

REVIEW BY FORT BEND COUNTY COMMISSIONERS COURT

10 BB

On this 28 day of SEPTEMBER, 2010, before the Fort Bend Commissioners Court came on to be heard and reviewed the accompanying notice of E. P. BRADY, LTD.

Job Location OLD RICHMOND

Dated 09/21/10 BOND NO 929513992 Permit No. 83827
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 Prestage, 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.

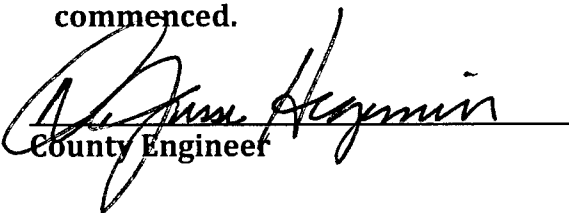
Notes:

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
P.O. Box 1449
Rosenberg, Texas 77471
281-633-7500

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

By


County Engineer

By

Drainage District Engineer/Manager

Presented to Commissioners Court
and approved.

Recorded in Volume 9-28-10
Minutes of Commissioners Court.

Clerk of Commissioners Court

By Sherry Fiam
Deputy

COUNTY OF FORT BEND

Engineering Department

P.O. BOX 1449
Rosenberg, Texas 77471-1449

Johnny Ortega
Permit Administrator

1124 Blume Road
Phone: (281) 341-7500

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

PERMIT NO. 003827

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.
- c. Plans and specifications.

- (2) Bond:
- District Attorney, approval when applicable.
- X Perpetual bond currently posted.
- No. 929513992
- Amount \$50,000.00
- Performance bond submitted.
- No.
- Amount
- 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)
- Drainage District Approval when applicable

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


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

09/21/2010
Date

9/20/10

To Whom It May Concern:

EP Brady Ltd will implement a moving traffic control plan with construction signage for the Kingsbridge MUD project located within Fort Bend County.

If you have any questions or concerns, please contact me at (832) 596-7920

Christopher New

Christopher New

EP Brady, Ltd.

Project Manager

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. 83827 PCT. No. 4
BOND No. 929513992

Formal notice is hereby given that E.P. Brady, Ltd.
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 :	Type of Construction : Bored: Jacked: Driven: Cased
Old Richmond Road:	350' West of Sugar Land-Howell Rd:	75'	: Auger: : :
Old Richmond Road:	50' East of Sugar Land-Howell Rd:	75'	: Auger: : :
Old Richmond Road:	200' West of Sugar Land-Howell Rd:	150'	: Auger: : :
Old Richmond Road:	South of Intersection	90'	: Auger
Sugar Land-Howell	Along Roads and/or Drainage Ditches		

Road or Ditch Name	: Distance & Direction From : : Nearest Intersection :	To : :	Distance : :
Old Richmond Road:	South side, West of Sugar Land-Howell Rd.	East side of Sugar Land-Howell	600'
	:	:	:
	:	:	:

General Description

Installation of 12" and 16" Water Line for North Fort Bend Water
Authority (Kingsbridge M.U.D.)

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
P.O. Box 1449, Rosenberg, TX 77471.

Violation of requirements shall constitute grounds for job shut down.

Does project
comply with Fort
Bend County
Outdoor Lighting
Ordinance?

Yes (X)

No ()

COMPANY NAME: E.P. Brady, Ltd.
AGENT and/or OWNER
Christopher New
(Signature)

NAME & TITLE Christopher New - Project Manager
(Please Print)

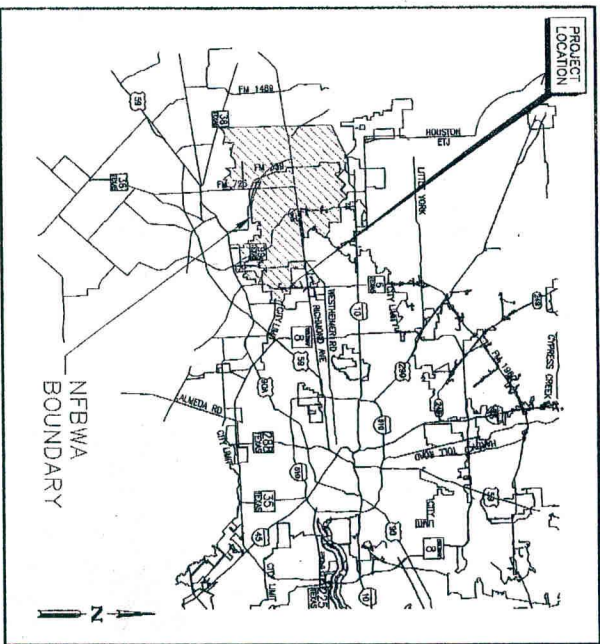
DATE 9/20/10

ADDRESS 3414 Persimmon Street
(Street/P.O. Box)

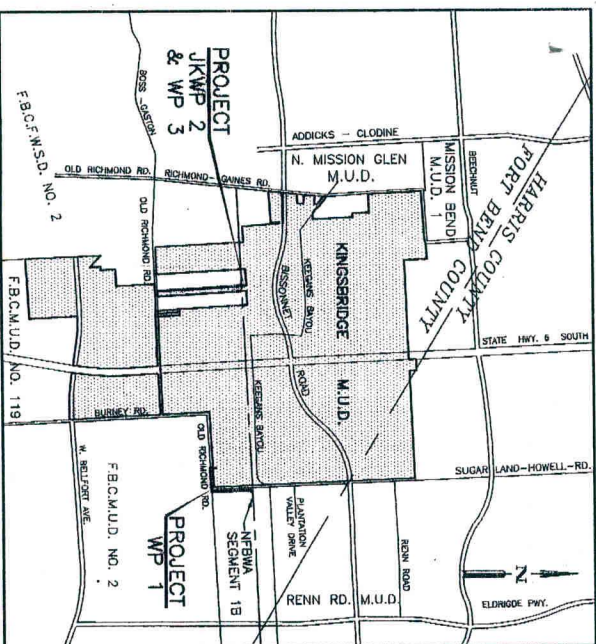
Houston Texas 77093
City State Zip

TELEPHONE NO: (832) 596-7920
(accessible 24 hrs/day, 7 days/week)

NORTH FORT BEND WATER AUTHORITY
KINGSBRIDGE M.U.D. WATER SERVICE LINES
PROPOSED 16" AND 12" WATER LINES ALONG SUGAR LAND-HOWELL ROAD
FROM SEGMENT 1B TO WATER PLANT NO. 1
PROPOSED 12" WATER LINES
FROM SEGMENT 1B TO JK WATER PLANT NO. 2
AND TO WATER PLANT NO. 3

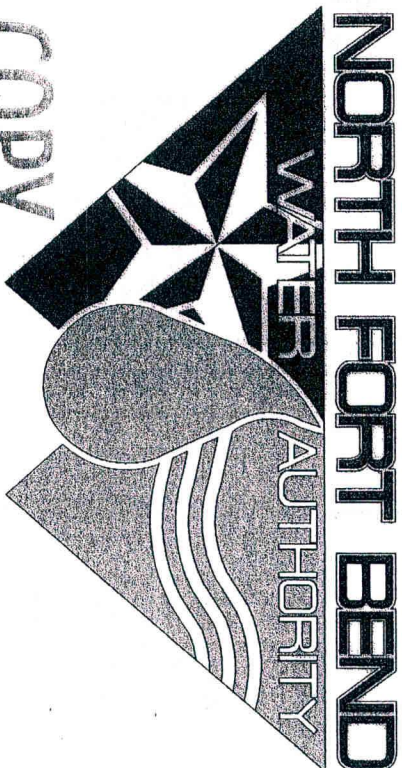


LOCATION MAP
SCALE: NTS



VICINITY MAP
SCALE: NTS
KEY MAP NO. 527, V. 528, S&T
GMS MAP NO. 4753, A,B&C
ZIP: 77498

ONE-CALL NOTIFICATION SYSTEM: CALL BEFORE YOU DIG!!!
(713) 223-4567 (IN HOUSTON)
NEW STATE WIRE NUMBER OUTSIDE HOUSTON
1-800-345-8005



WORKING COPY
ALL ADDENDA NOTED
DATE 9/02/10 BY _____

DIRECTORS

DAVID SPELL
ROBERT DARDEN
BRUCE FAY
MELONY F. GAY, P.E.
ROBERT L. PATTON
PETER HOUGHTON
PAT HEBERT

PRECINCT

1
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3
4
5
6
7

SHEET INDEX

SHEET NO.	DESCRIPTION
1	COVER SHEET
2	CONSTRUCTION NOTES
3	WATER LAYOUT, BORE LOCATION PLAN AND SURVEY CONTROL
4	OLD RICHMOND ROAD - STA. 2+00 TO STA. 4+00 AND SECTION AT STA. 3+42
5	OLD RICHMOND ROAD - STA. 4+00 TO STA. 8+00
6	SUGAR LAND-HOWELL ROAD - STA. 1+00 TO STA. 4+80
7	SUGAR LAND-HOWELL ROAD - STA. 4+80 TO STA. 8+80
8	SUGAR LAND-HOWELL ROAD - STA. 8+80 TO STA. 11+00
9	WATER PLANT NO. 3 - STA. 14+00 TO STA. 16+40 JK WATER PLANT NO. 2 - STA. 16+40 TO STA. 17+35
10	NFBWA STANDARD WATER LINE DETAILS
11	METERING STATION LAYOUT - WP1, JKWP2 & WP3
12	CONTROL VALVE STATION LAYOUT
13	METERING STATION AND CONTROL VALVE STRUCTURAL AND MECHANICAL DETAILS
14	STORM WATER POLLUTION PREVENTION PLAN
15	STORM WATER POLLUTION PREVENTION PLAN - DETAILS
16	METER/CONTROL VALVE STATION - INSTALLATION & ROUTING
17	ELECTRICAL CONDUIT SCHEDULE
18	CONTROL DIAGRAM - SHEET 1
19	CONTROL DIAGRAM - SHEET 2
20	CONTROL DIAGRAM - SHEET 3
21	CONTROL DIAGRAM - SHEET 4
22	CONTROL DIAGRAM - SHEET 5
23	CONTROL DIAGRAM - SHEET 6
24	CONTROL DIAGRAM - SHEET 7
25	CONTROL DIAGRAM - SHEET 8
26	CONTROL DIAGRAM - SHEET 9
27	CONTROL DIAGRAM - SHEET 10
28	CONTROL DIAGRAM - SHEET 11
29	ELECTRICAL CONTROL PANEL LAYOUT & SPECIAL DEVICE SCHEDULE
30	ELECTRICAL CONTROL PANEL LAYOUT
31	ELECTRICAL DETAILS - SHEET 1
32	ELECTRICAL DETAILS - SHEET 2

*NO WL after MM
is prepared in this
project.

APPROVED
FORT BEND COUNTY
COUNTY ENGINEER
D. JESSE HEGEMIER, P.E.
APPROVAL BY FORT BEND COUNTY WILL BE DEEMED VOID IF CONSTRUCTION IS NOT COMMENCED WITHIN ONE (1) YEAR OF APPROVAL DATE.

Contractor shall notify the City of Houston Department of Public Works and Engineering, Office of the City Engineer, 48 hours before starting work on this project.
Telephone No. 832-3500-4405
Fax No. 832-3500-4424

Note:
Prior to the construction of these facilities within or by the District, the District or its Engineer will give written notice by Registered or Certified Mail to the Director of Public Works and Engineering, City of Houston, stating the date such construction will begin.

MILLER & ASSOCIATES
Consulting Engineers & Surveyors
Firm No. P-1240
2400 Gray Oaks • Suite 200 • Houston, Texas 77077-6806
Phone 832/487-9700 Fax 832/487-9787



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
6/3/10
WATER QUALITY

STREET & BRIDGE
2 April 6.3.10
STREET & BRIDGE

CITY ENGINEER
FOR CITY OF HOUSTON USE ONLY
CITY DWG NO.:

DIRECTOR OF PUBLIC WORKS AND ENGINEERING

CPC 101 PLAT FILE NO: "NO PLAT"
ILMS NO: 09089122
LOG NO: 2009-0586

Date: 6/21/0
CenterPoint Energy/Electric Facilities (approved only for crossing underground facilities, unless otherwise noted).
Valid At Time of Review Only
AT&T UTILITY LINES SHOWN
Date: 6/21/0
AT&T Approved for underground conduit facilities only.
Signatures valid for one year.
NOTES:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL TONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-6344
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222.

DATE: 6/21/0
SHEET NO. 3 OF 32
47080 P-091

DATE: 6/21/0
SHEET NO. 3 OF 32
47080 P-091

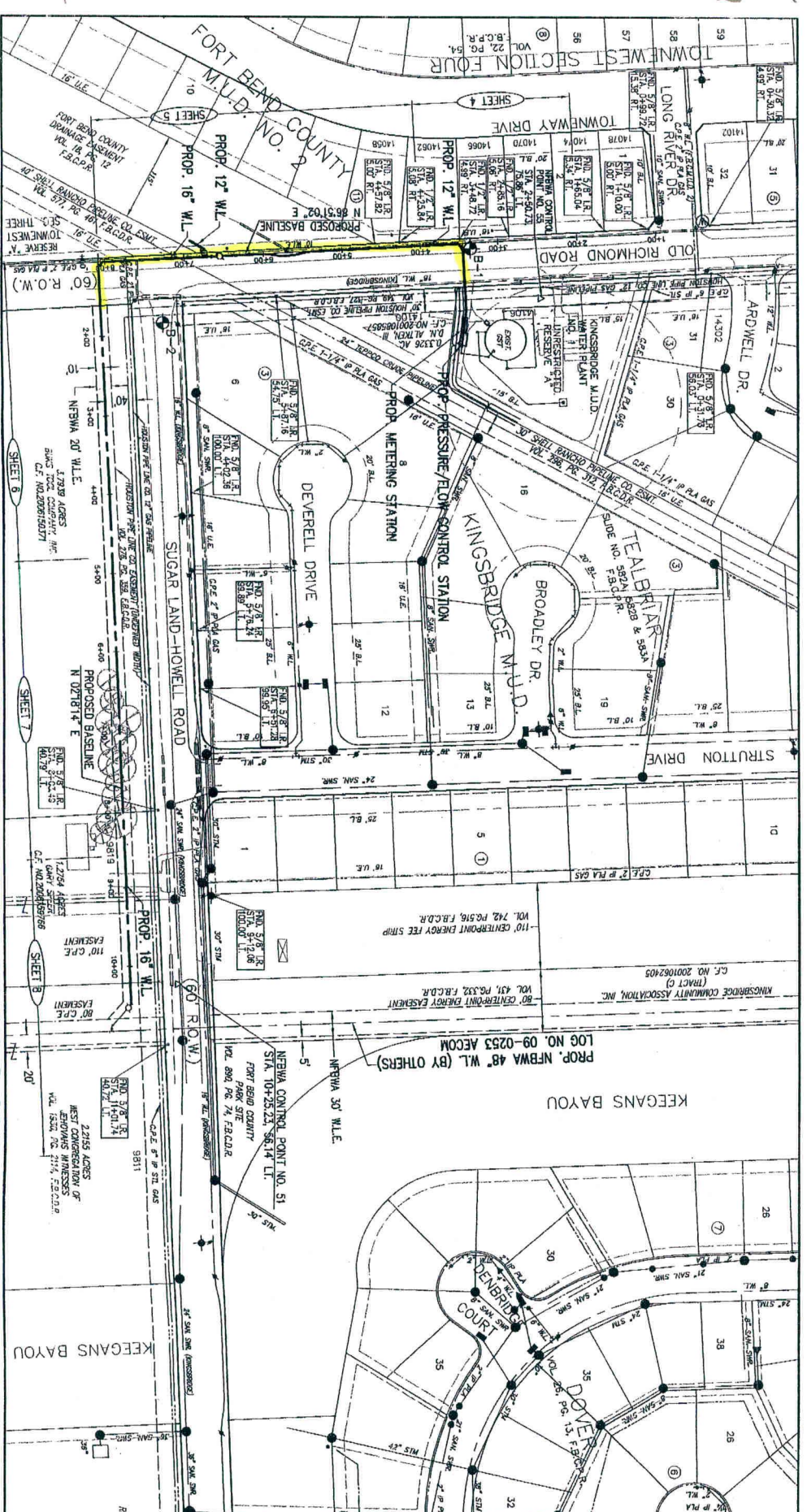
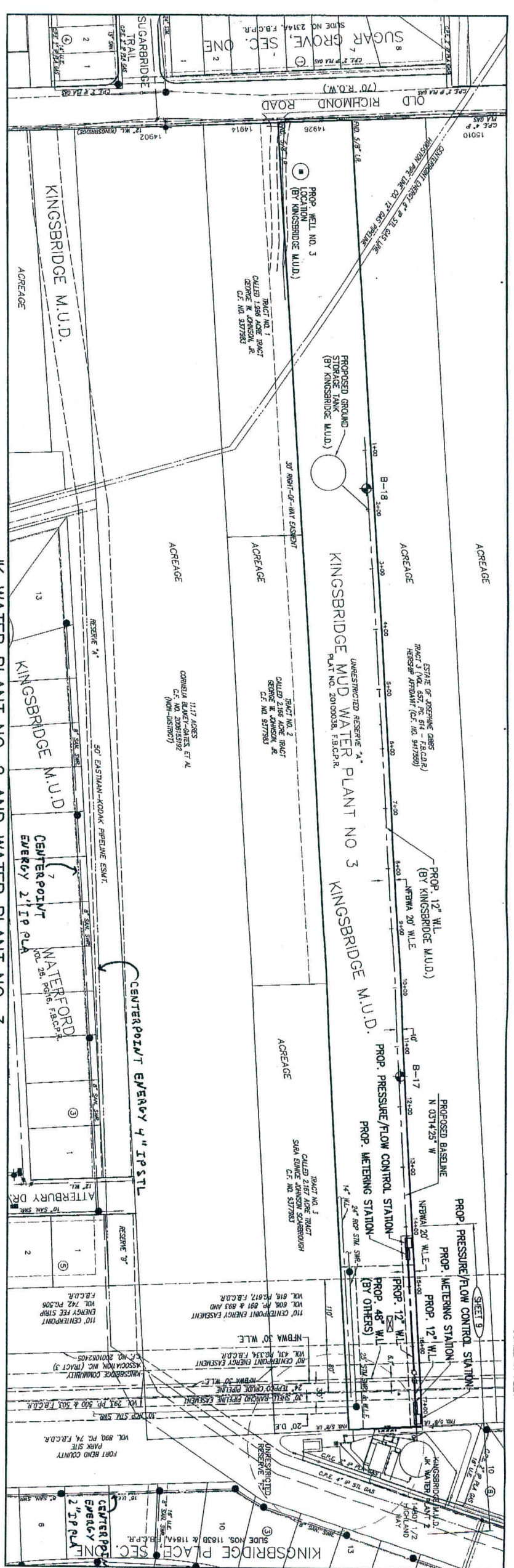
DATE: 6/21/0
SHEET NO. 3 OF 32
47080 P-091

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SHEET NO. 3 OF 32
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DATE: 6/21/0
SHEET NO. 3 OF 32
47080 P-091



NOTE: ALL UTILITIES AND UTILITY EASEMENTS SHOWN HEREON ARE EXISTING, UNLESS OTHERWISE NOTED.
NOTE: C.P.E. DENOTES CENTERPOINT ENERGY

EXISTING	PROPOSED
WATER LINE	WATER LINE
WATER VALVE	WATER VALVE
FIRE HYDRANT	FIRE HYDRANT
SANITARY SEWER LINE	SANITARY SEWER LINE
SANITARY SEWER MANHOLE	SANITARY SEWER MANHOLE
STORM SEWER LINE	STORM SEWER LINE
STORM SEWER MANHOLE	STORM SEWER MANHOLE
STORM SEWER INLETS	STORM SEWER INLETS
BORE LOCATION	BORE LOCATION

FLOOD PLAN INFORMATION:

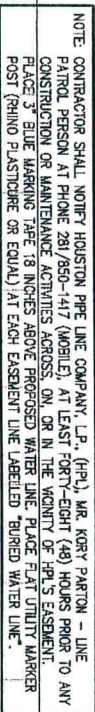
THIS PROJECT LIES WITHIN ZONE "X" (UNSHADED). AREAS OUTSIDE THE 500-YEAR FLOOD PLAIN AS PER THE CURRENT FEMA FIRM, DATED JANUARY 3, 1997
MAP NUMBER 48157C020 J
COMMUNITY PANEL NUMBER 481567 0120 J

MILLER & ASSOCIATES
Consulting Engineers & Surveyors
2670 Gray Road - Suite 270 - Houston, Texas 77077-6008
Phone 281/487-0700 Fax 281/487-0737

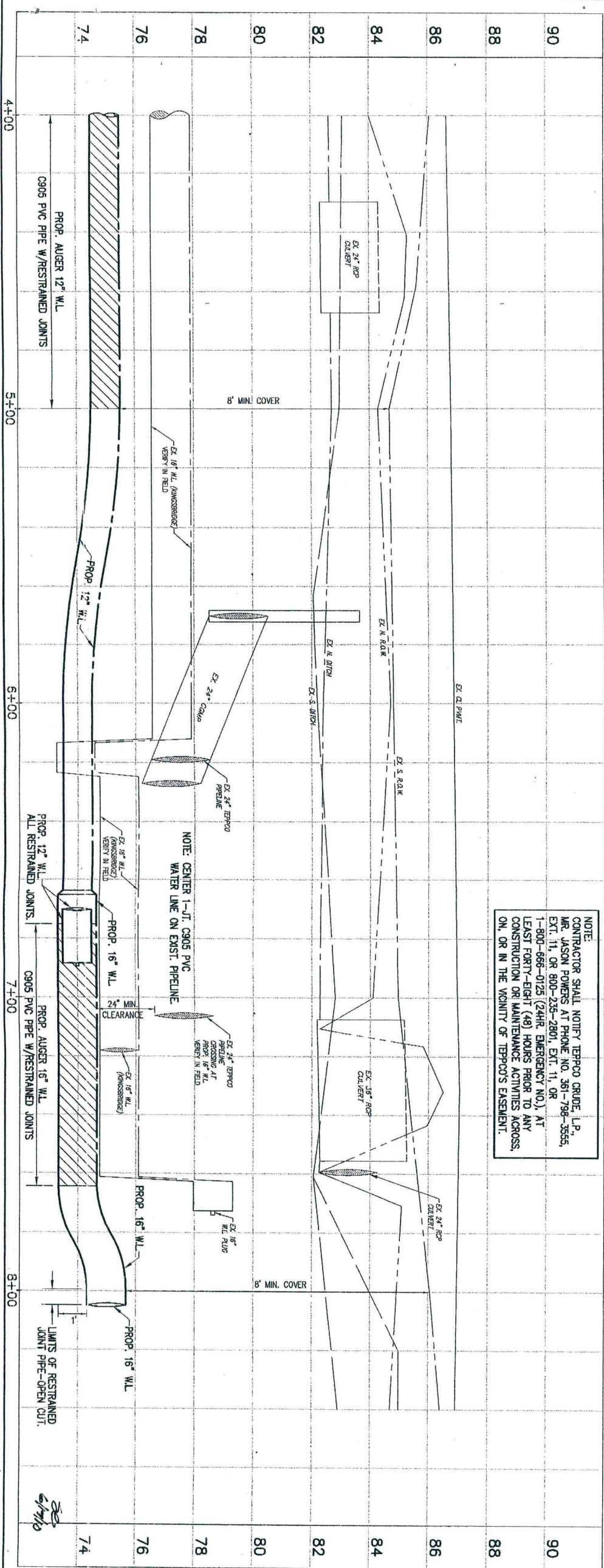
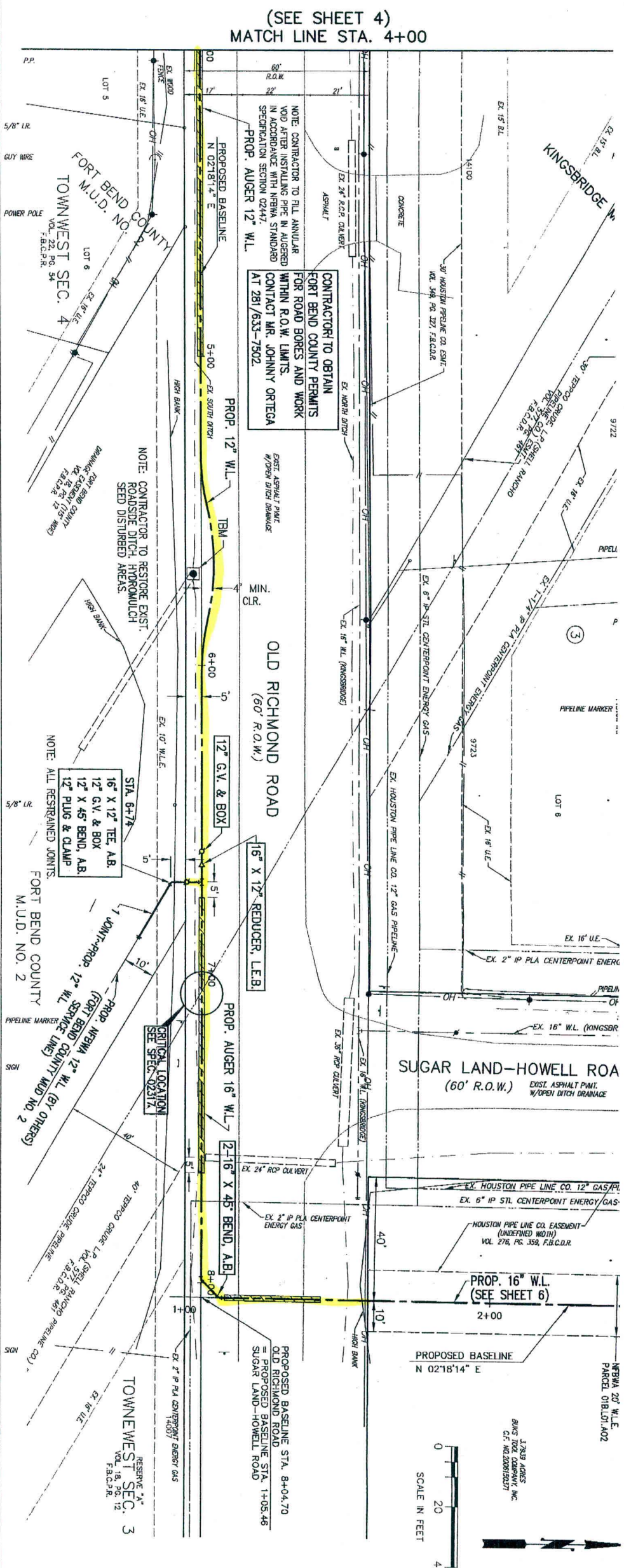


KINGSBRIDGE M.U.D.
WATER SERVICE LINES
PLAN AND SURVEY CONTROL

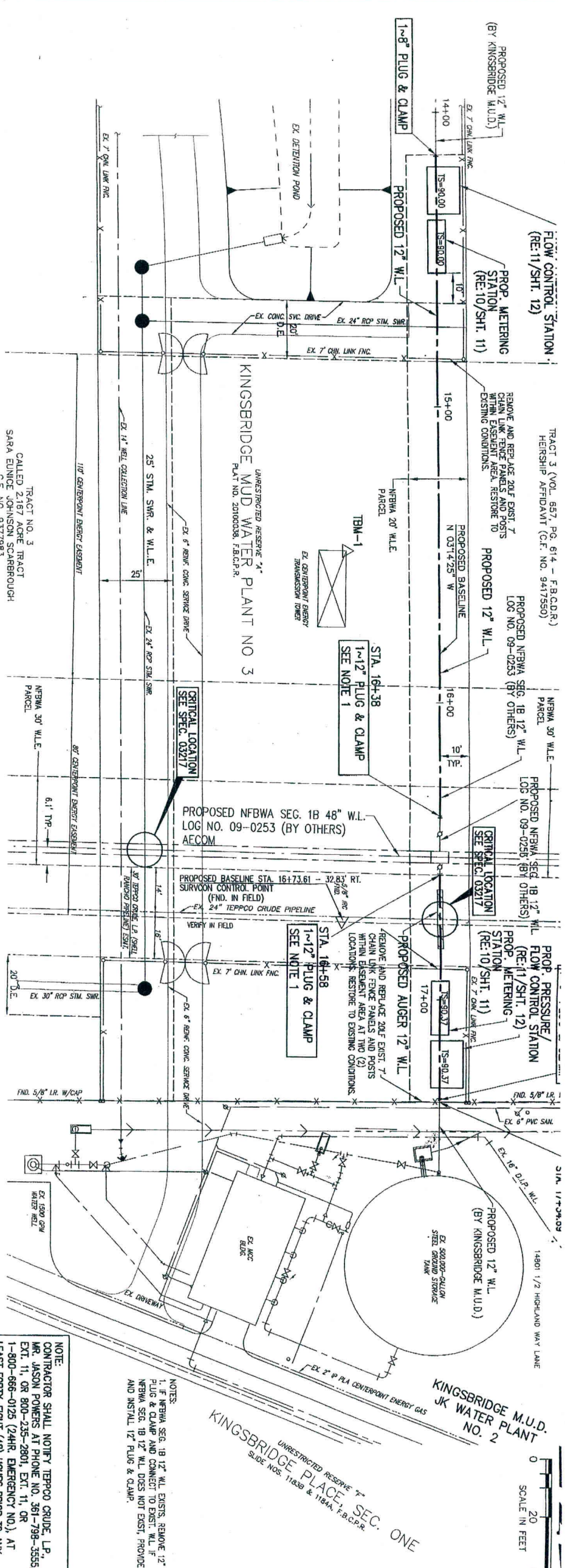




2			
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DATE: 6/2/10		DATE: 6/3/10	
AT&T Utility Lines Shown		AT&T Utility Lines Shown	
NOTICE: AT&T Approved for underground conduit facilities only. Signature valid for one year. Date: 6/3/10		NOTICE: AT&T Approved for underground conduit facilities only. Signature valid for one year. Date: 6/3/10	
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344		AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344	
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222.		TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222.	
BENCH MARK		BENCH MARK	
CONTROL POINT NO. 16, REFERENCE MARK NO. 06045, BEING A BENCH MARK LOCATED AT THE CORNER OF THE INTERSECTION OF OLD RICHMOND ROAD AND SUGAR LAND-HOWELL ROAD, APPROXIMATELY 500 FEET NORTH OF OLD RICHMOND ROAD, ELEVATION=81.78, NAD=88 (2002 ADJUSTMENT).		CONTROL POINT NO. 16, REFERENCE MARK NO. 06045, BEING A BENCH MARK LOCATED AT THE CORNER OF THE INTERSECTION OF OLD RICHMOND ROAD AND SUGAR LAND-HOWELL ROAD, APPROXIMATELY 500 FEET NORTH OF OLD RICHMOND ROAD, ELEVATION=81.78, NAD=88 (2002 ADJUSTMENT).	
CONTROL POINT NO. 35, BEING A 5/8-INCH IRON ROD WITH A NORTH POINT BEING WATER APPROXIMATELY 500 FEET NORTH OF OLD RICHMOND ROAD, ELEVATION=81.10, NAD=88 (2002 ADJUSTMENT).		CONTROL POINT NO. 35, BEING A 5/8-INCH IRON ROD WITH A NORTH POINT BEING WATER APPROXIMATELY 500 FEET NORTH OF OLD RICHMOND ROAD, ELEVATION=81.10, NAD=88 (2002 ADJUSTMENT).	
CONTROL POINT NO. 35, BEING A 5/8-INCH IRON ROD WITH A NORTH POINT BEING WATER APPROXIMATELY 500 FEET NORTH OF OLD RICHMOND ROAD, ELEVATION=81.10, NAD=88 (2002 ADJUSTMENT).		CONTROL POINT NO. 35, BEING A 5/8-INCH IRON ROD WITH A NORTH POINT BEING WATER APPROXIMATELY 500 FEET NORTH OF OLD RICHMOND ROAD, ELEVATION=81.10, NAD=88 (2002 ADJUSTMENT).	
REVISION: 1. DATE: 6/3/10		REVISION: 1. DATE: 6/3/10	
APPROV.:		APPROV.:	
MILLER & ASSOCIATES		MILLER & ASSOCIATES	
NFBWA SEGMENT 1B		NFBWA SEGMENT 1B	
KINGSBRIDGE M.U.D. WATER SERVICE LINES OLD RICHMOND ROAD STA. 4+00 TO STA. 8+00		KINGSBRIDGE M.U.D. WATER SERVICE LINES OLD RICHMOND ROAD STA. 4+00 TO STA. 8+00	
NORTH PORT BEAD		NORTH PORT BEAD	
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING		CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
WATER 6/3/10		WATER 6/3/10	
STREET & BRIDGE		STREET & BRIDGE	
TRAFFIC		TRAFFIC	
STORM WATER QUALITY		STORM WATER QUALITY	
FILE NO:		FILE NO:	
DRAWING SCALE		DRAWING SCALE	
HORIZ: 1" = 20'		HORIZ: 1" = 20'	
VERT: 1" = 2'		VERT: 1" = 2'	
SHEET 5 OF 32		SHEET 5 OF 32	
471080		471080	
P-091		P-091	



DATE: 6/1/00
AT&T Energy/ Gas Facilities
Signature: [Signature]
Date: 6/1/00
NOTICE:
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL LONE STAR NOTIFICATION CENTER, (713) 223-4567 OR 1-800-669-8344
TO ARRANGE FOR LINES TO BE TURNED OFF OR MOVED, CALL CENTERPOINT AT 713-207-2222.
BENCH MARK
CONTROL POINT NO. 16 - REFERENCE MARK NO. 04045, BEING A BRONZE DISK LOCATED ON THE SOUTH END OF A CONCRETE SAFETY RAIL ON THE EAST SIDE OF STATE HIGHWAY NO. 6 SOUTH AT THE BRIDGE CROSSING KESLING AVENUE.
ELEVATION = 81.04 (NAVD-88) (2002 ADJUSTMENT)
CONTROL POINT NO. 92 - BEING A 5/8-INCH IRON ROD WITH A NORTH POINT 3000 WATER AUTHORITY ALUMINUM CAP LOCATED ON THE EAST SIDE OF WILSON DRIVE.
ELEVATION = 80.04 (NAVD-88) (2002 ADJUSTMENT)
TBM - 1: SQUARE BOX OUT ON THE SOUTHWEST CONCRETE FOOTING FOR THE ELECTRIC TRANSMISSION TOWER LOCATED AT BASELINE STATION 15+74.74, 31.7-FEET RIGHT.
ELEVATION = 80.05 (NAVD-88) (2002 ADJUSTMENT)

NOTE:
CONTRACTOR SHALL NOTIFY TEPPO CRUDE, L.P., MR. JASON POWERS AT PHONE NO. 361-798-3555, EXT. 11, OR 800-235-2801, EXT. 11, OR 1-800-666-0125 (24HR. EMERGENCY NO.), AT LEAST FORTY-EIGHT (48) HOURS PRIOR TO ANY CONSTRUCTION OR MAINTENANCE ACTIVITIES ACROSS, ON, OR IN THE VICINITY OF TEPPO'S EASEMENT.

NO. DATE REVISION APPROVAL

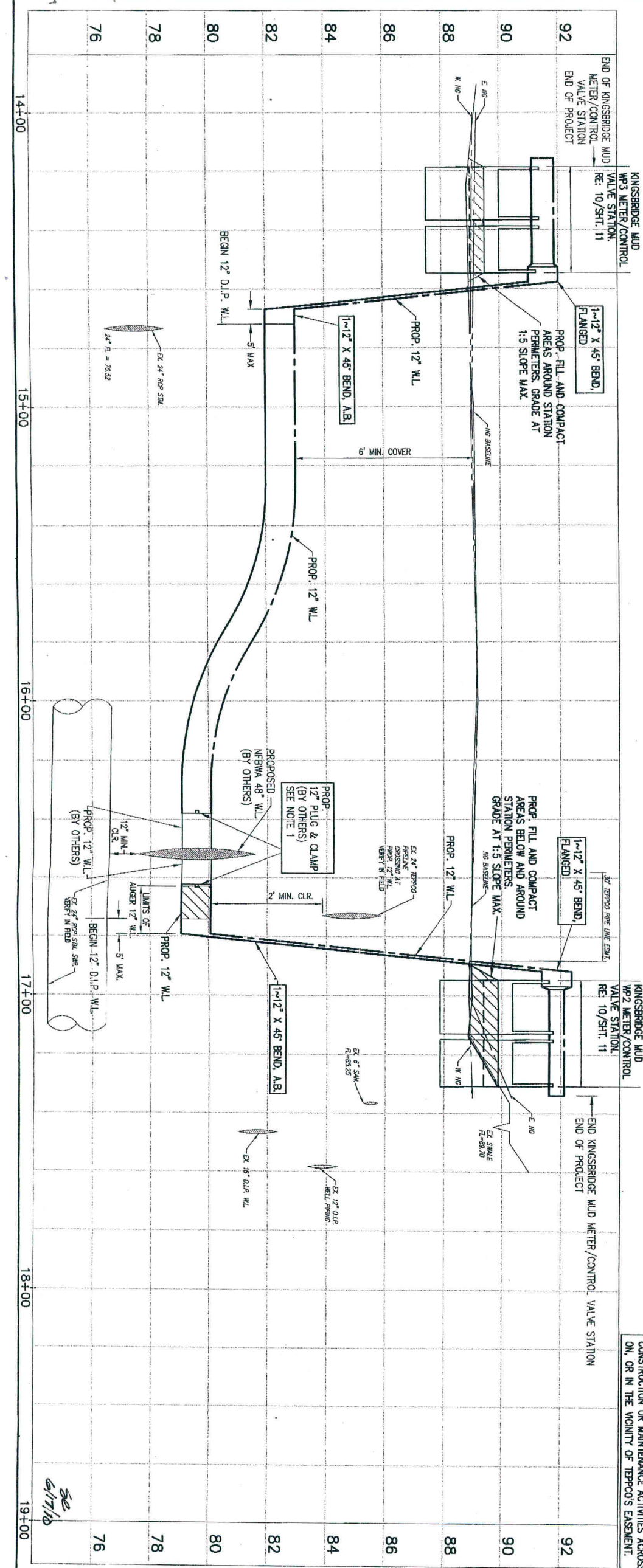
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MILLER & ASSOCIATES
Consulting Engineers & Surveyors
2479 Gray Pkwy. Suite 270 • Houston, Texas 77077-0888
Phone 281/467-8700 Fax 281/467-9797

NFBWA SEGMENT 1B

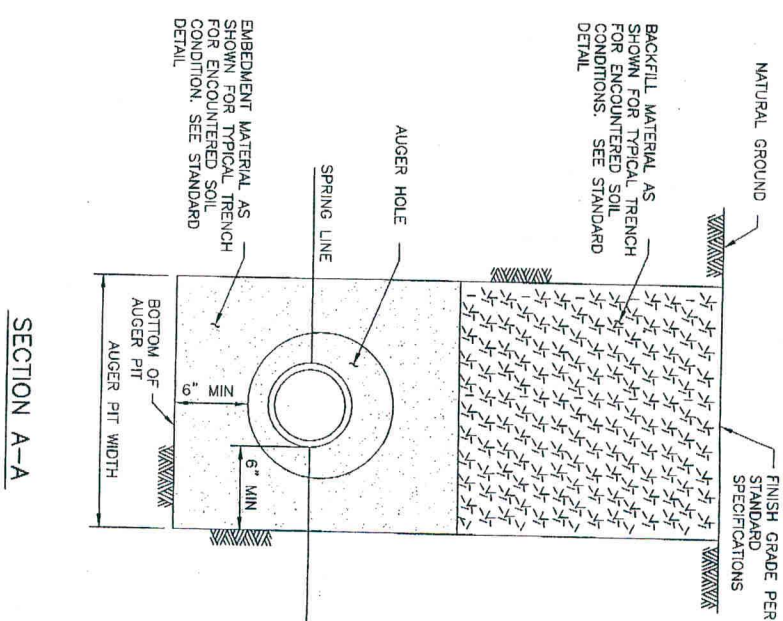
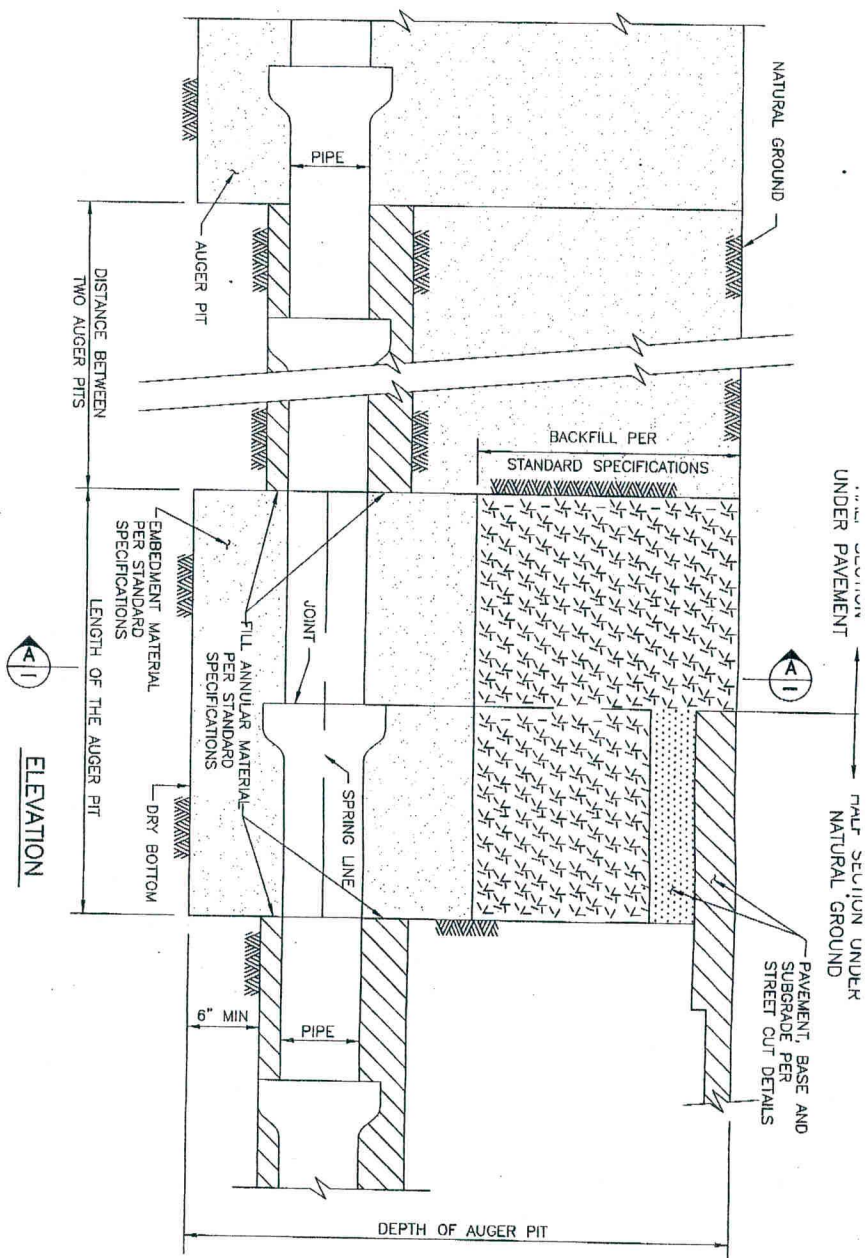
KINGSBRIDGE M.U.D. WATER SERVICE LINES
WATER PLANT NO. 3 - STA. 14+00 TO STA. 16+40
JK WATER PLANT NO. 2 - STA. 16+40 TO STA. 17+35

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
WATER DIVISION
STREET & BRIDGE
STATION
FILE NO.:
DRAWING SCALE
HORIZ: 1" = 20'
VERT: 1" = 2'
SHEET 9 OF 32
47080 P-091



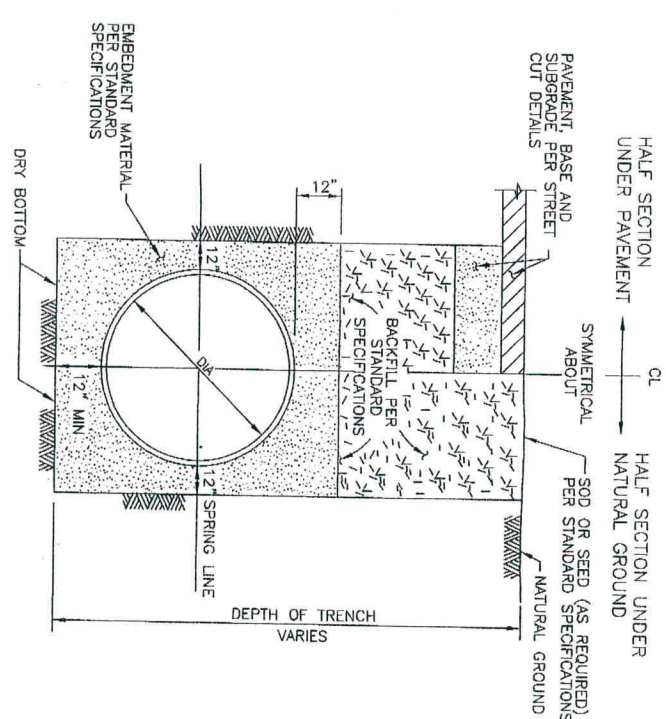
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
WATER DIVISION
STREET & BRIDGE
STATION
FILE NO.:
DRAWING SCALE
HORIZ: 1" = 20'
VERT: 1" = 2'
SHEET 9 OF 32
47080 P-091



SECTION A-A

1 STANDARD WATER LINE AUGER DETAIL N.T.S.



2 WATER DISTRIBUTION LINE BEDDING AND BACKFILL FOR OPEN CUT TRENCHES N.T.S.

NO.	DATE	REVISION	APPROX.
4			
3			
2			
1			



M. MILLER & ASSOCIATES
CONSULTING ENGINEERS & SURVEYORS
3470 Gray Pkwy. • Suite 270 • Houston, Texas 77077-4348
Phone 281/467-9700 Fax 281/467-9719

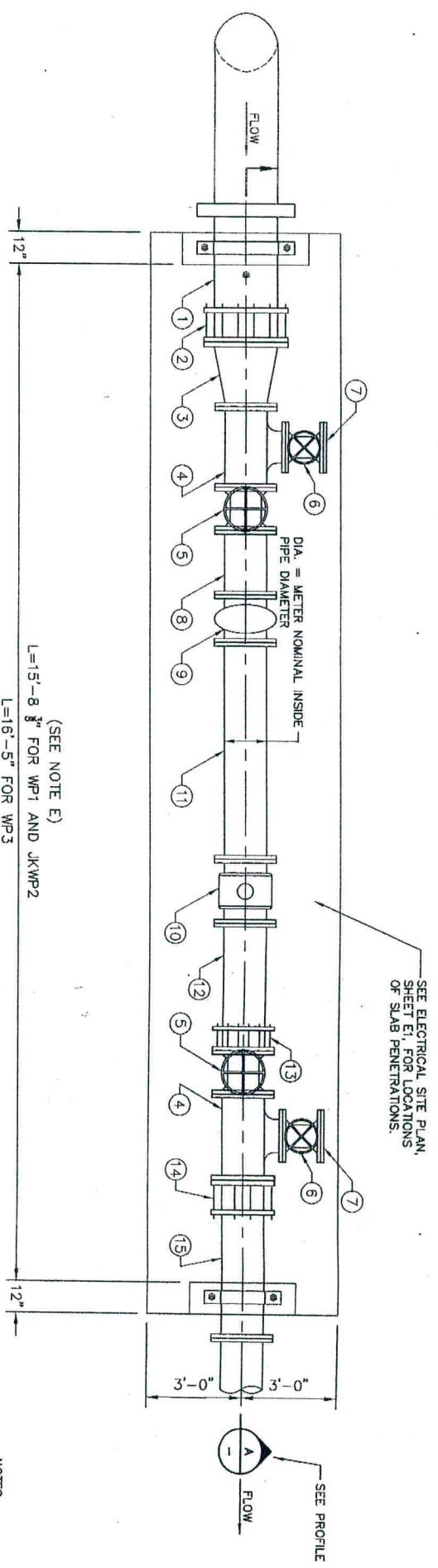
NFBWA SEGMENT 1B
KINGSBRIDGE M.U.D.
WATER SERVICE LINES
NFBWA STANDARD
WATER LINE DETAILS



NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
WATER
DESIGNED BY *David E. Miller* 6/9/10
CHECKED BY *Michael G. Smith* 6-3-10
IN CHARGE *Michael G. Smith* 6-3-10
FILE NO: *6-3-10*
DRAWING SCALE: N.T.S.
FOR CITY OF HOUSTON USE ONLY

REF. NO. 05
SHEET 10 OF 32
DATE 6/7/10
47080
47080
47080

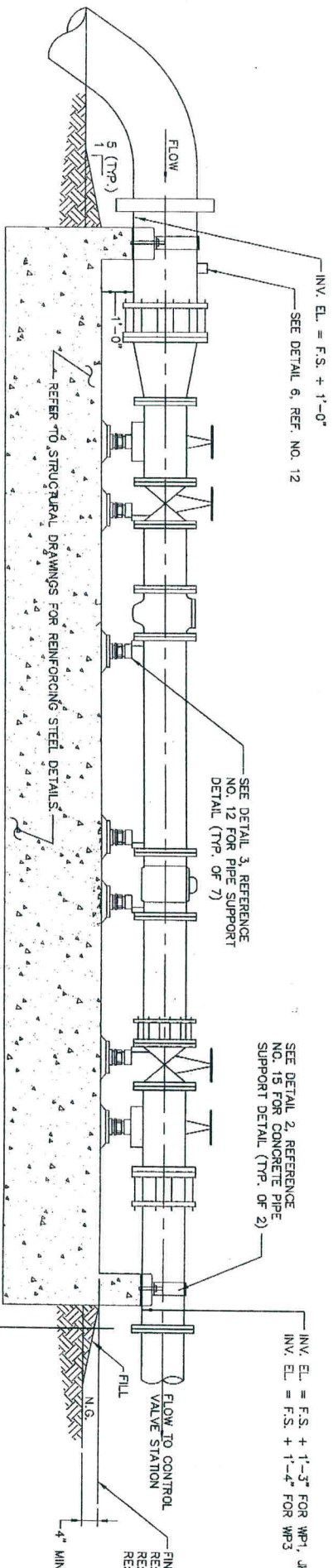
SLAB ON GRADE METERING STATION



1 PLAN - SLAB ON GRADE METERING STATION
SCALE: NTS

- NOTES:
- (A) METER SIZE TO BE DETERMINED BY NFBWA ENGINEER. DESIGN CONSULTANT IS TO MODIFY FITTING SIZES IN THIS TABLE CONSISTENT WITH SPECIFIED METER SIZE AND SURFACE WATER SUPPLY LINE SIZE.
 - (B) DESIGN IS BASED ON AMERICAN R/D RESILIENT GATE VALVE, PATTERN 2052 W/HAND WHEEL OPERATOR OR APPROVED EQUAL.
 - (C) DESIGN IS BASED ON THE KROHNE FFS 4000 KC (ENVIROMAG), MACROMETER ULTRA MAG #M06, SIEMENS STRAUS FM 5100 W ELECTROMAGNETIC OR APPROVED EQUAL.
 - (D) PROVIDE AND INSTALL INSTRUMENTATION AND CONTROLS PER TECHNICAL SPECIFICATIONS.
 - (E) LENGTH (L) OF METER RUN IS APPROXIMATE, IT MAY BE ADJUSTED BASED ON PIPING SHOP DRAWINGS.
 - (F) MINIMUM THRUST RESTRAINT LENGTH AT BEND IS 2' EACH SIDE OF BEND.

PIPE RUN SIZE = METER NOMINAL INSIDE DIAMETER, DIA. (INCH) =				
ITEM	FITTING DESCRIPTION	DIA. = 6 INCH	DIA. = 6 INCH	DIA. = 8 INCH
		WP 1 SIZE (INCHES)	JK WP 2 SIZE (INCHES)	WP 3 SIZE (INCHES)
1	PIPE (DIAMETER) w/ 2" THREADED TAP	12	12	12
2	FLANGED COUPLING ADAPTER WITH RESTRAINTS (DIAMETER)	12	12	12
3	REDUCER	12x6	12x6	12x8
4	TEE W/BASE (DIAMETER, RUN X RUN X BRANCH)	6x6x6	6x6x6	8x8x6
5	VALVE, GATE GV-1 (SEE NOTE B) (DIAMETER)	6	6	8
6	VALVE, GATE GV-1 (SEE NOTE B) (DIAMETER)	6	6	6
7	BLIND FLANGE (SIZE)	6	6	6
8	PIPE SPOOL (DIAMETER)	6	6	8
9	STRAINER ASSEMBLY	6	6	8
10	FLOW METER SIZE (ELECTROMAGNETIC METER SEE NOTE C)	6	6	8
11	PIPE SPOOL (DIAMETER) LENGTH=(5 x DIA.) MINIMUM	6	6	8
12	PIPE SPOOL (DIAMETER) LENGTH=(3 x DIA.) MINIMUM	6	6	8
13	FLANGED COUPLING ADAPTER WITH RESTRAINTS (DIAMETER)	6	6	8
14	FLANGED COUPLING ADAPTER WITH RESTRAINTS (DIAMETER)	6	6	8
15	PIPE (DIAMETER)	6	6	8



A PROFILE - SLAB ON GRADE METERING STATION
SCALE: NTS

- INITIAL INSTALLATION NOTES:
1. INSTALL PIPING, METER, ETC. AS SHOWN. DISINFECT, PRESSURE TEST AND VERIFY SATISFACTORY OPERATION.
 2. CONTRACTOR SHALL ENSURE THAT AS A RESULT OF THE TESTING PROCESS, NO FLOW WILL BE ALLOWED TO ENTER THE DISTRICT'S GROUND STORAGE TANK.
 3. AFTER COMPLETION OF WORK PER NOTE 1 AND WHEN AUTHORIZED BY OWNER, REMOVE PIPE SPOOL (ITEM 11-12) BETWEEN FLANGES AND INSTALL BLIND FLANGE AT EACH END, LABEL, TRANSPORT AND PLACE PIPE SPOOL IN OWNER SUPPLIED STORAGE FACILITY.

DATE: NOVEMBER 5, 2009

REF. NO. 10

SHEET 11 OF 32

DRAWING SCALE

N.T.S.

FOR CITY OF HOUSTON USE ONLY

47080 P-091

M MILLER & ASSOCIATES
Consulting Engineers & Surveying
2470 Gray Oaks • Suite 270 • Houston, Texas 77077-4609
Phone 281/487-4700 Fax 281/487-9727



NFBWA SEGMENT 1B
KINGSBRIDGE M.U.D.
WATER SERVICE LINES
METERING STATION LAYOUT
WP1, JKWP2 & WP3

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

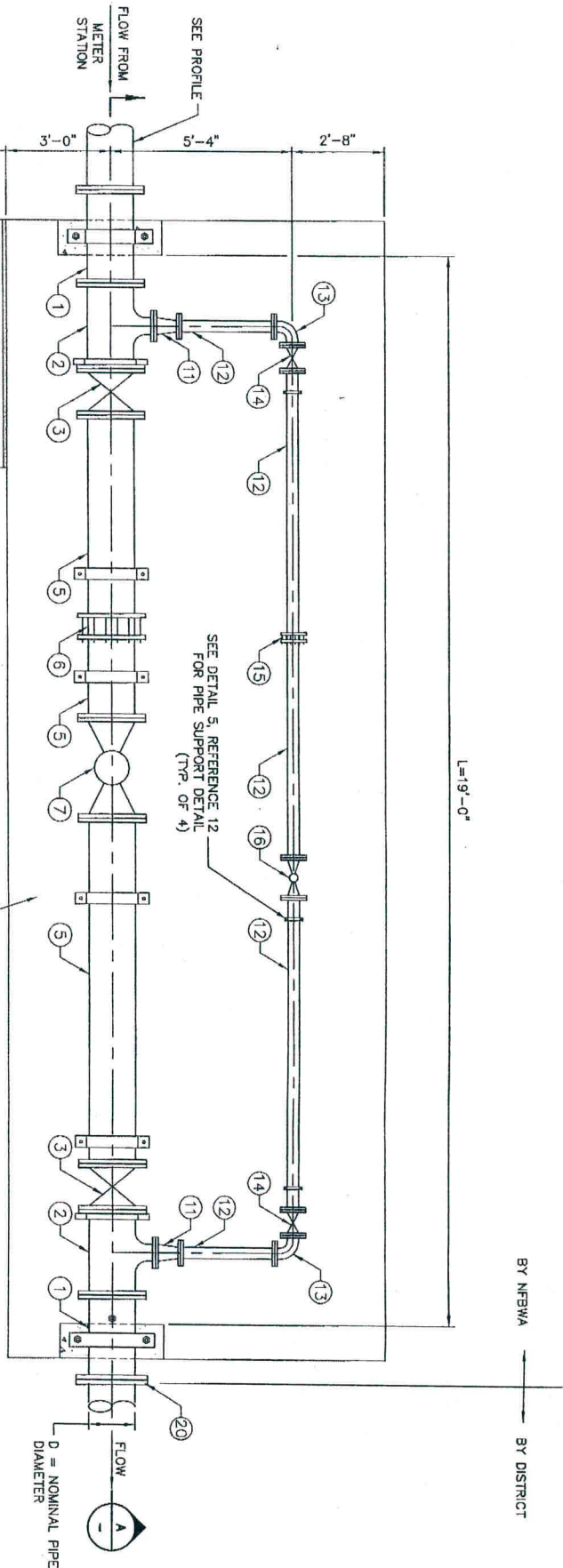
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WORK ORDER: 6/3/10
PROJECT: 6/3/10
SHEET: 11 OF 32
SUBMIT: 6/3/10
STATION: 6+10.00

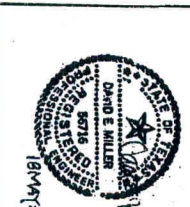
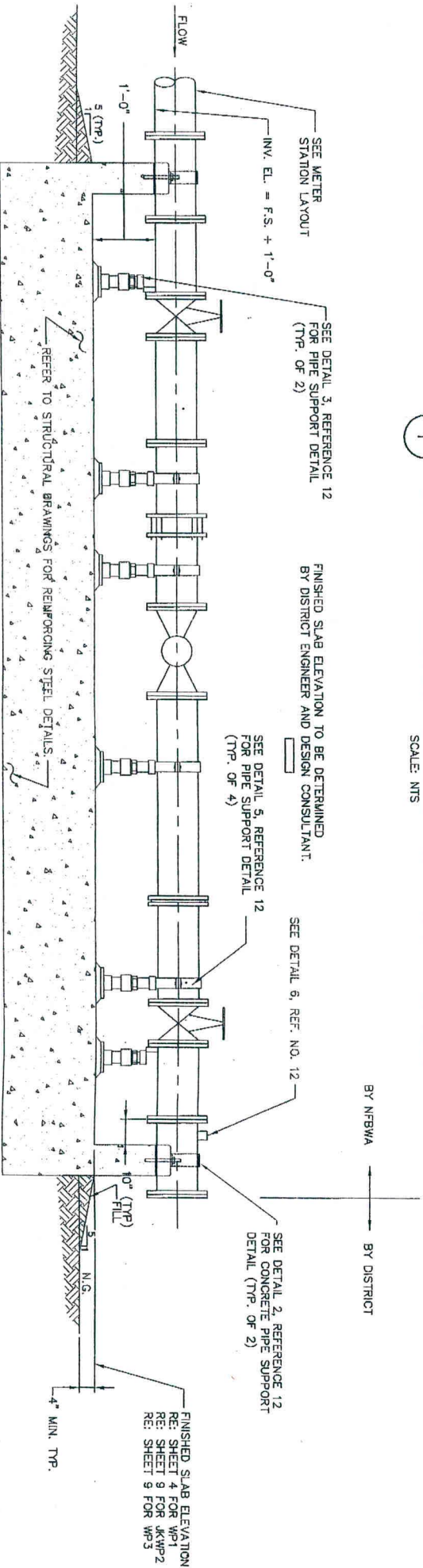
FILE NO.: 6-5-10

FOR CITY OF HOUSTON USE ONLY

ITEM	FITTING DESCRIPTION	WP 1 (INCH)	K WP 2 (INCH)	WP 3 (INCH)
1	PIPE (DIAMETER) W/ 2" THREADED TAP (ONE PLACE)	5	6	8
2	TEE (DIAMETER, RUN X RUN X BRANCH)	6X5X4	6X6X4	8X8X8
3	VALVE, GATE GV-1 (SEE NOTE B) (DIAMETER)	6	5	8
4	(NOT USED)			
5	PIPE SPOOL (DIAMETER)	5	6	8
6	FLEXIBLE COUPLING (DIAMETER)	5	6	8
7	VALVE, FLOW CONTROL, FCV-1 (SEE NOTE C) (DIAMETER)	6	6	8
8	(NOT USED)			
9	(NOT USED)			
10	(NOT USED)			
11	REDUCER, CONCENTRIC	4X3	4X3	6X6
12	PIPE SPOOL (DIAMETER)	3	3	6
13	ELBOW, 90 DEGREE (DIAMETER)	3	3	6
14	VALVE, GATE GV-1 (SEE NOTE A) (DIAMETER)	3	3	6
15	FLEXIBLE COUPLING (DIAMETER)	3	3	6
16	VALVE, FLOW CONTROL, FCV-2 (SEE NOTE C) (DIAMETER)	3	3	6
17	(NOT USED)			
18	(NOT USED)			
19	(NOT USED)			
20	BLIND FLANGE (SEE NOTE F)	6	5	8



- NOTES:
- CONTROL VALVE SIZES TO BE DETERMINED BY NFBWA ENGINEER. DESIGN CONSULTANT IS TO MODIFY FITTING SIZES IN THIS TABLE CONSISTENT WITH SPECIFIED SIZES.
 - DESIGN IS BASED ON AMERICAN R/D RESILIENT GATE VALVE, PATTERN 2052 W/HAND WHEEL OPERATOR OR APPROVED EQUAL.
 - DESIGN IS BASED ON THE CLA-VAL 131-CEGENSKO, BERNAD 730C2-03-18-49-Q, OR APPROVED EQUAL. VALVES FAIL CLOSE.
 - PROVIDE AND INSTALL INSTRUMENTATION AND CONTROLS PER TECHNICAL SPECIFICATIONS, IF REQUIRED.
 - LENGTH (L) OF CONTROL VALVE RUN IS APPROXIMATE. IT MAY BE ADJUSTED BASED ON PIPING SHOP DRAWINGS.
 - OMIT BLIND FLANGE AND CONNECT TO DISTRICT PIPING IF IT EXISTS.
 - CONTROL PANEL LOCATION MAY ONLY BE MODIFIED WITH APPROVAL OF NFBWA ENGINEER.



NO.	DATE	REVISION	APPROV.
1			

47080

18MAY2010



NFBWA SEGMENT 1B
KINGSBRIDGE M.U.D.
WATER SERVICE LINES
CONTROL VALVE
STATION LAYOUT

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

NAME: *David E. Miller*
DATE: *6/17/10*
TITLE: *Engineer*
STREET & BRIDGE: *St. Louis St. & 310*
STREET WATER QUALITY: *Improved Street 6-3-10*

FILE NO.: *47080*

FOR CITY OF HOUSTON USE ONLY

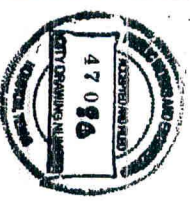
SLAB ON GRADE CONTROL VALVE STATION

SCALE: NTS

A

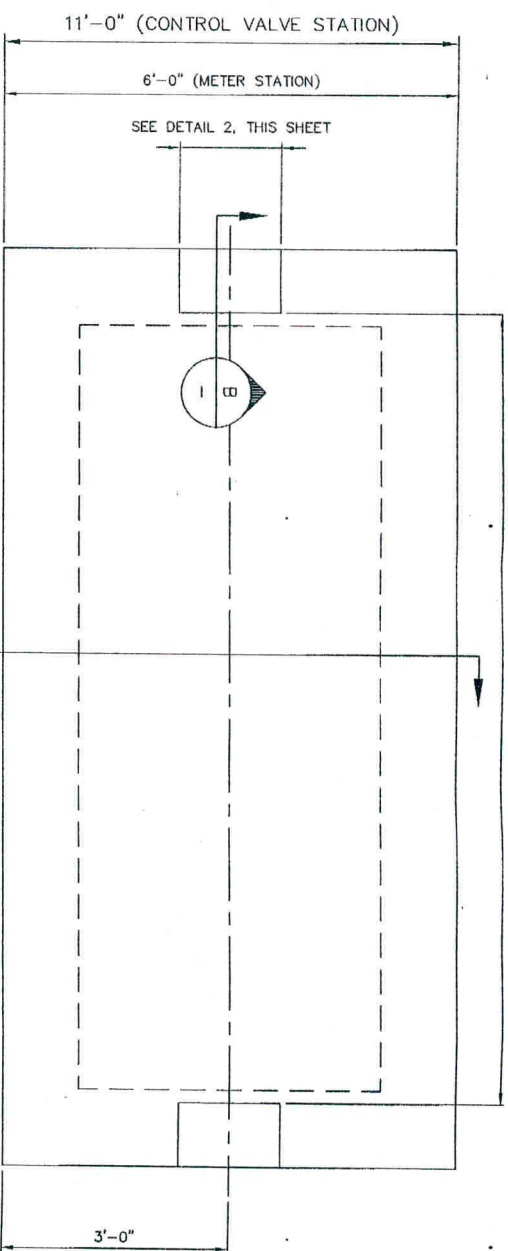
DATE: NOVEMBER 5, 2009

REF. NO. 11
SHEET 12 OF 32



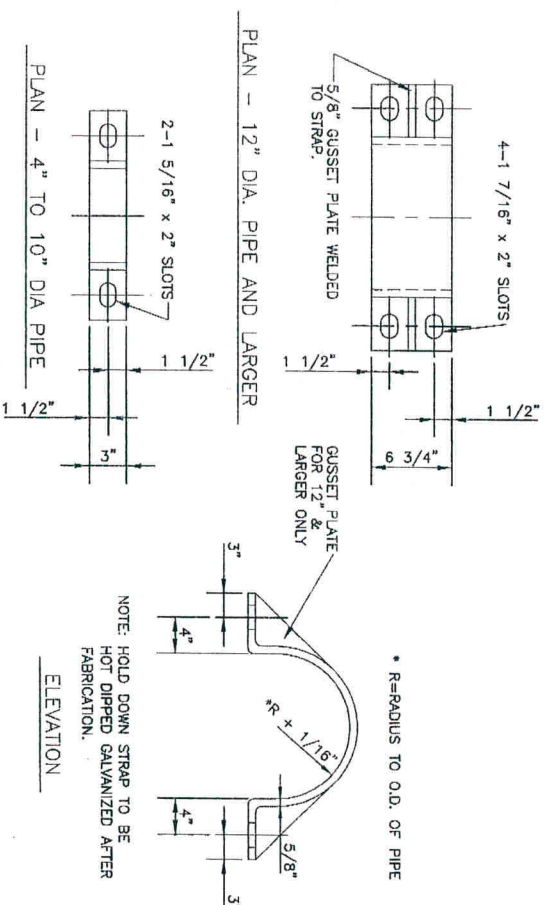
47080

P-091



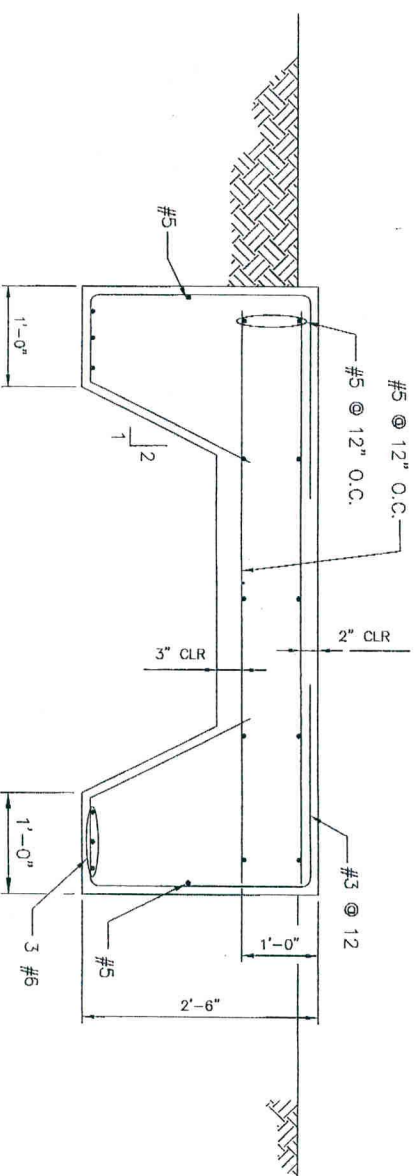
PLAN - METER AND CONTROL VALVE STRUCTURAL

SCALE: NTS



4 HOLD DOWN STRAP DETAIL

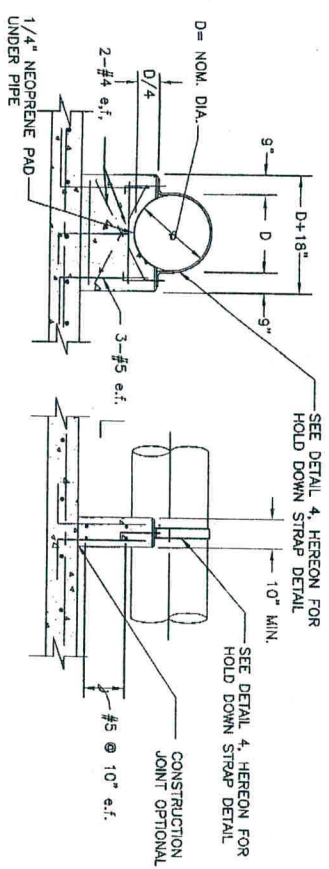
SCALE: NTS



STRUCTURAL DETAIL

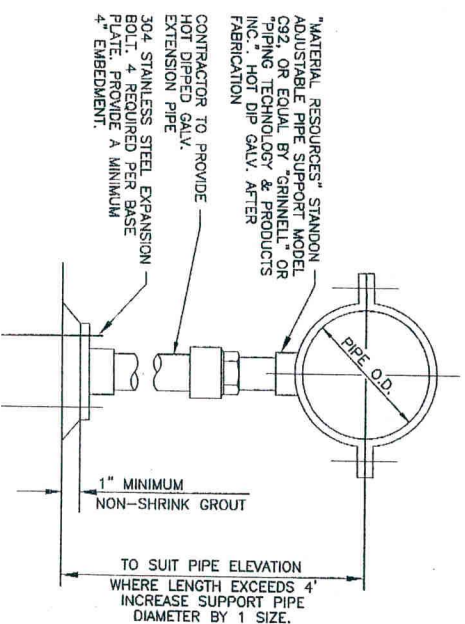
SCALE: NTS

- NOTES:
1. CONCRETE STRENGTH AT 28 DAYS, $f_c=4,000$ psi
 2. STEEL REINFORCEMENT, $f_y=60,000$ psi
 3. ALL EXPOSED CORNERS SHALL BE CHAMFERED $1/2"$.



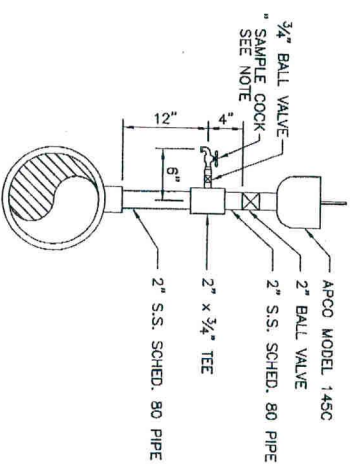
CONCRETE PIPE SUPPORT DETAIL

SCALE: NTS



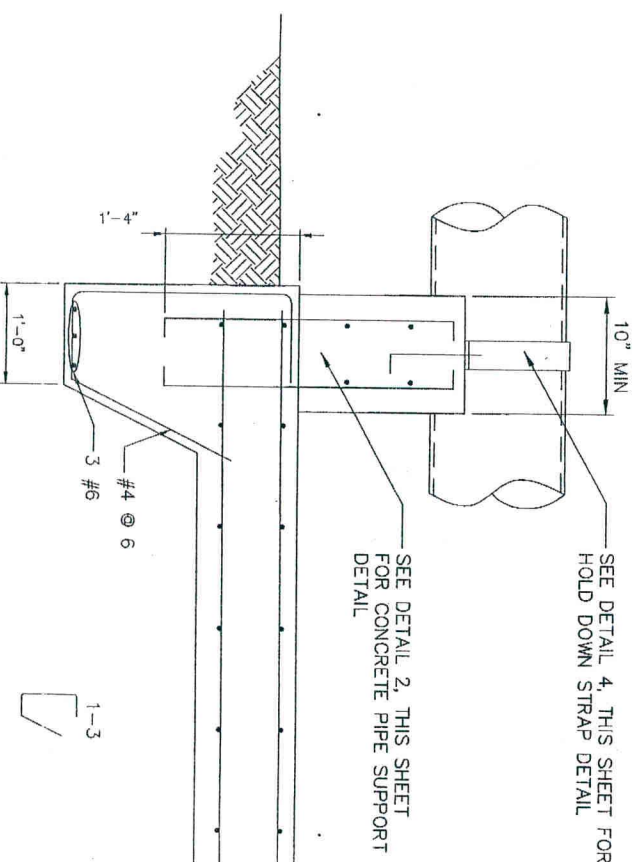
AIR VALVE DETAIL

SCALE: NTS



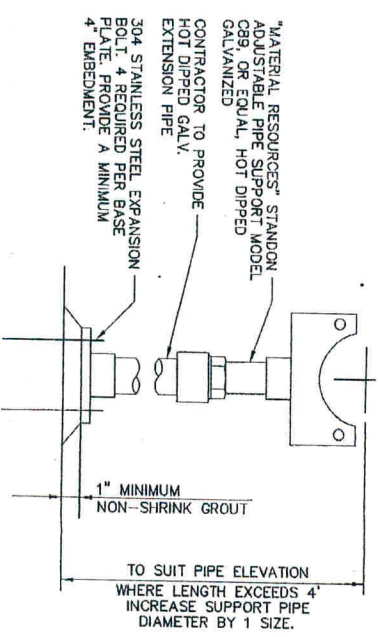
PIPE SUPPORT DETAIL W/STRAP

SCALE: NTS



STRUCTURAL DETAIL

SCALE: NTS



PIPE SUPPORT DETAIL

SCALE: NTS

4			
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NO.	DATE	REVISION	APPROV



 **MILLER & ASSOCIATES**
Consulting • Engineers • Surveying
Firm No. F-3240
3470 Grey Falls • Suite 270 • Houston, Texas 77077-6585
Phone 281/487-8700 Fax 281/487-9787

NFBWA SEGMENT 1B

KINGSBRIDGE M.U.D.
WATER SERVICE LINES
METERING STATION AND CONTROL VALVE
STRUCTURAL AND MECHANICAL DETAILS



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

6/3/10	STREET & BRIDGE
--------	-----------------

0	TRAFFIC
0	ELEVATOR
0	2. Elevator-6-340

NO. 1	DATE 6.3.12	STORM WATER QUALITY
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2154 d. Arund 6-3-10

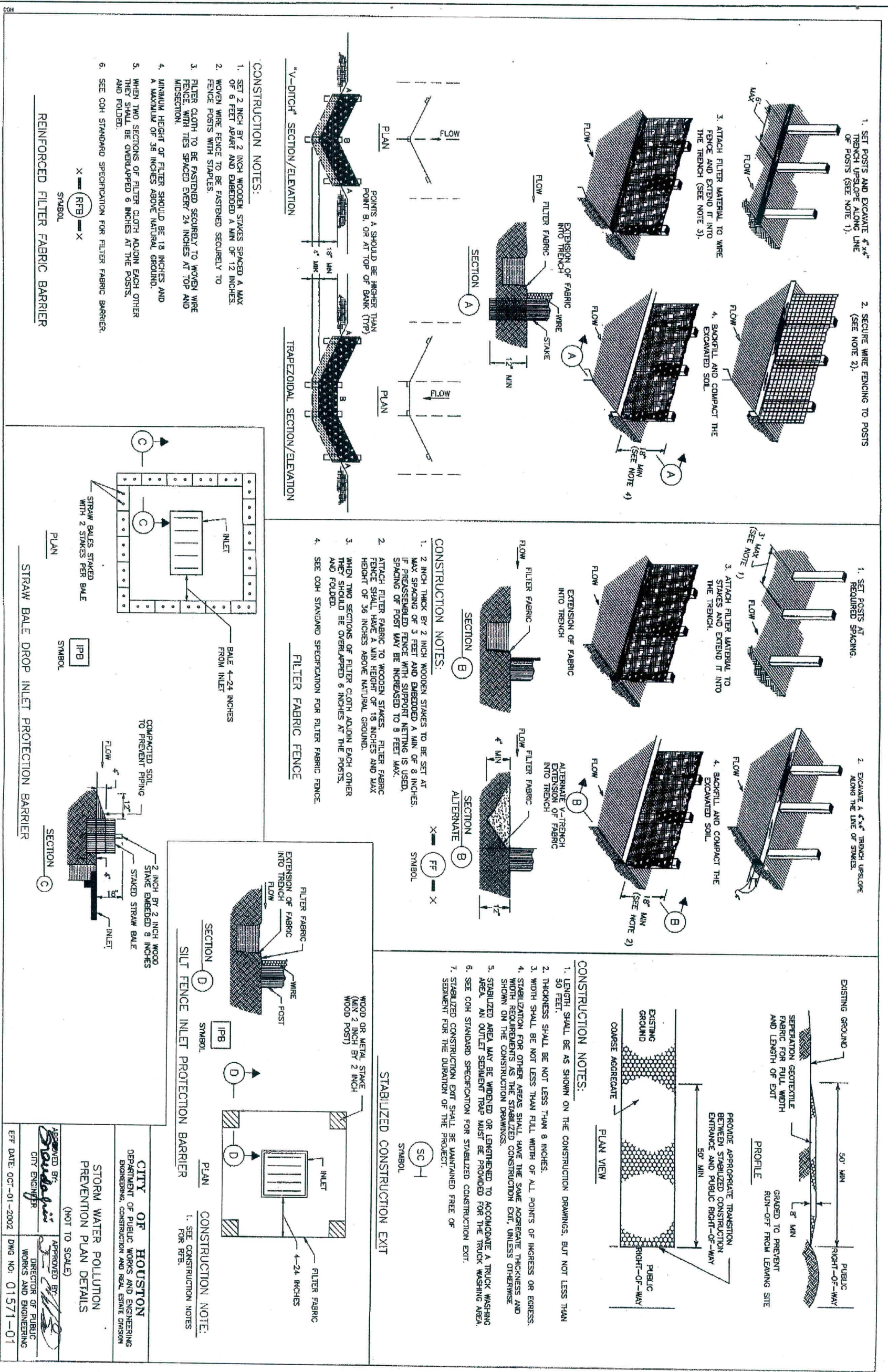


DRAWING SCALE

N.T.S.

13 of 32

47080 P-091



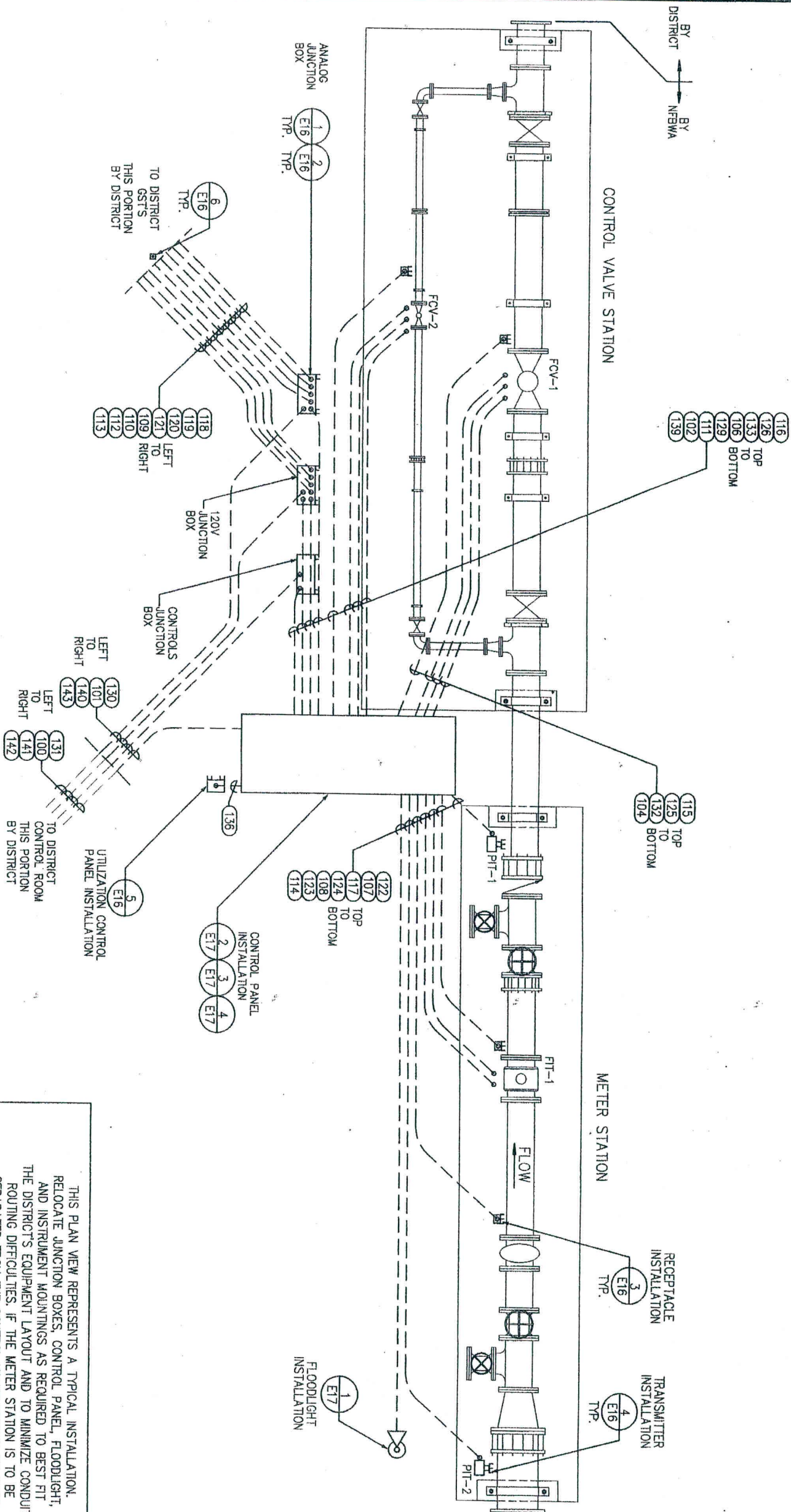
SHEET No: 15 OF 32		DRAWING SCALE: N.T.S.	
47080		47080	
P-091		P-091	
KINGSBRIDGE M.U.D. WATER SERVICE LINES STORM WATER POLLUTION PREVENTION DETAILS		NORTH PORT BRD	
MILLER & ASSOCIATES Consulting Engineers & Surveyors 2470 Gray Park • Suite 270 • Houston, Texas 77077-6098 Phone 281/497-8700 Fax 281/497-8707		CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
APPROVED BY: [Signature] CITY ENGINEER		APPROVED BY: [Signature] DIRECTOR OF PUBLIC WORKS AND ENGINEERING	
EFF. DATE: OCT-01-2002		DWG NO: 01571-01	
FILE NO:		FOR CITY OF HOUSTON USE ONLY	

- LEGEND
- ELECTRICAL DUCT BANK MARKER (SEE DTL SHT E16)
 - GROUND CONDUCTOR
 - ELECTRICAL DUCT BANK (SEE DTL SHT E17)
 - CAPPED ELECTRICAL CONDUIT
 - GROUND ROD
 - WEATHERHEAD
 - FLOODLIGHT (SEE DTL SHT E17)

TYPICAL ELECTRICAL SITE PLAN

N.T.S.

THIS PLAN VIEW REPRESENTS A TYPICAL INSTALLATION. RELOCATE JUNCTION BOXES, CONTROL PANEL, FLOODLIGHT, AND INSTRUMENT MOUNTINGS AS REQUIRED TO BEST FIT THE DISTRICT'S EQUIPMENT LAYOUT AND TO MINIMIZE CONDUIT ROUTING DIFFICULTIES. IF THE METER STATION IS TO BE SEPARATED FROM THE CONTROL VALVE STATION BY MORE THAN 50', PROVIDE A SECOND FLOODLIGHT SO BOTH AREAS ARE ILLUMINATED.



- CONDUITS SHALL NOT BE ROUTED ACROSS WALKWAYS OR DRIVEWAYS. CONDUITS SHALL BE ROUTED UNDER OR ABOVE THE SURFACE. DO NOT ROUTE IN CONFLICT WITH OTHER PIPING, CONDUITS, EQUIPMENT OR STRUCTURES.
- CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ANY AND ALL PERMITS ASSOCIATED WITH THE WORK. THE COSTS OF THE PERMITS, IF ANY, SHALL BE BORNE BY THE CONTRACTOR. PLAN VIEW CONDUIT ROUTING IS DIAGRAMATIC ONLY. ROUTE BEST WAY MINIMIZING BENDS.
- ALL EXTERIOR ABOVE GROUND CONDUIT IS TO BE RIGID GALVANIZED STEEL.
- ALL MOUNTING HARDWARE, SUPPORTS, CLAMPS, BRACKETS & ANCHORS ARE TO BE STAINLESS STEEL UNLESS SHOWN OTHERWISE.
- ALL VALVES FAIL CLOSE.
- GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GSTS AND TWO FUTURE GSTS. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICT'S ANTICIPATED ULTIMATE NUMBER OF GSTS. PREPARE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.
- ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HOT BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION. LONG TERM WEATHERPROOF DURABILITY W/FREEZE PROTECTION WITHOUT OVERHEATING.



NO.	DATE	REVISION	APPROVAL
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10777 Westheimer, Suite 400, Houston, TX 77042
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— Civil engineers and surveyors —
ENGINEERS, INC.

Brymcon, Inc.
Electrical Engineering
Tape Registration No. F-375
8520 White Road Beaumont, TX 77706 (409) 865-7066

METER AND CONTROL VALVE STATION
INSTALLATION & ROUTING



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE: 6/3/10 STREET & BRIDGE: _____
DRAWN BY: Robert G. 6/3/10 THAWTE: _____
CHECKED BY: Michael 6.3.10 STICK WATER QUALITY: _____
FILE NO.: _____ FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE: _____

HORIZ : _____ VERT : _____

SHEET NO. 16 OF 52

REF. NO. E1

DATE: NOVEMBER 12, 2009

47080

CONDUIT SCHEDULE

CONDUIT NO.	DESCRIPTION	CONDUIT SIZE	POWER CONDUCTORS				CONTROL CONDUCTORS			ROUTING METHOD	FROM	TO	REMARKS
			NO.	SIZE	NEUTRAL	GROUND	NO.	SIZE	COND.				
100	NFWA CONTROL PANEL POWER FEED	1 1/2	2	6	6	6					DISTRICT CONTROL ROOM	UNDERGROUND DUCTBANK	BY DISTRICT, COMPLETE W/CONDUIT #101
101	NFWA CONTROL PANEL POWER FEED	1 1/2	2	6	6	6					DUCTBANK MARKER	UNDERGROUND DUCTBANK	WIRE PROVIDED BY DISTRICT, CONTROL RM TO JB
102	NFWA CONTROL PANEL POWER FEED	1 1/2	2	6	6	6					120V JUNCTION BOX	UNDERGROUND DUCTBANK	
103	(NOT USED)												
104	FCV-1 HEAT TRACE POWER												
105	(NOT USED)												
106	FCV-2 HEAT TRACE POWER												
107	FLOWMETER HEAT TRACE POWER												
108	FLOWMETER AREA UTILITY RECEPTACLE												
109	GST No. 1 HEAT TRACE POWER												
110	GST No. 2 HEAT TRACE POWER												
111	GST HEAT TRACE POWER												
112	FUTURE GST No. 3 HEAT TRACE POWER												
113	FUTURE GST No. 4 HEAT TRACE POWER												
114	FLOODLIGHT												
115	SPARE TO FCV-1												
116	SPARE TO FCV-2												
117	POWER TO FLOWMETER												
118	UT-1 GST No. 1 SIGNAL TO NFWA CONTROL PANEL												
119	UT-2 GST No. 2 SIGNAL TO NFWA CONTROL PANEL												
120	FUTURE UT-3 GST No. 3 SIGNAL TO NFWA CONTROL PANEL												
121	FUTURE UT-4 GST No. 4 SIGNAL TO NFWA CONTROL PANEL												
122	PT-1 DOWNSTREAM PRESS WATERSIGNAL TO CONT PNL												
123	PT-2 UPSTREAM PRESS WATERSIGNAL TO CONT PNL												
124	FT-1 FLOWMETER SIGNAL TO NFWA CONTROL PANEL												
125	FCV-1 TO CONT PNL												
126	FCV-2 TO CONT PNL												
127	(NOT USED)												
128	(NOT USED)												
129	ANALOG SIGNALS TO ANALOG JUNCTION BOX												
130	ANALOG SIGNALS TO ANALOG JUNCTION BOX												
131	ANALOG SIGNALS TO ANALOG JUNCTION BOX												
132	FCV-1 OPEN AND CLOSED LIMIT SOLENOID VALVES												
133	FCV-2 OPEN AND CLOSED LIMIT SOLENOID VALVES												
134	(NOT USED)												
135	(NOT USED)												
136	NFWA WATER UTILIZATION PANEL												
137	(NOT USED)												
138	(NOT USED)												
139	NFWA CONTROLS TO DISTRICT												
140	NFWA CONTROLS TO DISTRICT												
141	NFWA CONTROLS TO DISTRICT												
142	TELEPHONE LINE (DEDICATED) TO NFWA CONTROL PANEL												
143	TELEPHONE LINE (DEDICATED) TO NFWA CONTROL PANEL												



NO.	DATE	REVISION	APPROV.
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— Civil engineers and surveyors —

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Electrical Engineering
TYPE Registration No. F-375
8320 White Road Beaumont, TX 77705 (409) 868-7086

ELECTRICAL
CONDUIT SCHEDULE



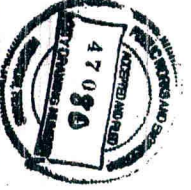
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
DESIGNED BY <i>Robert C. 6/3/10</i>	CHECKED BY <i>Mark E. Kennedy 6-3-10</i>
DRAWN BY <i>David Ford 6-3-10</i>	STATION MASTER QUALITY
FILE NO:	FOR CITY OF HOUSTON USE ONLY

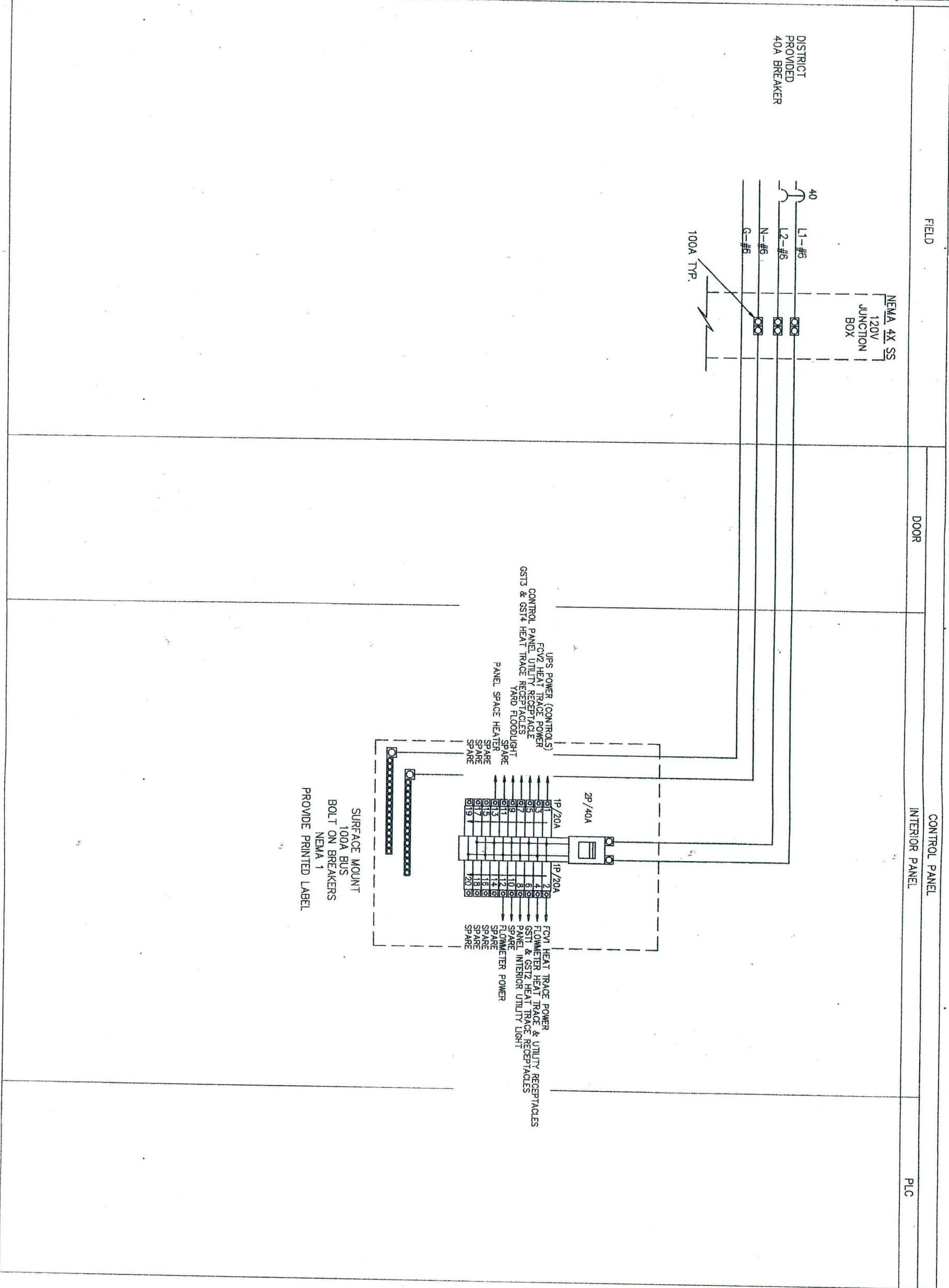
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DATE: NOVEMBER 12, 2009

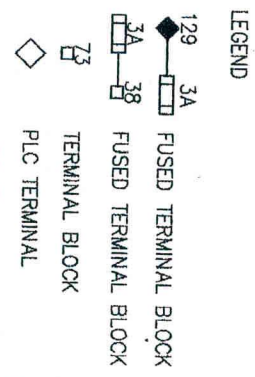
SHEET 17 OF 32



47080



1. ALL VALVES FAIL CLOSE
2. GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GST's AND TWO FUTURE GST's. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICTS, ANTICIPATED ULTIMATE NUMBER OF GSTS. PREPARE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.
3. ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HOT BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION, LONG TERM WEATHERPROOF DURABILITY W/ FREEZE PROTECTION WITHOUT OVERHEATING.



4		
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NO.	DATE	REVISION
APPROV.		

**BROWN
& GAY**
ENGINEERS, INC.

Brown & Gay Engineers, Inc.
10777 Washburn, Suite 400, Houston, TX 77042
Tel: 281-558-9700 Fax: 281-558-9701
— Civil engineers and surveyors —

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TBPE Registration No. F-375
8320 White Road Beaumont, TX 77706 (409) 886-7096

CONTROL DIAGRAM
SHEET 1

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

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DATE	6/3/10	SITE & BRIDGE
WATER	M. J. Good - 6-3-10	TRAFFIC
STATION	In Rd 6.3.10	STORE WATER QUALITY

VOLUMES <i>Serial 6-3-10</i>	FILE NO:
FOR CITY OF HOUSTON USE ONLY 	

DRAWING SCALE

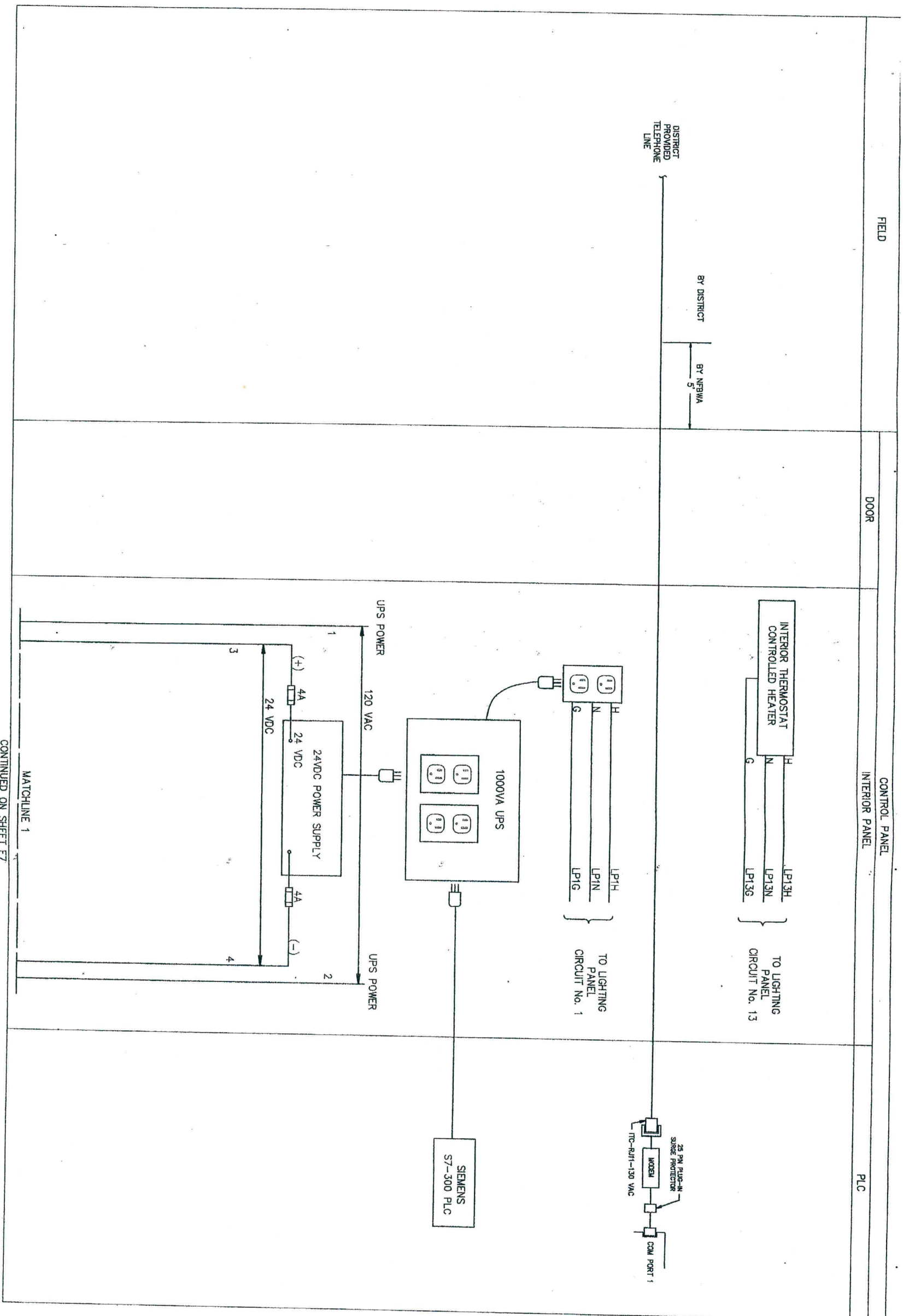
HORZ :
VERT :

47080

ACCEPTED FOR FILE

SHEET
No. 18 OF 32

47080



1. ALL VALVES FAIL CLOSE

2. GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GST's AND TWO FUTURE GST's. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICTS ANTICIPATED ULTIMATE NUMBER OF GST'S. PREPARE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.

3. ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HO BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION. LONG TERM WEATHERPROOF DURABILITY W/ FREEZE PROTECTION WITHOUT OVERHEATING.

129 3A FUSED TERMINAL BLOCK
3A 38 FUSED TERMINAL BLOCK

	TERMINAL BLOCK
	PLC TERMINAL

4			
3			
2			
1			
NO. DATE	REVISION	APPROV.	

**BROWN
& GAY**
ENGINEERS, INC.

Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 Fax: 281-558-8701
— Civil engineers and surveyors —

Brymcon, Inc.

Electrical Engineering
TBPE Registration No. F-375
Beaumont, TX 77708 (409) 866-7096
8320 White Road

SHEET 4



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
Robert C
6/3/10
STREET & BRIDGE

WATER
M. J. Crawford
6-3-10

STORM	STORM WATER QUALITY

FILE NO:

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE •

HORIZ :
VERT :

6/17/10

DATE: NOVEMBER 12, 2009

REF. NO.
E6

SHEET No: 21 OF 32

JUSTICE, PEACE

NOTES:

1. ALL VALVES FAIL CLOSE
2. GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GSTs AND TWO FUTURE GSTs. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICTS ANTICIPATED ULTIMATE NUMBER OF GSTs. PREPARE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.
3. ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HOT BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION, LONG TERM WEATHERPROOF DURABILITY W/ FREEZE PROTECTION WITHOUT OVERHEATING.

LEGEND

- 129 3A FUSED TERMINAL BLOCK
- 3A 38 FUSED TERMINAL BLOCK
- 73 TERMINAL BLOCK
- ◇ PLC TERMINAL



NO.	DATE	REVISION	APPROVAL
4			
3			
2			
1			

BROWN & GAY
Brown & Gay Engineers, Inc.
10777 Westheimer, Suite 400, Houston, TX 77042
Tel: 281-558-8700 Fax: 281-558-9701
— Civil Engineers and Surveyors —
ENGINEERS, INC.

Brymcon, Inc.
Electrical Engineering
TYPE Registration No. F-375
8320 White Road Beaumont, TX 77705 (409) 986-7096

CONTROL DIAGRAM
SHEET 5



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

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED BY: *Robert C. G. 9/3/10* SHEET 2 OF 3

CHECKED BY: *W. H. Gault 6.3.10* STICK WATER QUALITY

APPROVED BY: *David R. H. 6.3.10* FOR CITY OF HOUSTON USE ONLY

FILE NO: *47090*

DRAWING SCALE

HORIZ: *47090*

VERT: *47090*

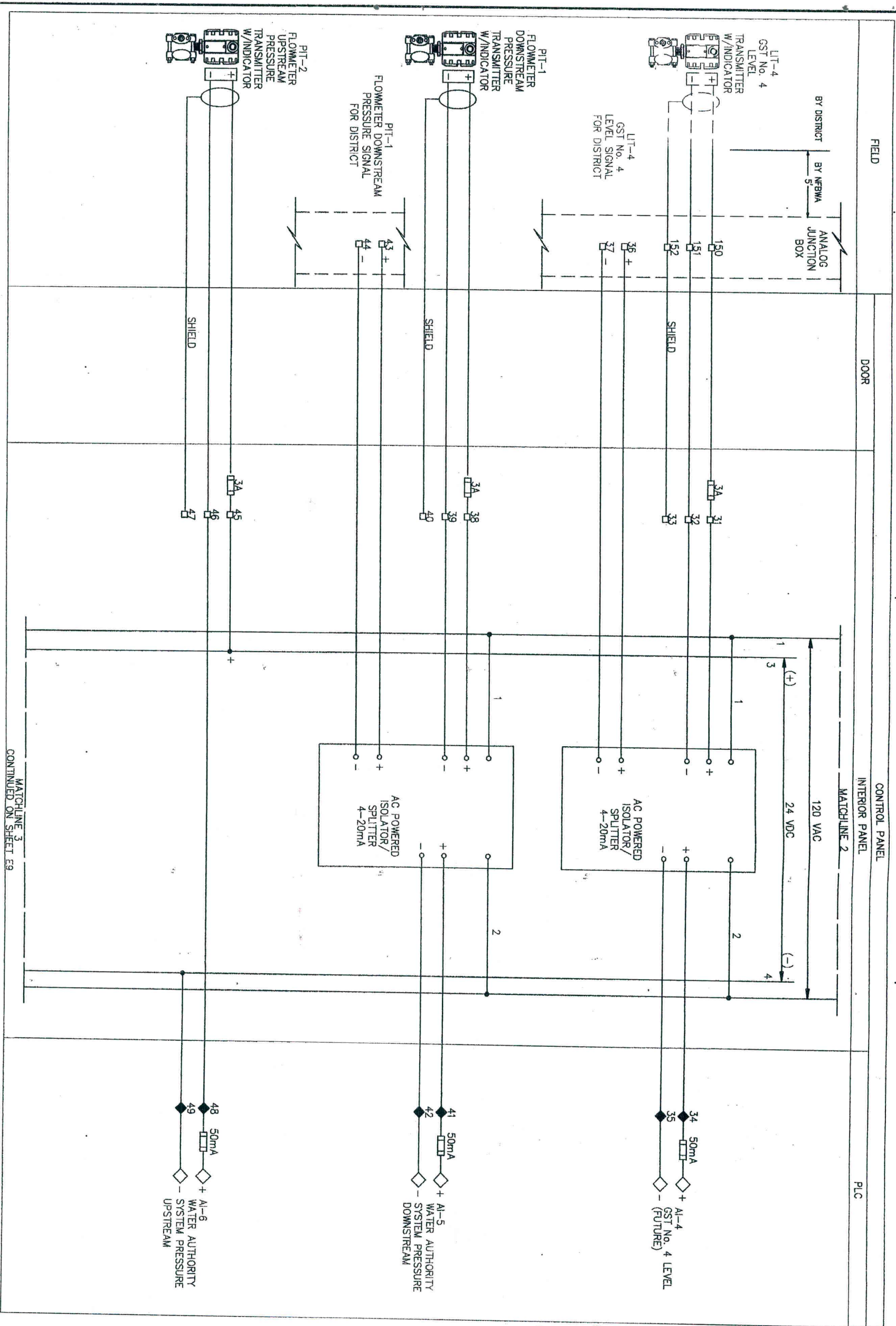
REF. NO. *E7*

SHEET 22 OF 32

DATE: NOVEMBER 12, 2009



47080



MATCHLINE 3
CONTINUED ON SHEET E9

NOTES:

1. ALL VALVES FAIL CLOSE
2. GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GSTs AND TWO FUTURE GSTs. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICTS ANTICIPATED ULTIMATE NUMBER OF GSTs. PREWIRE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.
3. ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HOT BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION, LONG TERM WEATHERPROOF DURABILITY W/ FREEZE PROTECTION WITHOUT OVERHEATING.

LEGEND

- 129 3A FUSED TERMINAL BLOCK
- 3A 38 FUSED TERMINAL BLOCK
- 73 TERMINAL BLOCK
- ◇ PLC TERMINAL



NO.	DATE	REVISION	APPROVAL
1			
2			
3			
4			

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10777 Washburne, Suite 400, Houston, TX 77042
Tel: 281-559-4700 Fax: 281-559-9701
Chief Engineers and Surveyors — ENGINEERS, INC.

Brymcon, Inc.
Electrical Engineering
TYPE Registration No. E-375
8330 White Road Beaumont, TX 77705 (409) 896-7096

CONTROL DIAGRAM
SHEET 6



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER *Robert G. 6/3/10*
WASTEWATER *Robert G. 6/3/10*
STORM *Robert G. 6/3/10*

FILE NO: *Water 6-3-10*

DRAWING SCALE

HORIZ :
VERT :

FOR CITY OF HOUSTON USE ONLY

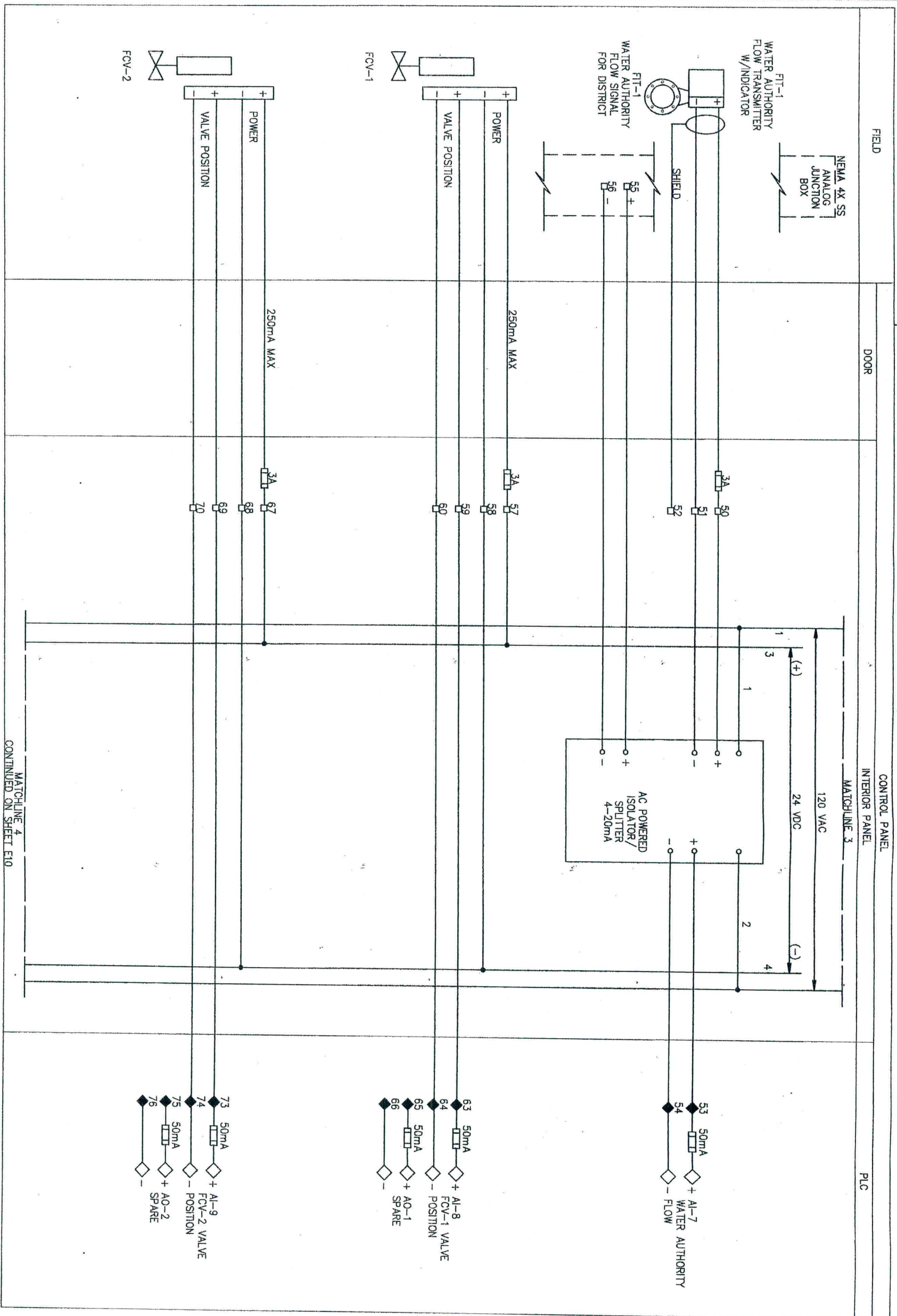
REF. NO.
E8

SHEET
No: 23 OF 32

DATE: NOVEMBER 12, 2009



47080



NOTES:

1. ALL VALVES FAIL CLOSE
2. GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GSTS AND TWO FUTURE GSTS. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICTS ANTICIPATED ULTIMATE NUMBER OF GSTS. PREPARE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.
3. ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HOT BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION, LONG TERM WEATHERPROOF DURABILITY W/ FREEZE PROTECTION WITHOUT OVERHEATING.

LEGEND

- 129 3A FUSED TERMINAL BLOCK
- 3A 38 FUSED TERMINAL BLOCK
- 73 TERMINAL BLOCK
- 73 PLC TERMINAL



NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

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TBEPE Registration No. F-3735
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CONTROL DIAGRAM

SHEET 7



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

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER

STREET & BRIDGE

TRAFFIC

SIGNAL WATER QUALITY

ROADS

FILE NO: 6-3-10

FOR CITY OF HOUSTON USE ONLY

DRAWING SCALE

HORIZ : 47080

VERT : 47080

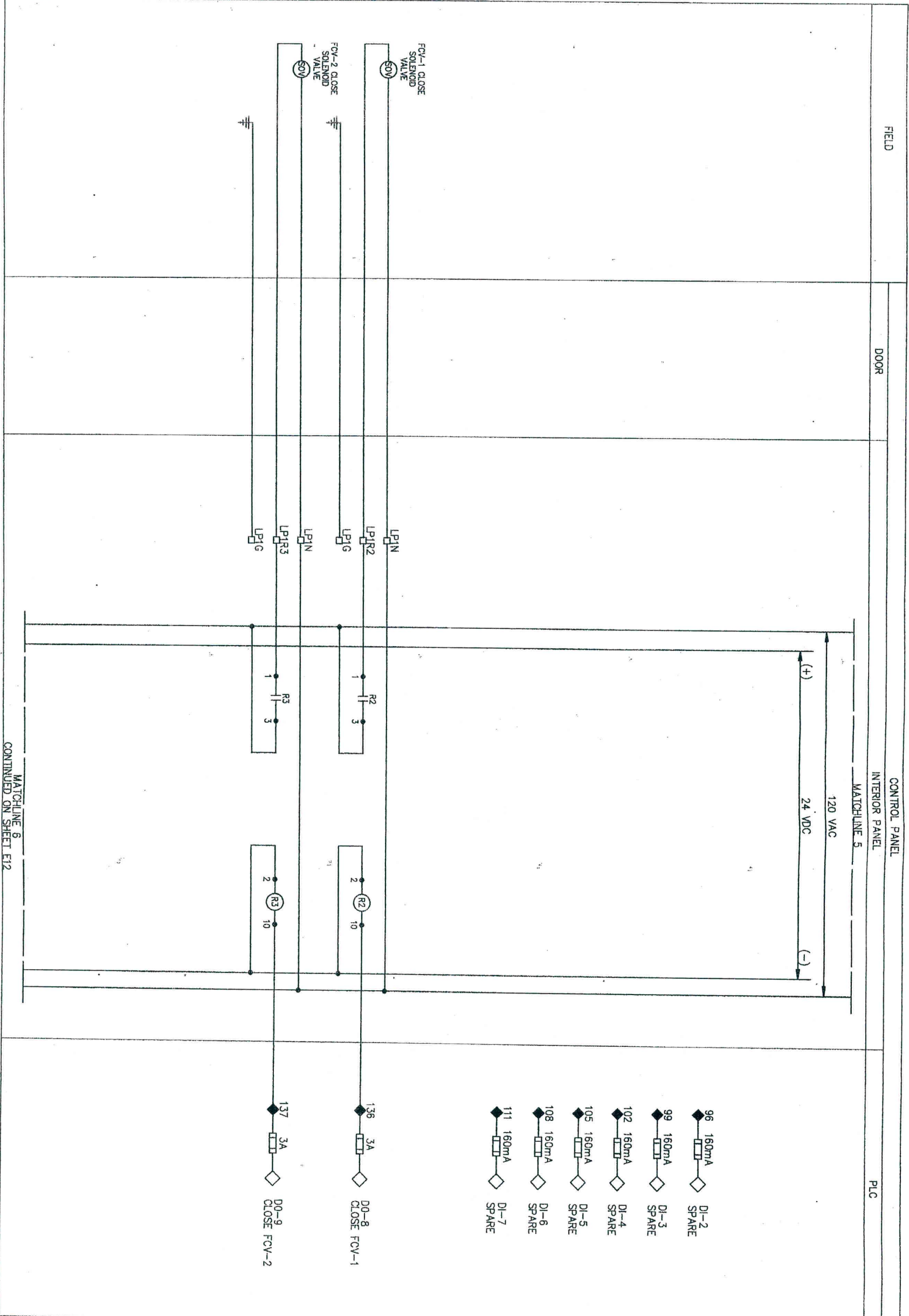
REF. NO. E9

SHEET 24 OF 32

DATE: NOVEMBER 12, 2009

47080





MATCHLINE 5
CONTINUED ON SHEET E12

NOTES:

1. ALL VALVES FAIL CLOSE
2. GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GST'S AND TWO FUTURE GST'S. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICTS ANTICIPATED ULTIMATE NUMBER OF GSTS. PREWIRE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.
3. ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HOT BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION, LONG TERM WEATHERPROOF DURABILITY W/ FREEZE PROTECTION WITHOUT OVERHEATING.

LEGEND

- 129 3A FUSED TERMINAL BLOCK
- 3A 38 FUSED TERMINAL BLOCK
- 73 TERMINAL BLOCK
- ◇ PLC TERMINAL



NO.	DATE	REVISION	APPROVAL
4			
3			
2			
1			

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CONTROL DIAGRAM
SHEET 9



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

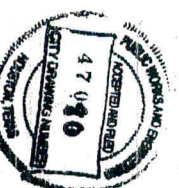
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
SHEET & PROJE
DESIGNED BY
CHECKED BY
DATE
PROJECT
FILE NO.
DRAWING SCALE
HORIZ :
VERT :
SHEET No. 26 OF 32
FOR CITY OF HOUSTON USE ONLY

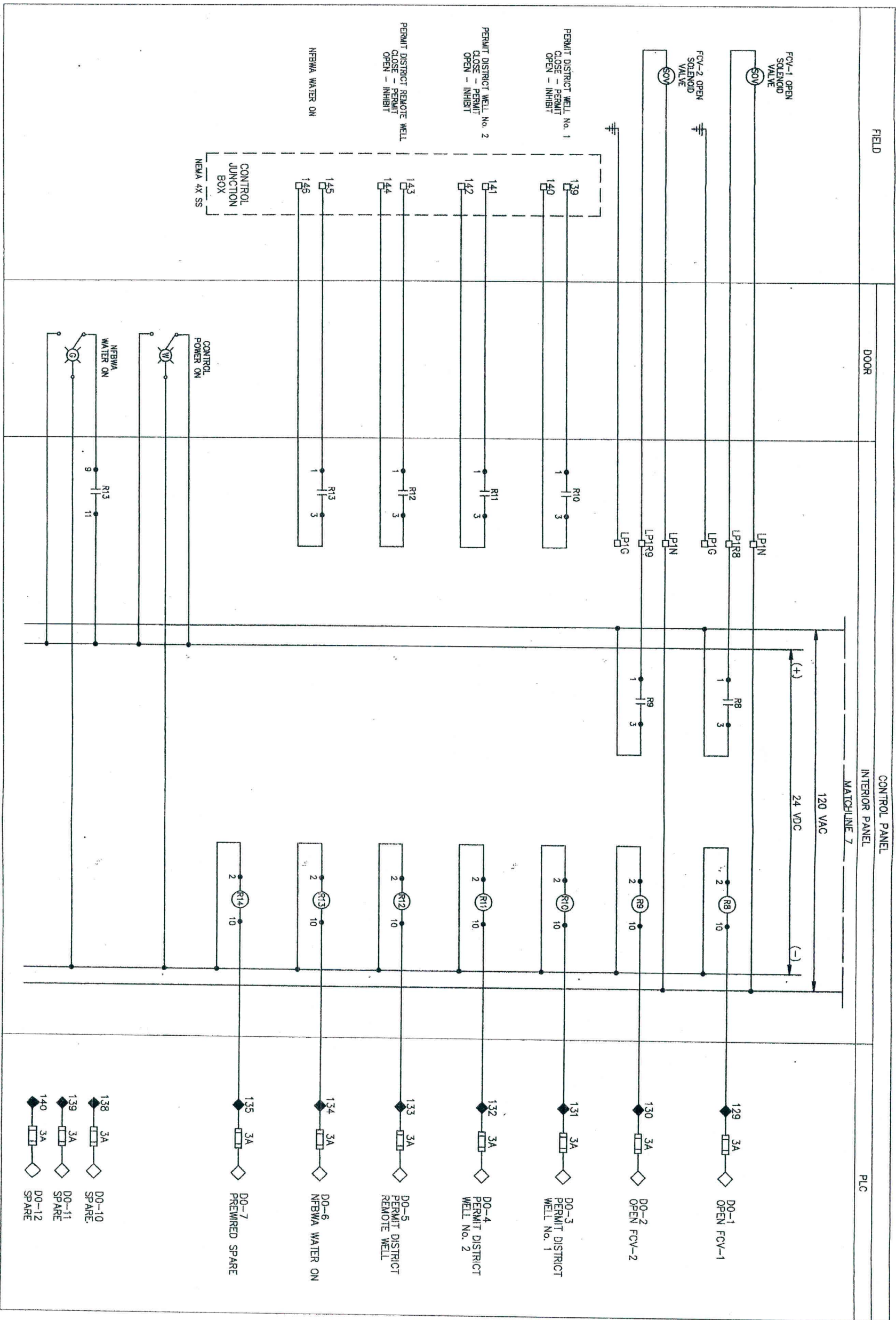
DATE: NOVEMBER 12, 2009

REF. NO. E11

SHEET No. 26 OF 32



47080



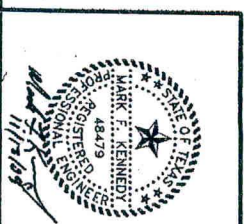
NOTES:

1. ALL VALVES FAIL CLOSE
2. GST COMPONENTS SHOWN HERE ARE TWO EXISTING DISTRICT GST'S AND TWO FUTURE GST'S. MATCH SIGNAL SPLITTERS & GST SELECTOR SWITCH POLES TO DISTRICTS ANTICIPATED ULTIMATE NUMBER OF GSTS. PREPARE FOR FUTURE TO THE FULLEST EXTENT POSSIBLE.
3. ALL HEAT TRACE TAPE IS TO BE 150 DEGREE MAX MAINTAIN. CONTRACTOR TO PROVIDE VALVE & TRANSMITTER INSULATION, HOT BOX, OR INSULATION BLANKETS IN A FASHION TO ALLOW EASE OF OPERATION & CALIBRATION, LONG TERM WEATHERPROOF DURABILITY W/ FREEZE PROTECTION WITHOUT OVERHEATING.

LEGEND

129 3A FUSED TERMINAL BLOCK
3A 38 FUSED TERMINAL BLOCK

◇ TERMINAL BLOCK
◇ PLC TERMINAL



NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

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CONTROL DIAGRAM
SHEET 11



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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DESIGNED BY: *Mark E. Kennedy* 6/3/10
CHECKED BY: *Mark E. Kennedy* 6/3/10
DRAWN BY: *Mark E. Kennedy* 6/3/10
SCALE: 1" = 6' 3.12"

FILE NO: *6-3-10*

FOR CITY OF HOUSTON USE ONLY

REF. NO. E13

DATE: NOVEMBER 12, 2009

SHEET 28 OF 32

47080

- NOTES:
1. NAMEPLATES SHALL BE MOUNTED TO PANELS USING STAINLESS STEEL HARDWARE.
 2. PROVIDE ONE LIMIT SWITCH PER EXTERIOR DOOR, WIRED IN PARALLEL.

NAMEPLATE SCHEDULE

DESIGNATION	ENGRAVED
N1	NORTH FORT BEND WATER AUTHORITY
N2	POWER ON
N3	NFBWA WATER ON
N4	FLOODLIGHT H-O-A
N5	GST SELECTOR
N6	GST1 GST2 GST3 GST4
N7	FUTURE USE
N8	NFBWA WATER USE H-O-A
	NFBWA WATER UTILIZATION
	PARTIAL FULL



NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

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ELECTRICAL
CONTROL PANEL
LAYOUT & SPECIAL
DEVICE SCHEDULE

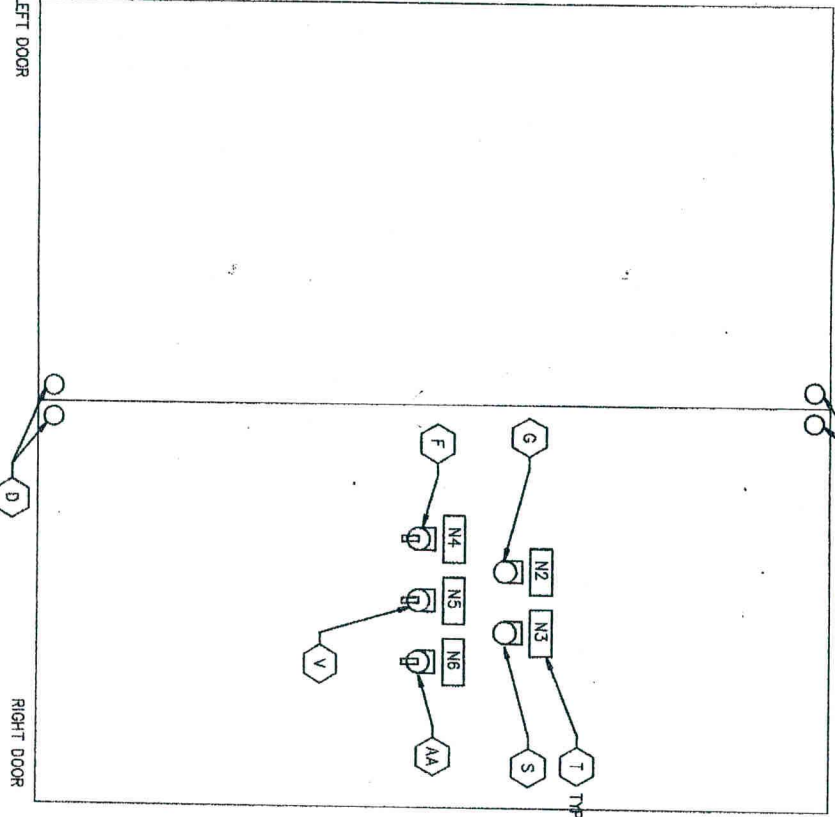


NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

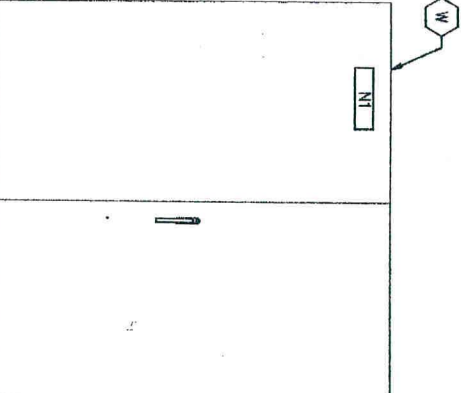
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
WRITER: <i>Robert C. 6/3/10</i>
DESIGNER: <i>W.P. 6-3-10</i>
STATION: <i>6.3.10</i>
PROJECT: <i>Water Util. 6.3.10</i>
FILE NO.:
DRAWING SCALE:
HORIZ.:
VERT.:
SHEET No: 29 OF 32
FOR CITY OF HOUSTON USE ONLY

DATE: NOVEMBER 12, 2009
REF. NO. *E14*
6/17/10

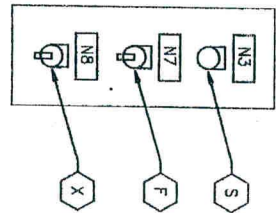
EQUIPMENT & DEVICE SCHEDULE	
ITEM	DESCRIPTION
A	1 PANEL BOARD, 120/240V, 1 PHASE, 3 WIRE, 100 A, 20 CKTS
B	6 SIGNAL SPLITTER/ISOLATOR, DIN RAIL MOUNT, 120VAC, 4-20mA INPUT, DUAL ISOLATED 4-20mA OUTPUTS, APPROX 633T-0100 OR EQUAL
C	1 THERMOSTAT
D	4 QUARTER TURN CAPTIVE DOOR CLOSURE
E	1 120VAC - 24VDC POWER SUPPLY
F	2 HAND-OFF-AUTO SWITCH, HEAVY DUTY OIL TIGHT W/120V, 20A RATING
G	1 INDICATING LIGHT, HEAVY DUTY OIL TIGHT, WHITE, 24 VDC, 2.5 WATT
H	1 STRIP HEATER
I	1 PROGRAMMABLE LOGIC CONTROLLER, SIEMENS S7-300
J	1 SWITCH FOR CABINET LIGHT, 120V, 20A, SPST
K	2 DUPLEX RECEPTACLE, 120V, 20A, 2 WIRE, GROUND, GFCI TYPE
L	1 40 WATT FLUORESCENT STRIP LIGHT W/BALLAST SUITABLE FOR ZERO DEGREE OPERATION
M	1 SURGE PROTECTOR - INCOMING POWER
N	1 UNINTERRUPTIBLE POWER SUPPLY, 1000VA MINIMUM
P	1 LOT FUSED TERMINAL BLOCKS, AS REQUIRED
Q	1 MODERN
R	14 CONTROL RELAY, TURCK 24 VDC RELAY WITH THREE FORM C CONTACTS AND 11 PIN SOCKET BASE
S	2 INDICATING LIGHT, HEAVY DUTY OIL TIGHT, GREEN, 24 VDC, 2.5 WATT
T	9 NAMEPLATES, 3/8" HIGH LETTERING IN WHITE LETTERS ON BLACK BACKLITE (SEE NAMEPLATE SCHEDULE) (SEE NOTE 1)
U	2 DOOR LIMIT SWITCH (SEE NOTE 2)
V	1 GST SELECTOR SWITCH, HEAVY DUTY OIL TIGHT, FOUR POSITION, W/120V, 20A RATING
W	1 HEAVY 3R GASKETED ALUMINUM ENCLOSURE WITHOUT VENTS, 60" X 72" X 24"
X	1 WATER UTILIZATION SWITCH, HEAVY DUTY OIL TIGHT, TWO POSITION, W/120V, 20A RATING
Y	1 TERMINAL BLOCKS AS REQUIRED
Z	1 WIRE DUCT 2" WIDE X 2" DEEP MINIMUM
AA	1 FUTURE USE SWITCH, HEAVY DUTY OIL TIGHT, TWO POSITION, W/120V, 20A RATING



CONTROL PANEL
FRONT INNER DOOR ELEVATION
SCALE: NONE



CONTROL PANEL
EXTERIOR ELEVATION
SCALE: NONE



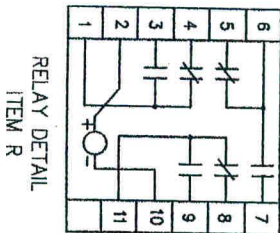
NFBWA WATER
UTILIZATION PANEL ELEVATION
SCALE: NONE



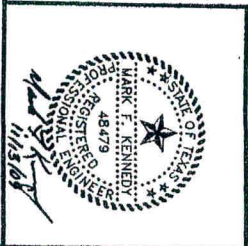
CONTROL PANEL ELEVATION

CONTROL PANEL TERMINAL STRIP ENLARGED VIEW

3A	10	50mA	73	3A	133
11	12	50mA	74	3A	134
13	14	50mA	75	3A	135
15	16	50mA	76	3A	136
17	18	50mA	77	3A	137
19	20	50mA	78	3A	138
21	22	50mA	79	3A	139
23	24	50mA	80	3A	140
25	26	50mA	81	SPARE	143
27	28	50mA	82	SPARE	144
29	30	50mA	83	SPARE	145
31	32	50mA	84	SPARE	146
33	34	50mA	85	SPARE	147
35	36	50mA	86	SPARE	148
37	38	50mA	87	SPARE	149
39	40	50mA	88	SPARE	150
41	42	50mA	89	SPARE	151
43	44	50mA	90	SPARE	152
45	46	50mA	91	SPARE	153
47	48	50mA	92	SPARE	154
49	50	50mA	93	SPARE	155
51	52	50mA	94	SPARE	156
53	54	50mA	95	SPARE	157
55	56	50mA	96	SPARE	158
57	58	50mA	97	SPARE	159
59	60	50mA	98	SPARE	160
61	62	50mA	99	SPARE	161
63	64	50mA	100	SPARE	162
65	66	50mA	101	SPARE	163
67	68	50mA	102	SPARE	164
69	70	50mA	103	SPARE	
71	72	50mA	104	SPARE	
		50mA	105	SPARE	
		50mA	106	SPARE	
		50mA	107	SPARE	
		50mA	108	SPARE	
		50mA	109	SPARE	
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		50mA	113	SPARE	
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		50mA	115	SPARE	
		50mA	116	SPARE	
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		50mA	122	SPARE	
		50mA	123	SPARE	
		50mA	124	SPARE	
		50mA	125	SPARE	
		50mA	126	SPARE	
		50mA	127	SPARE	
		50mA	128	SPARE	
		50mA	129	SPARE	
		50mA	130	SPARE	
		50mA	131	SPARE	
		50mA	132	SPARE	



NOTES:
1. SEE SHEET E14 FOR EQUIPMENT SCHEDULE.



NO.	DATE	REVISION	APPROV.
1			
2			
3			
4			

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ELECTRICAL
CONTROL PANEL
LAYOUT



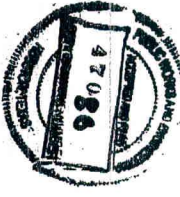
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY AFTER DATE OF SIGNATURES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER
SEWER
STORM
TRAFFIC
SIGNAL & BRIDGE

FILE NO: **6-3-10**

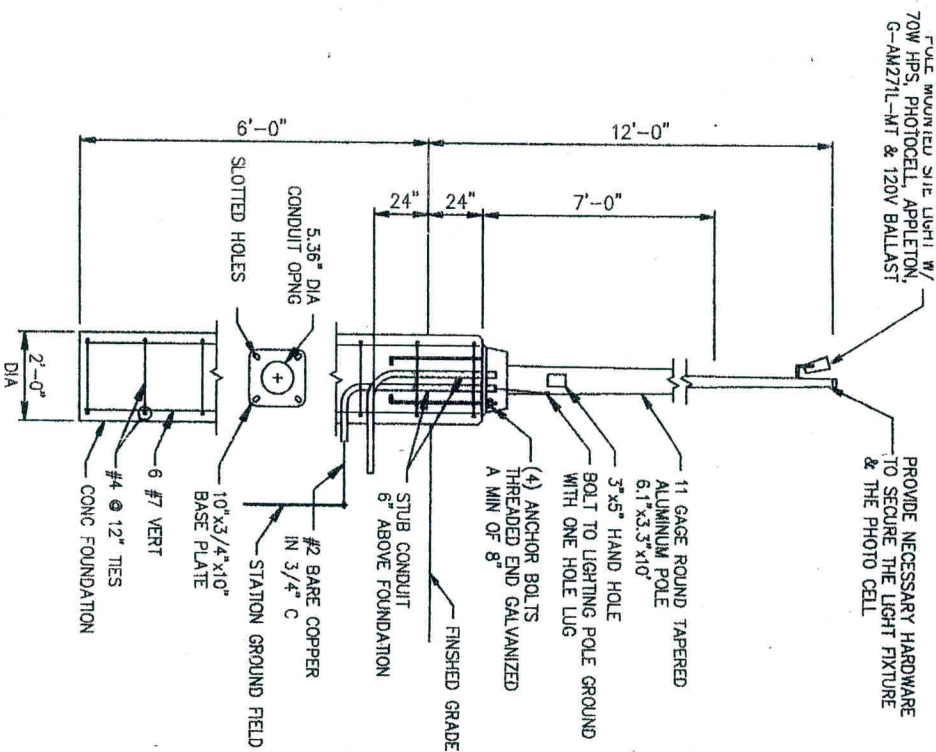
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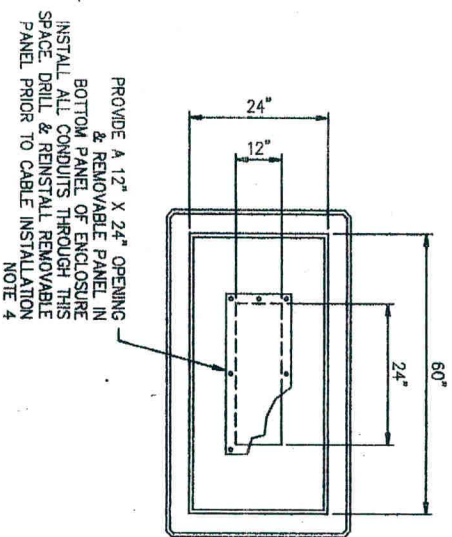
DATE: NOVEMBER 12, 2009

REF. NO. **E15**
SHEET NO. **30** OF **32**

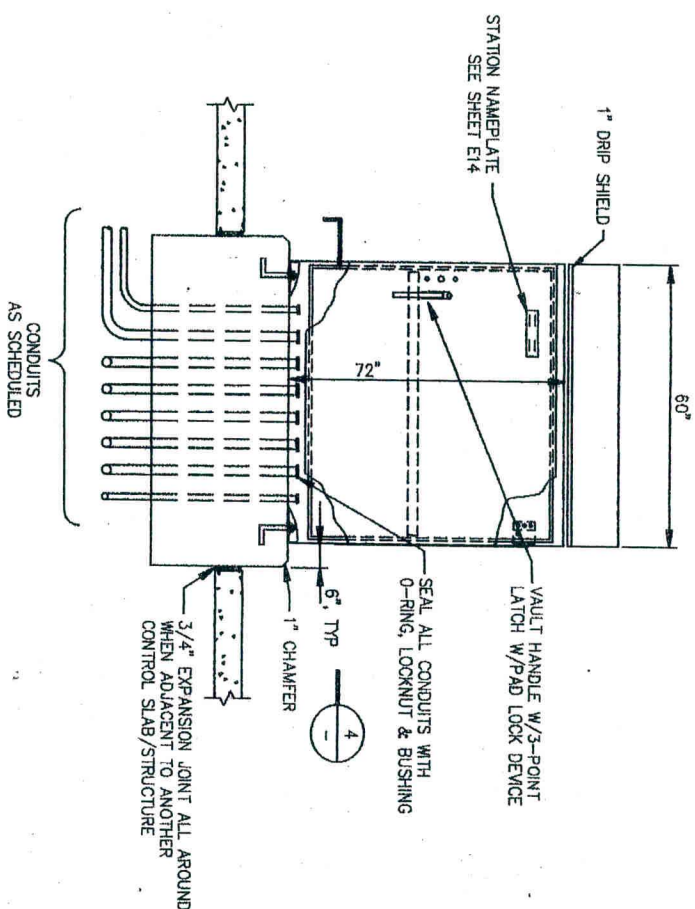
47080



TYPICAL YARD LIGHT
DETAIL 1

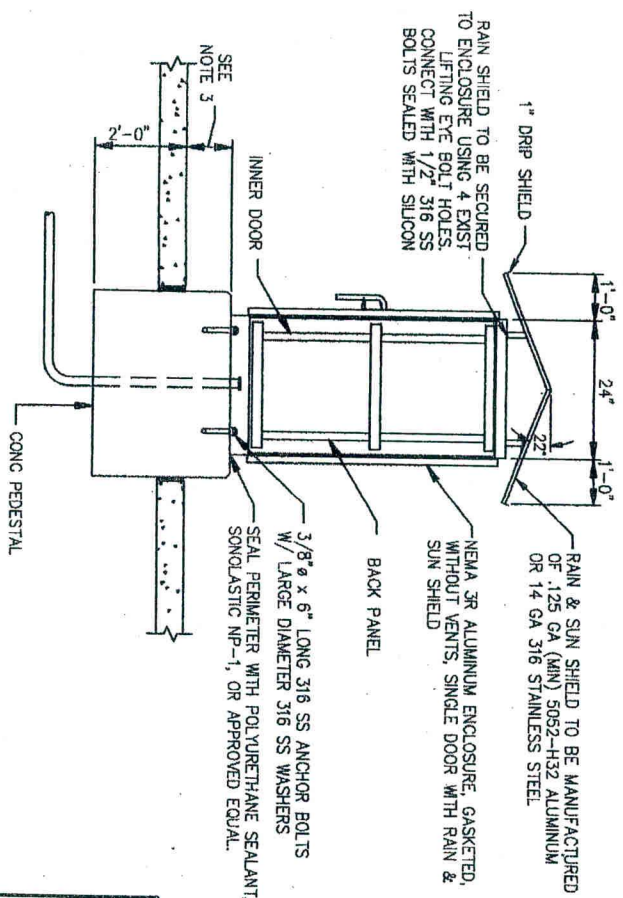


SECTION 4

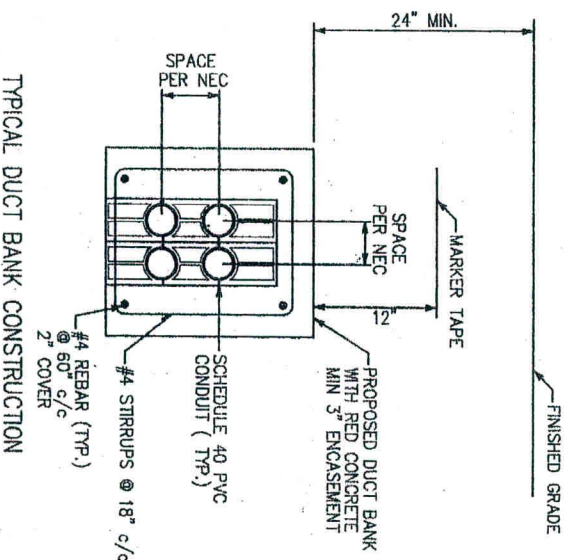


DETAIL 2

CONTROL CABINET ENCLOSURE & FOUNDATION



DETAIL 3



DETAIL 5

- NOTES:
1. SEE SHEET E14 & E15 FOR CONTROL PANEL EQUIPMENT LAYOUT AND SCHEDULE.
 2. UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
 3. TOP OF PEDESTAL TO BE A MINIMUM OF 6" ABOVE SURROUNDING GRADE OR FINISHED GRADE, WHICHEVER IS GREATER.
 4. ADJUST CUTOUT DIMENSIONS AS NEEDED TO ACCOMMODATE ALL REQUIRED CONDUITS.

DATE: NOVEMBER 12, 2009

REF. NO. E17

SHEET 32 OF 32

47080

DRAWING SCALE

HORIZ : VERT :

FILE NO.

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STORM WATER QUALITY

TRAFFIC

WATER

WASTEWATER

STORM

REVISION

REVISION

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ELECTRICAL
DETAILS SHEET 2

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