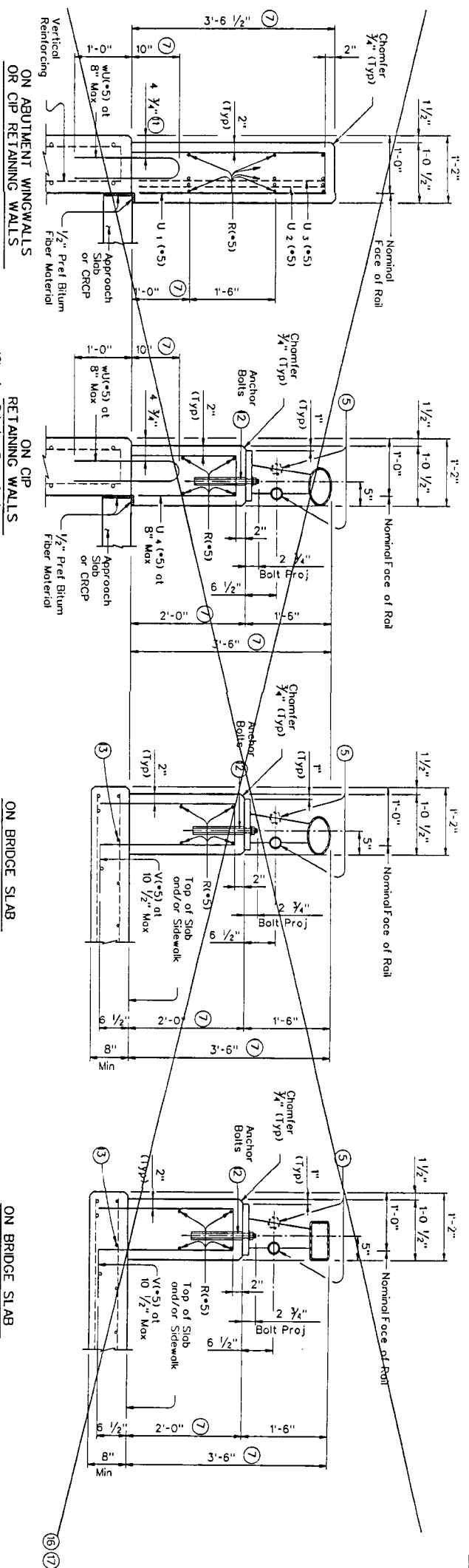
APPROVED: *[Signature]*
DATE: 10/9/14



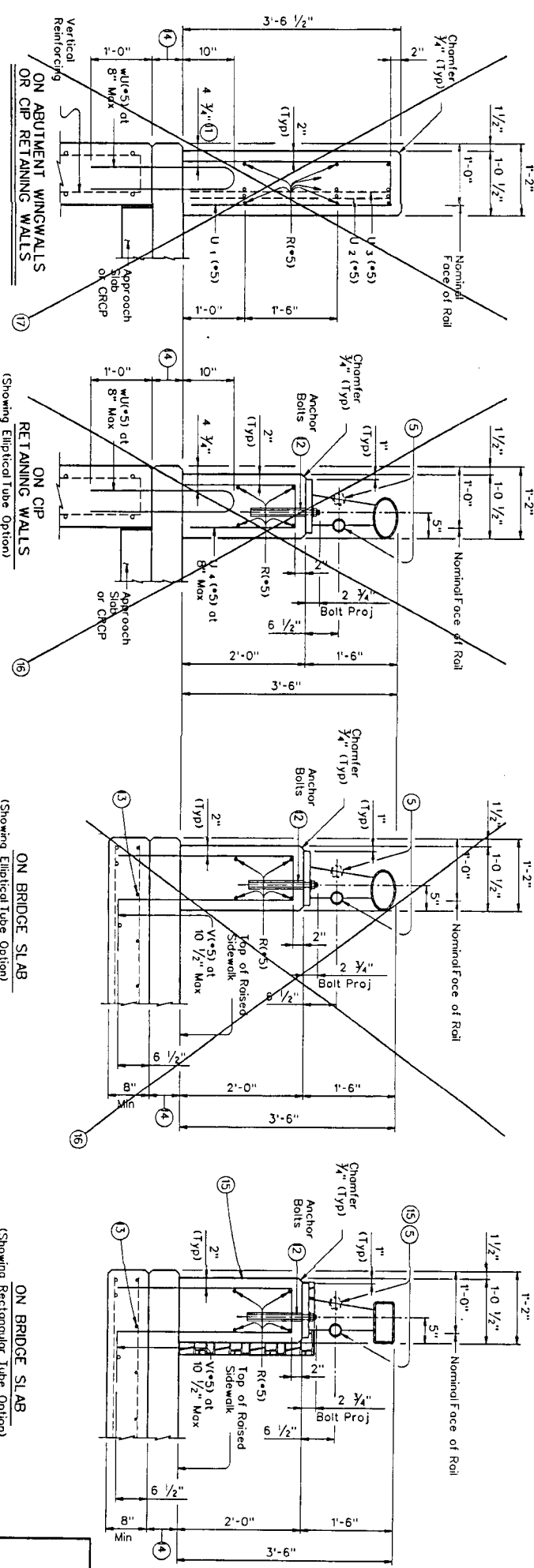
LEVELS DISPLAYED															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68
69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84

ACC:															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64

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



SECTIONS THRU RAIL WITHOUT RAISED SIDEWALK



SECTIONS THRU RAIL WITH RAISED SIDEWALK

- 2" Dia. Std. Pipe (2.375" O.D., 0.154" wall thickness) ASTM-A53 Gr. B or A500 Gr. B. Placed on sidewalk side of rail.
- Unless directed otherwise by the Engineer, the fabricator may use the rectangular tube in lieu of the elliptical tube for the railmember.
- Increase 2" for structures with overlay.
- 5 1/2" when vertical reinforcing has closer clear cover over horizontal reinforcing in abutment wingwalls or retaining walls on traffic side of wall.
- See "Material Notes" for anchor bolt information.
- Top longitudinal side bar may be adjusted laterally 3" plus or minus to the reinforcing.
- Raised sidewalk.
- Concrete surface of rail shall receive finish consisting of sand-colored concrete paint. All exposed steel shall be painted with dark brown polyurethane paint.



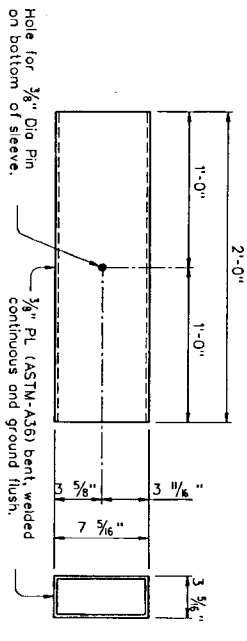
Texas Department of Transportation Bridge Division	
COMBINATION RAIL	
TYPE C402	
FILE: H514020.dgn	DATE: 10/07/2009
DESIGNED: JTB	CHECKED: JTB
BY: JTB	DATE: 10/07/2009
PROJECT: 05-15-1000-1000-1000-1000	SHEET: 39 OF 45

APPROVAL: [Signature] DATE: 10/19/14 ON BEHALF OF WILLIAM POINT M.U.D. FORT BEND COUNTY, TEXAS	APPROVED: [Signature] DATE: 10/19/14 ON BEHALF OF WILLIAM POINT M.U.D. FORT BEND COUNTY, TEXAS
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING DATE: MAR 2014 JOB NO.: 52762 SCALE: 1" = 1'-0"	
KINGSLAND BOULEVARD AT WILLOW FORK COMBINATION RAIL TYPE C402 (2 OF 4)	
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES	

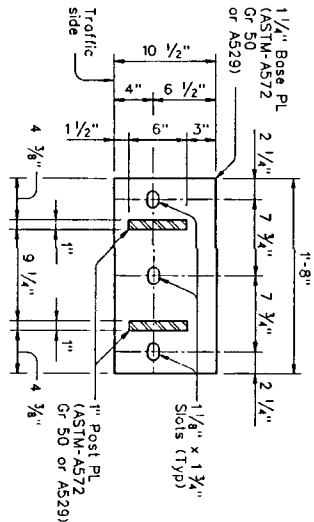
LEVELS DISPLAYED															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	

ACC:

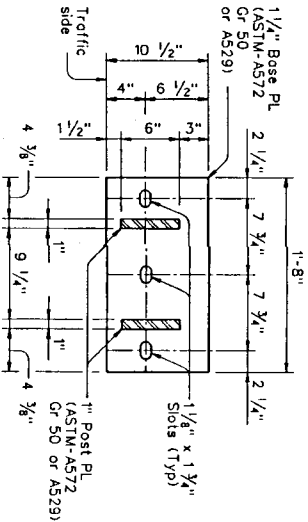
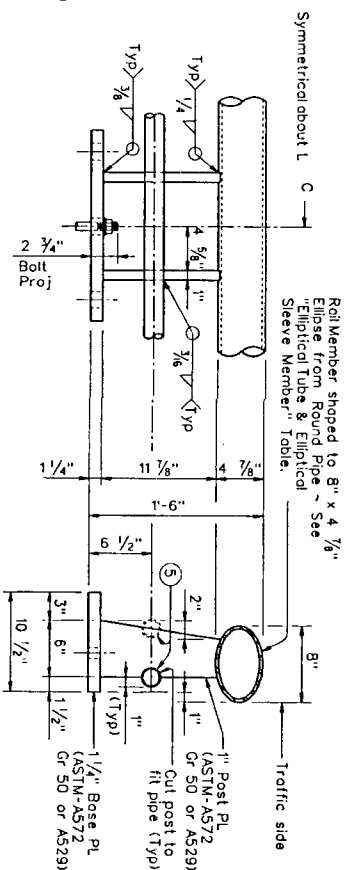
DISCLAIMER:
The use of this standard is governed by the "Texas Engineering Practice Act". No warranty of any kind is made by TxDOT for any purpose whatsoever. TxDOT assumes no responsibility for the conversion of this standard to other formats or for incorrect results or damages resulting from its use.



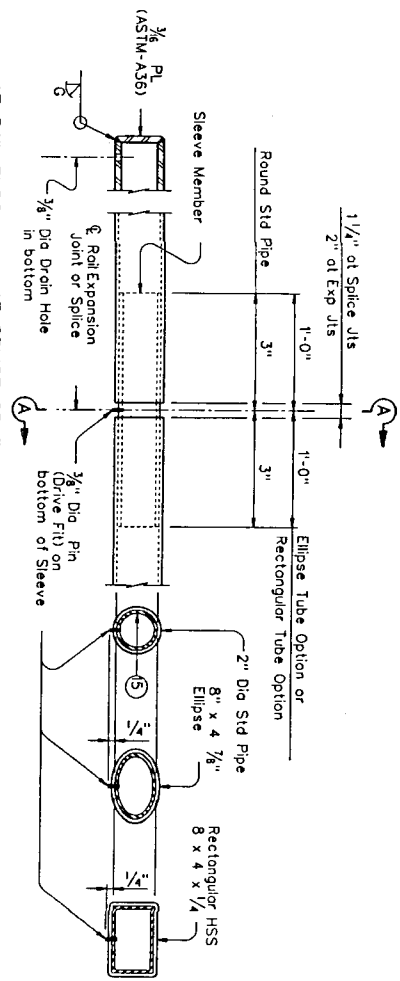
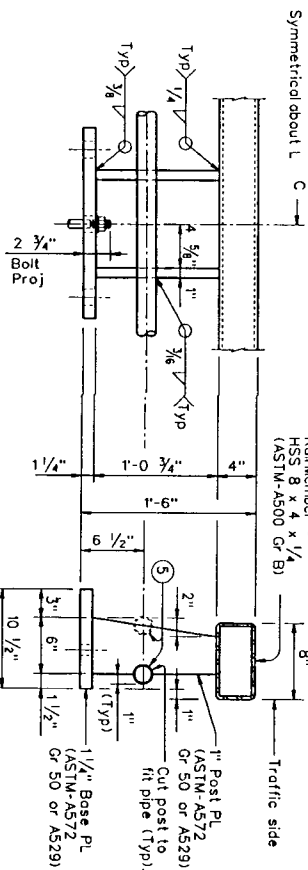
RECTANGULAR TUBE SLEEVE MEMBER DETAIL
(See Tube Fabrication Detail)



ELLIPTICAL TUBE WITH RAIL POST & ANCHORAGE DETAILS
(Showing Elliptical Tube Option)



RECTANGULAR TUBE WITH RAIL POST & ANCHORAGE DETAILS
(Showing Rectangular Tube Option)



TUBE FABRICATION DETAILS

ELLIPTICAL TUBE & ELLIPTICAL SLEEVE MEMBER			
8" x 4 3/8" Ellipse		Elliptical Sleeve Member	
Material	Thickness	Material	Thickness
6" Dia Sid Pipe ASTM-A53 Gr B or A500 Gr B	0.353"	ASTM-A53 Gr B	0.353"
ASTM-A53 Gr B	0.339"	A500 Gr B	0.339"
AP-5LX52	0.224"	AP-5LX52	0.224"
6 3/4" O.D. Pipe x 0.188"	0.339"	ASTM-A53 Gr B	0.339"
AP-5LX52	0.325"	A500 Gr B	0.325"
AP-5LX52	0.188"	AP-5LX52	0.188"

Notes: Other sections of equal or greater strength are acceptable for elliptical sleeves. The major and minor diameters of the rail member may vary +/- 0.1875" from plan dimension. However, the difference between the outside diameters of the elliptical sleeve and the inside diameters of the rail member must not exceed 0.25 inches.

- 2" Dia Sid Pipe (2.375" O.D., 0.154" wall thickness) ASTM-A53 Gr B or A500 Gr B. Placed on sidewalk side of rail.
- Unless directed otherwise by the Engineer, the fabricator may use the rectangular tube in lieu of the elliptical tube for the rail member.
- Sleeve Member 1 1/2" Dia Sid Pipe (1.90" O.D., 0.145" wall thickness) ASTM-A53 Gr B or A500 Gr B.

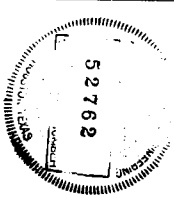
SHEET 3 OF 4

Texas Department of Transportation
Bridge Division

TYPE C402

REVISIONS			
NO.	DATE	DESCRIPTION	BY
1	10/9/14	Initial Design	JTB
2	10/9/14	Final Design	JTB

SHEET No. 40 of 45



JOB NO. 2013170

C.O.H. LOG No. 14-0051

CON. EX. REV. JAN 2009

RAIL DATA FOR HORIZONTAL CURVES			
RADIUS TO FACE OF RAIL	MAX CHORD LENGTH	CONSTRUCT OR FABRICATE	
Over 2800'	29'-0"	Straight rail sections	(B)
Over 1400' thru 2800'	14'-6"	To required radius or to chords shown	(B)
Over 700' thru 1400'	7'-3"	To required radius	(B)
Thru 700'	Zero	To required radius	(B)

CONSTRUCTION NOTES:

This rail may be slip-formed if approved by the Engineer when epoxy adhesive anchor bolts are used.
 Cop all open ends of tubular steel sections.
 At the contractor's option anchor bolts may be cast with the parapet (See Cast-In-Place Anchor Bolt Options).
 Slip-forming parapet is not allowed if anchor bolts are cast with parapet.
 Railposts must be plumb unless otherwise approved by the Engineer. Steelposts must be secured to the top parapet. Use epoxy mortar under post base plates if gaps larger than 1/8" exist.
 Pipe rail sections must have at least two posts but not more than four.
 Round or chamfer all exposed edges of steel components 1/8" by grinding prior to galvanizing.

MATERIAL NOTES:

Galvanize all steel components except reinforcing steel.
 Anchor bolts must be 3/8" Dia ASTM A193 Grade B7 fully threaded rods with heavy hex nuts, one hardened washer and one 1/2" OD epoxy injection port. Epoxy injection port must be embedded depth is 8". Anchorage system must be able to achieve an ultimate tensile resistance of 34 kips per bolt. The Contractor must provide evidence to the Engineer that this can be achieved. Evidence of adequate tensile resistance must be based on the manufacturer's published values of ultimate tensile strength (anchor spacing and edge distance must be accounted for).
 Anchor installation, including hole size, drilling, and clean-out, must be in accordance with the manufacturer's instructions.
 Optional cast-in-place anchor bolts must be 3/8" Dia ASTM A325 or A449 bolts for A193 or B7 threaded rods with one lock welded heavy hex nut each, with one heavy hex nut and one hardened steel washer at each end. A553 steelwasher at each bolt. Nuts must conform to A553.
 Use Class "C" concrete. Use Class "C" (HPC) if required elsewhere. Chamfer all exposed corners.
 Reinforcing steel must be Grade 60.
 Epoxy coat all rail reinforcement if slab bars are epoxy coated.

GENERAL NOTES:

This rail has been evaluated and accepted to be of equal strength to railings with like geometry, which have been crash tested to meet NCHRP Report 350 TL-3 criteria. This rail can be used for design speeds of 50 mph and greater when a TL-3 rated guard/railence transition is used. When a TL-2 rated guard/railence transition is used, this rail can only be used for design speeds of 45 mph and greater.
 This railing cannot be used as a bridge with expansion joints providing more than 5" movement.
 Rail anchorage details shown on this standard may require modification for select structure types. See appropriate details elsewhere in plans for these modifications.
 Erection drawings showing panel lengths, railpost spacing, and anchor bolt setting must be submitted to the Engineer for approval.
 Average weight of railing with no overlay: 347 pif (total)
 313 pif (Conc)
 34 pif (Steel).

SHEET 4 OF 4

Texas Department of Transportation
 Bridge Division

COMBINATION RAIL

TYPE C402

FILE: 7/16/2014	DATE: 7/16/2014	BY: JTR	CHK: JMR
DESIGN: 7/16/2014	DATE: 7/16/2014	BY: JTR	CHK: JMR
DESIGN: 7/16/2014	DATE: 7/16/2014	BY: JTR	CHK: JMR
DESIGN: 7/16/2014	DATE: 7/16/2014	BY: JTR	CHK: JMR

NO DATE	REVISIONS	APP.

KB HOWES
 ON BEHALF OF
 WILLOW POINT M.U.D.
 FORT BEND COUNTY, TEXAS

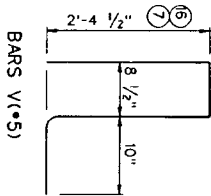
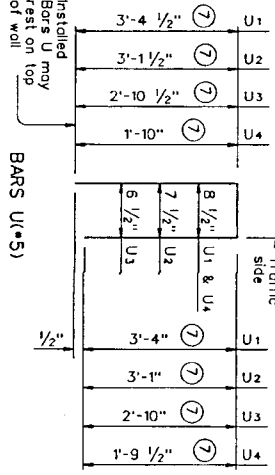
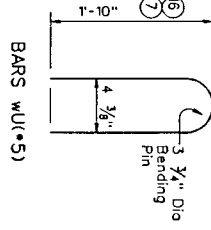
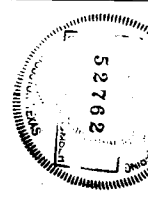
Coshiba, Inc.
 10000 Katy Road
 Houston, Texas 77059

KINGSLAND BOULEVARD
 AT WILLOW FORK
 COMBINATION RAIL
 TYPE C402
 (4 OF 4)

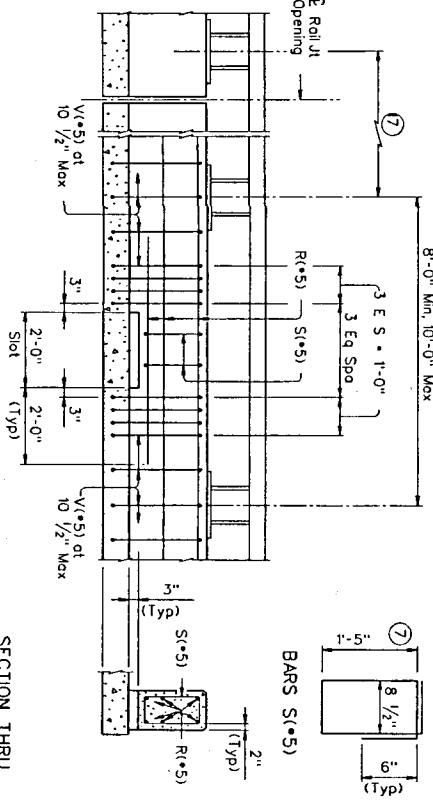
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY
 AFTER DATE OF SIGNATURES

CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
 7/16/2014
 7/16/2014
 7/16/2014
 7/16/2014

FOR CITY OF HOUSTON USE ONLY
 CITY ENGINEER
 DATE: JULY 2014
 DESIGNED BY: JTR
 SCALE: 1" = 10'-0"



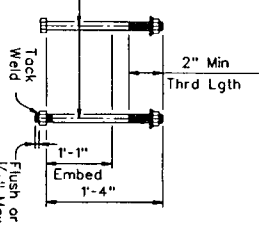
- ⑦ Increase 2" for structures with overlay.
- ⑦ See "Material Notes" for anchor bolt information.
- ⑦ For raised sidewalks, add sidewalk height to total bar height. Use sidewalk height at rail location.
- ⑦ Slots are not allowed in areas where there is a joint in the concrete parapet between railpost.
- ⑦ Shop drawings for approval required for tubular steel sections.



OPTIONAL SIDE SLOT DRAIN DETAILS

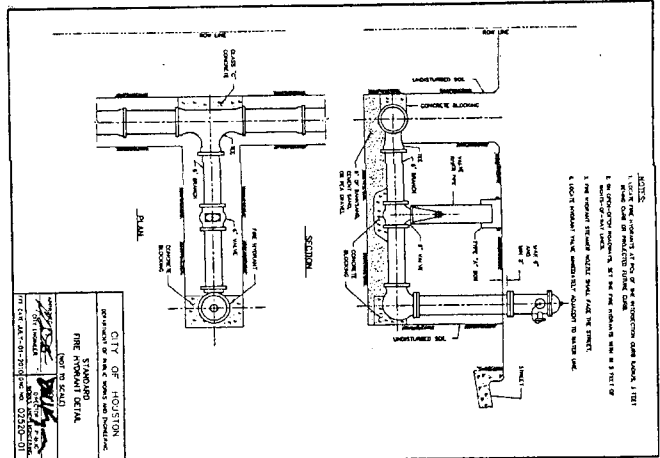
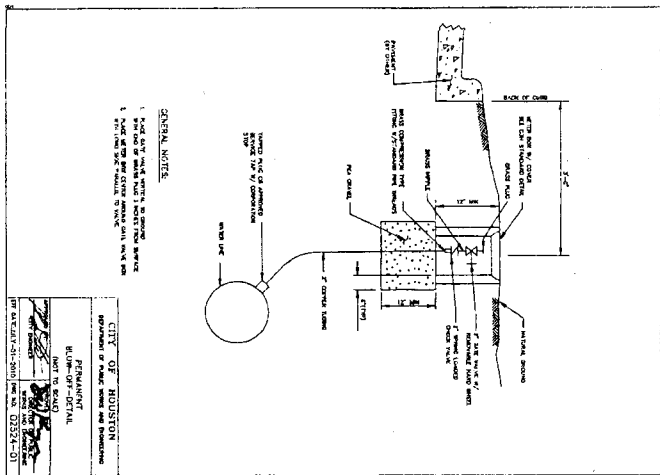
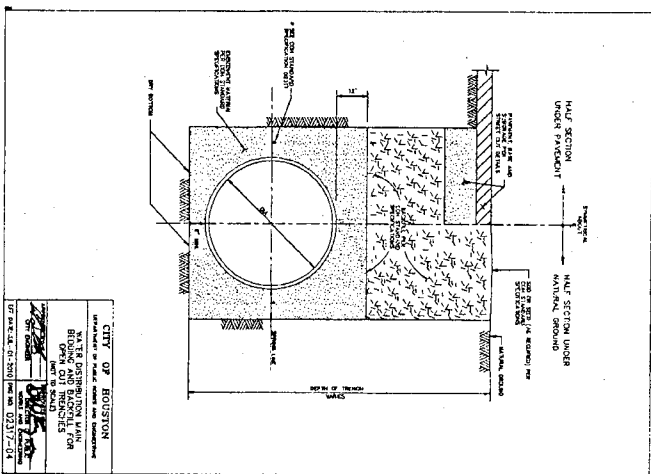
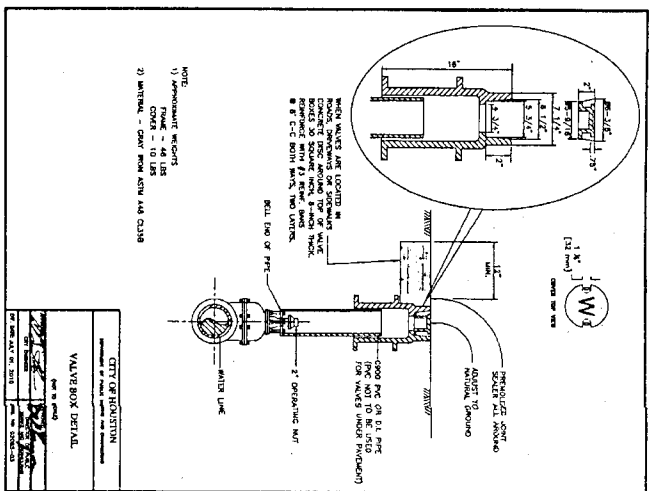
Note: Side Slot Drains must be centered between railposts within the limits shown. Side Slot Drains may be used where shown elsewhere on the plans or as directed by the Engineer. Drains should not be placed over railroad tracks, lower roadways, or sidewalks. When this rail is used as a separator between a roadway surface and a sidewalk surface, side drain slots will not be permitted.

CAST-IN-PLACE ANCHOR BOLT OPTIONS



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

LEVELS DISPLAYED	ACC:
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32	
33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48	
49 50 51 52 53 54 55 56 57 58 59 60 61 62 63	



100-YEAR FLOOD PLAIN

THIS TRACT LIES WITHIN ZONES "A", "X", & "Y" SHAPED OF THE FLOOD INSURANCE RATE MAP NUMBER 481572004, FOR FORT BEND COUNTY, TEXAS REVISED APRIL 2, 2014. ZONE "A" IS DEFINED AS SPECIAL FLOOD HAZARD AREAS IDENTIFIED BY THE 1% FLOOD. BASE FLOOD ELEVATIONS DETERMINED.

ZONE "X" IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ZONE "Y" SHAPED AREAS OF 0.2% ANNUAL CHANCE FLOOD. AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE, AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE FLOOD PLAIN OR STRUCTURES THEREON WILL BE FREE FROM FLOODING OR DAMAGE FROM FLOODING. FLOODING MAY BE INCREASED BY MAN-MADE OR NATURAL CAUSES. THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

BENCHMARK

NATIONAL GEODETIC SURVEY (NGS) MONUMENT N 1506, BEING 18.14 FEET WEST OF KATY FROM JUNCTION OF U.S. HIGHWAY 291 AND FORT BEND COUNTY ROAD 140, BEING 36.00 FEET WEST OF CENTRAL LINE OF REDBORN ROAD, BEING 10.00 FEET SOUTH-SOUTHWEST OF END OF A 12 INCH PIPE CULVERT, ALSO BEING 13 FEET SOUTH OF A FENCE CORNER AND POWER POLE, BEING 10.00 FEET NORTH-NORTHEAST OF A COTY DRAINAGE POINT IS THROUGH A 5 INCH LOGO CAP.

ELEVATION = 155.65 (NAD 83, ADJUSTMENT)

1.B.M. "A"

SET COTTON PICKER SPINDLE IN POWER POLE, WEST OF PROPOSED ROADWAY AT INTERSTATE HIGHWAY TO R.O.W.

ELEVATION = 149.89 (NAD 83, ADJUSTMENT)

1.B.M. "B"

SET 1/2" IR V-CLIP MARKED "VALVE" SURVEYING CONTROL POINT (#928) IN NORTHERN HIGH BANK OF WILLOW FORK OF BUFFALO BAYOU +/- 35 FEET EAST OF SUBJECT TRACT WEST PROPERTY LINE.

ELEVATION = 143.89 (NAD 83, ADJUSTMENT)

APPROVED: [Signature]
DEVELOPMENT COORDINATOR

DATE: 09/14



WILLOW POINT MUD
FORT BEND COUNTY, TEXAS

J. JONES & CARTER, INC.
ENGINEERS-PLANNERS-SURVEYORS
6335 GULF DR., Suite 100 Houston, Texas 77051 (713) 777-5337

KINGSLAND BOULEVARD BRIDGE

MISCELLANEOUS DETAILS

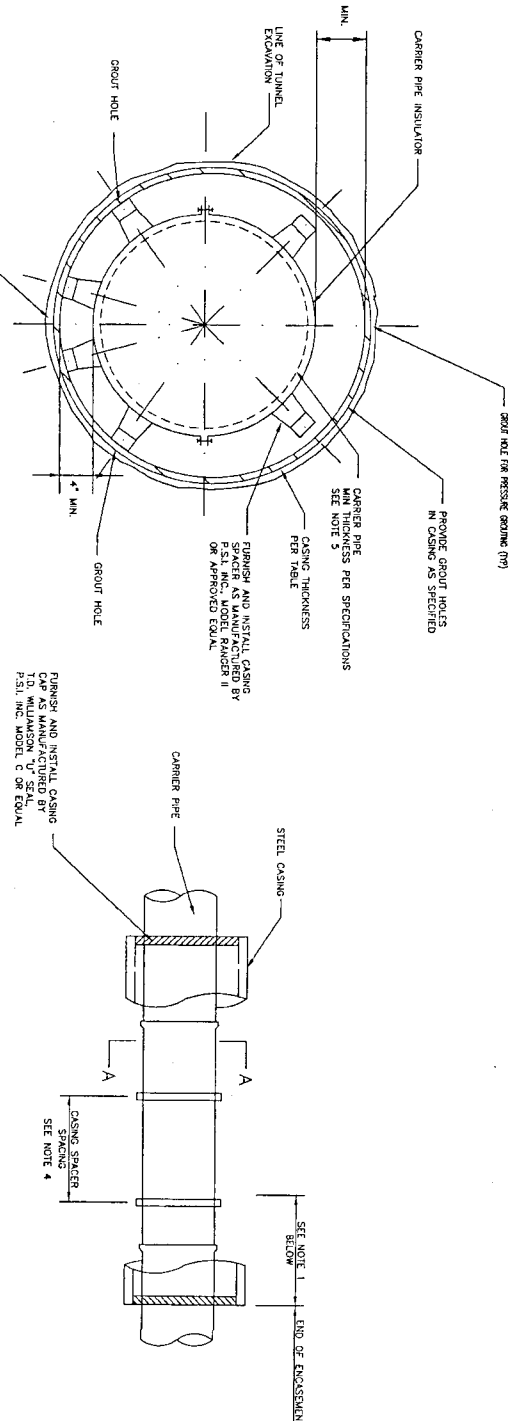
NOTE: CITY SIGNS ARE VALID FOR ONE YEAR ONLY.
LISTED DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 09/14/14
FOR CITY OF HOUSTON USE ONLY
CITY ENGINEER NO.

Carrier Pipe Material Designation and Approx.	Diameter (in)	DR	Casing Material Designation	Diameter (in)	DR
C-900 PVC Interlocking	16	38	C-900 PVC	36	13.5
C-900 PVC Culinary Saver	20	18	C-900 PVC	42	13.5
C-900 PVC Culinary Saver	10	18	Steel	24	13.5

TUNNEL ELEVATION



NOTES:

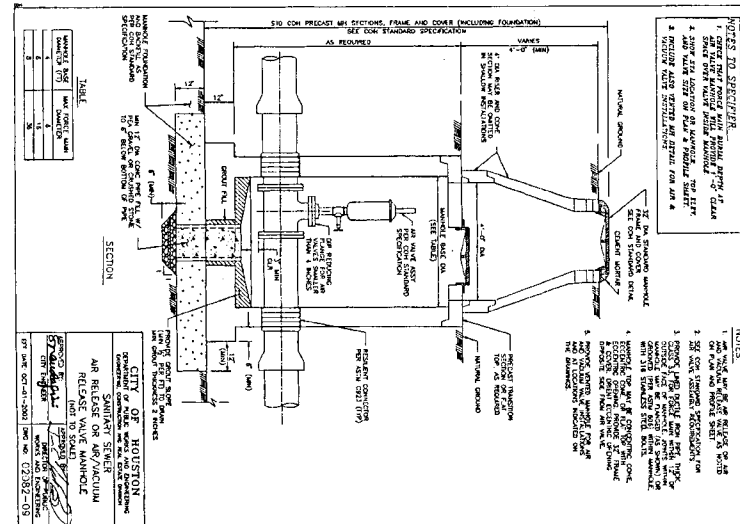
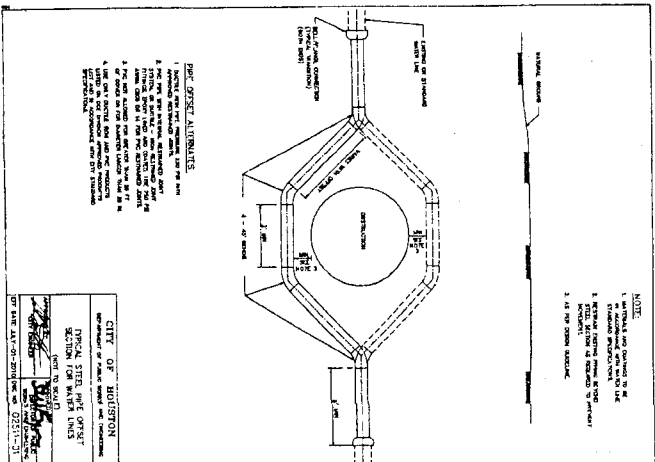
1. LENGTH OF ENCLOSURE SHALL BE AS SHOWN IN THE PLAN & PROFILE VIEWS.

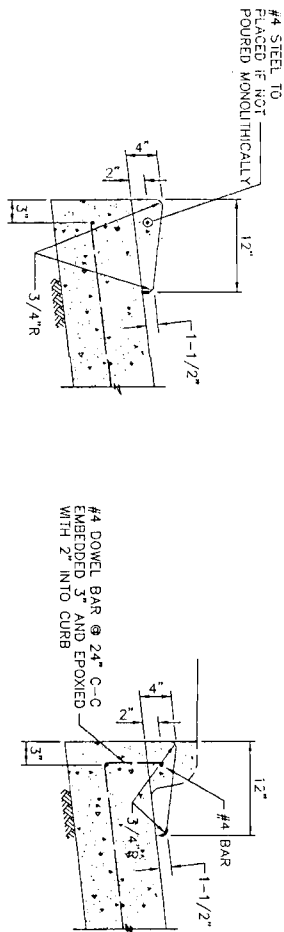
2. LIVE CASK PIPE IN OPEN CUT TUNNEL OR BORE AS NOTED IN PLAN & PROFILE VIEWS.

3. CASKER PIPE TO BE REINFORCED CONCRETE PIPE (24" TO 36" DIAMETER) AND SHALL BE AS SHOWN IN PLAN AND PROFILE VIEWS.

CASING DETAIL

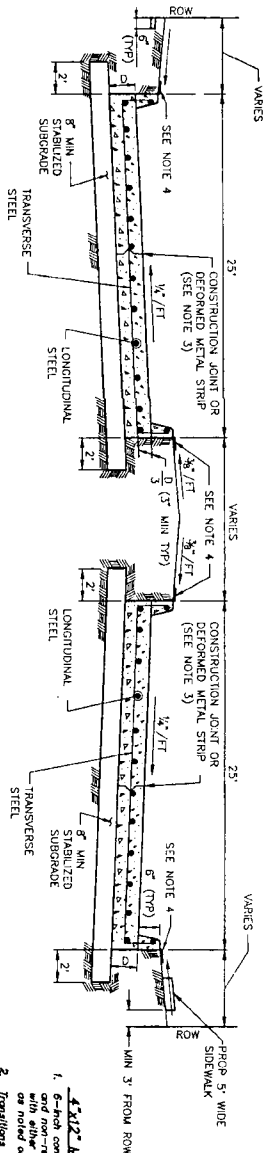
NOT TO SCALE
(FROM WHICH THE TUNNEL ELEVATION WAS DERIVED)
MINIMUM 1/2" DIAMETER



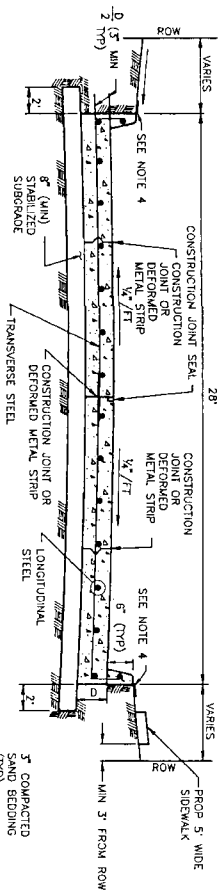


TYPICAL DETAIL
4"x12" CURB
NTS

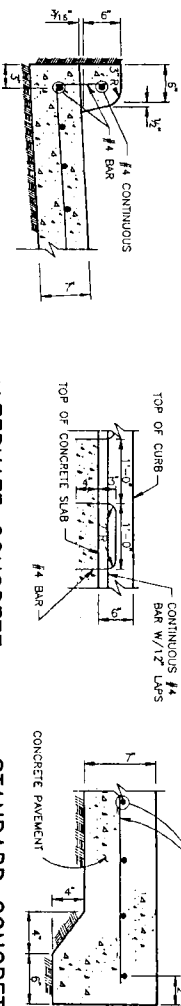
TYPICAL DETAIL
4"x12" TRANSITION CURB
NTS



TYPICAL DOUBLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS
NTS



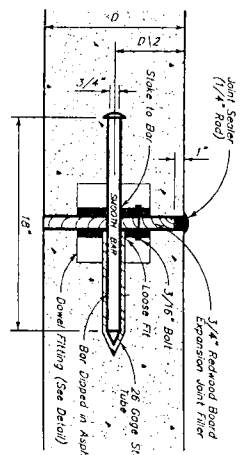
TYPICAL SINGLE ROADWAY SECTION FOR CONCRETE PAVEMENT WITH CURBS
NTS



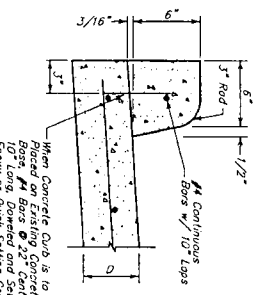
CONCRETE CURB
NTS

ALTERNATE CONCRETE CURB REINFORCEMENT
NTS

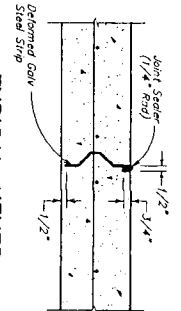
STANDARD CONCRETE PAVING HEADER
NTS



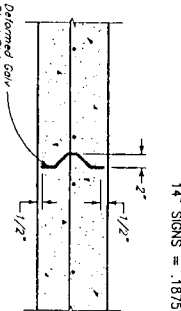
DOWELED-ON CONCRETE CURB INTO CONCRETE PAVEMENT
NTS



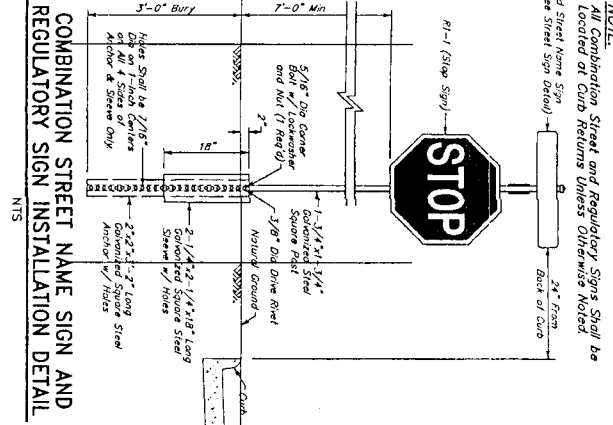
KEYLOAD EXPANSION JOINT
NTS



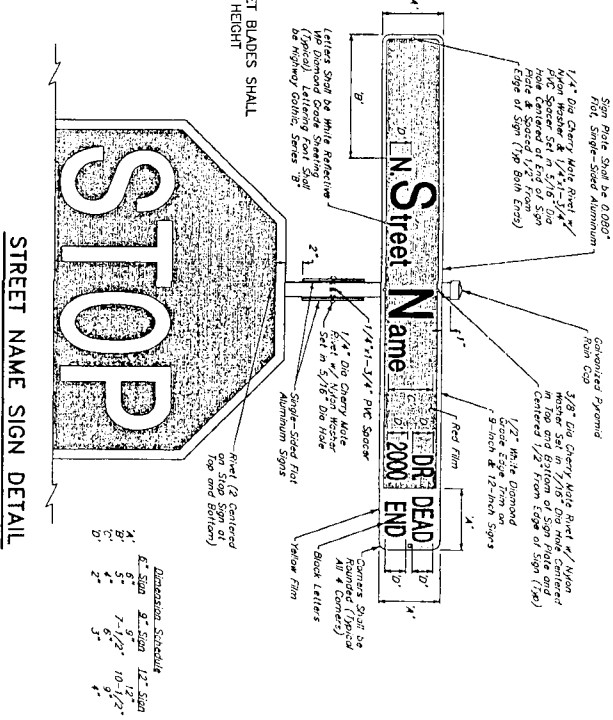
TYPICAL KEYED CONSTRUCTION JOINT
NTS



DEFORMED METAL STRIP
NTS



COMBINATION STREET NAME SIGN AND REGULATORY SIGN INSTALLATION DETAIL
NTS



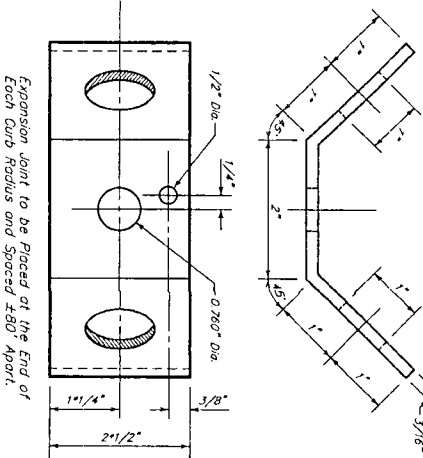
STREET NAME SIGN DETAIL
NTS

PAVEMENT THICKNESS (IN)	NUMBER OF BARS	EXPANSION JOINT SPACING (IN)	EXPANSION JOINT SPACING (FT)
4	2	12	1
5	3	18	1.5
6	4	24	2
7	5	30	2.5
8	6	36	3
9	7	42	3.5
10	8	48	4
11	9	54	4.5
12	10	60	5
13	11	66	5.5
14	12	72	6
15	13	78	6.5
16	14	84	7
17	15	90	7.5
18	16	96	8
19	17	102	8.5
20	18	108	9
21	19	114	9.5
22	20	120	10
23	21	126	10.5
24	22	132	11
25	23	138	11.5
26	24	144	12
27	25	150	12.5
28	26	156	13
29	27	162	13.5
30	28	168	14
31	29	174	14.5
32	30	180	15

NOTES:

1. THE MAXIMUM WIDTH BETWEEN LONGITUDINAL JOINTS SHALL NOT EXCEED 15'-0"
2. ALL EARTHEN AREAS ARE TO BE HYDROMULCHED UNLESS SHOWN OTHERWISE ON DRAWINGS.
3. CONTRACTOR MAY SAW CUT IN LIEU OF DEFORMED METAL STRIP.
4. USE 16" STRIP OF SOD GRASS TO PREVENT EROSION UNTIL STAND OF GRASS IS ESTABLISHED.
5. MINIMUM LAP LENGTHS (L):
A. # 4 BARS, L = 22 INCHES
B. # 5 BARS, L = 27 INCHES
C. # 6 BARS, L = 32 INCHES

DOWEL FITTING DETAIL
NTS



NOTES:

1. SECURELY ATTACH STREET NAME SIGN TO TRAFFIC SIGNAL SUPPORT WIRES WITH MULTI-LEVELLING, WIND DUMPING BRACKETS.
2. SUPPORT WIRES SHOULD NOT BE PROHIBITED FROM INDEPENDENT MOVEMENT.
3. INSTALL ONE STREET NAME SIGN APPROXIMATE 2' FROM POLE ABOVE ON-COMING TRAFFIC ON EACH TRAFFIC SIGNAL SPAN.
4. THE FIRST LETTER OF EACH WORD SHALL BE UPPER CASE. SUBSEQUENT LETTERS SHALL BE LOWER CASE. ALL INDIVIDUAL LETTERS FOR EXAMPLE "P.M." SHALL BE UPPER CASE. STREET SUFFIXES & "NO OUTLET" SHALL BE UPPER CASE.
5. ALL SHEETING SHALL BE "DIAMOND GRADE" OR APPROVED EQUAL.
6. USE ANODIZED THICKNESS: 9" SIGNS = .080" 14" SIGNS = .1875"
7. MINIMUM SIGN THICKNESS: 14" SIGNS = .1875"



NOV 10/9/14

SHEET NO. 43 OF 43		FOR CITY OF HOUSTON USE ONLY	
DATE: AUGUST 21/14		CITY OF HOUSTON	
DRAWN BY: J.S.W.		CITY OF HOUSTON	
CHECKED BY: NR/REW		CITY OF HOUSTON	
SCALE: N.T.S.		CITY OF HOUSTON	
PROJECT: 52762		CITY OF HOUSTON	
SHEET NO. 43 OF 43		CITY OF HOUSTON	

JONES & CARTER, INC.
ENGINEERS-PLANNERS-SURVEYORS
Texas Board of Professional Engineers Registration No. 7-419
6335 Galloway Dr., Suite 100 Houston, Texas 77057 (713) 777-5537

**REINFORCED
FILTER FABRIC BARRIER**

SYMBOL
X (RFB) X

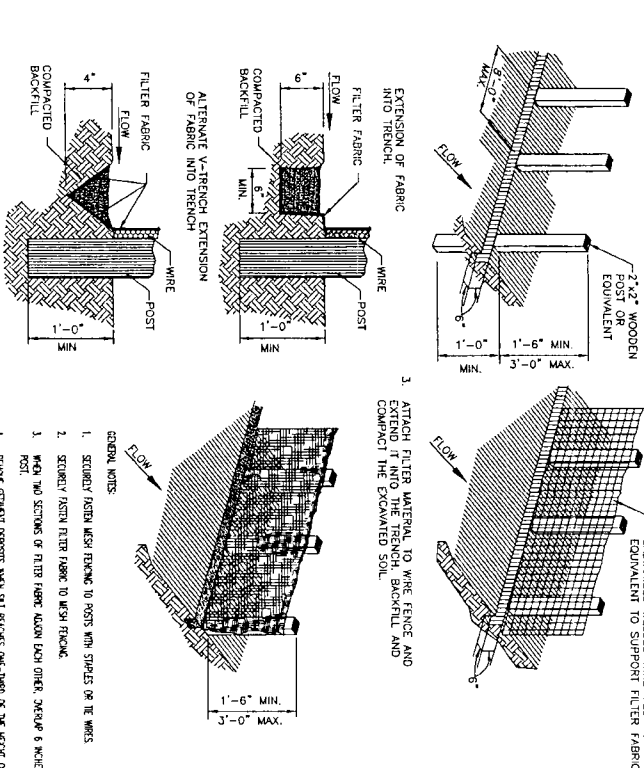
SYMBOL
X (RFB) X

SYMBOL
X (RFB) X

SYMBOL
X (RFB) X

SYMBOL
X (RFB) X

SYMBOL
X (RFB) X



**TRIANGULAR
FILTER FABRIC FENCE**

SYMBOL
X (TF) X

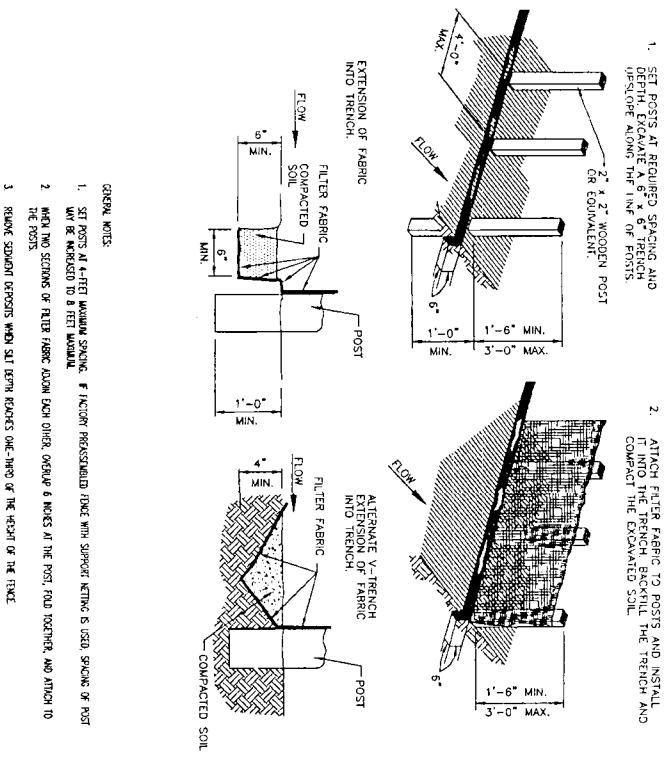
SYMBOL
X (TF) X

SYMBOL
X (TF) X

SYMBOL
X (TF) X

SYMBOL
X (TF) X

SYMBOL
X (TF) X



STRAW BALE FENCE

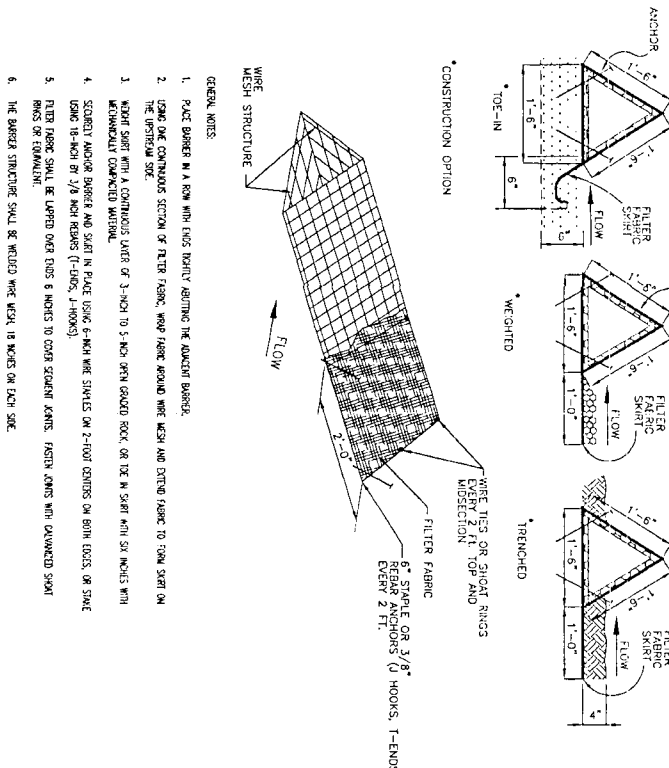
SYMBOL
X (SBF) X

SYMBOL
X (SBF) X

SYMBOL
X (SBF) X

SYMBOL
X (SBF) X

SYMBOL
X (SBF) X



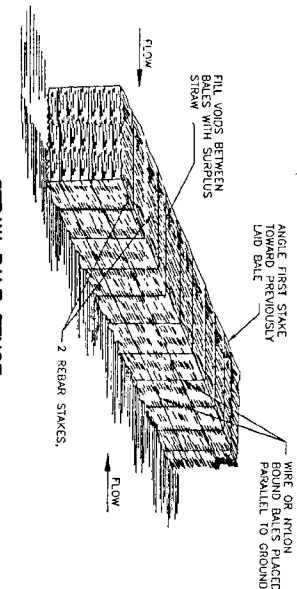
BRUSH BERM

SYMBOL
X (BB) X

SYMBOL
X (BB) X

SYMBOL
X (BB) X

SYMBOL
X (BB) X



**INLET PROTECTION BARRIERS
FOR STAGE I INLETS**

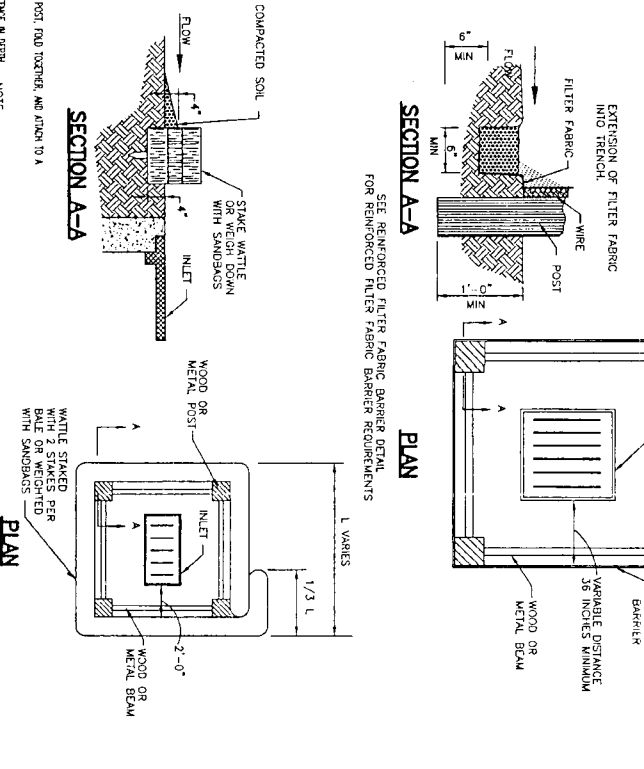
SYMBOL
X (IPB) X

SYMBOL
X (IPB) X

SYMBOL
X (IPB) X

SYMBOL
X (IPB) X

SYMBOL
X (IPB) X



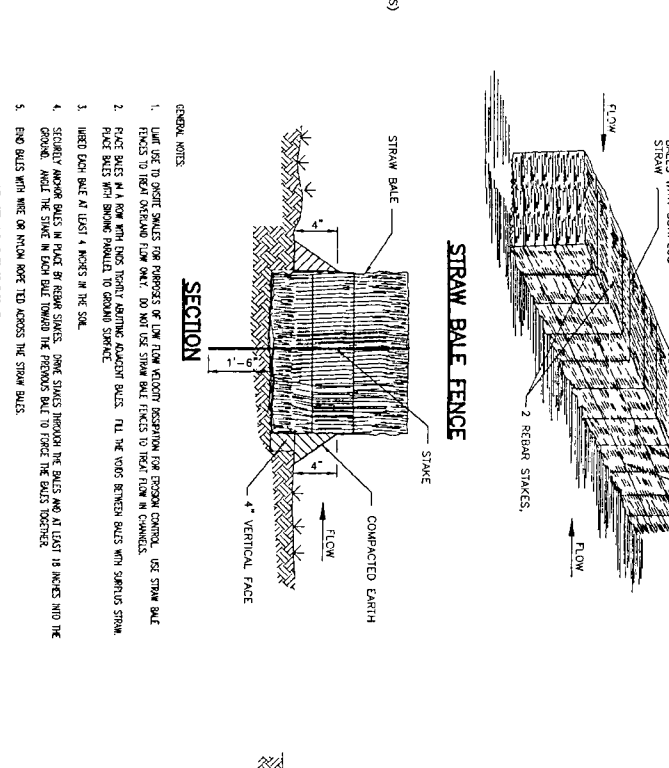
STABILIZED CONSTRUCTION ACCESS

SYMBOL
X (SC) X

SYMBOL
X (SC) X

SYMBOL
X (SC) X

SYMBOL
X (SC) X



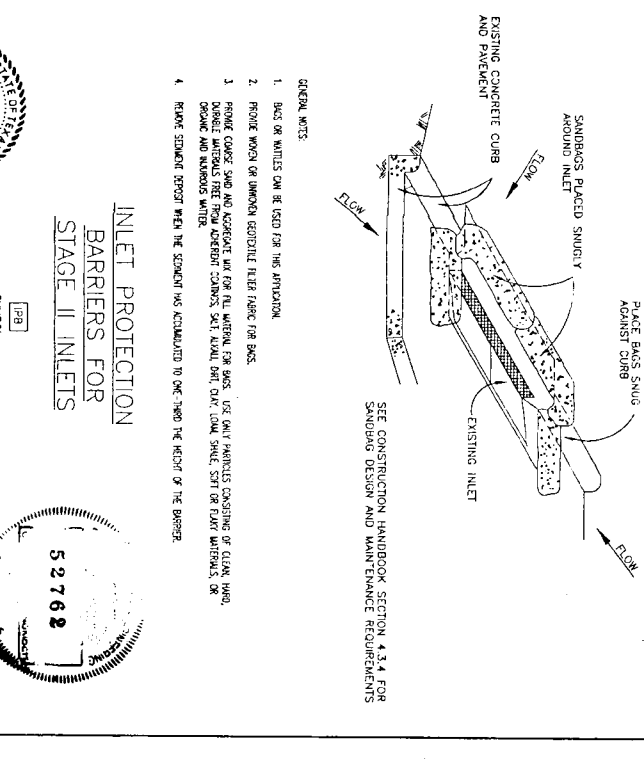
**INLET PROTECTION BARRIERS
FOR STAGE II INLETS**

SYMBOL
X (IPB) X

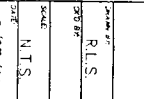
SYMBOL
X (IPB) X

SYMBOL
X (IPB) X

SYMBOL
X (IPB) X

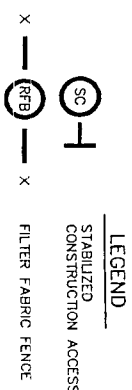


**FORT BEND COUNTY
ENGINEERING DEPARTMENT**



**KINGSLAND BOULEVARD BRIDGE
PAVEMENT MARKING
DETAILS**

5/27/01






LEGEND

1. PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROL MATS AT LOCATION SHOWN ON PLANS.
2. CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL SYSTEMS DURING PROGRESS AT A MINIMUM OF ONCE EVERY CALIBRATION DAY.
3. CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEMS THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY)
4. CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
5. CONTRACTOR SHALL LOCATE FUEL, MATERIALS STORAGE AREAS AWAY FROM STORM DRAINAGE, DRAINAGE, AND/OR OTHER SENSITIVE AREAS, INCLUDING ANY DUMPS, OR BURNS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY)
6. CONTRACTOR SHALL HAVE OWNER IMMEDIATELY VERBALLY AND IN WRITING, OF ANY FUEL, OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTION TAKEN TO REMEDY THE PROBLEM.
7. CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUEL, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY)
8. CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL LAWS.
9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY FACILITIES.
10. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE WITH CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEMS BEFORE RELYING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.
11. IF EROSION AND SEDIMENTATION CONTROL SYSTEM IS EXISTING FROM PRIOR CONTRACTORS, OWNER AND/OR OWNER'S REPRESENTATIVES WITH THE CONTRACTOR SHALL EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEM FOR DAMAGE NOTED AT THE TIME IT SHALL BE REPAIRED AT OWNER'S EXPENSE.
12. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, THROUGHOUT THE DURATION OF THE CONTRACT.
13. IF PAVING CONTRACTOR FINISHES OR FINISHES UNDER GRATE TO ESTABLISH DRAINAGE, INLET MUST BE BE SURROUNDED BY FILTER FABRIC FENCE AS SHOWN IN DETAIL ON THIS SHEET.

MANHOLE/INLET PROTECTION NOTES

1. INLETS AND MANHOLES ARE TO BE PROTECTED AND/OR ARE SUBJECT TO COMING STORM WATER PULSES THAT ARE TO BE CONTROLLED TO PREVENT SEQUESTER FROM ENTERING THE PROPOSED OR EXISTING SLOPE SINKER SYSTEM.
2. PROTECTION SHALL CONSIST OF ONE LAYER OF 3/4-INCH OAK THUSERS, ONE (1) INCH FABRIC (ECONOMY CT 100, PHILIPS SPAC AW500) OR APPROVED EQUIVALENT, HELD IN PLACE WITH 1/2" STAPLES. THUSERS SHALL BE HELD IN PLACE WITH TWO (2) 2x4's NAILING OUTWARD TO EACH OTHER OVER THE FILTER FABRIC. THE FILTER FABRIC SHALL EXTEND BEYOND THE MANHOLE OR INLET AND THE OAK THUSERS AS TO ENSURE ONE (1) FOOT OF BURY BETWEEN THE MANHOLE OR INLET AND THE SURROUNDING SOIL, AS SHOWN.
3. FILTER FABRIC TO BE CLEANED OR REPLACED WHEN IT CEASES TO FUNCTION PROPERLY OR AS DIRECTED BY THE ENGINEER.
4. CONVEYING ANY SIGNIFICANT FLOW BY ALTERNATE METHODS OF PROTECTION. THESE ALTERNATE METHODS MUST BE APPROVED PRIOR TO USE IN THE FIELD.
5. NO SEPARATE PAYMENT SHALL BE MADE FOR INLET AND MANHOLE PROTECTION. INCLUDE THE COST IN THE UNIT PRICE FOR THE INLETS AND MANHOLES.

INSTALLATION SEQUENCE

- UTILITY CONTRACTOR:**
1. install  at start of construction.
 2. install  x along back of curb and across roadside ditches
- PAVING CONTRACTOR:**
1. Monitor matting facilities.
 2. Productant Seeding of disturbed areas after final grading
- UTILITY CONTRACTOR:**
1. install  x behind all back of curb upon completion of paving.
 2. Area within ROW and Adjacent Easements Disturbed during Construction of Utilities completed upon completion of Utilities.
- Utility and Paving Contractor to follow all protection requirements and complete all forms as listed in bound SWMPF.**

100-YEAR FLOOD PLAIN

THIS TRACT LIES WITHIN ZONE "E," AS A "X" SHADING OF THE FLOOD INSURANCE RATE MAP NUMBER 414570004A FOR FORT BEND COUNTY, TEXAS DATED APRIL 2, 2014.

ZONE "E" IS DEFINED AS SPECIAL FLOOD HAZARD AREAS DETERMINED BY THE 1% FLOOD, BASE FLOOD ELEVATIONS.

ZONE "X" IS DEFINED AS AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN.

ZONE "X" SHADING IS DEFINED AS AREAS OF 0.2% ANNUAL CHANCE FLOOD, AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY DEEPS FROM 1% ANNUAL CHANCE FLOOD.

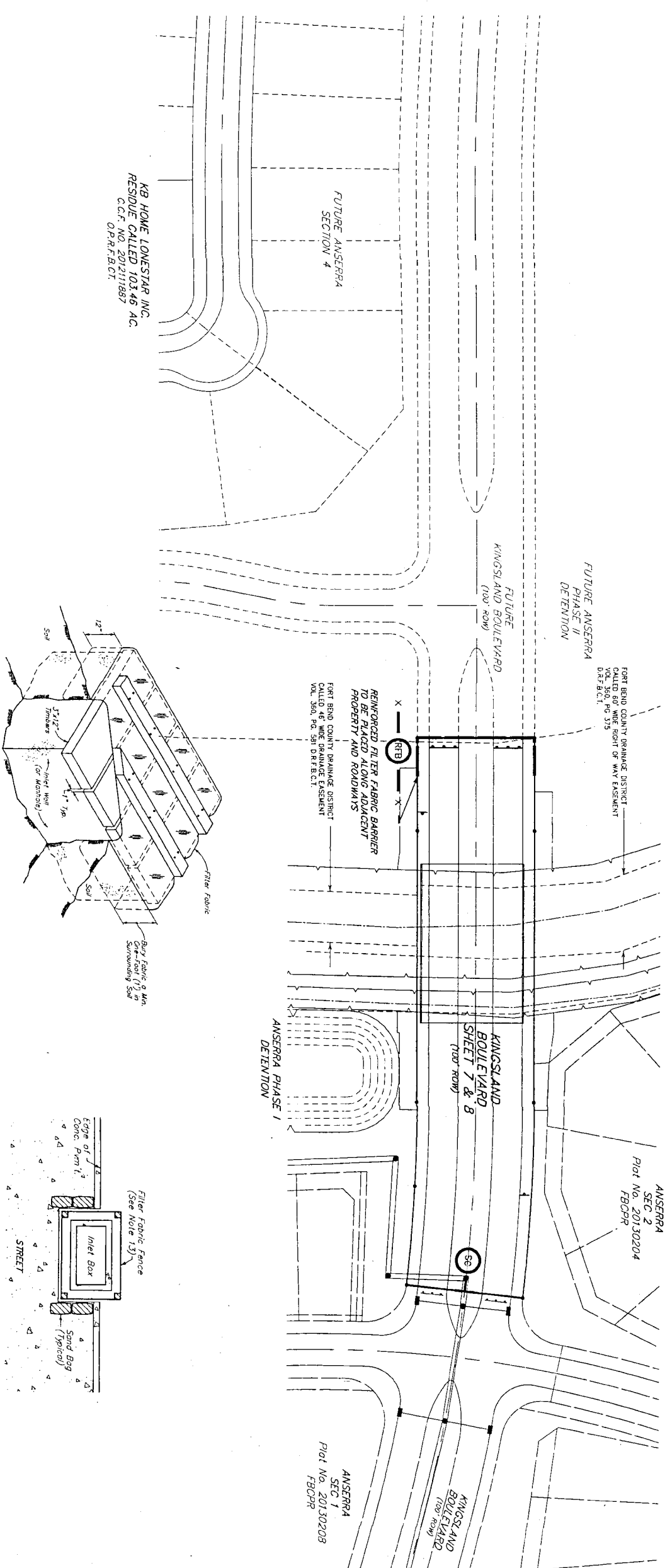
THIS FLOOD STATEMENT DOES NOT IMPLY THAT THE PROPERTY OR STRUCTURES THEREON WILL BE FREE FROM COLLAPING OR FLOOD DAMAGE, OR FROM OCCASIONS OF FLOODING OR FLOOD DAMAGE, OR FROM OCCASIONS OF FLOODING INCREASED BY AVALANCHES, OR NATURAL CAUSES, OR THIS FLOOD STATEMENT SHALL NOT CREATE LIABILITY ON THE PART OF THE SURVEYOR.

BENCH MARK

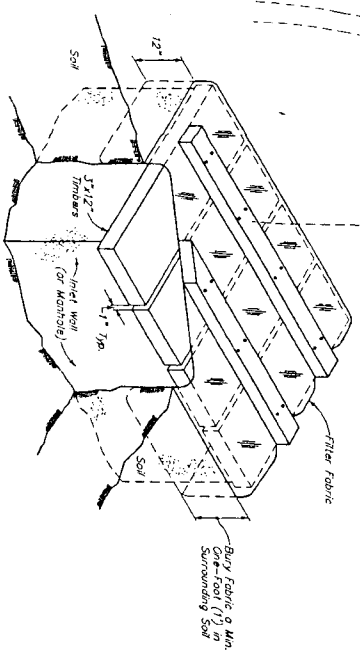
1. MTDAL, GEORGETOWN SURVEY (NCS), COMMUNITY N 1456, BEING
 3.8 HILLS, WEST OF KATY FROM JUNCTION OF U.S. HIGHWAY
 90 & PIN OAK ROAD, MOUNTAIN BEING 36 FOOT WEST OF
 CENTURIE OF PEBBLESON ROAD, ALSO BEING 28 FOOT
 ALSO BEING 11 FOOT SOUTH OF A FENCE CORNER AND POWER
 POLE, ALSO BEING 2 FOOT NORTH-NORTH-EAST OF A CUY
 ADJACENT, ALSO BEING 2 FOOT EAST OF A FENCE.
 DAVEN ROAD IS THROUGH A 2 INCH LOOD CANY.
 ELEVATION = 155.95' (NAND 88, ADJUSTMENT)

1.B.M. "A".
 SET COTTON PICKER SPINDLE IN POWER POLE, WEST OF
 PROPOSED ROADWAY AT INTERSTATE HIGHWAY 10 B.O.W.
 ELEVATION = 148.88' (NAND 88, ADJUSTMENT)

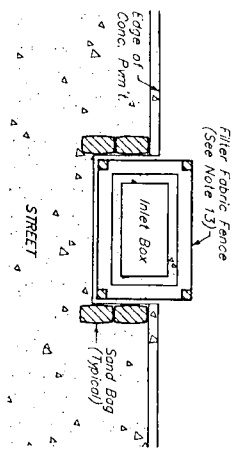
1.B.M. "B".
 SET 1/2" P "W" OF MARKED "VALCONLEY SURVEYING CONTROL
 POINT (91320) IN NORTHERN HILL BANK OF WILLOW FORK
 WEST PROPERTY LINE.
 ELEVATION = 143.95' (NAND 88, ADJUSTMENT)




TYPICAL INLET AND MANHOLE PROTECTION - LOWER STAGE



TYPICAL INLET PROTECTION
PER STAGE - AFTER REMOVAL
OF TIMBER COVER



APPROVED: 
DEVELOPMENT COORDINATOR

DATE: 10/9/14

[illegible]

STORM WATER POLLUTION PREVENTION PLAN

NOTE: CITY SIGNATURES VALID FOR ONE YEAR 0
AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WASTEWATER	STORM WATER QUALITY
04-12-84	04-12-84

STREET & BRIDGE	19
-----------------	----

FILE NO. _____
J08 NO. 0535-015-00
CITY DMC NO. _____

DCN. BY: LJT
DMC. BY: NR/REW

[illegible]

P:\PROJECTS\05535 Willow Point MUD\015-00-Kingsland Blvd Bridge Workd & Paving\Civil\Eng Design\Working Drawg\Phase II Land Plan Kingsland Boulevard Bridge_FINAL.dwg Aug 13, 2014 - 4:40pm LVL