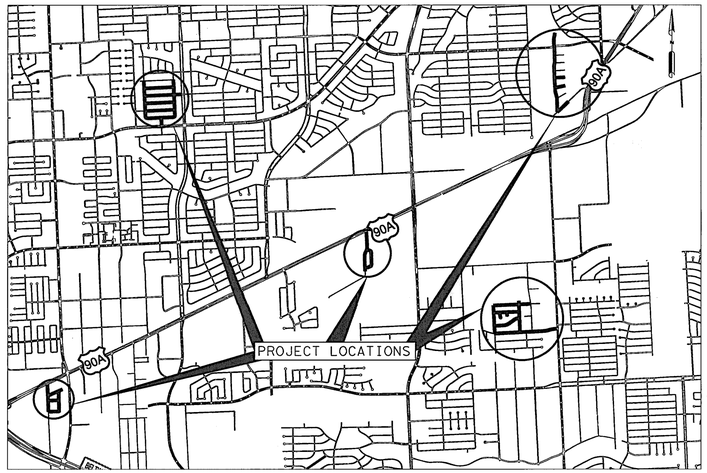
CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

ENGINEERING AND CONSTRUCTION DIVISION

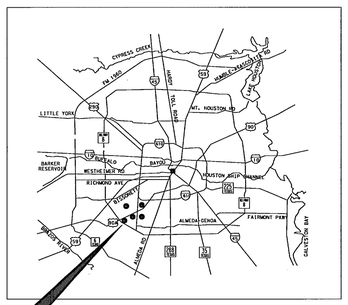
WATER LINE REPLACEMENT IN CAMBRIDGE PARK AREA

WBS NO. S-000035-0188-4



VICINITY MAP
NOT TO SCALE

KEY MAP NO. 530Z, 531W, 532W, 570L,
571A, G, H, M & 572A
GIMS MAP NO. 5051B, 5053D, 5152B,
5152D, 5153C, 5253C
COUNCIL DISTRICT: K



LOCATION MAP
NOT TO SCALE

SEPTEMBER 2013
MAYOR
ANNISE D. PARKER

CONTROLLER
RONALD C. GREEN

FLOODPLAIN GROUP
13-1377
APPROVED
Date 10/7/13
Print Name JCJOHNSON

DISTRICT COUNCIL MEMBERS

HELENA BROWN DISTRICT A	JERRY DAVIS DISTRICT B	ELLEN COHEN DISTRICT C	WANDA ADAMS DISTRICT D
DAVE MARTIN DISTRICT E	AL HOANG DISTRICT F	OLIVER PENNINGTON DISTRICT G	EDWARD GONZALEZ DISTRICT H
JAMES G. RODRIGUEZ DISTRICT I	MIKE LASTER DISTRICT J	LARRY GREEN DISTRICT K	

COUNCIL MEMBERS AT-LARGE

STEPHEN C COSTELLO POSITION 1	ANDREW C. BURKS, JR. POSITION 2
MELISSA NORIEGA POSITION 3	C.O. "BRAD" BRADFORD POSITION 4
JACK CHRISTIE POSITION 5	

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
LARRY F. JANAK
46511
REGISTERED PROFESSIONAL ENGINEER
9-17-2013

SURVEYED BY: JAG Engineering Inc.
FB NO. P-5694

WATER 9/24/2013

WASTEWATER

STORMWATER Ellen S. Mass 9/24/13

STREET & BRIDGE 9-26-2013

CONSTRUCTION 10/4/13 SURVEY

TRAFFIC AND TRANSPORTATION 9/30/13

SIGNALS N/A

MANAGING ENGINEER/ASSISTANT DIRECTOR 10/2/13

PARK-FORESTRY DEPT. 10-3-13

SPONSOR DIVISION/DEPT. N/A

CITY ENGINEER 10/2/13 DATE

DIRECTOR OF PUBLIC WORKS AND ENGINEERING 10/10/13 DATE

PUBLIC WORKS & ENGINEERING
512774
CITY ENGINEER
HOUSTON, TEXAS

SHEET NO 1 OF 151 SHEETS

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3	UTILITY NOTES				
4	SHEET LAYOUT AREA 1A				
5	SHEET LAYOUT AREA 1B				
6	SHEET LAYOUT AREA 2				
7	SHEET LAYOUT AREA 3				
8	SHEET LAYOUT AREA 4				
9 - 14	SURVEY CONTROL MAP				
15	C.O.H. MONUMENT SWING TIES				
16 - 22	SURVEY CONTROL POINT SWING TIES				
23	AVONELLE DRIVE PLAN AND PROFILE	STA	1+00	TO	6+00
24	BROOKSTON STREET PLAN AND PROFILE	STA	BEGIN	TO	4+00
25	BROOKSTON STREET PLAN AND PROFILE	STA	4+00	TO	9+00
26	BROOKSTON STREET PLAN AND PROFILE	STA	9+00	TO	14+00
27	BROOKSTON STREET PLAN AND PROFILE	STA	14+00	TO	END
28	BUXLEY STREET PLAN AND PROFILE	STA	BEGIN	TO	14+00
29	BUXLEY STREET PLAN AND PROFILE	STA	14+00	TO	19+00
30	BUXLEY STREET PLAN AND PROFILE	STA	19+00	TO	END
31	GRANTMOOR DRIVE PLAN AND PROFILE	STA	BEGIN	TO	END
32	LOTUS STREET PLAN AND PROFILE	STA	BEGIN	TO	5+00
33	LOTUS STREET PLAN AND PROFILE	STA	5+00	TO	10+00
34	LOTUS STREET PLAN AND PROFILE	STA	10+00	TO	END
35	STANCLIFF STREET PLAN AND PROFILE	STA	BEGIN	TO	14+80
36	STANCLIFF STREET PLAN AND PROFILE	STA	14+80	TO	19+80
37	STANCLIFF STREET PLAN AND PROFILE	STA	19+80	TO	END
38	TIDEWATER DRIVE PLAN AND PROFILE	STA	BEGIN	TO	4+00
39	TIDEWATER DRIVE PLAN AND PROFILE	STA	4+00	TO	9+00
40	TIDEWATER DRIVE PLAN AND PROFILE	STA	9+00	TO	14+00
41	TIDEWATER DRIVE PLAN AND PROFILE	STA	14+00	TO	19+00
42	TIDEWATER DRIVE PLAN AND PROFILE	STA	19+00	TO	24+00
43	TIDEWATER DRIVE PLAN AND PROFILE	STA	24+00	TO	END
44	WOODMONT DRIVE PLAN AND PROFILE	STA	BEGIN	TO	4+00
45	WOODMONT DRIVE PLAN AND PROFILE	STA	4+00	TO	9+00
46	WOODMONT DRIVE PLAN AND PROFILE	STA	9+00	TO	END
47	KYLEWICK DRIVE PLAN AND PROFILE	STA	BEGIN	TO	12+60
48	KYLEWICK DRIVE PLAN AND PROFILE	STA	12+60	TO	17+60
49	KYLEWICK DRIVE PLAN AND PROFILE	STA	17+60	TO	22+60
50	KYLEWICK DRIVE PLAN AND PROFILE	STA	22+60	TO	END
51	WICKLEY DRIVE PLAN AND PROFILE	STA	BEGIN	TO	13+00
52	WICKLEY DRIVE PLAN AND PROFILE	STA	13+00	TO	18+00
53	WICKLEY DRIVE PLAN AND PROFILE	STA	18+00	TO	END
54	BENNING DRIVE PLAN AND PROFILE	STA	BEGIN	TO	5+00
55	BENNING DRIVE PLAN AND PROFILE	STA	5+00	TO	10+00
56	BENNING DRIVE PLAN AND PROFILE	STA	10+00	TO	END
57	BRAEWICK DRIVE PLAN AND PROFILE	STA	10+00	TO	15+00
58	BRAEWICK DRIVE PLAN AND PROFILE	STA	15+00	TO	20+00
59	BRAEWICK DRIVE PLAN AND PROFILE	STA	20+00	TO	25+00
60	CLARIDGE DRIVE PLAN AND PROFILE	STA	BEGIN	TO	4+00
61	CLARIDGE DRIVE PLAN AND PROFILE	STA	4+00	TO	9+00
62	CLARIDGE DRIVE PLAN AND PROFILE	STA	9+00	TO	END
63	DUNLAP DRIVE PLAN AND PROFILE	STA	10+00	TO	15+00
64	DUNLAP DRIVE PLAN AND PROFILE	STA	15+00	TO	20+00
65	DUNLAP DRIVE PLAN AND PROFILE	STA	20+00	TO	25+00
66	KIRKSIDE DRIVE PLAN AND PROFILE	STA	9+00	TO	END
67	PORTAL DRIVE PLAN AND PROFILE	STA	BEGIN	TO	4+00
68	PORTAL DRIVE PLAN AND PROFILE	STA	4+00	TO	9+00
69	PORTAL DRIVE PLAN AND PROFILE	STA	9+00	TO	14+00
70	PORTAL DRIVE PLAN AND PROFILE	STA	14+00	TO	END
71	SANFORD DRIVE PLAN AND PROFILE	STA	BEGIN	TO	4+00
72	SANFORD DRIVE PLAN AND PROFILE	STA	4+00	TO	9+00
73	SANFORD DRIVE PLAN AND PROFILE	STA	9+00	TO	END
74	SPELLMAN DRIVE PLAN AND PROFILE	STA	BEGIN	TO	5+00
75	SPELLMAN DRIVE PLAN AND PROFILE	STA	5+00	TO	10+00
76	SPELLMAN DRIVE PLAN AND PROFILE	STA	10+00	TO	END
77	IRENE STREET PLAN AND PROFILE	STA	BEGIN	TO	3+80
78	IRENE STREET PLAN AND PROFILE	STA	3+80	TO	END
79	JOAN STREET PLAN AND PROFILE	STA	BEGIN	TO	3+80
80	JOAN STREET PLAN AND PROFILE	STA	3+80	TO	END
81	NICHOLAS STREET PLAN AND PROFILE	STA	BEGIN	TO	4+00
82	NICHOLAS STREET PLAN AND PROFILE	STA	4+00	TO	END
83	SETTEMONT ROAD PLAN AND PROFILE	STA	BEGIN	TO	14+00
84	SETTEMONT ROAD PLAN AND PROFILE	STA	14+00	TO	19+00
85	SETTEMONT ROAD PLAN AND PROFILE	STA	19+00	TO	END
86	TASIA DRIVE PLAN AND PROFILE	STA	BEGIN	TO	14+00
87	TASIA DRIVE PLAN AND PROFILE	STA	14+00	TO	END
88	CRAIGHEAD DRIVE PLAN AND PROFILE	STA	BEGIN	TO	2+00
89	CRAIGHEAD DRIVE PLAN AND PROFILE	STA	2+00	TO	7+00
90	CRAIGHEAD DRIVE PLAN AND PROFILE	STA	7+00	TO	12+00
91	CRAIGHEAD DRIVE PLAN AND PROFILE	STA	12+00	TO	17+00
92	CRAIGHEAD DRIVE PLAN AND PROFILE	STA	17+00	TO	22+00
93	CRAIGHEAD DRIVE PLAN AND PROFILE	STA	22+00	TO	27+00
94	CRAIGHEAD DRIVE PLAN AND PROFILE	STA	27+00	TO	END
95	DAWN AVENUE PLAN AND PROFILE	STA	BEGIN	TO	END
96	HARTT STREET PLAN AND PROFILE	STA	BEGIN	TO	END
97	OLD MAIN STREET LOOP ROAD PLAN AND PROFILE	STA	BEGIN	TO	13+00
98	OLD MAIN STREET LOOP ROAD PLAN AND PROFILE	STA	13+00	TO	END
99 - 100	PROPOSED WATERLINE LATERALS				
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103	STANDARD SANITARY SEWER DETAILS				
104 - 106	STANDARD PAVING DETAILS				
107	STANDARD STREET CUT DETAILS				
108	CONSTRUCTION SIGN DETAIL				
109	TRAFFIC CONTROL PLAN TCP NOTES				
110	TRAFFIC CONTROL PLAN PROJECT LAYOUT AREA 1A				
111	TRAFFIC CONTROL PLAN AREA 1A				
112	TRAFFIC CONTROL PLAN PROJECT LAYOUT AREA 1B				
113	TRAFFIC CONTROL PLAN AREA 1B				

SHEET NO.	DESCRIPTION
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115	TRAFFIC CONTROL PLAN AREA 2
116	TRAFFIC CONTROL PLAN PROJECT LAYOUT AREA 3
117	TRAFFIC CONTROL PLAN AREA 3
118	TRAFFIC CONTROL PLAN PROJECT LAYOUT AREA 4
119	TRAFFIC CONTROL PLAN AREA 4
120	TRAFFIC CONTROL PLAN TYPICAL DETAILS
121	TRAFFIC CONTROL PLAN BARRICADE DETAILS
122	TRAFFIC CONTROL PLAN CHANNELIZING DEVICES AND BARRICADES
123	TRAFFIC CONTROL PLAN TYPICAL OVERALL
124	TRAFFIC CONTROL PLAN TYPICAL LAYOUT
125	TRAFFIC CONTROL PLAN ONE-LANE CLOSURE FOR DIVIDED ROADWAY
126	TRAFFIC CONTROL PLAN ONE-LANE CLOSURE WITH ONE-WAY CONVERSION
127	TRAFFIC CONTROL PLAN 3-WAY INTERSECTION PHASE 1 OF 3
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134	STORM WATER POLLUTION PREVENTION PLAN AREA 1A
135	STORM WATER POLLUTION PREVENTION PLAN AREA 1A
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137	STORM WATER POLLUTION PREVENTION PLAN AREA 2
138	STORM WATER POLLUTION PREVENTION PLAN AREA 3
139	STORM WATER POLLUTION PREVENTION PLAN AREA 4
140	STORM WATER POLLUTION PREVENTION PLAN STANDARD DETAILS
141	TREE PROTECTION AND DISPOSITION PLAN AREA 1A
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143	TREE PROTECTION AND DISPOSITION PLAN AREA 2
144	TREE PROTECTION AND DISPOSITION PLAN AREA 3
145	TREE PROTECTION AND DISPOSITION PLAN AREA 4
146	TREE PROTECTION AND DISPOSITION PLAN AREA 4
147	TREE PROTECTION AND DISPOSITION PLAN TREE TABLES
148	TREE PROTECTION AND DISPOSITION PLAN TREE TABLES
149	TREE PROTECTION AND DISPOSITION PLAN TREE TABLES
150	TREE PROTECTION AND DISPOSITION PLAN TREE TABLES
151	LANDSCAPE DETAILS

TOPOGRAPHIC SURVEY SYMBOL LEGEND

- POWER POLE
- DOWN GUY
- GROUND BOX/ELECTRIC JUNCTION BOX
- TRAFFIC SIGN
- MANHOLE
- B OR BB INLET
- GRATE INLET
- C-INLET
- E-INLET
- FIRE HYDRANT
- WATER VALVE
- WATER METER
- BUILDING
- FENCE (CHAIN LINK, WOOD, WROUGHT IRON)
- HIGH BANK
- CENTERLINE DITCH
- HEDGE
- BUSH OR SHRUB
- TREE
- PALM TREE
- CREPE MYRTLE
- UTILITY PAINT MARKER
- CONTROL POINT & TEMPORARY BENCH MARK
- LIGHT
- BOLLARD
- C.O.H. MONUMENT
- FOUND BOUNDARY MONUMENT
- BOREHOLE
- CLEANOUT
- GAS METER
- GAS VALVE
- CENTERPOINT ENERGY/HL&P MANHOLE
- AT&T/SWBT MANHOLE
- ELEC. METER POLE
- RECORD DRAWING REFERENCE
- SPRINKLER HEAD
- SPRINKLER VALVE
- MAIL BOX

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

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

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED
PROFESSIONAL ENGINEER
Stephen K. Yu 9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

INDEX OF DRAWINGS AND LEGEND

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
NTS	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 2 OF 151	

APPROVED PUBLIC WORKS AND ENGINEERING
51277
CITY OF HOUSTON TEXAS

4:35:47 PM
matthewl 9/12/13
...\CADD\GENERAL\CAM-GEN-IDX.dgn

CAM-GEN-IDX.dgn

GENERAL CONSTRUCTION NOTES

1. UTILITIES PRESENTED ON THESE DRAWINGS ARE SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL VERIFY THE EXACT LOCATIONS IN THE FIELD PRIOR TO COMMENCING CONSTRUCTION. CONTRACTOR SHALL NOTIFY TEXAS ONE CALL AT 713-223-4567/800-245-4545 AND LONE STAR ONE CALL AT 800-669-8344 AT LEAST 48 HOURS BEFORE PROCEEDING WITH ANY EXCAVATION.

2. CONTRACTOR SHALL NOTIFY THE OFFICE OF THE CITY ENGINEER, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING AT 713-863-1450 FOR INSPECTION AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION, THIS IS A REQUIREMENT OF THE STREET CUT PERMIT. THIS DOES NOT NEGATE CONTRACTOR'S RESPONSIBILITY TO NOTIFY CITY'S CONSTRUCTION PROJECT MANAGER.

3. THIS PROJECT SHALL BE BUILT BY MEANS OF AUGER EXCEPT AS NOTED ON THE DRAWINGS. CONTRACTOR TO DETERMINE THE LOCATIONS OF BORE PITS IN THE FIELD SUBJECT TO THE CITY ENGINEER'S APPROVAL.

4. THE SIZES OF WATER METERS SHOWN BUT NOT SPECIFICIALLY CALLED OUT IN THIS PROJECT ARE ONE INCH OR SMALLER STANDARD CITY OF HOUSTON WATER METERS. ALL OTHER SIZES LARGER THAN ONE INCH ARE SPECIFICALLY CALLOUT OUT ON THESE DRAWINGS.

5. CONTRACTOR TO PRESERVE AND LEAVE IN PLACE EXISTING BIKE ROUTE SIGNS WITHIN THE PROJECT AREA OR REMOVE, SAFEGUARD AND RE-INSTALL SIGNS TO ITS ORIGINAL LOCATION AT THE CONCLUSION OF CONSTRUCTION.

6. CONTRACTOR TO PRESERVE AND LEAVE IN PLACE EXISTING 8" DESIGNATED BIKE LANES PAVEMENT MARKINGS WITHIN THE PROJECT AREA OR RE-INSTALL DAMAGED BIKE LANES MARKINGS TO ITS ORIGINAL LOCATION AT THE CONCLUSION OF CONSTRUCTION.

STANDARD HCFCD NOTES FOR CONSTRUCTION DRAWINGS

1. OBTAIN AND COMPLY WITH ALL APPLICABLE CITY, COUNTY, STATE, AND FEDERAL PERMITS AND APPROVALS, WITH ASSISTANT FROM ENGINEER, IF NECESSARY. OBTAIN PERMIT (CERTIFICATION) FROM HARRIS COUNTY ENGINEER TO ENTER HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY.

2. NOTIFY THE HARRIS COUNTY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT IN WRITING AT LEAST 48 HOURS PRIOR TO CONSTRUCTION. SUBMIT THE HCFCD 48 HOUR PRE-CONSTRUCTION NOTIFICATION FORM, A COPY OF THE APPROVED CONSTRUCTION DRAWINGS, AND A COPY OF THE CORPS OF ENGINEERS INDIVIDUAL SECTION 404 PERMIT, IF APPLICABLE, TO HCFCD, 9900 NORTHWEST FREEWAY, HOUSTON TEXAS 77092, ATTN.: PROPERTY MANAGEMENT DEPARTMENT BY HAND DELIVERY, OR FAX TO 713-684-4129 (FAX NUMBER).

3. ENGINEER SHALL SUBMIT CERTIFICATION LETTER AND RECORD DRAWINGS TO THE HARRIS COUNTRY FLOOD CONTROL DISTRICT'S PROPERTY MANAGEMENT DEPARTMENT REQUESTING INSPECTION OF ITEMS CONSTRUCTED IN HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHT-OF-WAY. PRIOR TO REQUESTING INSPECTION, THE DRAINAGE RIGHT-OF-WAY AND /OR EASEMENTS SHALL BE STAKED AND FLAGGED.

4. PROTECT, MAINTAIN, AND RESTORE EXISTING BACKSLOPE DRAINAGE SYSTEMS.

5. BACKSLOPE SWALE AND INTERCEPTOR STRUCTURE ELEVATIONS AND LOCATIONS SHOWN ON PLANS ARE APPROXIMATE. FINAL ELEVATIONS AND LOCATIONS SHALL BE FIELD VERIFIED BY THE ENGINEER PRIOR TO INSTALLATION.

6. ESTABLISH TURF GRASS ON ALL DISTURBED AREAS WITHIN THE CHANNEL OR DETENTION RIGHT-OF-WAY, EXPECT THE CHANNEL BOTTOM AND WHERE STRUCTURAL EROSION MEASURES ARE USED. MINIMUM ACCEPTANCE CRITERIA ARE 75% COVERAGE OF LIVE BERMUDA GRASS AND NO EROSION OR RILLS DEEPER THAN 4".

7. BACKFILL IN ACCORDANCE WITH THE HARRIS COUNTY FLOOD CONTROL DISTRICT STANDARD SPECIFICATION, SECTION 02315-EXCAVATING AND BACKFILLING, OR EQUIVALENT.

8. EXCAVATE CHANNEL FLOWLINE TO DESIGN ELEVATION AS SHOWN ON PLANS AND DOWNSTREAM, AS NECESSARY, TO ENSURE NO WATER REMAINS IN THE FACILITY (STORM SEWER, LATERAL CHANNEL, OR DRY BOTTOM DETENTION BASINS DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL SO THE FACILITY WILL FUNCTION AS INTENDED. FOR WET BOTTOM DETENTION BASINS ENSURE NO WATER IS ABOVE THE DESIGN LEVEL IN THE WET BOTTOM DURING NORMAL WATER SURFACE CONDITIONS IN THE CHANNEL.

9. MAINTAIN FLOW IN CHANNEL DURING CONSTRUCTION AND RESTORE CHANNEL TO ORIGINAL CONDITION.

10. REMOVE ALL EXCAVATED MATERIAL FROM THE HARRIS COUNTY FLOOD CONTROL DISTRICT OR DRAINAGE RIGHT-OF-WAY. NO FILL IS TO BE PLACED WITHIN A DESIGNATED FLOOD PLAIN AREA WITHOUT FIRST OBTAINING A FILL PERMIT FROM THE APPROPRIATE JURISDICTIONAL AUTHORITY.

AT&T TEXAS/SWBT FACILITIES

1. THE LOCATIONS OF AT&T TEXAS/SWBT FACILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION BEFORE COMMENCING WORK. HE AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT BE OCCASIONED BY THIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND UTILTITIES.

2. THE CONTRACTOR SHALL CALL 1-800-344-8377 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE UNDERGROUN D LINES FIELD LOCATED.

3. WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF AT&T TEXAS/SWBT FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING, THE CONSTRACTOR SHALL EXPOSE THE AT&T TEXAS/SWBT FACILITIES.

4. WHEN AT&T TEXAS/SWBT FACILITIES ARE EXPOSED, THE CONTRACTOR WILL PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.

5. THE PRESENCE OR ABSENSE OF AT&T TEXAS/SWBT UNDERGROUND CONDUIT FACILITIES OR BURIED CABLE FACILITIES SHOWN ON THESE PLANS DOES NOT MEAN THAT THERE ARE NO DIRECT BURIED CABLES OR OTHER CABLES IN CONDUIT IN THE AREA.

6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANAGER MR. ROOSEVELT LEE JR. AT (713) 567-4552 OR E-MAIL HIM AT RL7259@ATT.COM, IF THERE ARE QUESTIONS ABOUT BORING OR EXCAVATING NEAR OUR AT&T TEXAS/SWBT FACILITIES.

CENTERPOINT ENERGY

CAUTION: UNDERGROUND GAS FACILITIES

LOCATIONS OF CENTERPOINT ENERGY MAIN LINES (TO INCLUDE CENTERPOINT ENERGY, INTRASTATE PIPELINE, LLC. WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. OUR SIGNATURE ON THESE PLANS ONLY INDICATES THAT OUR FACILITIES ARE SHOWN IN APPROXIMATE LOCATION. IT DOES NOT IMPLY THAT A CONFLICT ANALYSIS HAS BEEN MADE. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT (713) 223-4567 OF 1-800-669-8344 A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED..

- WHEN CENTERPOINT ENERGY PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 967-8037 (7:00 a.m. TO 4:30 p.m.) FOR STATUS OF LINE LOCATION REQUEST BEOFRE EXCAVATION BEGINS.

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

- WHEN CENTERPOINT ENERGY FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESSIVE STRESS ON THE PIPING.

THE CONTRACTOR IS FULLY RESPONSIBLE FOR ANY DAMAGES CAUSED BY HIS FAILURE TO EXACTLY LOCATE AND PRESERVE THESE UNDERGROUND FACILITIES.

WARNING: OVERHEAD ELECTRICAL 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 ACTIVITIES THAT OCCUR IN CLOSE PROXIMITY TO HIGH VOLTAGE LINES, SPECIFICALLY:

- ANY ACTIVITY WHERE PERSON OR THINGS MAY COME WITHIN SIX (6) FEET OF LIVE OVERHEAD HIGH VOLTAGE LINES; AND

- OPERATING A CRANE, DERRICK, POWER SHOVEL, DRILLING RIG, PILE DRIVER, HOISTING EQUIPMENT, OR SIMILAR APPARATUS WITHIN 10 FFET OF LIVE OVERHEAD HIGHVOLTAGE LINES.

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

ABBREVIATIONS

ABS	ABSOLUTE
ADJ	ADJUSTMENT
ALUM	ALUMINUM
APPROX	APPROXIMATE
BL	BASELINE
BLDG	BUILDING
CB	CATCH BASIN
CL	CENTER LINE
CLR	CLEARANCE
CP	CONTROL POINT
COH	CITY OF HOUSTON
CONC	CONCRETE
CONT	CONTROL OR CONTINUATION
DIP	DUCTILE IRON PIPE
DIA	DIAMETER
DWG	DRAWING
ELEV	ELEVATION
REINF	REINFORCING
ELECT	ELECTRICAL
REQ'D	REQUIRED
ESMT	EASEMENT
EQUIP	EQUIPMENT
EXIST	EXISTING
FF	FACE TO FACE
FH	FIRE HYDRANT
FL	FLOW LINE
FLR	FLOOR
FM	FORCE MAIN
GV	GATE VALVE
HMAC	HOT MIXED ASPHALT CONCRETE
HP	HIGH PRESSURE
ID	INSIDE DIAMETER
INV	INVERT
IP	INTERMEDIATE PRESSURE
IPB	INLETE PROTECTION BARRIER
LF	LINEAR FEET
MH	MANHOLE
MON	MONUMENT
NA	NOT APPLICABLE
NFIF	NOT FOUND IN FIELD
NO	NUMBER
NTS	NOT TO SCALE
OC	ON CENTER
OD	OUTSIDE DIAMETER
PC	POINT OF CURVATURE
PCCP	PRESTRESSED CONCRETE CYLINDER PIPE
PI	POINT OF INTERSECTION
PROP	PROPOSED
PH	POST HYDRANT
PLA	PLASTIC
PT	POINT OF TANGENCY
PVMT	PAVEMENT
R	RADIUS
R & R	REMOVE AND REPLACE
REF	REFERENCE
RCP	REINFORCED CONCRETE PIPE
RFB	REINFORCED FILTER FABRIC BARRIER
ROW	RIGHT OF WAY
SAN	SANITARY
SC	SERVICE CONNECTION
SD	SANITARY DRAIN
STL	STEEL
SBC	SOUTH WESTERN BELL TELEPHONE
SWR	SEWER
SHT	SHEET
STA	STATION
STM	STORM
TBM	TEMPORARY BENCH MARK
TC	TOP OF CURB
TEMP	TEMPORARY
TP	TOP OF PAVEMENT
TS&V	TAPPING SLEEVE AND VALVE
TYP	TYPICAL
UE	UTILITY EASEMENT
VCP	VITRIFIED CLAY PIPE
WL	WATER LINE
WV	WATER VALVE
WM	WATER METER

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Deana C. Ward Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. BRYAN
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

UTILITY NOTES

SHEET 1 OF 1

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	3 OF 151

FOR CITY OF HOUSTON USE ONLY
APPROVED
51277

3:36:12 PM 9/12/13
matthew.
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LEGEND

- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- B-X BOREHOLE LOCATION

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

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

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
SHEET LAYOUT AREA 1A

SHEET 1 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	PUBLIC WORKS & ENGINEERING 51277
DRAWING SCALE	
1"=100' (H)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 4 OF 151	

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matthewl
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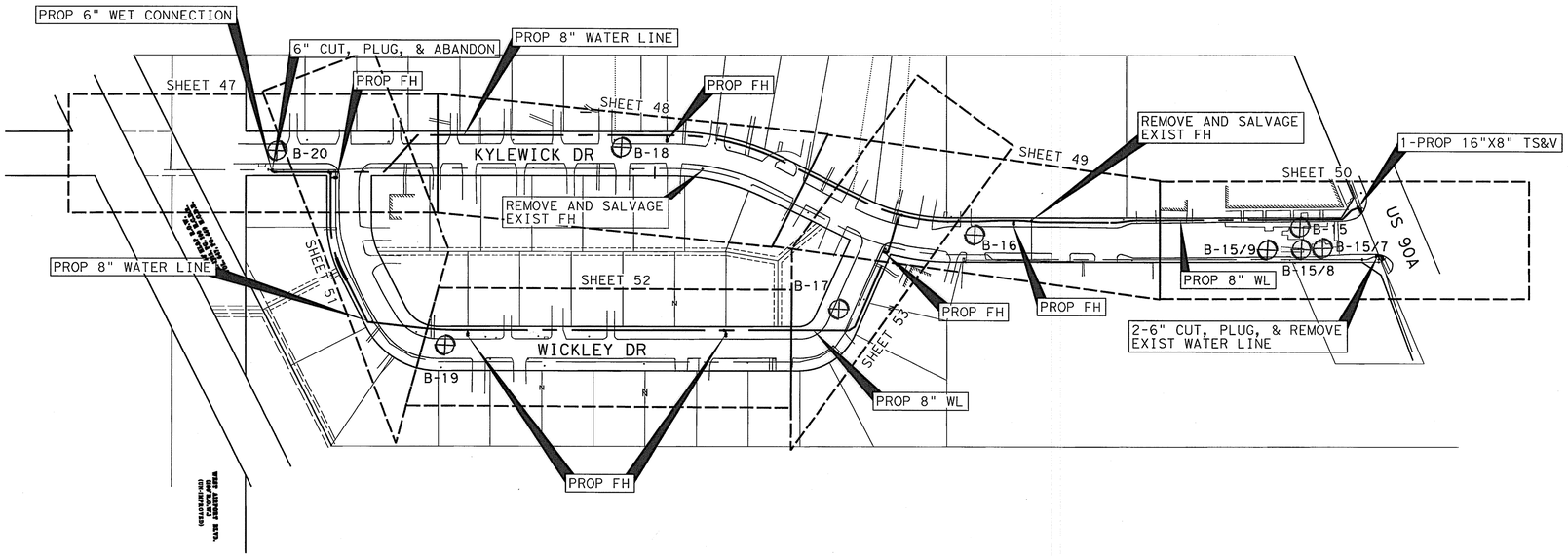

LEGEND

- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

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

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

1
CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
SHEET LAYOUT AREA 1B

SHEET 2 OF 5

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=100' (H)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 5 OF 151

FOR CITY OF HOUSTON USE ONLY
REGISTERED ENGINEER
51277

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matthew1
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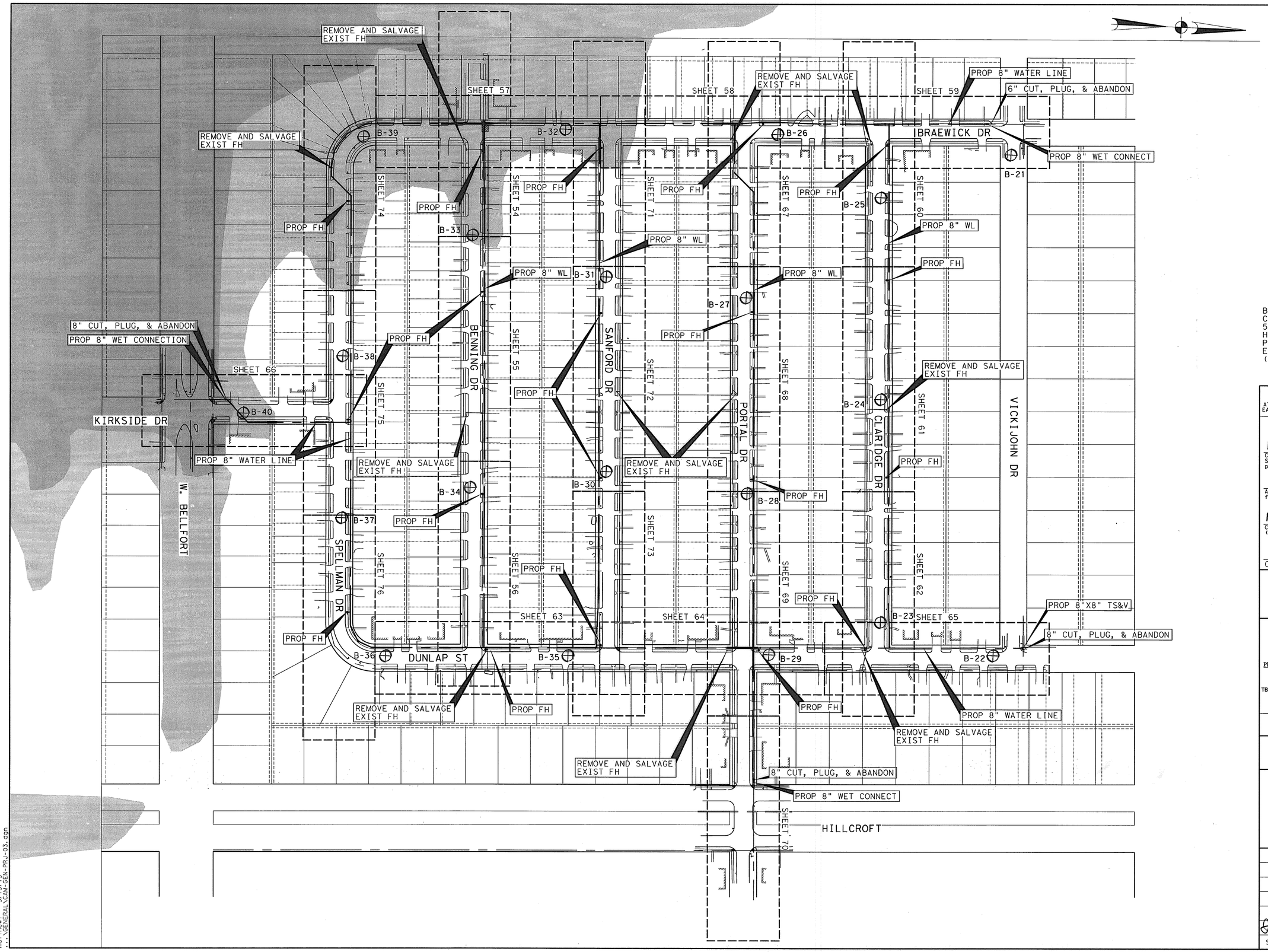

LEGEND

- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

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

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
SHEET LAYOUT AREA 2

SHEET 3 OF 5

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=100' (H)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 6 OF 151

FOR CITY OF HOUSTON USE ONLY
PUBLIC WORKS
51277

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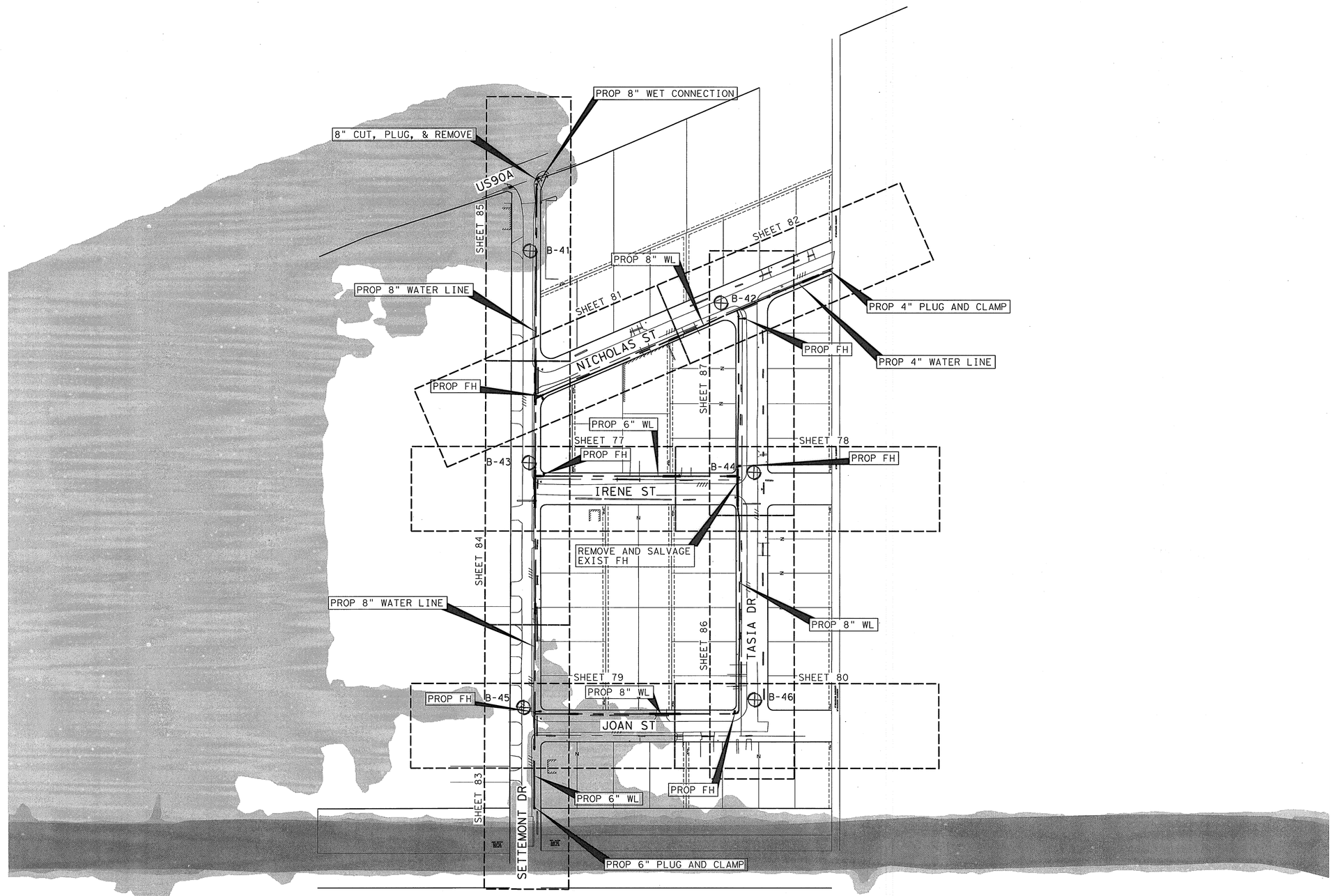

LEGEND

- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- B-X BOREHOLE LOCATION

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

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

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 641-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
SHEET LAYOUT AREA 3

SHEET 4 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	PUBLIC WORKS 51277
DRAWING SCALE	
1"=100' (H)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 7 OF 151	

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9/13/13
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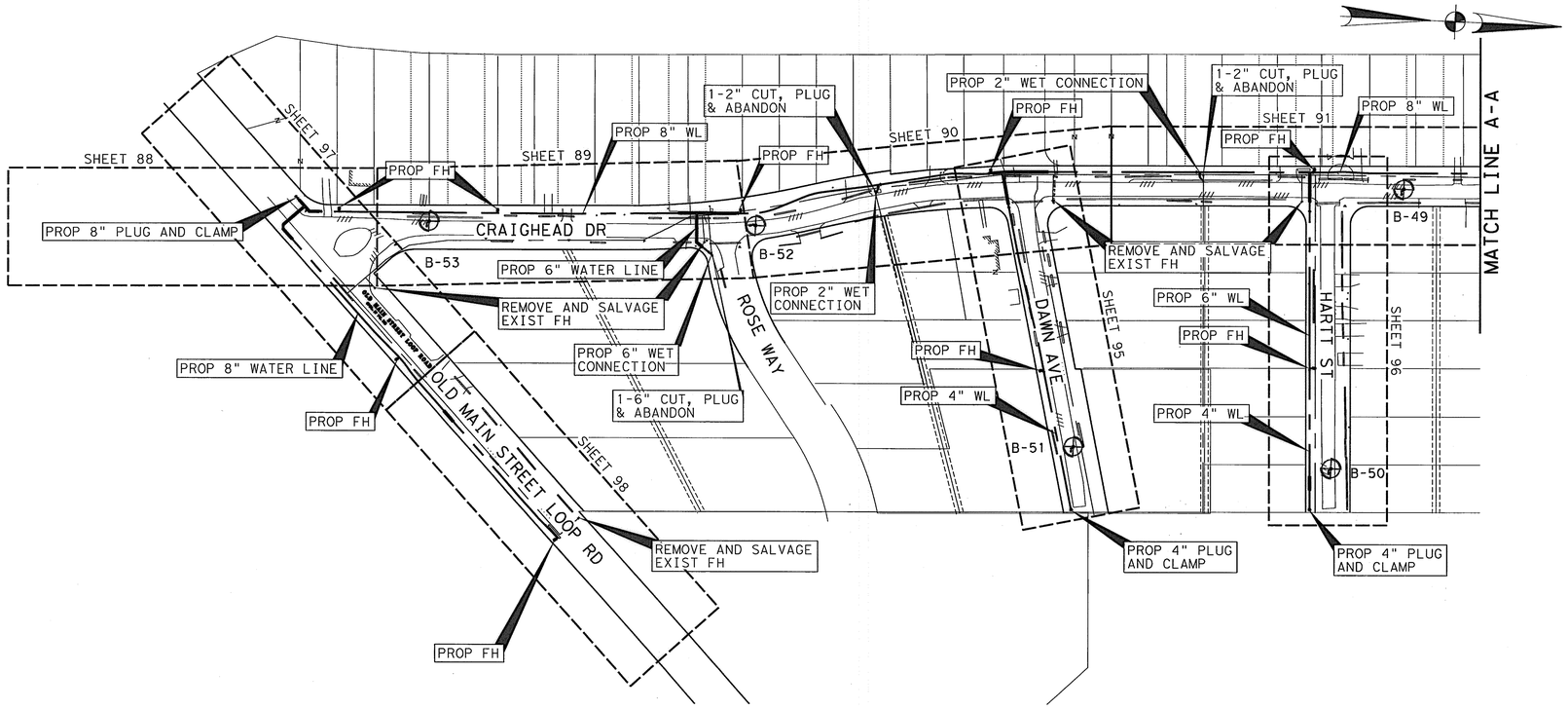

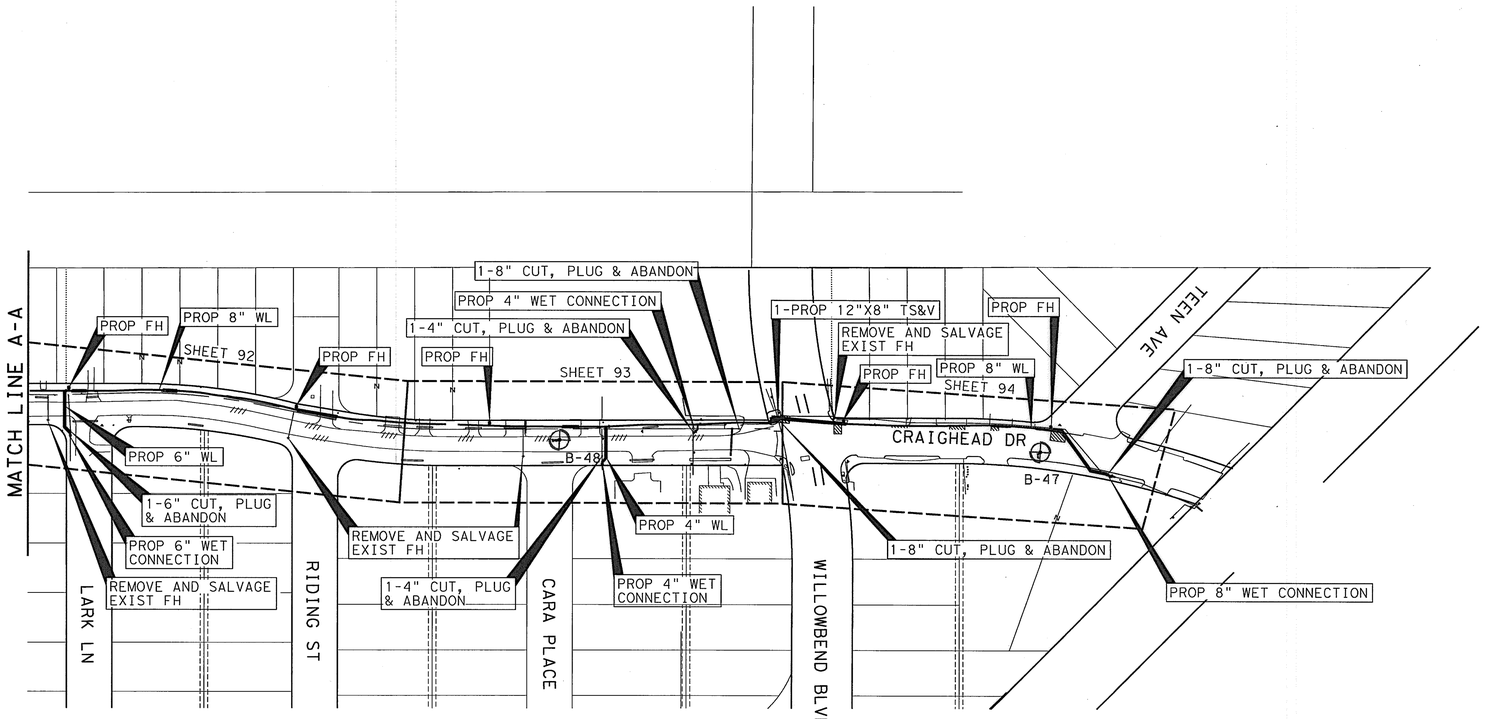

LEGEND

- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

BENCH MARK:
CITY OF HOUSTON MARKER
5253 / 0306 LOCATED AT THE
NORTHEAST CORNER OF THE INTERSECTION
OF KINGLET ST AND GREENWILLOW ST
ELEV 56.51'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

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

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
9-12-18

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
SHEET LAYOUT AREA 4

SHEET 5 OF 5

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	PUBLIC WORKS & ENGINEERING 51277
DRAWING SCALE	
1"=100' (H)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 8 OF 151	

11:57:49 AM
matthew
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DESIGN CENTERLINE POINT DATA (KYLEWICK AND WICKLEY)

PT. NO.	C.L. STA.	GRID COORD. NORTHING	GRID COORD. EASTING	SURVEY B.L. STA.	OFFSET	DESCRIPTION
	(KYLEWICK)					
C100	25+55.59	13798952.34	3089665.87	N.A.	N.A.	SET CUT "X"
C101	19+78.66	13798376.06	3089691.82	9+62.93	-15.52	SET CUT "X"
C102	18+79.53	13798278.11	3089679.98	8+57.09	-18.44	SET CUT "X"
C103	18+41.12	13798242.06	3089666.84	8+18.72	-18.01	SET CUT "X"
C104	17+17.53	13798128.89	3089617.20	6+95.30	-24.54	SET CUT "X"
C105	15+80.00	13797994.88	3089592.22	5+61.08	-0.63	SET CUT "X"
C106	11+40.00	13797555.38	3089612.01	1+15.66	-20.27	SET CUT "X"
C107	10+00	13797415.54	3089618.31	N.A.	N.A.	SET PK NAIL
	(WICKLEY)					
C108	10+94.34	13797559.54	3089704.43	1+77.71	-1.25	SET CUT "X"
C109	11+55.08	13797576.09	3089762.28	2+31.76	-5.29	SET CUT "X"
C110	12+33.11	13797614.34	3089830.29	3+18.27	11.10	SET CUT "X"
C111	13+21.39	13797687.66	3089871.00	3+96.80	40.55	SET CUT "X"
C112	18+09.39	13798175.10	3089849.05	8+70.67	68.19	SET CUT "X"
C113	18+72.17	13798223.61	3089814.74	9+29.70	61.28	SET CUT "X"
	(US 90A)					
CA100	1+00.00	13798909.47	3089575.54	N.A.	N.A.	SET 1/2" IR W/ CAP
C100	2+00.00	13798952.34	3089665.87	N.A.	N.A.	SET CUT "X"
CA101	3+00.00	13798995.21	3089756.21	N.A.	N.A.	SET 1/2" IR W/ CAP

SURVEY BASELINE CONTROL POINTS/TEMPORARY BENCHMARKS (CP/TBM)

CP/TBM	GRID COORD. NORTHING	GRID COORD. EASTING	ELEV	B.L. STATION	DESCRIPTION	DESIGN C.L. STATION	DESIGN C.L. OFFSET
KYLEWICK							
J5	13797543.27	3089634.58	61.08	1+00	SET CUT "X"	11+26.89	22.00
J6	13797932.94	3089569.54	63.07	4+95.10	SET 1/2" IR	15+19.13	-25.46
J2	13798294.97	3089706.05	63.05	8+82.07	SET 1/2" IR	19+01.52	21.13
J1	13798912.23	3089635.54	62.20	15+03.41	SET 1/2" IR	25+16.87	-32.11
WICKLEY							
J5	13797543.27	3089634.58	61.08	1+00	SET CUT "X"	10+23.82	13.11
J4	13797581.84	3089814.23	62.37	2+83.76	SET 1/2" IR	12+03.17	20.45
J3	13797985.97	3089874.50	62.54	6+92.41	SET 1/2" IR	16+19.28	16.92
J2	13798294.97	3089706.05	63.05	10+44.39	SET 1/2" IR	19+99.70	25.41

DESIGN CENTERLINE CURVE DATA

Curve KYLEWICK-1
Delta = 26° 16' 00" (RT)
Tangent = 70.00'
Length = 137.53'
Radius 300.00'
Chord Bear = N 10° 33' 20" E
Chord Dist. = 136.33'

Curve KYLEWICK-2
Delta = 26° 16' 00" (LT)
Tangent = 70.00'
Length 137.53'
Radius = 300.00'
Chord Bear = N 10° 33' 20" E
Chord Dist. = 136.33'

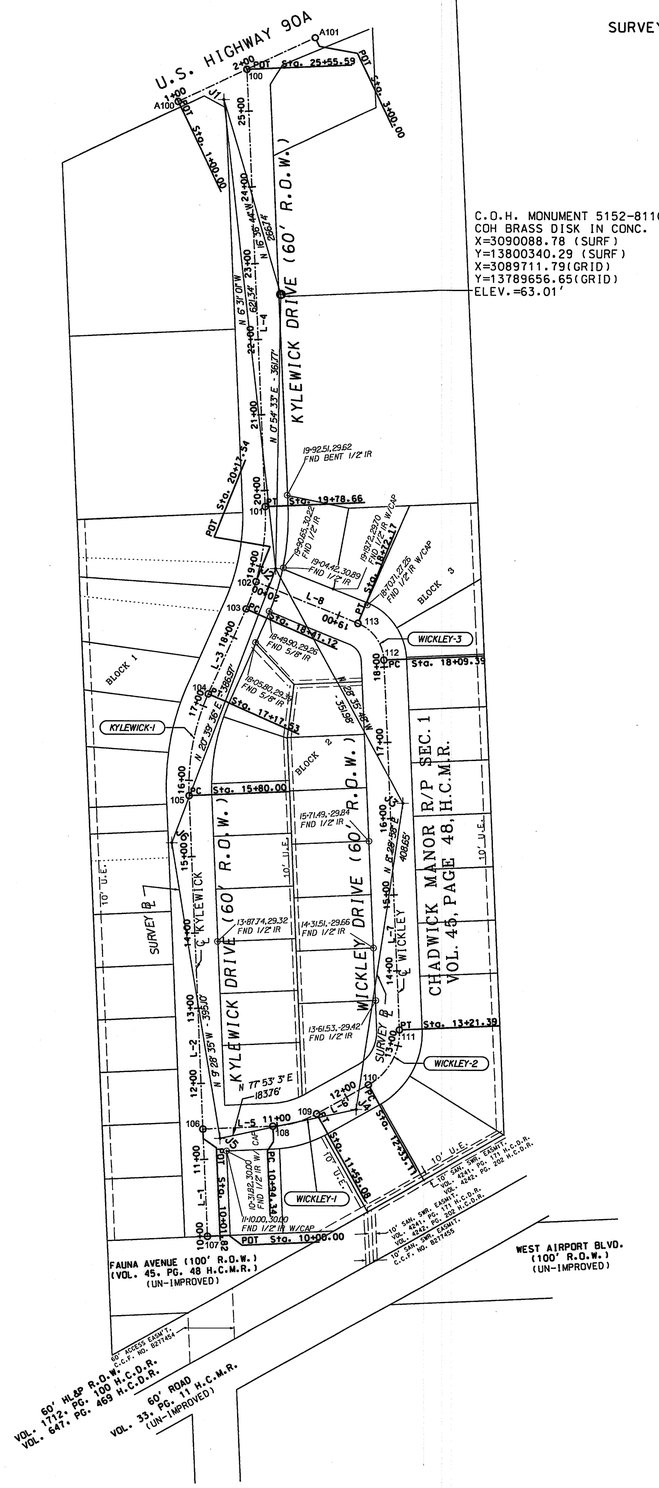
Curve WICKLEY-1
Delta = 26° 46' 13" (LT)
Tangent = 30.93
Length 60.74'
Radius 130.00'
Chord Bear = N 74° 02' 14" E
Chord Dist. = 60.19'

Curve WICKLEY-2
Delta = 63° 13' 47" (LT)
Tangent = 49.24'
Length 88.29'
Radius 80.00'
Chord Bear = N 29° 02' 14" E
Chord Dist = 83.87'

Curve WICKLEY-3
Degree = 104° 10' 27"
Tangent = 35.31'
Length 62.78'
Radius = 55.00'
Chord Bear = N 35° 16' 40" W
Chord Dist = 59.43'

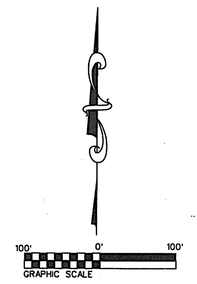
DESIGN CENTERLINE LINES

L-1	N 02° 34' 40" W - 140.00'
L-2	N 02° 34' 40" W - 440.00'
L-3	N 23° 41' 20" E - 123.59'
L-4	N 02° 34' 40" E - 576.93'
L-5	N 87° 25' 20" E - 92.52'
L-6	N 60° 39' 07" E - 78.03'
L-7	N 02° 34' 40" W - 488.00'
L-8	N 02° 34' 40" W - 145.37'



SURVEY BASELINE CONTROL POINTS/TEMPORARY BENCHMARKS (CP/TBM)
(SEE SURVEY CONTORL MAP SHEET 5 & 6 OF 6)

CP/TBM	GRID COORD. NORTHING	GRID COORD. EASTING	ELEV	B.L. STATION	DESCRIPTION	DESIGN C.L. STATION	DESIGN C.L. OFFSET
CLARIDGE							
J54	13804668.84	3080845.02	59.24	10+00	SET 1/2" IR	N.A.	N.A.
J55	13804722.09	3081429.40	60.38	15+86.87	SET CUT "X"	6+70.23	-23.39
J56	13804711.88	3082052.47	59.67	22+10.10	SET CUT "X"	N.A.	N.A.
PORTAL							
J53	13804357.31	3080897.06	58.76	10+00	SET CUT "X"	1+22.47	17.93
J52	13804423.38	3081466.14	60.59	15+72.96	SET CUT "X"	6+93.94	-23.33
J51	13804403.18	3082069.72	59.44	21+76.96	SET CUT "X"	12+96.15	23.11
J59	13804458.05	3082396.31	59.61	25+08.17	SET CUT "X"	16+24.86	-17.51
SANFORD							
J48	13804064.47	3080870.59	58.91	10+00	SET 1/2" IR	N.A.	N.A.
J49	13804079.88	3081398.42	60.21	15+28.12	SET 1/2" IR	6+11.35	16.95
J50	13804133.75	3082075.14	59.16	22+07.06	SET CUT "X"	N.A.	N.A.
BENNING							
J46	13803755.43	3080921.43	57.67	7+00	SET CUT "X"	2+86.22	20.39
J45	13803818.96	3081379.82	59.70	11+62.82	SET CUT "X"	7+46.99	-23.16
J44	13803845.05	3082048.90	58.72	18+32.50	SET CUT "X"	14+16.66	-20.12
SPELLMAN							
J47	13803483.62	3080918.09	58.89	5+00	SET CUT "X"	1+61.36	23.50
J42	13803480.66	3081556.82	58.18	11+38.82	SET CUT "X"	7+89.22	22.56
J43	13803568.44	3082093.42	60.15	16+82.61	SET 1/2" IR W/ CAP	13+31.91	18.89
BRAEWICK							
J47	13803483.62	3080918.09	58.89	5+00	SET CUT "X"	N.A.	N.A.
J46	13803755.43	3080921.43	57.67	7+71.86	SET CUT "X"	11+99.61	20.64
J48	13804064.47	3080870.59	58.91	10+85.10	SET 1/2" IR	15+10.61	-16.72
J53	13804357.31	3080897.06	58.76	13+79.17	SET CUT "X"	18+02.06	22.47
J54	13804668.84	3080845.02	59.24	16+95.06	SET 1/2" IR	21+15.60	-15.98
J58	13804948.95	3080825.01	59.11	19+75.91	SET CUT "X"	23+96.35	-23.79
DUNLAP							
J43	13803568.44	3082093.42	60.15	16+82.61	SET 1/2" IR W/ CAP	N.A.	N.A.
J44	13803845.05	3082048.90	58.72	19+08.81	SET CUT "X"	12+40.12	-21.23
J50	13804133.75	3082075.14	59.16	21+98.74	SET CUT "X"	15+27.45	17.54
J51	13804403.18	3082069.72	59.44	24+68.25	SET CUT "X"	17+96.89	23.84
J56	13804711.88	3082052.47	59.67	27+77.47	SET CUT "X"	21+06.09	20.04
J57	13805047.07	3081993.99	59.03	31+17.76	SET CUT "X"	24+43.54	-23.82
KIRKSIDE							
J41	13803166.83	3081515.05	58.69	5+00	SET CUT "X"	10+05.68	-34.15
J42	13803480.66	3081556.82	58.18	8+16.64	SET CUT "X"	13+17.44	21.25



LEGEND

- L-13 — DESIGN CENTERLINE LINES
- 100 — DESIGN CENTERLINE INTERSECTION, OR TANGENT POINT NO.
- ○ — CENTERLINE POINT SYMBOL
- 50 + — SURVEY BASELINE CONTROL POINT SYMBOL
- (CURVE NAME) — DESIGN CENTERLINE CURVE NAME

NOTES:

1. BENCHMARK: CITY OF HOUSTON MONUMENT 5152-8110 BEING A C.O.H. BRASS DISK LOCATED AT THE EAST SIDE OF KYLEWICK DRIVE APPROXIMATELY 316' SOUTH OF THE INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DRIVE, KEY MAP 571G ELEV. =63.01 (NAVD 88, CORS 96)

2. DATUM:
TO COMPLY WITH CITY OF HOUSTON ORDINANCE NO. 2003-1292 ALL BEARINGS AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83) AND TIED TO C.O.H. MONUMENT 5153-0205.

VERTICAL DATUM: NAVD 88, (CORS 96) GEOID 12A (USED FOR THIS PROJECT)

3. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES. ALL COORDINATES SHOWN HEREON ARE GRID COORDINATES. TO CONVERT SURFACE VALUES TO GRID VALUES, MULTIPLY BY A SCALE FACTOR OF 0.999878.

4. THIS IS NOT A BOUNDARY SURVEY, THUS THE EXISTING RIGHT-OF-WAY SHOWN HEREON IS APPROXIMATE AND IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY.

JAG ENGINEERING, INC.
9900 WESTPARK. SUITE 269. HOUSTON TX 77063
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TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL MAP

SHEET 1 OF 6

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=100'
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	9 OF 151

FOR CITY OF HOUSTON USE ONLY
PUBLIC WORKS & ENGINEERING 51277

DATE: 7/2/2013
FILE NAME: H:\Proj-2011\1030\dgn\SURVEY CONTROL MAP\CPsurvey control map1.dgn

SURVEY BASELINE CONTROL POINTS/TEMPORARY BENCHMARKS (CP/TBM)

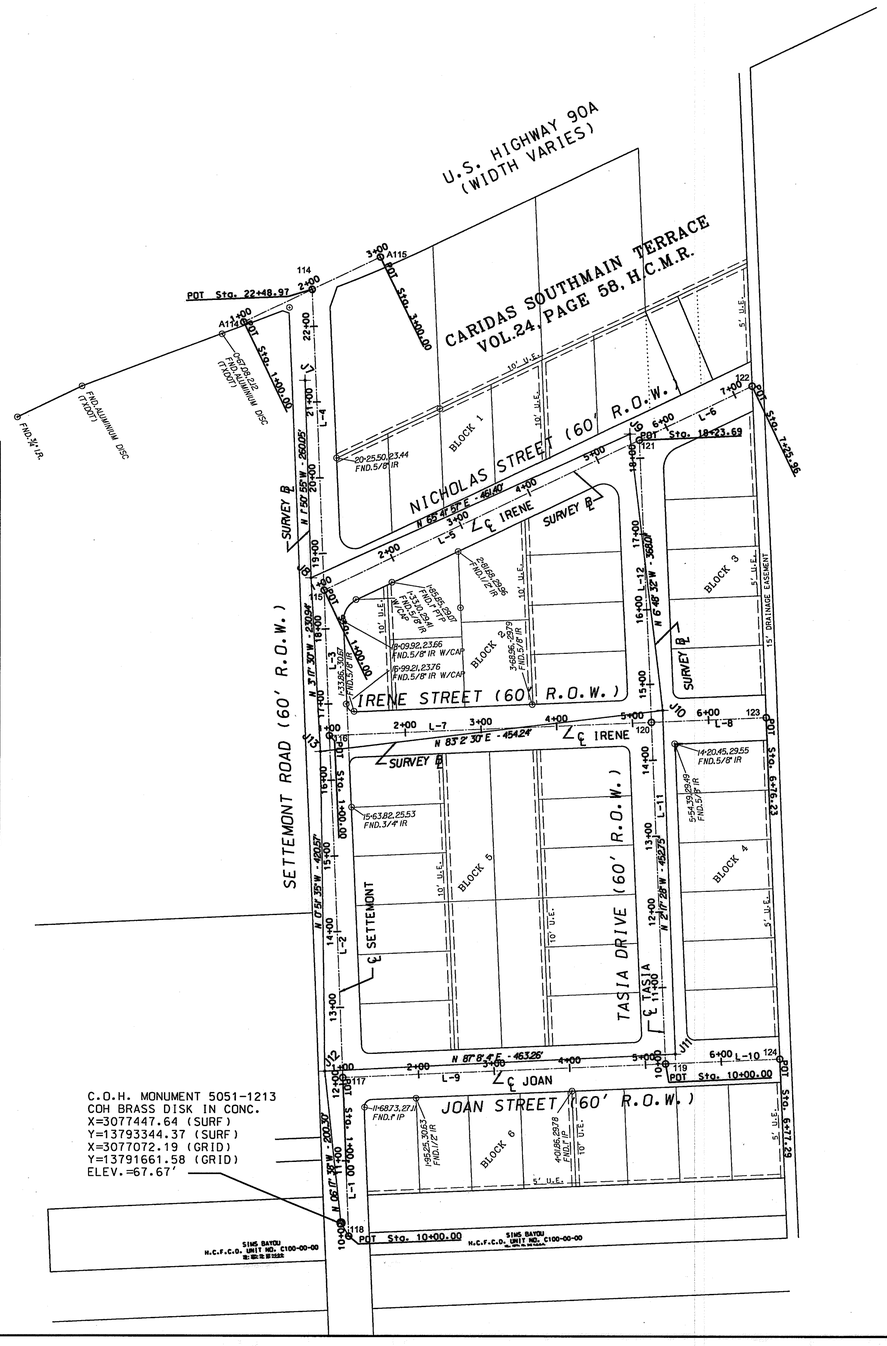
CP/TBM	GRID COORD.			B.L.		DESIGN C.L.	
	NORTHING	EASTING	ELEV	STATION	DESCRIPTION	STATION	OFFSET
SETTEMONT							
J12	13791860.67	3077050.23	67.01	1+00	SET PK NAIL	12+17.54	-23.37
J13	13792281.14	3077043.92	66.11	5+20.57	SET PK NAIL	16+37.97	-12.69
J8	13792511.67	3077030.67	65.48	7+51.51	SET 1/2" IR W/ CAP	18+68.87	-16.63
J7	13792771.55	3077022.28	66.02	10+11.56	SET 1/2" IR W/ CAP	21+28.91	-14.52
NICHOLAS							
J8	13792511.67	3077030.67	65.48	7+51.51	SET 1/2" IR	N.A.	N.A.
J9	13792701.53	3077451.14	65.15	12+12.91	SET 1/2" IR	5+52.83	-12.40
IRENE							
J13	13792281.14	3077043.92	66.11	5+20.57	SET PK NAIL	N.A.	N.A.
J10	13792336.16	3077494.76	65.18	9+74.51	SET 1/2" IR	5+40.10	-15.06
JOAN							
J12	13791860.67	3077050.23	67.01	1+00	SET PK NAIL	N.A.	N.A.
J11	13791883.82	3077512.86	66.16	5+63.26	SET PK NAIL	5+39.91	-12.28
TASIA							
J11	13791883.82	3077512.86	66.16	1+00	SET PK NAIL	10+12.27	13.42
J10	13792336.16	3077494.76	65.18	5+52.75	SET 1/2" IR	14+65.02	15.30
J9	13792701.53	3077451.14	65.15	9+20.76	SET 1/2" IR	N.A.	N.A.

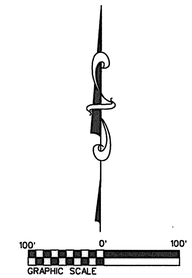
DESIGN CENTERLINE POINT DATA

		GRID COORD.				
PT. NO.	C.L. STA.	NORTHING	EASTING	SURVEY B.L. STA.	OFFSET	DESCRIPTION
	(SETTEMONT)					
C114	22+48.97	13792892.08	3077031.94	N.A.	N.A.	SET CUT "X"
C115	18+51.59	13792495.06	3077047.98	7+33.93	16.33	SET PK NAIL
C116	16+58.40	13792302.05	3077055.78	5+40.95	12.77	SET PK NAIL
C117	12+08.39	13791852.47	3077073.95	N.A.	N.A.	SET PK NAIL
C118	10+00	13791644.28	3077082.37	N.A.	N.A.	SET CUT "X"
	(TASIA)					
C119	10+00	13791870.98	3077499.99	N.A.	N.A.	SET PK NAIL
C120	14+49.97	13792320.45	3077480.14	5+37.64	15.23	SET PK NAIL
C121	18+23.69	13792693.77	3077463.66	9+11.57	11.52	SET PK NAIL
	(NICHOLAS)					
C115	1+00	13792495.06	3077047.98	7+60.46	22.27	SET PK NAIL
C121	5+60.79	13792693.77	3077463.66	N.A.	N.A.	SET PK NAIL
C122	7+25.96	13792765.00	3077612.67	N.A.	N.A.	SET PK NAIL
	(IRENE)					
C116	1+00.00	13792302.05	3077055.78	5+34.88	19.33	SET PK NAIL
C120	5+24.81	13792320.45	3077480.14	9+58.10	13.82	SET PK NAIL
C123	6+76.23	13792327.01	3077631.40	N.A.	N.A.	SET 1/2" IR W/ CAP
	(JOAN)					
C117	1+00.00	13791852.47	3077073.95	1+23.28	9.37	SET PK NAIL
C119	5+26.49	13791870.98	3077499.99	5+49.77	12.19	SET PK NAIL
C124	6+77.29	13791877.52	3077650.63	N.A.	N.A.	NOT SET
	(US 90A)					
CA114	1+00.00	13792848.98	3076941.71	N.A.	N.A.	SET CUT "X"
C114	2+00.00	13792892.08	3077031.94	N.A.	N.A.	SET CUT "X"
CA115	3+00.00	13792935.17	3077122.16	N.A.	N.A.	SET CUT "X"

DESIGN CENTERLINE LINES

L-1	N 02° 18' 52" W - 208.39'
L-2	N 02° 18' 52" W - 450.01'
L-3	N 02° 18' 52" W - 193.19'
L-4	N 02° 18' 52" W - 397.39'
L-5	N 64° 27' 03" E - 460.79'
L-6	N 64° 27' 03" E - 165.18'
L-7	N 87° 31' 03" E - 576.23'
L-8	N 87° 31' 03" E - 151.42'
L-9	N 87° 30' 46" E - 426.49'
L-10	N 87° 30' 46" E - 150.80'
L-11	N 02° 31' 42" W - 449.97'
L-12	N 02° 31' 42" W - 373.72'





LEGEND

- L-13 — DESIGN CENTERLINE LINES
- 100 — DESIGN CENTERLINE INTERSECTION, OR TANGENT POINT NO.
- ○ — CENTERLINE POINT SYMBOL
- 56 + — SURVEY BASELINE CONTROL POINT SYMBOL
- (CURVE NAME) — DESIGN CENTERLINE CURVE NAME

NOTES:

1. BENCHMARK: CITY OF HOUSTON MONUMENT 5051-1213 BEING A C.O.H. BRASS DISK LOCATED ON THE FIRST BRIDGE SOUTH OF MAIN ST (US HWY 90A) ON SETTEMONT ROAD, KEY MAP 570L ELEV. =67.67 (NAVD 88, CORS 96)

2. DATUM: TO COMPLY WITH CITY OF HOUSTON ORDINANCE NO. 2003-1292 ALL BEARINGS AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83) AND TIED TO C.O.H. MONUMENT 5153-0205.

   VERTICAL DATUM: NAVD 88, (CORS 96) GEOID 12A (USED FOR THIS PROJECT)

3. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES. ALL COORDINATES SHOWN HEREON ARE GRID COORDINATES. TO CONVERT SURFACE VALUES TO GRID VALUES, MULTIPLY BY A SCALE FACTOR OF 0.999878.

4. THIS IS NOT A BOUNDARY SURVEY, THUS THE EXISTING RIGHT-OF-WAY SHOWN HEREON IS APPROXIMATE AND IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY.

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STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR
9-12-18

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL MAP

SHEET 2 OF 6

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1" = 100'
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	10 OF 151

FOR CITY OF HOUSTON USE ONLY
PUBLIC WORKS ENGINEERING 51277

DATE: 7/2/2013
FILE NAME: H:\Proj-2011\1030\dgn\SURVEY CONTROL MAP\CPsurvey control map2.dgn



SURVEY BASELINE CONTROL POINTS/TEMPORARY BENCHMARKS (CP/TBM)

CP/TBM	GRID COORD.		ELEV	B.L. STATION	DESCRIPTION	DESIGN C.L. STATION	OFFSET
	NORTHING	EASTING					
BROOKSTON							
J23	13796066.91	3094706.95	56.72	10+00	SET CUT "X"	1+55.99	8.16
J22	13796114.39	3095198.25	58.38	14+93.65	SET 1/2" IR W/ CAP	6+48.97	-17.54
J20	13796095.84	3095735.38	56.79	20+36.17	SET CUT "X"	11+84.82	24.74
J21	13796150.07	3096194.16	58.57	24+98.19	SET PK NAIL	16+45.62	-8.34
WOODMONT							
J25	13795778.04	3094928.23	57.69	10+00	SET CUT "X"	3+64.31	26.57
J24	13795790.43	3095205.48	57.21	12+77.56	SET CUT "X"	6+41.86	26.46
J19	13795814.10	3095699.74	57.16	17+72.45	SET CUT "X"	11+36.75	24.67
LOTUS							
J28	13795284.96	3094792.80	56.45	10+00	SET CUT "X"	1+53.52	-1.31
J27	13795318.44	3095250.15	57.40	14+58.63	SET 1/2" IR	6+09.54	16.97
J26	13795561.79	3095556.41	57.50	21+63.66	SET 1/2" IR	9+95.38	-20.81
J18	13795612.10	3095748.33	56.71	23+63.10	SET 1/2" IR	N.A.	N.A.
BUXLEY							
J17	13795013.50	3095759.84	56.67	1+00	SET 1/2" IR	N.A.	N.A.
J18	13795612.10	3095748.33	56.71	6+98.78	SET 1/2" IR	15+78.83	16.38
J19	13795814.10	3095699.74	57.16	9+06.56	SET CUT "X"	17+82.80	-23.23
J20	13796095.84	3095735.38	56.79	11+90.59	SET CUT "X"	20+62.73	24.84
GRANTMOOR							
J25	13795778.04	3094928.23	57.69	N.A.	SET CUT "X"	12+00.10	-20.69
AVONELLE							
J24	13795790.43	3095205.48	57.21	N.A.	SET CUT "X"	11+12.56	-23.13
TIDEWATER							
J30	13794961.15	3094729.84	56.49	20+00	SET CUT "X"	1+76.58	24.46
J29	13795023.98	3095231.85	57.08	25+05.99	SET 1/2" IRW/CAP	6+78.59	-17.88
J17	13795013.50	3095759.84	56.67	30+34.15	SET 1/2" IRW/CAP	12+05.40	19.96
J16	13795066.18	3096004.93	55.87	32+84.85	SET 1/2" IRW/CAP	14+52.92	-19.94
J15	13795045.64	3096380.07	55.98	36+60.61	SET 1/2" IRW/CAP	18+26.53	20.03
J14	13796883.80	3097529.28	54.50	44+47.43	SET 1/2" IRW/CAP	26+10.18	-34.72
STANCLIFF							
J30	13794961.15	3094729.84	56.49	1+00	SET CUT "X"	10+78.09	-26.15
J28	13795284.96	3094792.80	56.45	4+29.92	SET CUT "X"	13+98.24	53.52
J23	13796066.91	3094706.95	56.72	12+16.67	SET CUT "X"	21+88.88	55.99

DESIGN CENTERLINE LINES

L-1	N 87° 27' 55" E - 529.99'
L-2	N 87° 27' 55" E - 529.99'
L-3	N 87° 27' 55" E - 145.06'
L-4	N 87° 27' 55" E - 321.27'
L-5	N 87° 27' 55" E - 100.00'
L-6	N 87° 27' 55" E - 285.00'
L-7	N 87° 27' 55" E - 280.00'
L-8	N 87° 27' 55" E - 494.98'
L-9	N 87° 01' 40" E - 344.23'
L-10	N 54° 51' 51" E - 243.21'
L-11	N 87° 27' 55" E - 30.00'
L-12	N 87° 01' 40" E - 429.91'
L-13	N 87° 01' 40" E - 500.09'
L-14	N 87° 01' 40" E - 250.00'
L-15	N 87° 01' 40" E - 231.88'
L-16	N 87° 01' 40" E - 457.32'
L-17	N 74° 11' 24" E - 90.04'
L-18	N 87° 01' 40" E - 112.71'
L-19	N 02° 32' 05" W - 160.00'
L-20	N 02° 32' 05" W - 265.03'
L-21	N 02° 32' 05" W - 255.26'
L-22	N 02° 32' 05" W - 280.00'
L-23	N 02° 32' 05" W - 140.00'
L-24	N 17° 20' 57" W - 67.39'
L-25	N 02° 32' 05" W - 30.00'
L-26	N 15° 07' 02" W - 43.13'
L-27	N 02° 32' 05" W - 30.00'
L-28	N 02° 58' 20" W - 100.00'
L-29	N 02° 58' 20" W - 296.93'
L-30	N 02° 58' 20" W - 88.69'
L-31	N 02° 32' 05" W - 68.73'
L-32	N 02° 32' 05" W - 280.00'
L-33	N 02° 32' 05" W - 100.00'

DESIGN CENTERLINE CURVE DATA

Curve LOTUS-1 Delta = 32° 09' 49" (LT) Tangent = 144.15 Length = 280.68 Radius = 500.00 Chord Bear = N 70° 56' 46" E Chord Dist. = 277.01	Curve BUXLEY-1 Delta = 5° 25' 19" (RT) Tangent = 33.14 Length = 66.24 Radius = 700.00 Chord Bear = N 0° 15' 41" W Chord Dist. = 66.22	Curve GRANTMOOR-1 Delta = 14° 48' 52" (RT) Tangent = 65.00 Length = 129.28 Radius = 500.00 Chord Bear = N 9° 56' 31" W Chord Dist. = 128.92	Curve TIDEWATER-1 Delta = 12° 10' 56" (LT) Tangent = 85.37 Length = 170.09 Radius = 800.00 Chord Bear = S 86° 52' 52" E Chord Dist. = 169.77	Curve TIDEWATER-3 Delta = 12° 50' 16" (RT) Tangent = 90.00 Length = 179.25 Radius = 800.00 Chord Bear = N 80° 36' 32" E Chord Dist. = 178.87	Curve STANCLIFF-2 Delta = 16° 38' 31" (RT) Tangent = 91.26 Length = 181.23 Radius = 623.94 Chord Bear = N 10° 51' 21" W Chord Dist. = 180.59
Curve LOTUS-2 Delta = 32° 36' 04" (RT) Tangent = 87.73 Length = 170.70 Radius = 300.00 Chord Bear = N 71° 09' 53" E Chord Dist. = 168.41	Curve BUXLEY-2 Delta = 4° 59' 04" (LT) Tangent = 30.49 Length = 60.94 Radius = 700.51 Chord Bear = N 0° 02' 33" W Chord Dist. = 60.92	Curve AVONELLE-1 Delta = 12° 34' 57" (RT) Tangent = 33.07 Length = 65.88 Radius = 300.00 Chord Bear = N 8° 49' 34" W Chord Dist. = 65.75	Curve TIDEWATER-2 Delta = 12° 50' 16" (LT) Tangent = 90.00 Length = 179.25 Radius = 800.00 Chord Bear = N 80° 36' 32" E Chord Dist. = 178.87	Curve STANCLIFF-1 Delta = 16° 12' 16" (LT) Tangent = 91.34 Length = 181.46 Radius = 641.60 Chord Bear = N 11° 04' 28" W Chord Dist. = 180.85	Curve PLAYER-3-1 Delta = 03° 59' 59" (LT) Tangent = 100.04 Length = 200.00 Radius = 2865.00 Chord Bear = N 06° 53' 15" W Chord Dist. = 199.96

GRAPHIC SCALE 100' 0' 100'

LEGEND

- L-13 DESIGN CENTERLINE LINES
- 100 DESIGN C.L. INTERSECT., OR TANGENT PT. NO.
- ∘ CENTERLINE POINT SYMBOL
- ⊕ SURVEY BASELINE CONTROL POINT SYMBOL
- (CURVE NAME) DESIGN CENTERLINE CURVE NAME

NOTES:

1. BENCHMARK: CITY OF HOUSTON MONUMENT 5252-7304 BEING A C.O.H. BRASS DISK LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF PLAYER STREET AND LOTUS STREET, KEY MAP 571M ELEV. = 57.45 (NAVD 88, CORS 96)
2. DATUM:
   TO COMPLY WITH CITY OF HOUSTON ORDINANCE NO. 2003-1292 ALL BEARINGS AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83) AND TIED TO C.O.H. MONUMENT 5153-0205.

   VERTICAL DATUM: NAVD 88, (CORS 96) GEOID 12A (USED FOR THIS PROJECT)
3. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES. ALL COORDINATES SHOWN HEREON ARE GRID COORDINATES. TO CONVERT SURFACE VALUES TO GRID VALUES, MULTIPLY BY A SCALE FACTOR OF 0.999878.
4. THIS IS NOT A BOUNDARY SURVEY, THUS THE EXISTING RIGHT-OF-WAY SHOWN HEREON IS APPROXIMATE AND IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY.
5. SEE SURVEY CONTROL MAP SHEET 6 OF 6 FOR DESIGN CENTERLINE POINT DATA FOR DESIGN CENTERLINE POINTS SHOWN ON THIS SHEET.

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STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR 9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

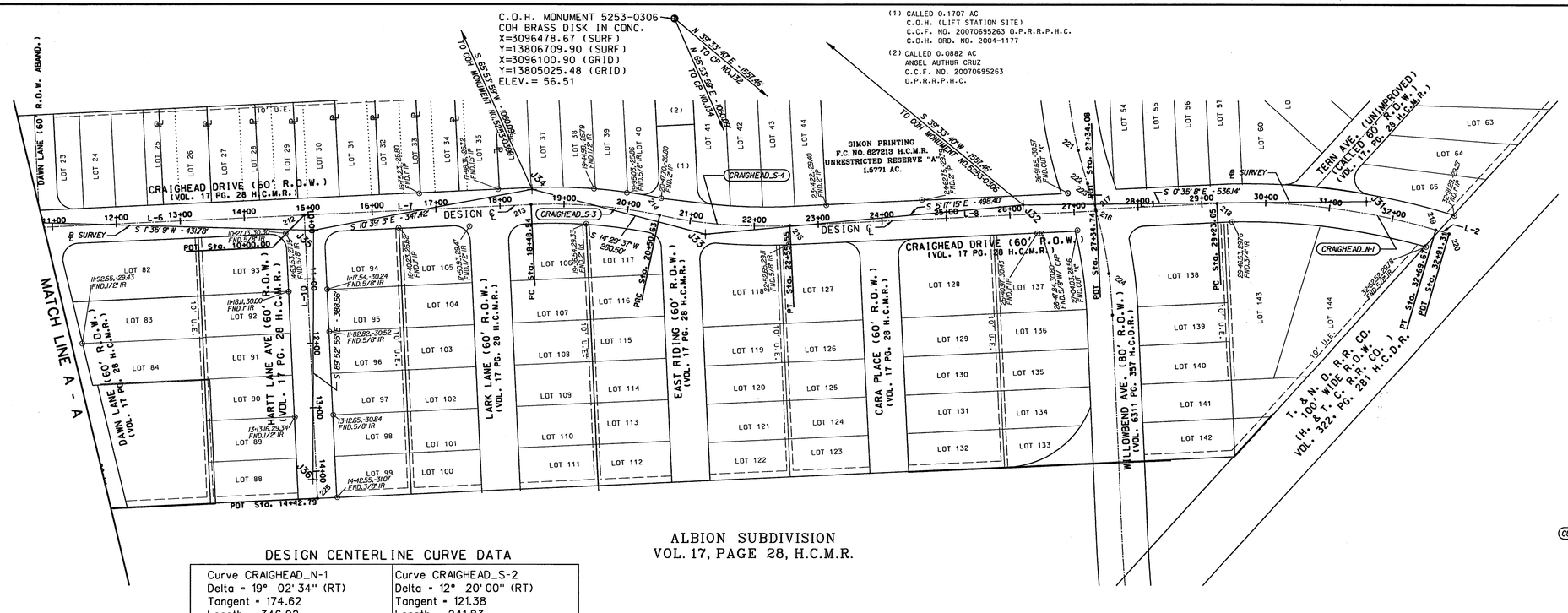
SURVEY CONTROL MAP

SHEET 3 OF 6

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1" = 100'
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	11 OF 151

FOR CITY OF HOUSTON USE ONLY
PUBLIC WORKS & ENGINEERING 51277 REGISTERED ENGINEER

DATE: 7/2/2013
FILE NAME: H:\Proj-2011\11030\dgn\SURVEY CONTROL MAP\CPsurvey control map3.dgn

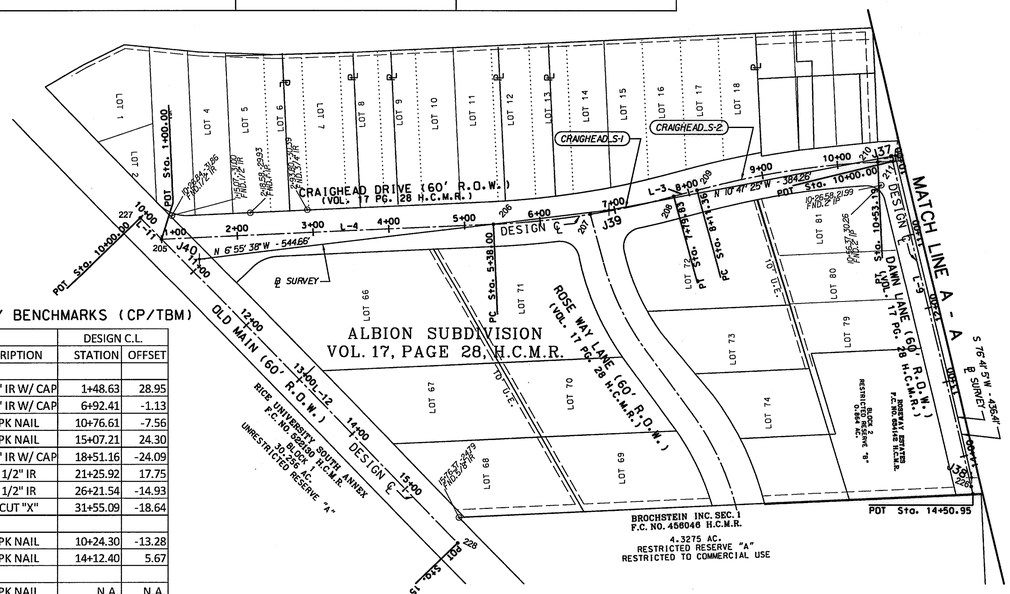


DESIGN CENTERLINE CURVE DATA

Curve CRAIGHEAD_N-1 Delta = 19° 02' 34" (RT) Tangent = 174.62 Length = 346.02 Radius = 1041.10 Chord Bear = N 06° 52' 32" E Chord Dist. = 344.43	Curve CRAIGHEAD_S-2 Delta = 12° 20' 00" (RT) Tangent = 121.38 Length = 241.83 Radius = 1123.45 Chord Bear = N 08° 48' 45" W Chord Dist. = 241.36	
Curve CRAIGHEAD_S-1 Delta = 12° 20' 00" (LT) Tangent = 121.38 Length = 241.83 Radius = 1123.45 Chord Bear = N 08° 48' 45" W Chord Dist. = 241.36	Curve CRAIGHEAD_S-3 Delta = 14° 34' 29" (RT) Tangent = 101.60 Length = 202.10 Radius = 794.48 Chord Bear = N 04° 38' 29" E Chord Dist. = 201.55	Curve CRAIGHEAD_S-4 Delta = 14° 41' 29" (LT) Tangent = 103.02 Length = 204.91 Radius = 799.16 Chord Bear = N 04° 34' 59" E Chord Dist. = 204.35

DESIGN CENTERLINE LINES

L-1	N 02° 38' 45" W - 189.57'
L-2	N 16° 23' 49" E - 21.63'
L-3	N 14° 58' 45" W - 31.53'
L-4	N 02° 38' 45" W - 438.00'
L-5	N 02° 38' 45" W - 19.74'
L-6	N 02° 38' 45" W - 420.99'
L-7	N 02° 38' 45" W - 354.62'
L-8	N 02° 45' 45" W - 479.15'
L-9	N 76° 26' 13" E - 450.95'
L-10	N 87° 19' 25" E - 442.79'
L-11	N 45° 44' 15" E - 40.00'
L-12	N 45° 44' 15" E - 559.38'



SURVEY BASELINE CONTROL POINTS/TEMPORARY BENCHMARKS (CP/TBM)

CP/TBM	GRID COORD.			B.L.		DESIGN C.L.	
	NORTHING	EASTING	ELEV	STATION	DESCRIPTION	STATION	OFFSET
CRAIGHEAD							
J40	13803767.31	3097258.33	58.56	10+00	SET 1/2" IR W/ CAP	1+48.63	28.95
J39	13804307.93	3097192.65	56.47	15+44.66	SET 1/2" IR W/ CAP	6+92.41	-1.13
J37	13804685.35	3097120.72	57.03	19+28.92	SET PK NAIL	10+76.61	-7.56
J35	13805116.91	3097132.66	57.26	23+60.70	SET PK NAIL	15+07.21	24.30
J34	13805458.30	3097068.46	56.97	27+08.12	SET 1/2" IR W/ CAP	18+51.16	-24.09
J33	13805729.84	3097138.65	56.77	29+88.62	SET 1/2" IR	21+25.92	17.75
J32	13806226.05	3097092.73	56.59	34+87.02	SET 1/2" IR	26+21.54	-14.93
J31	13806762.10	3097087.25	55.30	40+23.16	SET CUT "X"	31+55.09	-18.64
HARTT							
J35	13805116.91	3097132.66	57.26	23+60.70	SET PK NAIL	10+24.30	-13.28
J36	13805116.11	3097521.18	57.66	27+49.26	SET PK NAIL	14+12.40	5.67
DAWN							
J37	13804685.35	3097120.72	57.03	19+28.92	SET PK NAIL	N.A.	N.A.
J38	13804785.85	3097545.34	57.82	23+65.33	SET PK NAIL	14+29.68	-3.16
OLD MAIN							
J40	13803767.31	3097258.33	58.56	10+00	SET 1/2" IR W/ CAP	10+93.94	-17.13

DESIGN CENTERLINE POINT DATA

PT. NO.	C.L. STA.	GRID COORD. NORTHING	GRID COORD. EASTING	SURVEY B.L. STA.	OFFSET	DESCRIPTION
	(CRAIGHEAD SOUTH OF WILLOWBEND)					
C205	1+00	13803717.40	3097231.66	N.A.	N.A.	SET PK NAIL
C206	5+38.00	13804154.88	3097211.44	13+90.44	-0.2	SET PK NAIL
C207	6+67.11	13804283.22	3097198.10	15+19.35	2.43	SET PK NAIL
C208	7+79.83	13804393.37	3097174.47	16+32.00	-1.86	SET 1/2" IR W/ CAP
C209	8+11.36	13804423.82	3097166.32	16+63.44	-4.16	SET 1/2" IR W/ CAP
C210	10+53.19	13804662.31	3097129.35	19+04.66	4.17	SET PK NAIL
C211	10+80.11	13804682.02	3097128.44	19+24.21	6.97	SET PK NAIL
C212	14+93.92	13805102.51	3097109.01	23+45.65	-23.25	SET PK NAIL
C213	18+48.54	13805456.71	3097092.64	27+02.09	23.47	SET PK NAIL
C214	20+50.63	13805657.57	3097108.95	29+11.18	-10.67	SET PK NAIL
C215	22+55.55	13805861.26	3097125.27	31+20.77	-1.12	SET PK NAIL
C216	27+34.74			36+00.71	10.62	SET CUT "X"
	(CRAIGHEAD NORTH OF WILLOWBEND)					
C217	27+34.08	13806339.04	3097099.36	35+99.95	7.78	SET CUT "X"
C218	29+23.65	13806528.39	3097090.61	37+89.40	0.97	SET CUT "X"
C219	32+69.67	13806870.31	3097131.83	N.A.	N.A.	SET CUT "X"
C220	32+91.31	13806891.05	3097137.94	N.A.	N.A.	SET 1/2" IR W/ CAP
	(DAWN)					
C211	10+00	13804682.02	3097128.44	19+35.67	-5.01	SET PK NAIL
C226	14+40.95	13804785.43	3097557.04	23+76.61	3.16	SET PK NAIL
	(HARTT)					
C212	10+00	13805102.51	3097109.01	N.A.	N.A.	SET PK NAIL
C225	14+42.79	13805123.19	3097551.26	N.A.	N.A.	SET 1/2" IR W/ CAP
	(WILLOWBEND)					
C221	10+00	13806311.85	3097006.22	N.A.	N.A.	SET CUT "X"
C222	10+54.71	13806326.54	3097058.90	N.A.	N.A.	SET CUT "X"
C223	10+76.95	13806333.32	3097080.08	N.A.	N.A.	SET CUT "X"
C217	10+97.06	13806339.04	3097099.36	N.A.	N.A.	SET CUT "X"
C216	11+00.00	13806339.83	3097102.19	N.A.	N.A.	SET CUT "X"
C224		13806359.73	3097200.09	N.A.	N.A.	SET CUT "X"
	(OLD MAIN)					
C227	10+00	13803689.49	3097203.02	N.A.	N.A.	SET PK NAIL
C205	1+40.00	13803717.40	3097231.66	N.A.	N.A.	SET PK NAIL
C228	15+99.38	13804107.77	3097632.21	N.A.	N.A.	SET PK NAIL

LEGEND

- L-13 DESIGN CENTERLINE LINES
- 100 DESIGN CENTERLINE INTERSECTION, OR TANGENT POINT NO.
- ∘ CENTERLINE POINT SYMBOL
- J35 + SURVEY BASELINE CONTROL POINT SYMBOL
- (CURVE NAME) DESIGN CENTERLINE CURVE NAME

NOTES:

1. BENCHMARK: CITY OF HOUSTON MONUMENT 5253-0306 BEING A C.O.H. BRASS DISK LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION KINGLET ST. AND GREENWILLOW ST, KEY MAP 531Z ELEV. = 56.51 (NAVD 88, CORS 96)
2. DATUM:
   TO COMPLY WITH CITY OF HOUSTON ORDINANCE NO. 2003-1292 ALL BEARINGS AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83) AND TIED TO C.O.H. MONUMENT 5153-0205.
   VERTICAL DATUM: NAVD 88, (CORS 96) GEOID 12A (USED FOR THIS PROJECT)
3. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES. ALL COORDINATES SHOWN HEREON ARE GRID COORDINATES. TO CONVERT SURFACE VALUES TO GRID VALUES, MULTIPLY BY A SCALE FACTOR OF 0.999878.
4. THIS IS NOT A BOUNDARY SURVEY, THUS THE EXISTING RIGHT-OF-WAY SHOWN HEREON IS APPROXIMATE AND IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY.

JAG ENGINEERING, INC.
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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
REGISTERED
JOHN A. GUAJARDO
5945
PROFESSIONAL
LAND SURVEYOR
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL MAP

SHEET 4 OF 6

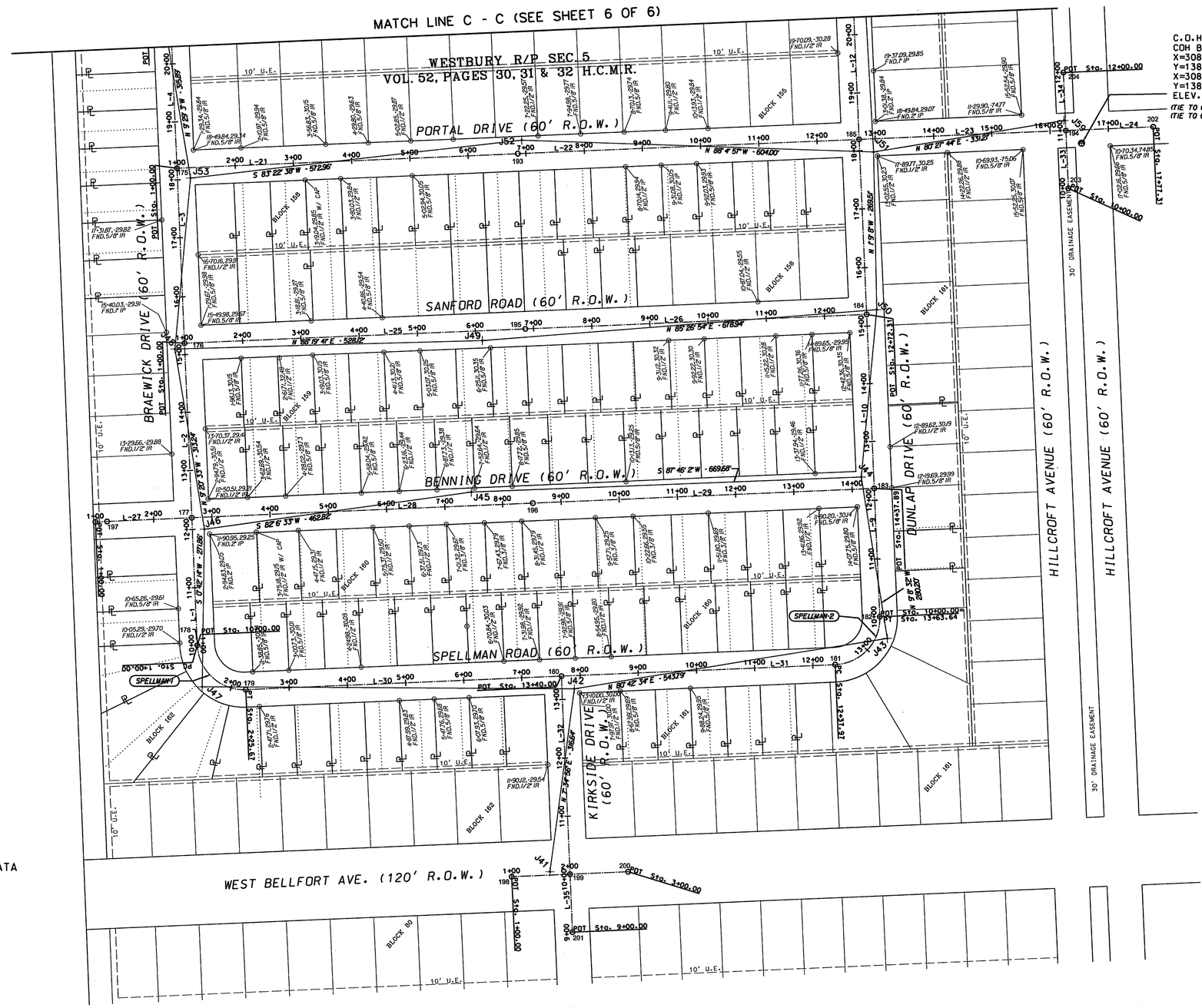
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1" = 100'	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 12 OF 151	

51277

DATE: 7/2/2013
FILE NAME: H:\Proj-2011\11030\dgn\SURVEY CONTROL MAP\CPsurvey control map4.dgn

DESIGN CENTERLINE LINES

L-1	N 02° 29' 33" W - 220.00'
L-2	N 02° 29' 33" W - 300.00'
L-3	N 02° 29' 33" W - 300.00'
L-4	N 02° 29' 33" W - 300.00'
L-5	N 02° 29' 33" W - 300.00'
L-6	N 02° 29' 33" W - 100.00'
L-7	N 87° 30' 27" E - 542.31'
L-8	N 87° 30' 27" E - 470.00'
L-9	N 02° 29' 33" W - 220.00'
L-10	N 02° 29' 33" W - 300.00'
L-11	N 02° 29' 33" W - 300.00'
L-12	N 02° 29' 33" W - 300.00'
L-13	N 02° 29' 33" W - 300.00'
L-14	N 02° 29' 33" W - 100.00'
L-15	N 87° 30' 27" E - 100.00'
L-16	N 87° 30' 27" E - 100.00'
L-17	N 87° 30' 27" E - 972.31'
L-18	N 87° 30' 27" E - 100.00'
L-19	N 87° 30' 27" E - 586.15'
L-20	N 87° 30' 27" E - 586.15'
L-21	N 87° 30' 27" E - 586.15'
L-22	N 87° 30' 27" E - 586.15'
L-23	N 87° 30' 27" E - 355.00'
L-24	N 87° 30' 27" E - 150.00'
L-25	N 87° 30' 27" E - 586.15'
L-26	N 87° 30' 27" E - 586.15'
L-27	N 87° 30' 27" E - 165.59'
L-28	N 87° 30' 27" E - 586.15'
L-29	N 87° 30' 27" E - 586.15'
L-30	N 87° 30' 27" E - 542.31'
L-31	N 87° 30' 27" E - 470.00'
L-32	N 02° 29' 33" W - 340.00'
L-33	N 02° 29' 33" W - 100.00'
L-34	N 02° 29' 33" W - 100.00'
L-35	N 02° 29' 33" W - 100.00'



DESIGN CENTERLINE CURVE DATA

Curve SPELLMAN-1 Delta = 90° 00' 05" (LT) Tangent = 80.00 Length = 125.67 Radius = 80.00 Chord Bear = S 47° 29' 31" E Chord Dist. = 113.14
Curve SPELLMAN-2 Delta = 90° 00' 00" (LT) Tangent = 80.00 Length = 125.66 Radius = 80.00 Chord Bear = N 42° 30' 27" E Chord Dist. = 113.14

LEGEND

- L-13 DESIGN CENTERLINE LINES
- 100 DESIGN CENTERLINE INTERSECTION, OR TANGENT POINT NO.
- ○ CENTERLINE POINT SYMBOL
- ℄ SURVEY BASELINE CONTROL POINT SYMBOL
- (CURVE NAME) DESIGN CENTERLINE CURVE NAME

NOTES:

1. BENCHMARK: CITY OF HOUSTON MONUMENT 5153-0205 BEING A C.O.H. BRASS DISK LOCATED AT MEDIAN OF HILLCROFT AVENUE AT THE SOUTH MEDIAN AT THE INTERSECTION WITH PORTAL STREET, KEY MAP 531W
   ELEV. = 59.88 (NAVD 88, CORS 96)
2. DATUM:
   TO COMPLY WITH CITY OF HOUSTON ORDINANCE NO. 2003-1292 ALL BEARINGS AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83) AND TIED TO C.O.H. MONUMENT 5153-0205.

   VERTICAL DATUM: NAVD 88, (CORS 96) GEOID 12A (USED FOR THIS PROJECT)
3. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES. ALL COORDINATES SHOWN HEREON ARE GRID COORDINATES. TO CONVERT SURFACE VALUES TO GRID VALUES, MULTIPLY BY A SCALE FACTOR OF 0.999878.
4. THIS IS NOT A BOUNDARY SURVEY, THUS THE EXISTING RIGHT-OF-WAY SHOWN HEREON IS APPROXIMATE AND IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY.
5. SEE SURVEY CONTROL MAP SHEET 6 OF 6 FOR DESIGN CENTERLINE POINT DATA FOR DESIGN CENTERLINE POINTS SHOWN ON THIS SHEET.

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STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL MAP

SHEET 5 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1" = 100'	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 13 OF 151	

51277

DATE: 7/2/2013
FILE NAME: H:\Proj-201\11030\dgn\SURVEY CONTROL MAP\CPsurvey control map5.dgn

DESIGN CENTERLINE POINT DATA
(SEE SURVEY CONTORL MAP SHEET 3 OF 6)

PT. NO.	C.L. STA.	GRID COORD. NORTHING	GRID COORD. EASTING	SURVEY B.L. STA.	OFFSET	DESCRIPTION
	(BROOKSTON)					
C164	1+00	13796072.58	3094650.66	N.A.	N.A.	SET 5/8" IR W/ CAP
C152	6+29.99	13796096.02	3095180.07	14+73.78	16.53	SET CUT "X"
C158	11+59.98	13796119.46	3095709.48	20+09.46	-22.71	SET CUT "X"
C170	13+05.06	13796125.88	3095854.38	21+57.88	15.86	SET CUT "X"
C153	16+26.31	13796140.85	3096175.26	24+78.33	6.95	SET PK NAIL
C154	17+26.31	13796145.50	3096275.14	N.A.	N.A.	SET PK NAIL
	(WOODMONT)					
C165	1+00	13795792.90	3094663.05	N.A.	N.A.	SET 1/2" IR W/ CAP
C144	3+85.00	13795805.50	3094947.73	10+20.70	-26.57	SET CUT "X"
C148	6+65.00	13795817.88	3095227.42	13+00.79	26.37	SET CUT "X"
C159	11+59.98	13795839.77	3095721.86	N.A.	N.A.	SET CUT "X"
	(LOTUS)					
C169	1+00	13795280.87	3094739.43	N.A.	N.A.	SET 1/2" IR W/ CAP
C140	4+44.23	13795298.72	3095083.14	12+90.61	7.47	SET CUT "X"
C141	7+24.91	13795389.15	3095344.94	15+76.85	3.61	SET CUT "X"
C142	9+68.12	13795529.10	3095543.82	21+39.46	17.76	SET CUT "X"
C143	11+38.82	13795583.46	3095703.19	23+12.16	16.26	SET CUT "X"
C160	11+68.82	13795584.78	3095733.15	23+41.48	22.57	SET CUT "X"
	(BUXLEY)					
C128	10+00	13795033.16	3095753.50	1+19.78	-5.96	SET CUT "X"
C163	11+60.00	13795192.93	3095745.21	2+79.69	-11.18	SET CUT "X"
C162	12+26.24	13795259.13	3095744.91	3+45.90	-10.21	SET CUT "X"
C161	12+87.18	13795320.05	3095744.86	4+06.78	-9.08	SET CUT "X"
C150	15+52.21	13795584.78	3095733.15	6+71.76	-15.71	SET CUT "X"
C159	18+07.47	13795839.77	3095721.86	9+34.81	-18.72	SET CUT "X"
C158	20+87.47	13796119.46	3095709.48	N.A.	N.A.	SET CUT "X"
C157	22+27.47	13796259.30	3095703.29	N.A.	N.A.	SET CUT "X"
	(GRANTMOOR)					
C147	10+00	13795584.24	3094991.40	N.A.	N.A.	SET CUT "X"
C146	10+67.39	13795648.57	3094971.31	N.A.	N.A.	SET CUT "X"
C145	11+96.67	13795775.53	3094949.05	N.A.	N.A.	SET CUT "X"
C144	12+26.67	13795805.50	3094947.73	N.A.	N.A.	SET CUT "X"
	(AVONELLE)					
C151	10+00	13795681.31	3095250.08	N.A.	N.A.	SET CUT "X"
C150	10+43.13	13795722.95	3095238.83	N.A.	N.A.	SET CUT "X"
C149	11+09.02	13795787.92	3095228.75	N.A.	N.A.	SET CUT "X"
C148	11+39.02	13795817.88	3095227.42	N.A.	N.A.	SET CUT "X"
	(TIDEWATER)					
C125	1+00	13794994.19	3094655.38	N.A.	N.A.	SET CUT "X"
C126	2+00	13794984.38	3094754.81	20+27.67	19.95	SET CUT "X"
C127	2+70.09	13794984.95	3094824.88	20+97.27	11.81	SET CUT "X"
CA127	7+00.00	13795007.23	3095254.15	25+28.63	-16.30	SET CUT "X"
C128	12+00.09	13795033.16	3095753.50	30+27.43	-19.53	SET CUT "X"
C129	14+50.09	13795046.12	3096003.14	32+78.88	19.23	SET CUT "X"
C131	16+81.97	13795058.15	3096234.67	35+14.72	4.54	SET CUT "X"
C133	21+39.29	13795081.85	3096691.33	39+72.95	-25.80	SET CUT "X"
C134	23+18.54	13795111.04	3096867.79	41+51.71	31.94	SET CUT "X"
C135	24+08.58	13795135.57	3096954.41	42+41.48	24.95	SET CUT "X"
C136	25+87.82	13795164.75	3097130.86	44+20.25	31.09	SET CUT "X"
C137	27+00.53	13795170.59	3097243.41	N.A.	N.A.	SET CUT "X"
	(STANCLIFF)					
C171	10+00	13794884.53	3094760.00	N.A.	N.A.	SET CUT "X"
C126	11+00.00	13794984.38	3094754.81	N.A.	N.A.	SET CUT "X"
C169	13+96.93	13795280.87	3094739.43	N.A.	N.A.	SET 1/2" IR W/ CAP
C168	14+85.62	13795369.44	3094734.83	N.A.	N.A.	SET 1/2" IR W/ CAP
C167	16+67.08	13795546.90	3094700.09	N.A.	N.A.	SET 1/2" IR W/ CAP
C166	18+48.31	13795724.24	3094666.08	N.A.	N.A.	SET 1/2" IR W/ CAP
C165	19+17.04	13795792.90	3094663.05	N.A.	N.A.	SET 1/2" IR W/ CAP
C164	21+97.04	13796072.58	3094650.66	N.A.	N.A.	SET 5/8" IR W/ CAP
CA164	22+97.04	13796172.48	3094646.24	N.A.	N.A.	SET 5/8" IR W/ CAP

DESIGN CENTERLINE POINT DATA
(SEE SURVEY CONTORL MAP SHEET 3 OF 6)

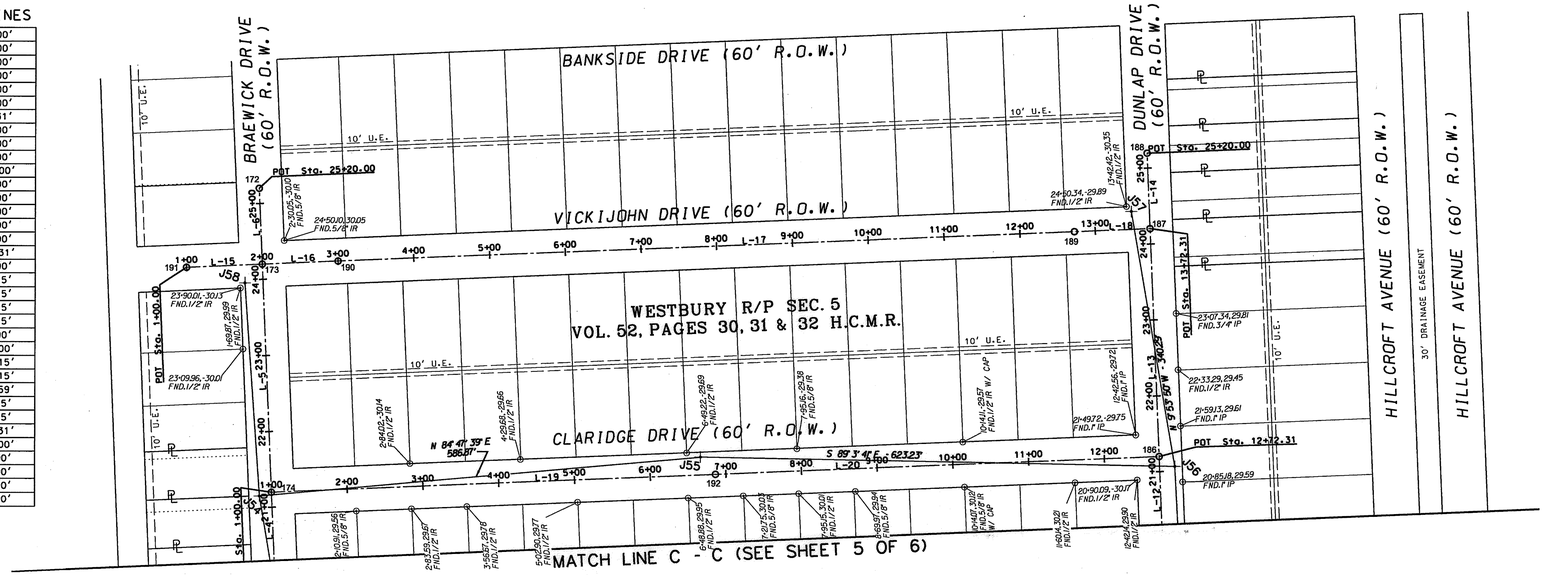
PT. NO.	C.L. STA.	GRID COORD. NORTHING	GRID COORD. EASTING	SURVEY B.L. STA.	OFFSET	DESCRIPTION
	(PLAYER SOUTH OF TIDEWATER)					
C130	10+00	13794946.27	3096008.32	N.A.	N.A.	SET CUT "X"
C129	11+00	13795046.12	3096003.14	N.A.	N.A.	SET CUT "X"
	(PLAYER NORTH OF TIDEWATER)					
C131	10+00	13795058.15	3096234.67	N.A.	N.A.	SET CUT "X"
C132	11+59.88	13795217.82	3096227.04	N.A.	N.A.	SET CUT "X"
	(PLAYER AT BROOKSTON)					
C156	10+00	13796041.39	3096185.51	N.A.	N.A.	SET PK NAIL
C153	11+00	13796140.85	3096175.26	N.A.	N.A.	SET PK NAIL
C155	12+00	13796239.88	3096161.53	N.A.	N.A.	SET PK NAIL
	(HIRAM CLARKE)					
C139	10+00	13795070.74	3097248.59	N.A.	N.A.	SET CUT "X"
C137	11+00	13795170.59	3097243.41	N.A.	N.A.	SET CUT "X"
C138	12+00	13795270.45	3097238.22	N.A.	N.A.	SET 1/2" IR W/ CAP

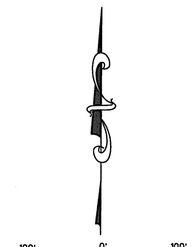
DESIGN CENTERLINE POINT DATA
(SURVEY CONTORL MAP SHEET FOR SHEETS 5 & 6 OF 6)

PT. NO.	C.L. STA.	GRID COORD. NORTHING	GRID COORD. EASTING	SURVEY B.L. STA.	OFFSET	DESCRIPTION
	(BRAEWICK)					
C178	10+00	13803555.13	3080909.49	5+71.41	-9.47	SET CUT "X"
C177	12+20.00	13803774.85	3080899.93	7+94.56	-18.06	SET CUT "X"
C176	15+20.00	13804074.57	3080886.89	10+96.63	15.32	SET CUT "X"
C175	18+20.00	13804374.25	3080873.84	13+99.71	-20.12	SET CUT "X"
C174	21+20.00	13804673.93	3080860.80	16.99.01	16.1	SET CUT "X"
C173	24+20.00	13804973.61	3080847.75	N.A.	N.A.	SET CUT "X"
C172	25+20.00	13805073.51	3080843.40	N.A.	N.A.	SET CUT "X"
	(SPELLMAN)					
C178	1+00	13803555.13	3080909.49	N.A.	N.A.	SET CUT "X"
C179	2+25.67	13803478.69	3080992.89	5+74.83	4.58	SET CUT "X"
C180	7+67.98	13803502.28	3081534.62	11+16.51	-21.51	SET CUT "X"
C181	12+37.97	13803522.71	3082004.12	15+87.09	30.71	SET CUT "X"
C182	13+63.64	13803606.10	3082080.55	16+75.99	39.25	SET CUT "X"
	(DUNLAP)					
C182	10+00	13803606.10	3082080.55	17+21.84	-6.72	SET CUT "X"
C183	12+20.00	13803825.87	3082070.99	18+86.37	18.76	SET CUT "X"
C184	15+20.00	13804125.55	3082057.94	21+89.01	-16.39	SET CUT "X"
C185	18+20.00	13804425.22	3082044.89	24+91.65	-23.56	SET CUT "X"
C186	21+20.00	13804724.91	3082031.86	27+93.85	-18.07	SET CUT "X"
C187	24+20.00	13805024.58	3082018.81	30+91.34	20.59	SET PK NAIL
C188	25+20.00	13805124.48	3082014.46	N.A.	N.A.	SET CUT "X"
	(VICKIJOHN)					
C191	1+00	13804969.26	3080747.86	N.A.	N.A.	SET CUT "X"
C173	2+00.00	13804973.61	3080847.75	N.A.	N.A.	SET CUT "X"
C190	3+00.00	13804977.96	3080947.65	N.A.	N.A.	SET CUT "X"
C189	12+72.31	13805020.23	3081918.91	N.A.	N.A.	SET CUT "X"
C187	13+72.31	13805024.58	3082018.81	N.A.	N.A.	SET PK NAIL
	(CLARIDGE)					
C174	1+00	13804673.93	3080860.80	10+16.17	-3.63	SET CUT "X"
C192	6+86.15	13804699.42	3081446.33	16+07.25	22.39	SET CUT "X"
C186	12+72.31	13804724.91	3082031.86	21+89.27	-12.67	SET CUT "X"
	(PORTAL)					
C175	1+00	13804374.25	3080873.84	N.A.	N.A.	SET CUT "X"
C193	6+86.15	13804399.74	3081459.37	15+63.51	22.71	SET CUT "X"
C185	12+72.30	13804425.22	3082044.89	21+51.41	-21.21	SET CUT "X"
C194	16+27.30	13804440.66	3082399.52	N.A.	N.A.	SET CUT "X"
C202	17+77.31	13804447.18	3082549.35	N.A.	N.A.	SET CUT "X"
	(SANFORD)					
C176	1+00	13804074.57	3080886.89	10+16.59	-9.62	SET CUT "X"
C195	6+86.15	13804100.06	3081472.41	16+03.49	-14.25	SET CUT "X"
C184	12+72.31	13804125.55	3082057.94	21+89.26	6.81	SET CUT "X"
	(BENNING)					
C197	1+00	13803768.56	3080754.50	N.A.	N.A.	SET CUT "X"
C177	2+65.59	13803774.85	3080899.93	N.A.	N.A.	SET CUT "X"
C196	8+51.74	13803800.38	3081485.46	12+67.67	22.68	SET CUT "X"
C183	14+37.89	13803825.87	3082070.99	N.A.	N.A.	SET CUT "X"
	(KIRKSIDE)					
C201	9+00	13803062.74	3081553.75	N.A.	N.A.	SET CUT "X"
C199	10+00.00	13803162.64	3081549.41	4+99.62	34.61	SET CUT "X"
C180	13+40.00	13803502.28	3081534.62	N.A.	N.A.	SET CUT "X"
	(HILLCROFT)					
C203	10+00	13804340.77	3082403.87	N.A.	N.A.	SET 1/2" IR W/ CAP
C194	11+00.00	13804440.66	3082399.52	N.A.	N.A.	SET CUT "X"
C204	12+00.00	13804540.56	3082395.17	N.A.	N.A.	SET 1/2" IR W/ CAP
	(BELLFORT)					
C198	1+00	13803158.29	3081449.51	N.A.	N.A.	SET 1/2" IR W/ CAP
C199	2+00.00	13803162.64	3081549.41	N.A.	N.A.	SET CUT "X"
C200	3+00.00	13803166.99	3081649.29	N.A.	N.A.	SET 1/2" IR W/ CAP

DESIGN CENTERLINE LINES

L-1	N 02° 29' 33" W - 220.00'
L-2	N 02° 29' 33" W - 300.00'
L-3	N 02° 29' 33" W - 300.00'
L-4	N 02° 29' 33" W - 300.00'
L-5	N 02° 29' 33" W - 300.00'
L-6	N 02° 29' 33" W - 100.00'
L-7	N 87° 30' 27" E - 542.31'
L-8	N 87° 30' 27" E - 470.00'
L-9	N 02° 29' 33" W - 220.00'
L-10	N 02° 29' 33" W - 300.00'
L-11	N 02° 29' 33" W - 300.00'
L-12	N 02° 29' 33" W - 300.00'
L-13	N 02° 29' 33" W - 300.00'
L-14	N 02° 29' 33" W - 100.00'
L-15	N 87° 30' 27" E - 100.00'
L-16	N 87° 30' 27" E - 100.00'
L-17	N 87° 30' 27" E - 972.31'
L-18	N 87° 30' 27" E - 100.00'
L-19	N 87° 30' 27" E - 586.15'
L-20	N 87° 30' 27" E - 586.15'
L-21	N 87° 30' 27" E - 586.15'
L-22	N 87° 30' 27" E - 586.15'
L-23	N 87° 30' 27" E - 355.00'
L-24	N 87° 30' 27" E - 150.00'
L-25	N 87° 30' 27" E - 586.15'
L-26	N 87° 30' 27" E - 586.15'
L-27	N 87° 30' 27" E - 165.59'
L-28	N 87° 30' 27" E - 586.15'
L-29	N 87° 30' 27" E - 586.15'
L-30	N 87° 30' 27" E - 542.31'
L-31	N 87° 30' 27" E - 470.00'
L-32	N 02° 29' 33" W - 340.00'
L-33	N 02° 29' 33" W - 100.00'
L-34	N 02° 29' 33" W - 100.00'
L-35	N 02° 29' 33" W - 100.00'





LEGEND

- L-13 DESIGN CENTERLINE LINES
- 100 DESIGN CENTERLINE INTERSECTION, OR TANGENT POINT NO.
- ○ CENTERLINE POINT SYMBOL
- SURVEY BASELINE CONTROL POINT SYMBOL
- (CURVE NAME) DESIGN CENTERLINE CURVE NAME

NOTES:

1. BENCHMARK: CITY OF HOUSTON MONUMENT 5153-0205 BEING A C.O.H. BRASS DISK LOCATED AT MEDIAN OF HILLCROFT AVENUE AT THE SOUTH MEDIAN AT THE INTERSECTION WITH PORTAL STREET, KEY MAP 531W
   ELEV. = 59.88 (NAVD 88, CORS 96)
2. DATUM:
   TO COMPLY WITH CITY OF HOUSTON ORDINANCE NO. 2003-1292 ALL BEARINGS AND COORDINATES SHOWN HEREON ARE REFERENCED TO THE TEXAS COORDINATE SYSTEM, SOUTH CENTRAL ZONE (NAD 83) AND TIED TO C.O.H. MONUMENT 5153-0205.
   VERTICAL DATUM: NAVD 88, (CORS 96) GEOID 12A (USED FOR THIS PROJECT)
3. ALL DISTANCES SHOWN HEREON ARE SURFACE DISTANCES. ALL COORDINATES SHOWN HEREON ARE GRID COORDINATES. TO CONVERT SURFACE VALUES TO GRID VALUES, MULTIPLY BY A SCALE FACTOR OF 0.999878.
4. THIS IS NOT A BOUNDARY SURVEY, THUS THE EXISTING RIGHT-OF-WAY SHOWN HEREON IS APPROXIMATE AND IS BASED ON THE BEST AVAILABLE EVIDENCE FOUND IN THE FIELD AT THE TIME OF THE SURVEY.

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Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR 4-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL MAP

SHEET 6 OF 6

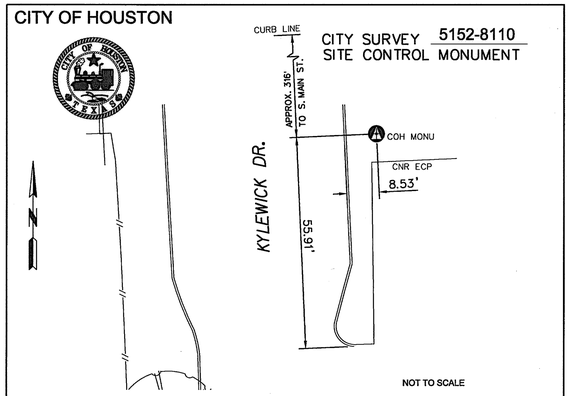
WBS NUMBER	S-000035-188-4
DRAWING SCALE	1" - 100'
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	14 OF 151

FOR CITY OF HOUSTON USE ONLY
CITY OF HOUSTON TEXAS 51277

DATE: 7/12/2013
FILE NAME: H:\Proj-2011\11030\dgn\SURVEY CONTROL MAP\CPsurvey control map6.dgn

CITY OF HOUSTON

CITY SURVEY 5152-8110
SITE CONTROL MONUMENT



NOT TO SCALE

Project WBS# S-000035-0188-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,089,711.79
Y= 13,798,656.65
Lat.= 29° 38' 38.72345" N
Lon.= −95° 28' 10.72198" W
Reference Frame Used: Epoch 2010.00
Vertical Adjustment used: NAVD '88 (CORS 96)
General Location: At the east side of Kylewick Dr, approx. 316' South of the intersection of US 90A Frontage Road and Kylewick Dr.
Date Set: 09-07-2012 Type of Mark: C. O. H. Brass Disk
3 Nearest project control points (bearings and distances stated below):
101=5152-8110 TO J1 N 16° 36' 44" W DIST. 266.71'
101=5152-8110 TO J2 S 0° 54' 33" W DIST. 361.73'
101=5152-8110 TO J6 S 11° 07' 13" W DIST. 737.56'
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999878
3. Surface= Grid / S.F.
Surveyed by: JAG Engineering, Inc.
9900 Westpark Dr., Ste. 269
Houston, TX 77063

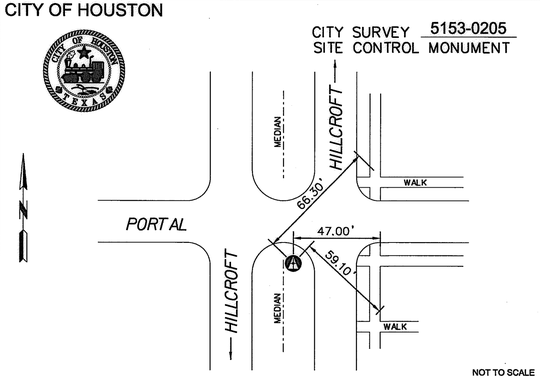
Keymap Page: 571G
Orthometric Elevation = 63.01
Ellipsoid Height= −26.38
Geoid: GEOID 12A
Datum Source & Adjustment: NAD '83 (2011)

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR

City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 5153-0205
SITE CONTROL MONUMENT



NOT TO SCALE

Project WBS# S-000035-0188-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,082,426.50
Y= 13,804,418.78
Lat.= 29° 39' 37.91450" N
Lon.= −95° 29' 31.29463" W
Reference Frame Used: Epoch 2010.00
Vertical Adjustment used: NAVD '88 (CORS 96)
General Location: In median of Hillcroft on South side of Portal St.
Date Set: June 1968 Type of Mark: C. O. H. Brass Disk
3 Nearest project control points (bearings and distances stated below):
102=5153-0205 TO J51 S 87° 29' 42" W DIST. 357.12'
102=5153-0205 TO J52 N 89° 43' 32" W DIST. 960.37'
102=5153-0205 TO J53 S 87° 41' 54" W DIST. 1,530.67'
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999878
3. Surface= Grid / S.F.
Surveyed by: JAG Engineering, Inc.
9900 Westpark Dr., Ste. 269
Houston, TX 77063

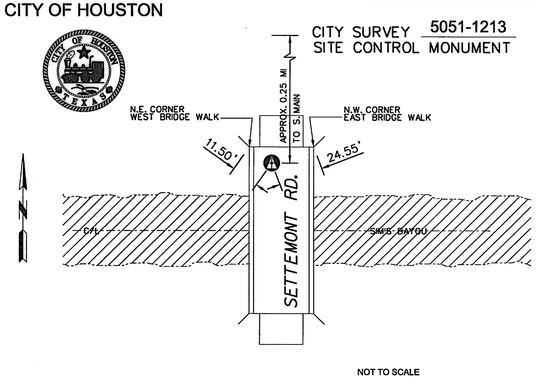
Keymap Page: 531W
Orthometric Elevation = 59.88
Ellipsoid Height= −29.59
Geoid: GEOID 12A
Datum Source & Adjustment: NAD '83 (2011)

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR

REVISED GRID COORDINATES 09/21/2012
City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 5051-1213
SITE CONTROL MONUMENT



NOT TO SCALE

Project WBS# S-000035-0188-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,077,072.19
Y= 13,791,661.58
Lat.= 29° 37' 33.25620" N
Lon.= −95° 30' 36.27554" W
Reference Frame Used: Epoch 2010.00
Vertical Adjustment used: NAVD '88 (CORS 96)
General Location: First bridge South of S. Main (US Hwy 90A) on Settemont Rd.
Date Set: May 1968 Type of Mark: C.O.H. BRASS DISK
3 Nearest project control points (bearings and distances stated below):
103=5051-1213 TO J12 N 6° 17' 38" W DIST. 200.30'
103=5051-1213 TO J13 N 2° 36' 44" W DIST. 620.19'
103=5051-1213 TO J7 N 2° 34' 29" W DIST. 1,111.08'
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999878
3. Surface= Grid / S.F.
Surveyed by: JAG Engineering, Inc.
9900 Westpark Dr., Ste. 269
Houston, TX 77063

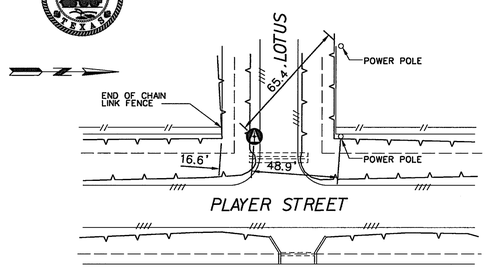
Keymap Page: 570L
Orthometric Elevation = 67.67
Ellipsoid Height= −21.70
Geoid: GEOID 12A
Datum Source & Adjustment: NAD '83 (2011)

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR

REVISED GRID COORDINATES 09/21/2012
City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 5252-7304
SITE CONTROL MONUMENT



NOT TO SCALE

Project WBS# S-000035-0188-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,096,175.85
Y= 13,795,649.60
Lat.= 29° 38' 07.02925" N
Lon.= −95° 26' 58.52922" W
Reference Frame Used: Epoch 2010.00
Vertical Adjustment used: NAVD '88 (CORS '96)
General Location: Southwest corner of intersection of Player St. and Lotus St.
Date Set: 1-04-2007 Type of Mark: 4A
3 Nearest project control points (bearings and distances stated below):
104=5252-7304 TO J18 S 84° 59' 16" W DIST. 429.17'
104=5252-7304 TO J21 N 2° 05' 38" E DIST. 500.81'
104=5252-7304 TO J26 S 81° 55' 55" W DIST. 625.64'
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999878
3. Surface= Grid / S.F.
Surveyed by: JAG Engineering, Inc.
9900 Westpark Dr., Ste. 269
Houston, TX 77063

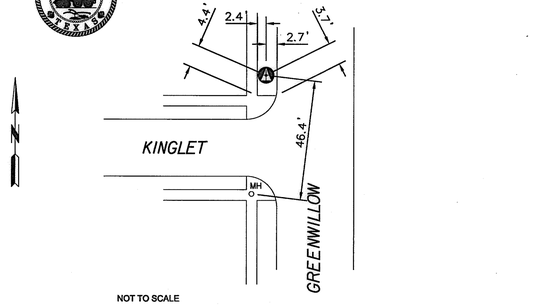
Keymap Page: 571M
Orthometric Elevation = 57.45
Ellipsoid Height= −31.89
Geoid: GEOID 12A
Datum Source & Adjustment: NAD '83 (2011)

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR

REVISED GRID COORDINATES 09/21/2012
City of Houston, Harris County, Texas

CITY OF HOUSTON

CITY SURVEY 5253-0306
SITE CONTROL MONUMENT



NOT TO SCALE

Project WBS# S-000035-0188-3
Texas Coordinate System of 1983, South Central Zone, U. S. Survey Feet
X= 3,096,100.90
Y= 13,805,025.48
Lat.= 29° 39' 39.83317" N
Lon.= −95° 26' 56.15249" W
Reference Frame Used: Epoch 2010.00
Vertical Adjustment used: NAVD '88, CORS 96
General Location: Northwest corner of the intersection of Kinglet St. and Greenwillow St.
Date Set: 03-31-1976 Type of Mark: 4A
3 Nearest project control points (bearings and distances stated below):
105=5253-0306 TO J31 N 29° 35' 44" E DIST. 1,997.19'
105=5253-0306 TO J32 N 39° 33' 41" E DIST. 1,557.28'
105=5253-0306 TO J33 N 55° 50' 04" E DIST. 1,254.22'
NOTE:
1. Bearings are grid bearings.
2. Scale Factor = 0.999878
3. Surface= Grid / S.F.
Surveyed by: JAG Engineering, Inc.
9900 Westpark Dr., Ste. 269
Houston, TX 77063

Keymap Page: 531Z
Orthometric Elevation = 56.51
Ellipsoid Height= −32.92
Geoid: GEOID 12A
Datum Source & Adjustment: NAD '83 (2011)

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR

REVISED GRID COORDINATES 09/21/2012
City of Houston, Harris County, Texas

DATE: 7/2/2013
FILE NAME: G:\Proj-2011\11030\dgn\survey control map\COH_monument_swing ties_CP.dgn

JAG ENGINEERING, INC.
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Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR 9-12-17

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

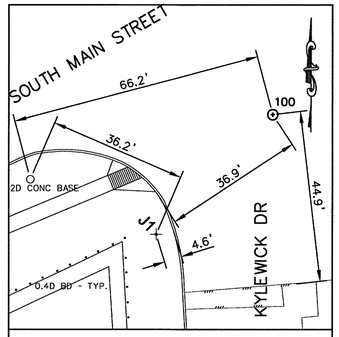
C.O.H. MONUMENT SWING TIES

SHEET 1 OF 1

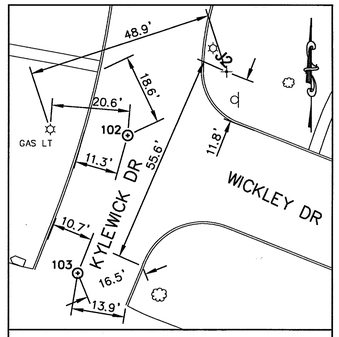
WBS NUMBER
S-000035-188-4
DRAWING SCALE
N.T.S.
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 15 OF 151

FOR CITY OF HOUSTON USE ONLY

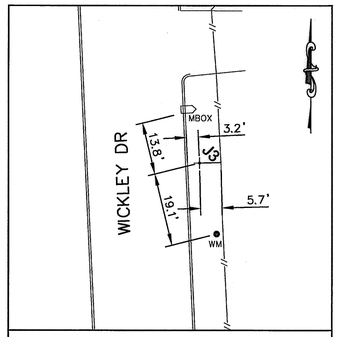
51277



J1, 100



J2, 102, 103



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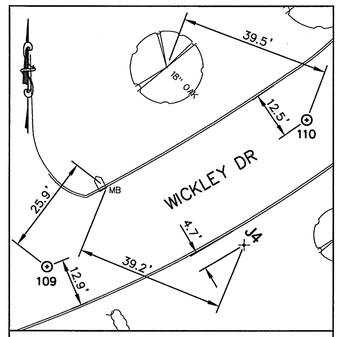
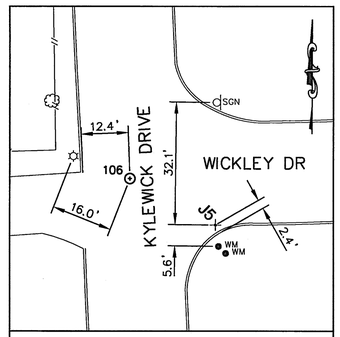
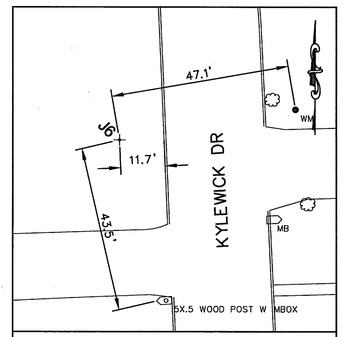


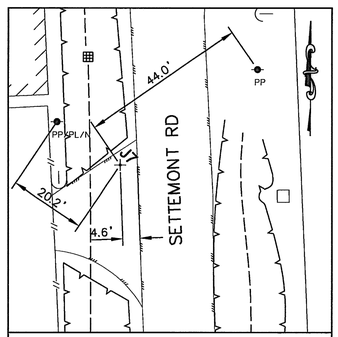
J4, 109, 110



J5, 106



J6



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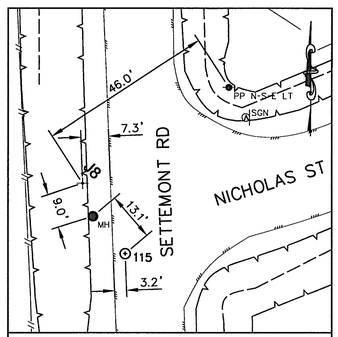
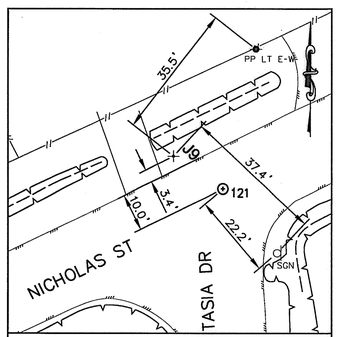
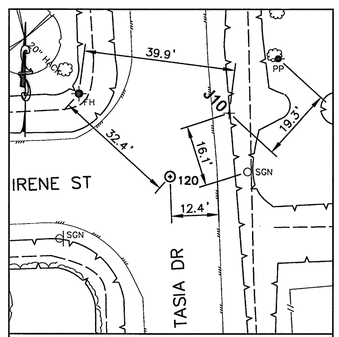


J8, 115



J9, 121



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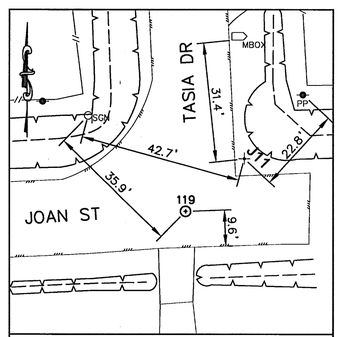
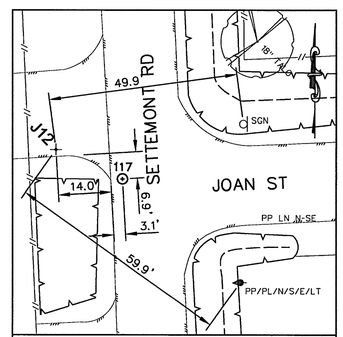
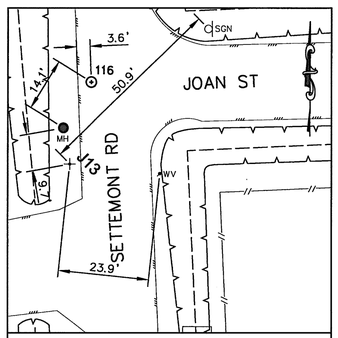


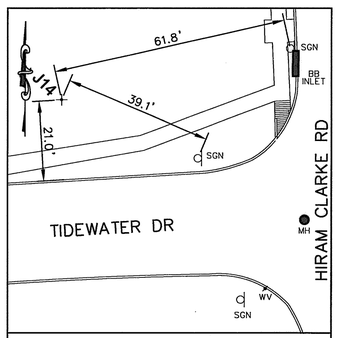
J11, 119



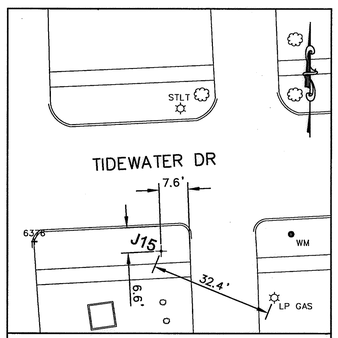
J12, 117



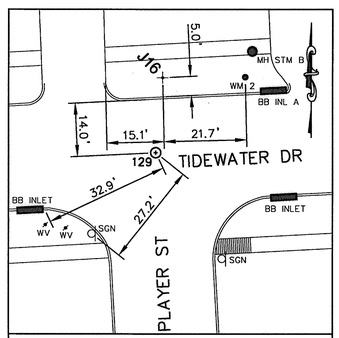
J13, 116



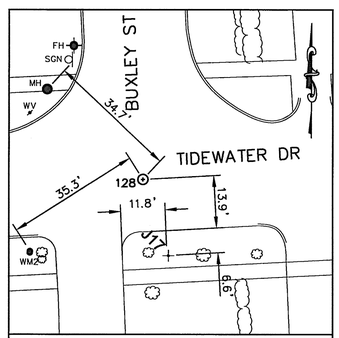
J14



J15



J16, 129



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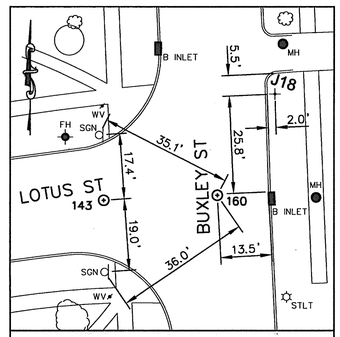

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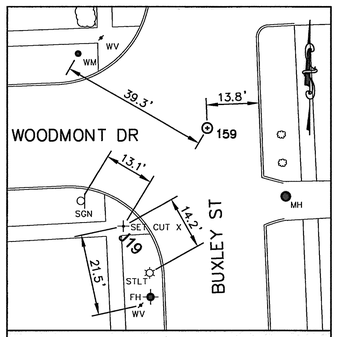

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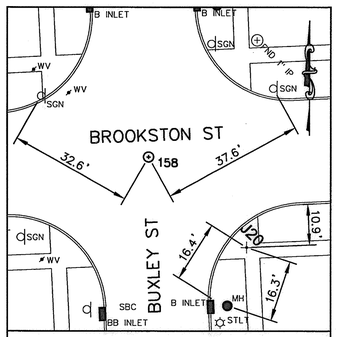

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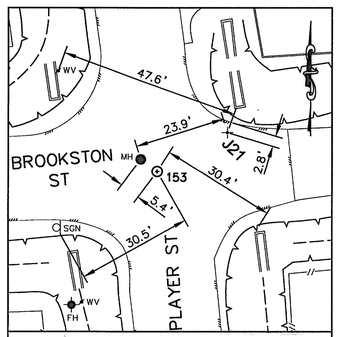

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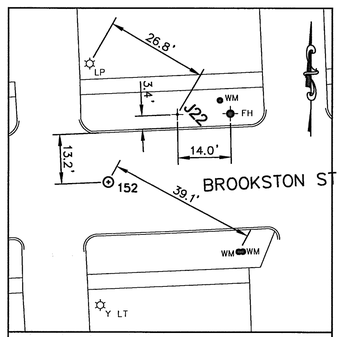


J22, 152

LEGEND

56 255 SURVEY BASELINE CONTROL POINT/TBM

CENTERLINE POINT

JAG ENGINEERING, INC.
9900 WESTPARK, SUITE 269, HOUSTON TX 77063
(713) 977-7550 FAX (713) 977-7317

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR 9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

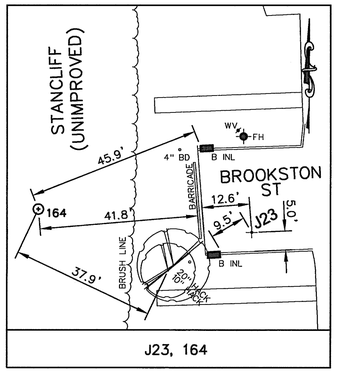
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL POINT SWING TIES

SHEET 1 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 16 OF 151	

DATE: 7/2/2013
FILE NAME: H:\Proj-2011\11030\dgn\SURVEY CONTROL MAP\CP-swing ties1.dgn



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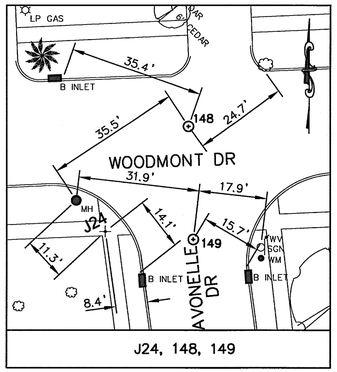

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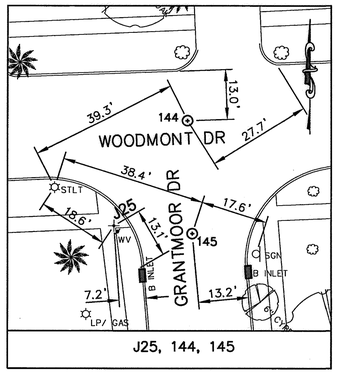

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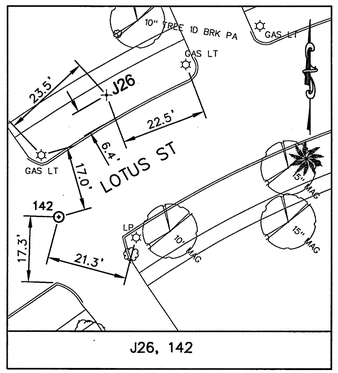

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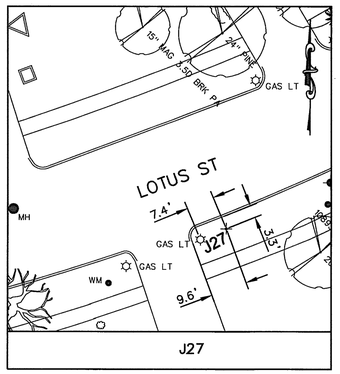

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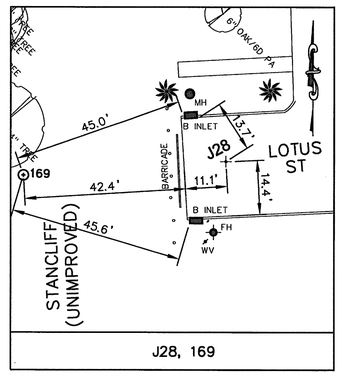

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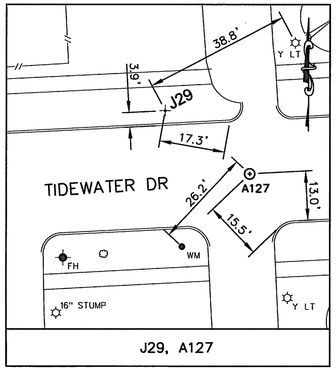

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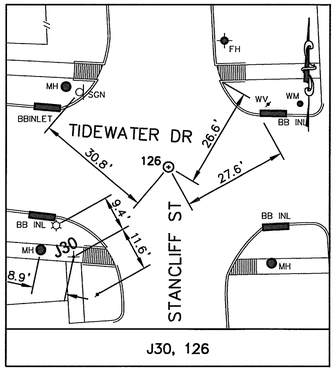

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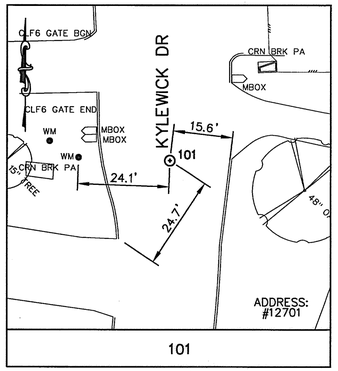

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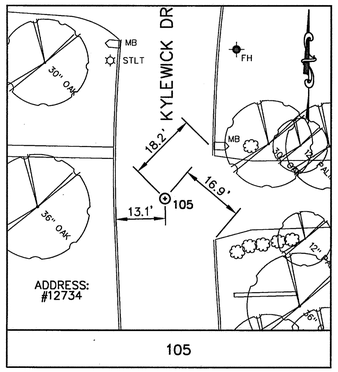

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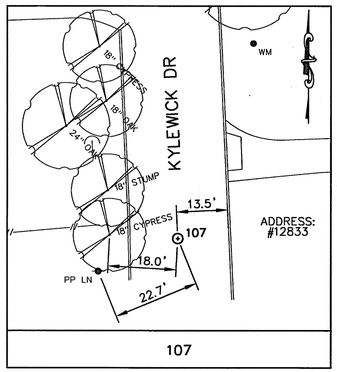

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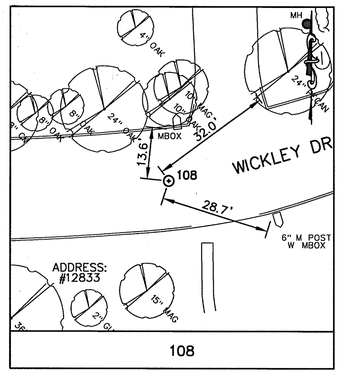

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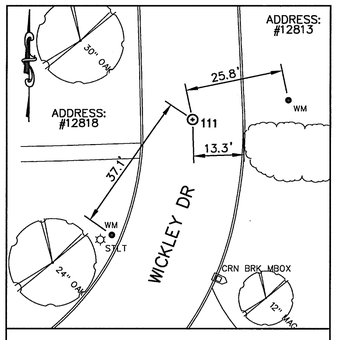

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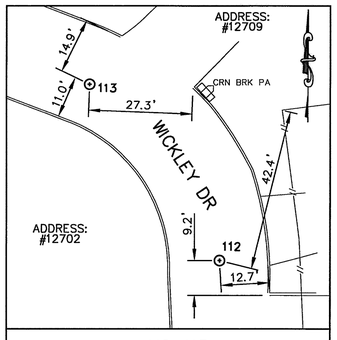

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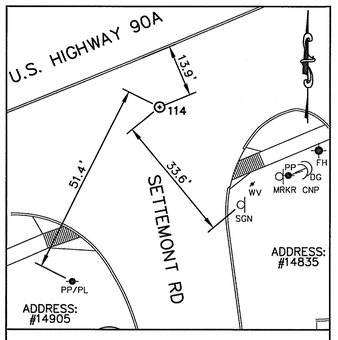

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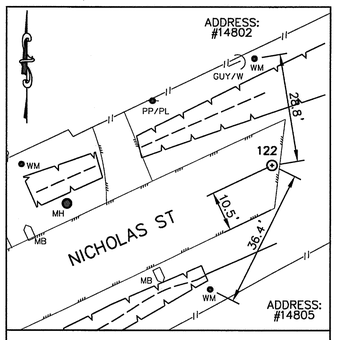

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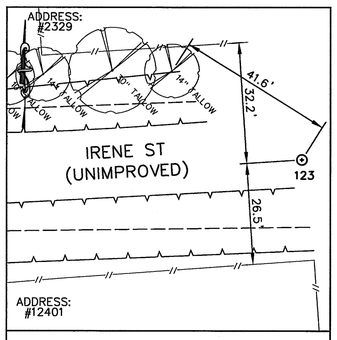

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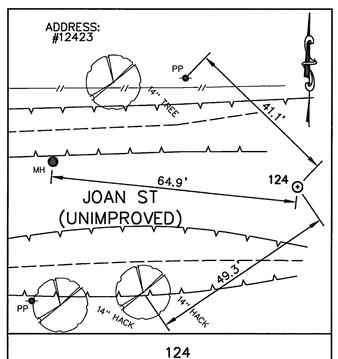

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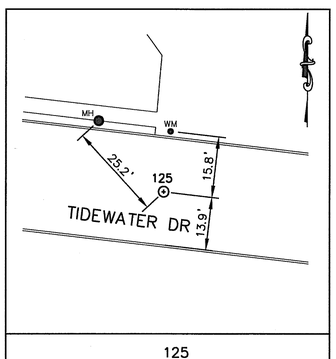

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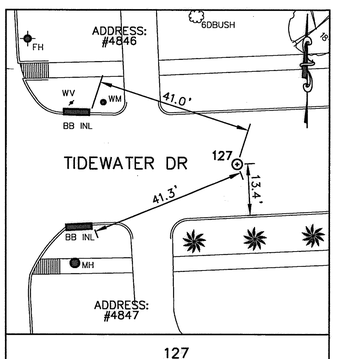

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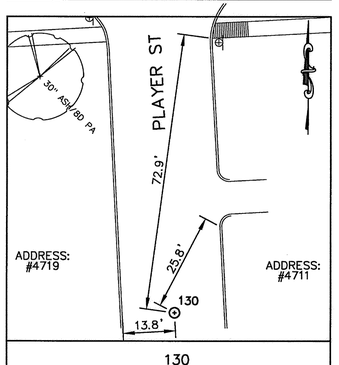

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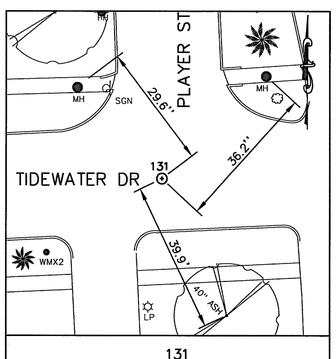

131

LEGEND

56 + SURVEY BASELINE CONTROL POINT/TBM

255 ⊙ CENTERLINE POINT

JAG ENGINEERING, INC.

9900 WESTPARK, SUITE 269, HOUSTON TX 77063
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TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL POINT SWING TIES

SHEET 2 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 17 OF 151	

51277

DATE: 7/12/2013
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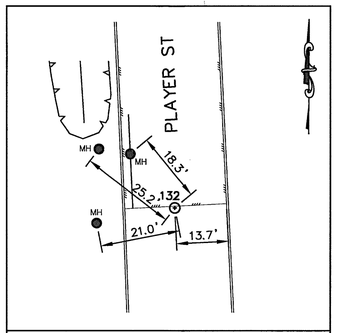

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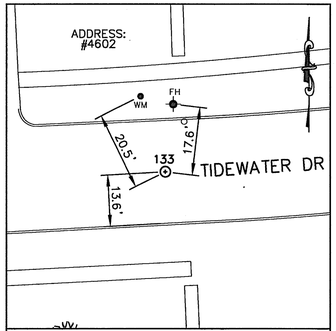

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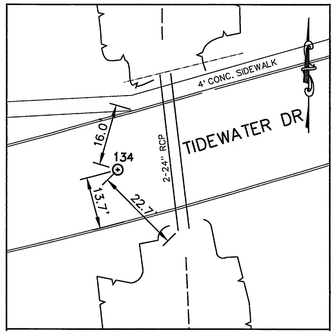

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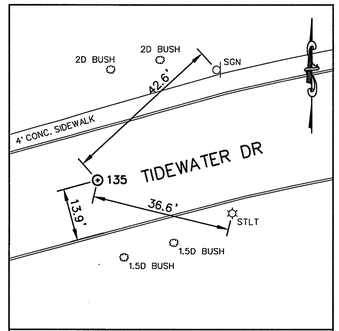

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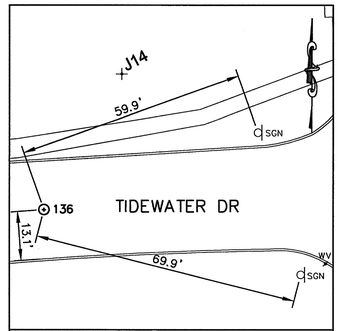

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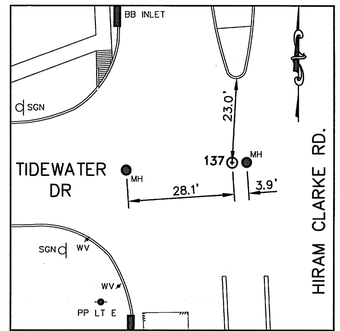

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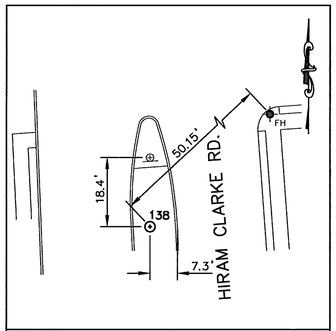

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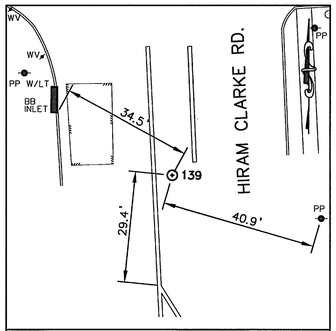

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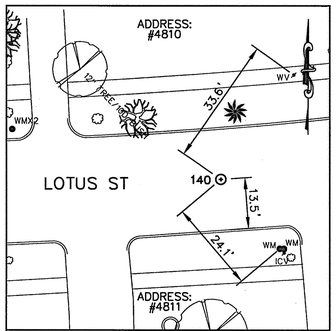

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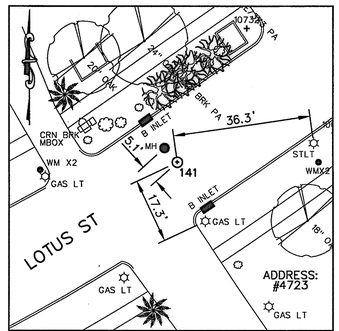

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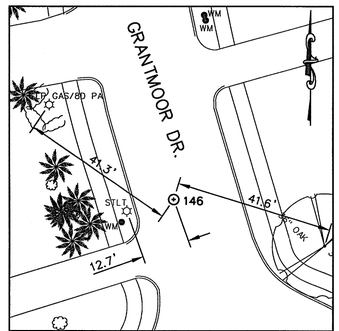

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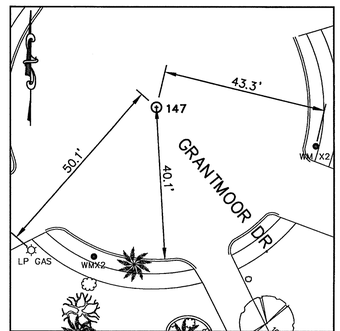

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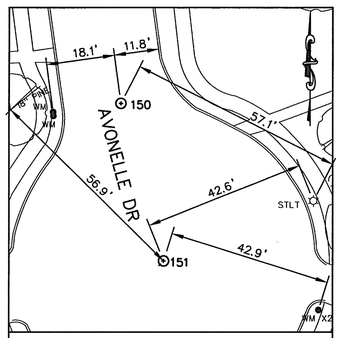

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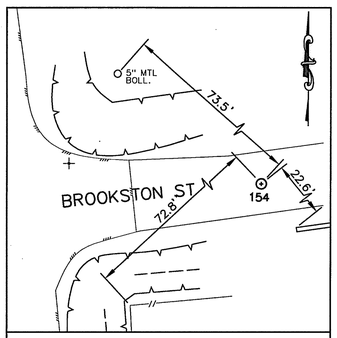

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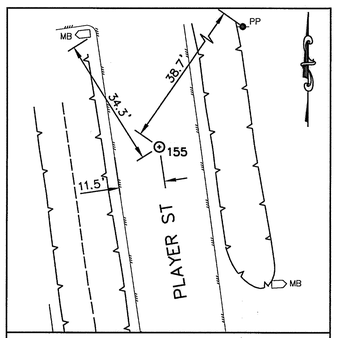

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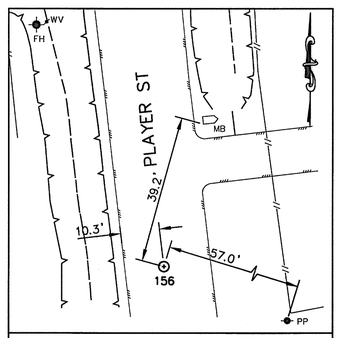

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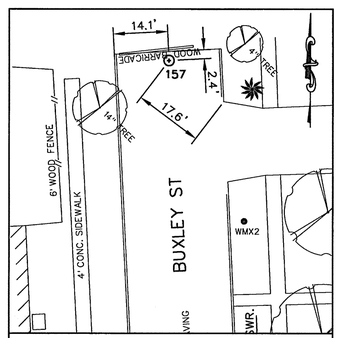

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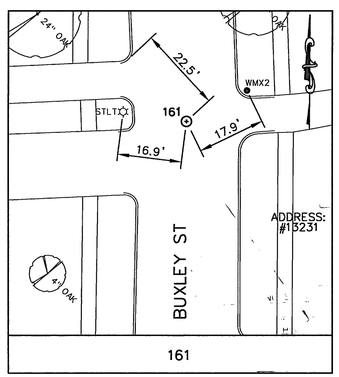

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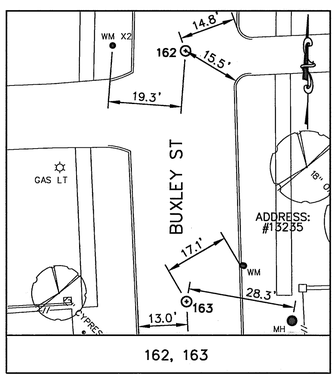

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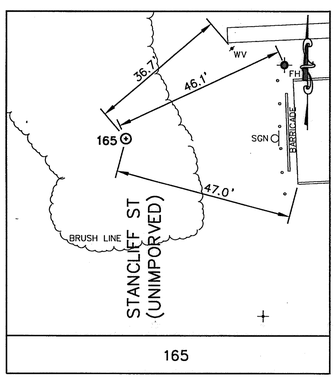

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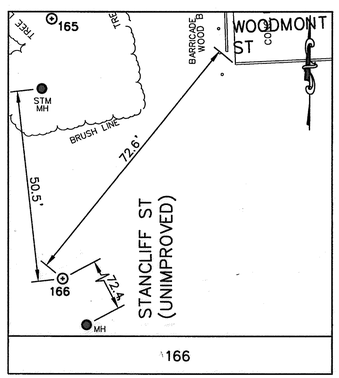

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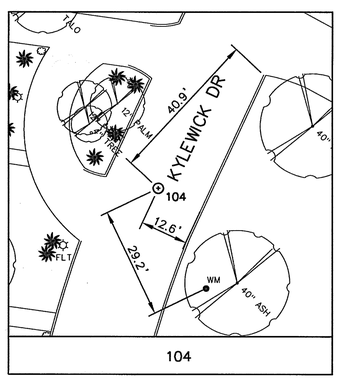

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LEGEND

56 + SURVEY BASELINE CONTROL POINT/TBM

255 ⊙ CENTERLINE POINT

JAG ENGINEERING, INC.

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STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR 9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL POINT SWING TIES

SHEET 3 OF 7

WBS NUMBER	S-000035-188-4
DRAWING SCALE	N.T.S.
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO. 18 OF 151	

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PUBLIC WORKS & ENGINEERING 51277

DATE: 7/2/2013
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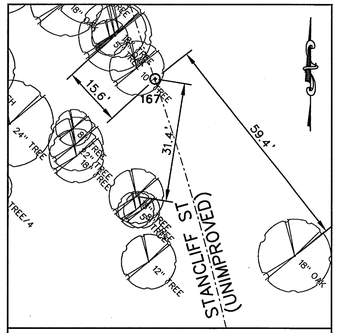

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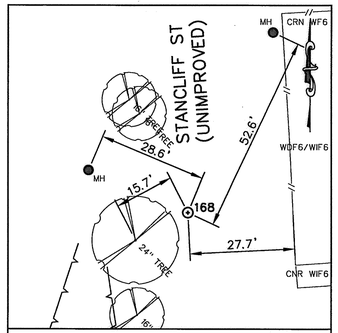

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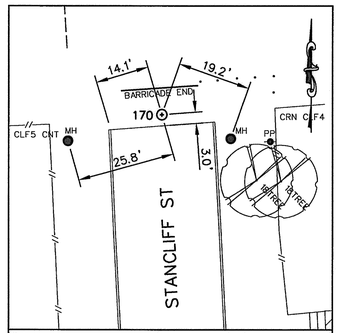

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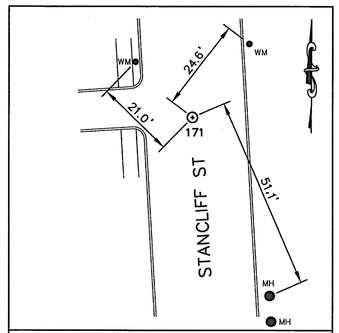

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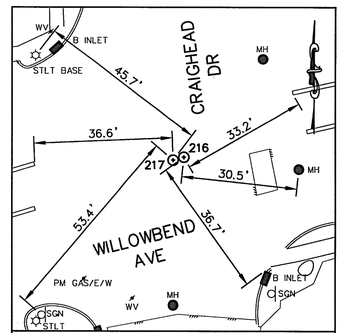

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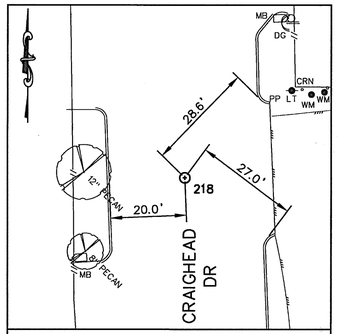

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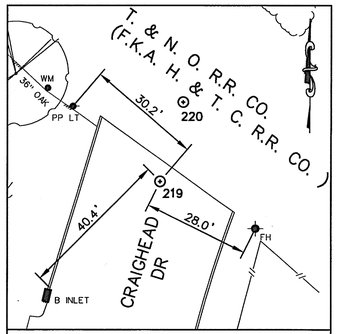

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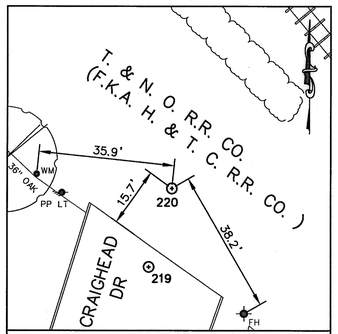

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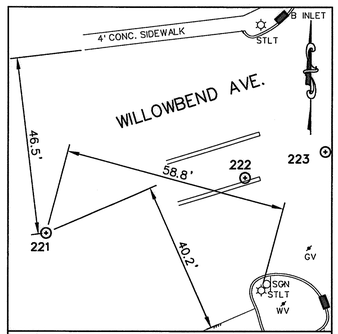

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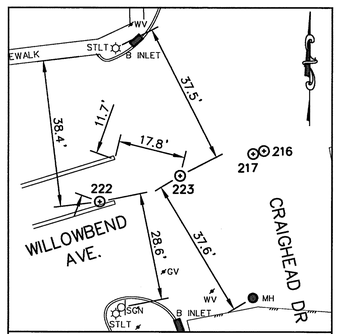

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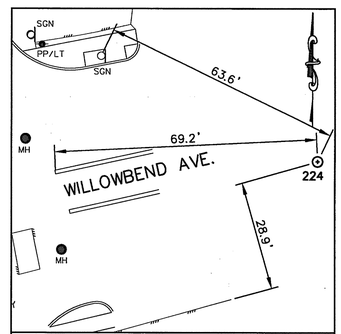

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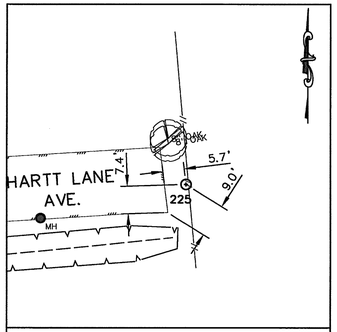

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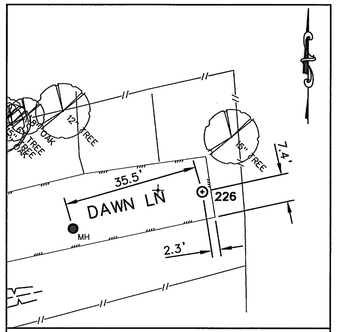

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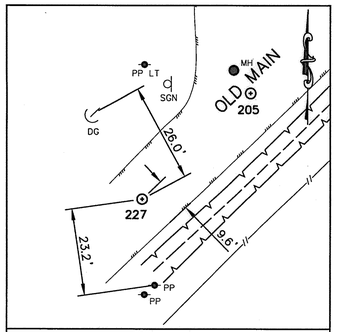

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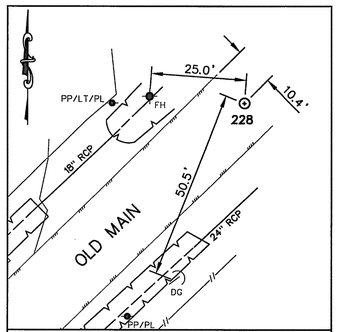

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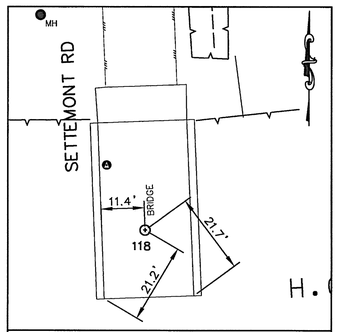

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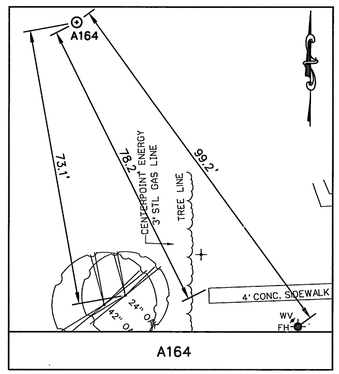

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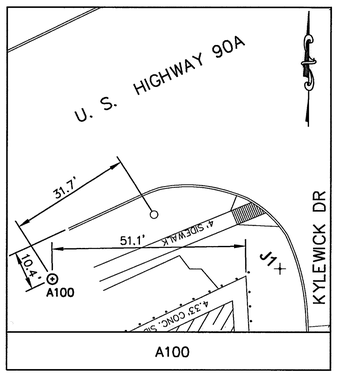

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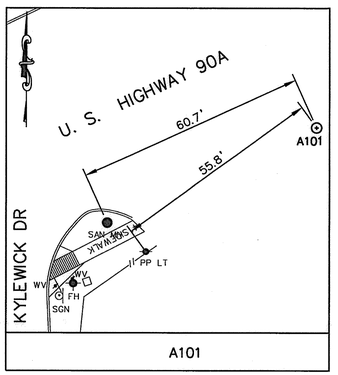

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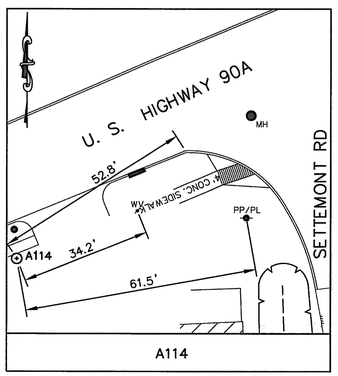

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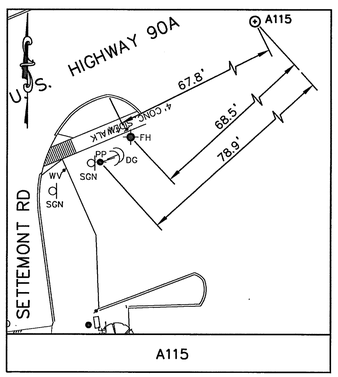


A115

LEGEND

56 SURVEY BASELINE CONTROL POINT/TBM

255 + CENTERLINE POINT

JAG ENGINEERING, INC.
9900 WESTPARK, SUITE 269, HOUSTON TX 77063
(713) 977-7550 FAX (713) 977-7317

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

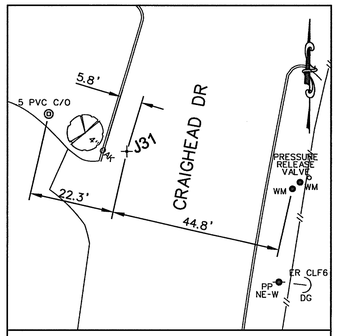
SURVEY CONTROL POINT SWING TIES

SHEET 4 OF 7

WBS NUMBER	S-000035-188-4
DRAWING SCALE	N.T.S.
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO. 19 OF 151	

FOR CITY OF HOUSTON USE ONLY
51277

DATE: 7/2/2013
FILE NAME: H:\Proj\2011\11030\dgn\SURVEY CONTROL MAP\CP-swing ties4.dgn



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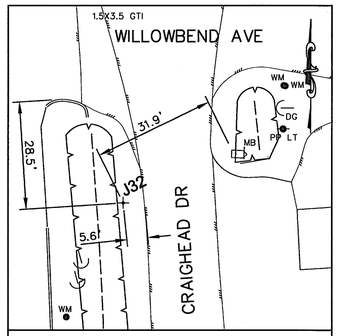

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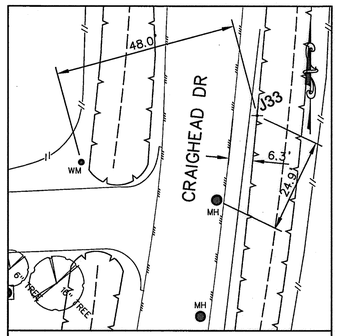

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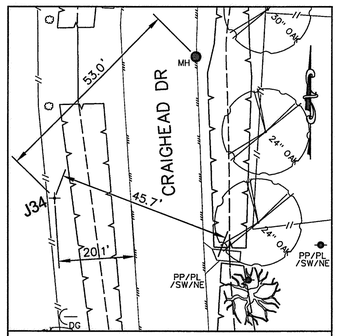

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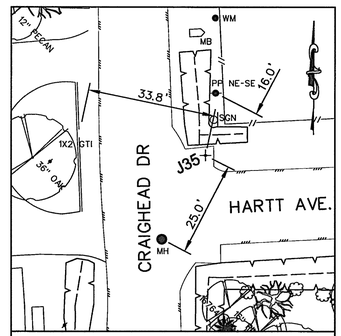

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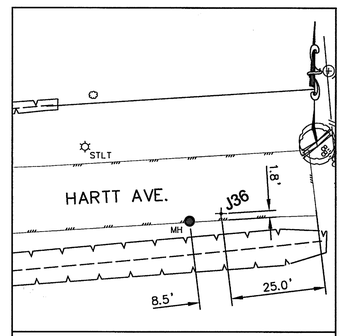

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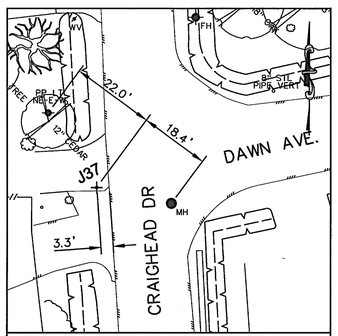

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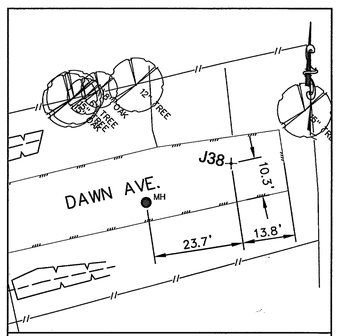

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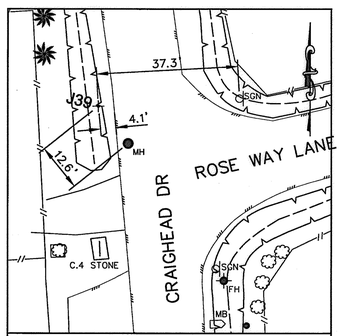

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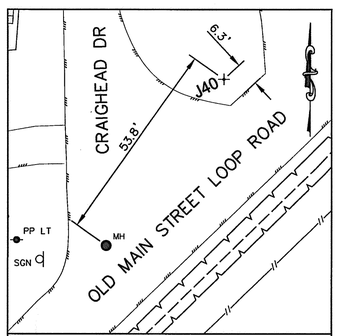

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LEGEND

56 SURVEY BASELINE CONTROL POINT/TBM

255 CENTERLINE POINT

JAG ENGINEERING, INC.

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STATE OF TEXAS
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

SURVEY CONTROL POINT SWING TIES

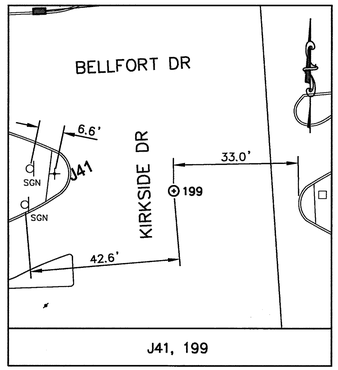
SHEET 5 OF 7

WBS NUMBER
S-000035-188-4
DRAWING SCALE
N.T.S.
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 20 OF 151

FOR CITY OF HOUSTON USE ONLY

PUBLIC WORKS 51277

DATE: 7/2/2013
FILE NAME: H:\Proj-2011\11030\dgn\SURVEY CONTROL MAP\CP-swing ties5.dgn



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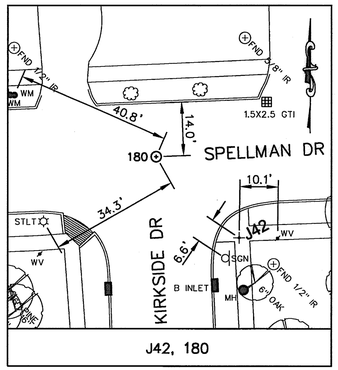

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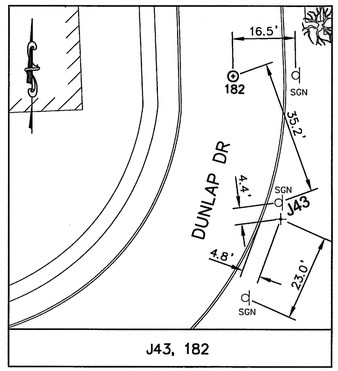

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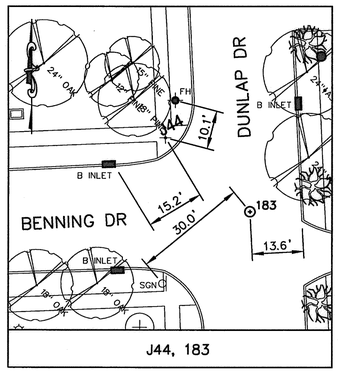

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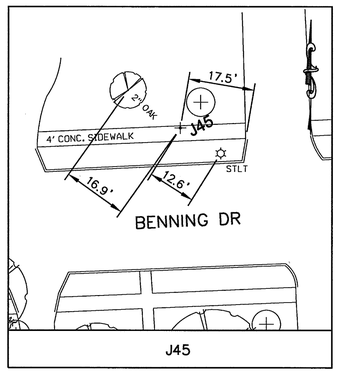

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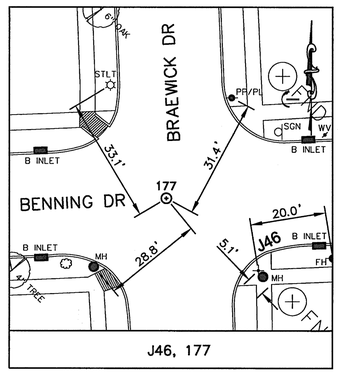

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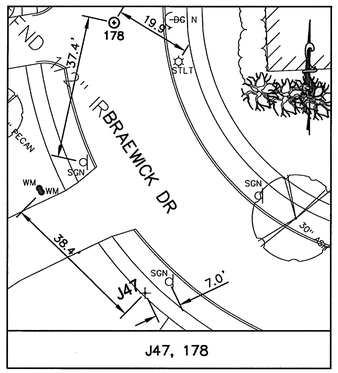

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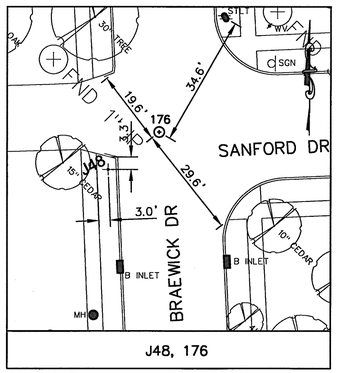

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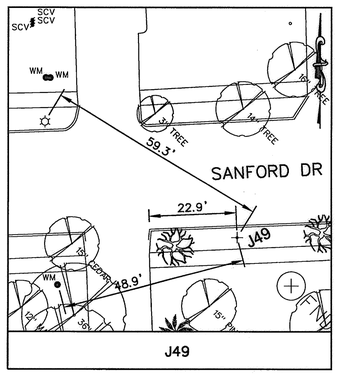

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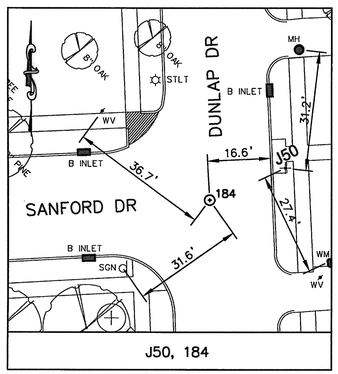

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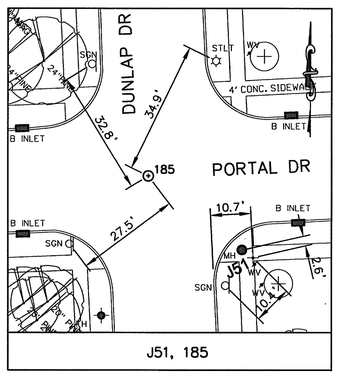

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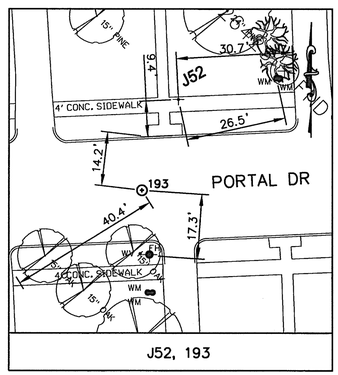

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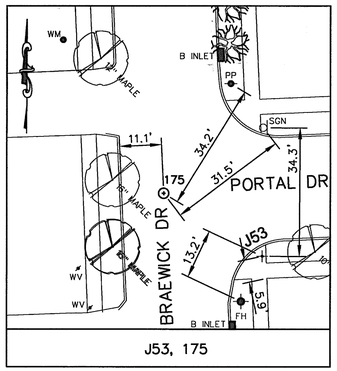

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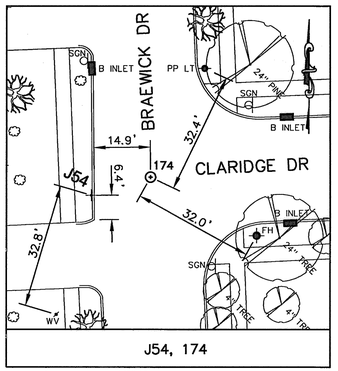

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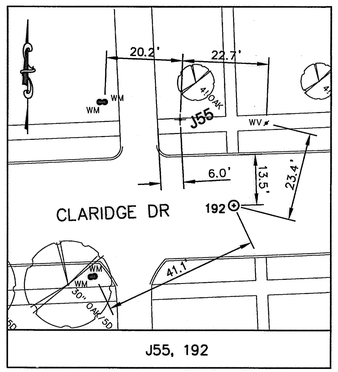

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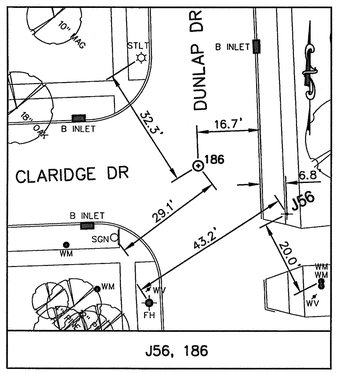

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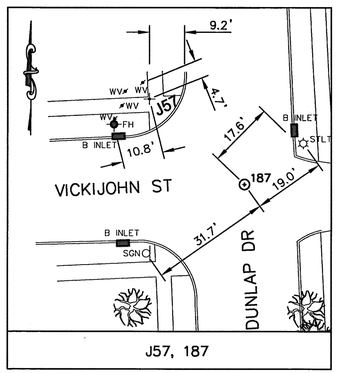

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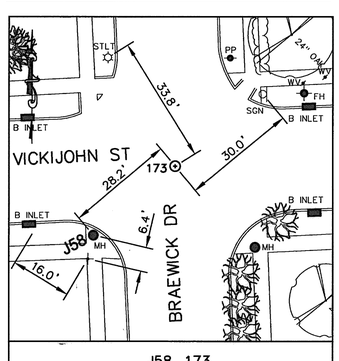

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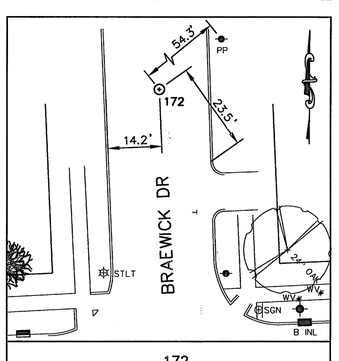

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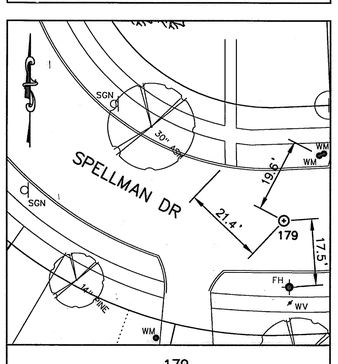

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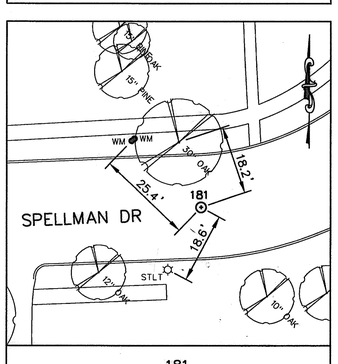

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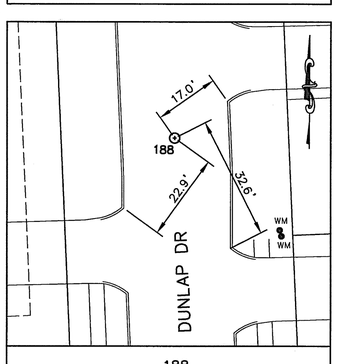

188

LEGEND

56 + SURVEY BASELINE CONTROL POINT/TBM

255 ⊙ CENTERLINE POINT

JAG ENGINEERING, INC.
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WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

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SHEET 6 OF 7

WBS NUMBER	S-000035-188-4
DRAWING SCALE	N.T.S.
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	21 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

DATE: 7/2/2013
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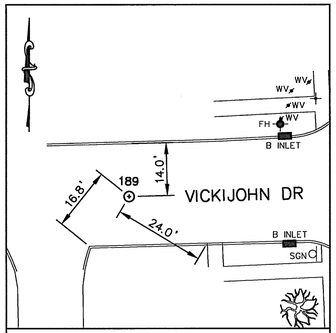

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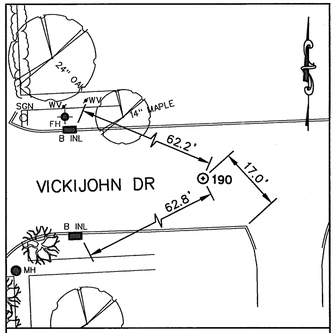

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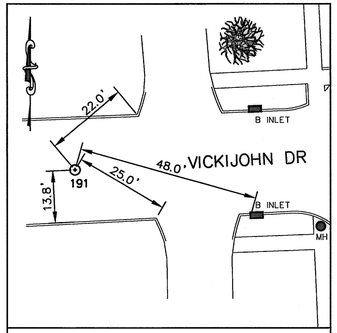

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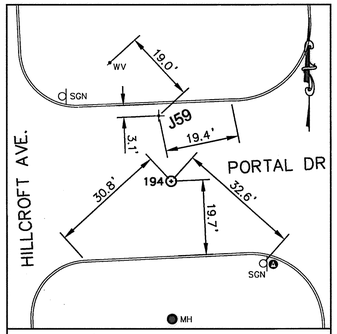

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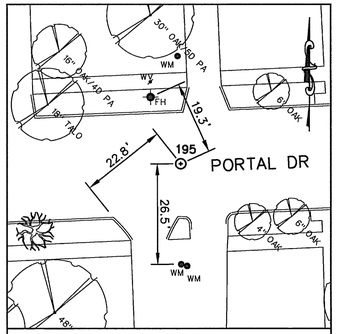

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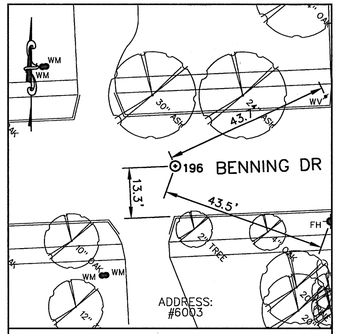

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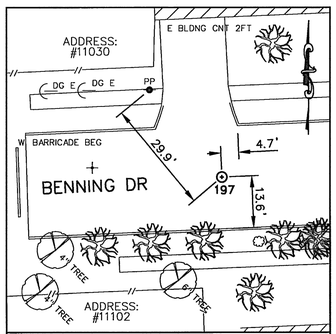

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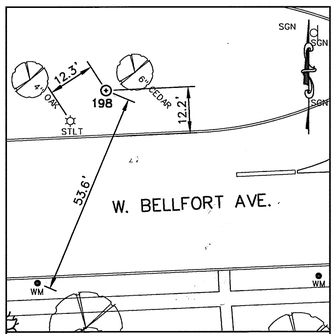

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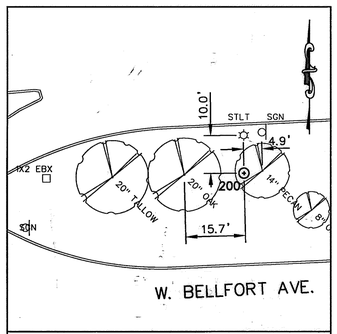

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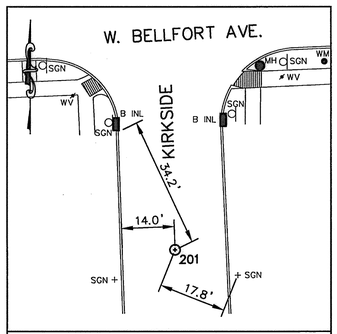

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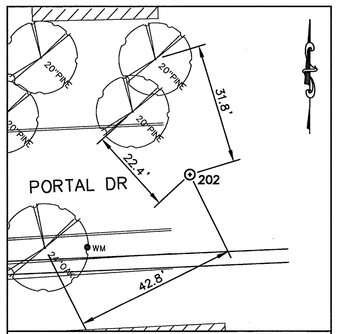

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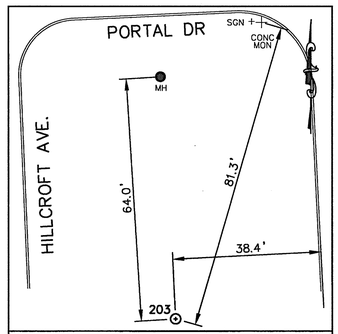

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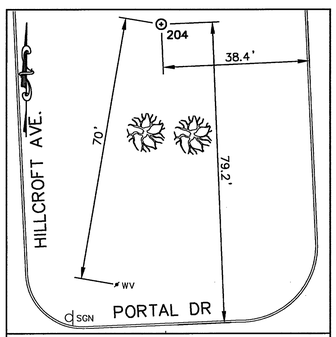

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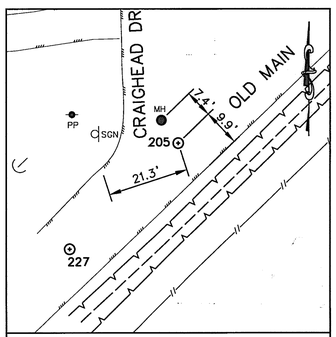

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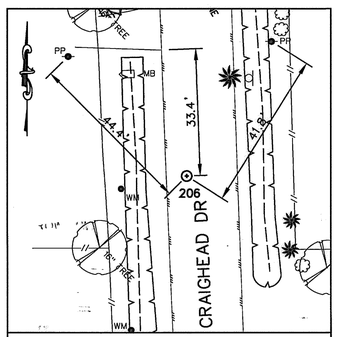

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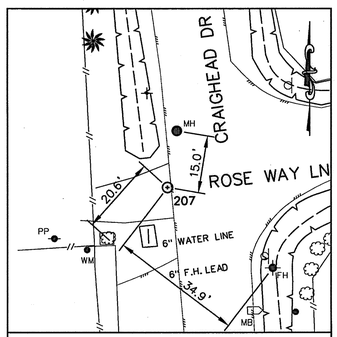

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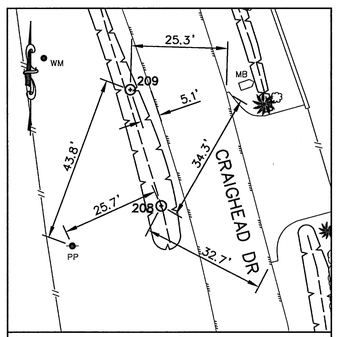

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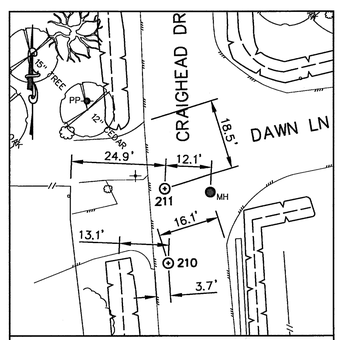

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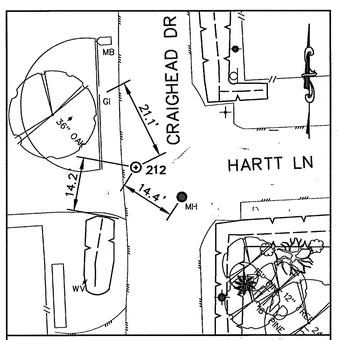

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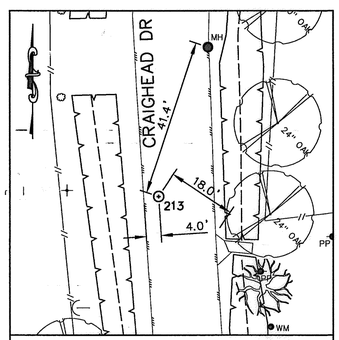

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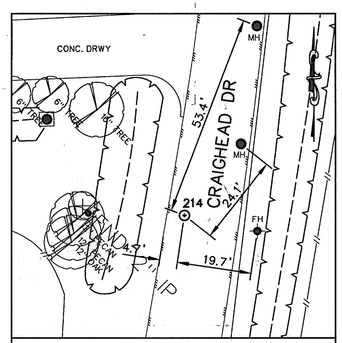

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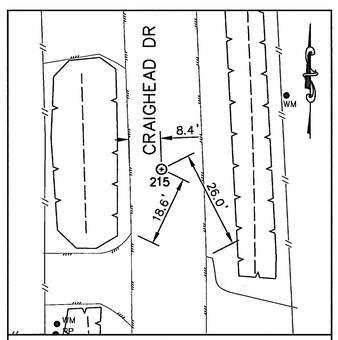


215

LEGEND

56 SURVEY BASELINE CONTROL POINT/TBM

255 + CENTERLINE POINT

JAG ENGINEERING, INC.
9900 WESTPARK, SUITE 269, HOUSTON TX 77063
(713) 977-7550 FAX (713) 977-7317

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS REGISTERED JOHN A. GUAJARDO 5945 PROFESSIONAL LAND SURVEYOR 9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

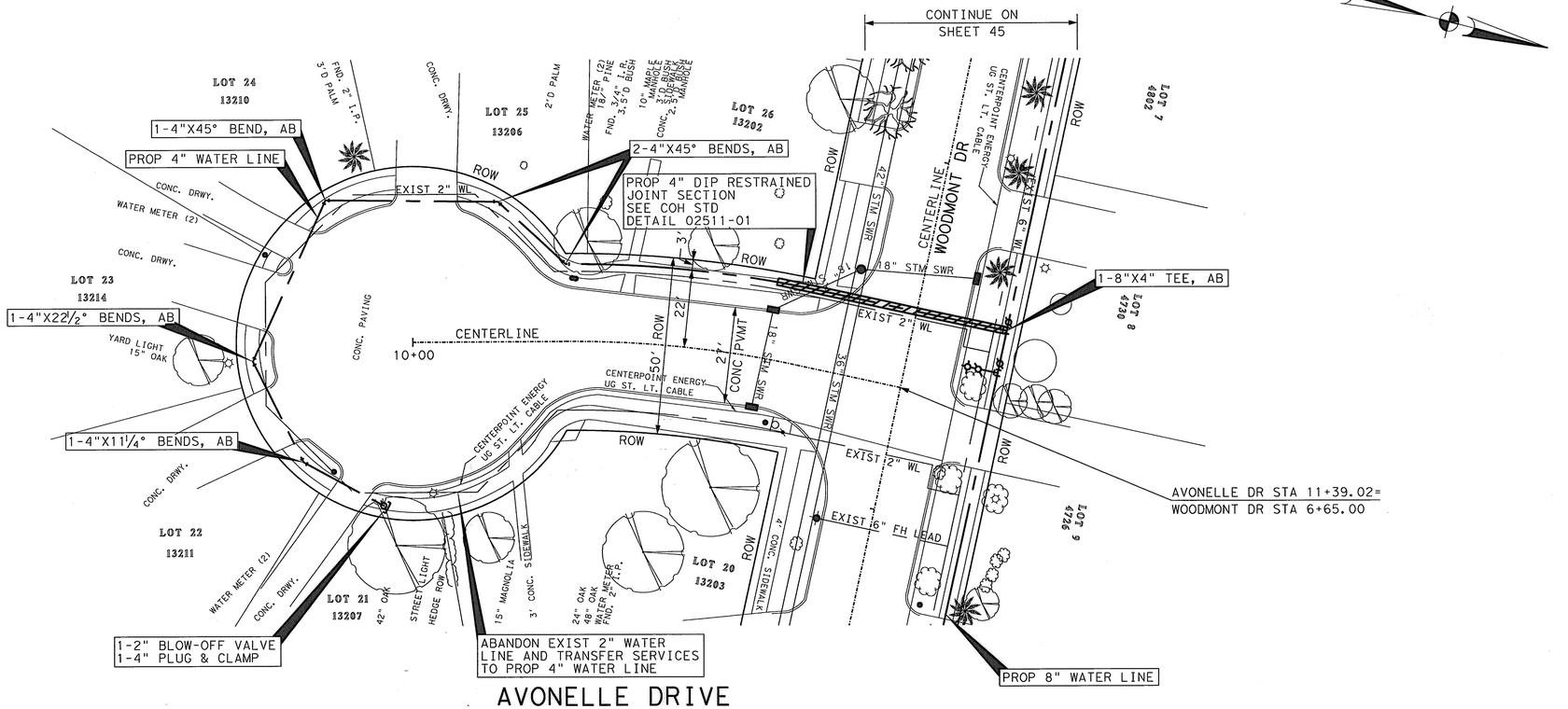
SURVEY CONTROL POINT SWING TIES

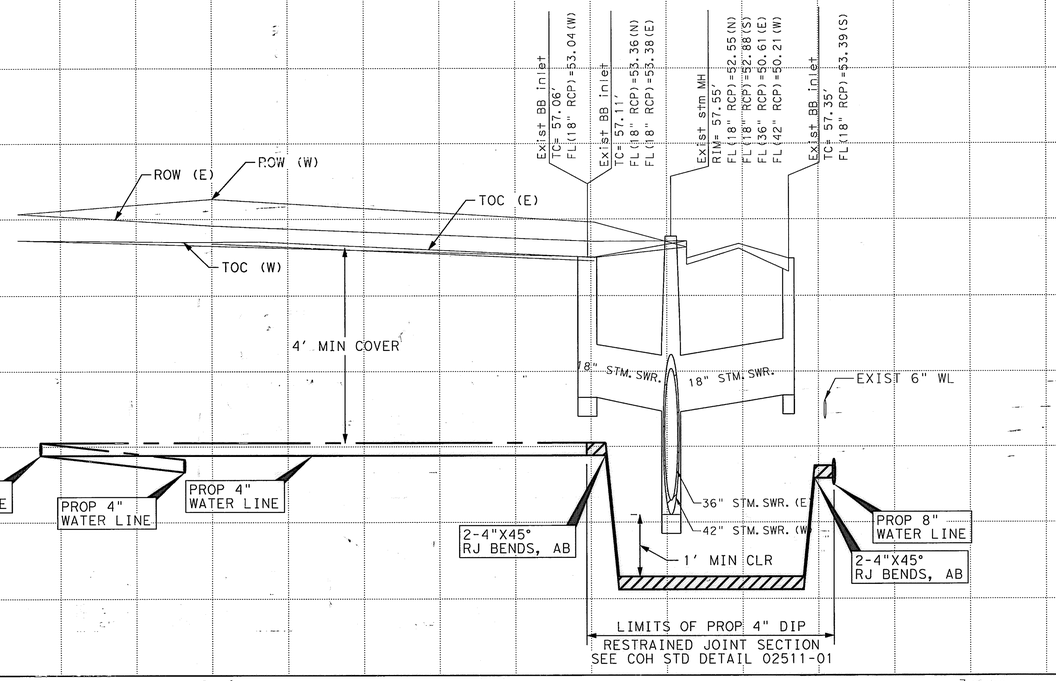
SHEET 7 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 22 OF 151	

51277

DATE: 7/2/2013
FILE NAME: H:\Proj-2011\11030\dgn\SURVEY CONTROL MAP\CP-swing ties7.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J24, SET CUT X
11+12.56, -23.13
ELEV 57.21

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9-18-13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9-18-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
AVONELLE DRIVE
BEGIN TO END
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 23 OF 151	

11:59:34 AM
mathewl 9/13/13
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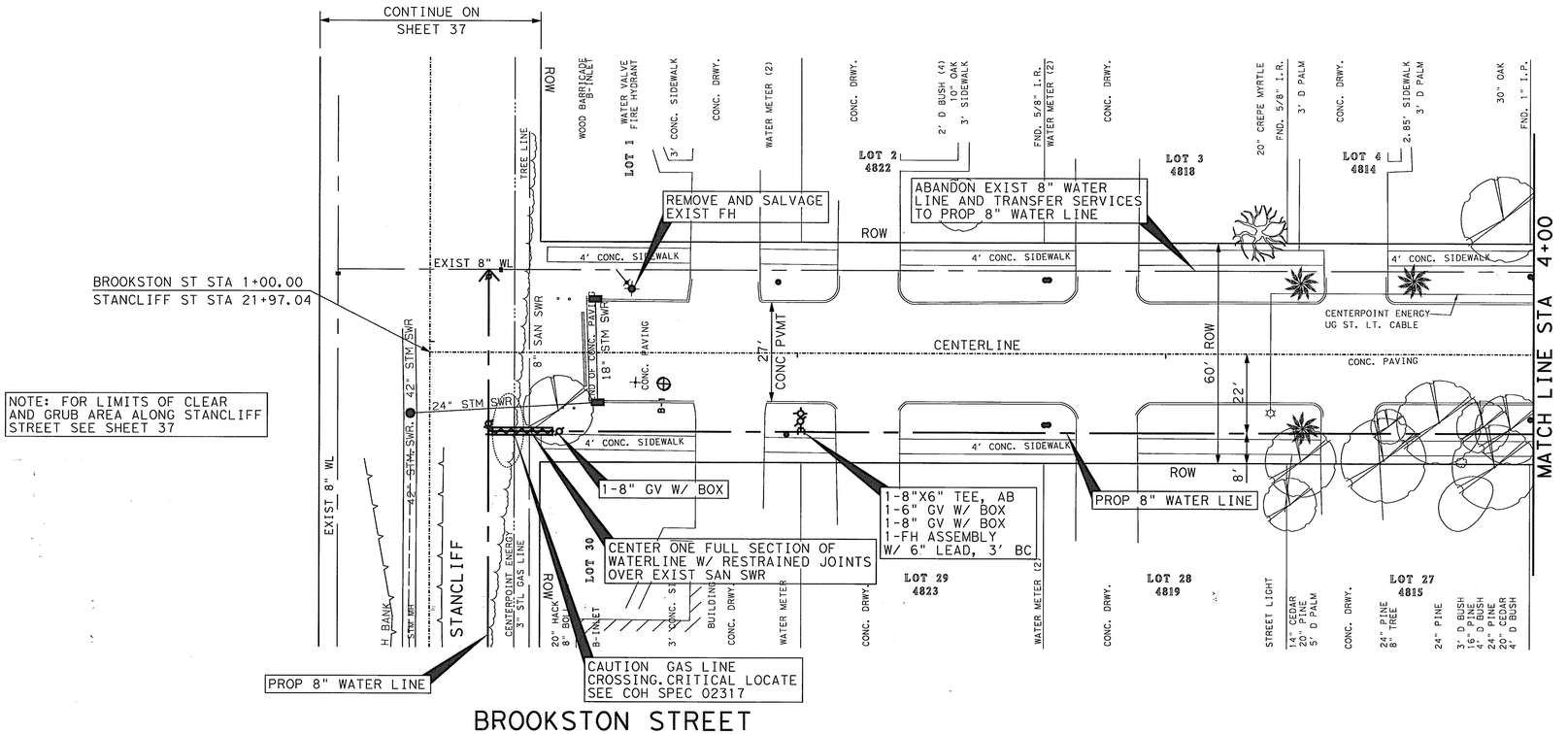
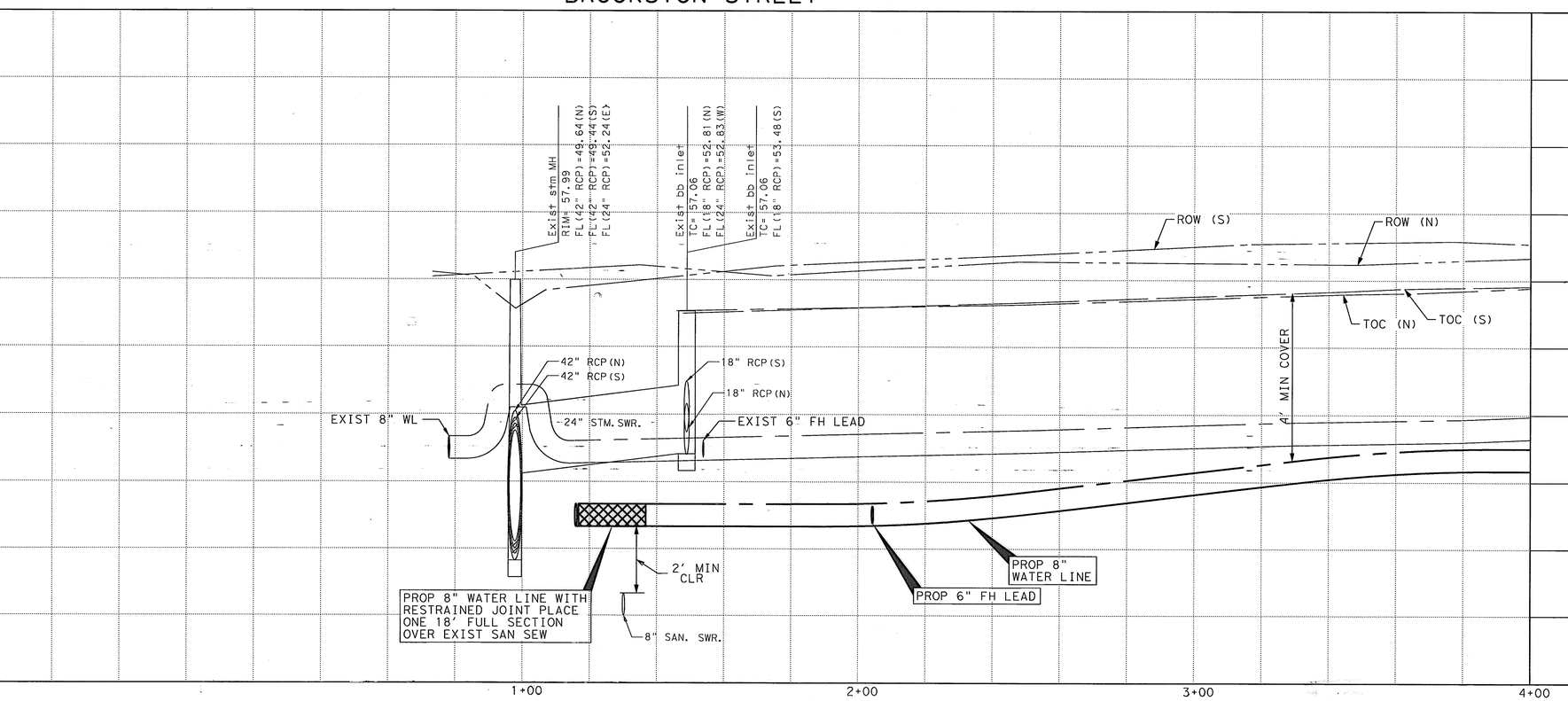
CAM-UTL-A1A-Avonelle Dr-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J23, SET CUT X
1+55.99, 8.16
ELEV 56.72

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9-18-13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9-18-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
BROOKSTON STREET
BEGIN TO STA 4+00

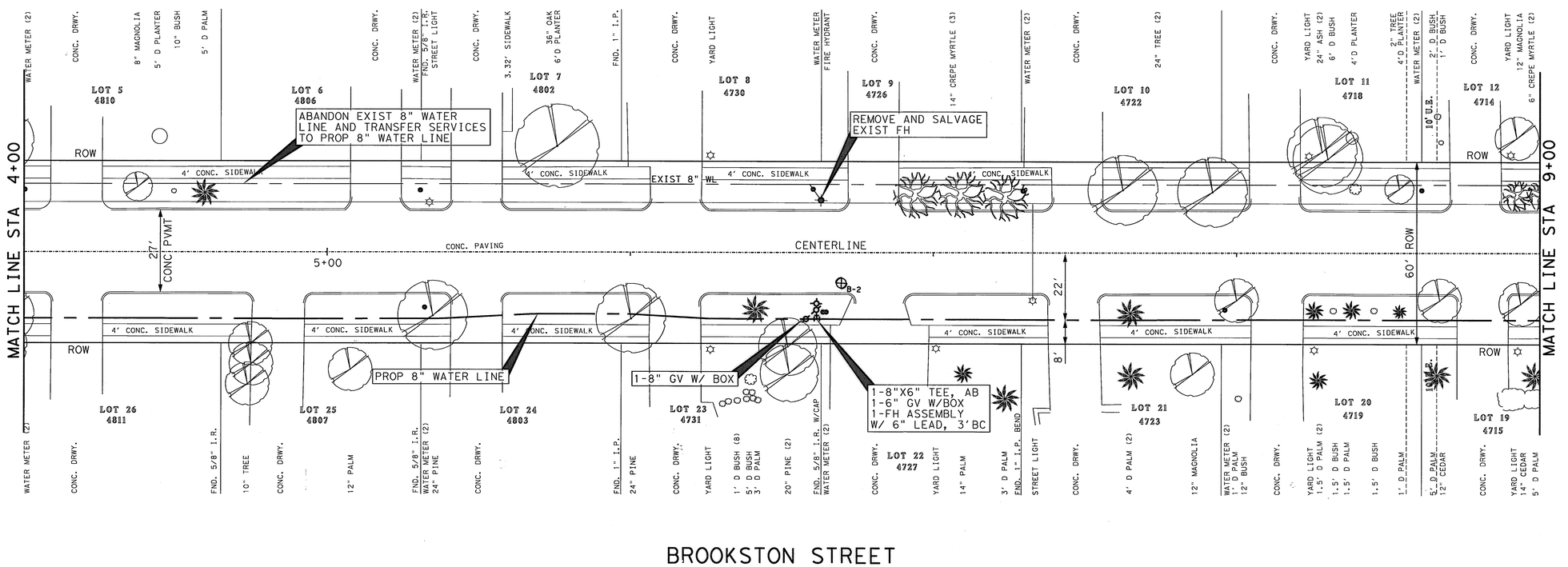
SHEET 1 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 24 OF 151	

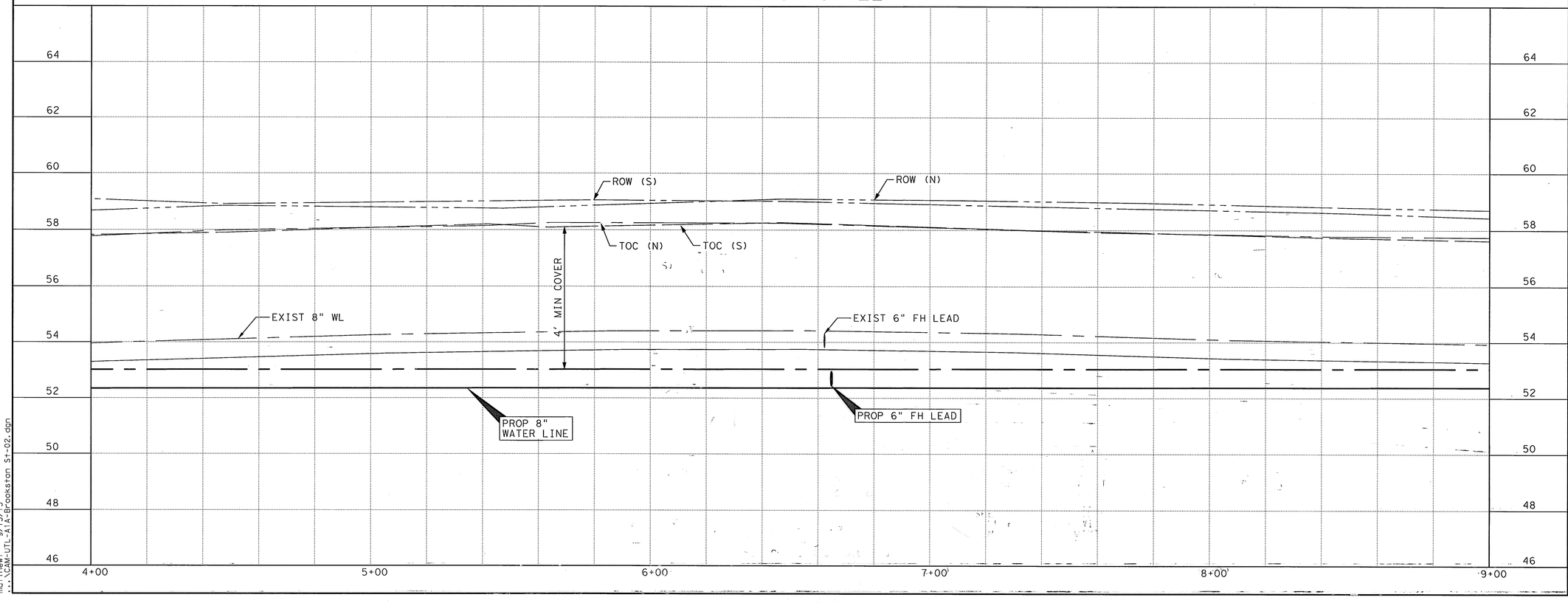
51277

11:59:38 AM
matthew 9/13/13
...\CAM-UTL-A1A-Brookston St-01.dgn

CAM-UTL-A1A-Brookston St-01.dgn



BROOKSTON STREET



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J22, SET 5/8 IR W/ CAP
6+48.97, -17.54
ELEV 58.38

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.
Date: 9-18-13

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

CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)
Date: 9-18-13

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BROOKSTON STREET
STA 4+00 TO STA 9+00
SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 25 OF 151	

11:59:41 AM
matthew
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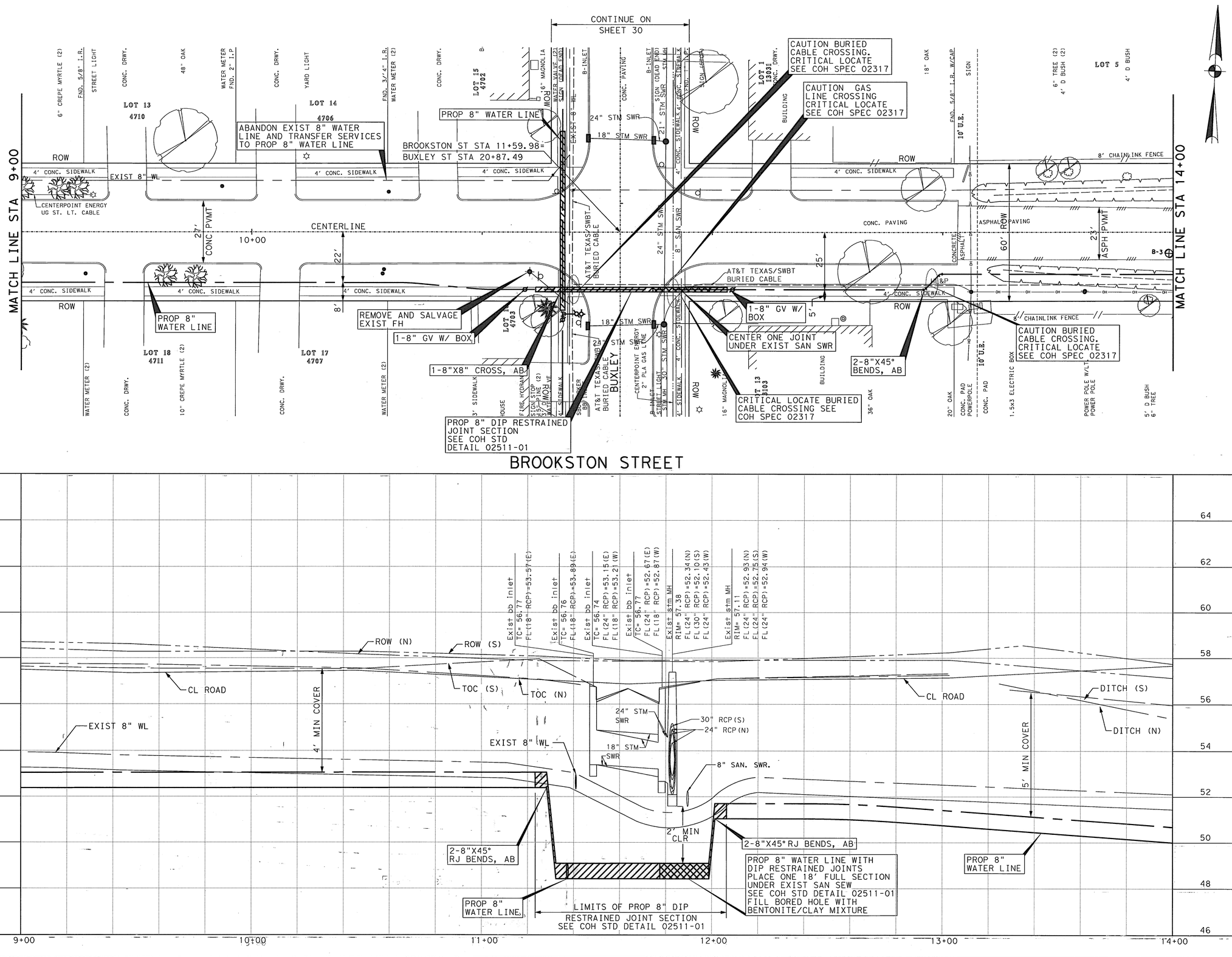

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J20, SET CUT X
11+84.82, 24.74
ELEV 56.79

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9-18-13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9-18-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE BROOKSTON STREET
STA 9+00 TO STA 14+00
SHEET 3 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 26 OF 151	

51277

11:59:43 AM
matthew!
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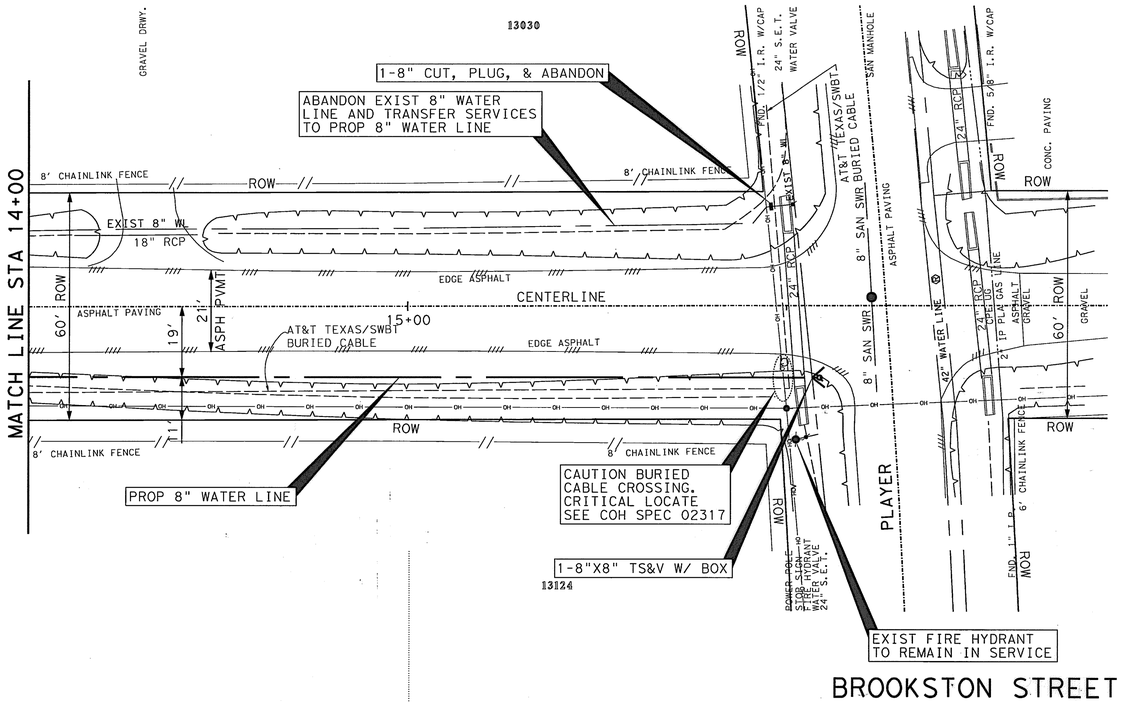
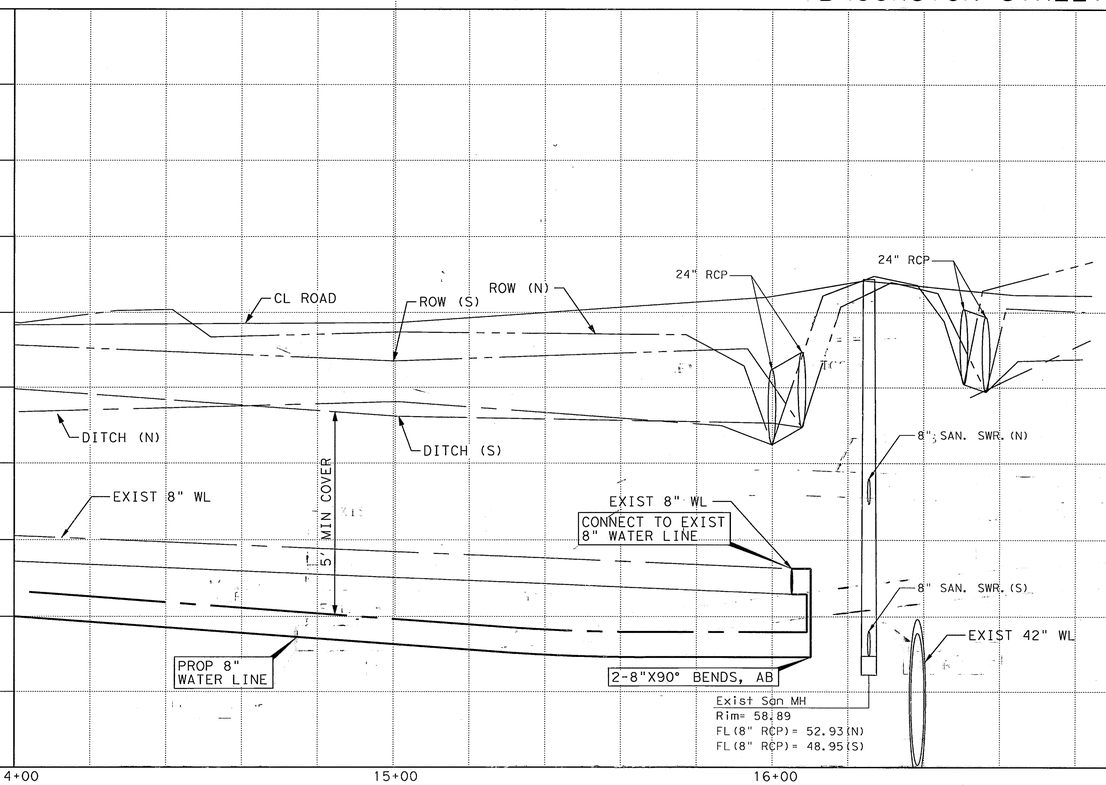
CAM-UTL-A1A-Brookston St-03.dgn



BROOKSTON STREET





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J21, SET MAG NAIL
16+45.62, -8.34
ELEV 58.57

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9-8-13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9-8-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BROOKSTON STREET

STA 14+00 TO END

SHEET 4 OF 4

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	27 OF 151

FOR CITY OF HOUSTON USE ONLY
PUBLIC WORKS
51277

11:59:45 AM 9/13/13
matthew! ..\CAM-UTL-A1A-Brookston St-04.dgn

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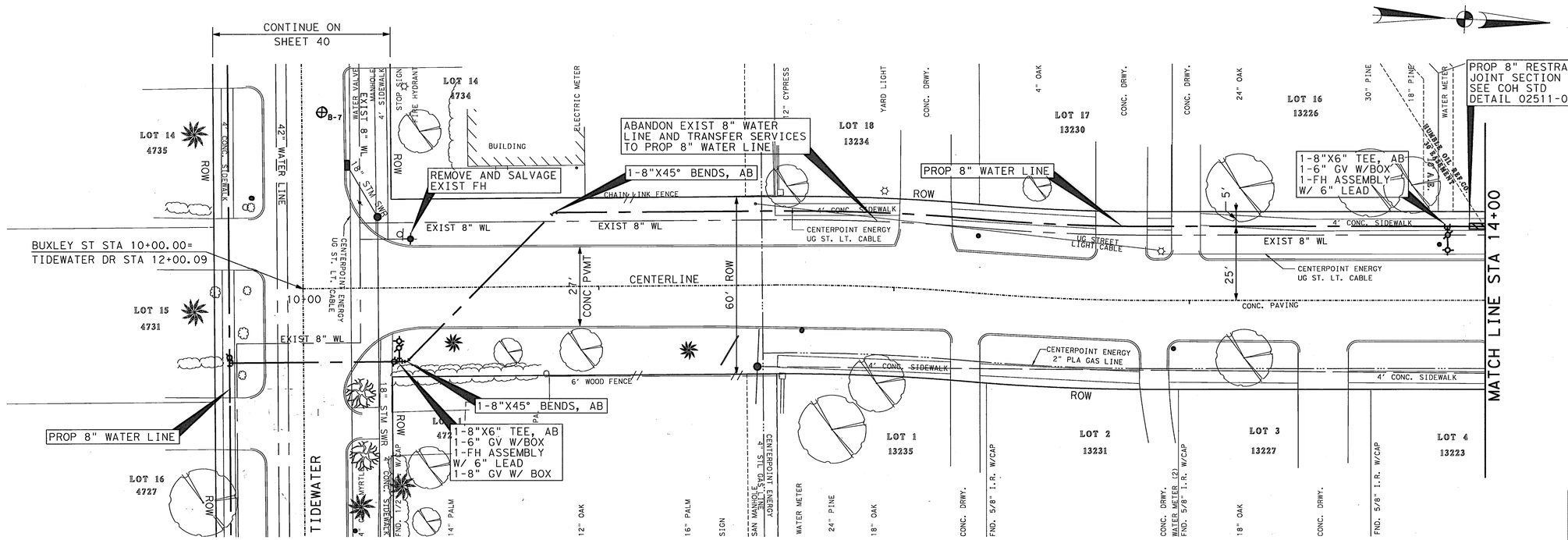
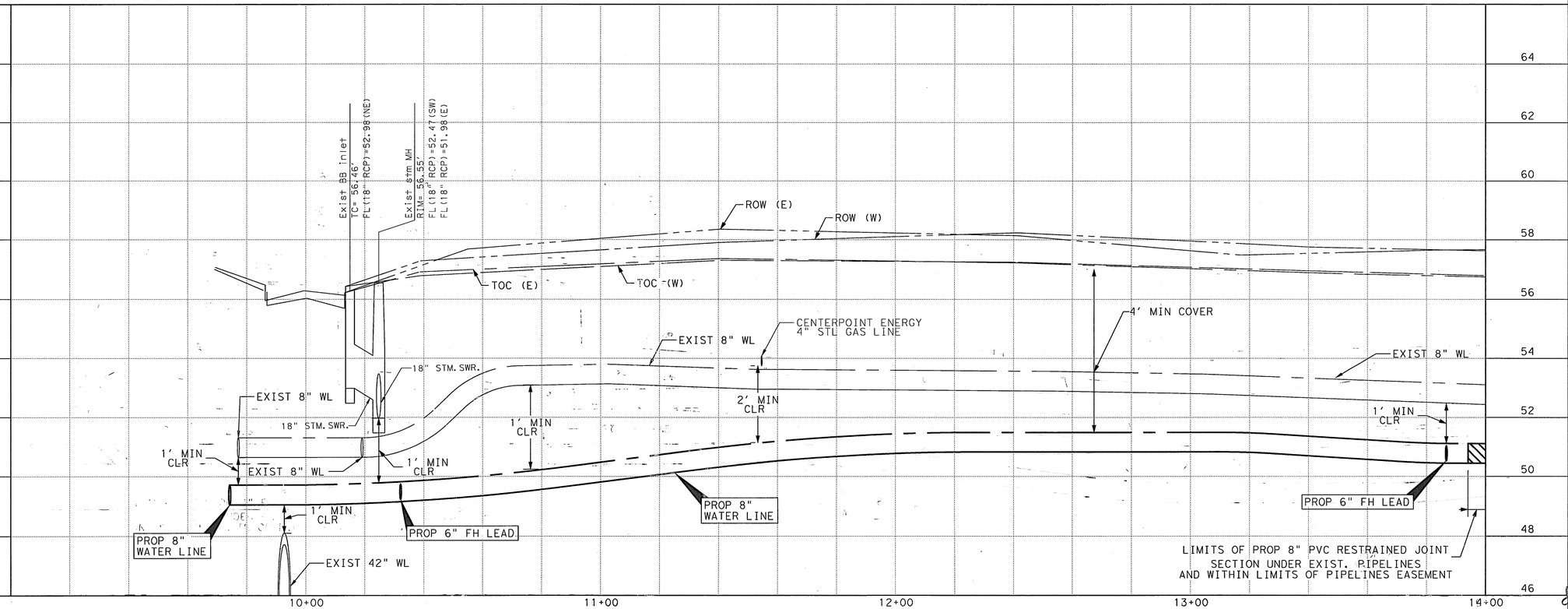


BUXLEY STREET



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J17, SET 1/2 IR W/ CAP
OFF CHAIN, OFF CHAIN
ELEV 56.67

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9-18-13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9-18-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BUXLEY STREET
BEGIN TO STA 14+00
SHEET 1 OF 3

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 28 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

11:59:48 AM 9/13/13
matthewl
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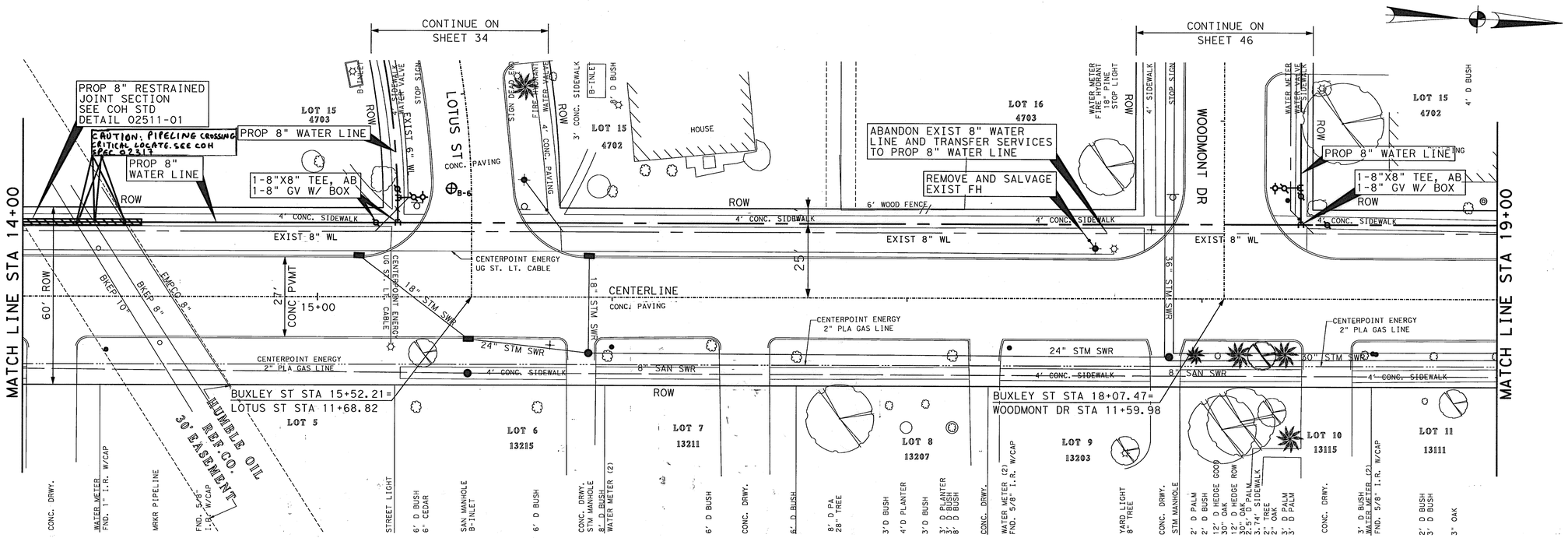
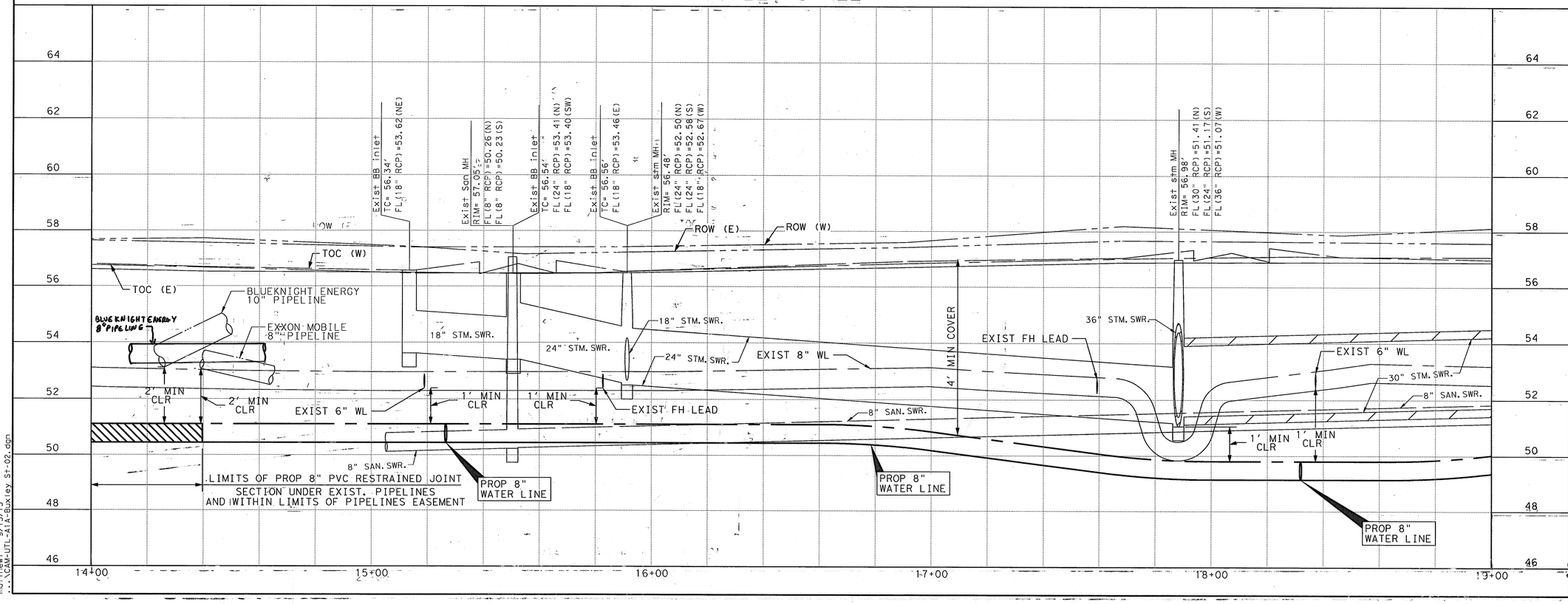


CONTRACTOR MUST CALL STATE ONE CALL NOTIFICATION CENTER BY DIALING "811" AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION OR OTHER CONSTRUCTION ACTIVITY IN THE VICINITY OF EXXONMOBIL PIPELINES

CONTRACTOR MUST CALL TEXAS 811 AT 1-800-344-8377 OR SIMPLY DIAL 811 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION OR OTHER CONSTRCUTION ACTIVITY IN THE VICINITY OF BLUE KNIGHT ENERGY PIPELINE COMPANY.

BUXLEY STREET



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- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J18, SET 1/2 IR W/ CAP
15+78.83, 16.38
ELEV 56.71

CP-J19, SET CUT X
17+82.80, -23.23
ELEV 57.16

BENCH MARK:
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CenterPoint Energy/Electric Facilities — Date: 9-18-13
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Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9-18-13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS — STEPHEN K. WU — 67965 — REGISTERED PROFESSIONAL ENGINEER
9-12-13

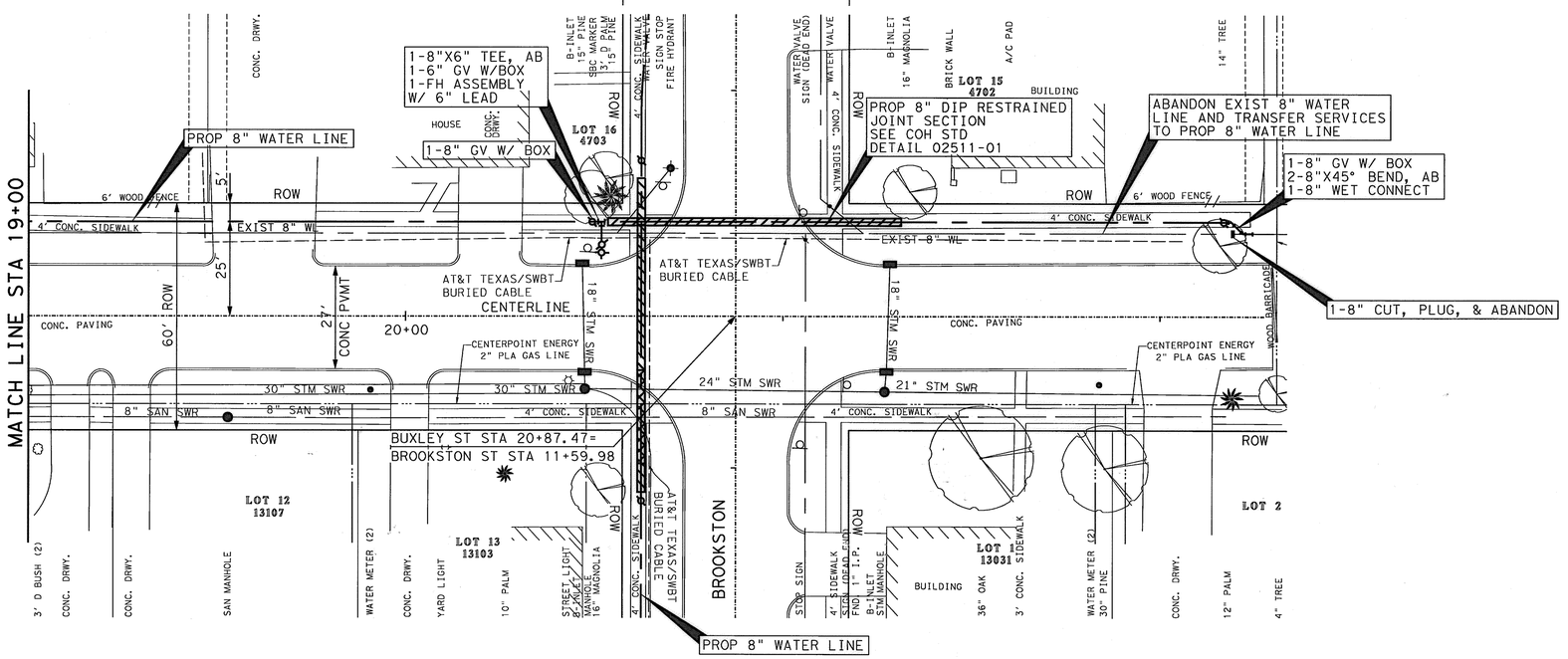
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

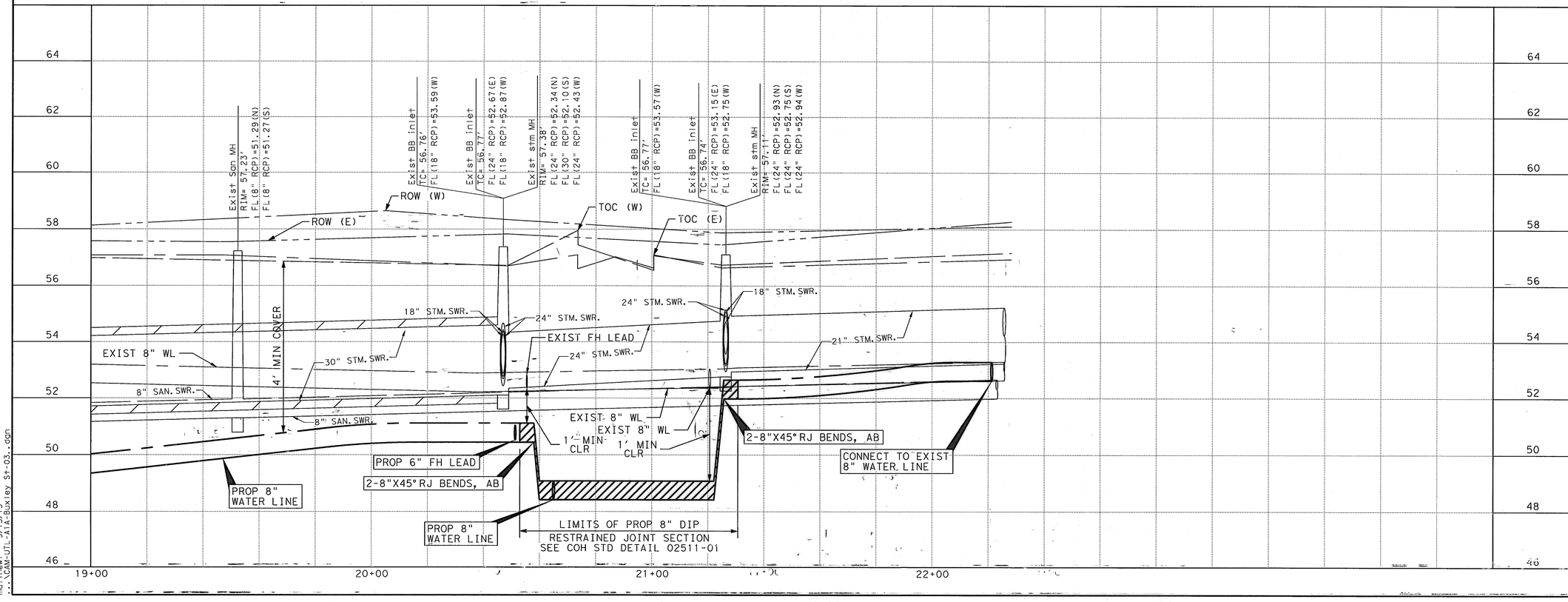
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BUXLEY STREET
STA 14+00 TO STA 19+00
SHEET 2 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OE HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	29 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

11:59:51 AM
matthewl 9/13/13
...\CAM-UTL-A1A-Buxley St-02.dgn
CAM-UTL-A1A-Buxley St-02.dgn





LEGEND

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- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J20, SET CUT X
20+62.73, 24.84
ELEV 56.79

BENCH MARK:
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Date: 9-18-13

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.
Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)
Date: 9-3-13

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BUXLEY STREET
STA 19+00 TO END
SHEET 3 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	30 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

11:59:53 AM 9/13/13
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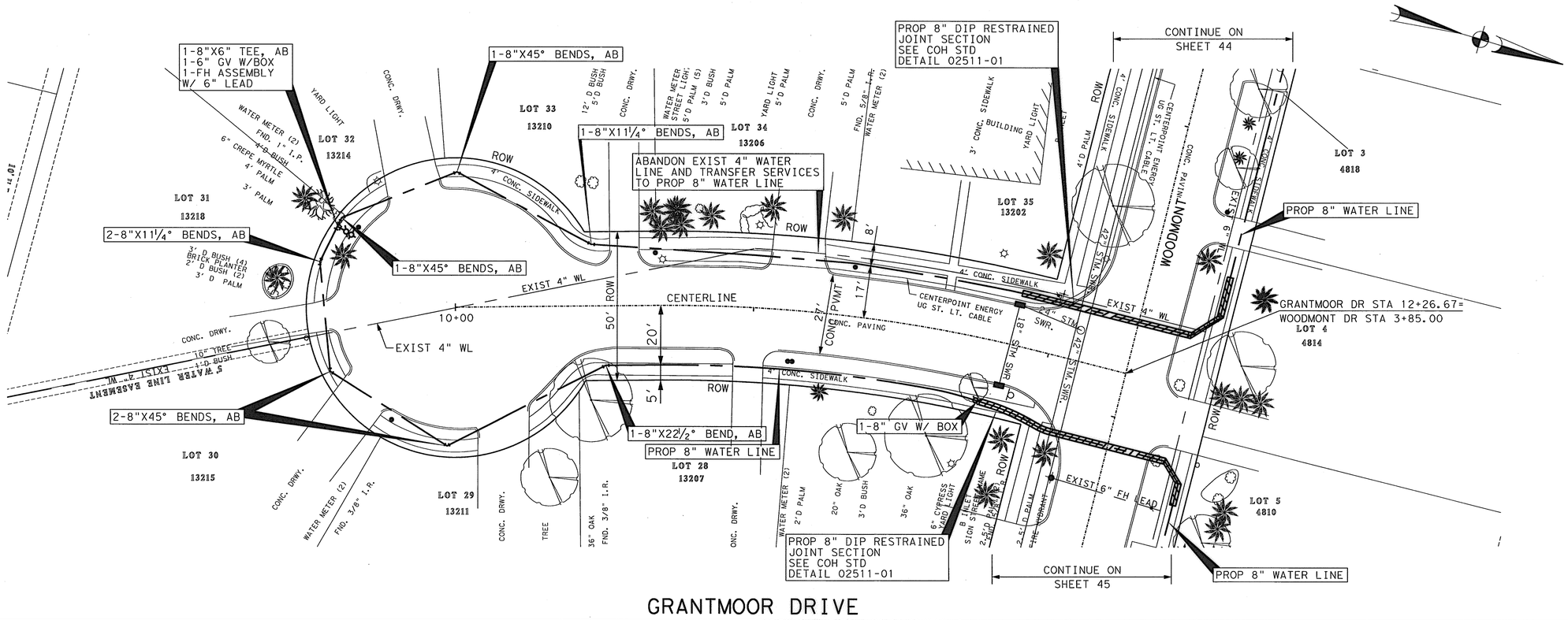
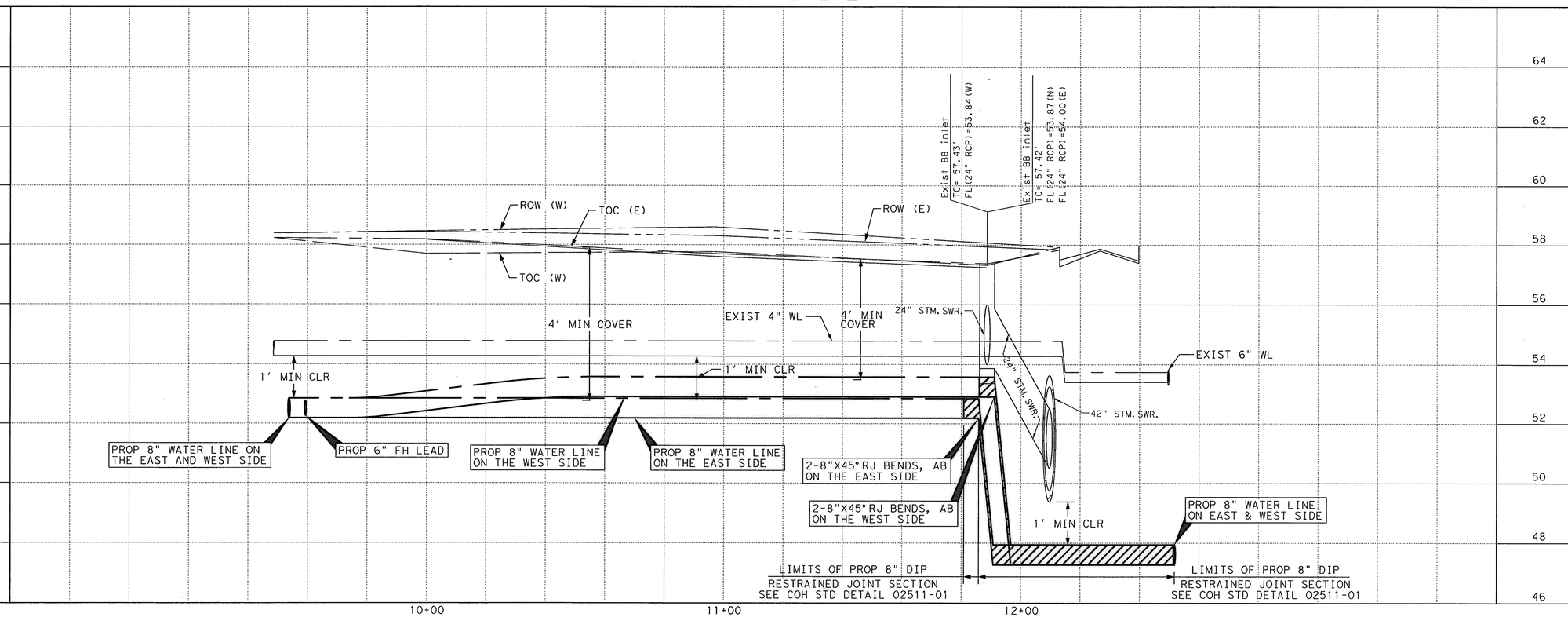
CAM-UTL-AIA-Buxley St-03..dgn



GRANTMOOR DRIVE



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- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J25, SET CUT X
12+00.10, -20.69
ELEV 57.69

BENCH MARK:
CITY OF HOUSTON MARKER
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ELEV 57.45'
(NAVD 83/2011)

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Date: 9-12-13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/8/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9-18-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE
PLAN & PROFILE
GRANTMOOR DRIVE
BEGIN TO END
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 31 OF 151	

2:58:35 PM 9/16/13
matthew!
..\CAM-UTL-A1A-Grantmoor Dr-01.dgn

CAM-UTL-A1A-Grantmoor Dr-01.dgn

CONTINUE ON SHEET 35

CONTINUE ON SHEET 35

LOTUS ST STA 1+00.00=
STANCLIFF ST STA 13+96.93

PROP 8" WATER LINE

REMOVE AND SALVAGE EXIST FH

PROP 8" WATER LINE

1-8" GV W/ BOX

1-8"X6" TEE, AB
1-6" GV W/BOX
1-FH ASSEMBLY
W/ 6" LEAD

ABANDON EXIST 6" WATER LINE AND TRANSFER SERVICES TO PROP 8" WATER LINE

1-8" GV W/ BOX

CENTERPOINT ENERGY UG ST. LT. CABLE

1-8"X6" TEE, AB
1-6" GV W/BOX
1-FH ASSEMBLY
W/ 6" LEAD

CAUTION GAS LINE CROSSING CRITICAL LOCATE SEE COH SPEC 02317

CENTERLINE

CONC. PAVING

60' ROW

22' CONC PVMT

25'

5'

EXIST 6" WL

EXIST 8" WL

EXIST 4" WL

4' CONC. SIDEWALK

24" STM SWR

18" STM SWR

30" STM SWR

10" SAN SWR

10" U.E.

MATCH LINE STA 5+00

LOT 1

LOT 2 4823

LOT 3 4819

LOT 4 4815

LOT 5 4811

LOT 6 4807

LOT 2

LOT 3 4818

LOT 4 4814

LOT 5 4810

ROW

STANCLIFF

DITCH HIGH BANK

CONC. DRWY.

BUILDING

YARD LIGHT

STREET LIGHT

SPRINKLER HEAD

WATER METER

WATER VALVE

FIRE HYDRANT

B-10

LEGEND

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- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J28, SET CUT X
1+53.52, -1.31
ELEV 56.45

BENCH MARK:
CITY OF HOUSTON MARKER
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(NAVD 83/2011)

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LOTUS STREET

Exist Type E inlet
RIM= 57.97
FL (24" RCP)= 52.92(E)

Exist Stm MH
RIM= 58.23
FL (30" RCP)= 51.42(N)
FL (30" RCP)= 51.87(E)
FL (24" RCP)= 52.19(W)

Exist Stm MH
RIM= 57.30
FL (24" RCP)= 52.30(S)
FL (24" RCP)= 51.88(E)
FL (30" RCP)= 51.52(W)

Exist BB Inlet
TC= 56.60
FL (24" RCP)= 52.69(N)
FL (18" RCP)= 52.66(S)

Exist BB Inlet
TC= 56.67
FL (18" RCP)= 53.25(N)

ROW (S)
ROW (N)
TOC (N)
TOC (S)
4' MIN COVER
30" STM. SWR.
18" STM. SWR.
24" STM. SWR.
EXIST 8" WL
EXIST 6" FH LEAD
EXIST 6" WL
EXIST 4" WL
1' MIN CLR
PROP 8" WATER LINE
PROP 6" FH LEAD
10" SAN. SWR.

64 62 60 58 56 54 52 50 48 46

1+00 2+00 3+00 4+00 5+00

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(Gas service lines are not shown)

CABLE COMPANY

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Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED
PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
LOTUS STREET
BEGIN TO STA 5+00
SHEET 1 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	32 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:00:00 PM
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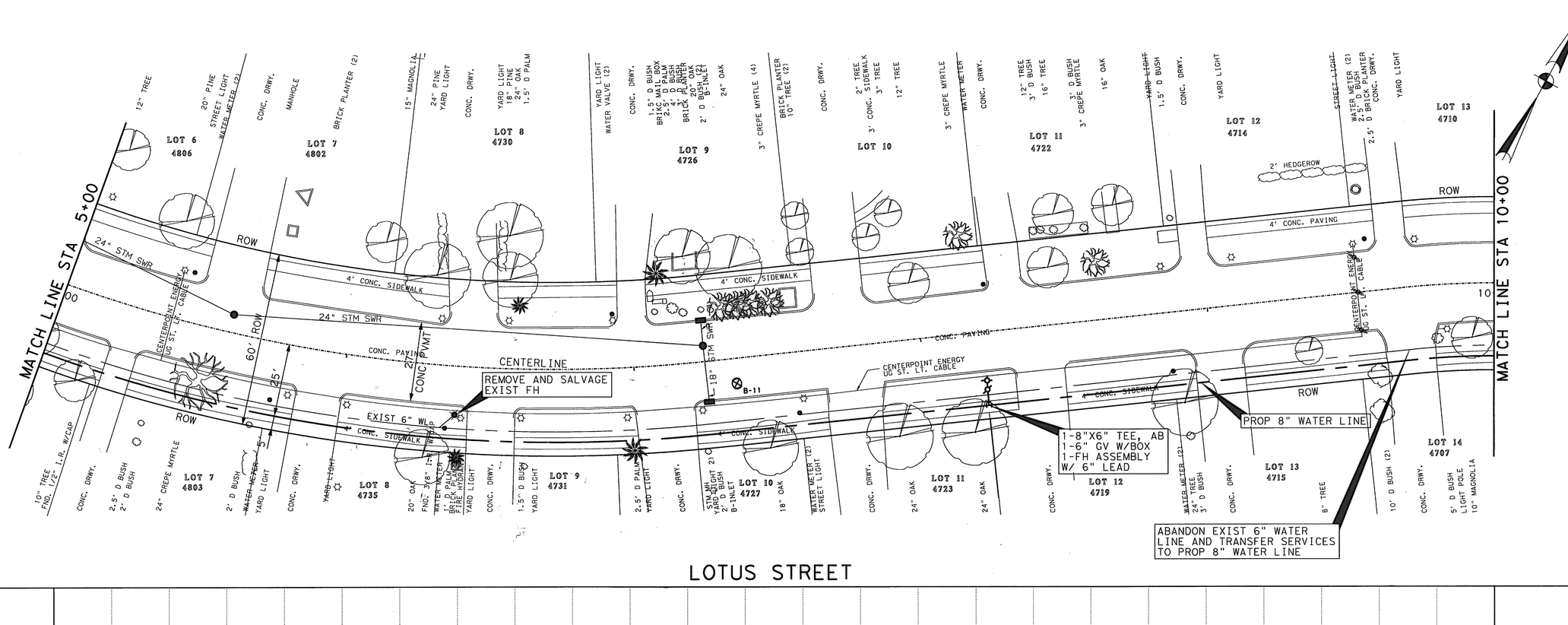
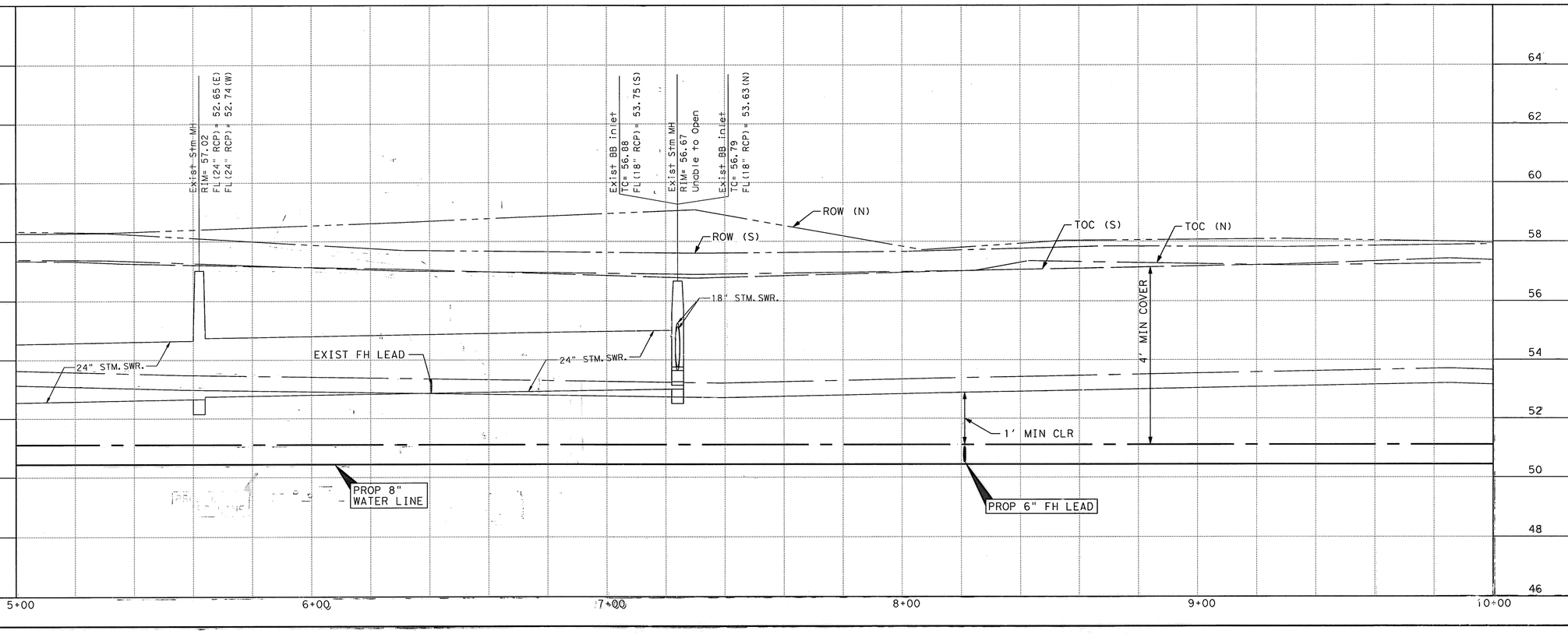
CAM-UTL-A1A-Lotus St-01.dgn





LEGEND

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- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J26, SET 1/2 IR W/ CAP
9+95.38, -20.81
ELEV 57.50

CP-J27, SET 1/2 IR W/ CAP
6+09.54, 16.97
ELEV 57.40

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STATE OF TEXAS
STEPHEN K. YU
67965
LICENSED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

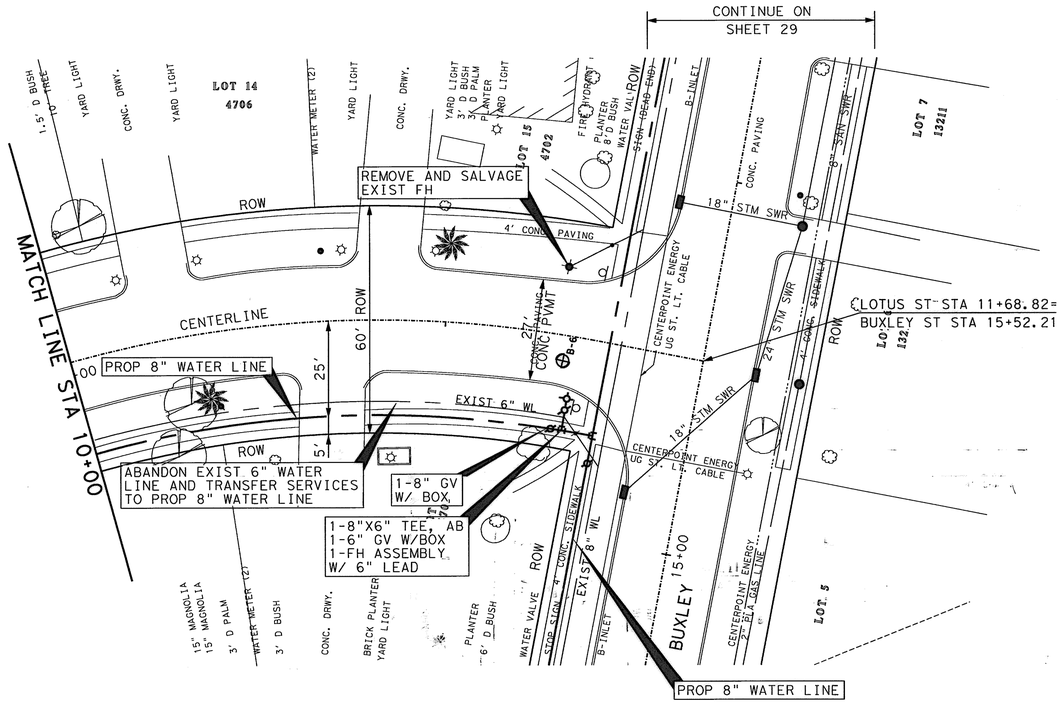
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE LOTUS STREET
STA 5+00 TO STA 10+00
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 33 OF 151	

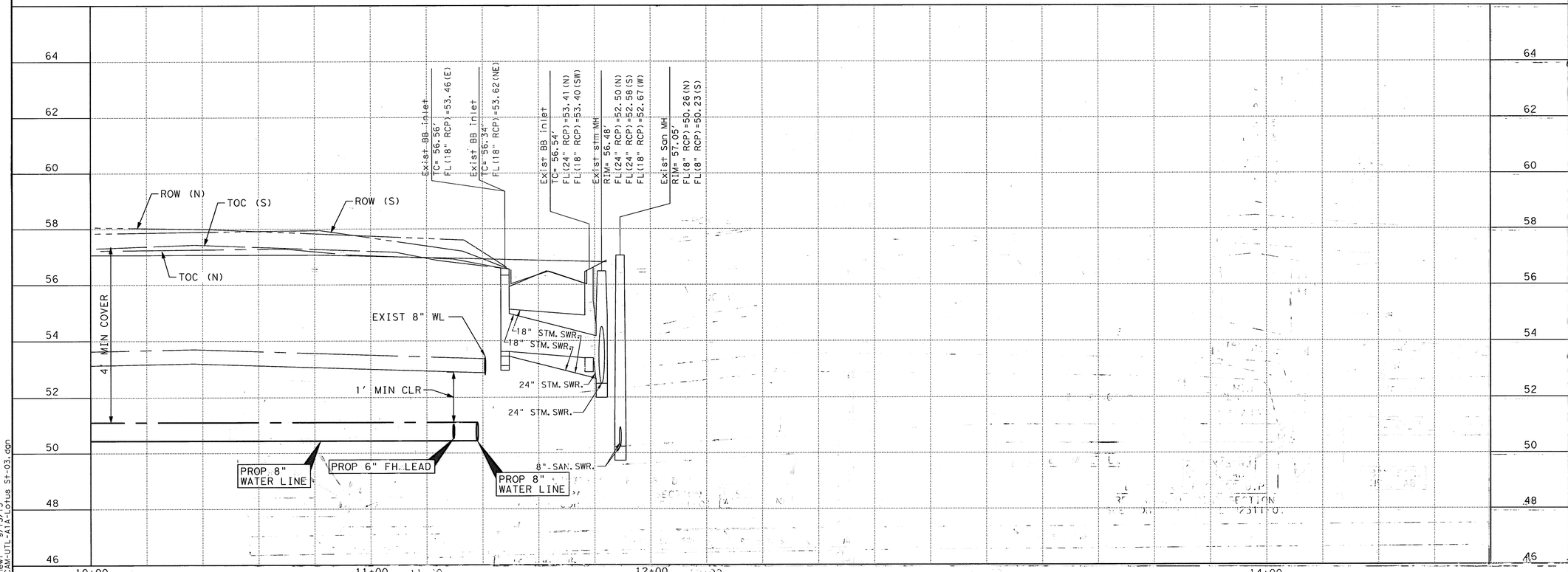
51277

12:00:07 PM 9/13/13
matthew
...\CAM-UTL-A1A-Lotus St-02.dgn

CAM-UTL-A1A-Lotus St-02.dgn



LOTUS STREET



LEGEND

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OFF CHAIN, OFF CHAIN
ELEV 56.71

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FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
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REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
9-12-13

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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

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PLAN & PROFILE
LOTUS STREET
STA 10+00 TO END
SHEET 3 OF 3

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SHEET NO.	34 OF 151

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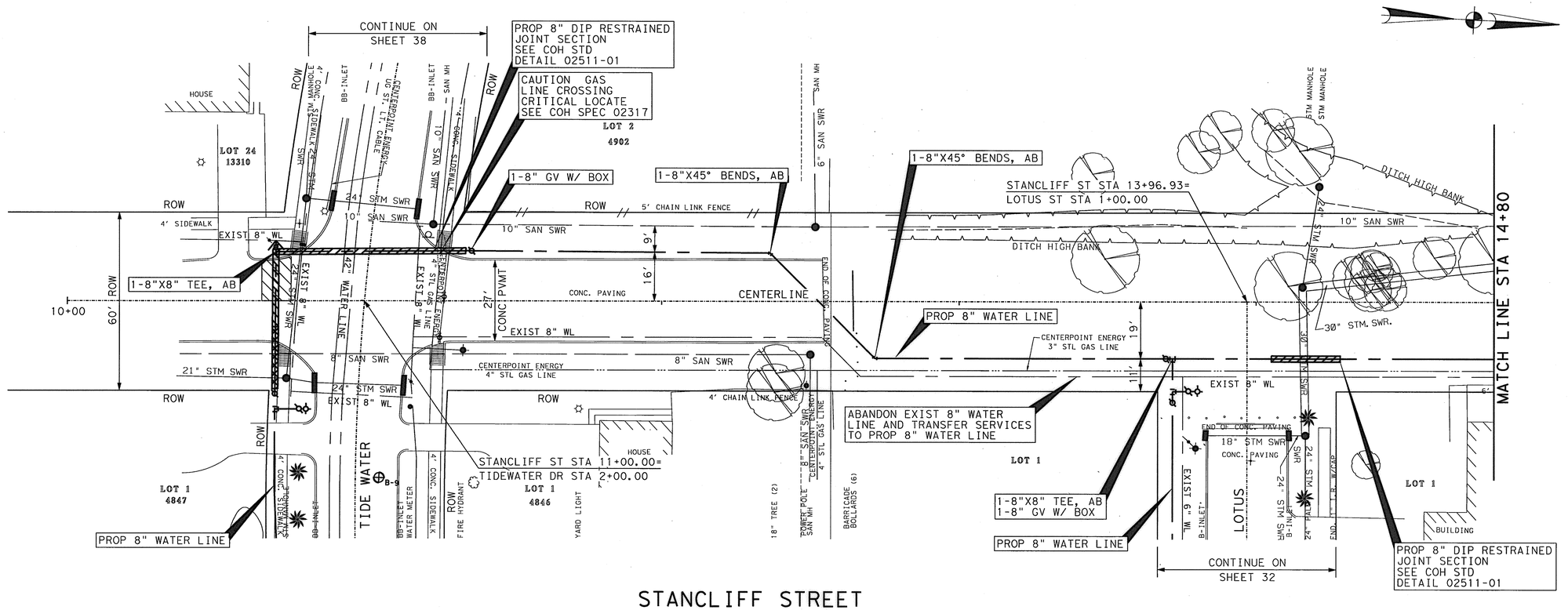
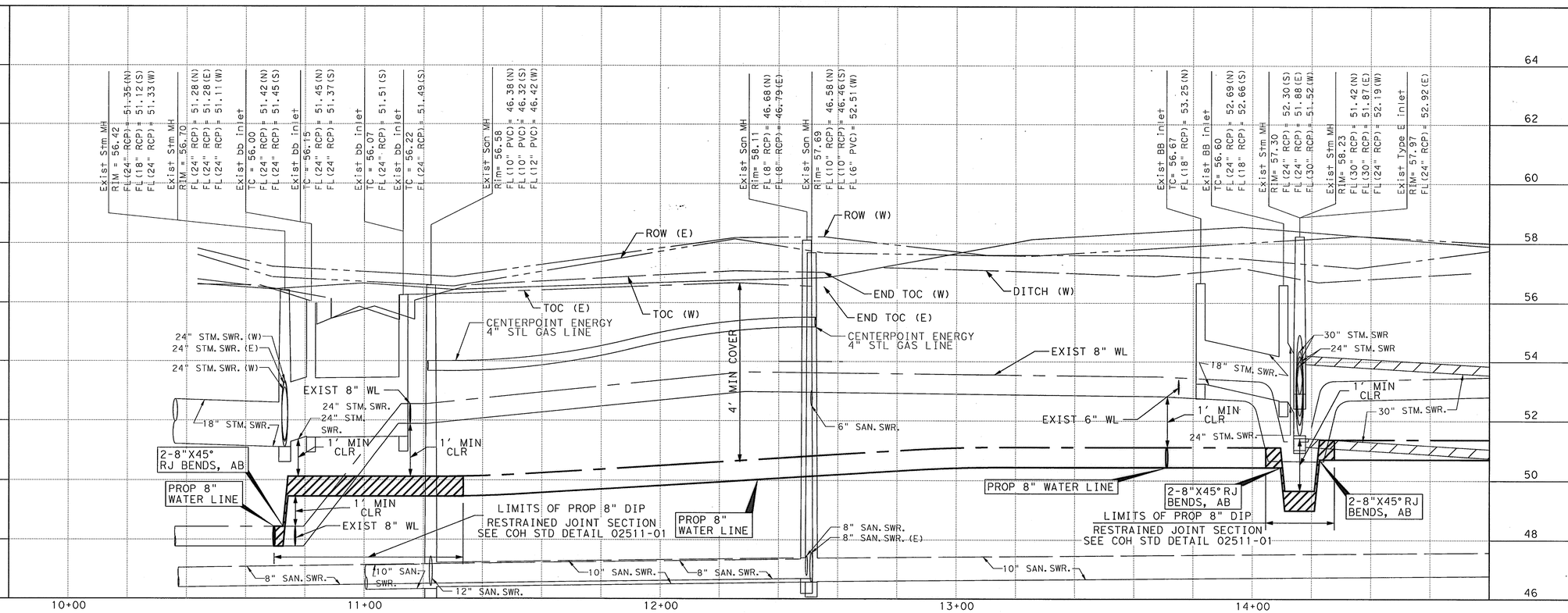
12:00:12 PM 9/13/13 matthewl
...\CAM-UTL-A1A-Lotus St-03.dgn
CAM-UTL-A1A-Lotus St-03.dgn



STANCLIFF STREET



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J28, SET CUT X
13+98.24, 53.52
ELEV 56.45

CP-J30, SET CUT X
10+78.09, -26.15
ELEV 56.49

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9-18-13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9-18-13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS — STEPHEN K. YU — 67965 — REGISTERED PROFESSIONAL ENGINEER — 9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

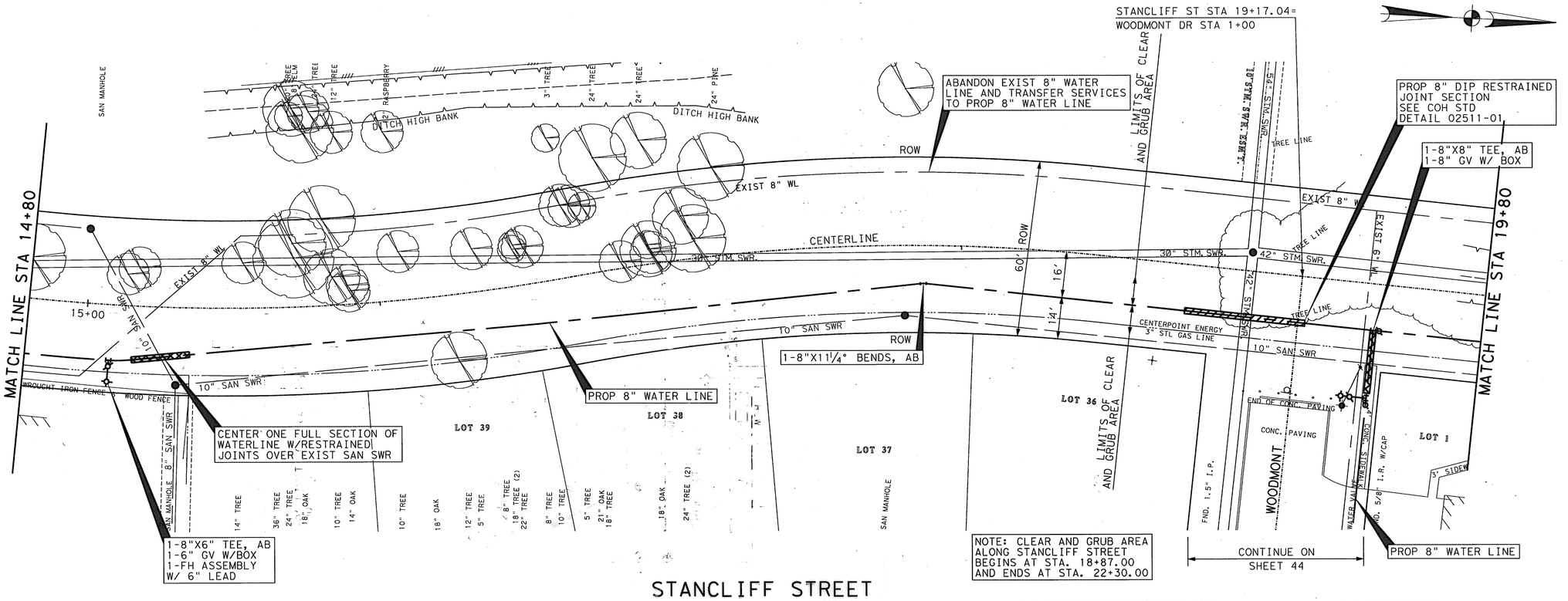
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
STANCLIFF STREET
BEGIN TO STA 14+80
SHEET 1 OF 3

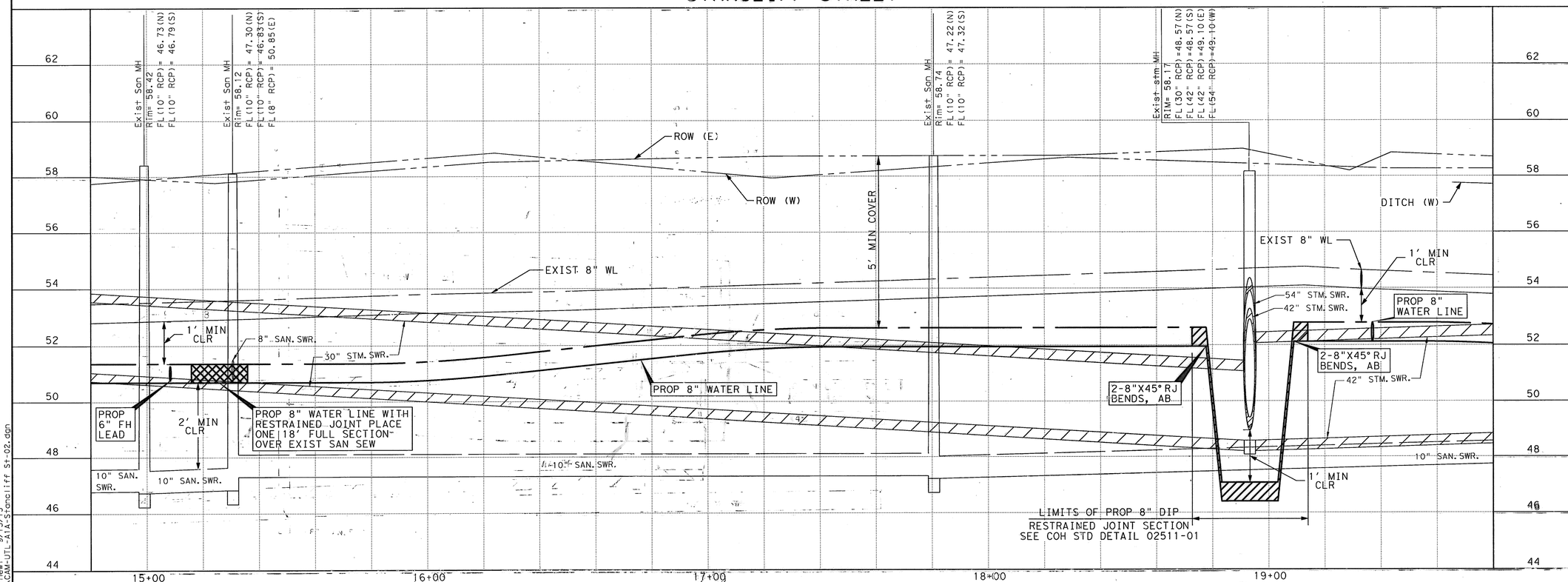
WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	35 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

3:10:15 PM 9/16/13
matthew
\\CAM-UTL-AIA-Stancliff St-01.dgn

CAM-UTL-AIA-Stancliff St-01.dgn





LEGEND

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- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
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- FLOODWAY FIRM MAP
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- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J28, SET CUT X
13+98.24, 53.52
ELEV 56.45

BENCH MARK:
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Date: 9-18-13
CenterPoint Energy/Electric Facilities
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Date: 9-18-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
STANCLIFF STREET
STA 14+80 TO STA 19+80
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 36 OF 151	

12:00:18 PM 9/13/13
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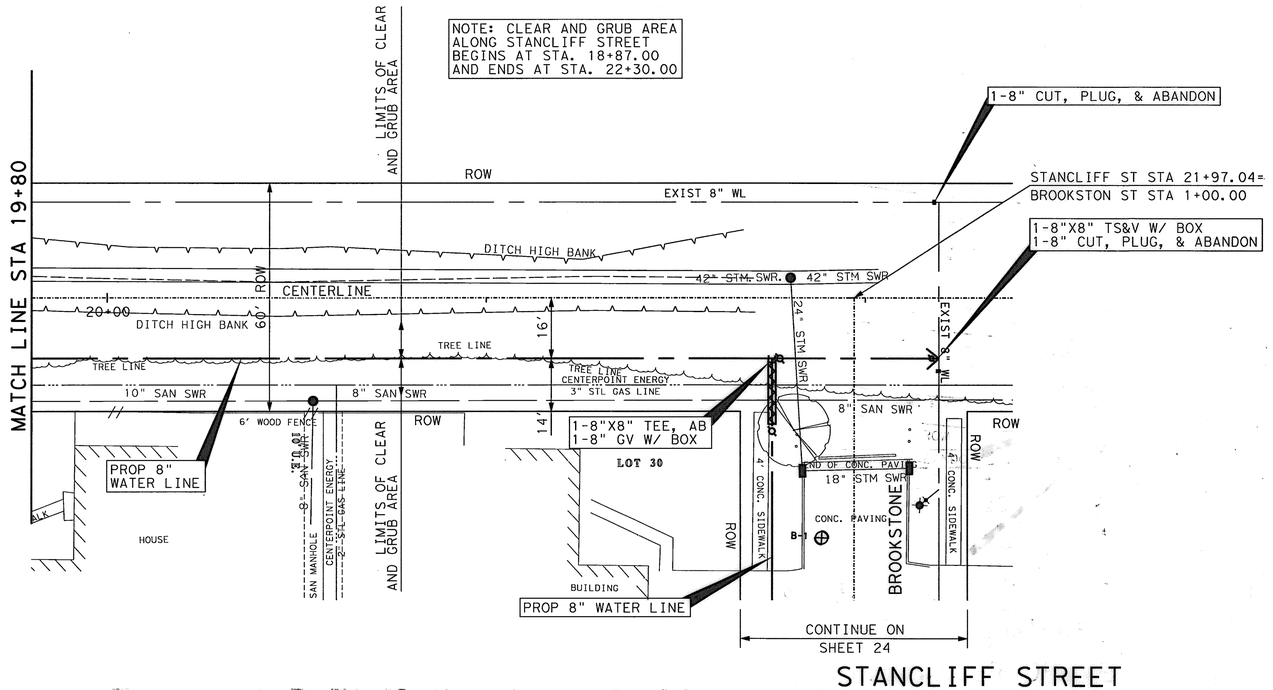
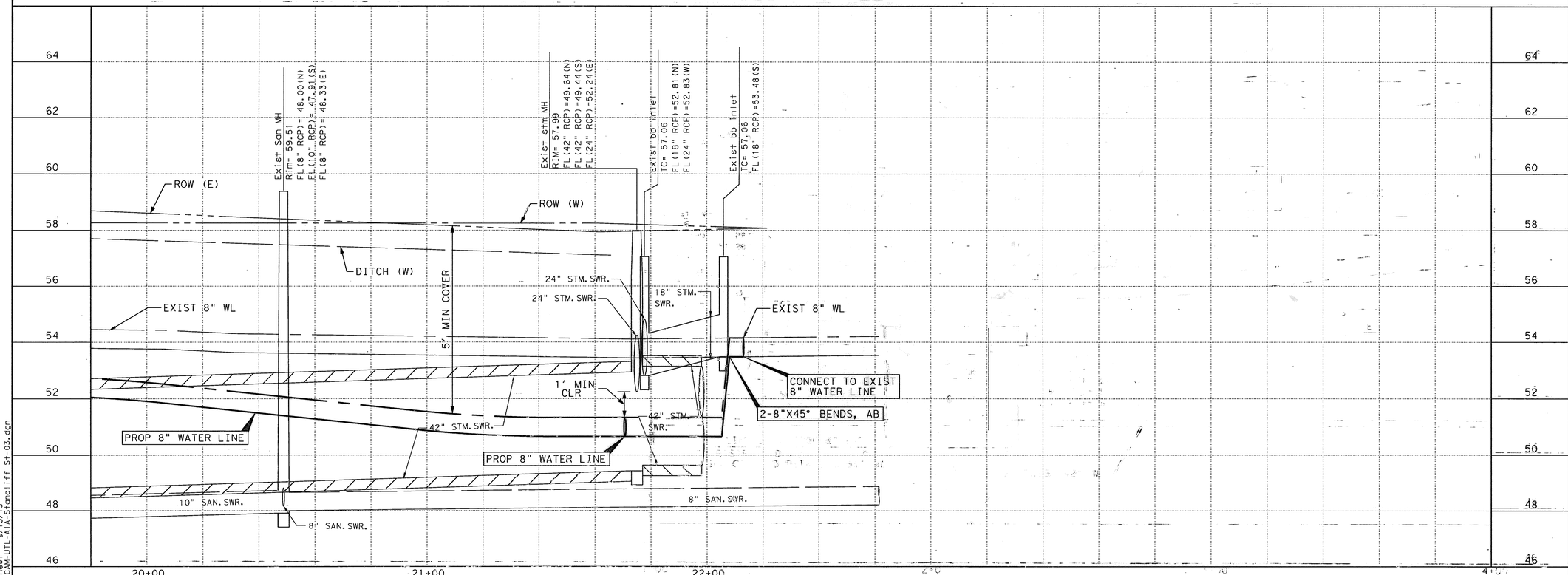
CAM-UTL-A1A-Stancliff St-02.dgn



STANCLIFF STREET



LEGEND

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- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J23, SET CUT X
21+88.88, 55.99
ELEV 56.72

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
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PRIVATE UTLITY LINES SHOWN

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Date: 9-18-13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9-18-13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5581
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
STANCLIFF STREET
STA 19+80 TO END

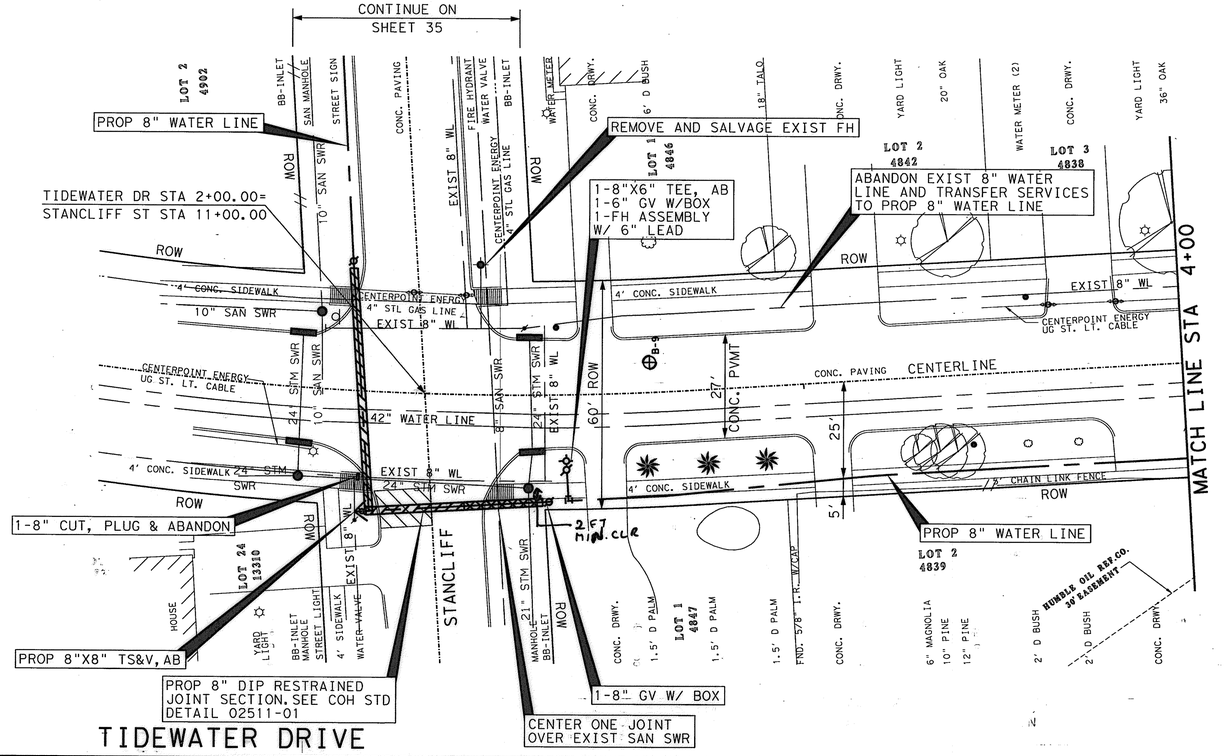
SHEET 3 OF 3

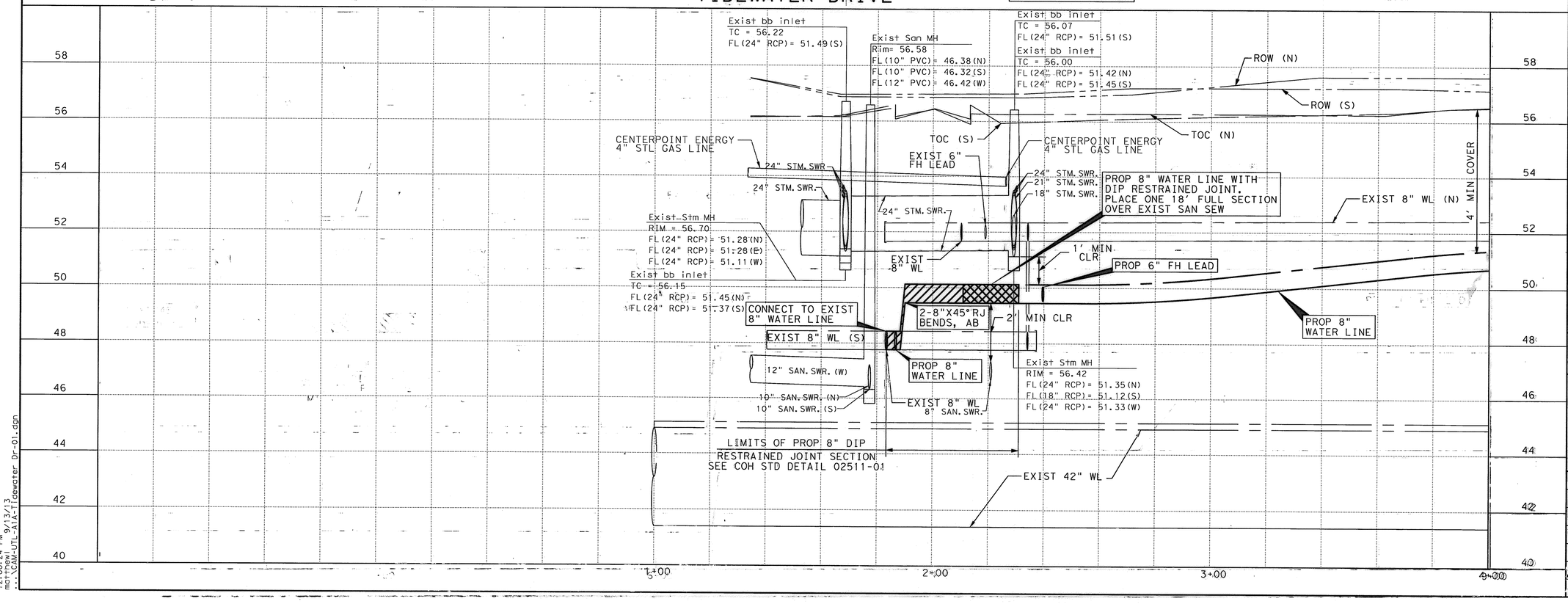
WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 37 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:00:21 PM 9/13/13
matthew
...\CAM-UTL-AIA-Stancliff St-03.dgn

CAM-UTL-AIA-Stancliff St-03.dgn





LEGEND

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- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J30, SET CUT X
1+76.58, 24.46
ELEV 56.49

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 8/8/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown.. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
TIDEWATER DRIVE

BEGIN TO STA 4+00

SHEET 1 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM: JOHN MSIGWA, P.E.	
SHEET NO. 38 OF 151	

51277

12:00:24 PM
matthewl
...\CAM-UTL-AIA-Tidewater Dr-01.dgn

CAM-UTL-AIA-Tidewater Dr-01.dgn

TIDEWATER DRIVE

MATCH LINE STA 4+00

MATCH LINE STA 9+00

BLOCK 4

LOT 4 4834 | LOT 5 4830 | LOT 6 4822 | LOT 7 4814 | LOT 8 4810 | LOT 9 4806 | LOT 10 4802

LOT 3 4835 | LOT 4 4831 | LOT 5 4827 | LOT 6 4823 | LOT 7 4819 | LOT 8 4815 | LOT 9 4811

4' CONC. SIDEWALK

EXIST 8" WL

42" WATER LINE

CONC. PAVING 21'

CONC. PVMT 25'

5'

60' ROW

EXIST 6" FH LEAD

CENTERPOINT ENERGY UG ST. LT. CABLE

B-8

EMPCO 8"

BKEP 10"

BKEP 8"

5+00

4' CHAIN LINK FENCE

ABANDON EXIST 8" WATER LINE AND TRANSFER SERVICES TO PROP 8" WATER LINE

1-8" GV W/ BOX

1-8"X6" TEE, AB
1-6" GV W/BOX
1-FH ASSEMBLY W/ 6" LEAD

REMOVE AND SALVAGE EXIST FH

PROP 8" RESTRAINED JOINT SECTION SEE COH STD DETAIL 02511-01

PROP 8" WATER LINE

1-8"X6" TEE, AB
1-6" GV W/BOX
1-FH ASSEMBLY W/ 6" LEAD

HUMBLE OIL REF.CO. 30' EASEMENT

CAUTION: PIPELINE CROSSING. CRITICAL LOCATE. SEE COH EPEC 02317

WATER METER | CONC. DRWY. | WOOD POST | FND. 1/2" I.R. W/CAP | CONC. DRWY. | 30" ASH | 2' D BUSH | 2" TREE | 6" MAGNOLIA | 6' D BUSH | 28" OAK | WATER METER | FND. 3/4" I.R. W/CAP | FND. 3/4" PIPE | MANHOLE | CONC. DRWY. | 12" PALM | 12" PALM | 48" OAK | 12" PALM | 12" PALM | STREET LIGHT | FND. 5/8" I.R. W/CAP | CONC. DRWY. | YARD LIGHT | FIRE HYDRANT | 2' D BUSH | FND. 3/4" I.R. W/CAP | WATER METER | CONC. DRWY. | YARD LIGHT | 20" TREE | CONC. DRWY. | YARD LIGHT | 2' D PALM | 14" OAK | 2' D PALM | 20" OAK | 5' D PALM | WATER METER (2) | CONC. DRWY. | 4' D PALM | CONC. DRWY.

CONTRACTOR MUST CALL STATE ONE CALL NOTIFICATION CENTER BY DIALING "811" AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION OR OTHER CONSTRUCTION ACTIVITY IN THE VICINITY OF EXXONMOBIL PIPELINES

CONTRACTOR MUST CALL TEXAS 811 AT 1-800-344-8377 OR SIMPLY DIAL 811 AT LEAST 72 HOURS PRIOR TO COMMENCING ANY EXCAVATION OR OTHER CONSTRCUTION ACTIVITY IN THE VICINITY OF BLUE KNIGHT ENERGY PIPELINE COMPANY.

58 | 56 | 54 | 52 | 50 | 48 | 46 | 44 | 42 | 40

ROW (S) | ROW (N) | TOC (S) | TOC (N)

2' MIN CLR

EXXON MOBILE 8" PIPELINE

BLUEKNIGHT ENERGY 10" PIPELINE

BLUE KNIGHT ENERGY 8" PIPELINE

4' MIN COVER

EXIST 8" WL

EXIST 6" FH LEAD

2-8"X45° RJ BENDS, AB

2' MIN CLR

2-8"X45° RJ BENDS, AB

PROP 6" FH LEAD

PROP 8" WATER LINE

PROP 6" FH LEAD

LIMITS OF PROP 8" PVC RESTRAINED JOINT SECTION UNDER EXIST PIPELINES AND WITHIN LIMITS OF PIPELINES EASEMENT SEE COH STD DETAIL 2511-01

EXIST 42" WL

4+00 | 5+00 | 6+00 | 7+00 | 8+00 | 9+00

LEGEND

- CENTER ONE JOINT
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- RESTRAINED JOINT SECTION
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- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J29, SET 1/2 IR W/ CAP
6+78.59, -17.88
ELEV 57.08

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year. — Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

SURVEYED BY: JAG
FB NO. P-5694

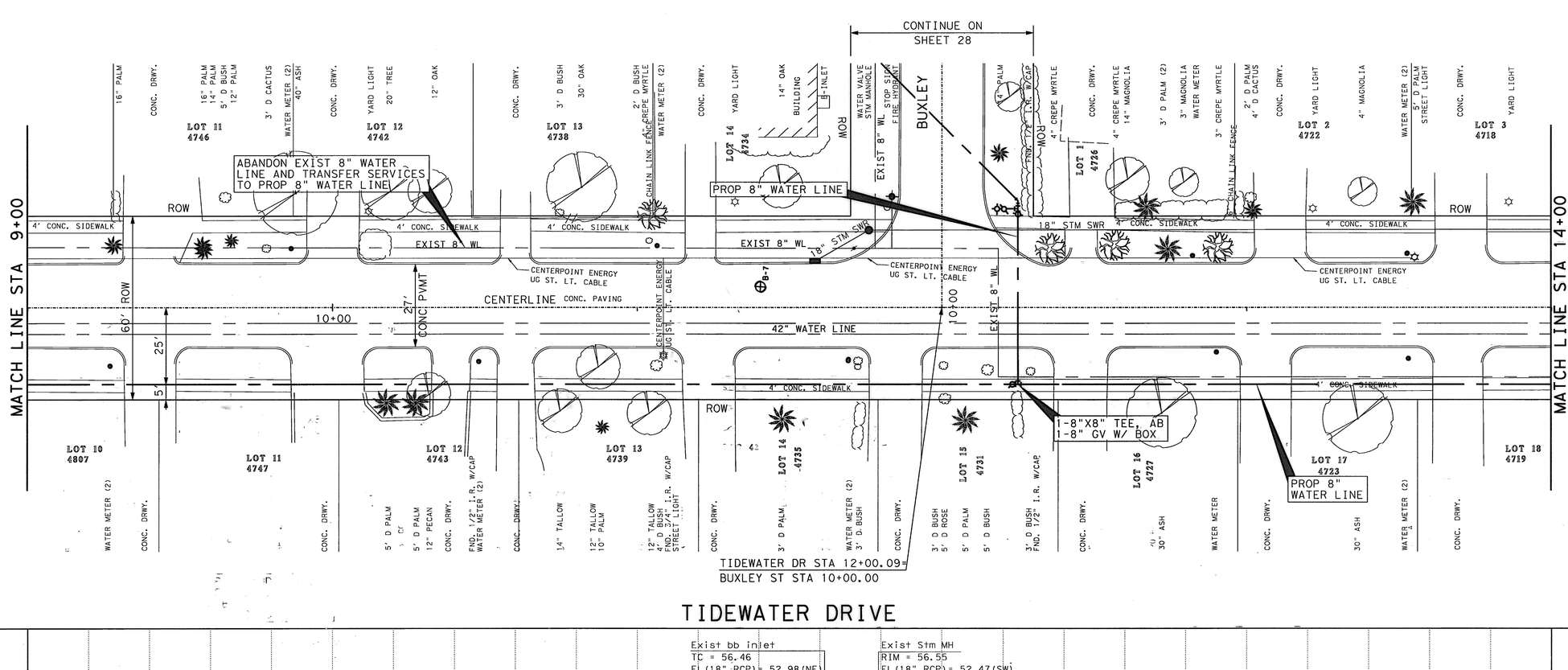
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE TIDEWATER DRIVE
STA 4+00 TO STA 9+00
SHEET 2 OF 6

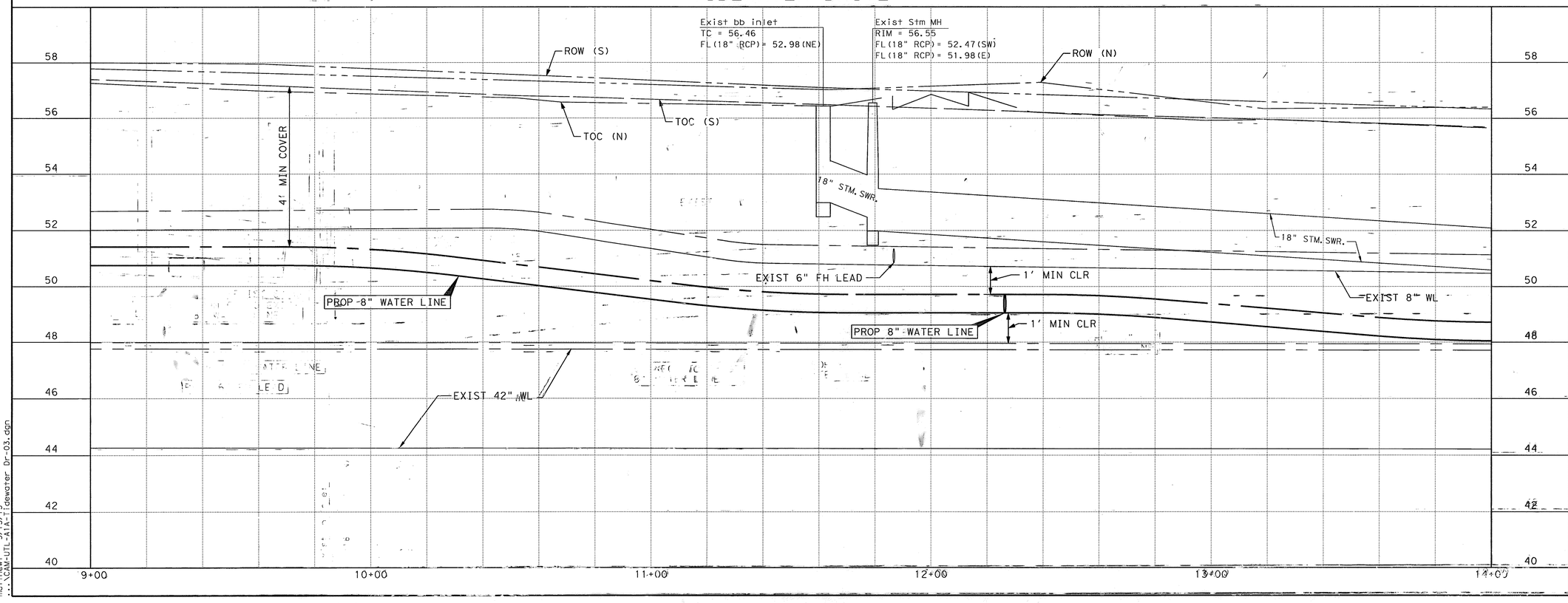
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 39 OF 151	

12:00:27 PM
matthew
...\CAM-UTL-A1A-Tidewater Dr-02.dgn

CAM-UTL-A1A-Tidewater Dr-02.dgn



TIDEWATER DRIVE



LEGEND

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- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J17, SET 1/2 IR W/ CAP
12+05.40, 19.96
ELEV 56.67

BENCH MARK:
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Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

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11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu 9-13-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

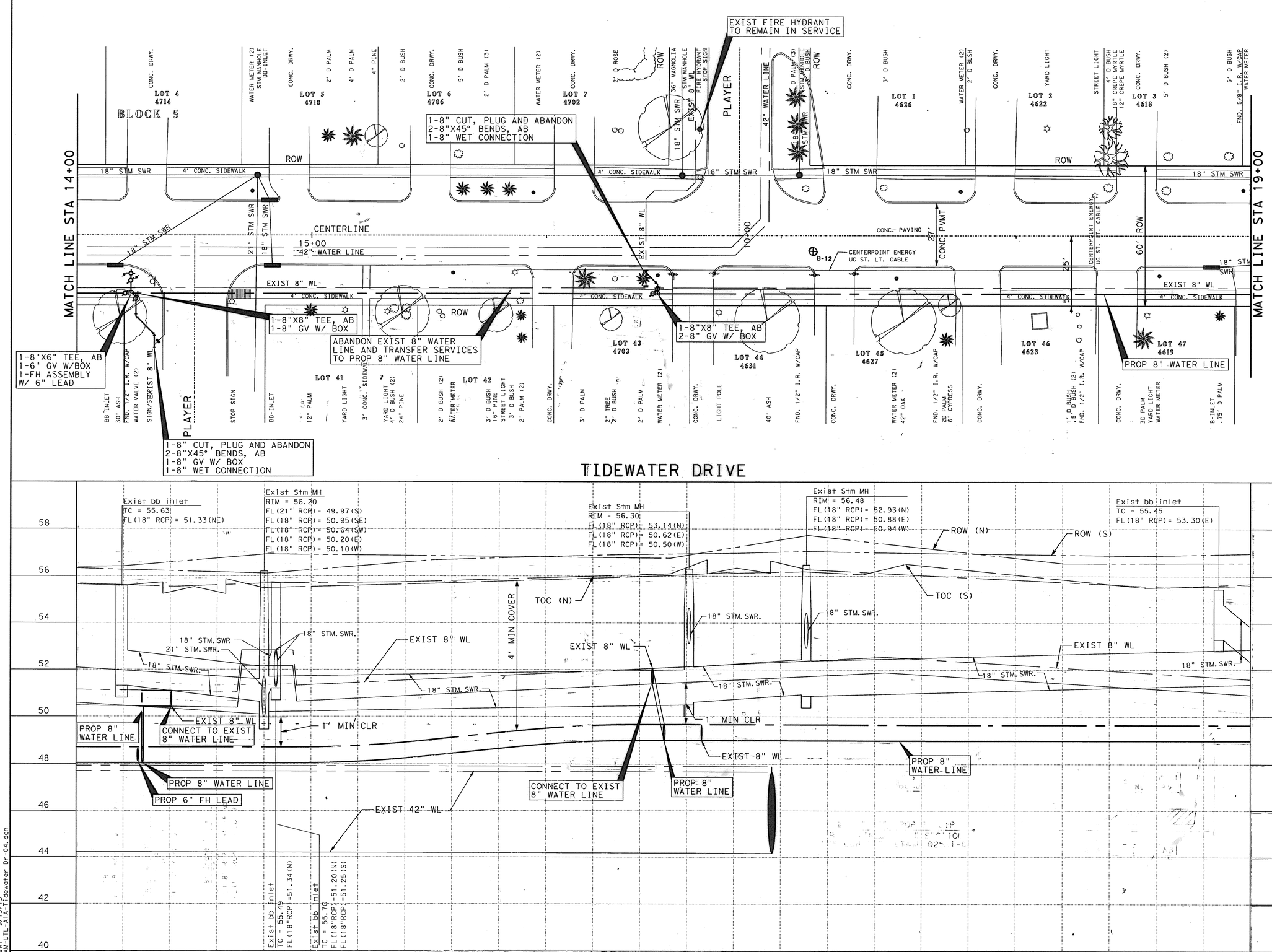
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
TIDEWATER DRIVE
STA 9+00 TO STA 14+00
SHEET 3 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 40 OF 151	

51277

12:00:30 PM 9/13/13
matthew
...\CAM-UTL-A1A-Tidewater Dr-03.dgn

CAM-UTL-A1A-Tidewater Dr-03.dgn



LEGEND

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- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J15, SET 1/2 IR W/ CAP
18+26.53, 20.03
ELEV 55.98

CP-J16, SET 1/2 IR W/ CAP
14+52.92, -19.94
ELEV 55.87

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STATE OF TEXAS
STEPHEN K. YU
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REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE TIDEWATER DRIVE
STA 14+00 TO STA 19+00
SHEET 4 OF 6

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20' (H); 1"=2' (V)
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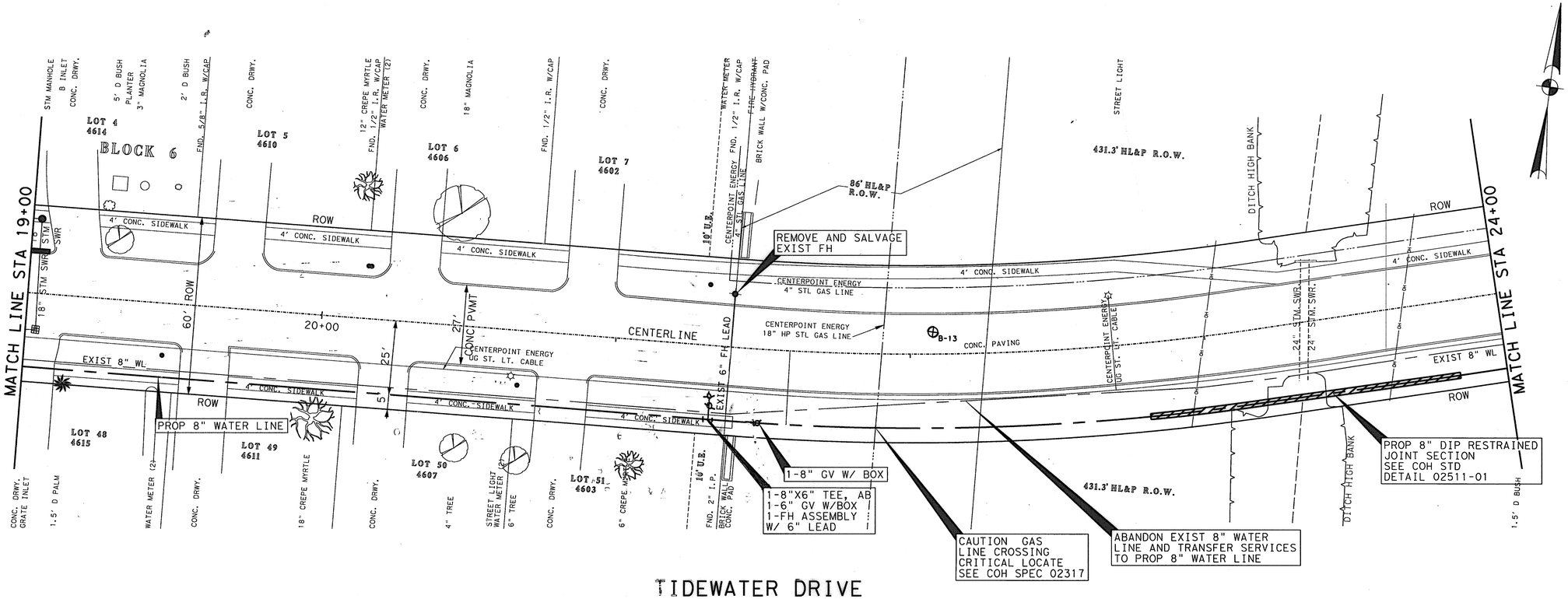
JOHN MSIGWA, P.E.
SHEET NO. 41 OF 151

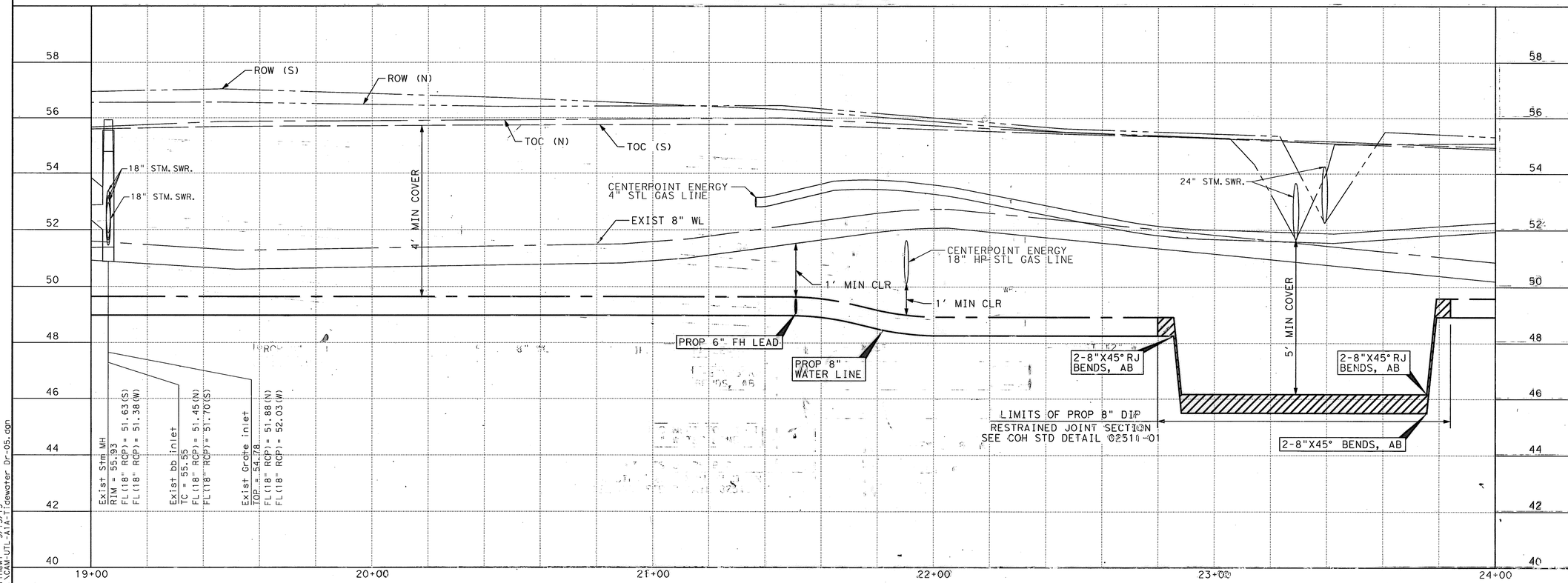
FOR CITY OF HOUSTON USE ONLY
51277

12:00:35 PM
matthew
...\CAM-UTL-A1A-Tidewater Dr-04.dgn

CAM-UTL-A1A-Tidewater Dr-04.dgn



TIDEWATER DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J15, SET 1/2 IR W/ CAP
18+26.53, 20.03
ELEV 55.98

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities Date: 9/8/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year. Date: 9/8/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated Date: 9/8/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

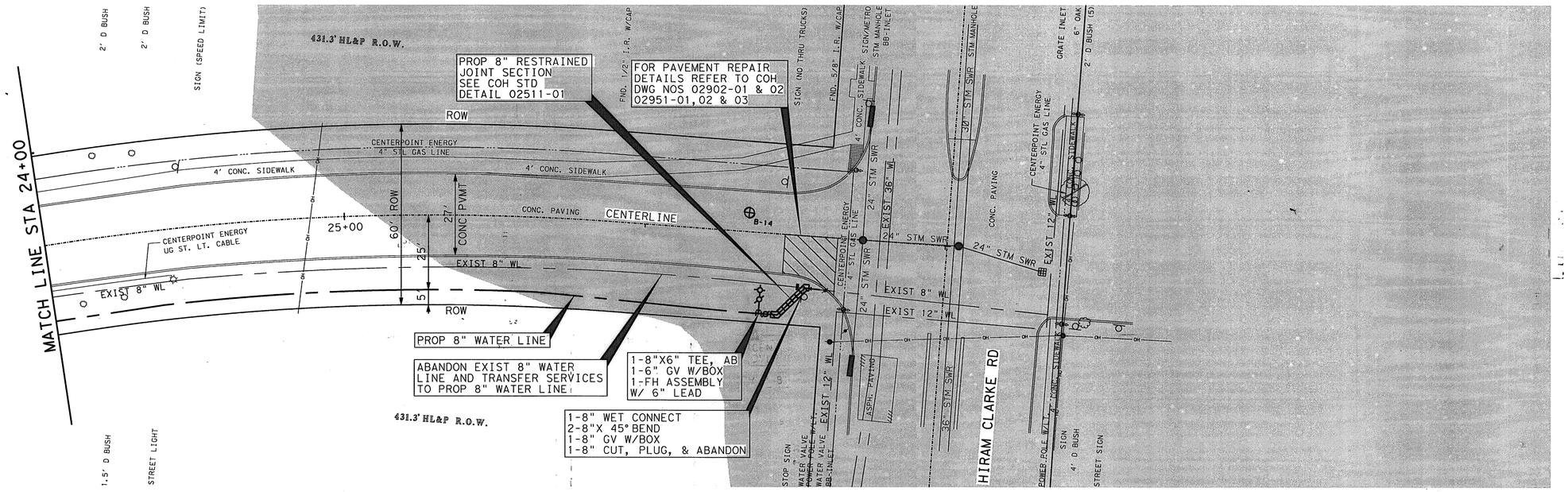
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
TIDEWATER DRIVE
STA 19+00 TO STA 24+00
SHEET 5 OF 6

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 42 OF 151	

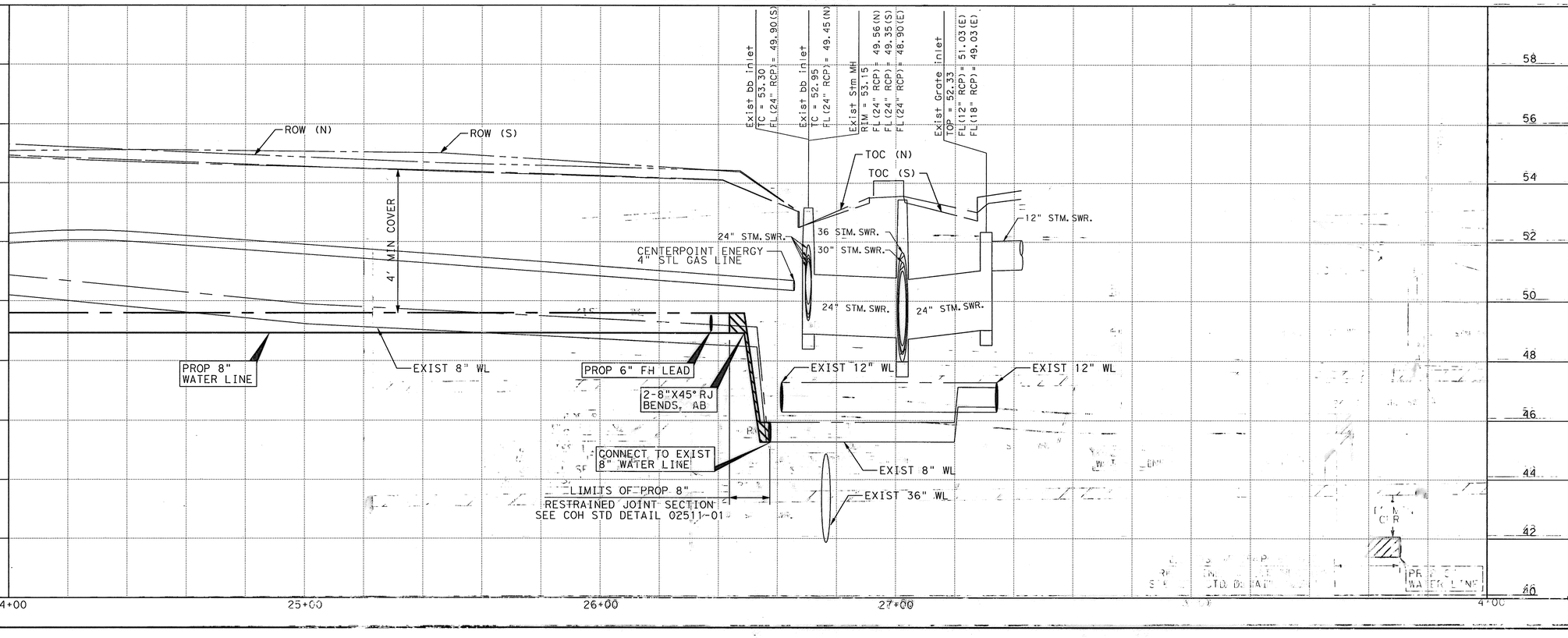
51277

12:00:42 PM
mofrum
9/13/13
...\CAM-UTL-AIA-Tidewater Dr-05.dgn

CAM-UTL-AIA-Tidewater Dr-05.dgn



TIDEWATER DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J14 SET 1/2 IR W/ CAP
26+10.18, -34.72
ELEV 54.56

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

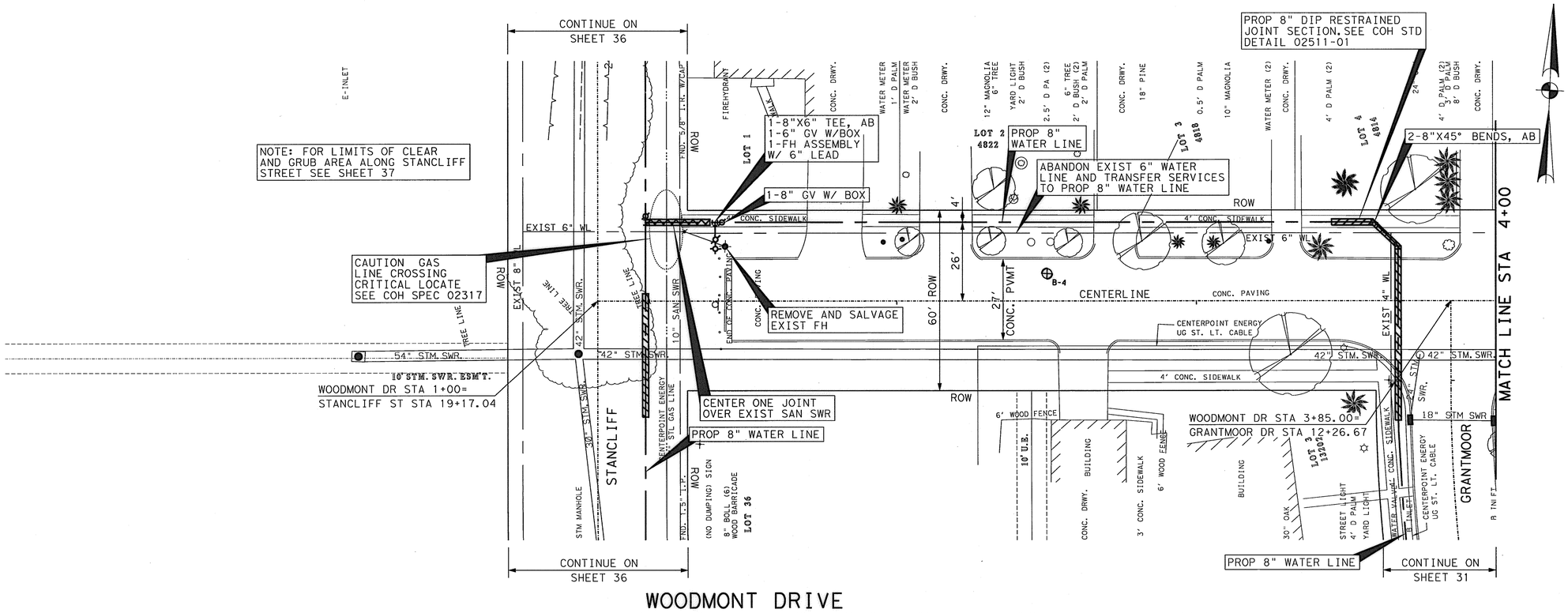
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
TIDEWATER DRIVE
STA 24+00 TO END
SHEET 6 OF 6

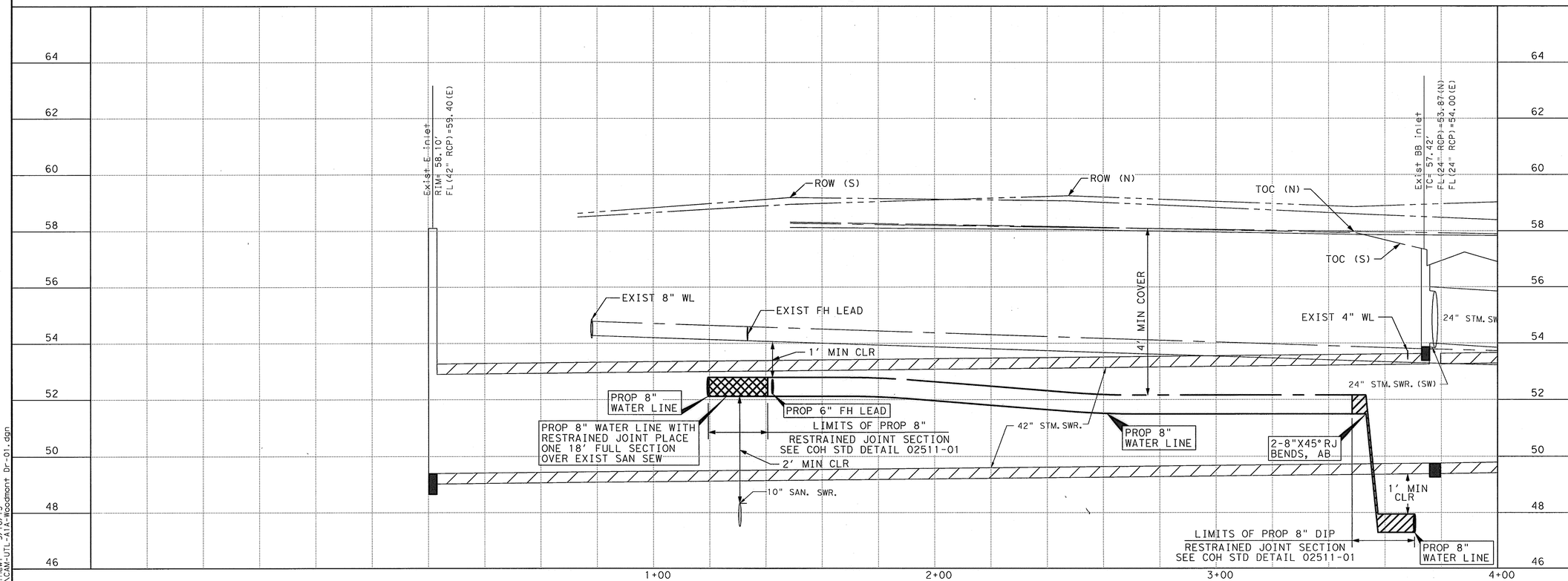
WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	43 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:00:46 PM 9/13/13
matthew
...\CAM-UTL-A1A-Tidewater Dr-06.dgn

CAM-UTL-A1A-Tidewater Dr-06.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J25, SET CUT X
3+64.31, 26.57
ELEV 57.69

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year. — Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

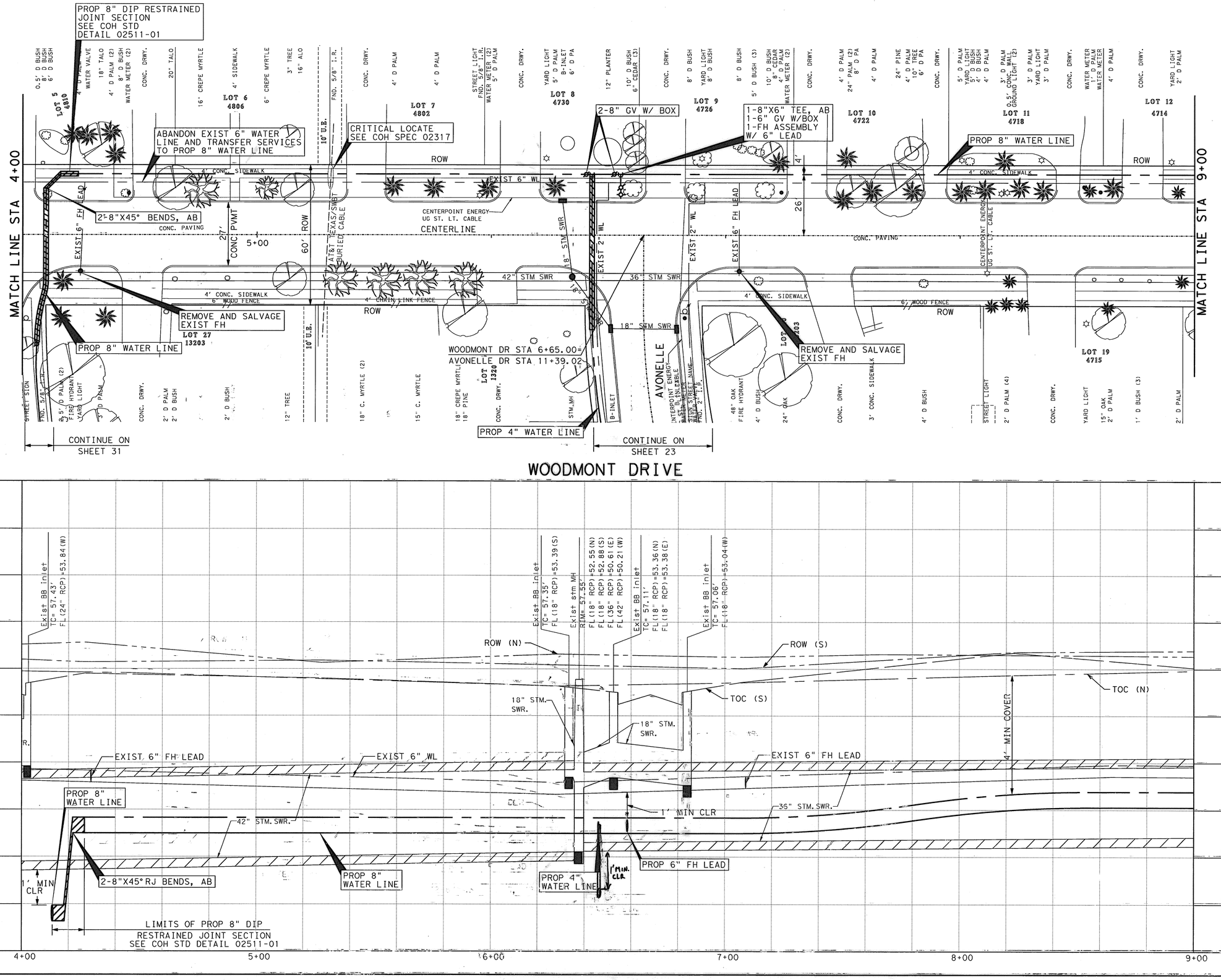
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
WOODMONT DRIVE
BEGIN TO STA 4+00
SHEET 1 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	44 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

3:10:18 PM 9/16/13
matthew
...\CAM-UTL-A1A-Woodmont Dr-01.dgn

CAM-UTL-A1A-Woodmont Dr-01.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J24, SET CUT X
6+41.86, 26.46
ELEV 57.21

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only: Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
WOODMONT DRIVE
STA 4+00 TO STA 9+00

SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 45 OF 151	

12:00:52 PM 9/13/13
matthew
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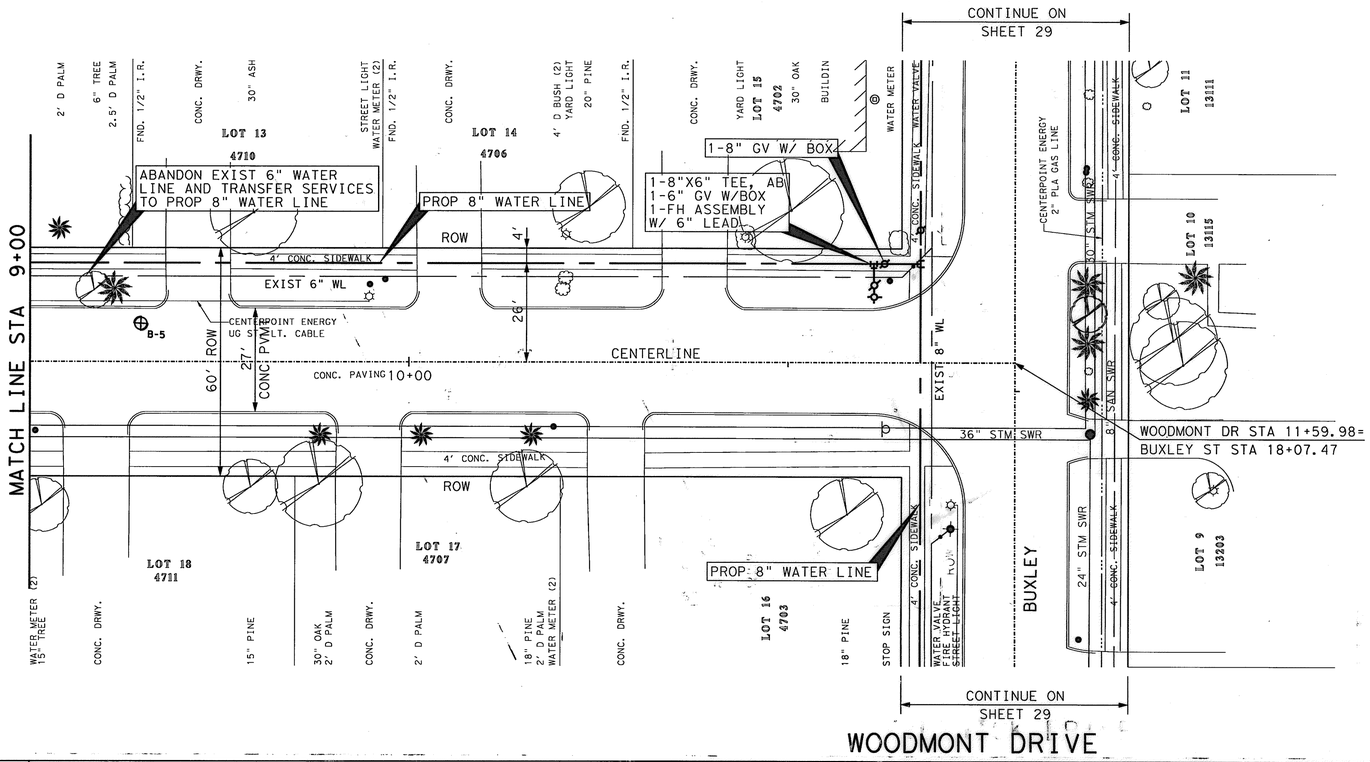
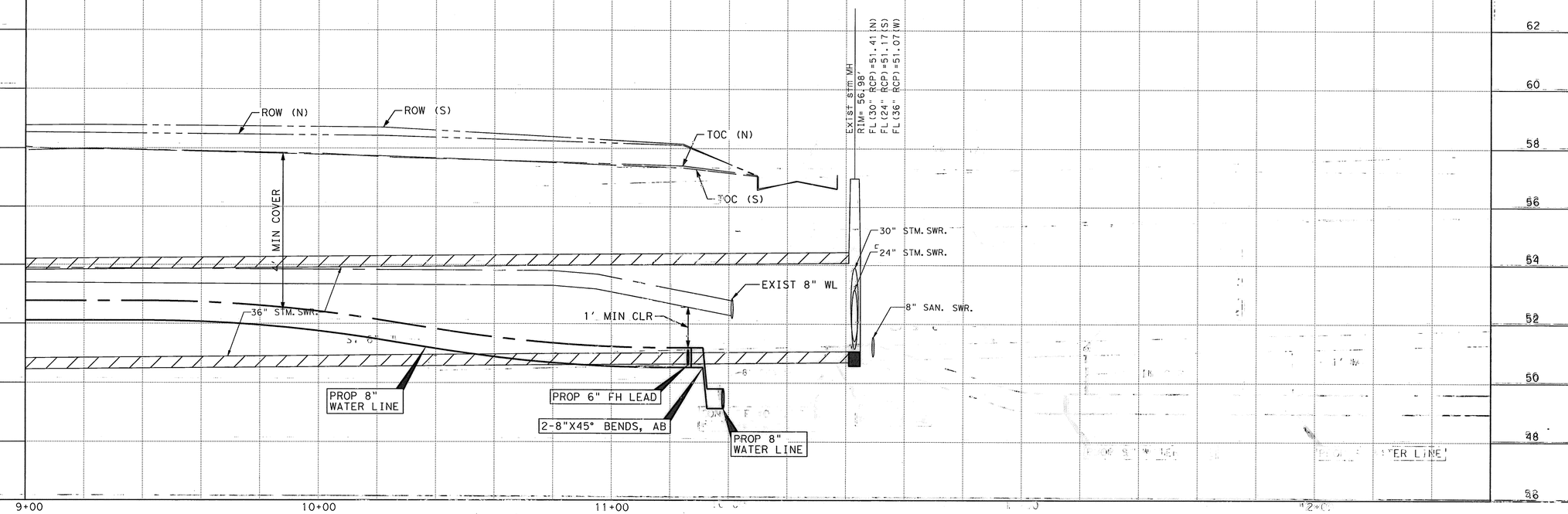
CAM-UTL-A1A-Woodmont Dr-02.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J19, SET CUT X
11+36.75, 24.67
ELEV 57.16

BENCH MARK:
CITY OF HOUSTON MARKER
5252 / 7304 LOCATED AT THE SOUTHWEST CORNER OF INTERSECTION OF PLAYER ST AND LOTUS ST
ELEV 57.45'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/12/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
WOODMONT DRIVE
STA 9+00 TO END
SHEET 3 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	46 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:00:55 PM
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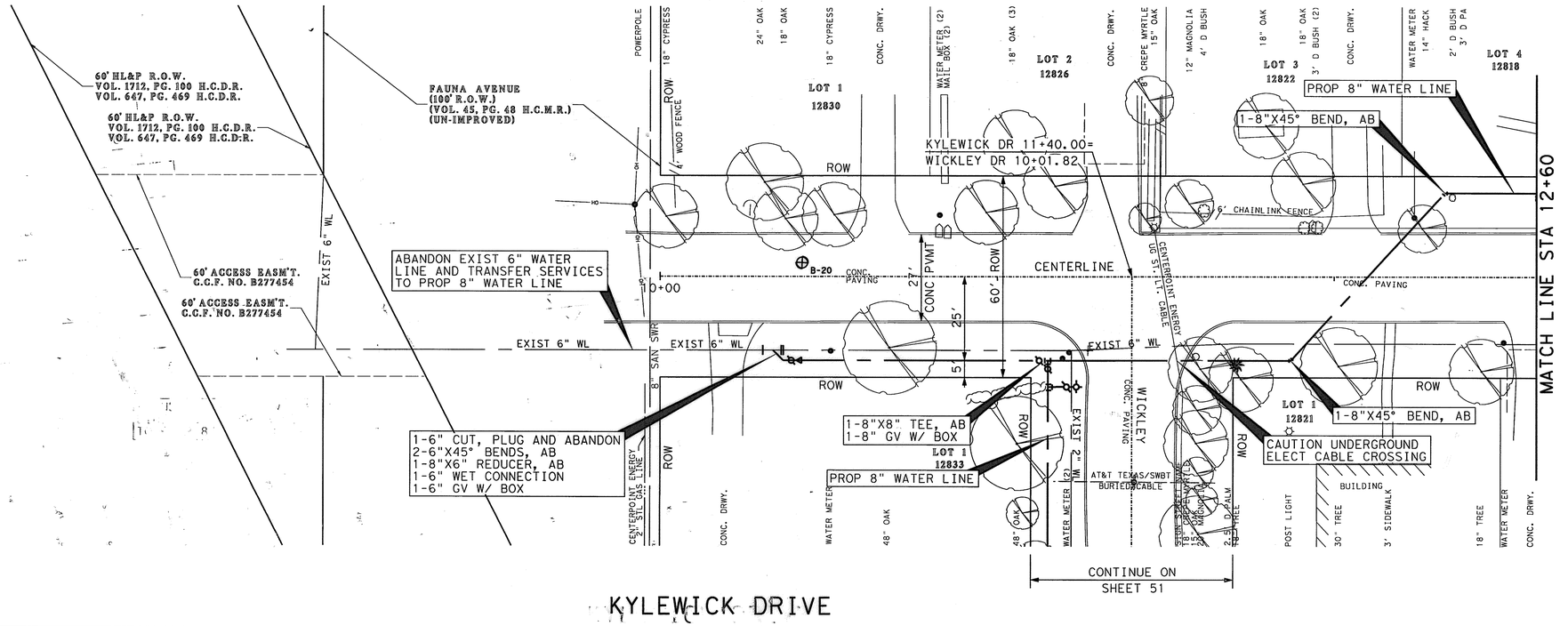
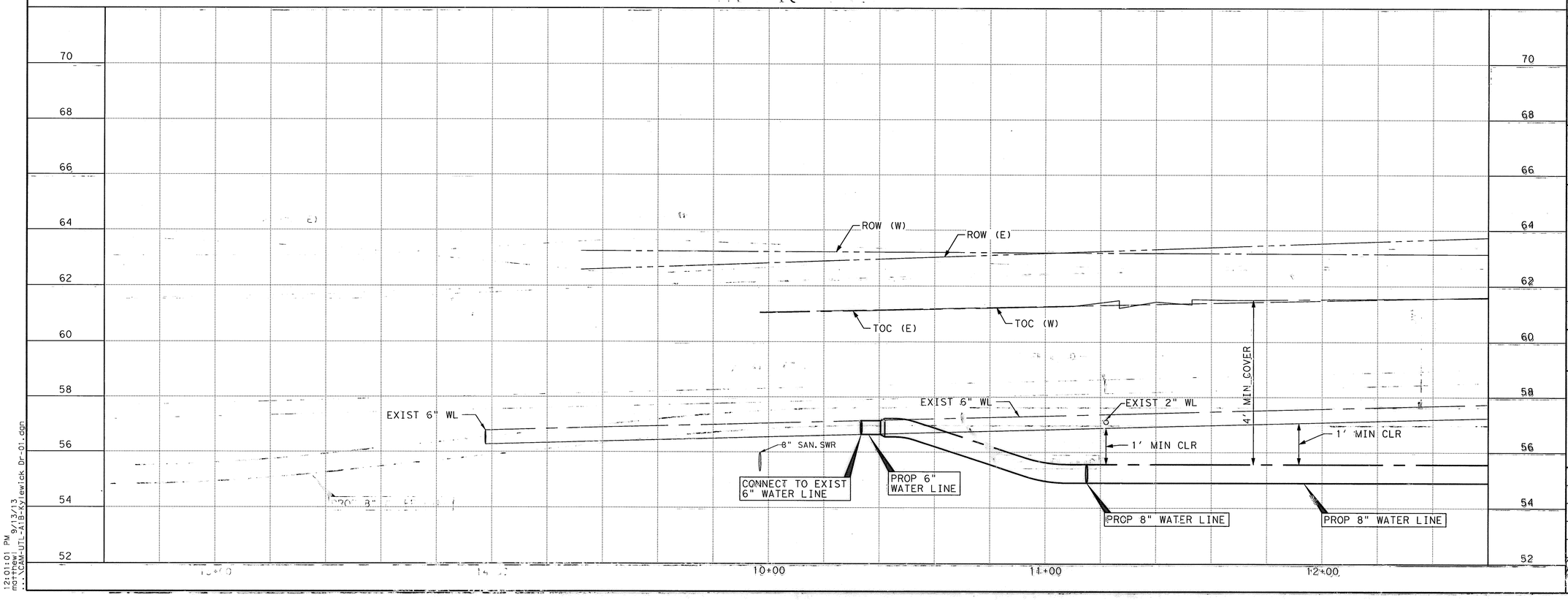
9/13/13

CAM-UTL-A1A-Woodmont Dr-03.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J5, SET CUT X
11+26.89, 22
ELEV 61.08

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS, CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/13/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/13/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
KYLEWICK DRIVE
BEGIN TO STA 12+60

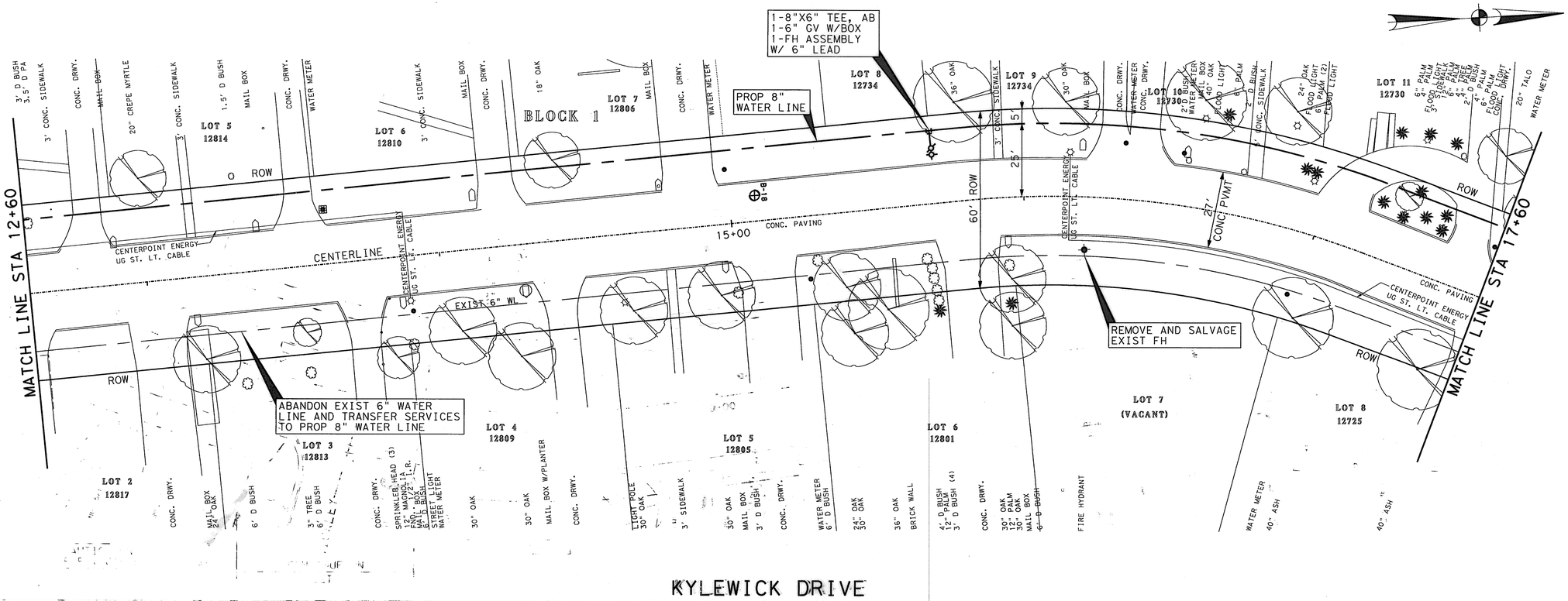
SHEET 1 OF 4

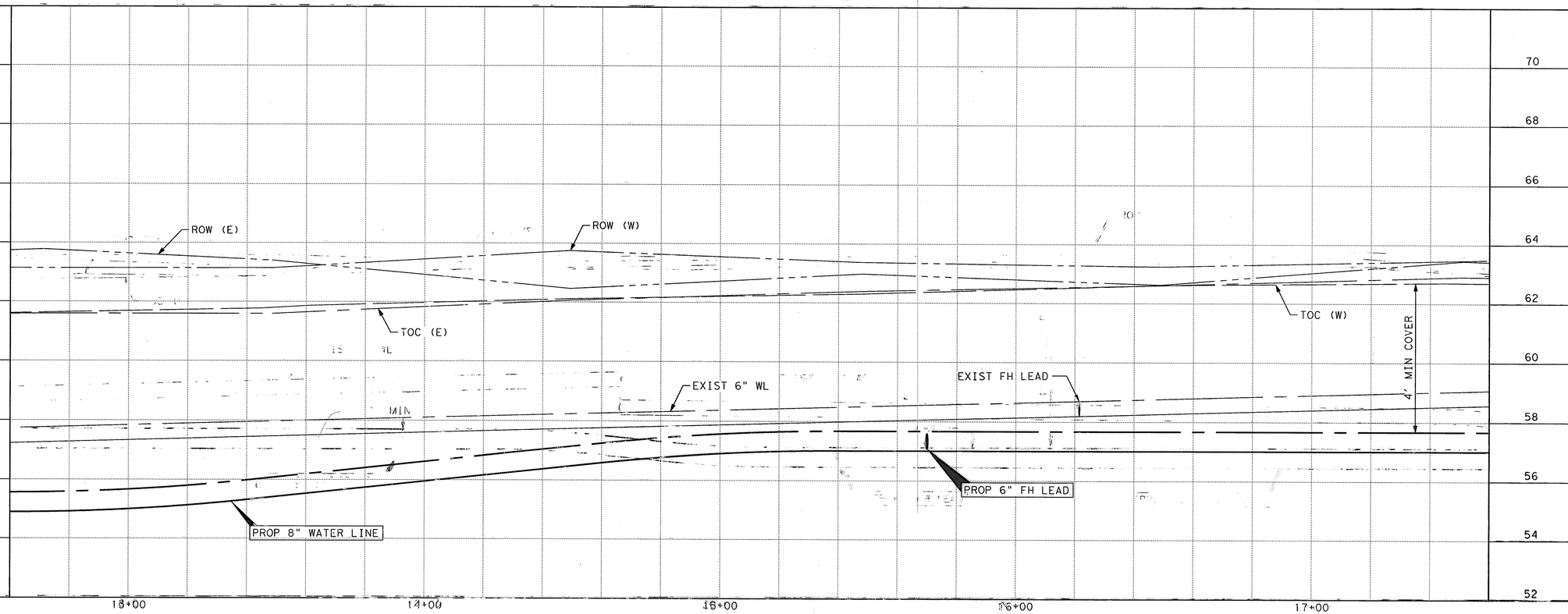
WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 47 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:01:01 PM
matthew
...\CAM-UTL-A1B-Kylewick Dr-01.dgn

CAM-UTL-A1B-Kylewick Dr-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J6, SET 1/2 IR W/ CAP
15+19.13, -25.46
ELEV 63.07

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

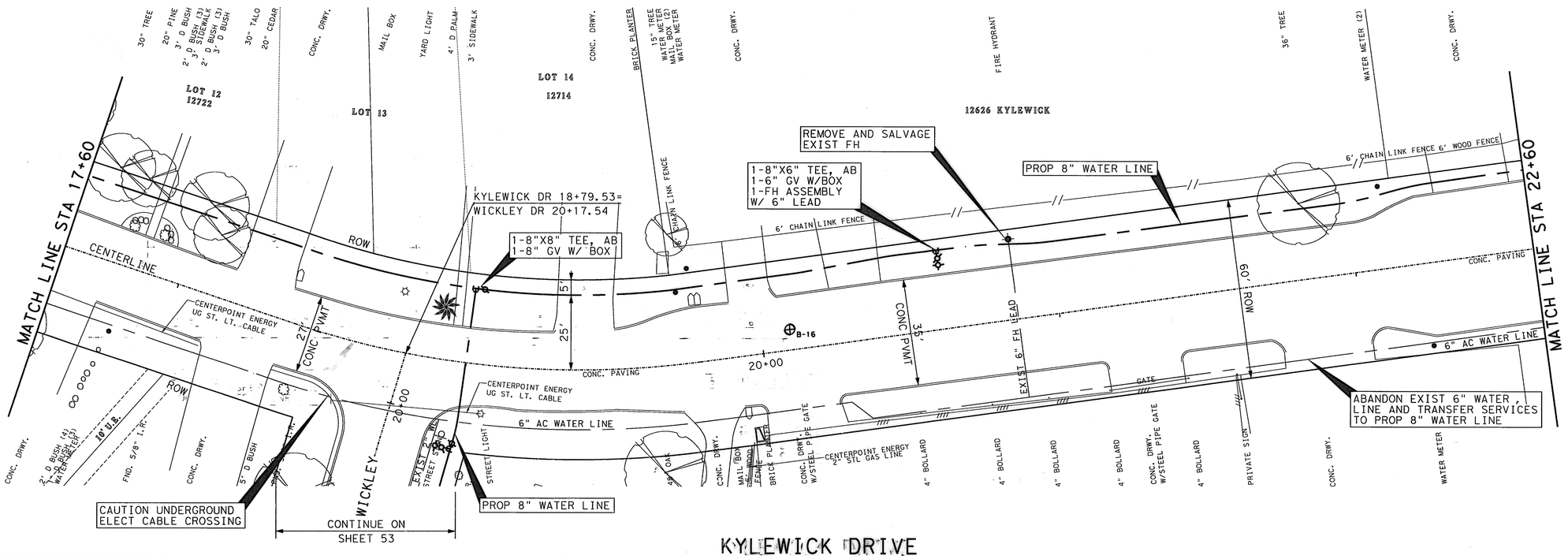
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

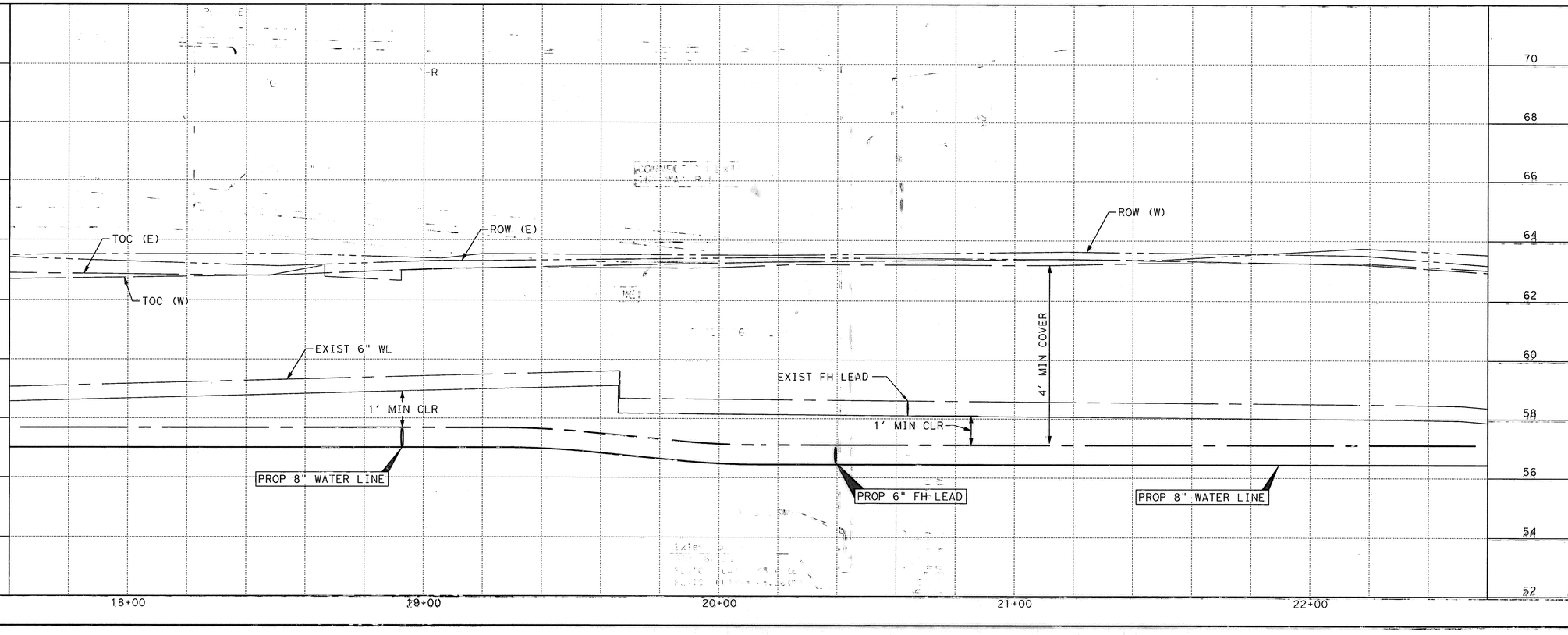
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE KYLEWICK DRIVE
STA 12+60 TO STA 17+60
SHEET 2 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 48 OF 151	

12:01:03 PM
matthewl
\\CAM-UTL-A1B-Kylewick Dr-02.dgn

CAM-UTL-A1B-Kylewick Dr-02.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J2, SET 1/2 IR W/ CAP
19+01.52, 21.13
ELEV 63.05

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE KYLEWICK DRIVE
STA 17+60 TO STA 22+60

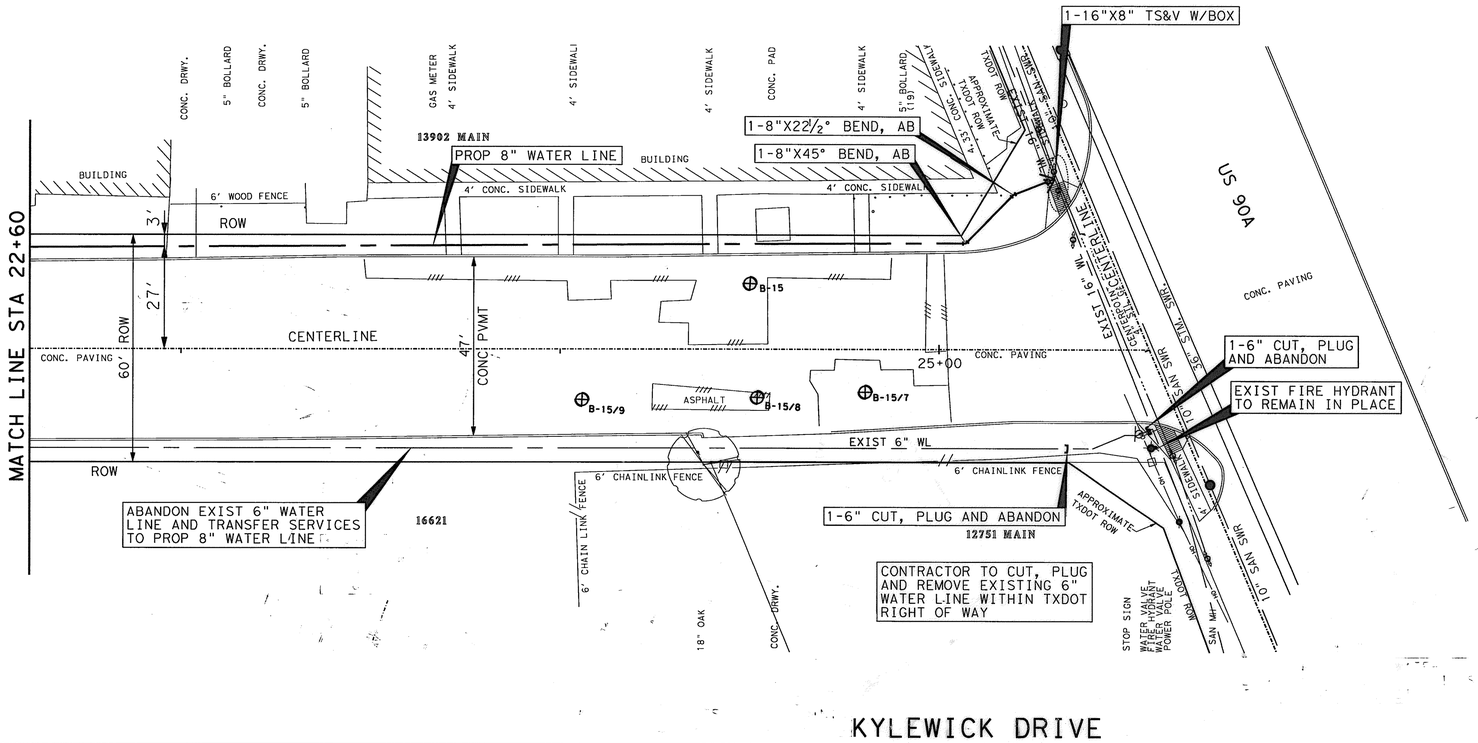
SHEET 3 OF 4

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	49 OF 151

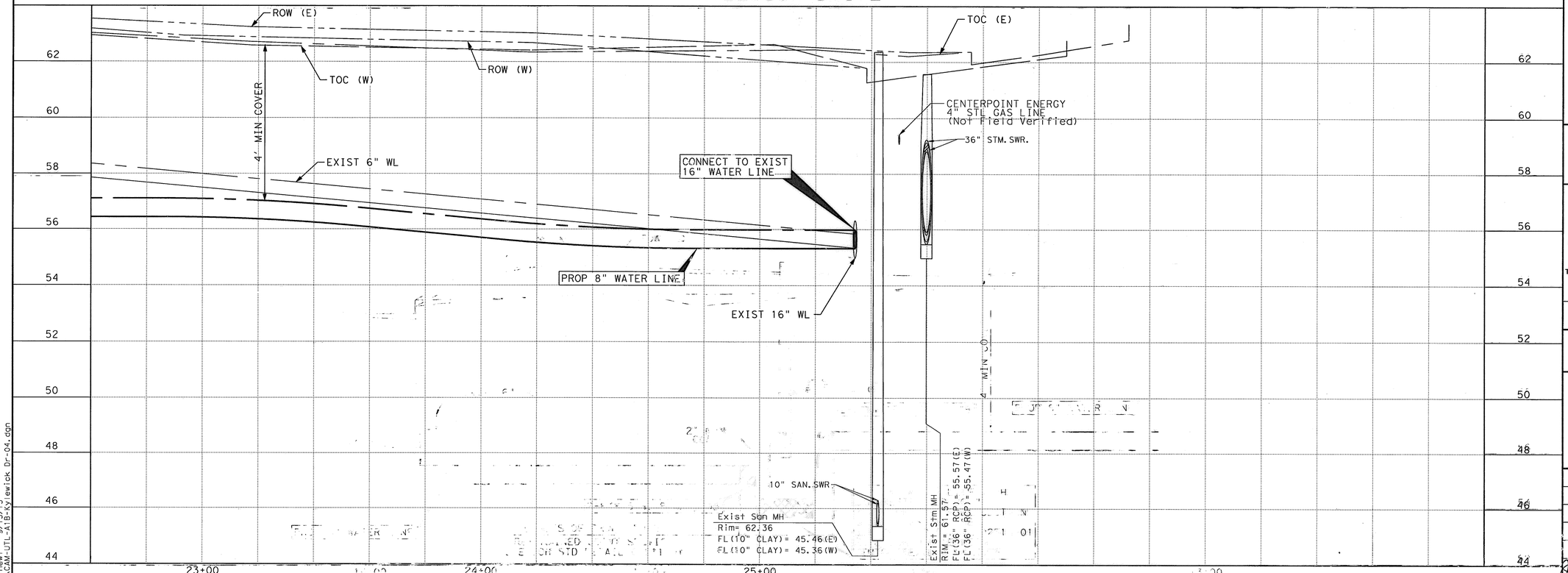
FOR CITY OF HOUSTON USE ONLY
51277

12:01:05 PM
matthewl
...\CAM-UTL-A1B-Kylewick Dr-03.dgn

CAM-UTL-A1B-Kylewick Dr-03.dgn



KYLEWICK DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J1, SET 1/2 IR W/ CAP
25+16.87, -32.11
ELEV 62.20

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

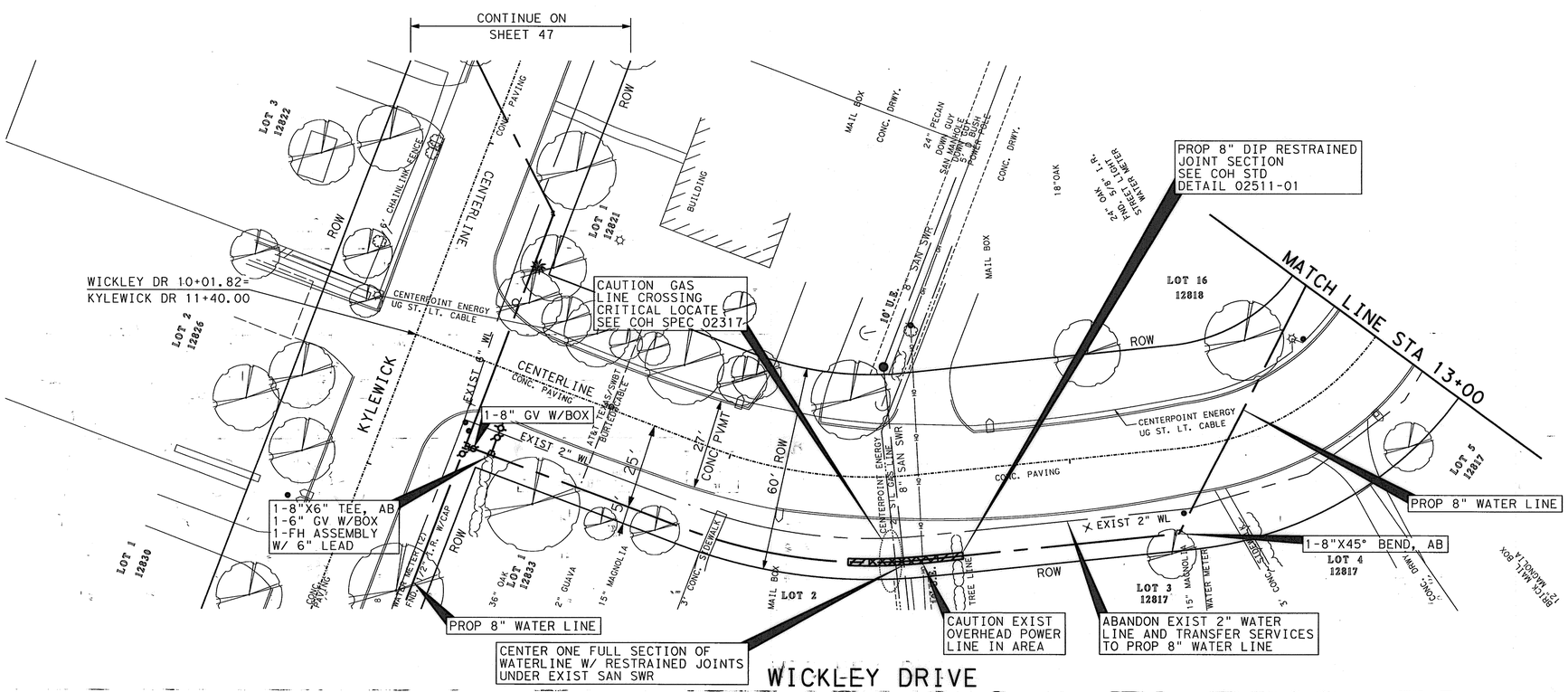
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
KYLEWICK DRIVE
STA 22+60 TO END
SHEET 4 OF 4

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 50 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:01:07 PM
matthew 9/13/13
...\CAM-UTL-A1B-Kylewick Dr-04.dgn

CAM-UTL-A1B-Kylewick Dr-04.dgn



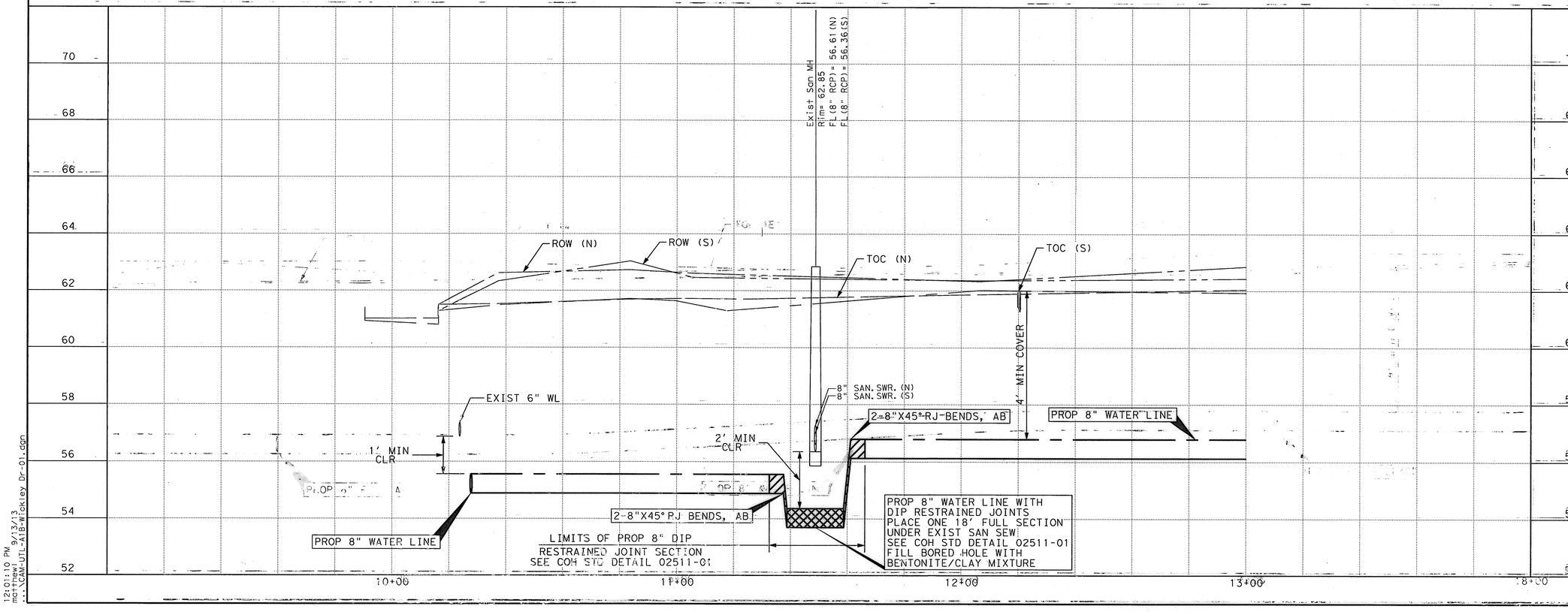
LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J4, SET 1/2 IR W/ CAP
12+03.17, 20.45
ELEV 62.37

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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



PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO: P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

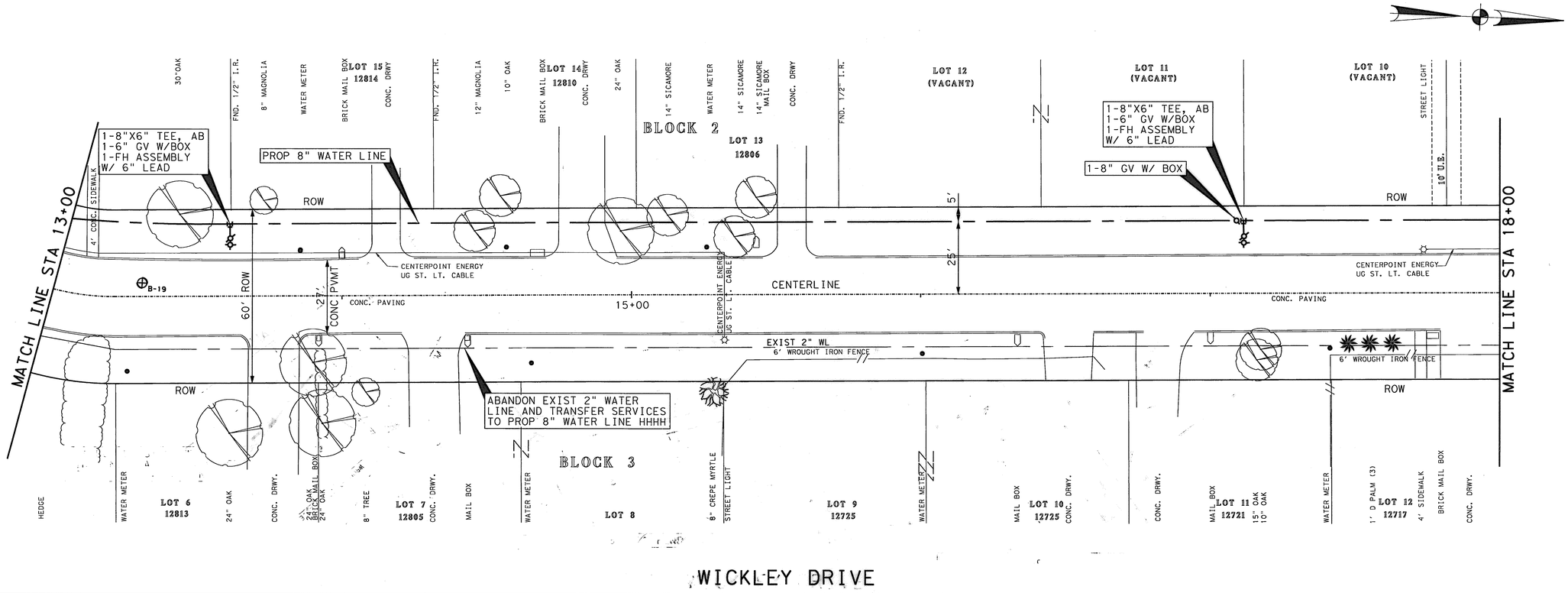
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
WICKLEY DRIVE
BEGIN TO STA 13+00

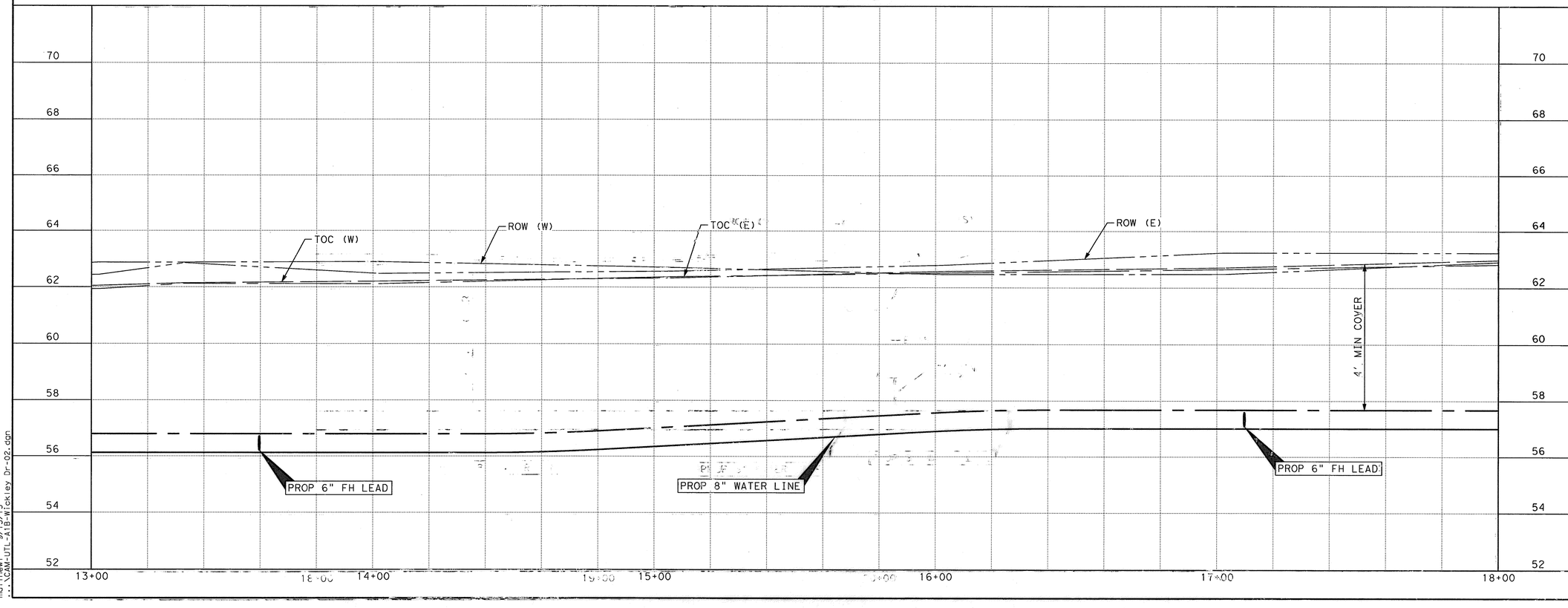
SHEET 1 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	51 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:01:10 PM 9/13/13
motorway
CAM-UTL-A1B-Wickley Dr-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J3, SET 1/2 IR W/ CAP
16+19.28, 16.92
ELEV 62.54

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

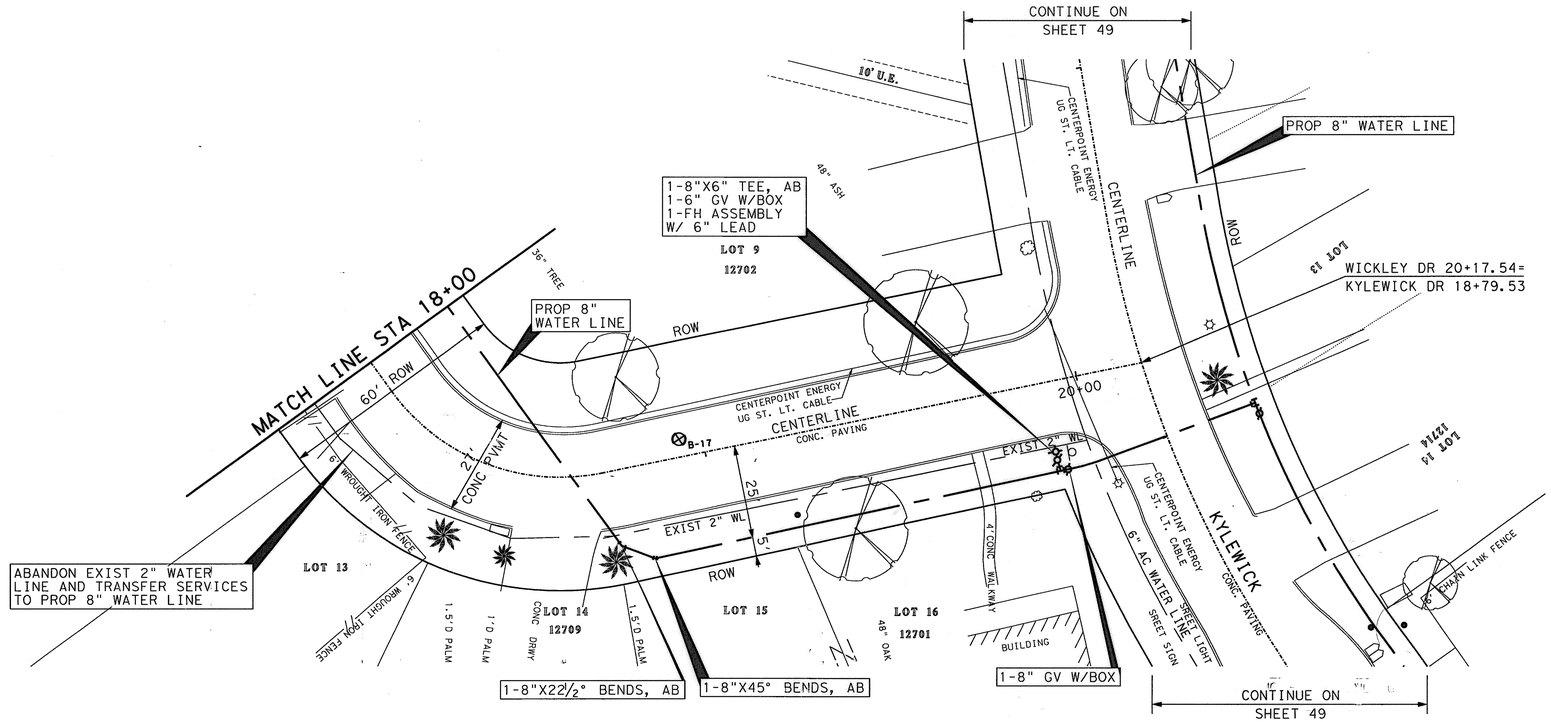
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
WICKLEY DRIVE
STA 13+00 TO STA 18+00
SHEET 2 OF 3

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM
JOHN MOIGWA, P.E.
SHEET NO. 52 OF 151

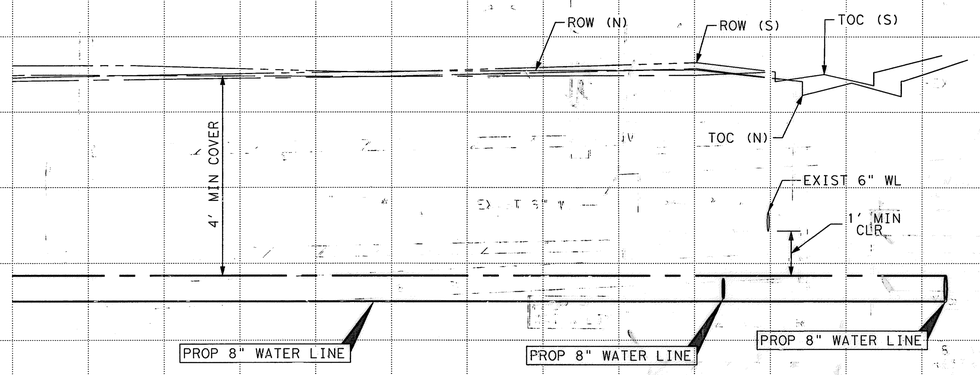
FOR CITY OF HOUSTON USE ONLY
51277

12:01:12 PM
matthew
...\CAM-UTL-A1B-Wickley Dr-02.dgn

CAM-UTL-A1B-Wickley Dr-02.dgn



WICKLEY DRIVE



70 68 66 64 62 60 58 56 54 52

18+00 19+00 20+00 5+00

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J2, SET 1/2 IR W/ CAP
19+99.70, 25.41
ELEV 63.05

BENCH MARK:
CITY OF HOUSTON MARKER
5152 / 8110 LOCATED AT THE EAST SIDE OF KYLEWICK DR, APPROX 316' SOUTH OF INTERSECTION OF US 90A FRONTAGE ROAD AND KYLEWICK DR
ELEV 63.01'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

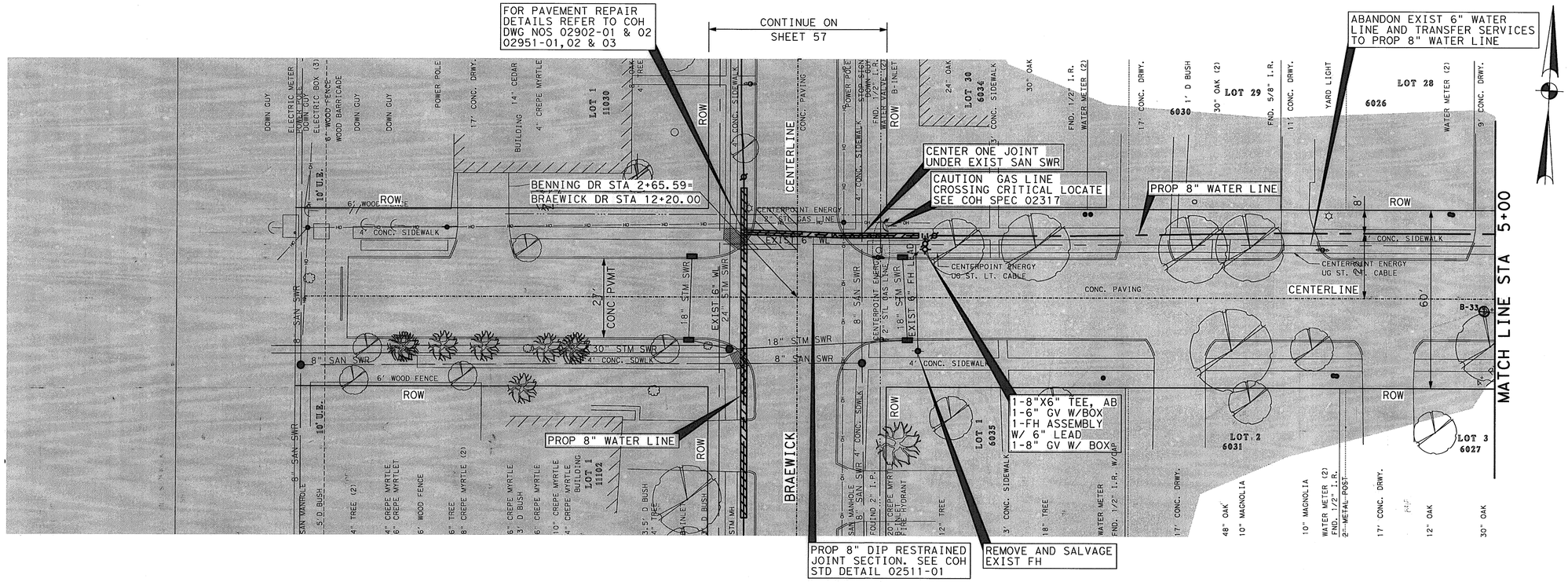
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
WICKLEY DRIVE
STA 18+00 TO END
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 53 OF 151	

12:01:20 PM
mcrowley 9/13/13
...\CAM-UTL-A1B-Wickley Dr-03.dgn

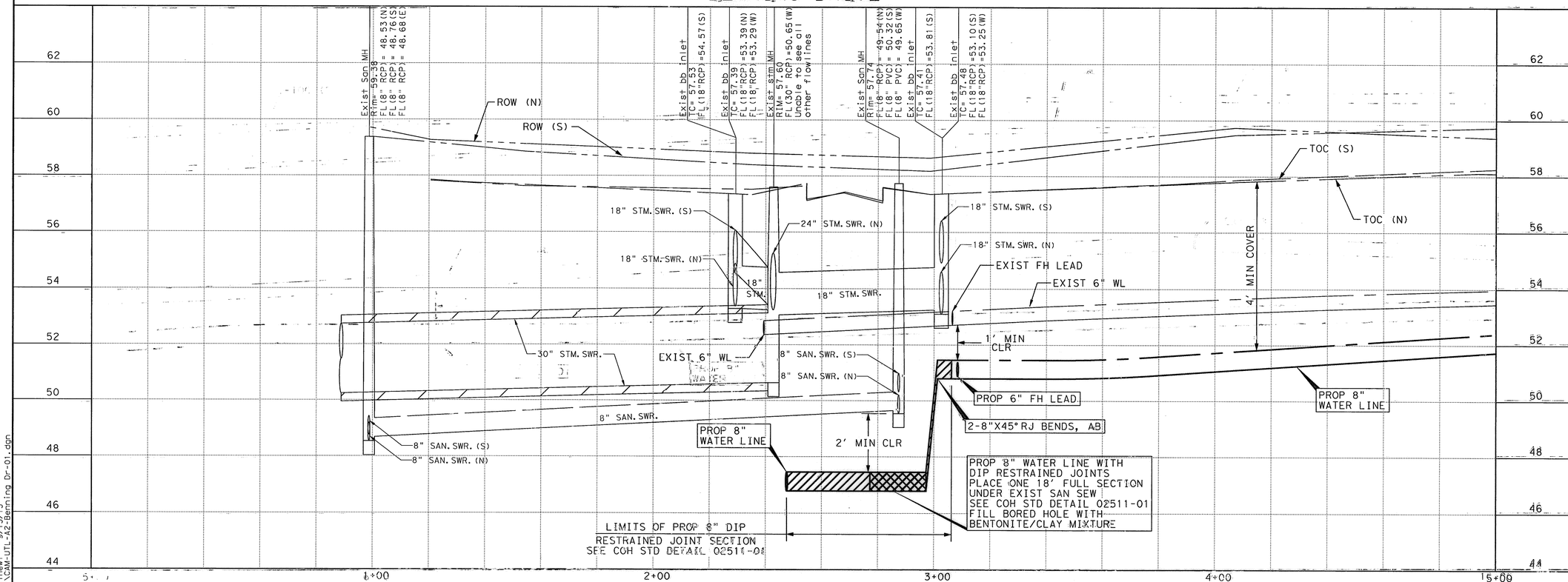
CAM-UTL-A1B-Wickley Dr-03.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

BENNING DRIVE



PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

Date: 9/8/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/8/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/8/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-8825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BENNING DRIVE
BEGIN TO STA 5+00

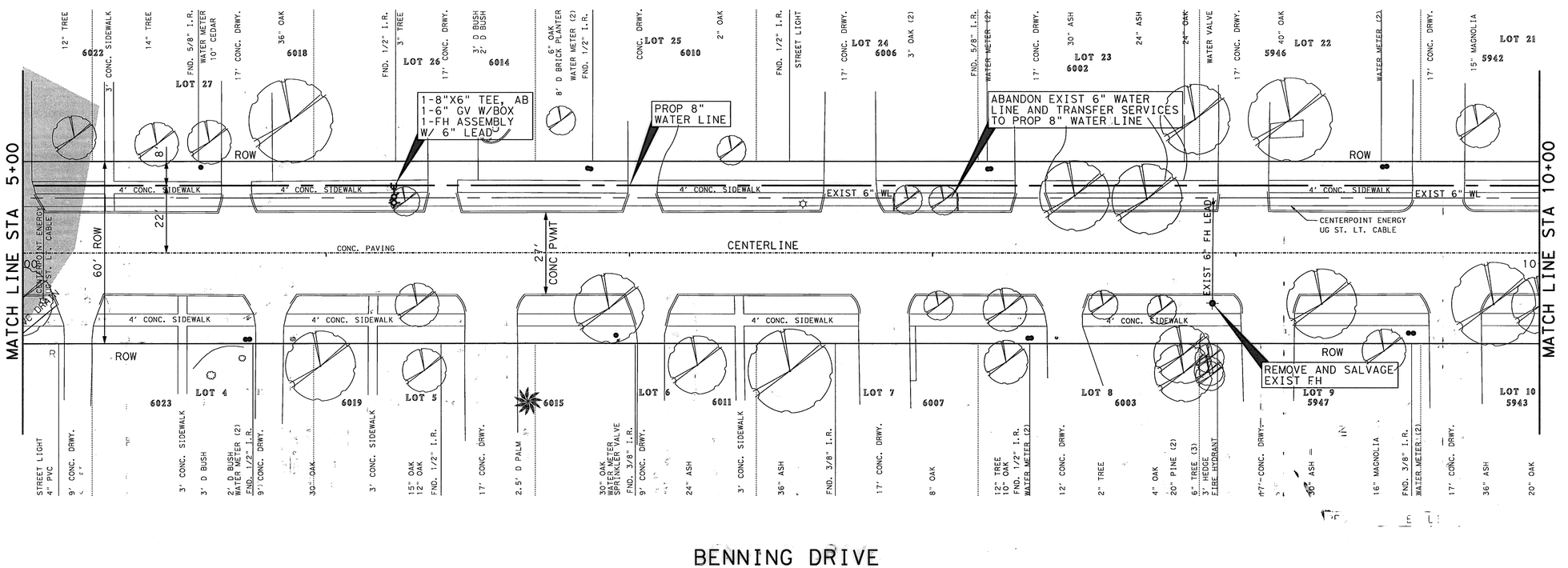
SHEET 1 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO:	54 OF 151

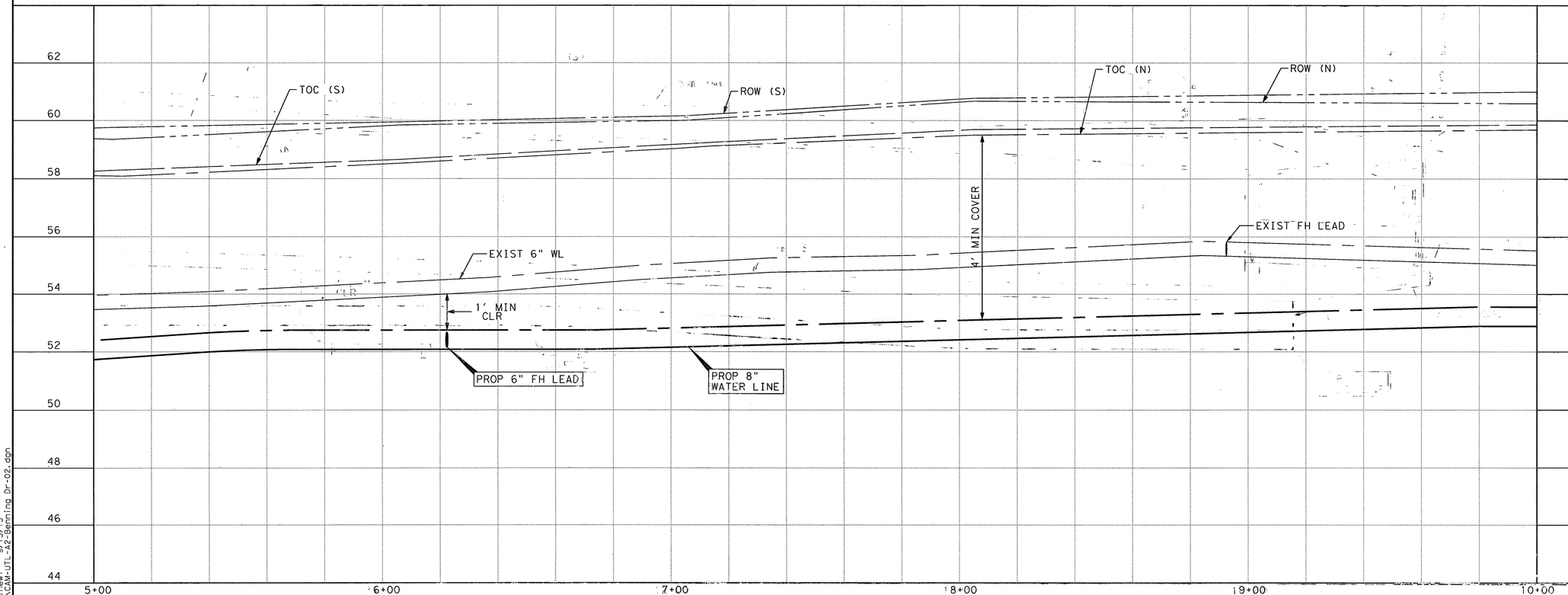
FOR CITY OF HOUSTON USE ONLY
51277

12:01:23 PM
9/13/13
matthew
...\CAM-UTL-A2-Benning Dr-01.dgn

CAM-UTL-A2-Benning Dr-01.dgn



BENNING DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J45, SET CUT X
7+46.99, -23.16
ELEV 59.70

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year. — Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED
PROFESSIONAL ENGINEER
9-12-13

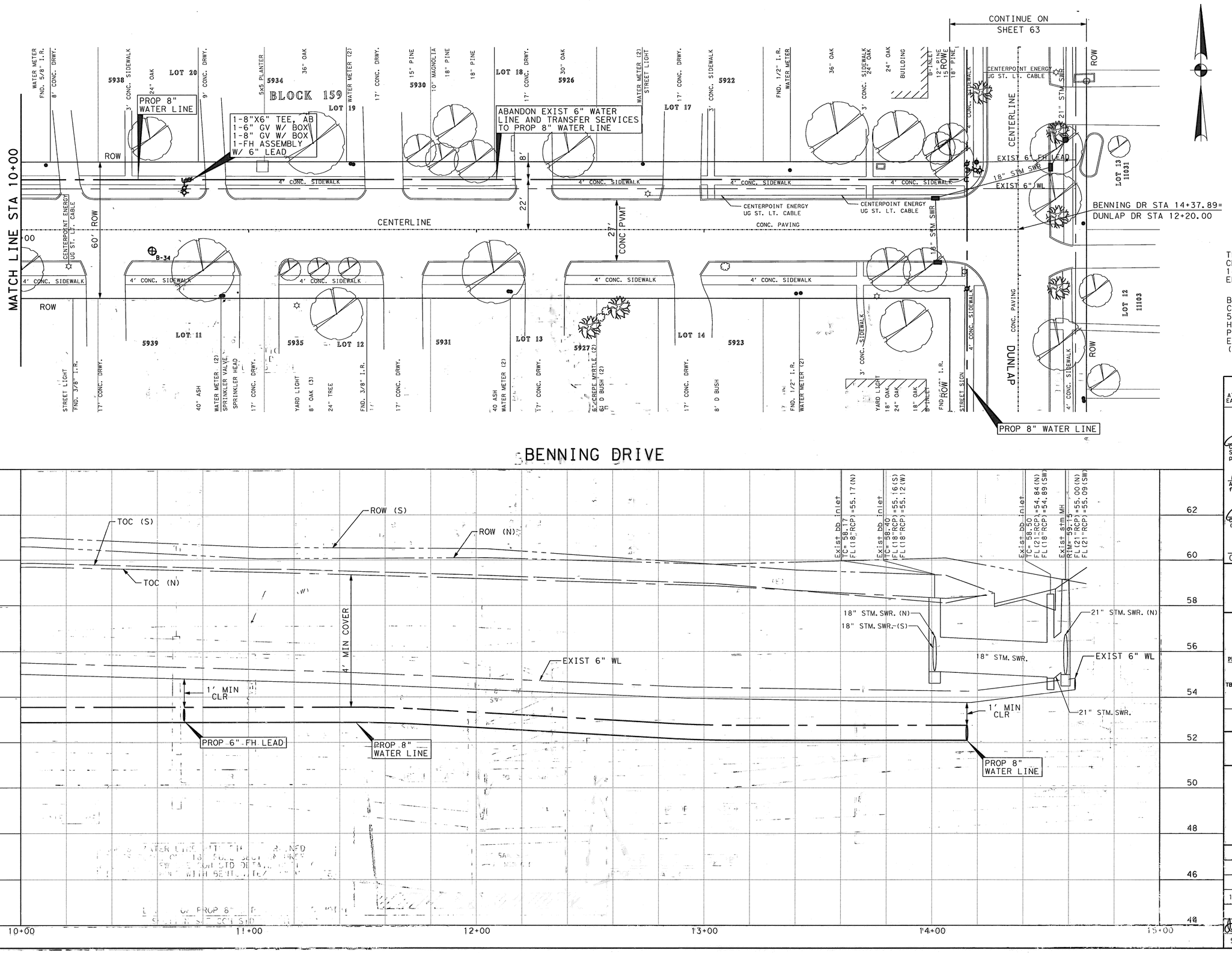
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BENNING DRIVE
STA 5+00 TO STA 10+00
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 55 OF 151	

12:01:25 PM
mcrivera
\CAM-UTL-A2-Benning Dr-02.dgn

CAM-UTL-A2-Benning Dr-02.dgn



BENNING DRIVE

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J44, SET CUT X
14+16.66, -20.12
ELEV 58.72

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities Date: 9/18/13
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Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-8825

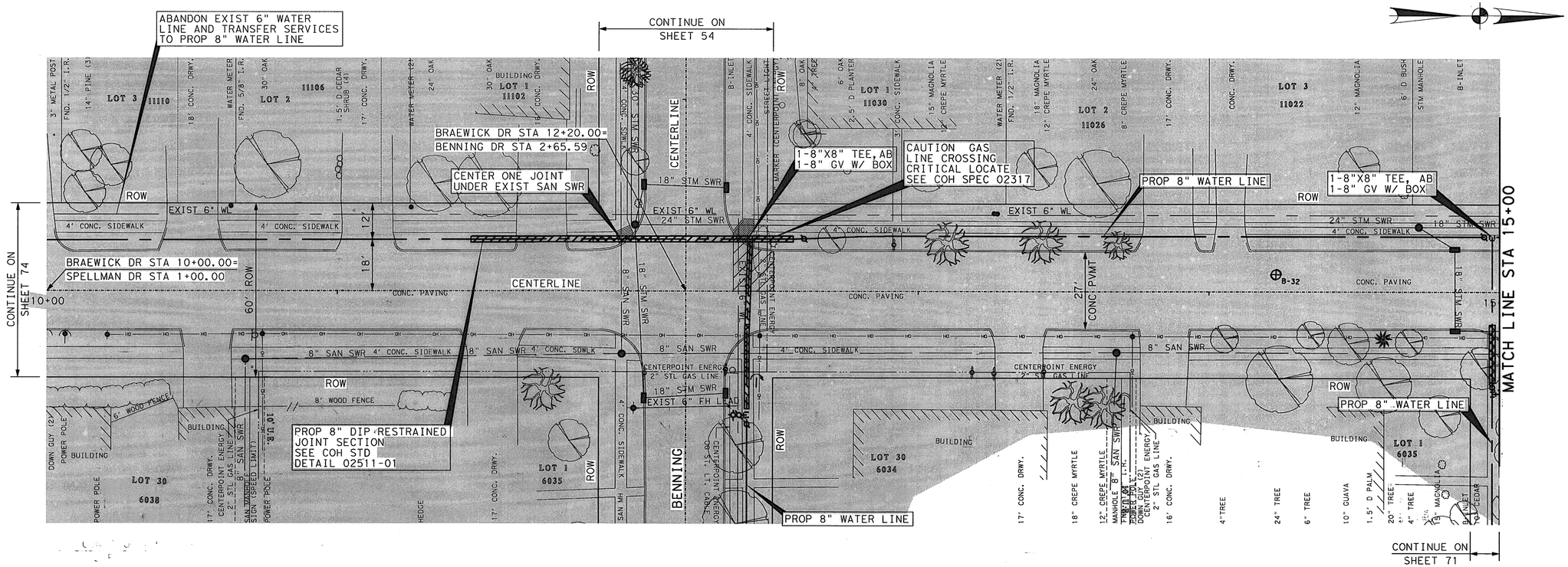
SURVEYED BY: JAG
FB NO. P-5694

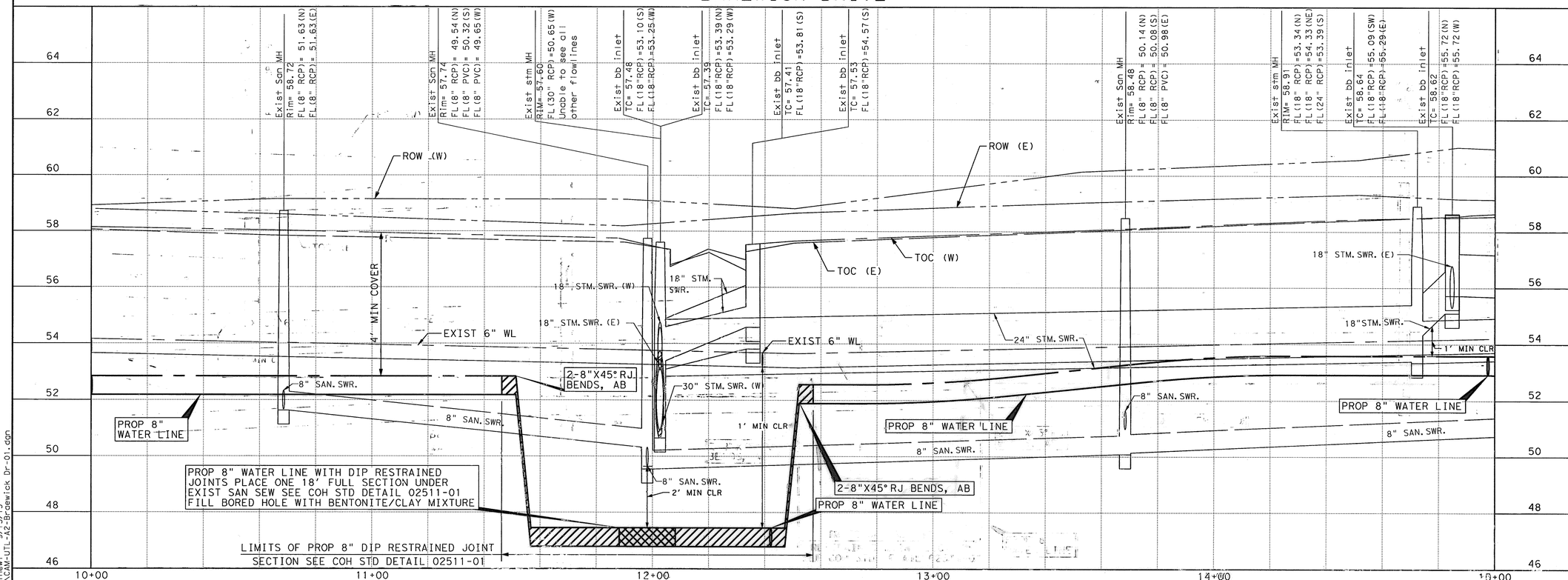
STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BENNING DRIVE
STA 10+00 TO END
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 56 OF 151	





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- B-X BOREHOLE LOCATION

TBM:
CP-J46, SET CUT X
11+99.61, 20.64
ELEV 57.67

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE BRAEWICK DRIVE
STA 10+00 TO STA 15+00

SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 57 OF 151	

12:01:32 PM
matthew
...\CAM-UTL-A2-Braewick Dr-01.dgn

CAM-UTL-A2-Braewick Dr-01.dgn

ABANDON EXIST 6" WATER LINE AND TRANSFER SERVICES TO PROP 8" WATER LINE

PROP 8" DIP RESTRAINED JOINT SECTION SEE COH STD DETAIL 02511-01

BRAEWICK DR STA 15+20+00= SANFORD DR STA 1+00.00

BRAEWICK DR STA 18+20+00= PORTAL DR STA 1+00.00

MATCH LINE STA 15+00

MATCH LINE STA 20+00

CONTINUE ON SHEET 71

CONTINUE ON SHEET 67

SANFORD

PORTAL

CENETRLINE

ROW

60' ROW

27' CONC. PVMT

19'

EXIST 6" WL

PROP 8" WATER LINE

1-8" GV W/ BOX

1-8"X6" TEE, AB
1-6" GV W/BOX
1-FH ASSEMBLY
W/ 6" LEAD

REMOVE AND SALVAGE EXIST FH

PROP 8" WATER LINE

EXIST 6" FH LEAD

LOT 4 11018

LOT 5 11014

LOT 6 11010

LOT 7

11006

11002

LOT 8

10930

LOT 9

10926

LOT 10

10922

LOT 11

LOT 30 6034

LOT 1 6039

LOT 30 6030

BUILDING

CONC. PAVING

4' CONC. SIDEWALK

8" SAN SWR

18" STM SWR

6" WOOD FENCE

CHAIN LINK FENCE

17' CONC. DRWY.

16' CONC. DRWY.

9' CONC. DRWY.

12' CREPE MYRTLE

8" CREPE MYRTLE

4" CREPE MYRTLE

48" OAK

36" OAK

30" TREE

24" OAK

4" PINE

12" PINE

15" CEDAR

WATER METER (2)

WATER METER

WATER VALVE (2)

FND. 5/8" I.R.

FND. 1" I.P.

1' D BUSH (4)

2' D BUSH (2)

3' D BUSH

4' D BUSH (2)

6' PALM

STREET SIGN

POWER POLE

FIRE HYDRANT

DOWN GUY

B-INLET

B-SHEET

STM MANHOLE

SAN MANHOLE

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J48, SET 1/2 IR W/ CAP
15+10.61, -16.72
ELEV 58.91

CP-J53, SET CUT X
18+02.06,, 22.47
ELEV 58.76

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.
Date: 9/18/13

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.
Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE BRAEWICK DRIVE
STA 15+00 TO STA 20+00

SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-198-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO: 58 OF 151	51277

BRAEWICK DRIVE

Exist bb inlet TC= 58.44 FL(18"RCP)=55.49(S)
Exist Son MH Rim= 59.72 FL(8" RCP)= 51.45(N) FL(8" PVC)= 56.12(NE) FL(8" RCP)= 51.49(S) FL(8" RCP)= 51.39(E)
Exist bb inlet TC= 58.83 FL(18"RCP)=55.63(NW)
Exist stm MH Rim= 59.13 FL(18" RCP)=54.43(NE) FL(18" RCP)=54.23(S) FL(18" RCP)=55.24(SE)
Exist Grate inlet TOG= 58.12 FL(18"RCP)=55.07(SW) FL(18"RCP)=54.97(E)
Exist bb inlet TC= 58.74 FL(18"RCP)=55.44(N) FL(18"RCP)=55.04(W)
Exist bb inlet TC= 58.77 FL(18"RCP)=55.97(S)
Exist Son MH Rim= 58.78 FL(18" RCP)= 52.05(S) FL(18" RCP)= 52.03(E)

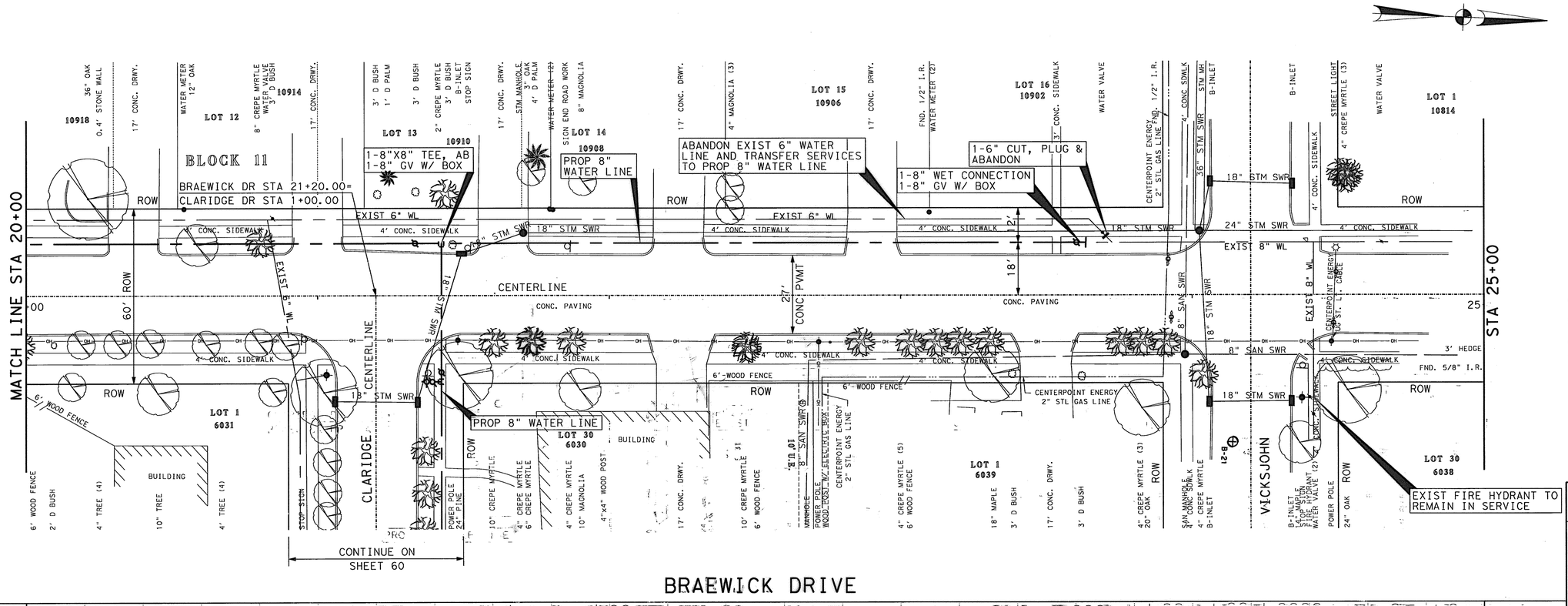
ROW (W)
ROW (E)
TOC (E)
TOC (W)
18" STM. SWR.
EXIST 6" WL
1' MIN CLR
18" STM. SWR. (SE)
18" STM. SWR. (E)
6" SAN. SWR.
18" STM. SWR. EXIST FH LEAD
EXIST 6" WL
4' MIN COVER
18" STM. SWR. (NE)
8" SAN. SWR.
PROP 8" WATER LINE
2-8"X45° RJ BENDS, AB
12-8"X45° RJ BENDS, AB
PROP 6" FH LEAD
LIMITS OF PROP 8" DIP RESTRAINED JOINT SECTION SEE COH STD DETAIL 02511-01
PROP 8" WATER LINE

64 62 60 58 56 54 52 50 48 46

15+00 16+00 17+00 18+00 19+00 20+00

12:01:37 PM 9/13/13
matthew
...\CAM-UTL-A2-Brewick Dr-02.dgn

CAM-UTL-A2-Brewick Dr-02.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J54, SET 1/2 IR W/ CAP
21+15.60, -15.98
ELEV 59.24

CP-J58, SET CUT X
23+96.35, -23.79
ELEV 59.11

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL "THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.
Date: 9/18/13

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.
Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX-Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-5825

STATE OF TEXAS
STEPHEN K. YU
67965
LICENSED PROFESSIONAL ENGINEER
8-13-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
BRAEWICK DRIVE
STA. 20+00 TO STA. 25+00
SHEET 3 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	59 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

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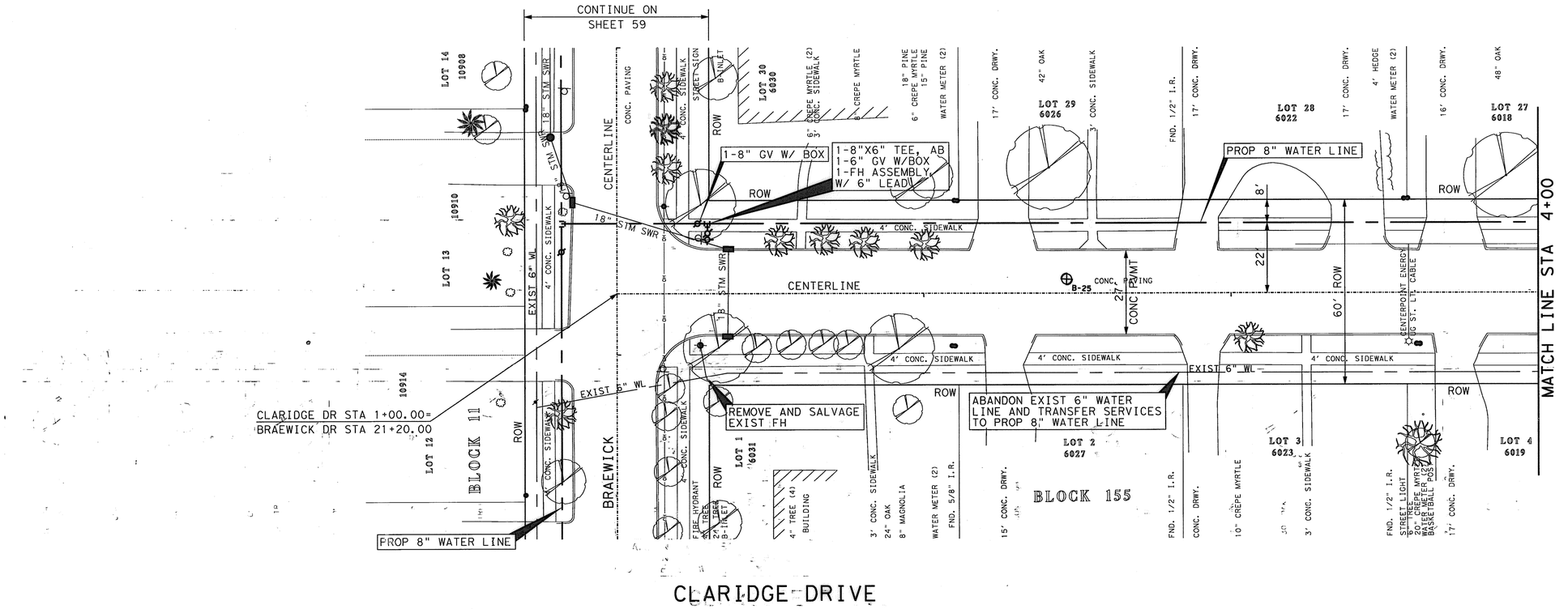
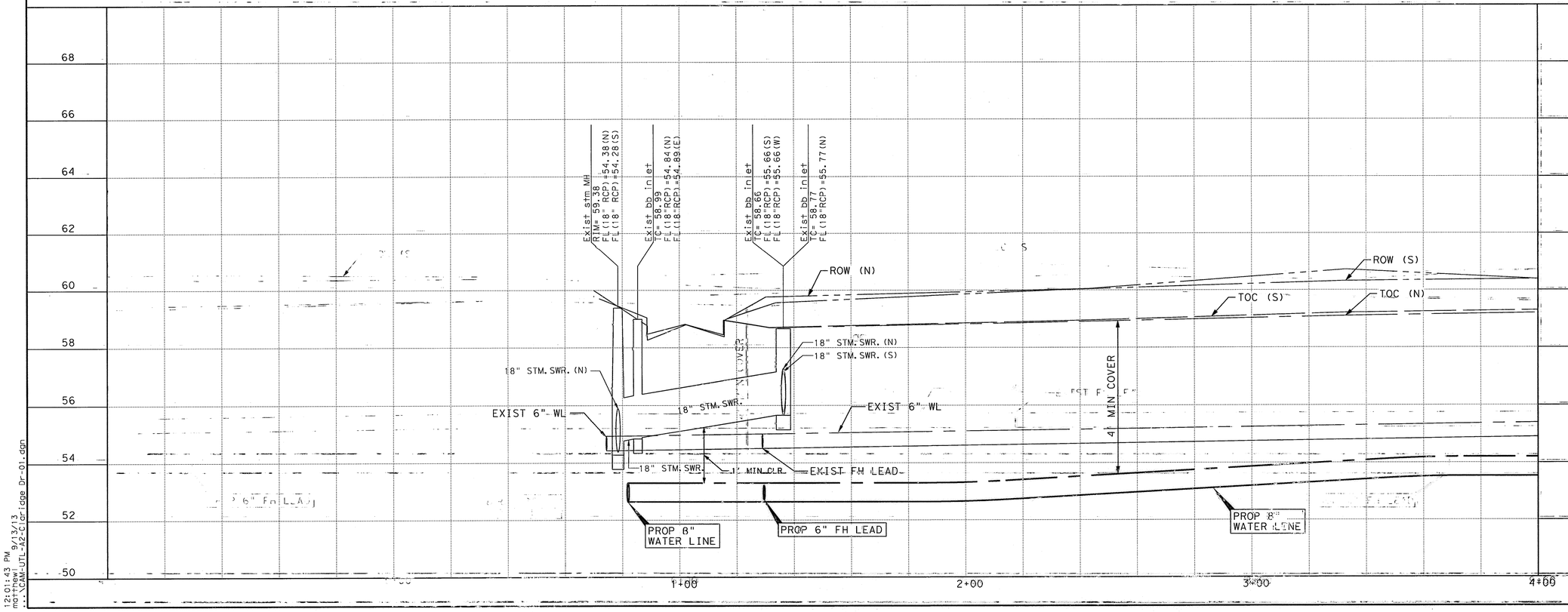
CAM-UTL-A2-Braewick Dr-03.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J54, SET 1/2 IR W/ CAP
OFF CHAIN, OFF CHAIN
ELEV 59.24

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE CLARIDGE DRIVE
BEGIN TO STA 4+00

SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-198-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MBIGWA, P.E.	
SHEET NO. 60 OF 151	

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matthew
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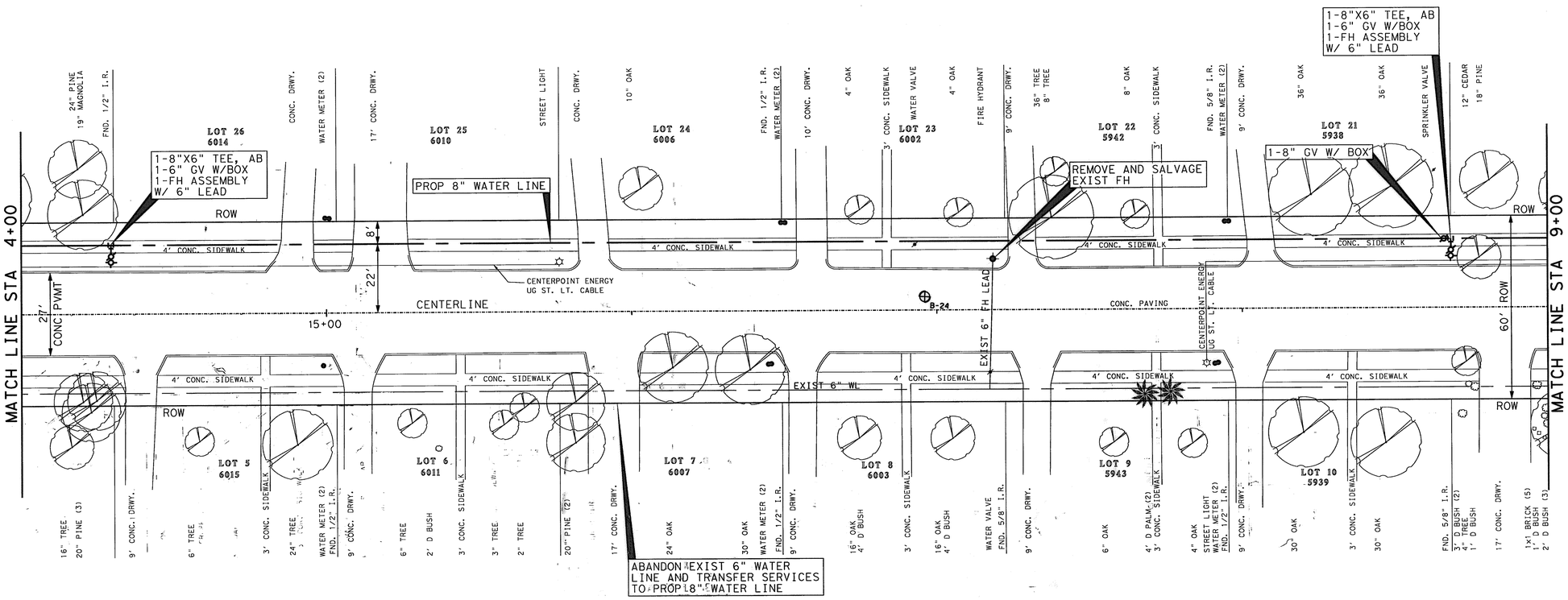
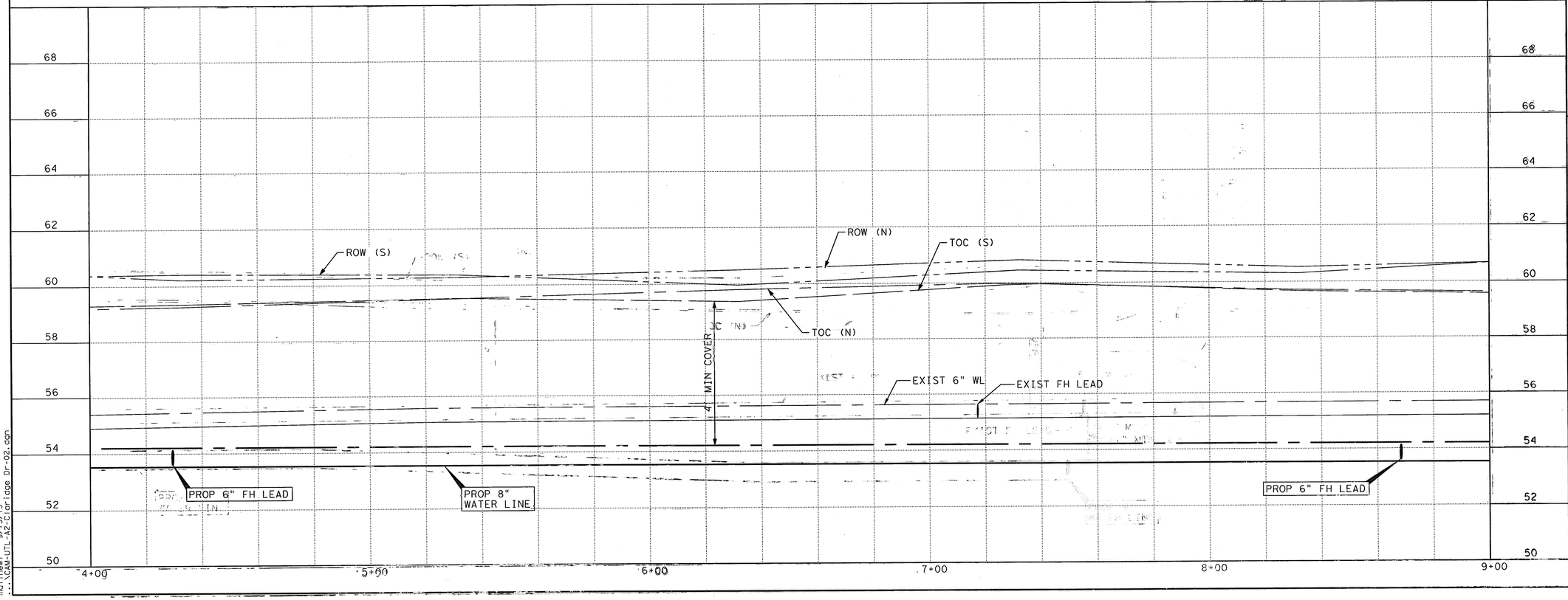
CAM-UTL-A2-Claridge Dr-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J55, SET CUT X .
6+70.23, -23.39
ELEV 60.38

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS — STEPHEN K. YU — 67965 — REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
CLARIDGE DRIVE
STA 4+00 TO STA 9+00

SHEET 2 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	61 OF 151

FOR CITY OF HOUSTON USE ONLY

51277

12:01:44 PM
matthewl
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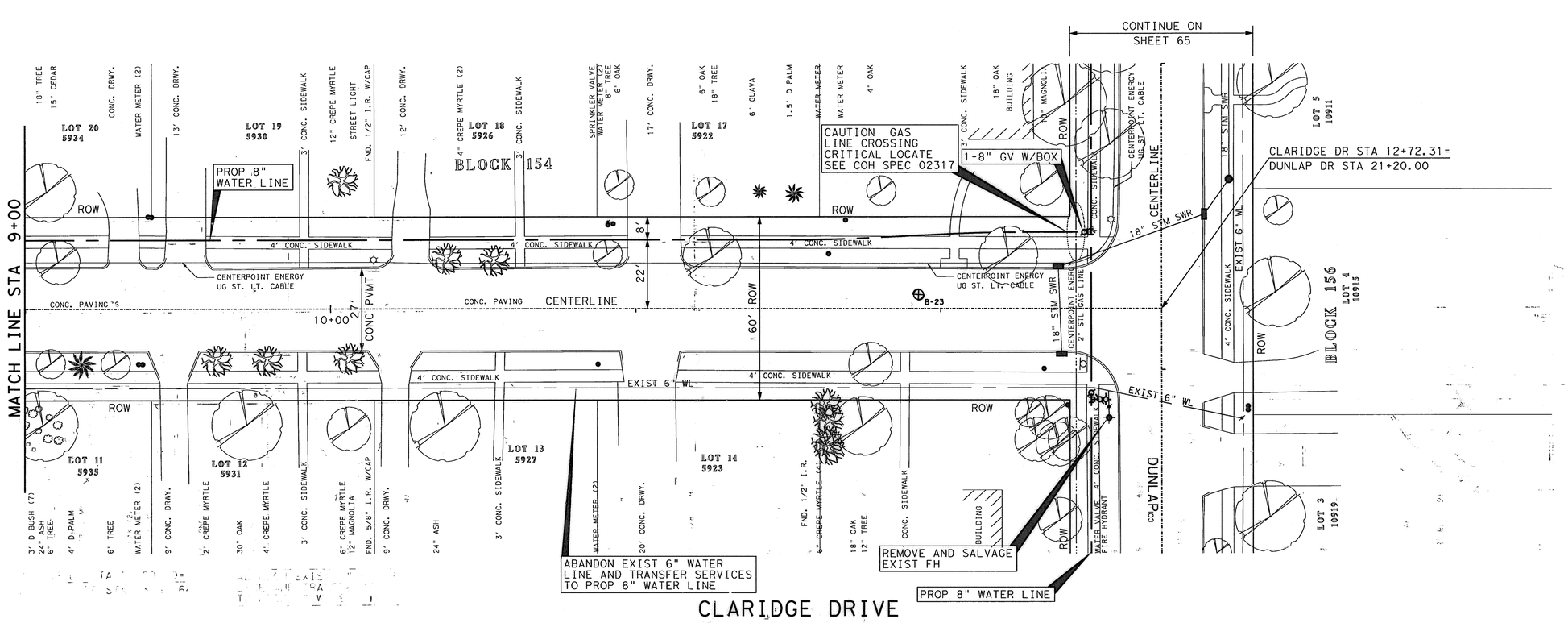

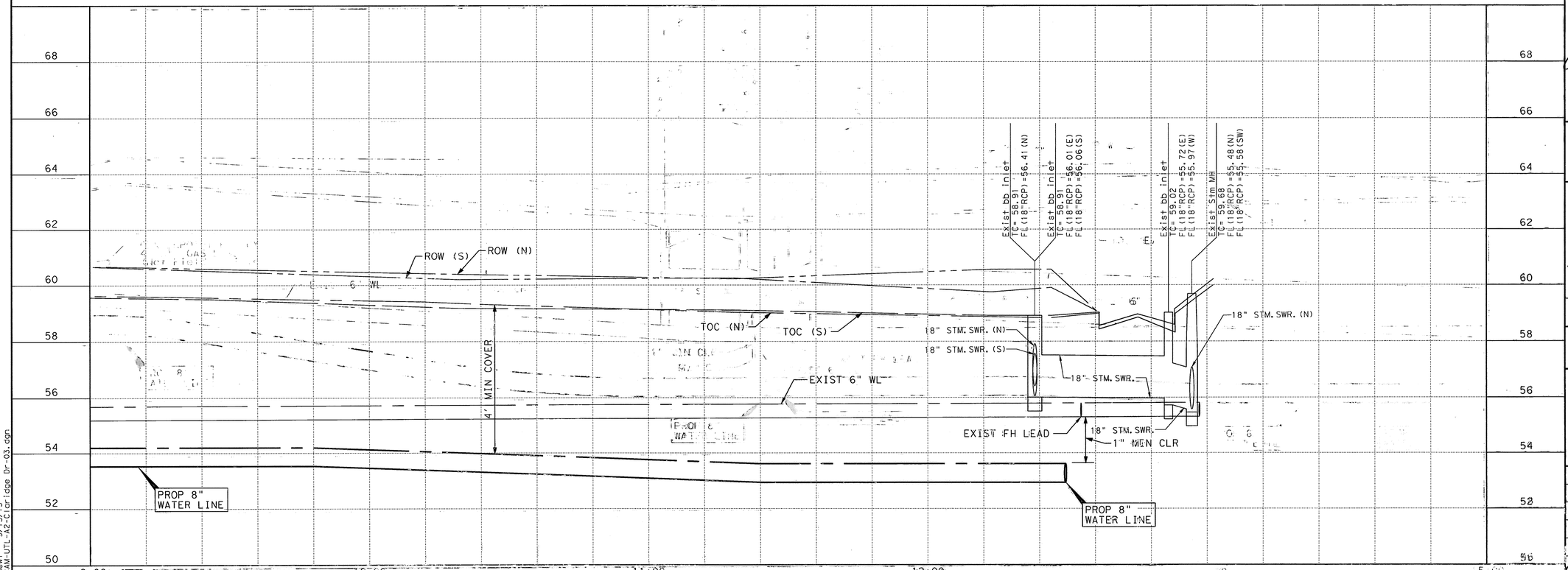

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J56, SET CUT X
OFF CHAIN, OFF CHAIN
ELEV 59.67

BENCH MARK:
CITY OF HOUSTON MARKER
5153 // 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE CLARIDGE DRIVE
STA 9+00 TO END

SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 62 OF 151	

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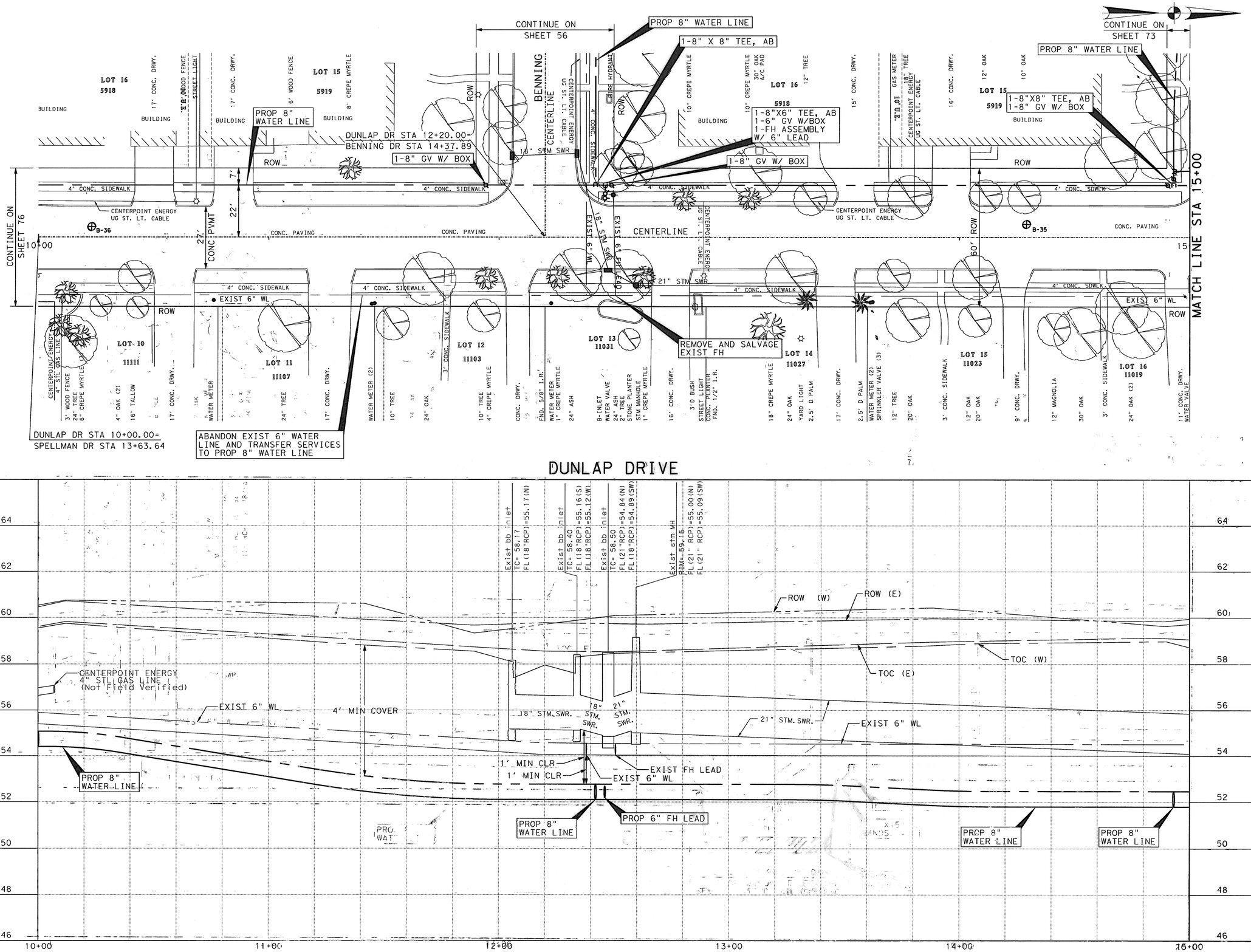
9/13/13

CAM-UTL-A2-Claridge Dr-03.dgn



DUNLAP DRIVE

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J44, SET CUT X
12+40.12, -21.23
ELEV 58.72

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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Date: 9/13/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

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Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
DUNLAP DRIVE
STA 10+00 TO STA 15+00
SHEET 1 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	63 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:01:54 PM 9/13/13
matthew
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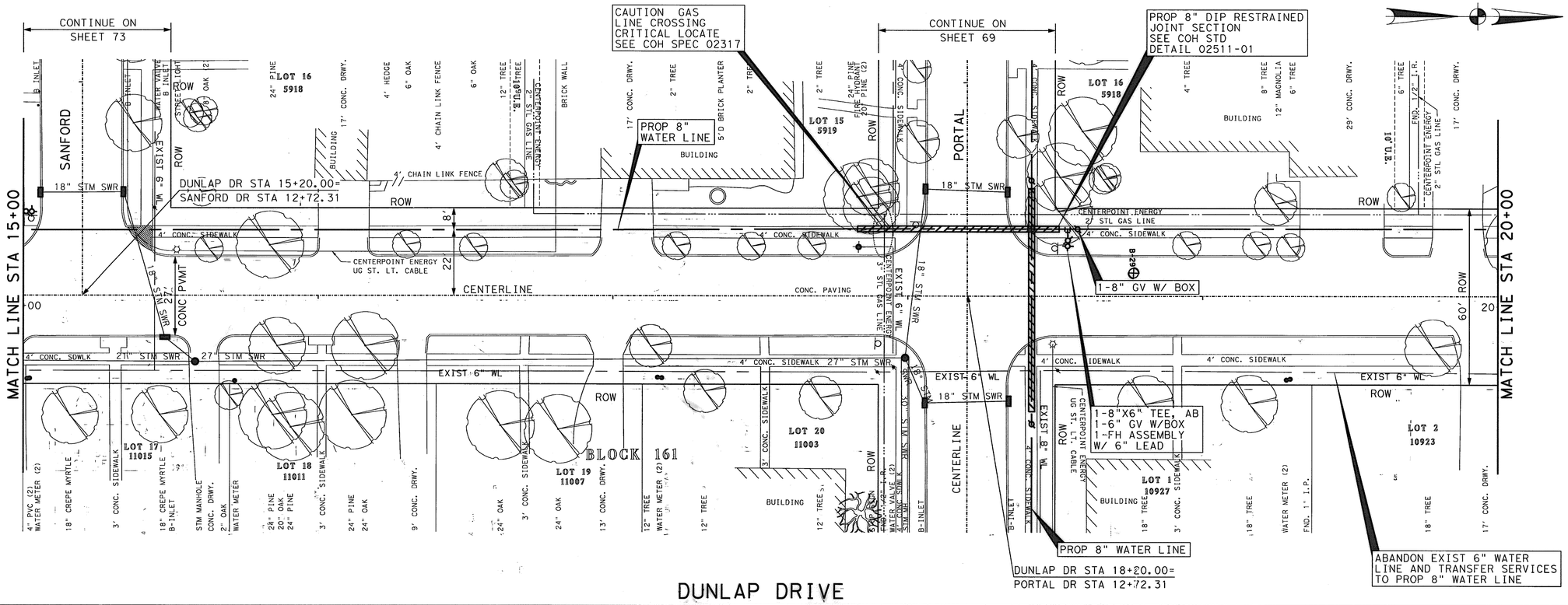

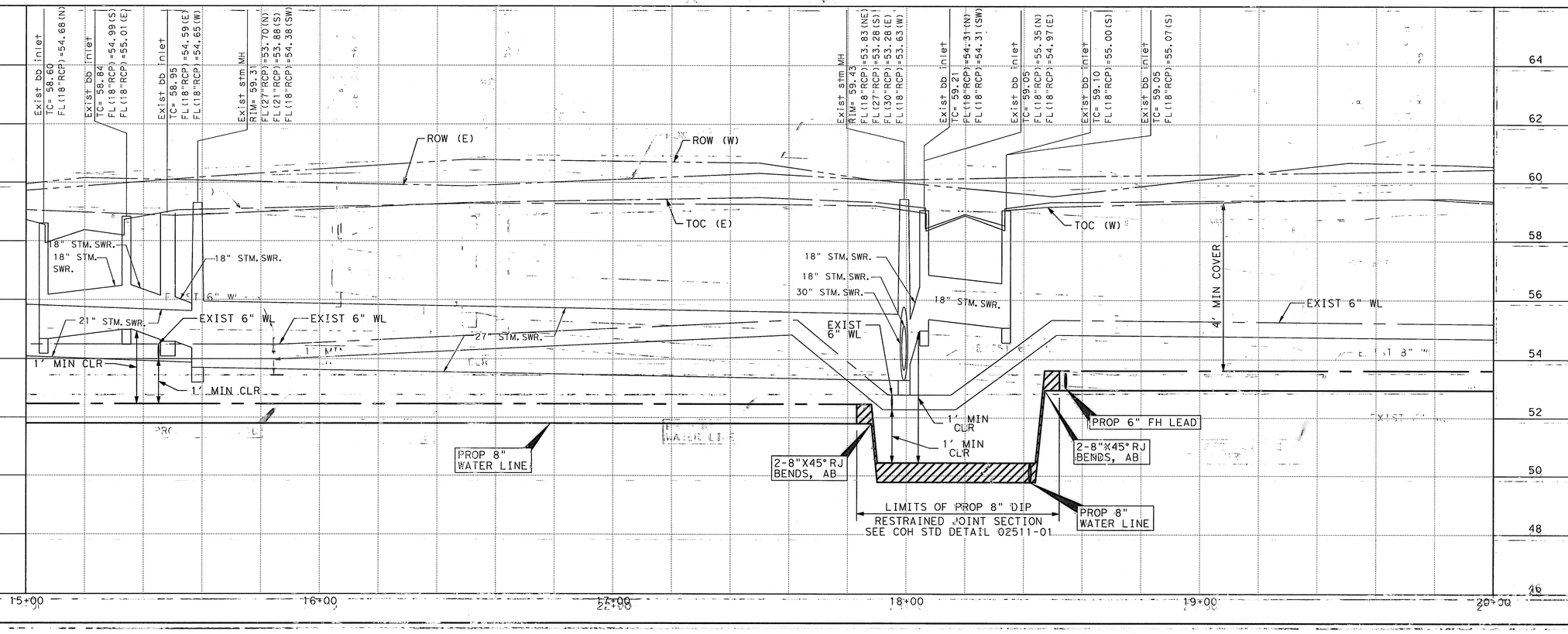

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J50, SET CUT X
15+27.45, 17.54
ELEV 59.16

CP-J51, SET CUT X
17+96.89, 23.84
ELEV 59.44

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

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Approved for AT&T Texas/SWBT underground conduit facilities only; Signature valid for one year. — Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS — STEPHEN K. YU — 67965 — REGISTERED PROFESSIONAL ENGINEER — 9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE DUNLAP DRIVE
STA 15+00 TO STA 20+00
SHEET 2 OF 3

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	64 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:01:57 PM
9/13/13
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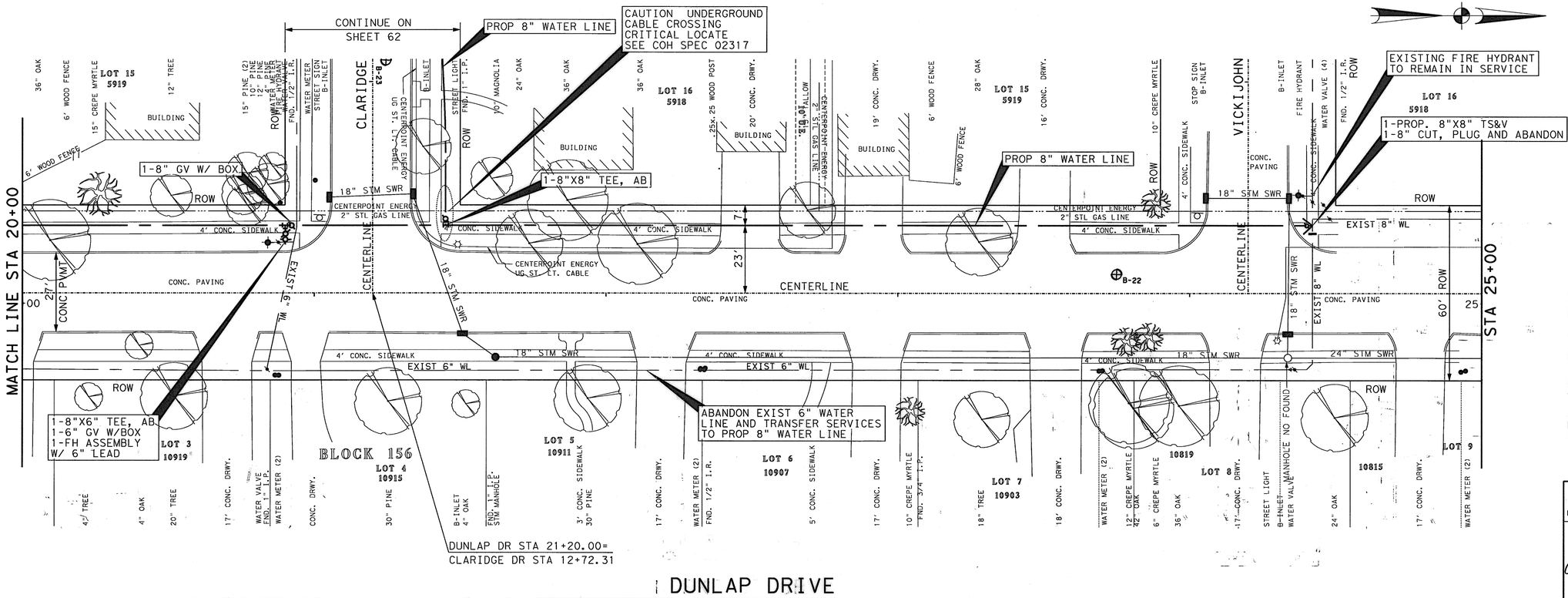
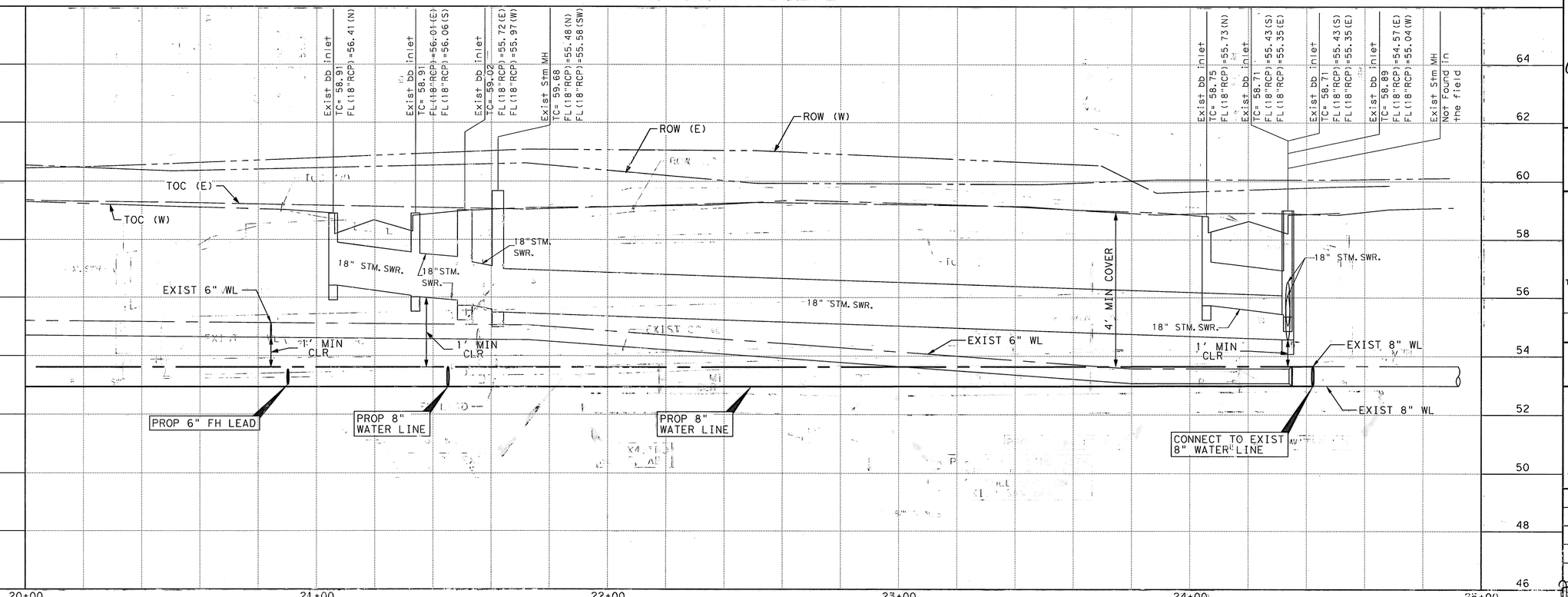
CAM-UTL-A2-Dunlap Dr-02.dgn



DUNLAP DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J56, SET CUT X
21+06.09, 20.04
ELEV 59.67

CP-J57, SET CUT X
24+43.54, -23.82
ELEV 59.03'

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
of DUNLAP DRIVE
STA 20+00 TO STA 25+00
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 65 OF 151	

12:02:01 PM
mcrivera
\CAM-UTL-A2-Dunlap Dr-03.dgn

STA 9+00

EXISTING FIRE HYDRANT TO REMAIN IN SERVICE

ABANDON EXIST 8" WATER LINE AND TRANSFER SERVICES TO PROP 8" WATER LINE

CONTINUE ON SHEET 75

1-8" CUT, PLUG AND ABANDON
1-8" GV W/ BOX
1-8" WET CONNECTION
1-8"x45° BEND, AB

KIRKSIDE DR STA 13+40.00= SPELLMAN DR STA 7+67.97

PROP 8" WATER LINE

PROP 8" WATER LINE

1-8"X45° BENDS, AB

CAUTION GAS LINE CROSSING CRITICAL LOCATE SEE COH SPEC 02317

CAUTION EXIST OVERHEAD POWERLINE IN AREA

1-8" GV W/ BOX

KIRKSIDE DRIVE

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J41, SET CUT X
10+05.68, -34.15
ELEV 58.69

CP-J42, SET CUT X
13+17.44, 21.25
ELEV 58.18

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/12/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Infrastructure Development Consultants, Inc.
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
KIRKSIDE DRIVE
STA 9+00 TO END

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 66 OF 151	

51277

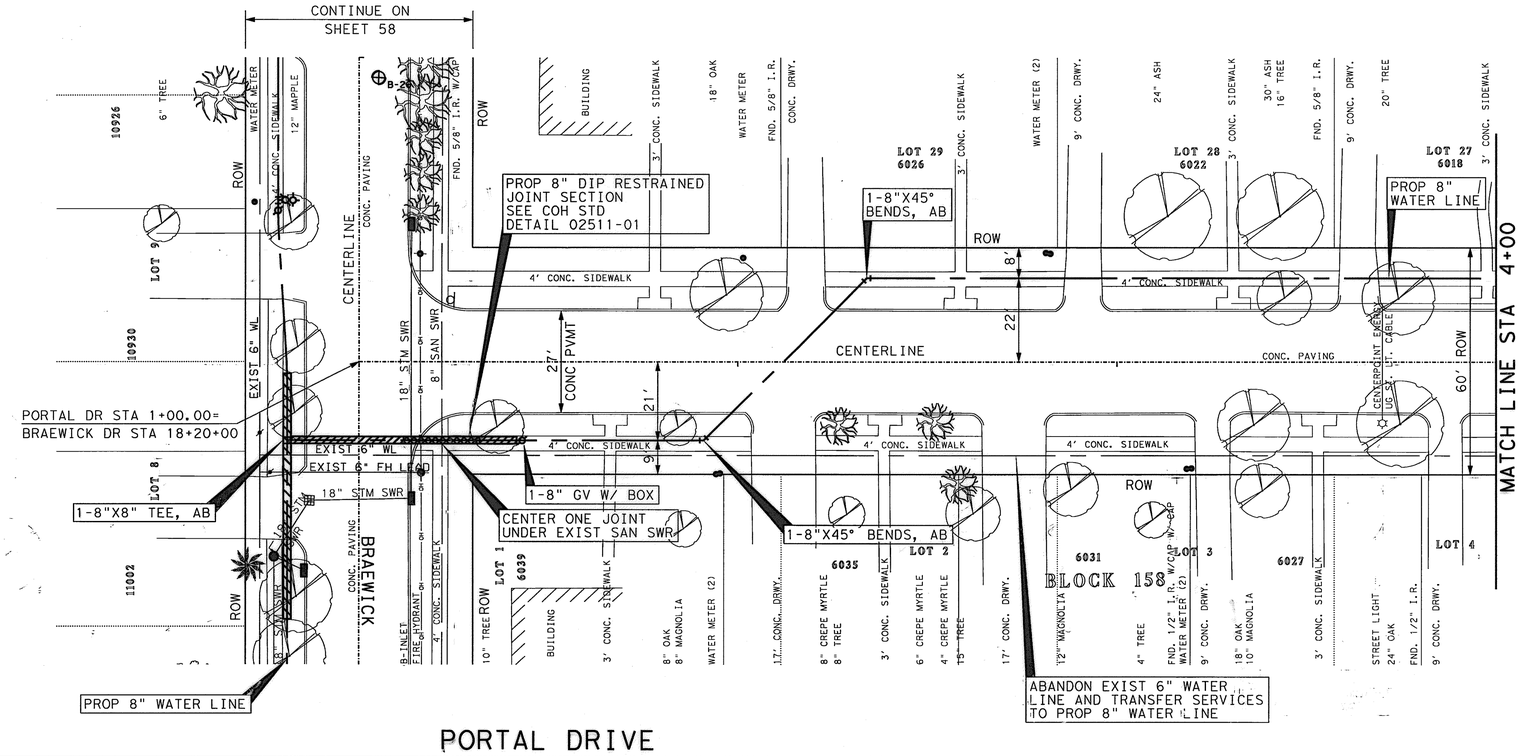
Exist bb inlet TC= 57.49 FL(18"RCP)=54.57(E)
Exist bb inlet TC= 57.52 FL(18"RCP)=54.12(NE) FL(18"RCP)=55.24(W)
Exist stm MH RIM= 57.89 FL(24"RCP)=53.37(N) FL(18"RCP)=54.38(SW) FL(24"RCP)=53.33(E)
Exist bb inlet TC= 57.80 FL(18"RCP)=53.70(SE)
Exist bb inlet TC= 57.81 FL(18"RCP)=53.76(W)
Exist stm MH RIM= 57.57 Unable to Open
Exist bb inlet TC= 58.12 FL(18"RCP)=55.07(E)
Exist bb inlet TC= 58.08 FL(18"RCP)=54.28(E) FL(18"RCP)=54.68(W)
Exist stm MH RIM= 58.61 FL(18"RCP)=54.47(N) FL(24"RCP)=54.27(S) FL(18"RCP)=54.49(W)
Exist Grate inlet TOC= 57.51 FL(18"RCP)=54.57(S)

ROW (E) ROW (W) TOC (W) TOC (E)
18" STM. SWR 24" STM. SWR. (E) 24" STM. SWR. 18" STM. SWR. EXIST 8" WL EXIST FH LEAD EXIST 16" WL
4' MIN COVER
1' MIN CLR 2' MIN CLR CENTERPOINT ENERGY 4" STL GAS LINE EXIST 6" WL
CONNECT TO EXIST 8" WATER LINE
2-8"X45°RJ BENDS, AB
PROP 8" WATER LINE WITH RESTRAINED JOINT PLACE ONE 18' FULL SECTION OVER EXIST SAN SEW
8" SAN. SWR.
PROP 8" WATER LINE PROP 8" WATER LINE

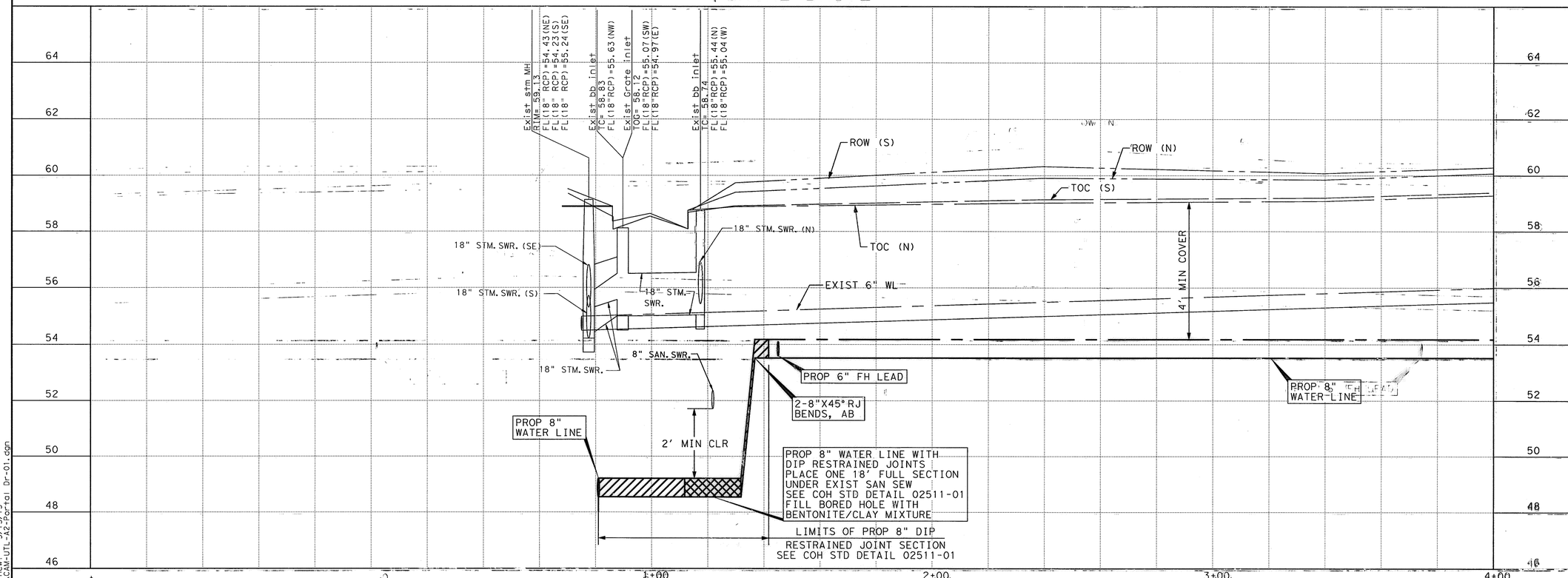
64 62 60 58 56 54 52 50 48 46
9+00 10+00 11+00 12+00 13+00

12:02:04 PM 9/13/13
mcline
...\CAM-UTL-A2-Kirkside Dr-01.dgn

CAM-UTL-A2-Kirkside Dr-01.dgn



PORTAL DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J53, SET CUT X
1+22.47, 17.93
ELEV 58.76

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
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Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/6/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
PORTAL DRIVE
BEGIN TO STA 4+00

SHEET 1 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 67 OF 151	

12:02:06 PM 9/13/13
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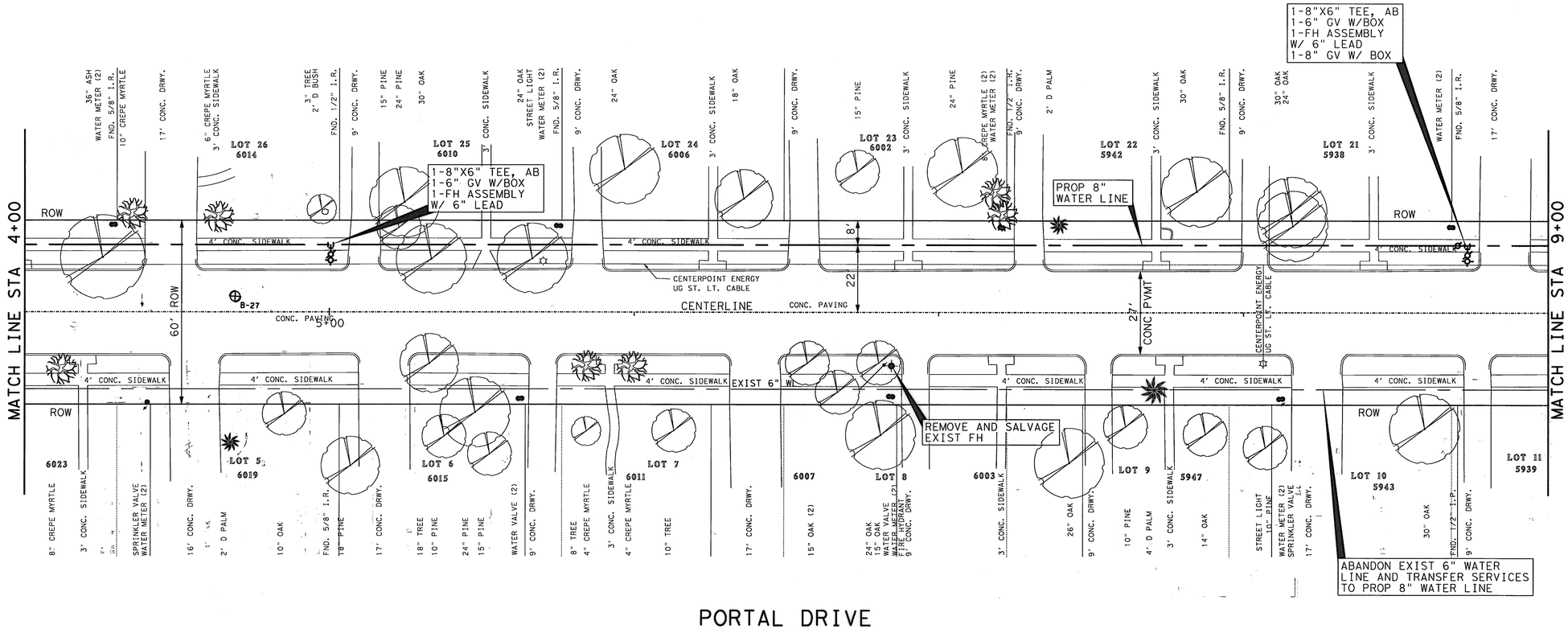
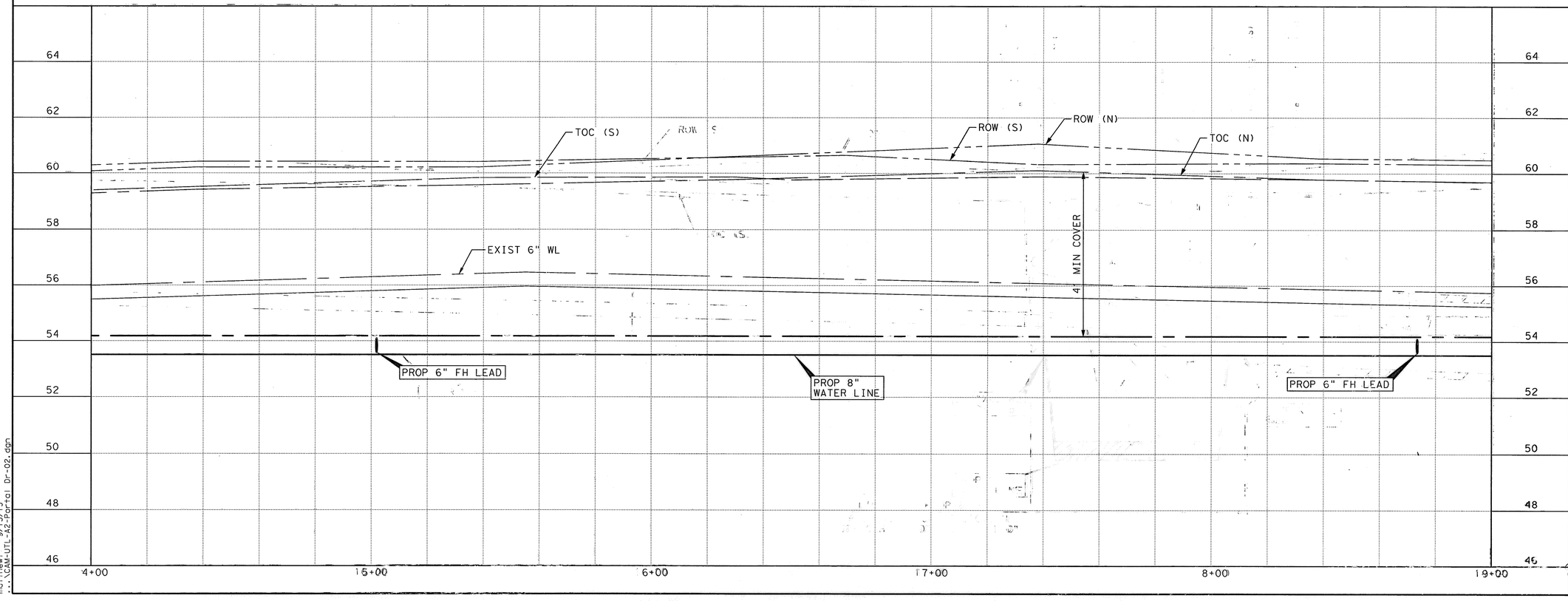
CAM-UTL-A2-Portal Dr-01.dgn



PORTAL DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J52, SET CUT X
6+93.94, -23.33
ELEV 60.59

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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PRIVATE UTLITY LINES SHOWN

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CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
PORTAL DRIVE
STA 4+00 TO STA 9+00
SHEET 2 OF 4

WRS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 68 OF 151	51277

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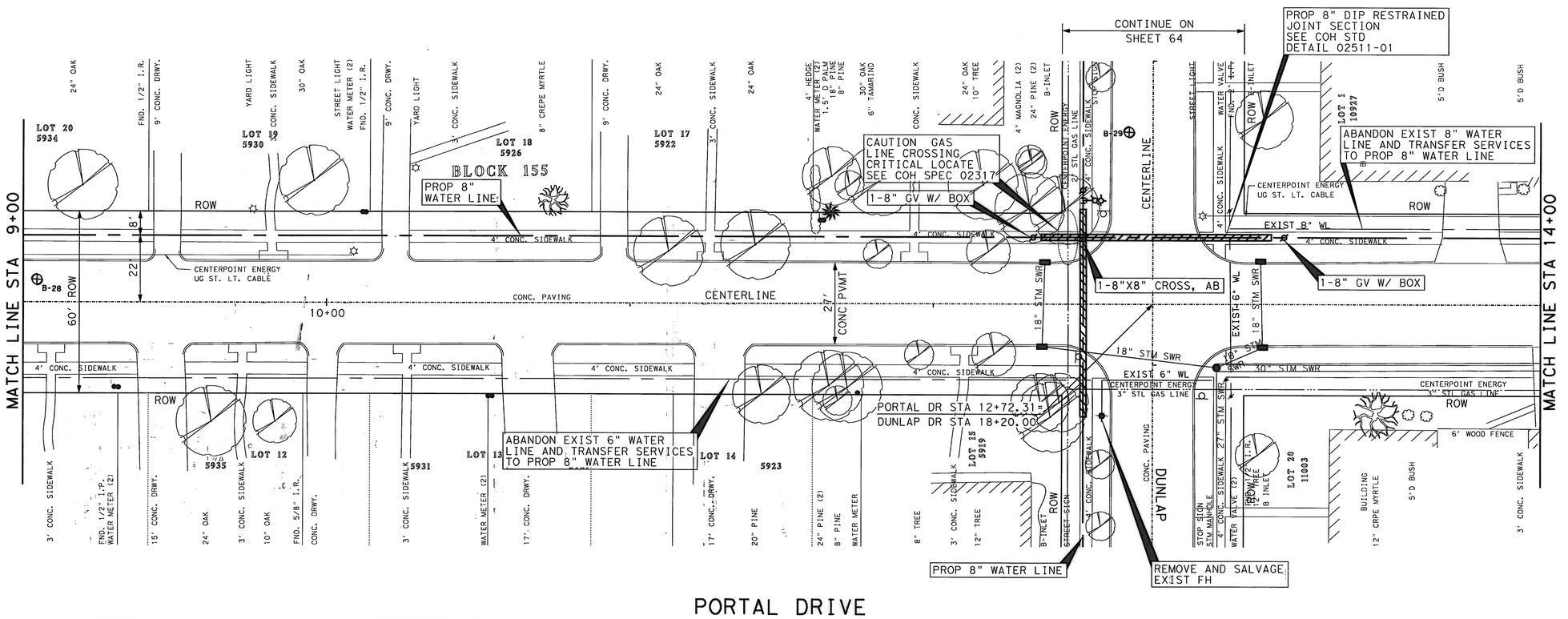
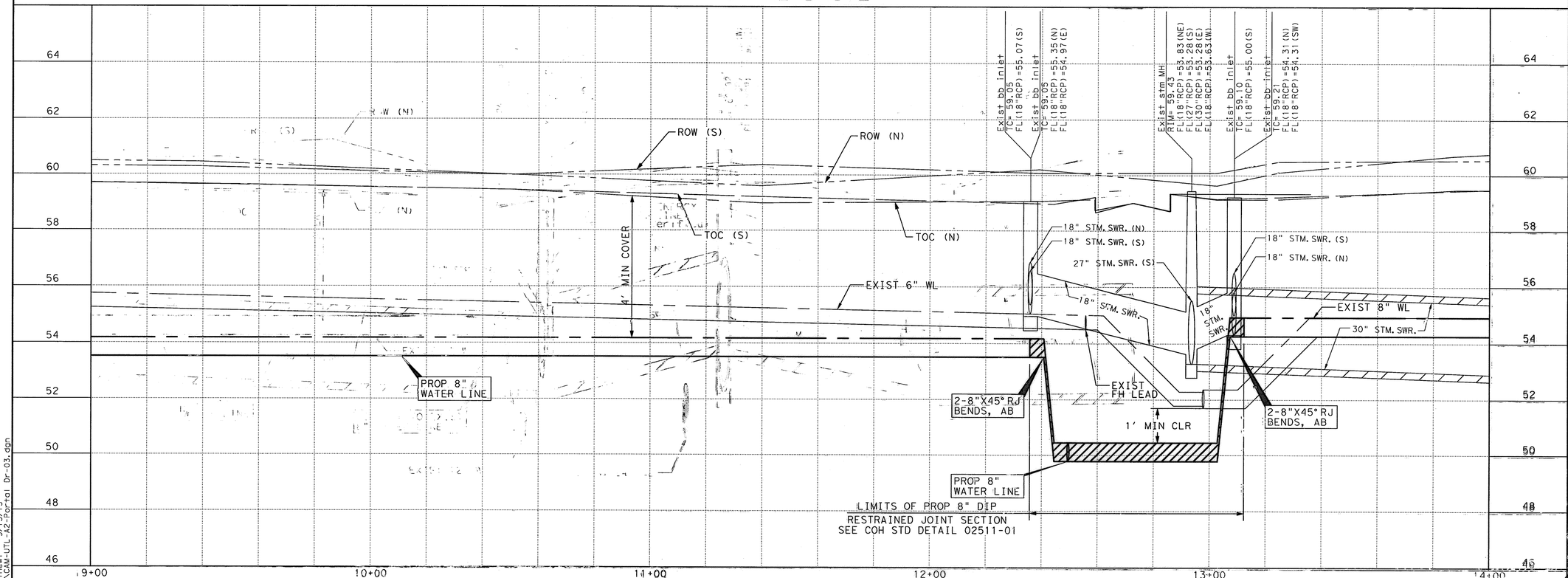
CAM-UTL-A2-Portal Dr-02.dgn



PORTAL DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J51, SET CUT X
12+96.15, 23.11
ELEV 59.44

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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PRIVATE UTLITY LINES SHOWN

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Date: 9/18/13
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Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. LU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE PORTAL DRIVE
STA. 9+00 TO STA 14+00

SHEET 3 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 69 OF 151	

51277

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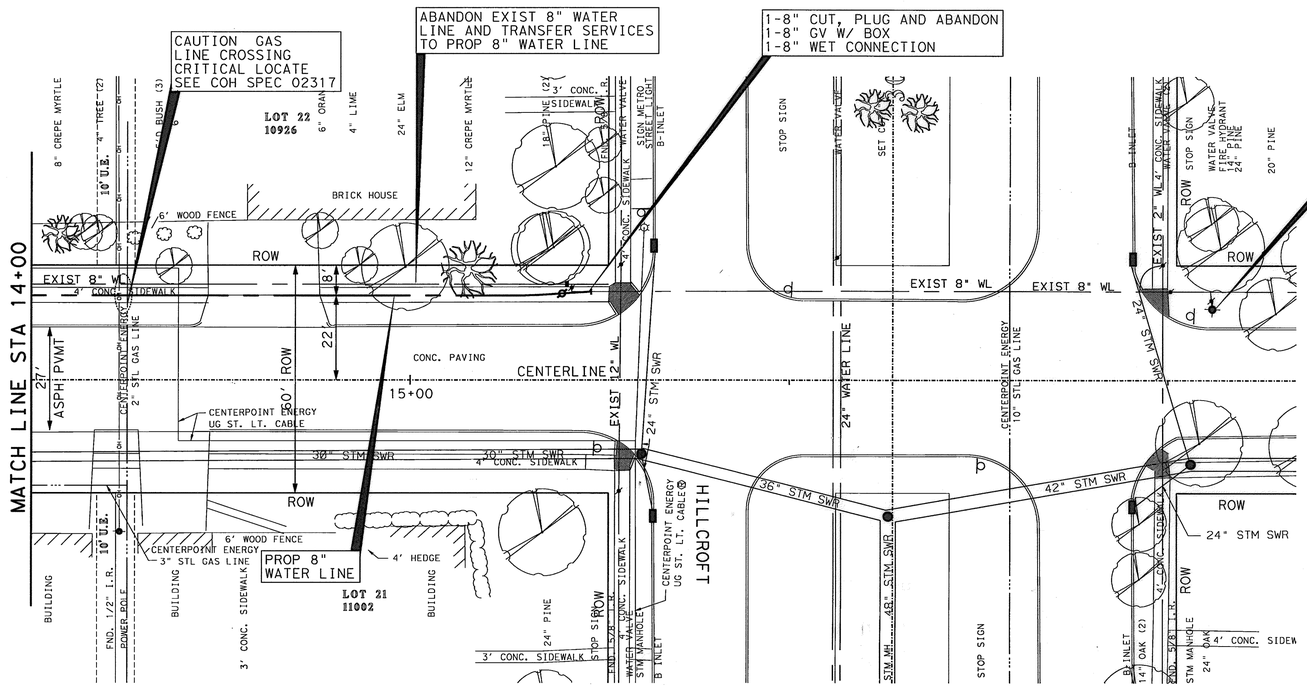
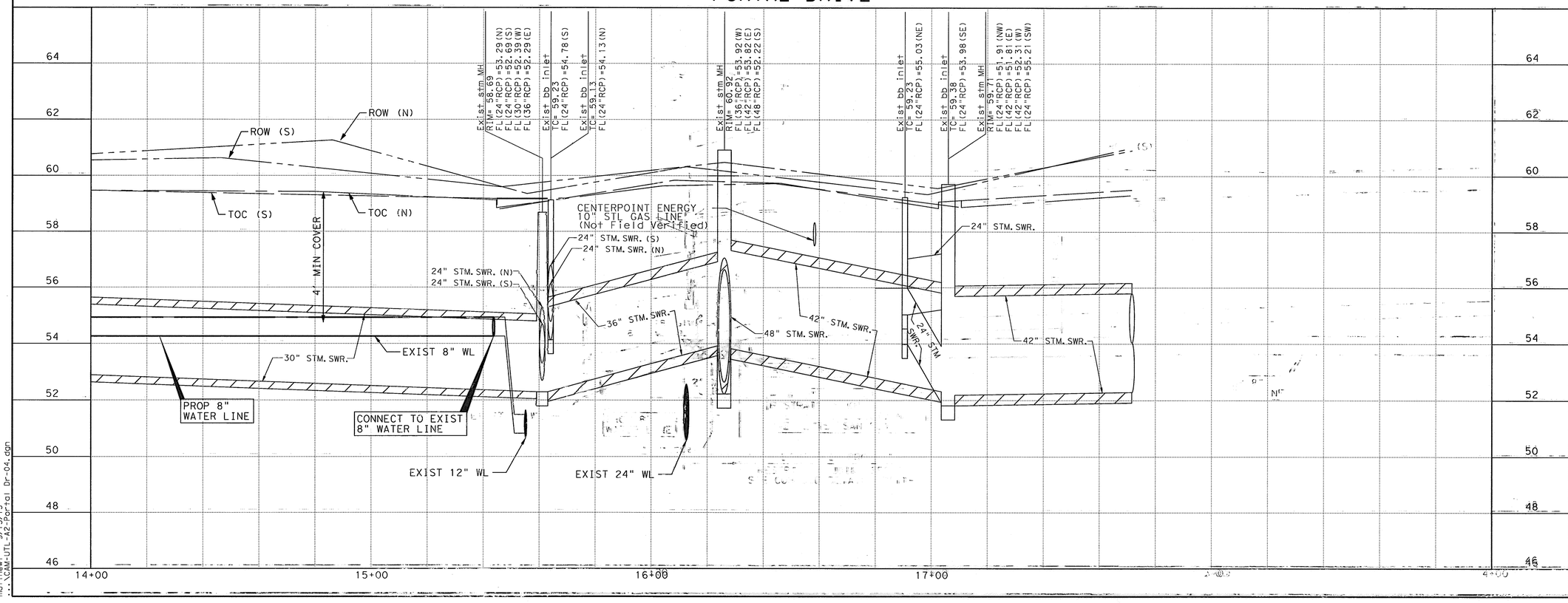
CAM-UTL-A2-Portal Dr-03.dgn



PORTAL DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- B-X BOREHOLE LOCATION

CP-J59, SET CUT X
16+24.86, -17.51
ELEV 59.61

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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PRIVATE UTLITY LINES SHOWN

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CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE PORTAL DRIVE
STA 14+00 TO END

SHEET 4 OF 4

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 70 OF 151	51277

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matthew! \CAM-UTL-A2-Portal Dr-04.dgn

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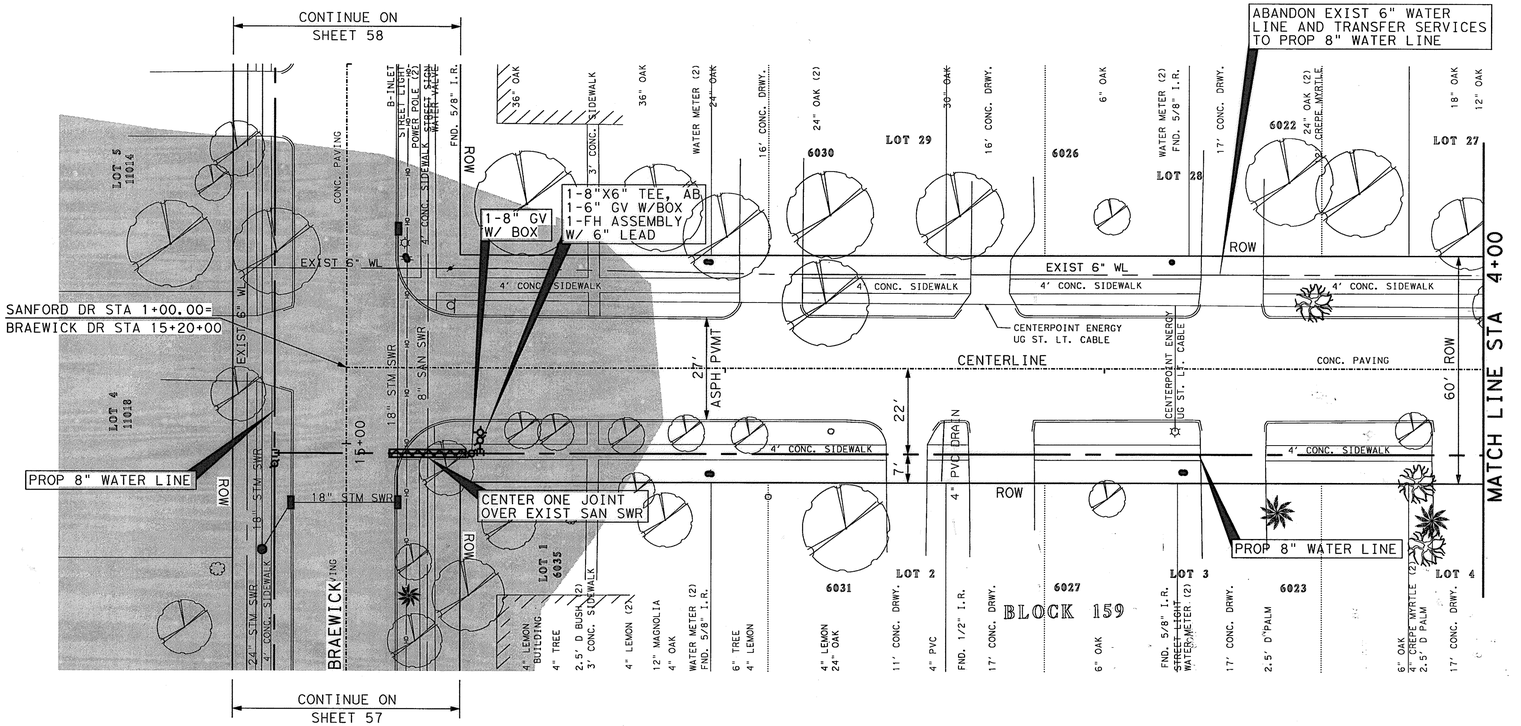
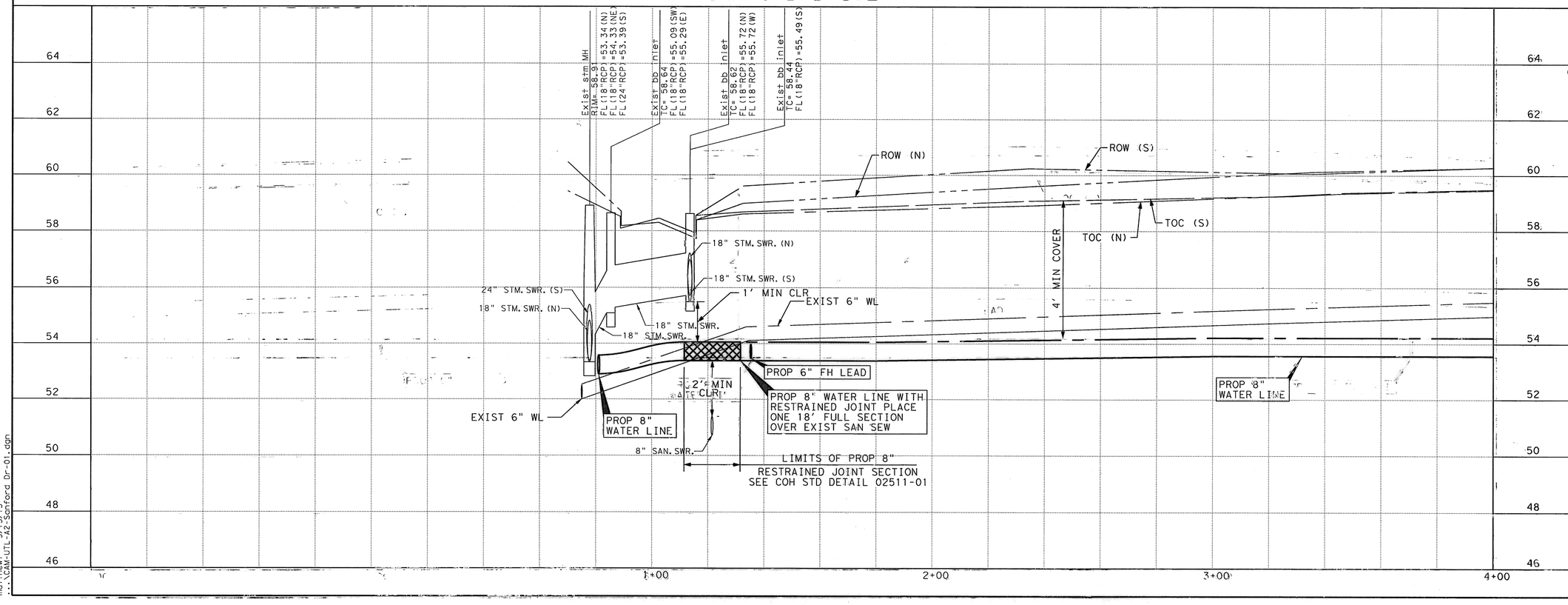


SANFORD DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J48, SET 1/2 IR W/ CAP
OFF CHAIN, OFF CHAIN
ELEV 58.91

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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CABLE COMPANY

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Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE SANFORD DRIVE
BEGIN TO STA 4+00

SHEET 1 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 71 OF 151	

12:02:17 PM 9/13/13
mstrow
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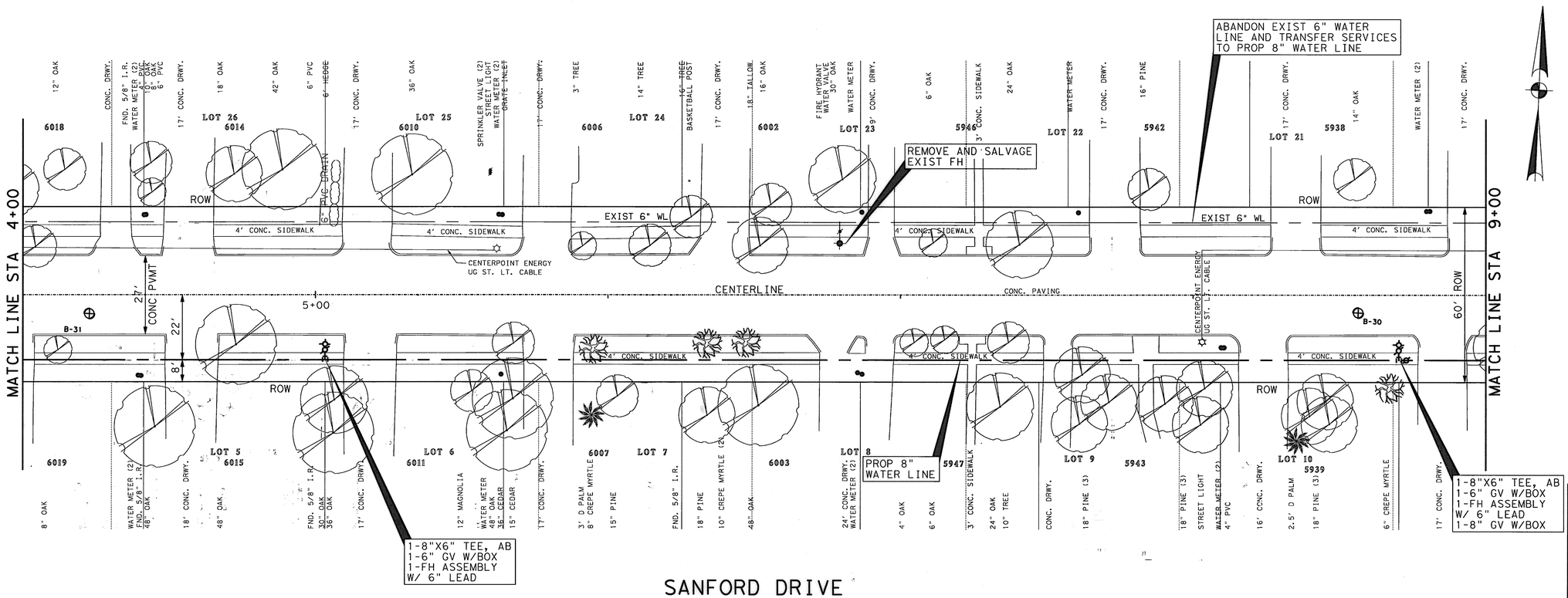
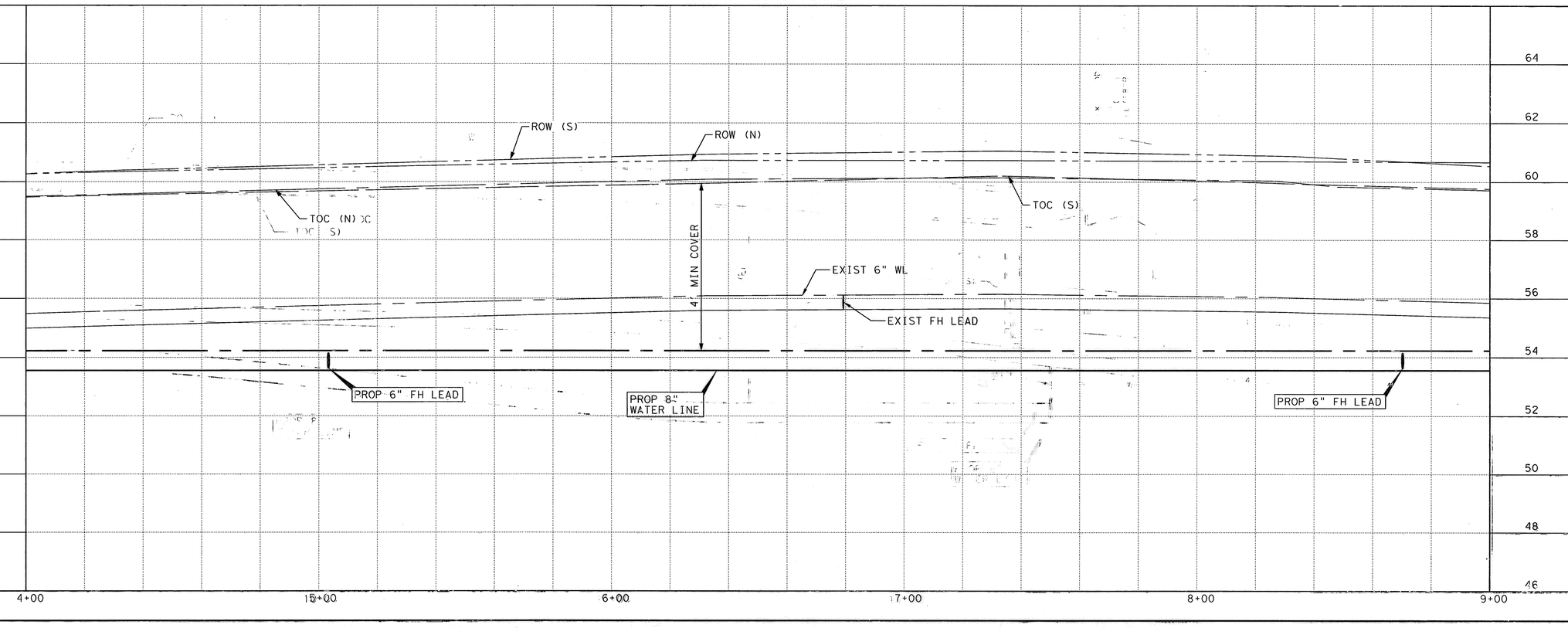
CAM-UTL-A2-Sanford Dr-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J49, SET 1/2 IR W/ CAP
6+11.35, 16.95
ELEV 60.21

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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Diana C. Ward — Date: 9/18/13
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CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS — STEPHEN K. YU — 67965 — REGISTERED PROFESSIONAL ENGINEER
9-12-13

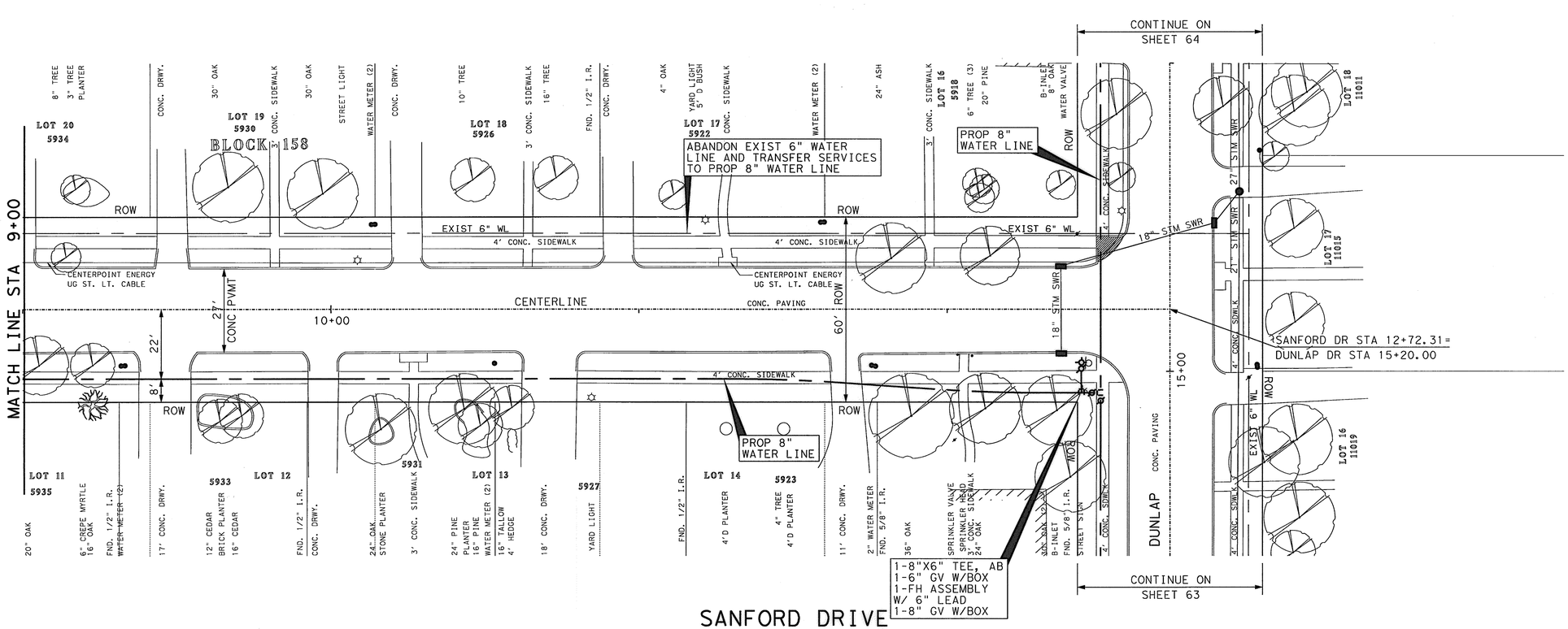
SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
SANFORD DRIVE
STA 4+00 TO STA 9+00
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 72 OF 151	

12:02:19 PM
m:\projects\CAM-UTL-A2-Sanford Dr-02.dgn
CAM-UTL-A2-Sanford Dr-02.dgn



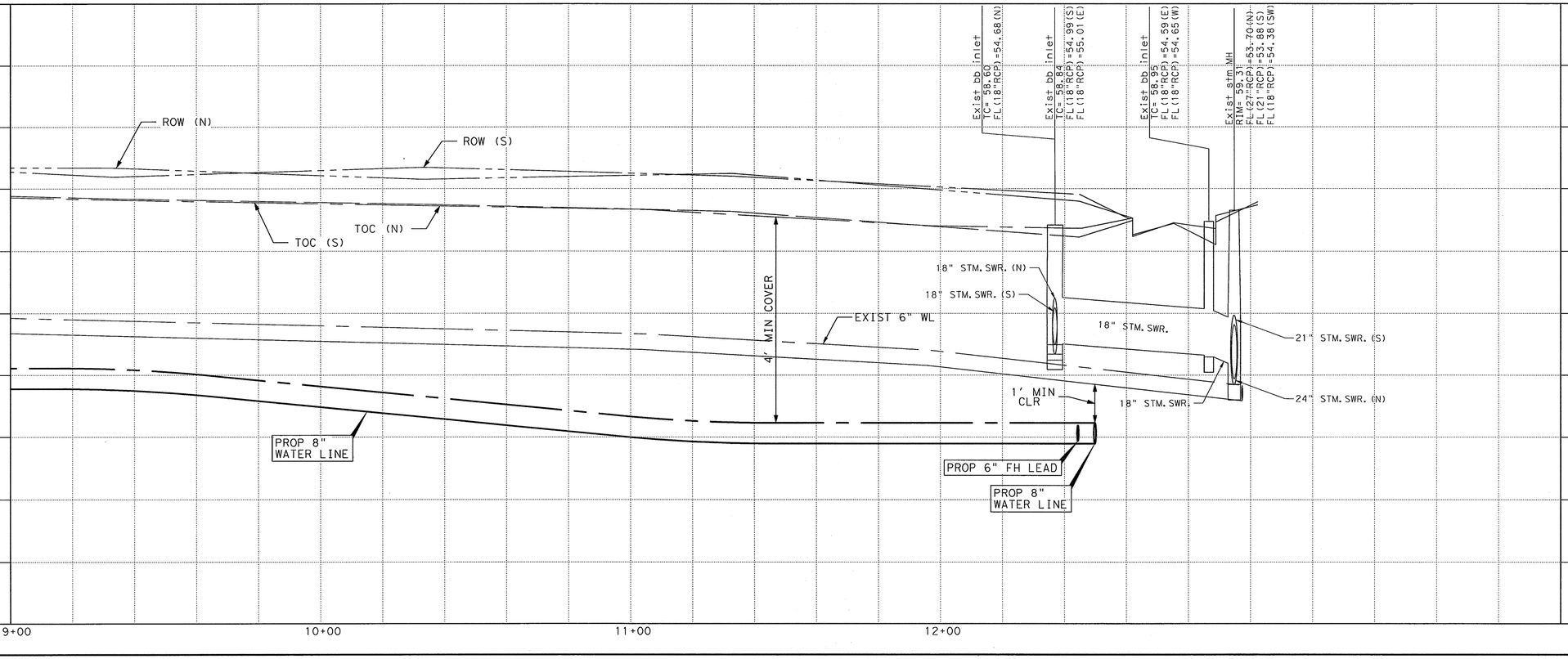
LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

CP-J50, SET CUT X
OFF CHAIN, OFF CHAIN
ELEV 59.16

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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



PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED
PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

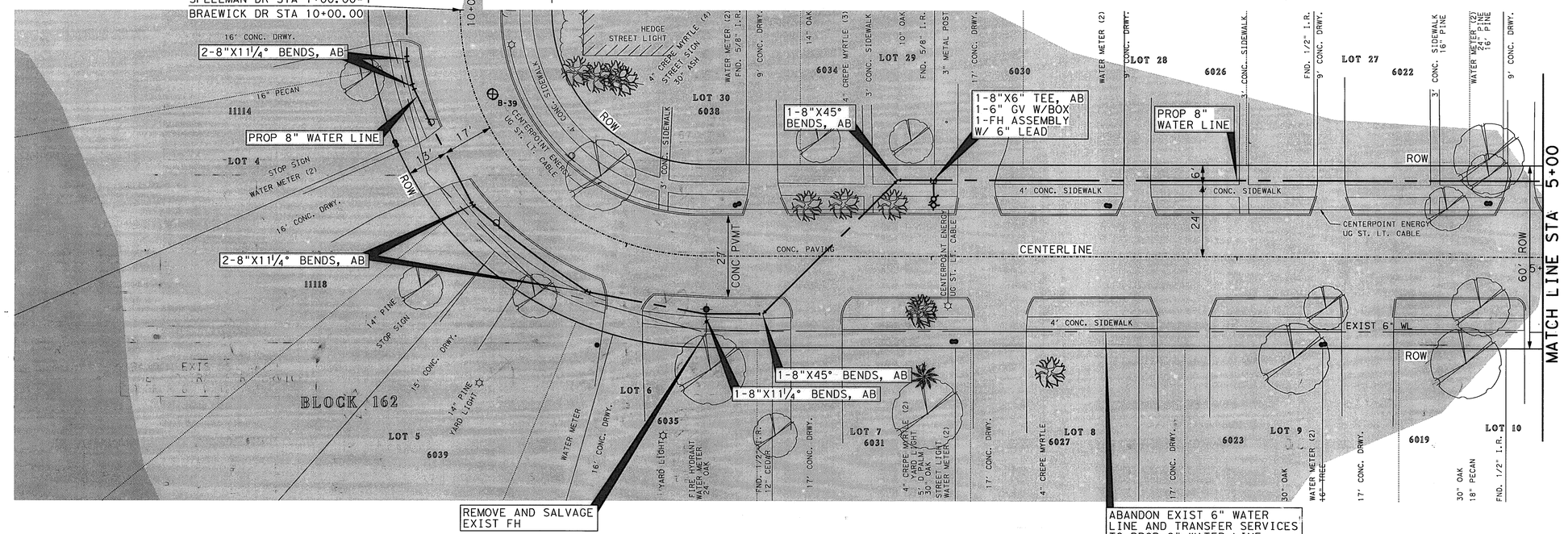
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
SANFORD DRIVE
STA 9+00 TO END

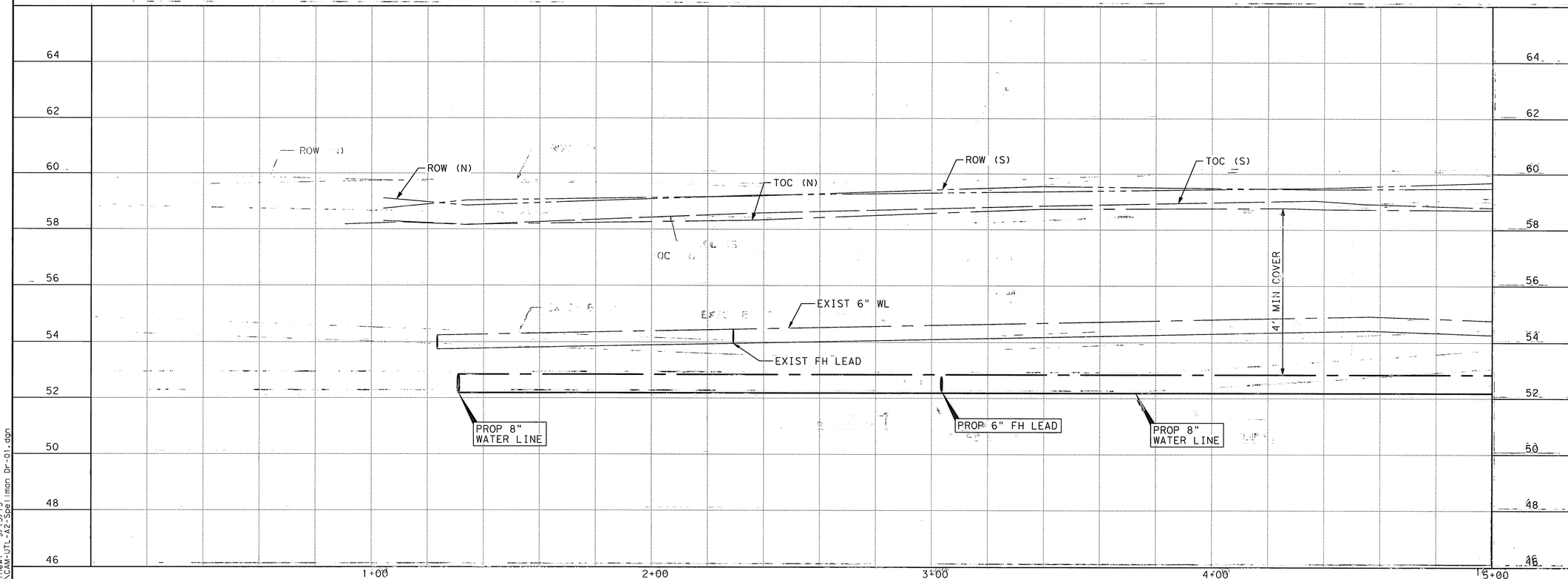
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 73 OF 151	

9:13:48 AM matthew! 9/17/13
..\CAM-UTL-A2-Sanford Dr-03.dgn



SPELLMAN DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J47, SET CUT X
1+61.36, 23.5
ELEV 58.89

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88′
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

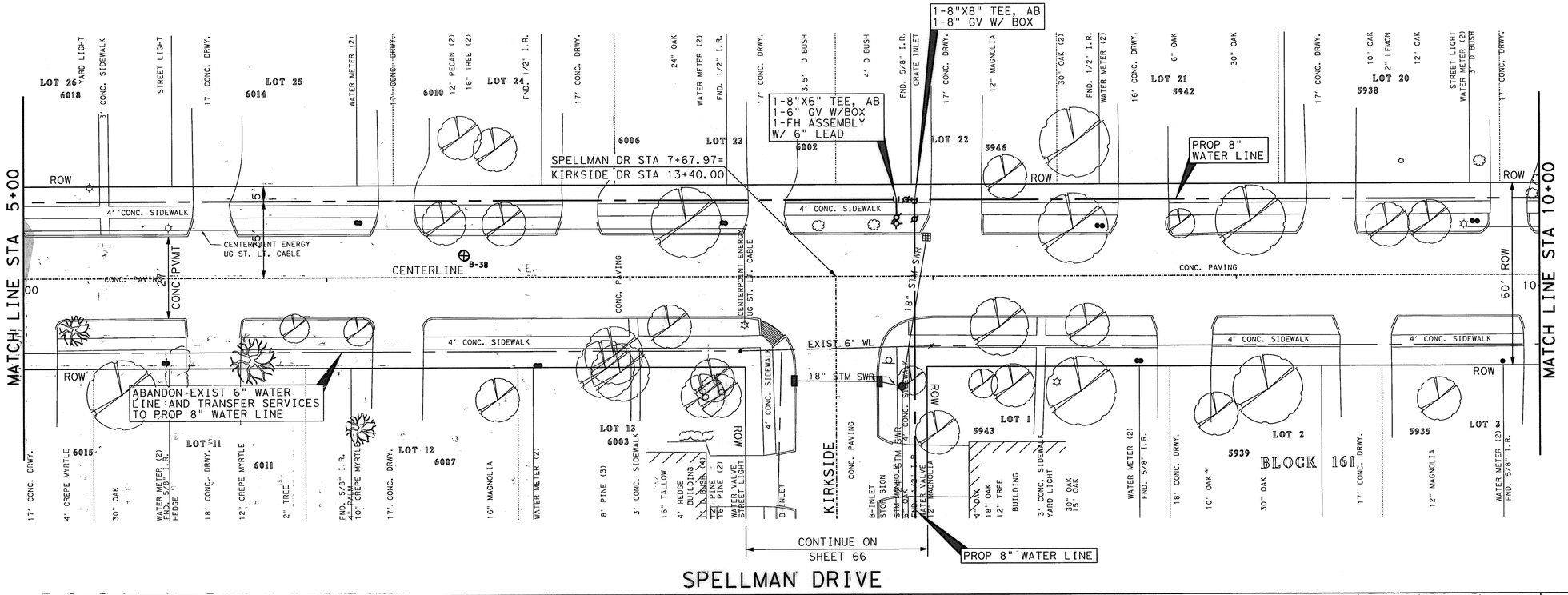
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

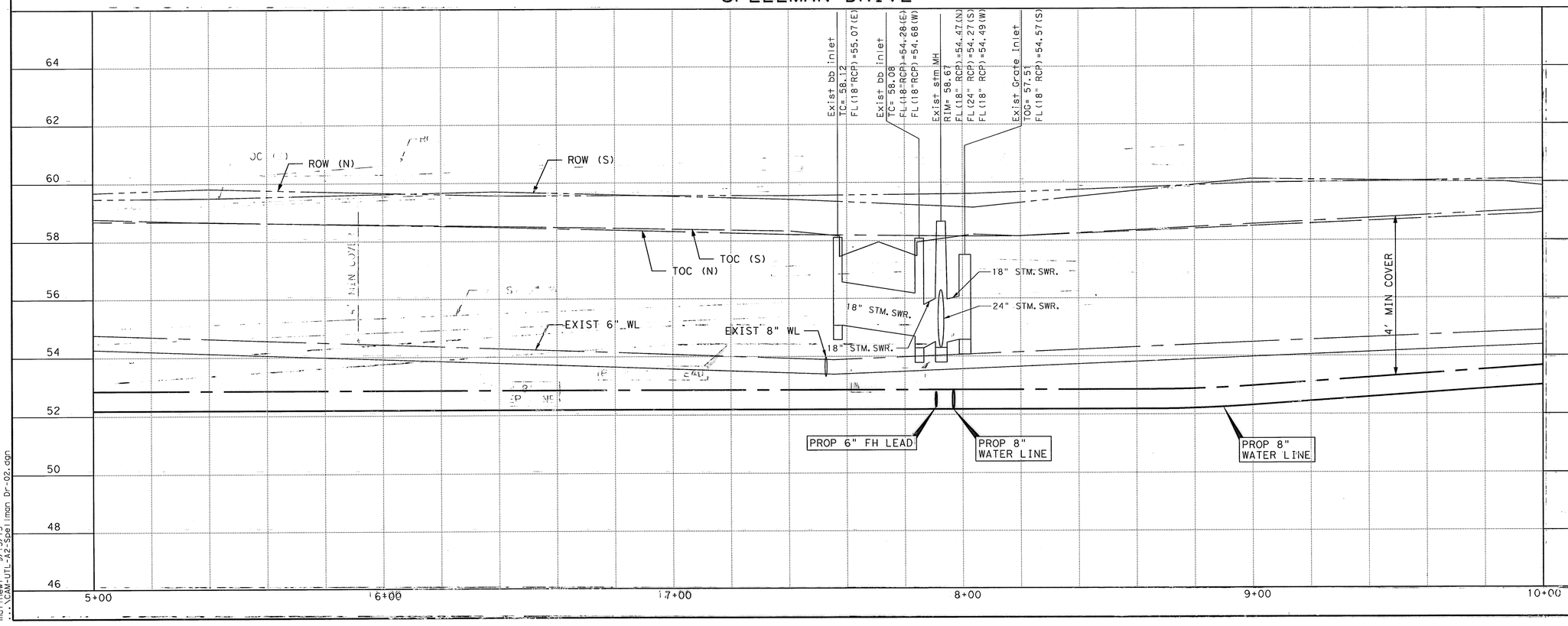
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
SPELLMAN DRIVE
BEGIN TO STA 5+00
SHEET 1 OF 3

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20′ (H); 1"=2′ (V)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 74 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

12:02:29 PM 9/13/13
mcarthew
...\CAM-UTL-A2-Spellman Dr-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J42, SET CUT X
7+89.22, 22.56
ELEV 58.18

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/10/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/10/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
LICENSED PROFESSIONAL ENGINEER
9-13-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE SPELLMAN DRIVE
STA: 5+00 TO STA 10+00

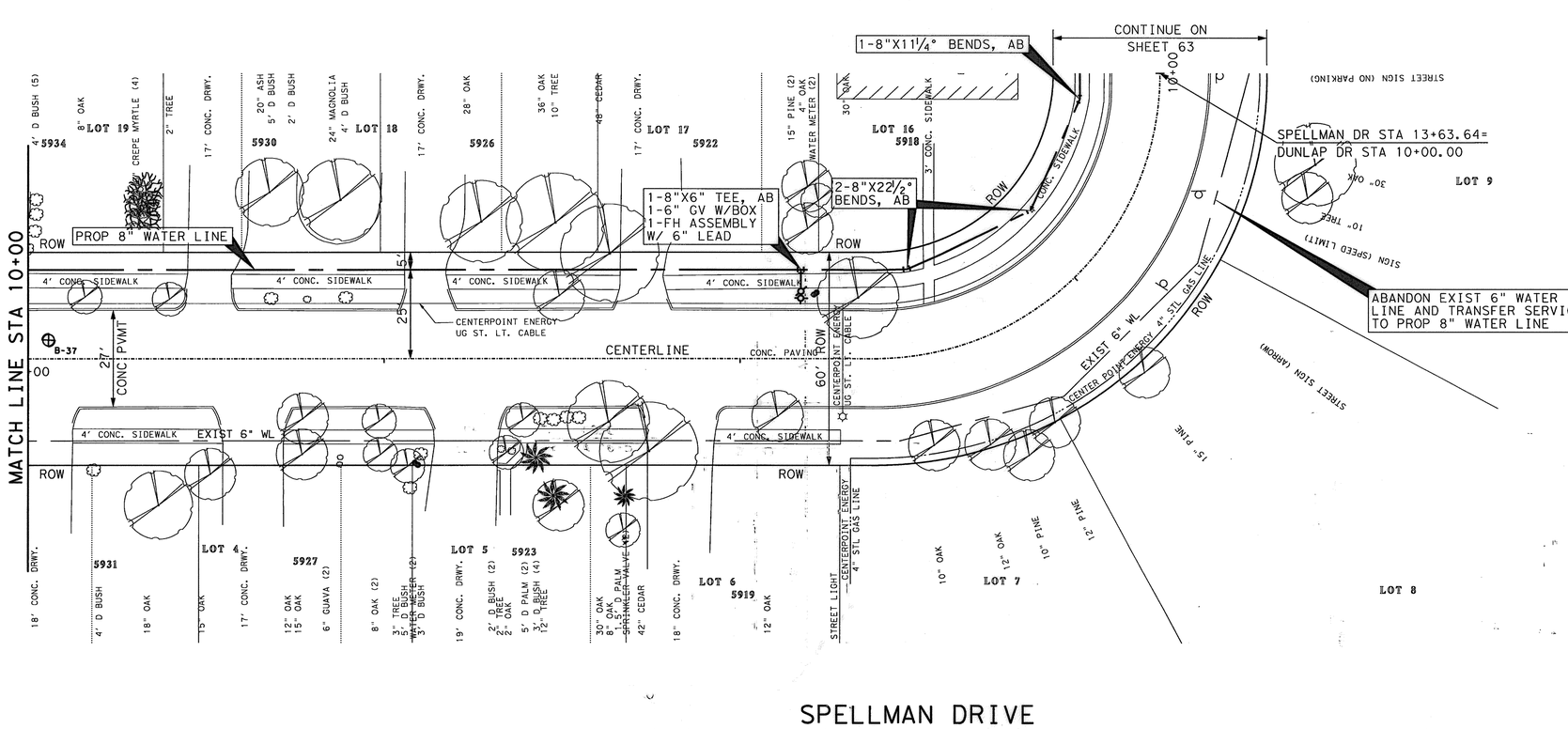
SHEET 2 OF 3

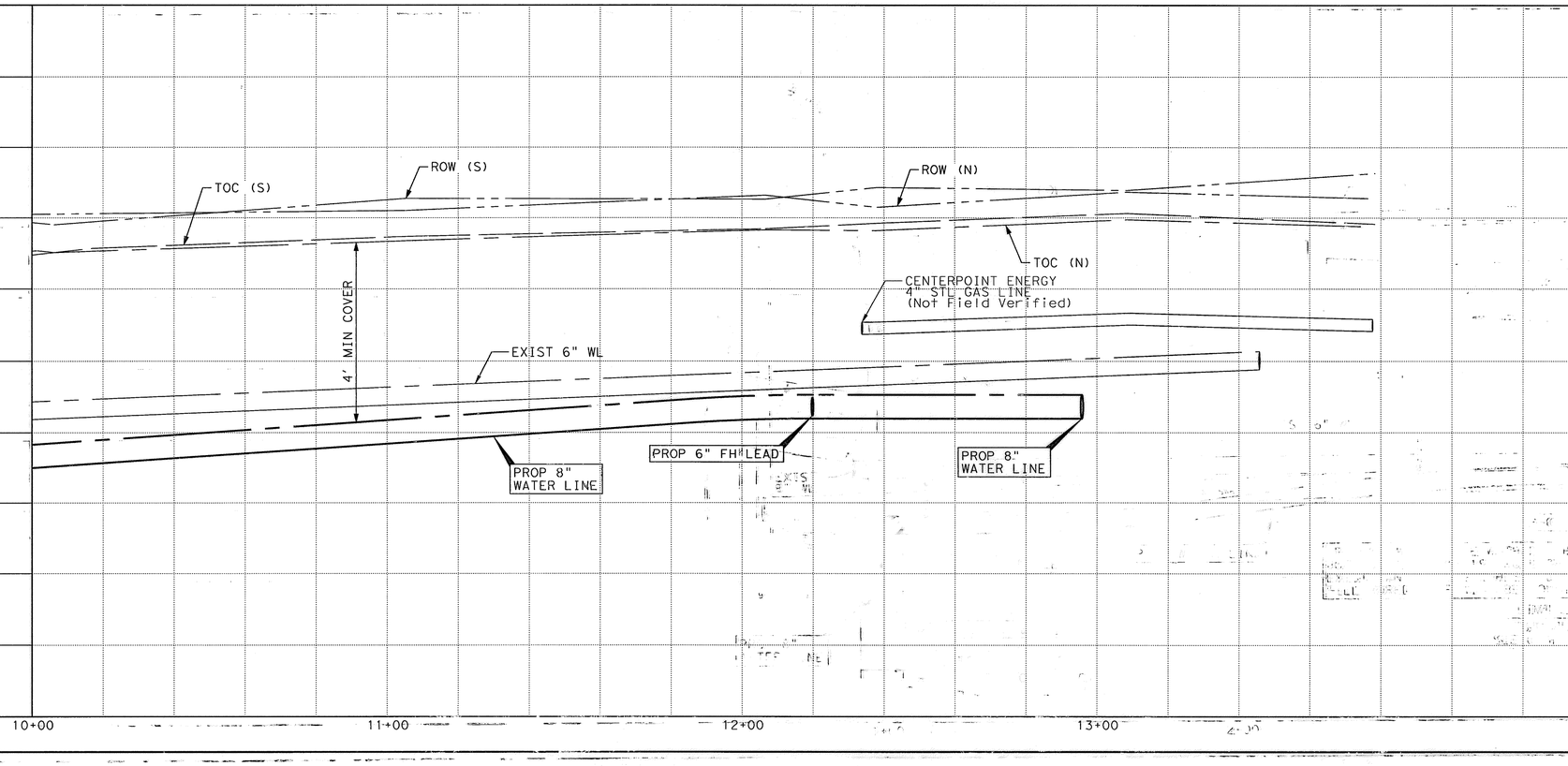
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-186-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 75 OF 151	

51277

12:02:32 PM
matthew 9/13/13
...\CAM-UTL-A2-Spellman Dr-02.dgn

CAM-UTL-A2-Spellman Dr-02.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J43, SET 1/2 IR W/ CAP
13+31.91, 18.89
ELEV 60.15

BENCH MARK:
CITY OF HOUSTON MARKER
5153 / 0205 LOCATED AT IN MEDIAN OF HILLCROFT ON THE SOUTH SIDE OF PORTAL ST
ELEV 59.88'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year. Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

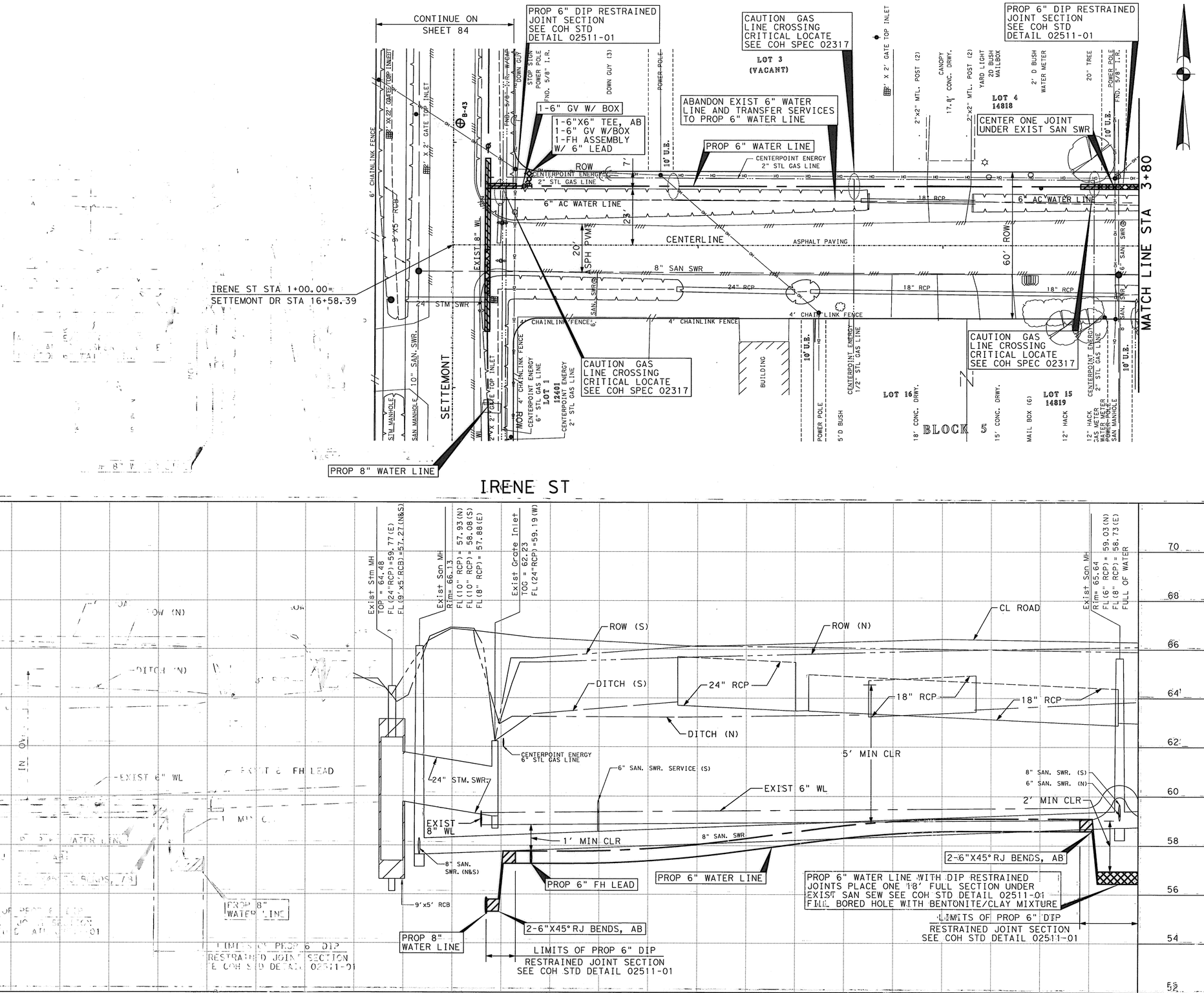
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
SPELLMAN DRIVE
STA 10+00 TO END
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 76 OF 151	51277

12:02:34 PM
matthewl
...\CAM-UTL-A2-Spellman Dr-03.dgn

CAM-UTL-A2-Spellman Dr-03.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J13, SET MAG NAIL
OFF CHAIN, OFF CHAIN
ELEV 66.11

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
IRENE STREET
BEGIN TO STA 3+80

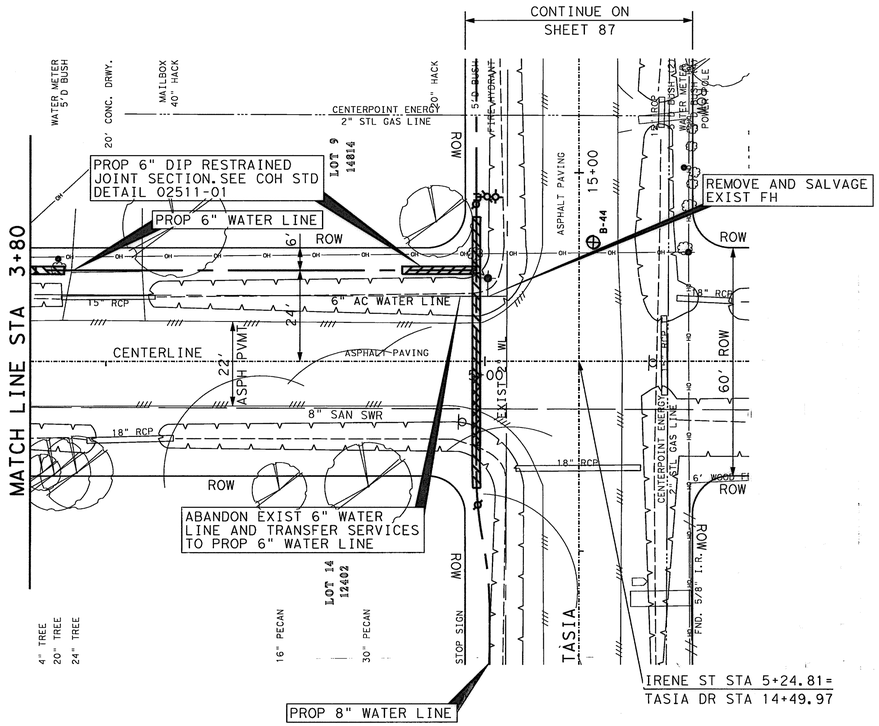
SHEET 1 OF 2

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	77 OF 151

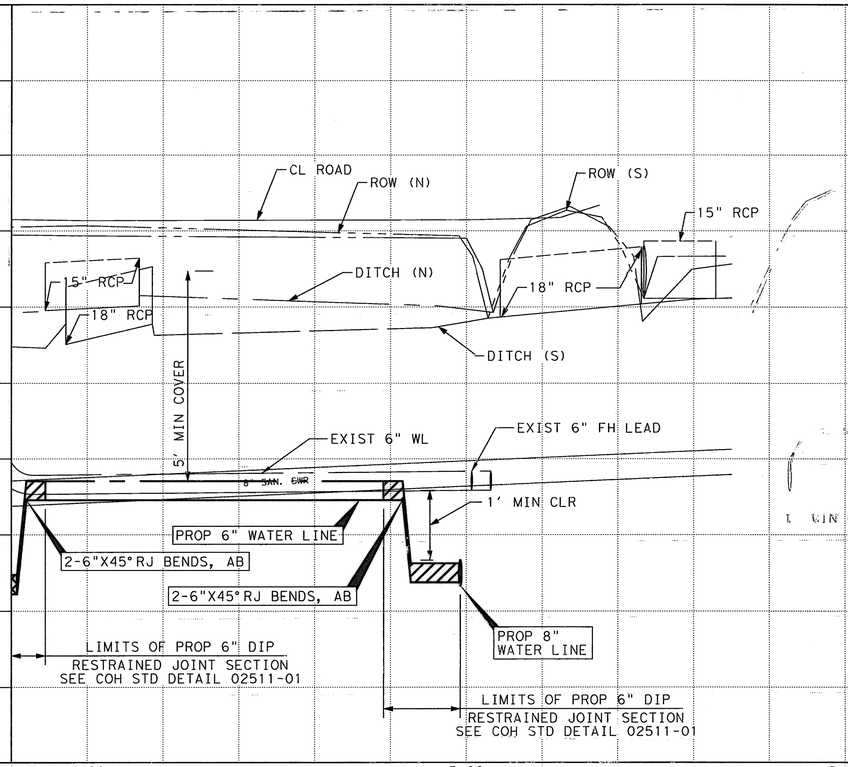
FOR CITY OF HOUSTON USE ONLY
51277

12:02:38 PM 9/13/13
matthewl
...\CAM-UTL-A3-Irene St-01.dgn

CAM-UTL-A3-Irene St-01.dgn



IRENE ST



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J10, SET 1/2 IR W/ CAP
5+40.10, -15.06
ELEV 65.18

BENCH MARK:
CITY OF HOUSTON MARKER
5051 // 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/19/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

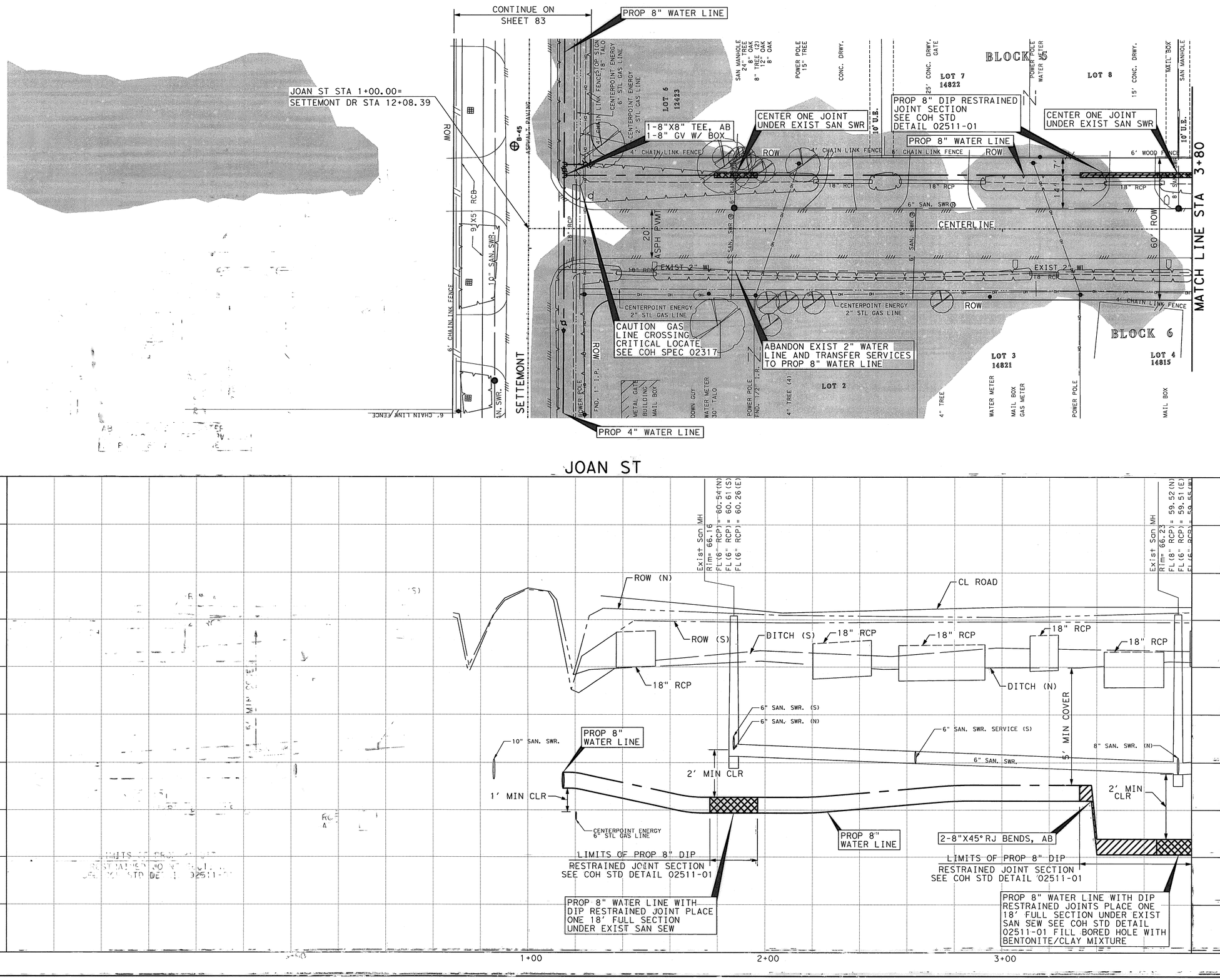
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
IRENE STREET
STA 3+80 TO END
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 78 OF 151	

51277

12:02:42 PM 9/13/13
matthew! ...\CAM-UTL-A3-Irene St-02.dgn

CAM-UTL-A3-Irene St-02.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J12, SET MAG NAIL
OFF CHAIN, OFF CHAIN
ELEV 67.01

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-8825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

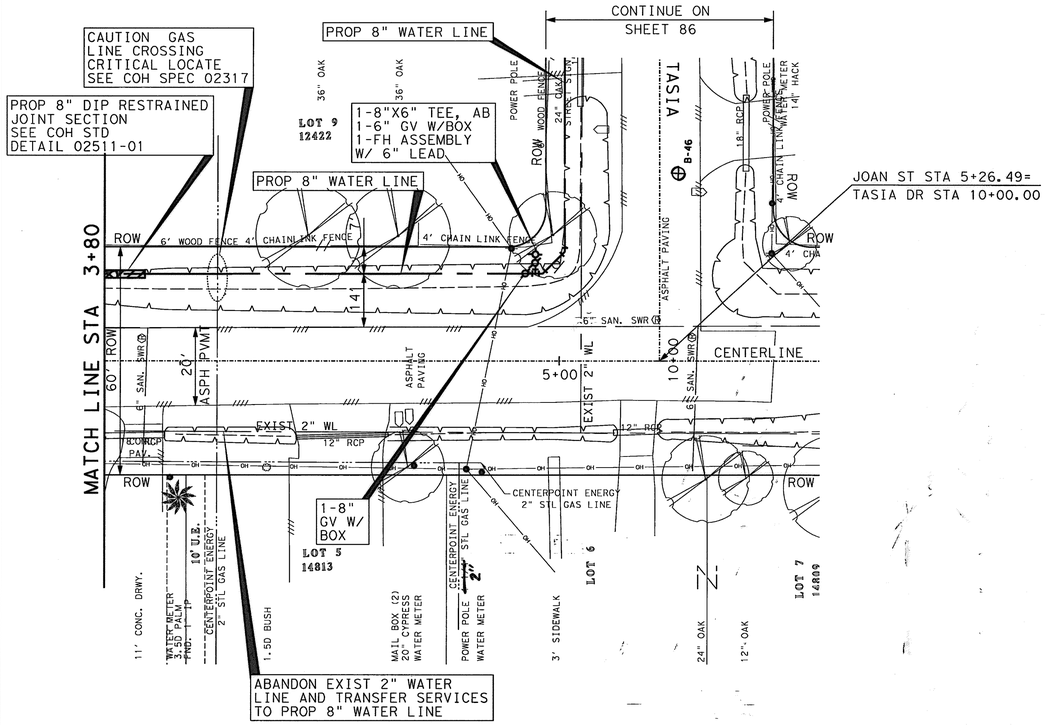
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
JOAN STREET
BEGIN TO STA 3+80

SHEET 1 OF 2

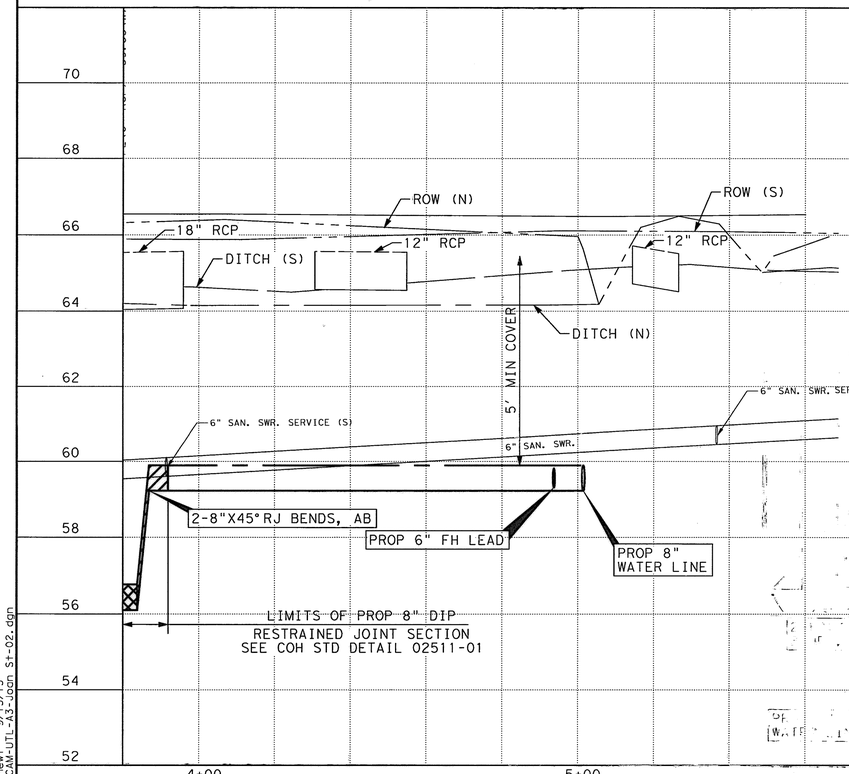
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	51277
JOHN MSIGWA, P.E.	
SHEET NO. 79 OF 151	

12:02:45 PM
matthew1
...\CAM-UTL-A3-Joan St-01.dgn

CAM-UTL-A3-Joan St-01.dgn



JOAN ST



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- B-X BOREHOLE LOCATION

TBM:
CP-J11, SET MAG NAIL
5+39.91, -12.28
ELEV 66.16

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

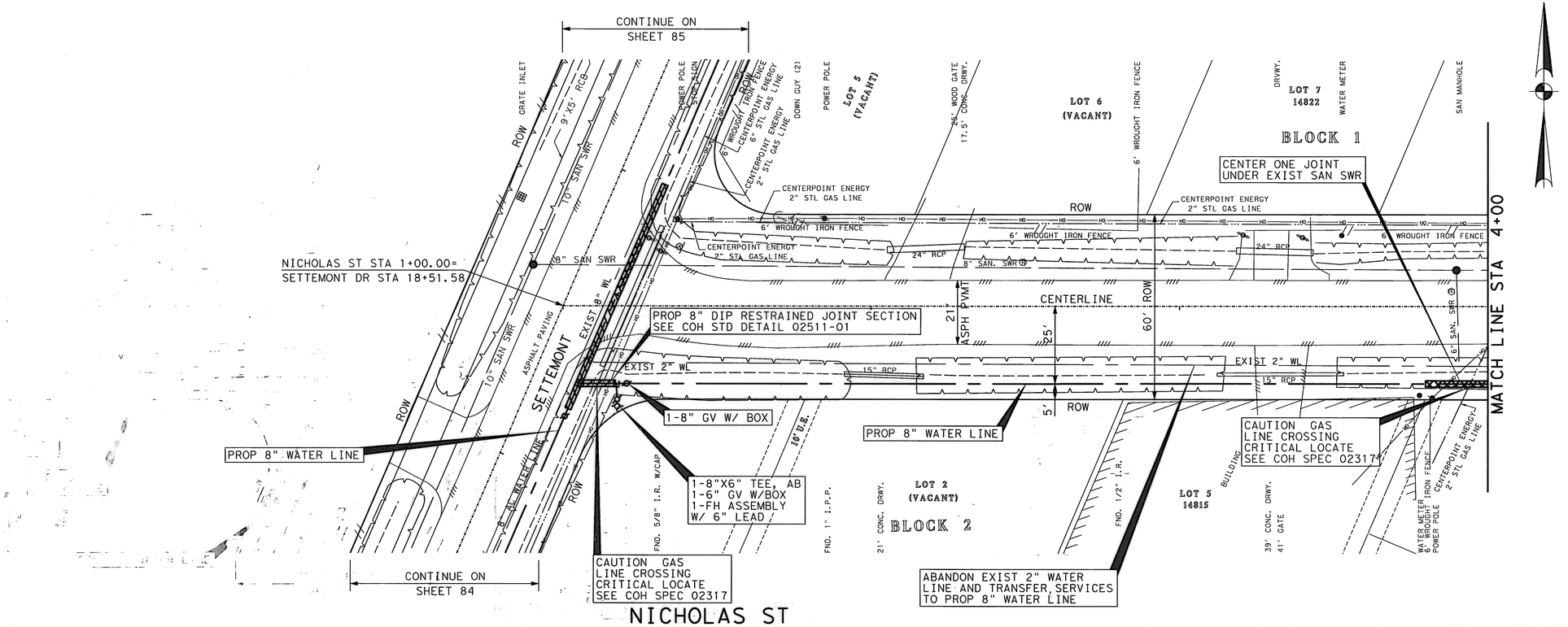
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
JOAN STREET
STA 3+80 TO END
SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 80 OF 151	

12:02:47 PM
matthewl 9/13/13
...\CAM-UTL-A3-Joan St-02.dgn

CAM-UTL-A3-Joan St-02.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J8, SET 1/2 IR W/ CAP
OFF CHAIN, OFF CHAIN
ELEV 65.63

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

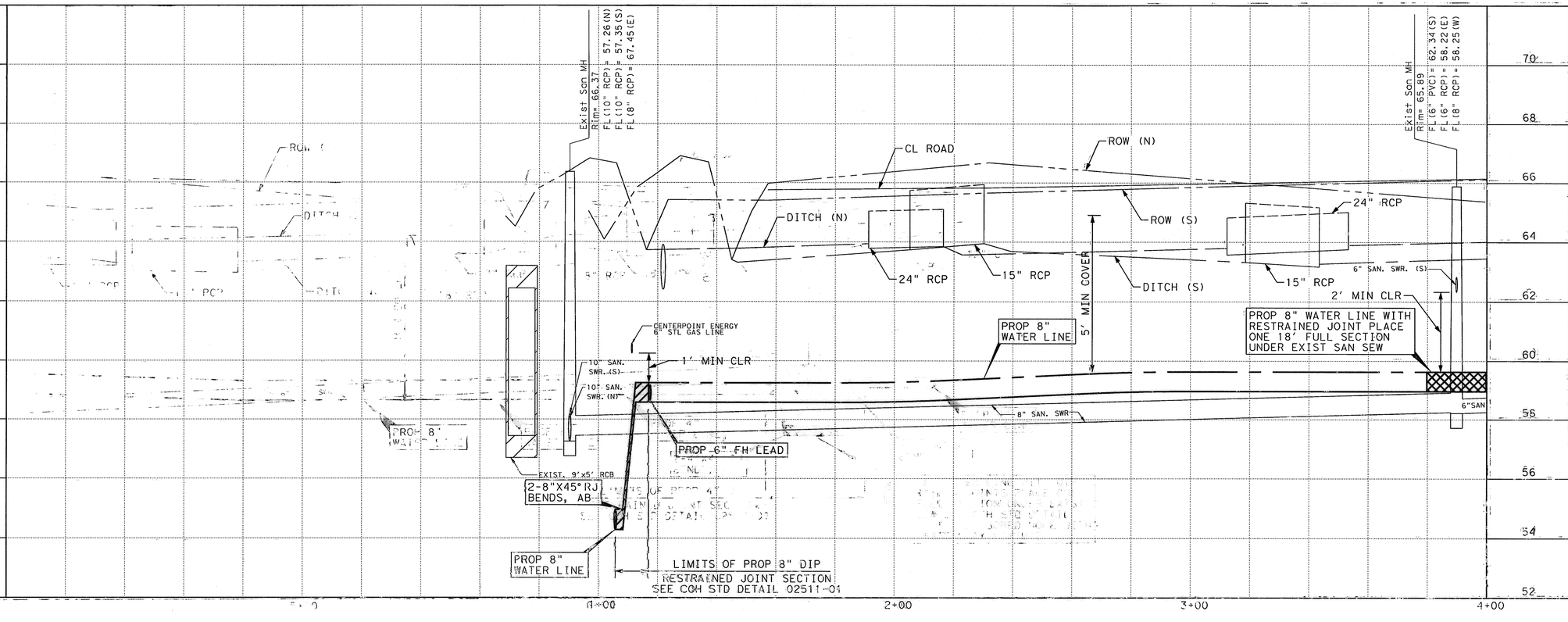
PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY



IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-10-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

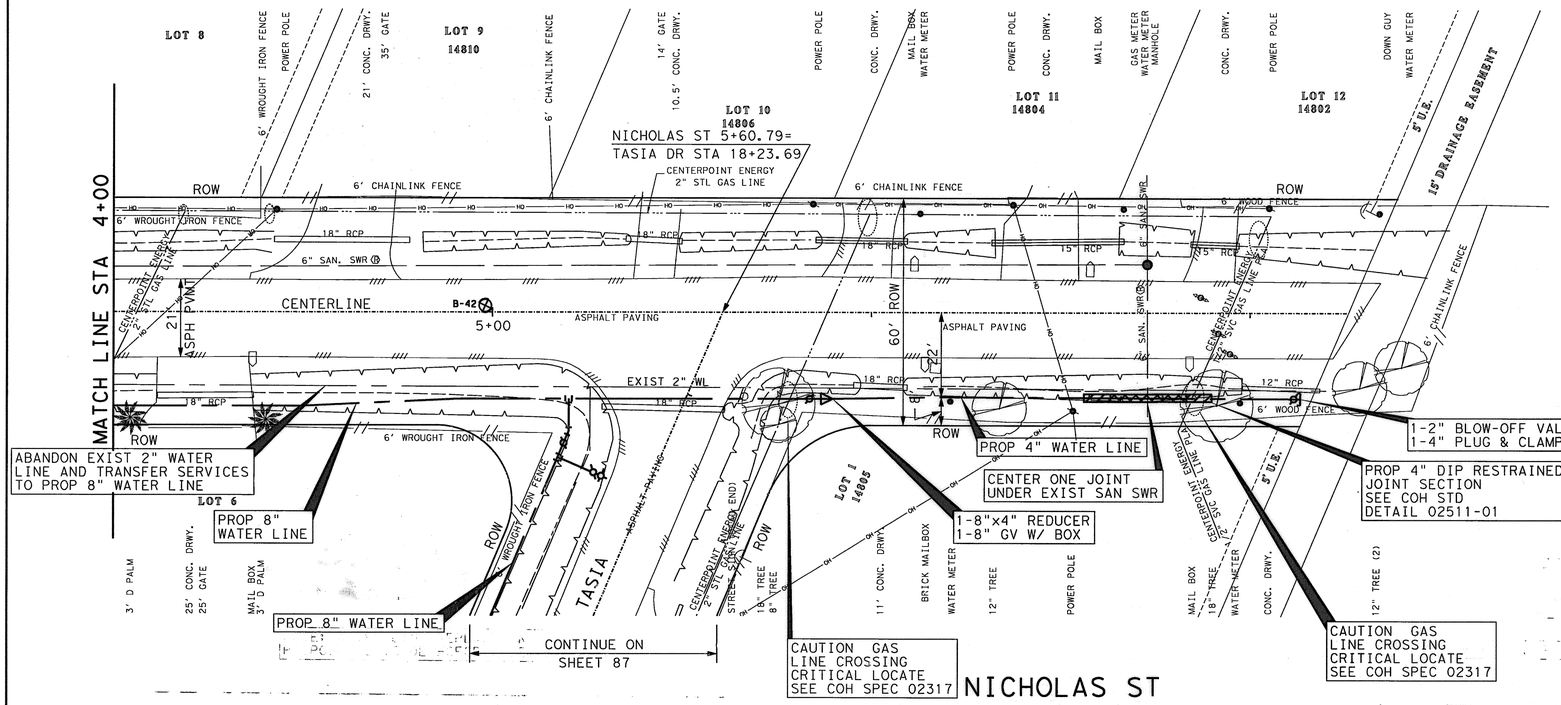
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
NICHOLAS STREET
BEGIN TO STA 4+00

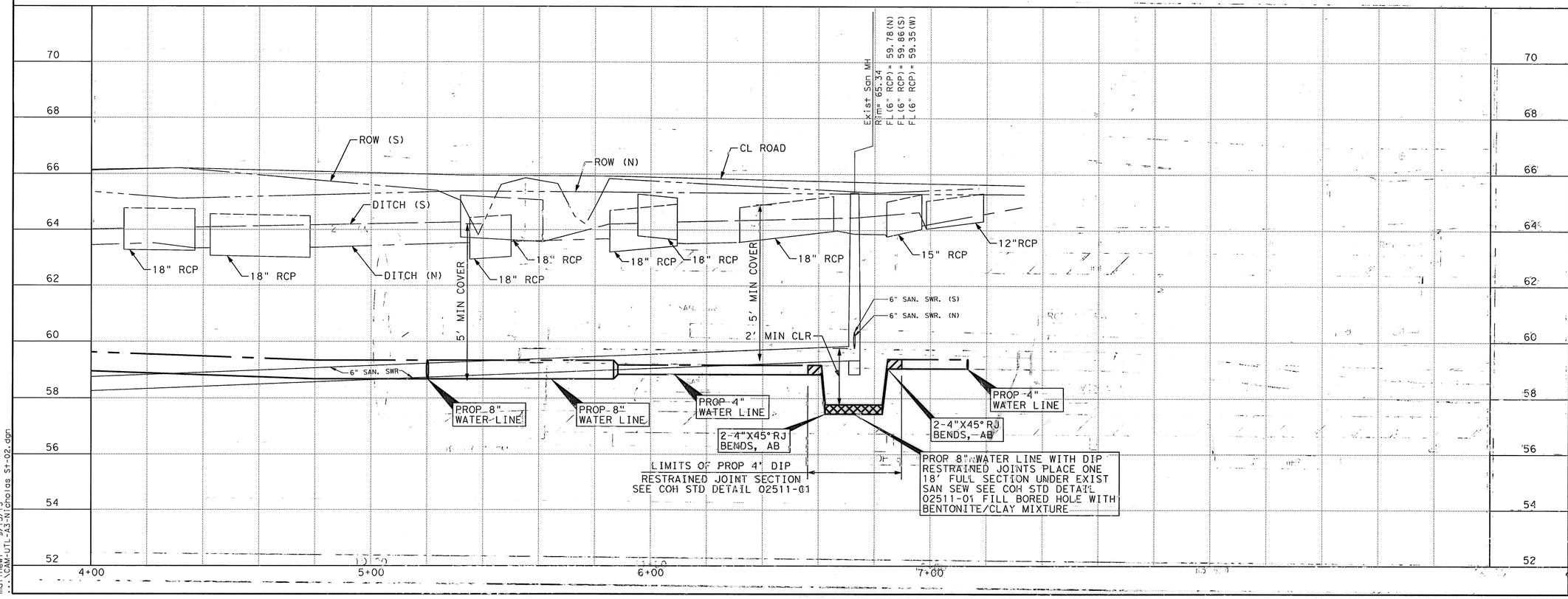
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 81 OF 151	

12:02:49 PM
matthewl
...\CAM-UTL-A3-Nicholas St-01.dgn

CAM-UTL-A3-Nicholas St-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J9, SET 1/2 IR W/ CAP
5+52.83, -12.4
ELEV 65.15

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown) — Date: 9/18/13

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

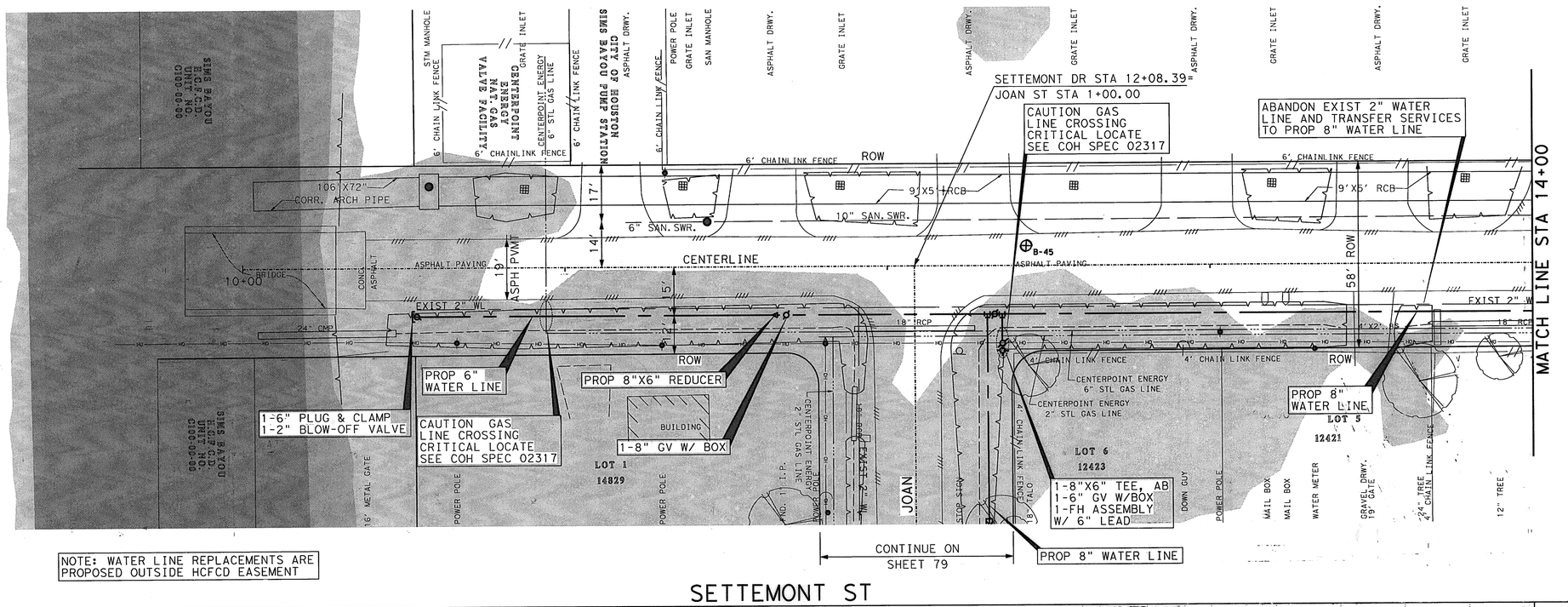
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE NICHOLAS STREET
STA 4+00 TO END

SHEET 2 OF 2

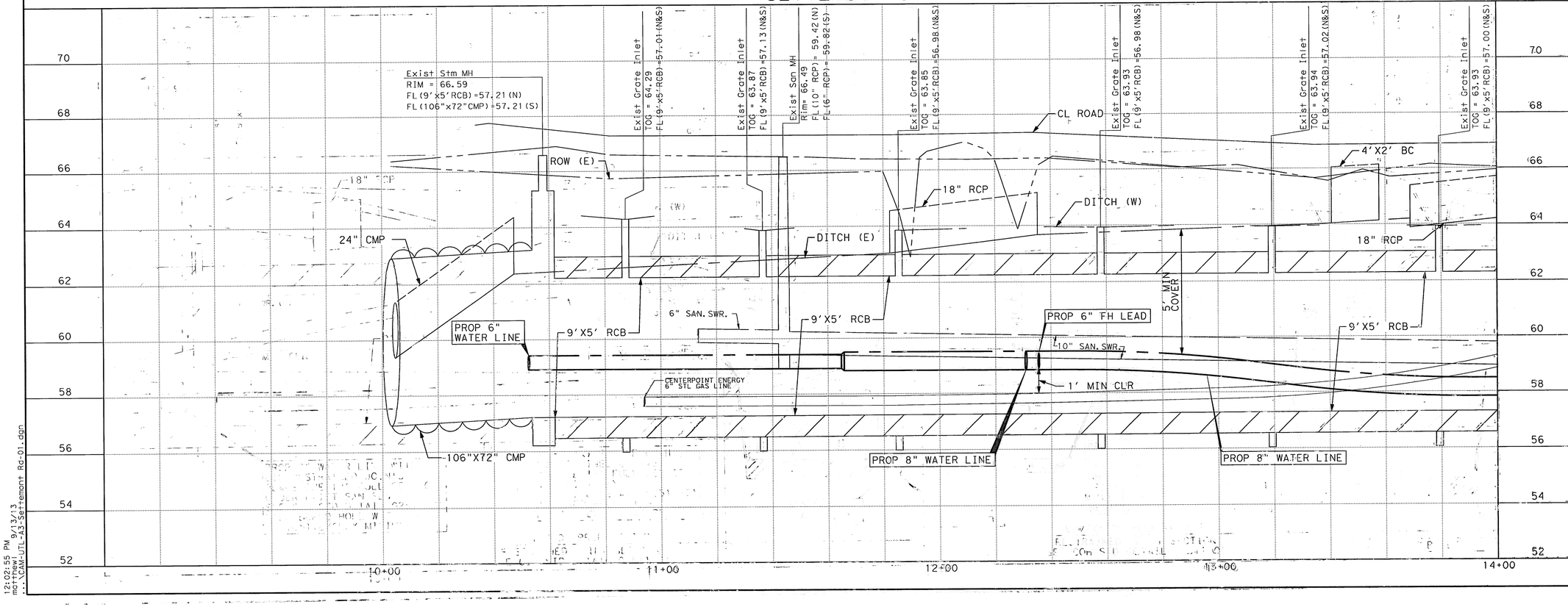
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 82 OF 151	

12:02:52 PM
matthewl 9/13/13
...\CAM-UTL-A3-Nicholas St-02.dgn



NOTE: WATER LINE REPLACEMENTS ARE PROPOSED OUTSIDE HCFCD EASEMENT

SETTEMONT ST



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J12, SET MAG NAIL
12+17.54, -23.37
ELEV 67.01

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/17/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
SETTEMONT STREET

BEGIN TO STA 14+00

SHEET 1 OF 3

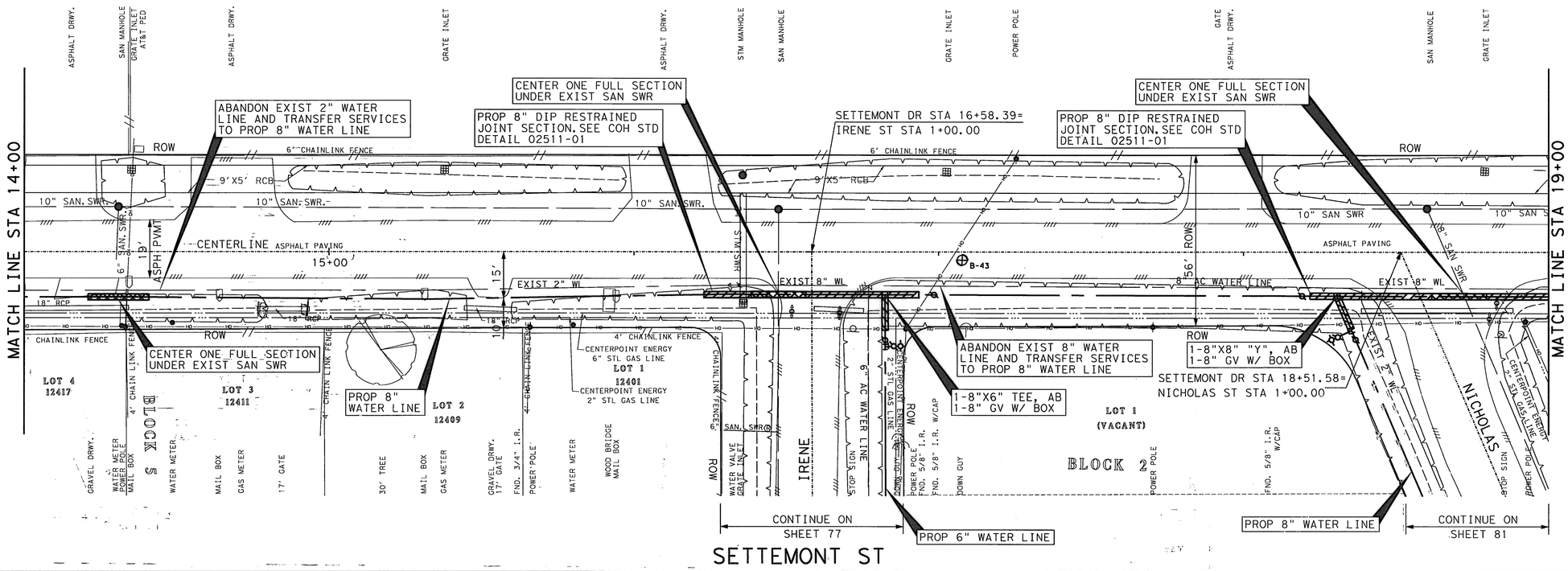
WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 83 OF 151

FOR CITY OF HOUSTON USE ONLY

51277

12:02:55 PM 9/13/13
matthewl
...\CAM-UTL-A3-Settemont Rd-01.dgn

CAM-UTL-A3-Settemont Rd-01.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J8, SET 1/2 IR W/ CAP
18+68.87, -16.63
ELEV 65.63

CP-J13, SET MAG NAIL
16+37.97, -12.69
ELEV 66.11

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/10/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/10/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/10/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

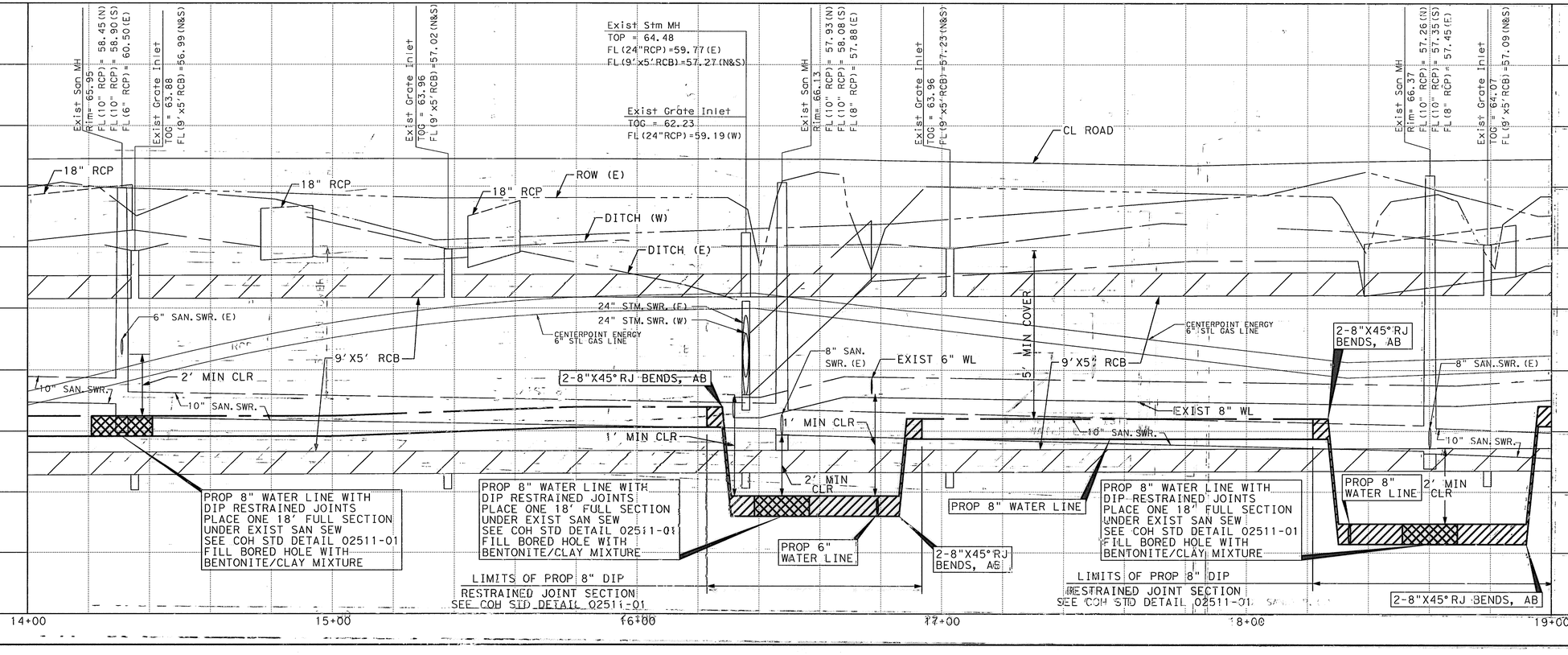
STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE SETTEMONT STREET
STA 14+00 TO STA 19+00
SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 84 OF 151	



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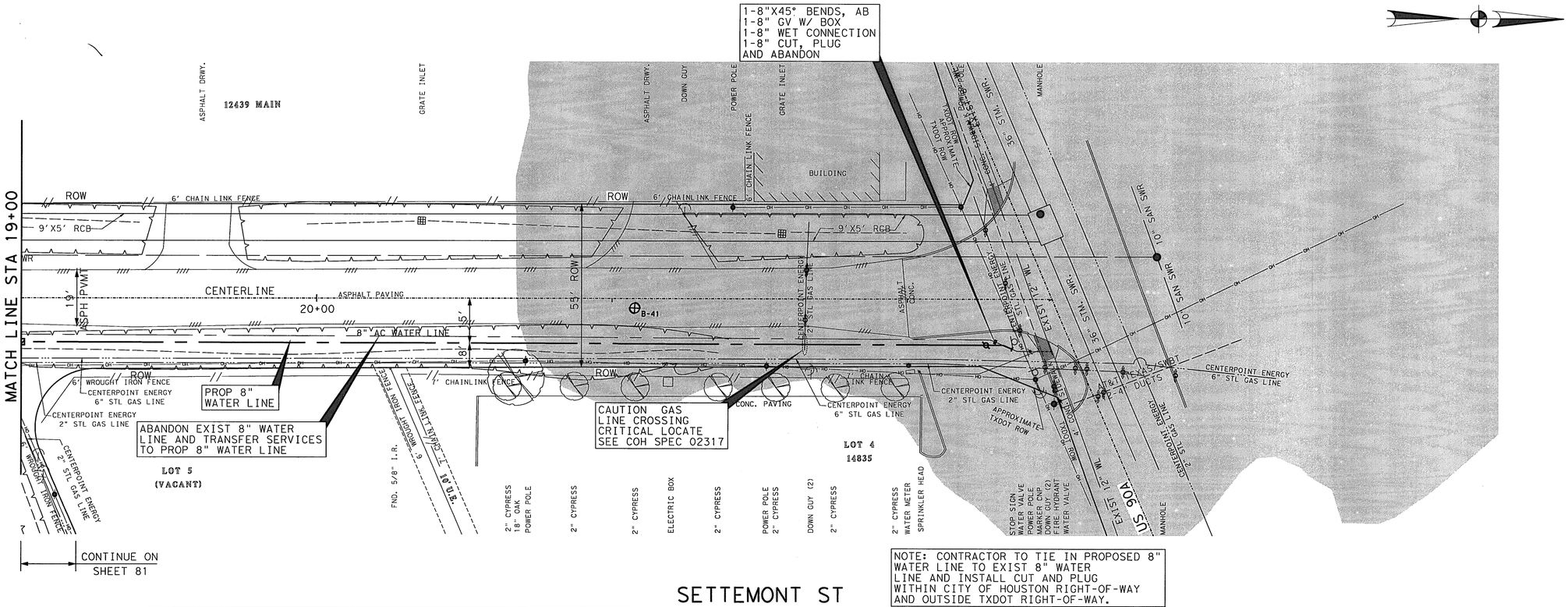
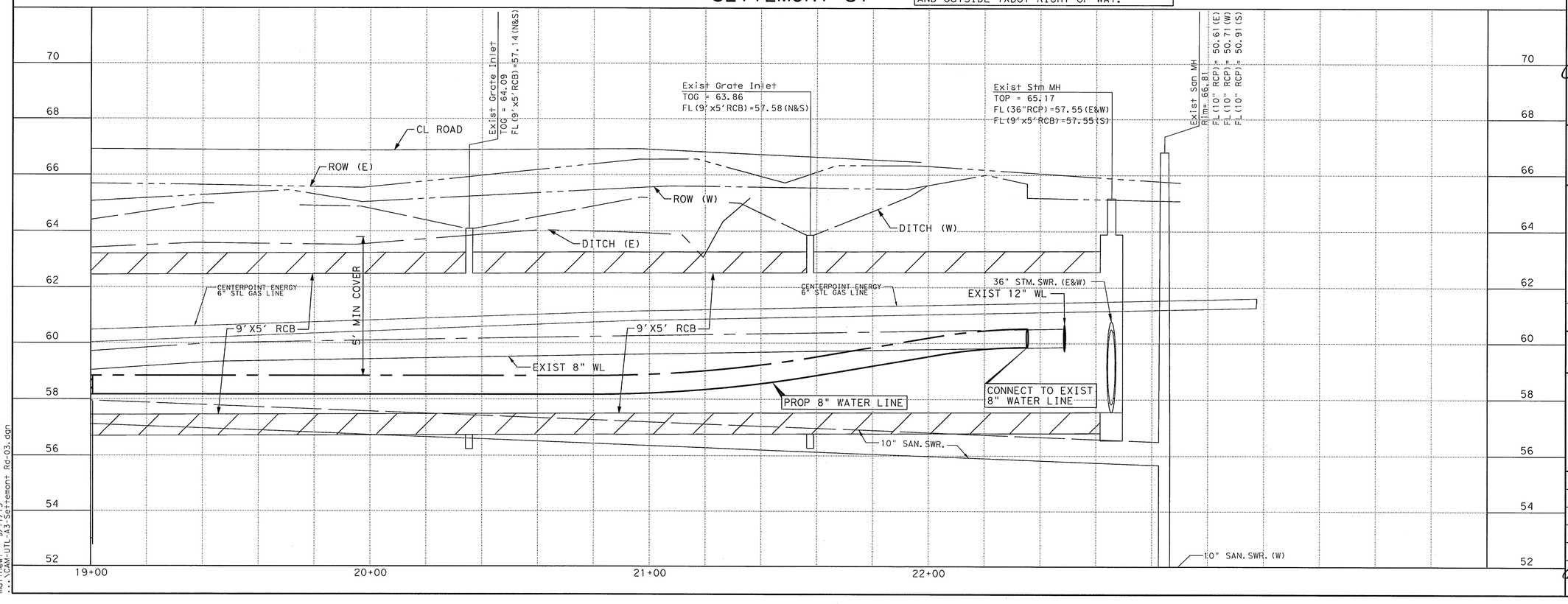
9/13/13
matthew
...\CAM-UTL-A3-Settemont Rd-02.dgn

CAM-UTL-A3-Settemont Rd-02.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J7, SET MAG NAIL
21+28.91, -14.52
ELEV 66.25

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

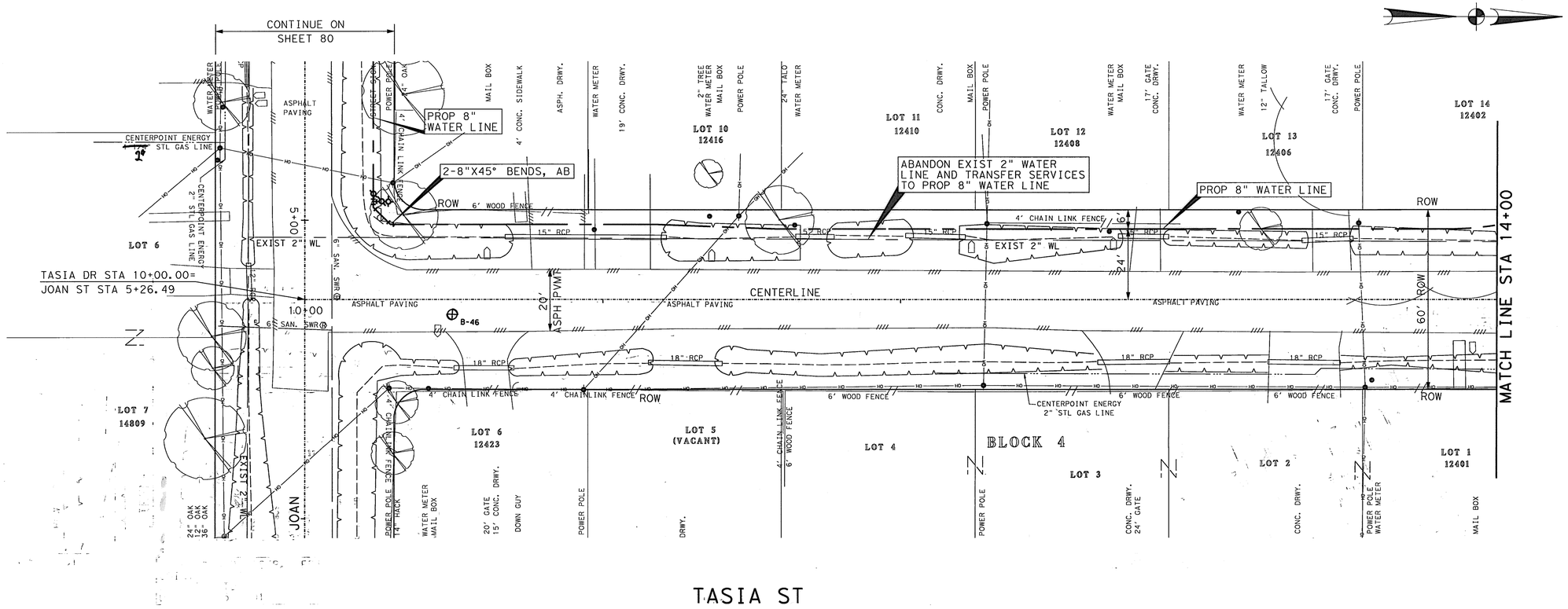
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
SETTEMONT STREET
STA 19+00 TO END

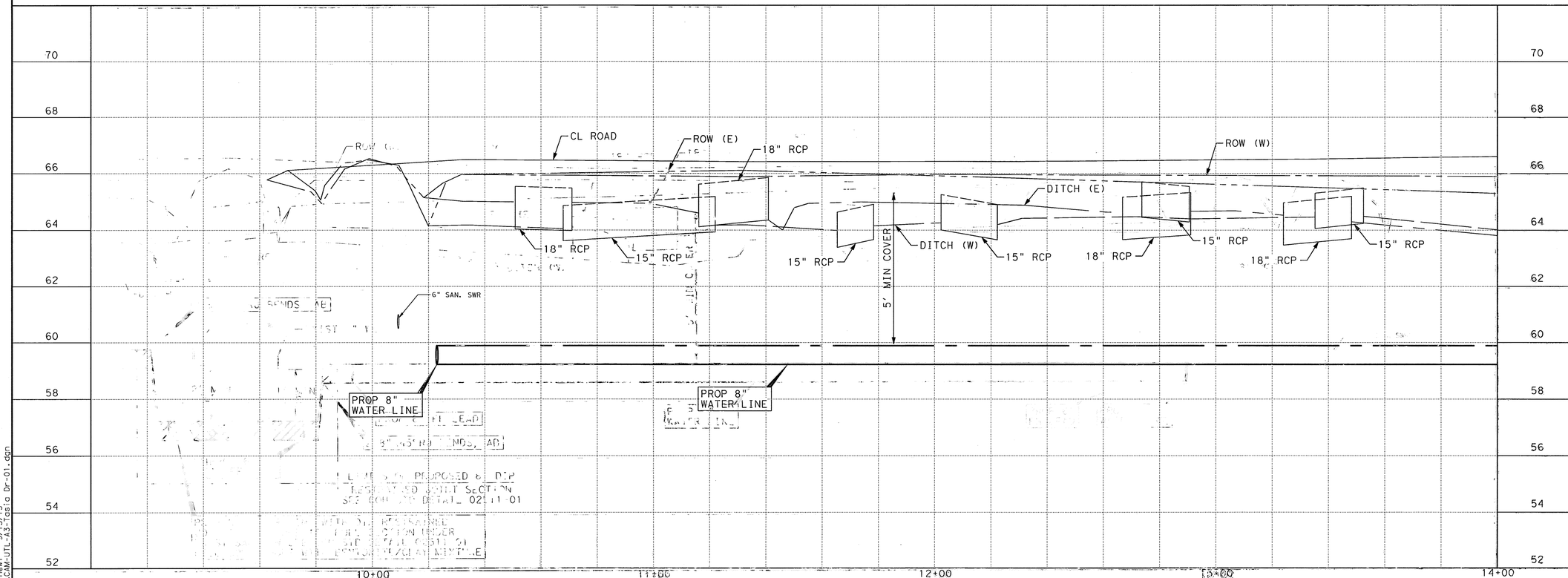
SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 85 OF 151	

9:13:50 AM
matthew
...\CAM-UTL-A3-Settemont Rd-03.dgn

CAM-UTL-A3-Settemont Rd-03.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J11, SET MAG NAIL
10+12.27, 13.42
ELEV 66.16

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/9/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/9/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/9/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-9-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

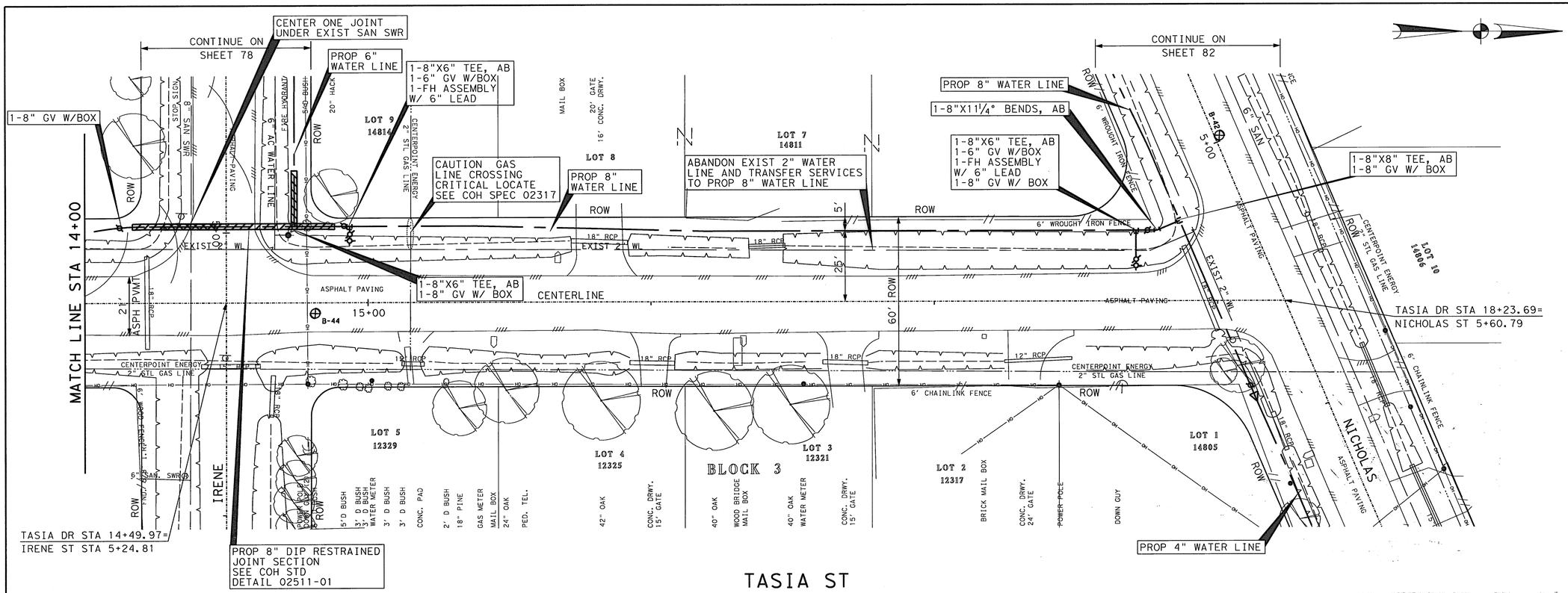
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
TASIA STREET
BEGIN TO STA 14+00

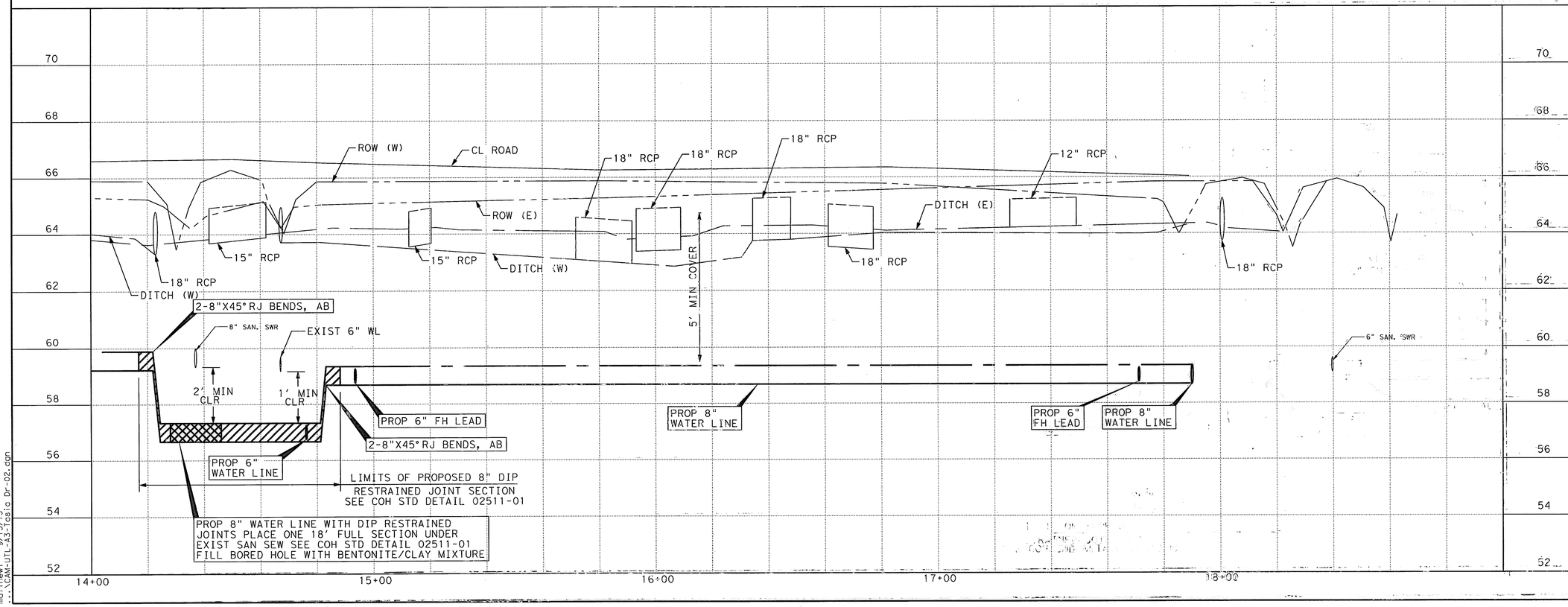
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 86 OF 151	

12:03:06 PM 9/13/13
matthew
...\CAM-UTL-A3-Tasia Dr-01.dgn

CAM-UTL-A3-Tasia Dr-01.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J9, SET 1/2 IR W/ CAP
OFF CHAIN, OFF CHAIN
ELEV 65.15

CP-J10, SET 1/2 IR W/ CAP
14+65.02, 15.3
ELEV 65.18

BENCH MARK:
CITY OF HOUSTON MARKER
5051 / 1213 LOCATED AT THE FIRST BRIDGE SOUTH OF S. MAIN (US 90A) ON SETTEMONT RD
ELEV 67.67'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-8825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

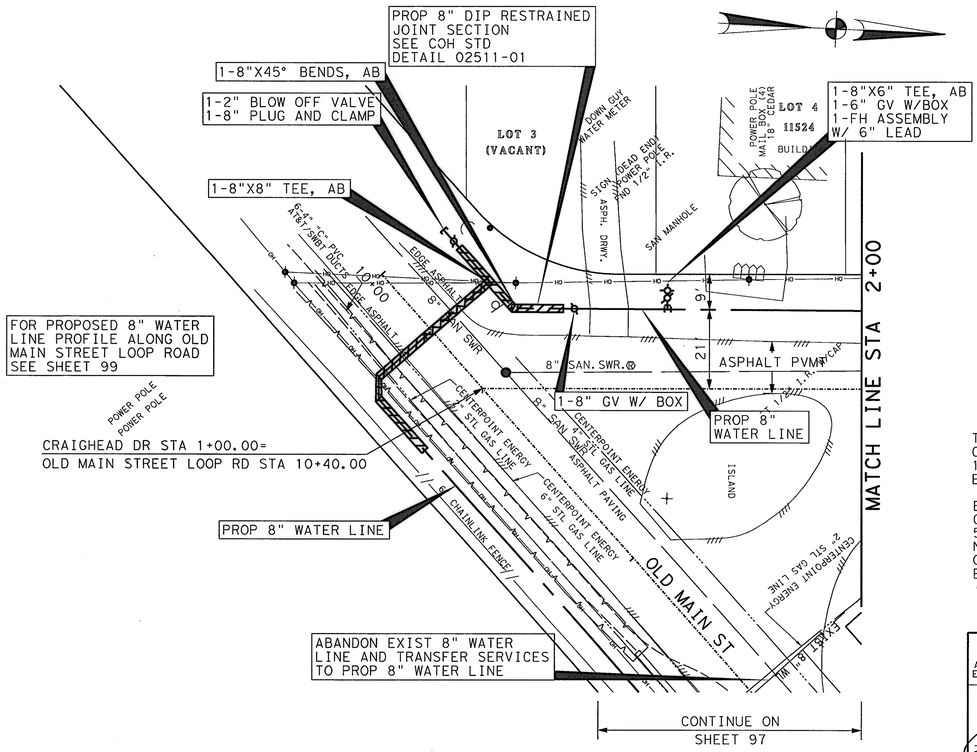
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
TASIA STREET
STA 14+00 TO END

SHEET 2 OF 2

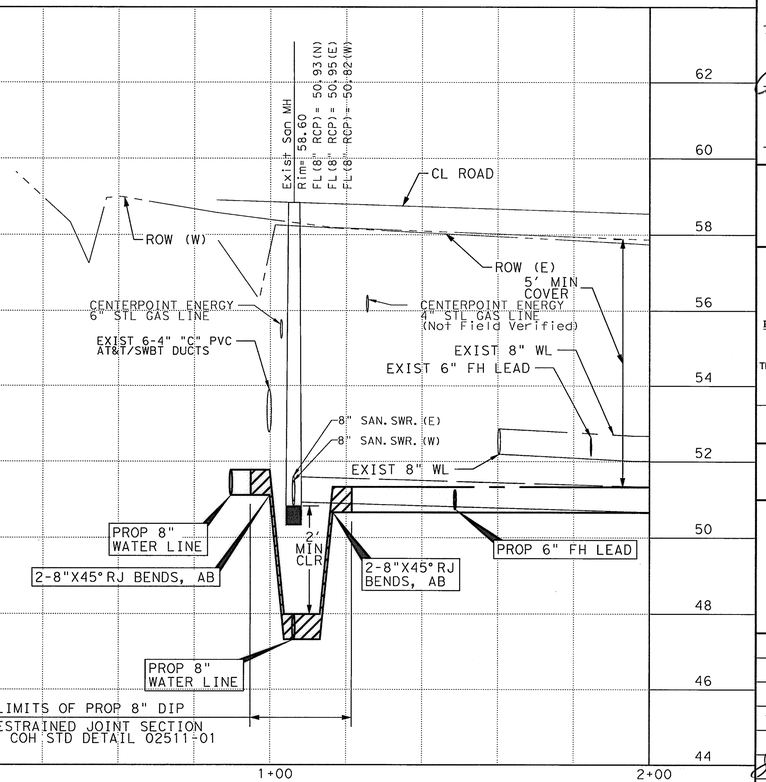
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 87 OF 151	

12:03:09 PM 9/13/13
matthewl
...\CAM-UTL-A3-Tasia Dr-02.dgn

CAM-UTL-A3-Tasia Dr-02.dgn



CRAIGHEAD DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J40, SET 1/2 IR W/ CAP
1+48.63, 28.95
ELEV 58.56

BENCH MARK:
CITY OF HOUSTON MARKER
5253 / 0306 LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF KINGLET ST AND GREENWILLOW ST
ELEV 56.51'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

Date: 9/18/13
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE CRAIGHEAD DRIVE

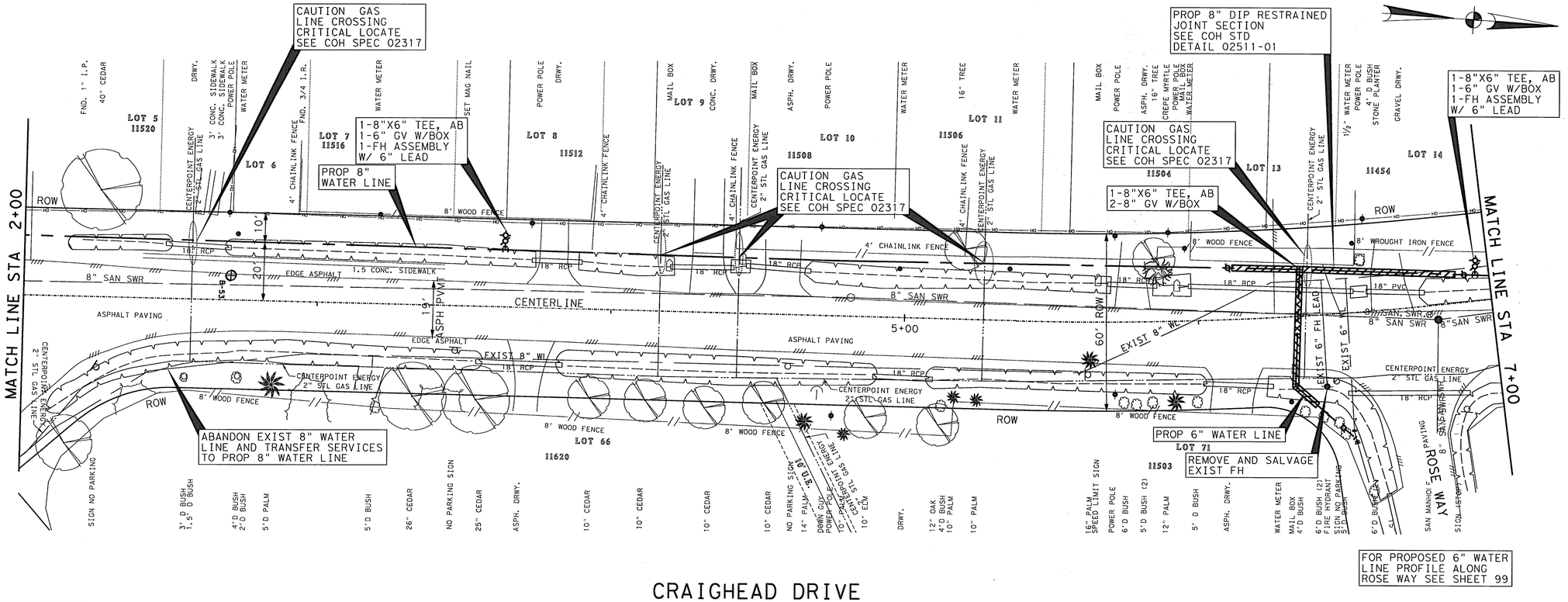
BEGIN TO STA 2+00

SHEET 1 OF 7

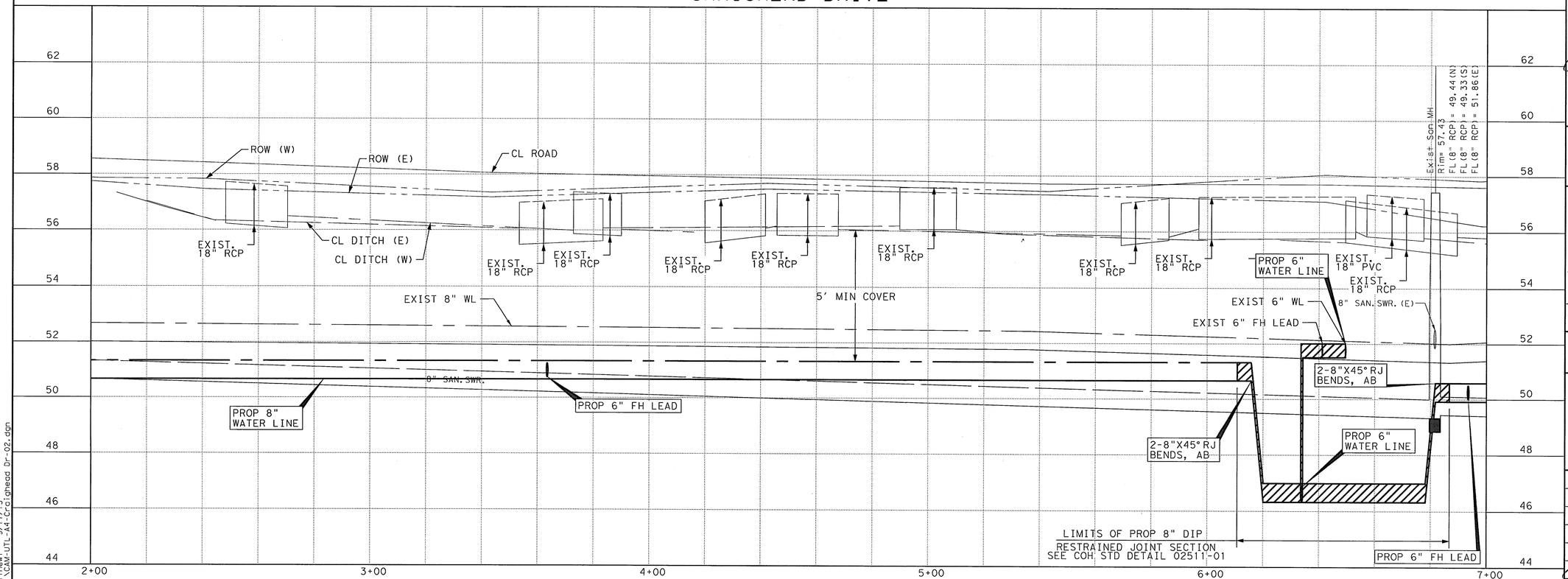
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 88 OF 151	

3:10:23 PM 9/16/13
matthew
...\CAM-UTL-A4-Craighead Dr-01.dgn

CAM-UTL-A4-Craighead Dr-01.dgn



CRAIGHEAD DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J39, SET 1/2 IR W/ CAP
6+92.41, -1.13
ELEV 56.47

BENCH MARK:
CITY OF HOUSTON MARKER
5253 / 0306 LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF KINGLET ST AND GREENWILLOW ST
ELEV 56.51'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 7/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year. — Date: 9/18/13

CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown) — Date: 9/18/13

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS — STEPHEN K. YU — 67965 — REGISTERED PROFESSIONAL ENGINEER — 9-12-13

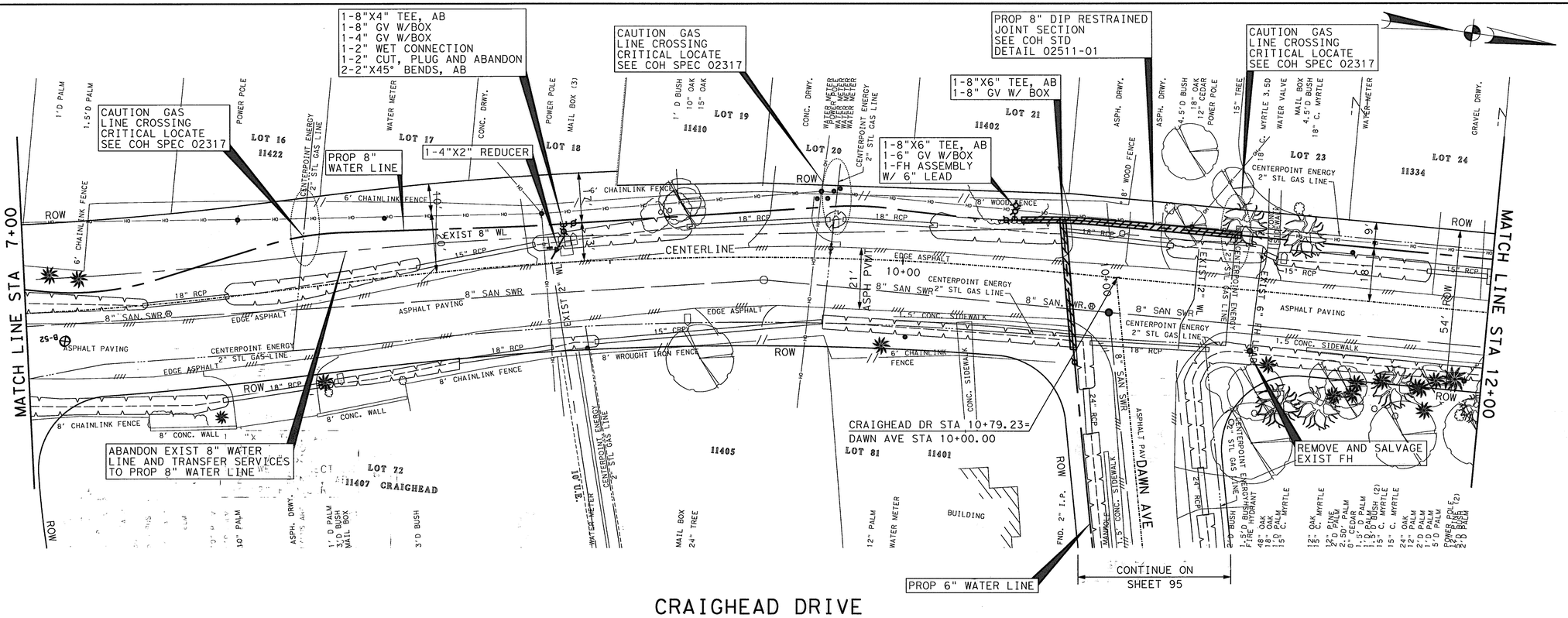
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
CRAIGHEAD DRIVE
STA 2+00 TO STA 7+00
SHEET 2 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 89 OF 151	

9:13:53 AM 9/17/13
mc:\CAM-UTL-A4-Craighead Dr-02.dgn

CAM-UTL-A4-Craighead Dr-02.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J37 MAG NAIL
10+76.61, -7.56
ELEV 57.03

BENCH MARK:
CITY OF HOUSTON MARKER
5253 / 0306 LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF KINGLET ST AND GREENWILLOW ST
ELEV 56.51'
(NAVD 83/2011)

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PRIVATE UTLITY LINES SHOWN

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CenterPoint Energy/Electric Facilities Date: 9/18/13
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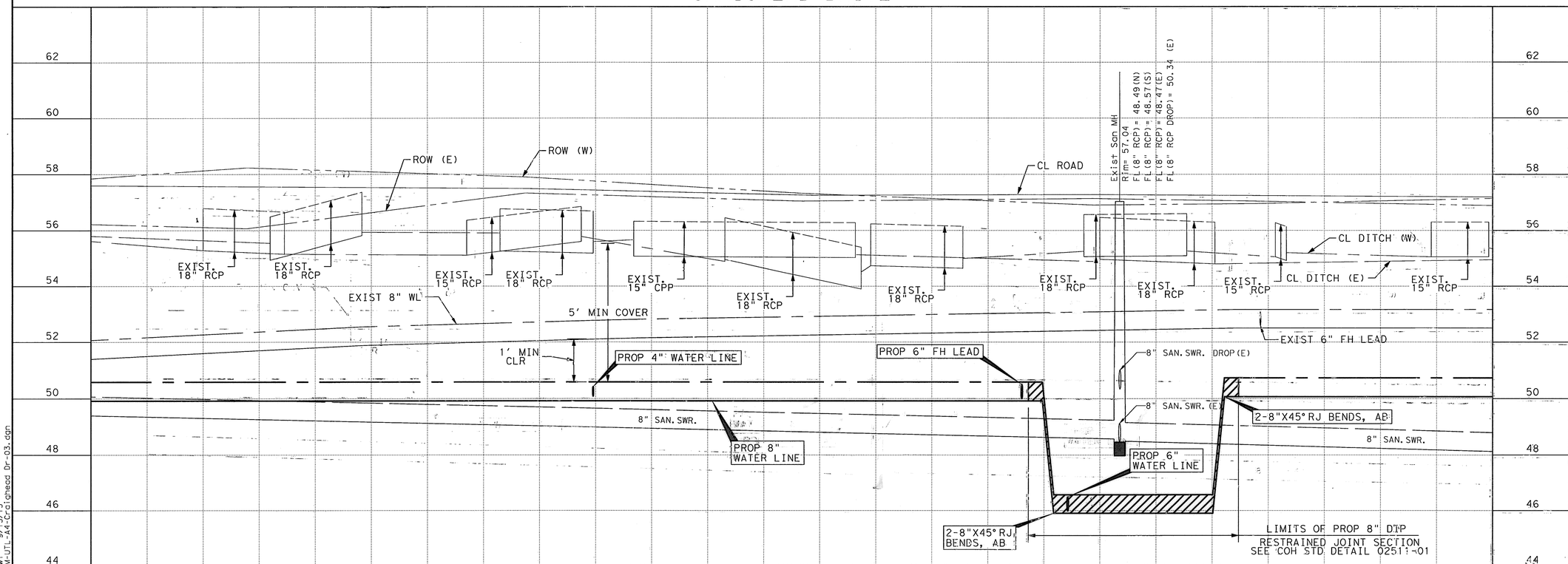
CenterPoint Energy/Gas Facilities/ENTEX Incorporated Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY



IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-18-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

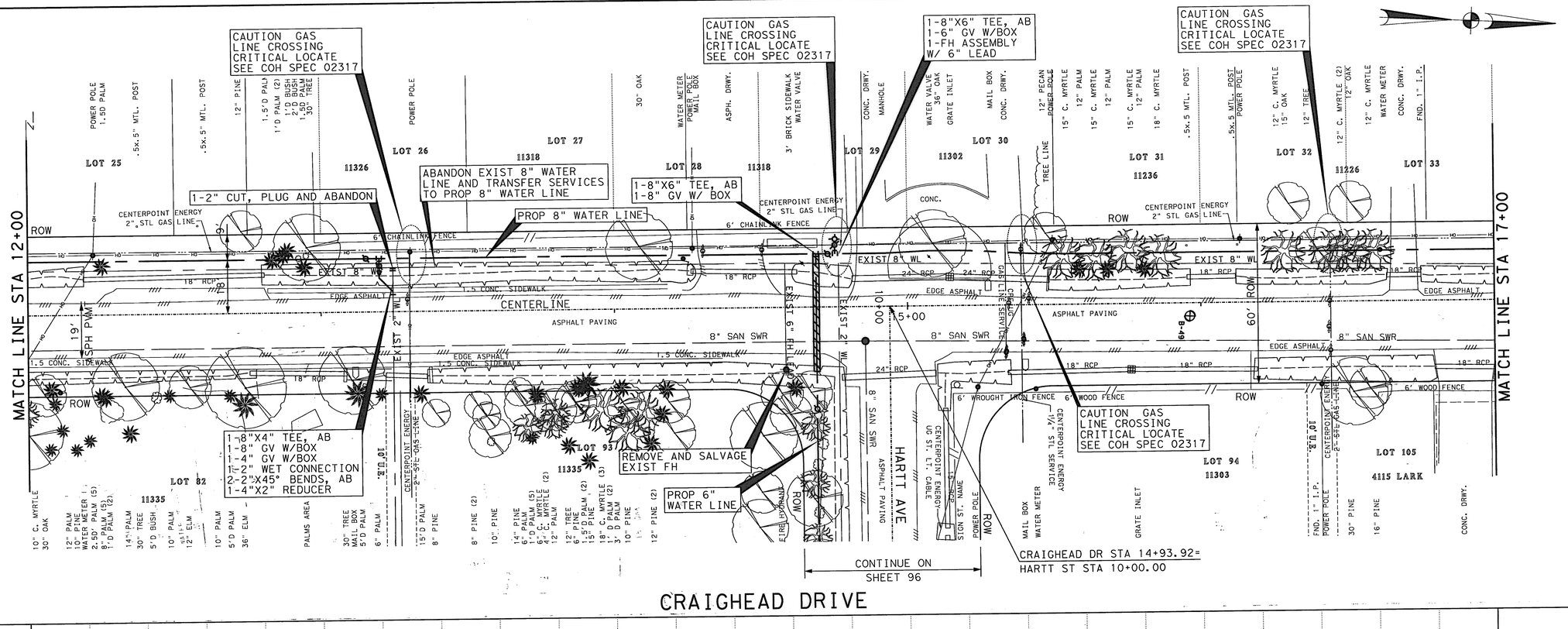
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE CRAIGHEAD DRIVE
STA 7+00 TO STA 12+00

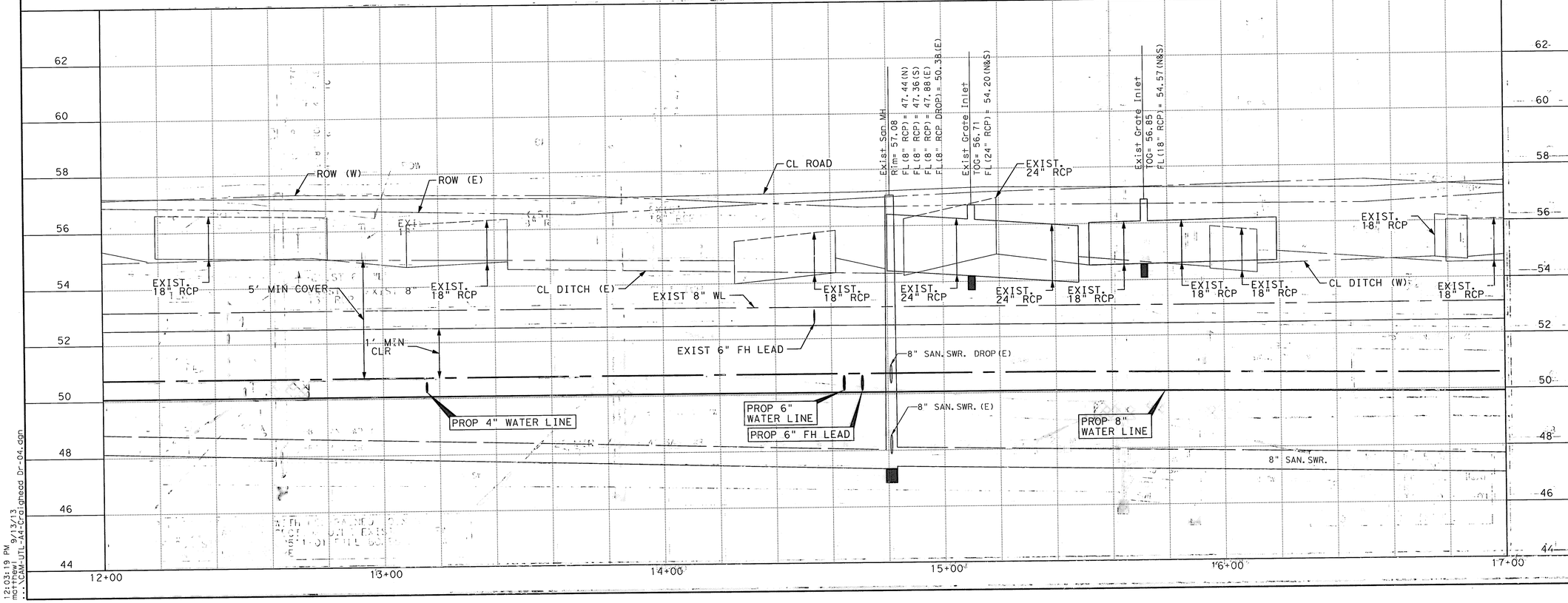
SHEET 3 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 90 OF 151	

12:03:17 PM
matthewl 9/13/13
...\CAM-UTL-A4-Craighead Dr-03.dgn

CAM-UTL-A4-Craighead Dr-03.dgn





LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J35 MAG NAIL
15+07.21, 24.3
ELEV 57.26

BENCH MARK:
CITY OF HOUSTON MARKER
5253 / 0306 LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF KINGLET ST AND GREENWILLOW ST
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Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 641-5581
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED
PROFESSIONAL ENGINEER
9-13-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
CRAIGHEAD DRIVE
STA 12+00 TO STA 17+00
SHEET 4 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 91 OF 151	

12:03:19 PM
matthew 9/13/13
...\CAM-UTL-A4-Craighead Dr-04.dgn
CAM-UTL-A4-Craighead Dr-04.dgn

2-8"X6" TEE, AB
2-8" GV W/BOX
1-6" GV W/BOX
1-FH ASSEMBLY
W/ 6" LEAD

CAUTION GAS
LINE CROSSING
CRITICAL LOCATE
SEE COH SPEC 02317

CAUTION GAS
LINE CROSSING
CRITICAL LOCATE
SEE COH SPEC 02317

1-8"X6" TEE, AB
1-6" GV W/BOX
1-FH ASSEMBLY
W/ 6" LEAD

CAUTION GAS
LINE CROSSING
CRITICAL LOCATE
SEE COH SPEC 02317

CENTER ONE JOINT
UNDER EXIST SAN SWR

CENTER ONE JOINT
OVER EXIST SAN SWR

CENTER ONE JOINT
OVER EXIST SAN SWR

MATCH LINE STA 17+00

MATCH LINE STA 22+00

LOT 34 | LOT 35 | LOT 37 | LOT 38 | LOT 39 | LOT 40 | LOT 41 | LOT 42

11224 | 11218 | 11210 | 10840

ROW

CENTERPOINT ENERGY 2" STL GAS LINE

4' WOOD FENCE

6' CHAINLINK FENCE

18" RCP

24" RCP

EDGE ASPHALT

ASPHALT PAVING

CENTERLINE

20+00

10" SAN SWR

8" SAN SWR

4" SAN SWR

6" SAN SWR

EXIST 8" WL

EXIST 6" FH LEAD

PROP 8" WATER LINE

EXIST 6" WL

REMOVE AND SALVAGE EXIST FH

PROP 6" WATER LINE

ABANDON EXIST 8" WATER LINE AND TRANSFER SERVICES TO PROP 8" WATER LINE

REMOVE AND SALVAGE EXIST FH

LOT 106 | LOT 117 | LOT 118

4114 | 10825

LARK

RIDING ST

FOR PROPOSED 6" WATER LINE PROFILE ALONG LARK LANE SEE SHEET 100

CRAIGHEAD DRIVE

LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J33, SET 1/2 IR W/ CAP
21+25.92, 17.75
ELEV 56.77

CP-J34, SET 1/2 IR W/ CAP
18+51.16, -24.09
ELEV 56.97

BENCH MARK:
CITY OF HOUSTON MARKER
5253 / 0306 LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF KINGLET ST AND GREENWILLOW ST
ELEV 56.51'
(NAVD 83/2011)

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Date: 9/18/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
CRAIGHEAD DRIVE
STA 17+00 TO STA 22+00
SHEET 5 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 92 OF 151	

Exist San MH
Rim= 57.30
FL (10" RCP) = 46.87(N)
FL (8" RCP)= 46.92(S)
FL (8" RCP)= 47.51(E)
FL (8" RCP)= 47.10(W)

Exist San MH
Rim= 57.37
FL (10" RCP)= 46.66(N)
FL (10" RCP)= 46.68(S)
FL (6" RCP)= 50.46(E)
FL (4" RCP)= 47.13(E)
FL (8" RCP)= 47.25(W)

Exist San MH
Rim= 57.20
FL (10" RCP) = 45.90(N)
FL (10" RCP) = 46.00(W)
FL (10" RCP) = 45.90(E)

Exist San MH
Rim= 57.79
FL (10" RCP)= 52.16(N)
FL (10" RCP)= 46.28(S)
FL (8" RCP)= 46.46(E)
FL (10" RCP)= 45.99(W)

Exist Type E Inlet
TOP= 56.97
FL (12" RCP)= 55.01(E)

Exist San MH
Rim= 57.17
FL (10" RCP) = 45.77(S)
FL (10" RCP) = 45.57(W)

Exist San MH
Rim= 57.84
FL (10" RCP) = 51.37(N)
FL (10" RCP) = 51.26(S)
FL (6" RCP) = 51.52(E)
TOP OF 6" FORCE MAIN SW= 51.34

62 | 60 | 58 | 56 | 54 | 52 | 50 | 48 | 46 | 44

ROW (E) | CL ROAD | ROW (W)

EXIST. 18" RCP

EXIST 6" WL | EXIST 8" WL

PROP 6" WATER LINE

EXIST FH LEAD

PROP 6" FH LEAD

2' MIN CLR

8" SAN. SWR. (E)
8" SAN. SWR. (W)
6" SAN. SWR. (E)
8" SAN. SWR. (N)
4" SAN. SWR. (E)
10" SAN. SWR.

PROP 8" WATER LINE WITH RESTRAINED JOINTS
PLACE ONE 18' FULL SECTION OVER EXIST SAN SEW
SEE COH STD DETAIL 02511-01 FILL BORED HOLE WITH BENTONITE/CLAY MIXTURE

12" STM. SWR. (E)
EXIST. 24" RCP
CL DITCH (E)
CL DITCH (W)
EXIST 8" WL
EXIST FH LEAD
10" SAN. SWR.
6" SAN. SWR. (E)
6" SAN. FORCE MAIN (SW)
5' MIN COVER

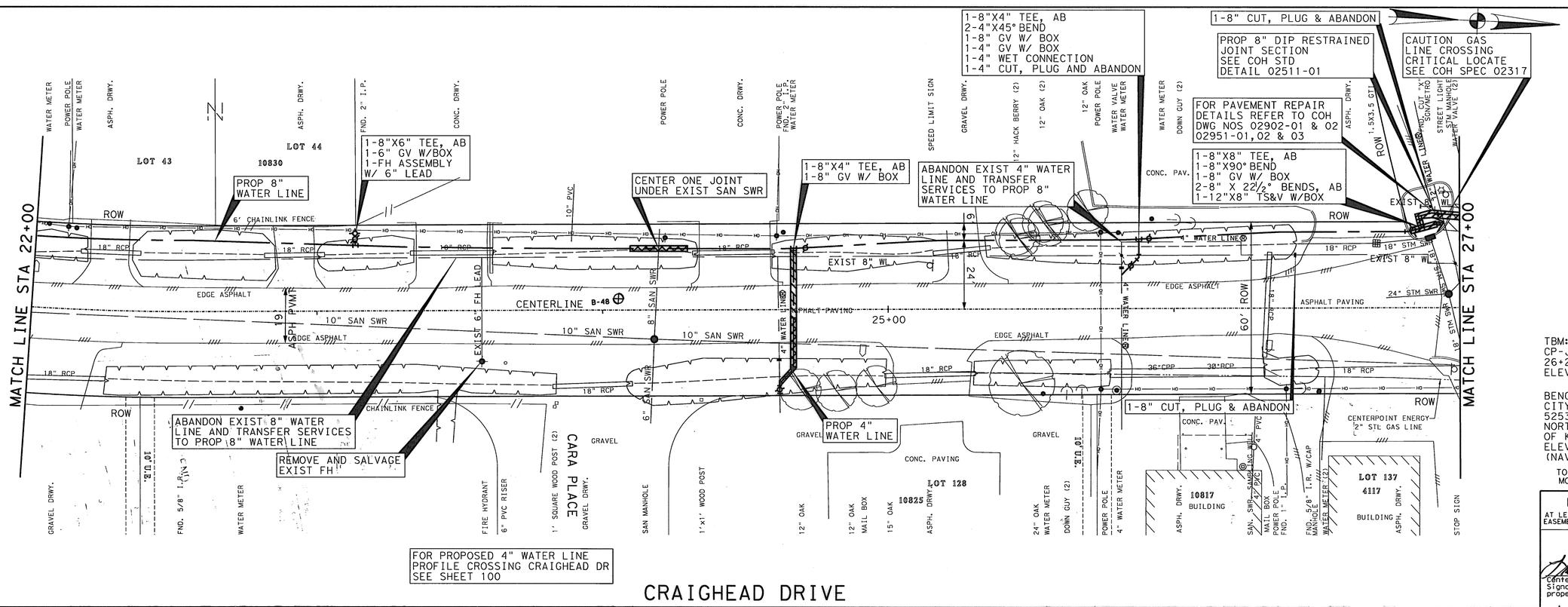
PROP 8" WATER LINE
PROP 6" FH LEAD

PROP 8" WATER LINE WITH DIP RESTRAINED JOINTS
PLACE ONE 18' FULL SECTION UNDER EXIST SAN SEW
SEE COH STD DETAIL 02511-01
FILL BORED HOLE WITH BENTONITE/CLAY MIXTURE

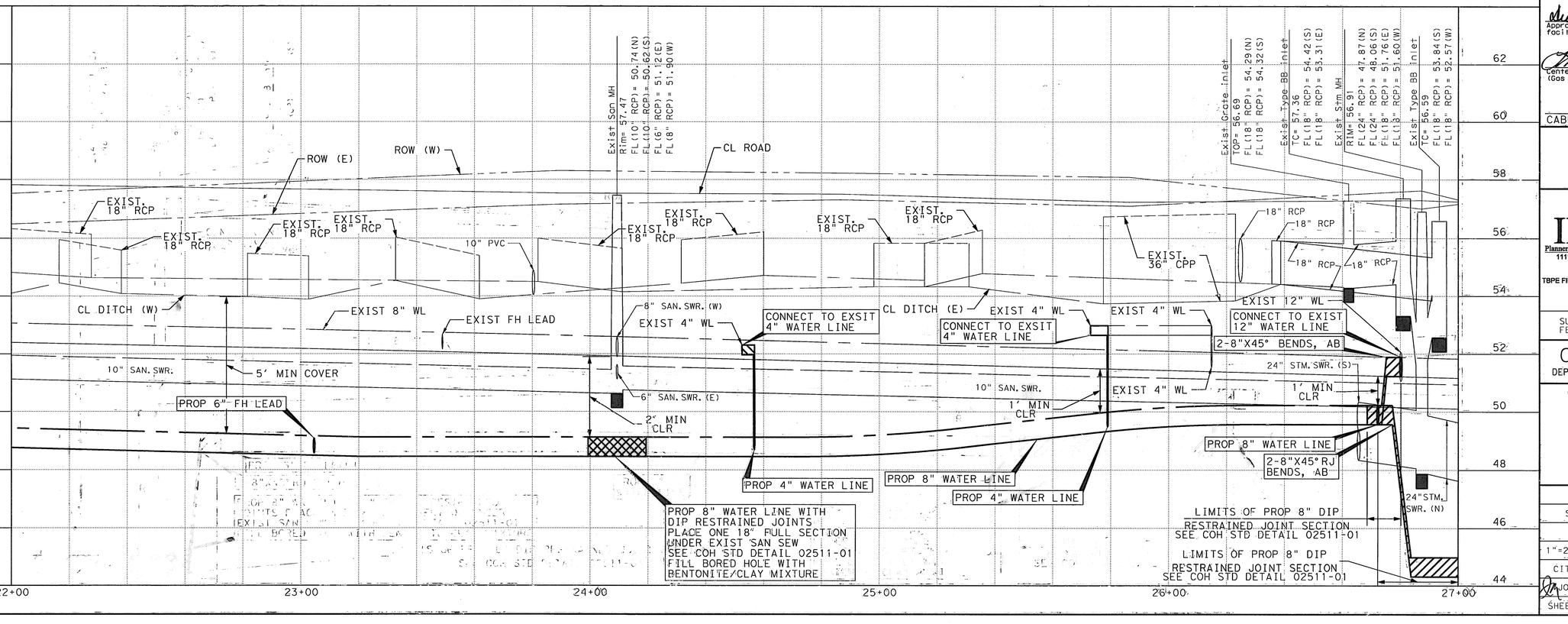
17+00 | 18+00 | 19+00 | 20+00 | 21+00 | 22+00

12:03:23 PM
matthew
...\CAM-UTL-A4-Craighead Dr-05.dgn
9/13/13

CAM-UTL-A4-Craighead Dr-05.dgn



CRAIGHEAD DRIVE



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- B-X BOREHOLE LOCATION

TBM:
CP-J32, SET 1/2 IR W/ CAP
26+21.54, -14.93
ELEV 56.59

BENCH MARK:
CITY OF HOUSTON MARKER
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ELEV 56.51'
(NAVD 83/2011)

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CABLE COMPANY

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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

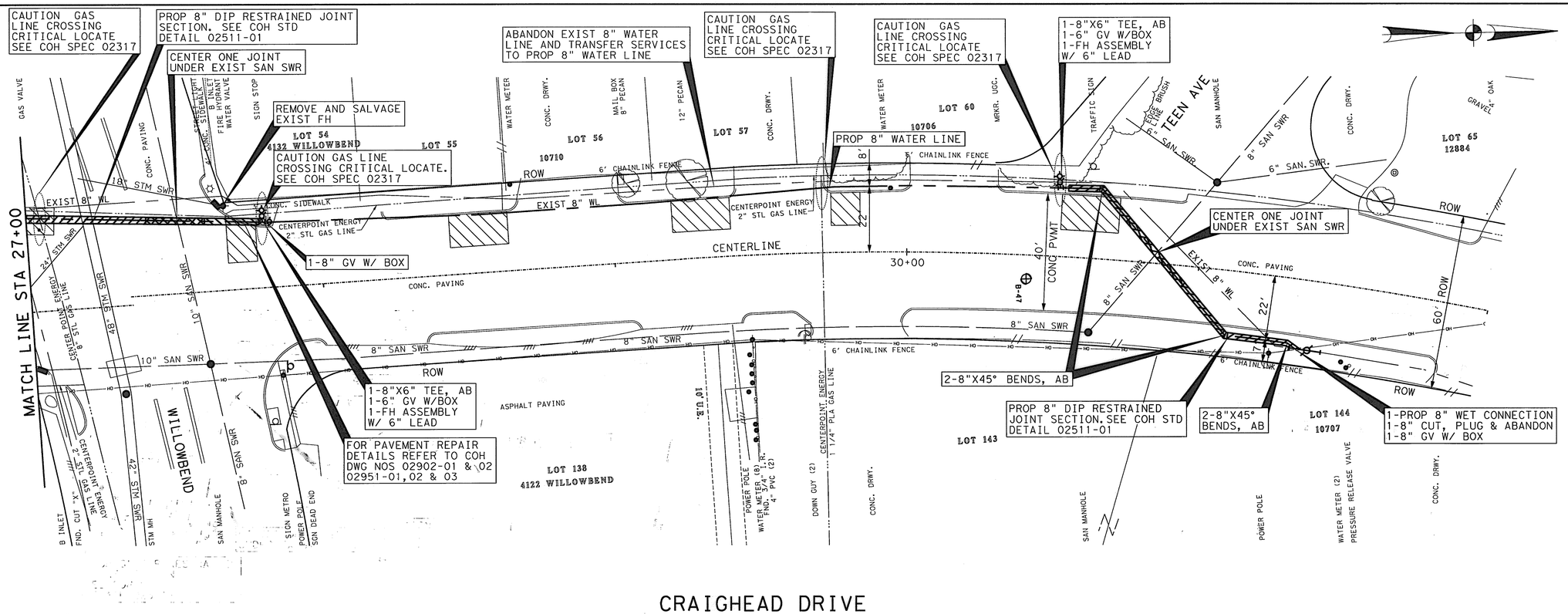
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
CRAIGHEAD DRIVE
STA 22+00 TO STA 27+00
SHEET 6 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 93 OF 151	

12:03:25 PM 9/13/13
matthewl
...\CAM-UTL-A4-Craighead Dr-06.dgn

CAM-UTL-A4-Craighead Dr-06.dgn



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J31, SET CUT X
31+55.09, -18.64
ELEV 55.30

BENCH MARK:
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CenterPoint Energy/Electric Facilities — Date: 9/18/13
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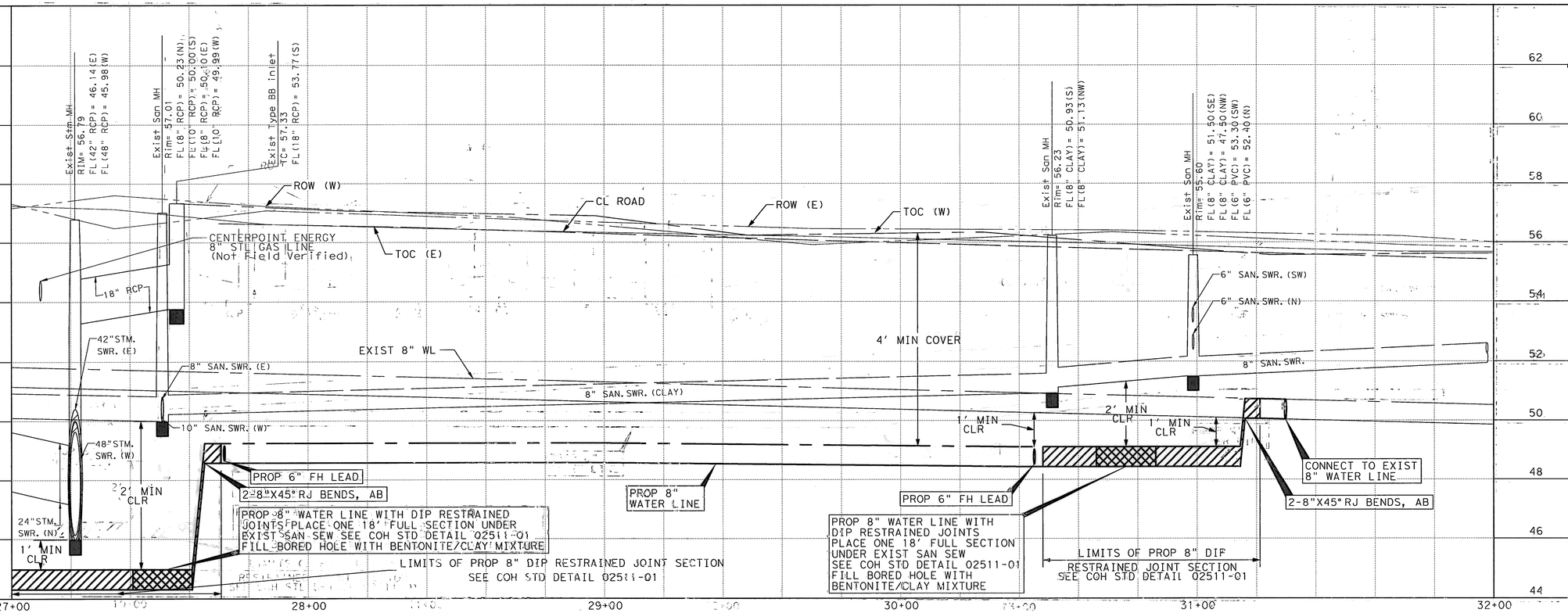
Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

CenterPoint Energy/Gas Facilities/ENTEX Incorporated — Date: 9/18/13
(Gas service lines are not shown)

CABLE COMPANY



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Planners-Engineers-Program Managers
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Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE CRAIGHEAD DRIVE
STA 27+00 TO END

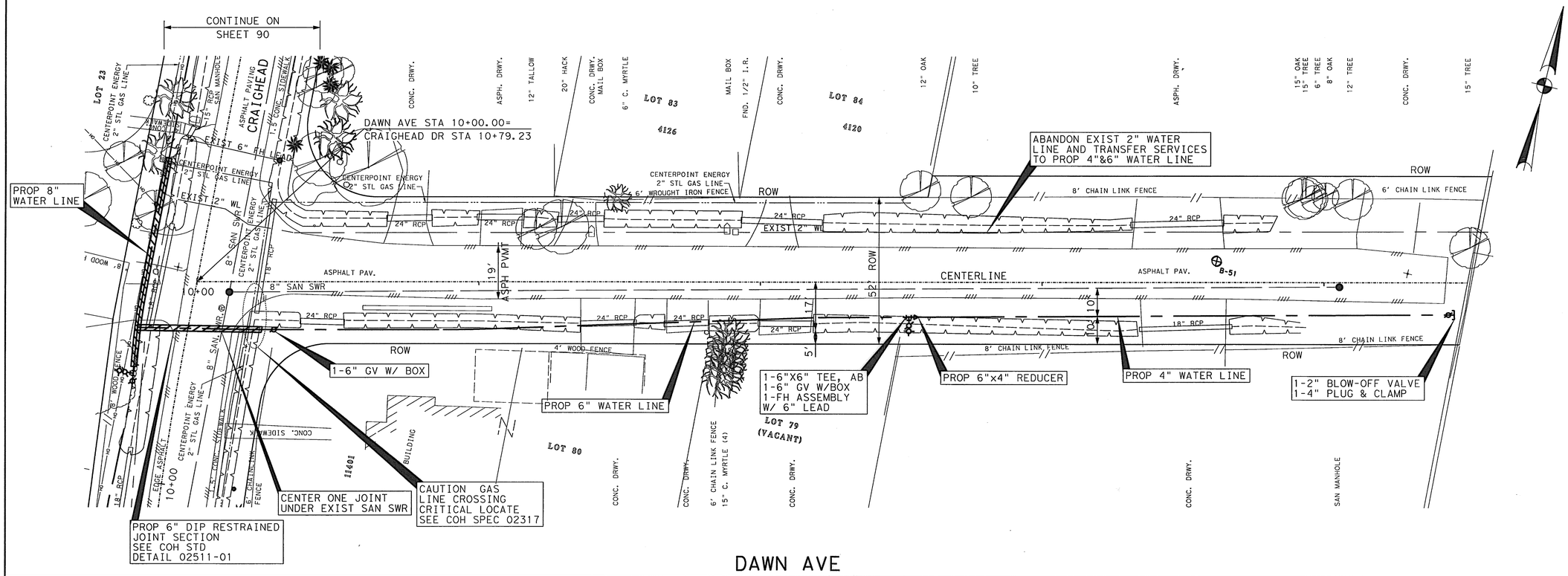
SHEET 7 OF 7

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	94 OF 151

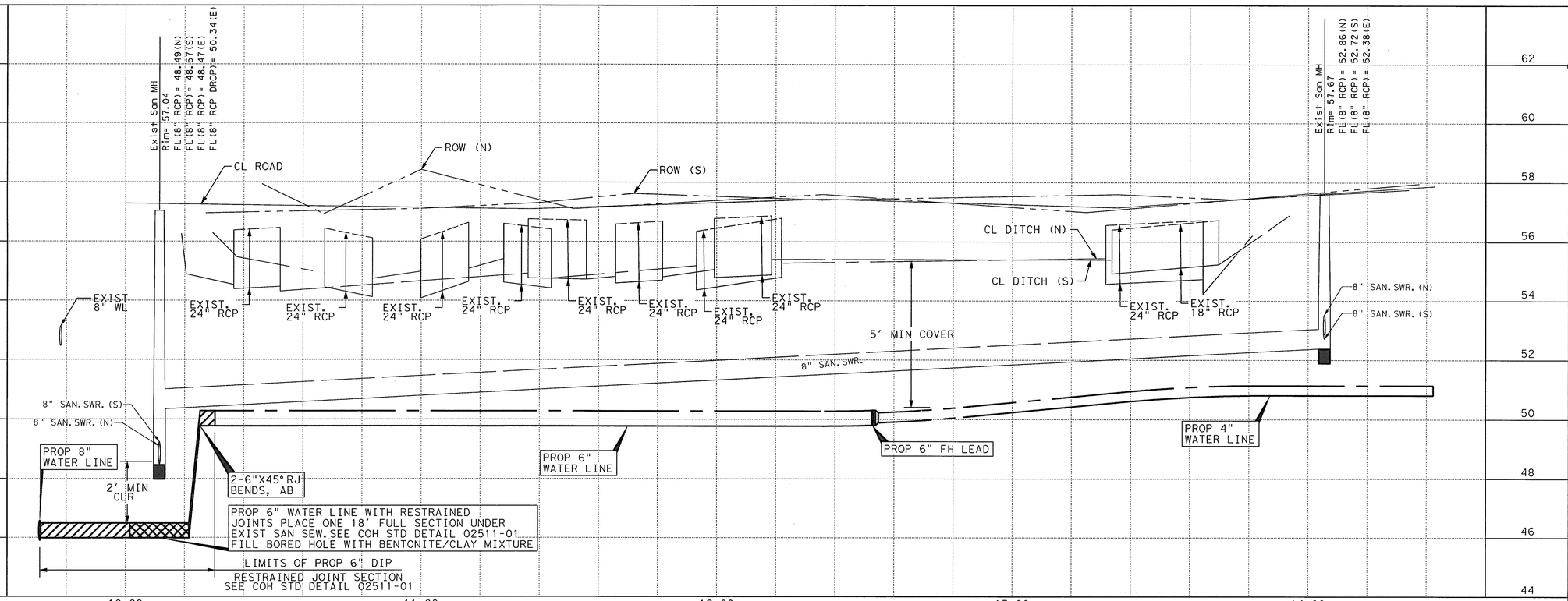
FOR CITY OF HOUSTON USE ONLY
51277

12:03:27 PM 9/13/13
matthew
...\CAM-UTL-A4-Craighead Dr-07.dgn

CAM-UTL-A4-Craighead Dr-07.dgn



DAWN AVE



LEGEND

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- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
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- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J37 MAG NAIL
OFF CHAIN, OFF CHAIN
ELEV 57.03

CP-J38 NAIL
STA 14+29.68, -3.16
ELEV 57.82

BENCH MARK:
CITY OF HOUSTON MARKER
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Diana C. Ward Date: 9/18/13
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Date: 9/9/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

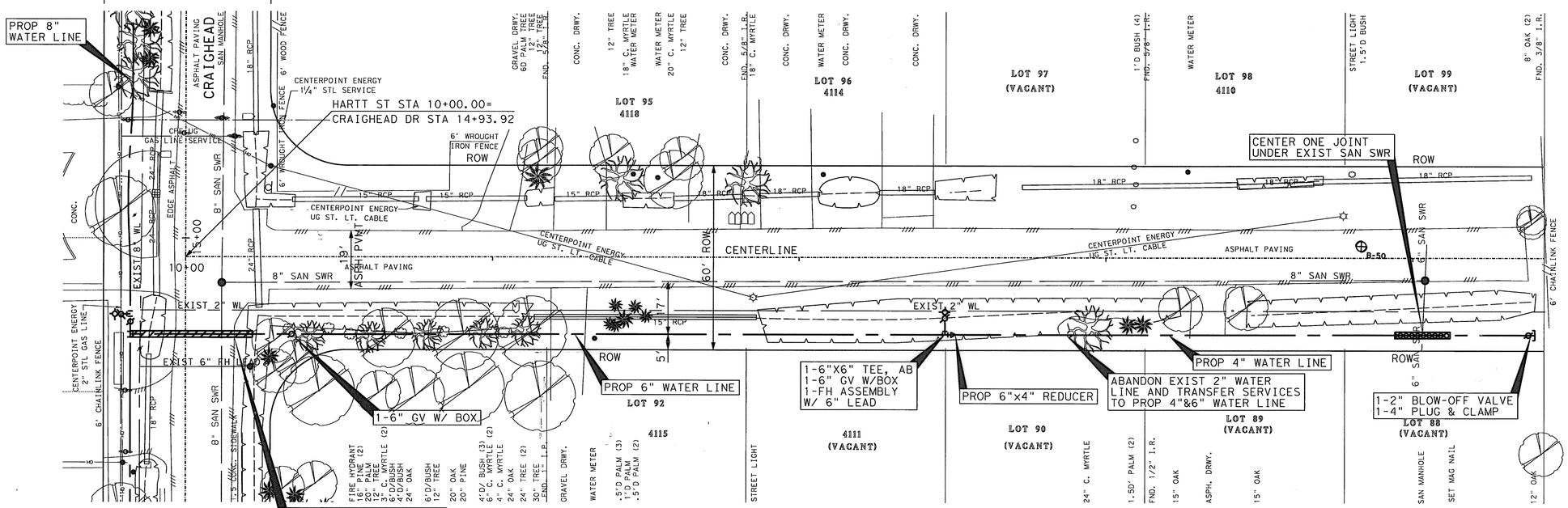
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT PLAN & PROFILE
DAWN AVE
BEGIN TO END

SHEET 1 OF 1

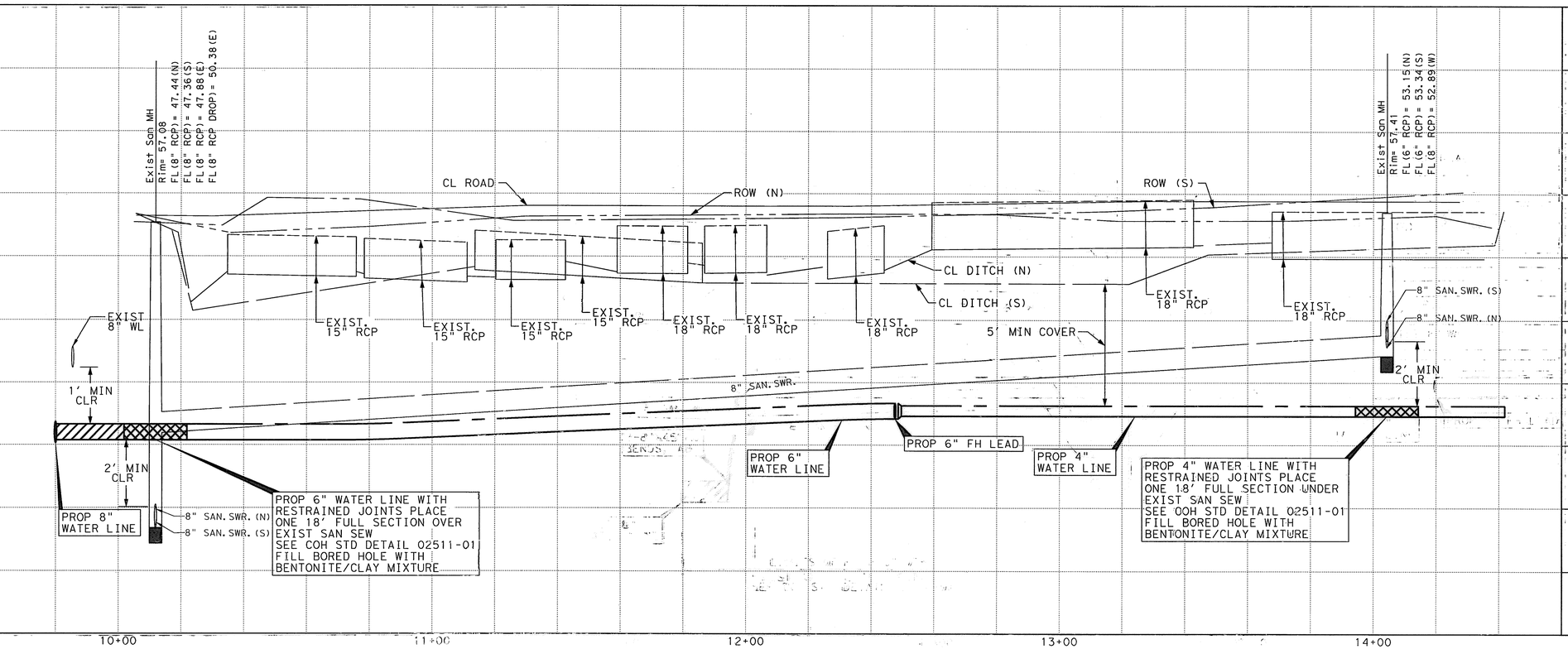
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 95 OF 151	

3:10:25 PM 9/16/13
matthew!
...\CAM-UTL-A4-Dawn Ave-01.dgn

...\CAM-UTL-A4-Dawn Ave-01.dgn



HARTT ST



LEGEND

- CENTER ONE JOINT
- DIP RESTRAINED JOINT SECTION
- RESTRAINED JOINT SECTION
- REMOVE AND REPLACE CONC PVMT AND CURB
- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J35 MAG NAIL
10+24.30, -13.28
ELEV 57.26

CP-J36 MAG NAIL
14+12.40, 5.67
ELEV 57.66

BENCH MARK:
CITY OF HOUSTON MARKER
5253 / 0306 LOCATED AT THE NORTHEAST CORNER OF THE INTERSECTION OF KINGLET ST AND GREENWILLOW ST
ELEV 56.51'
(NAVD 83/2011)

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

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

CenterPoint Energy/Electric Facilities — Date: 9/18/13
Signature indicates underground electric lines are properly shown. No approval for construction is given.

Diana C. Ward — Date: 9/18/13
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

Date: 7/12/13
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS — STEPHEN K. YU — 67965 — REGISTERED PROFESSIONAL ENGINEER — 9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
HARTT ST
BEGIN TO END

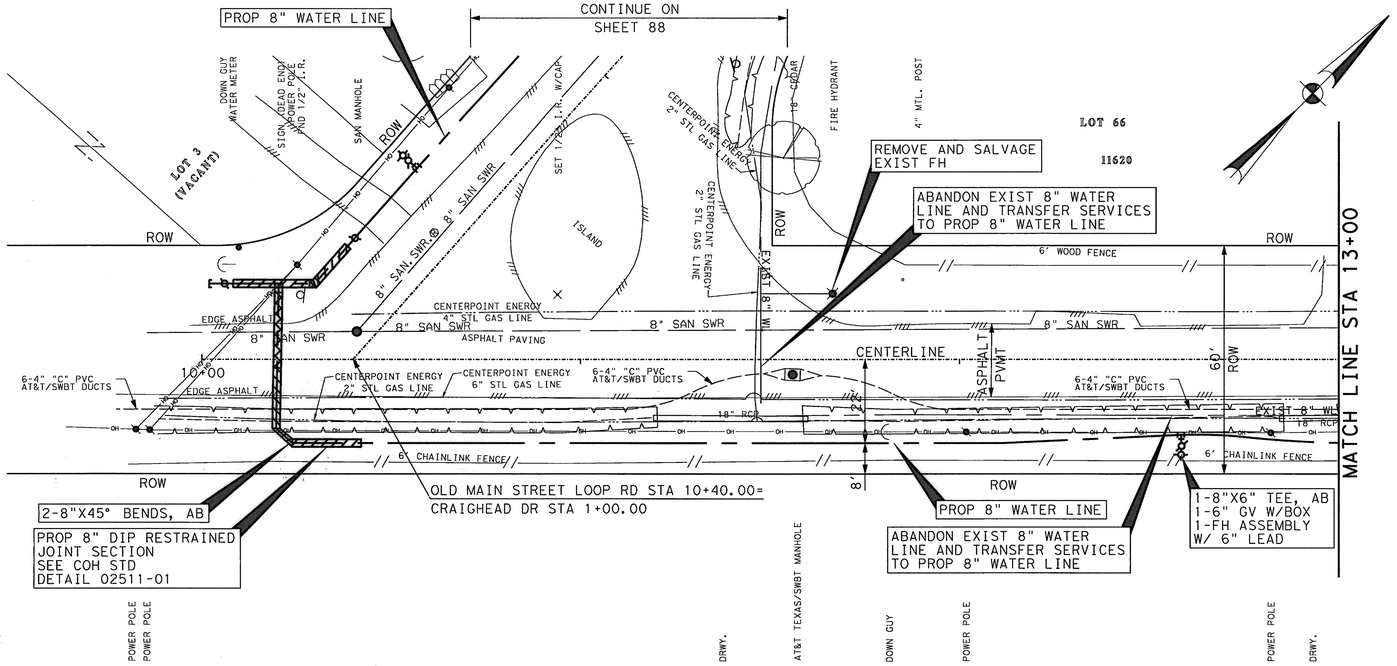
SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 96 OF 151	

12:03:32 PM 9/13/13
matthew! \CAM-UTL-A4-Hartt St-01.dgn

CAM-UTL-A4-Hartt St-01.dgn

FOR PROPOSED 8" WATER LINE PROFILE ALONG OLD MAIN STREET LOOP ROAD SEE SHEET 99



LEGEND

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- FLOODWAY FIRM MAP
- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J40, SET 1/2 IR W/ CAP
10+93.94, -17.13
ELEV 58.56

BENCH MARK:
CITY OF HOUSTON MARKER
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(NAVD 83/2011)

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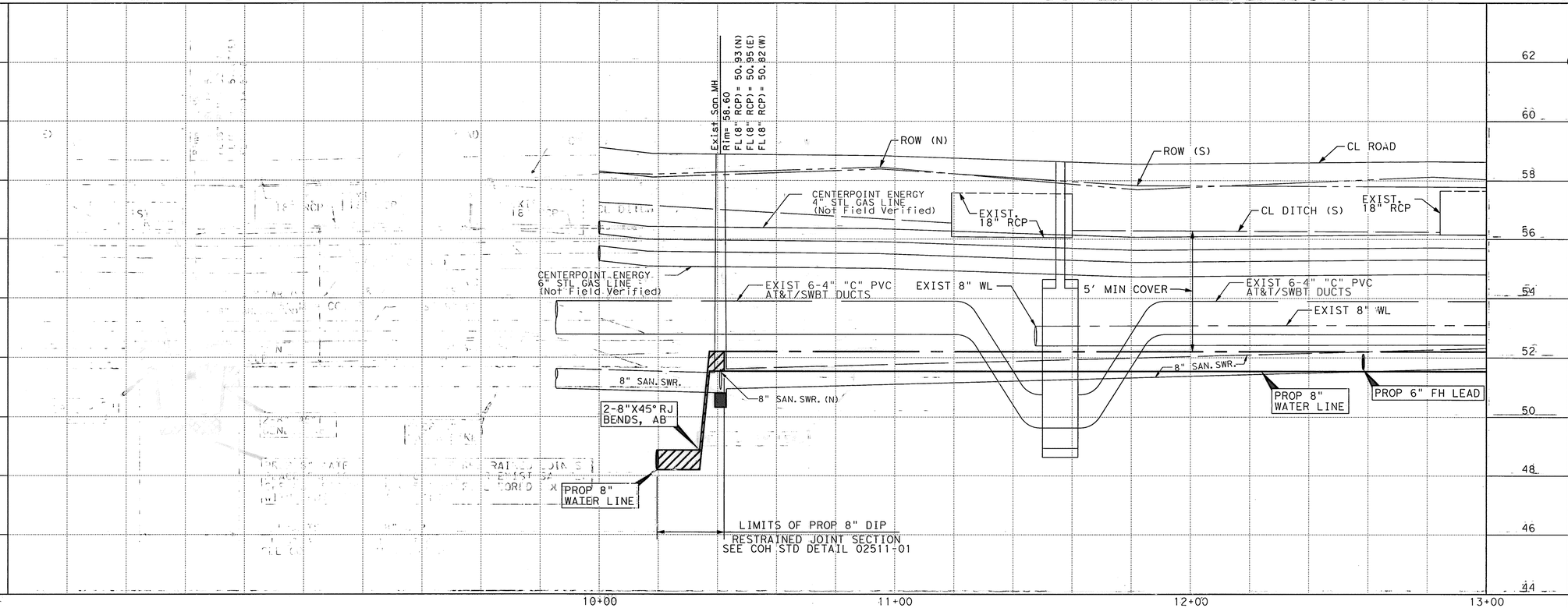
OLD MAIN STREET LOOP ROAD



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FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

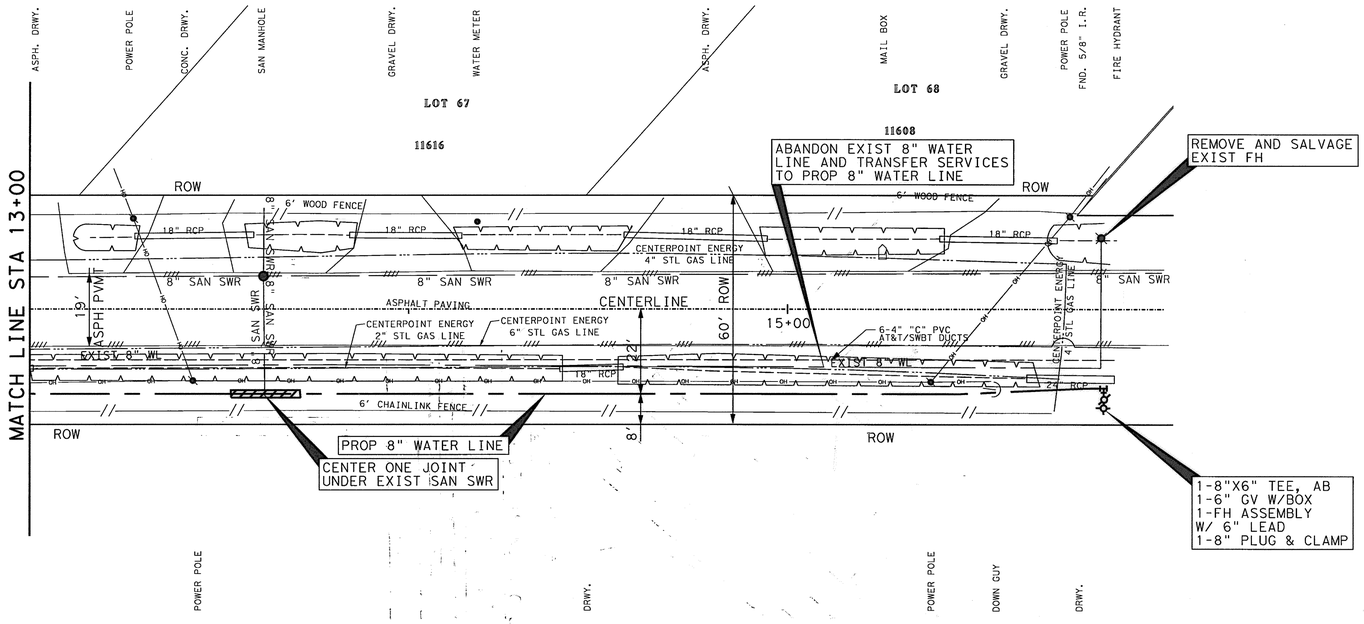
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
OLD MAIN STREET LOOP ROAD
BEGIN TO STA 13+00

SHEET 1 OF 2

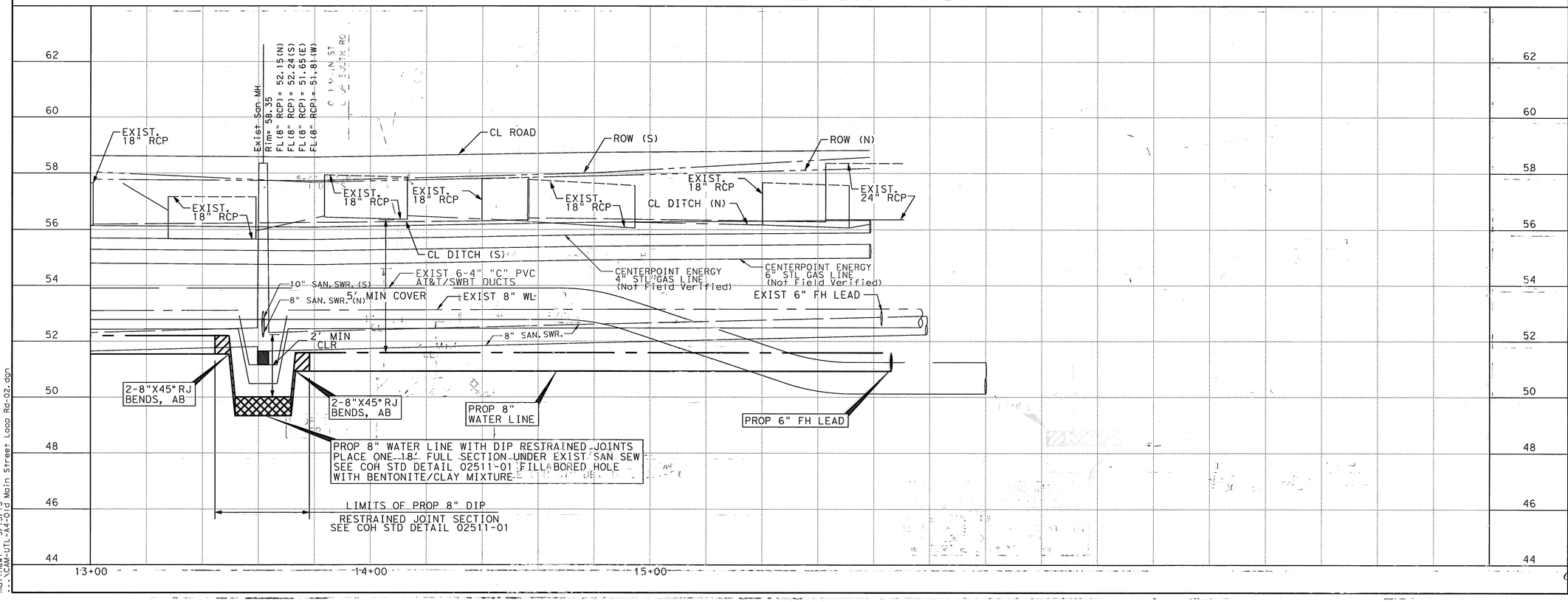
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 97 OF 151	

12:03:39 PM 9/13/13
matthew
...\CAM-UTL-A4-Old Main Street Loop Rd-01.dgn

CAM-UTL-A4-Old Main Street Loop Rd-01.dgn



OLD MAIN STREET LOOP ROAD



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CP-J40, SET 1/2 IR W/ CAP
10+93.94, -17.13
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9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

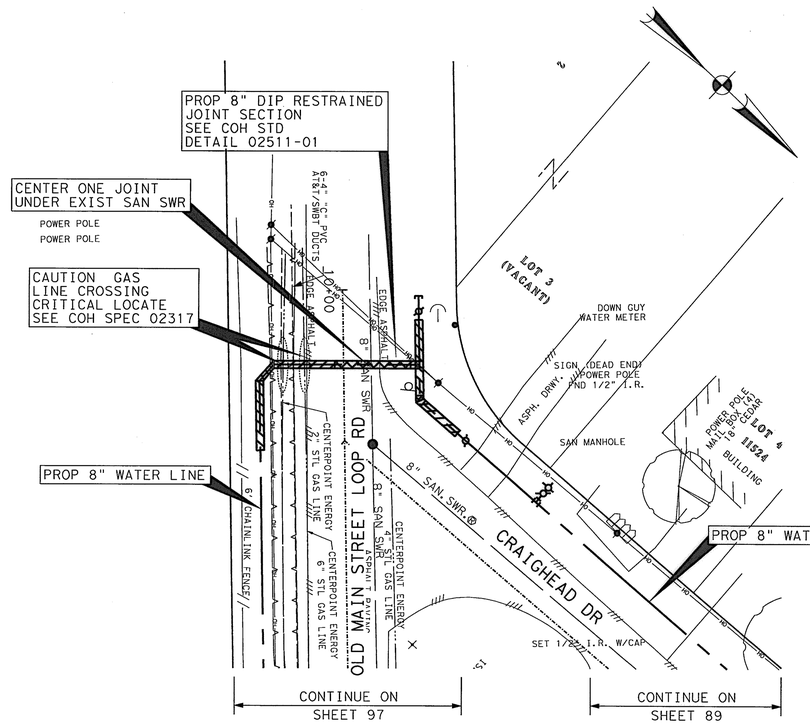
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
WATERLINE LAYOUT
PLAN & PROFILE
OLD MAIN STREET LOOP ROAD
STA 13+00 TO END
SHEET 2 OF 2

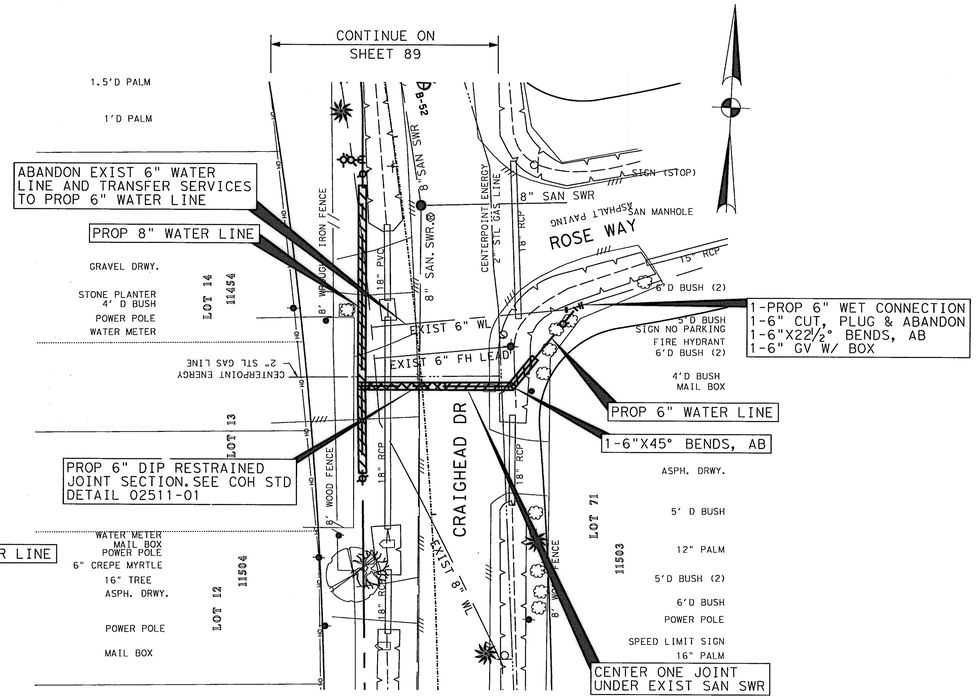
WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=20' (H); 1"=2' (V)
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO.	98 OF 151

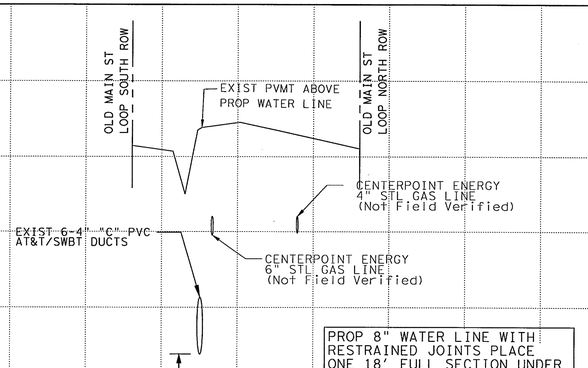
FOR CITY OF HOUSTON USE ONLY
51277

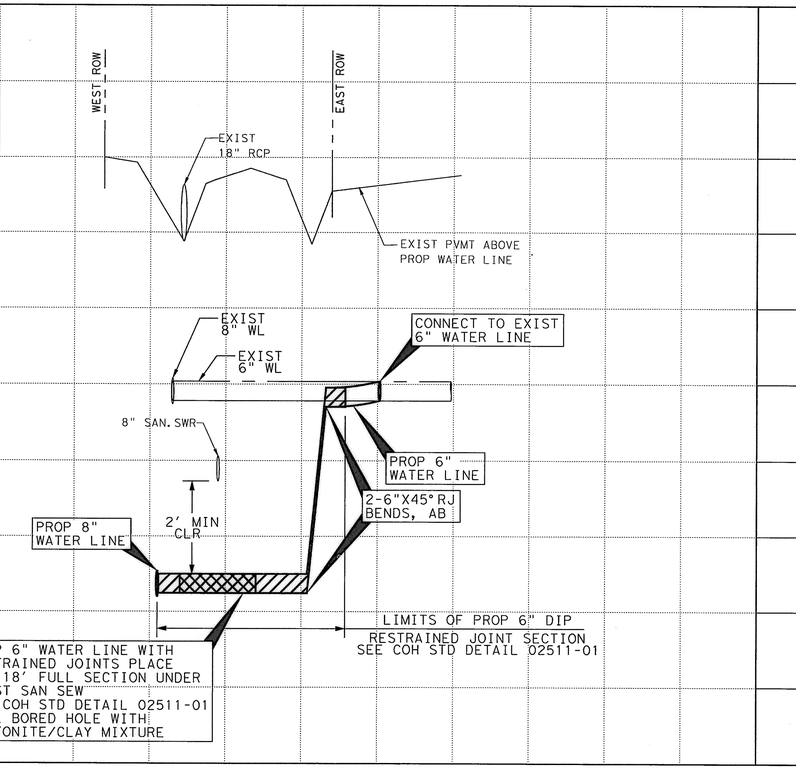
12:03:42 PM
matthew
9/13/13
...\CAM-UTL-A4-Old Main Street Loop Rd-02.dgn

CAM-UTL-A4-Old Main Street Loop Rd-02.dgn









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- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J39, SET 1/2 IR W/ CAP
6+92.41, -1.13
ELEV 56.47

CP-J40, SET 1/2 IR W/ CAP
1+48.63, 28.95
ELEV 58.56

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SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
PROPOSED WATERLINE LATERALS

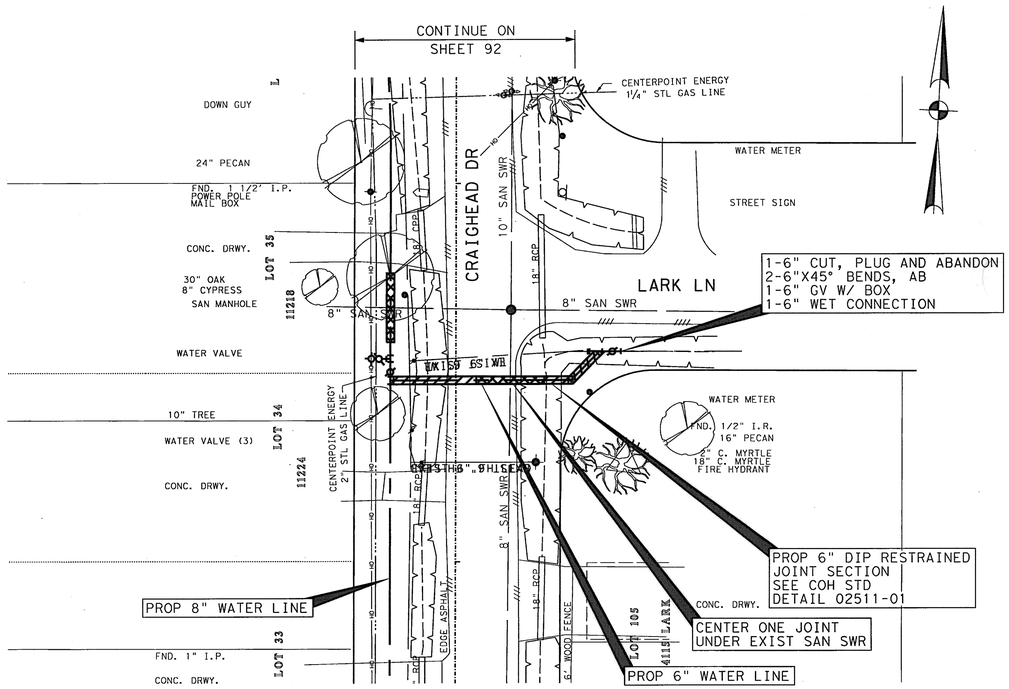
SHEET 1 OF 2

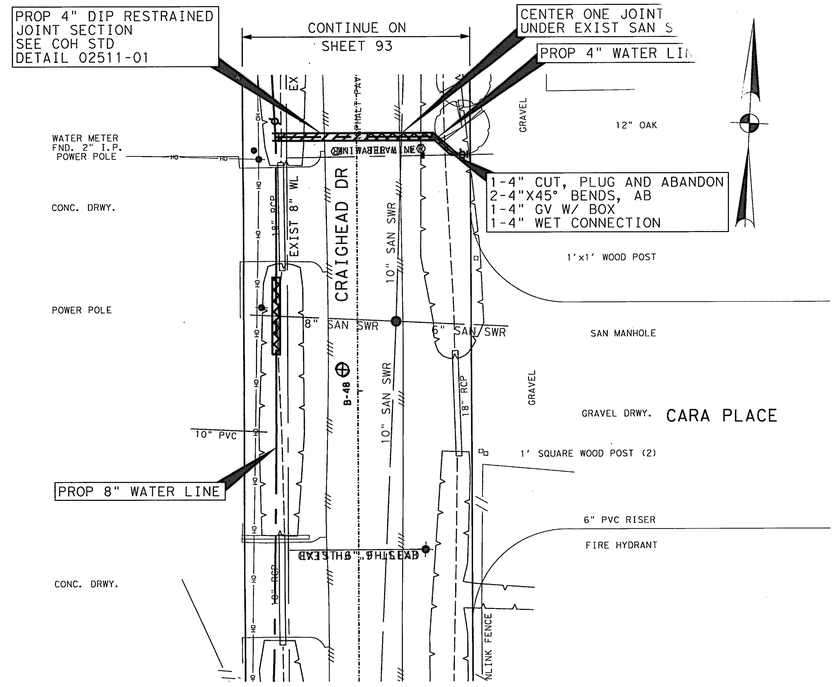
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 99 OF 151	

51277

3:10:32 PM
matthew
...\CAM-UTL-Laterals-01.dgn

CAM-UTL-Laterals-01.dgn





LEGEND

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- 100 YEAR FLOOD PLAIN 1% ANNUAL FLOOD FIRM MAP
- 500 YEAR FLOOD PLAIN 0.2% ANNUAL FLOOD FIRM MAP
- ⊕ B-X BOREHOLE LOCATION

TBM:
CP-J32, SET 1/2 IR W/ CAP
26+21.54, -14.93
ELEV 56.59

CP-J34, SET 1/2 IR W/ CAP
18+51.16, -24.09
ELEV 56.97

BENCH MARK:
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NORTHEAST CORNER OF THE INTERSECTION
OF KINGLET ST AND GREENWILLOW ST
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(NAVD 83/2011)

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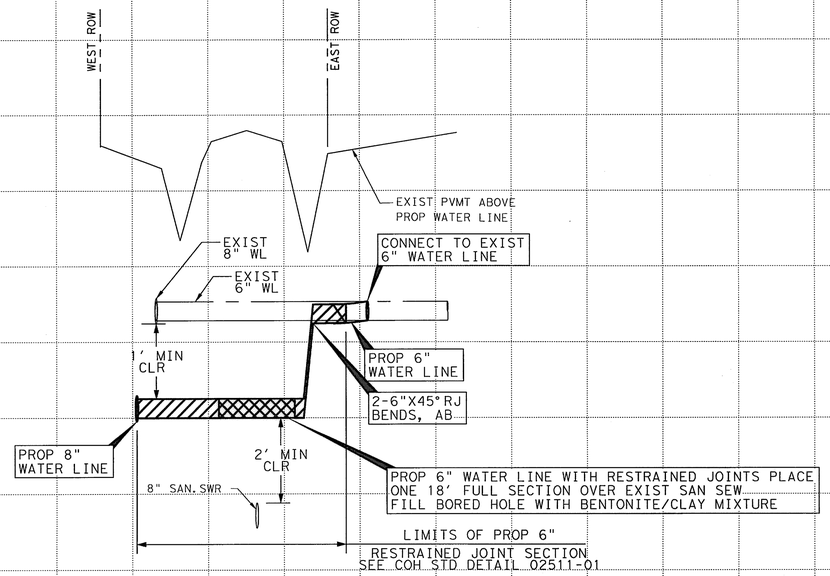

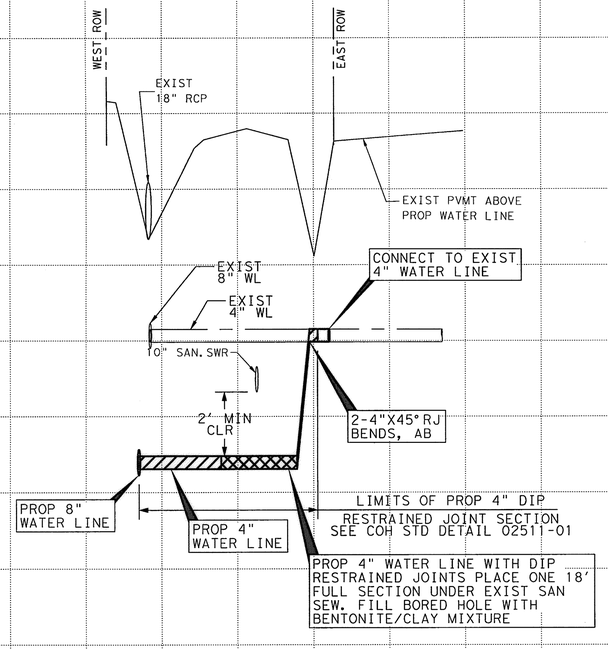

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Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED
PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

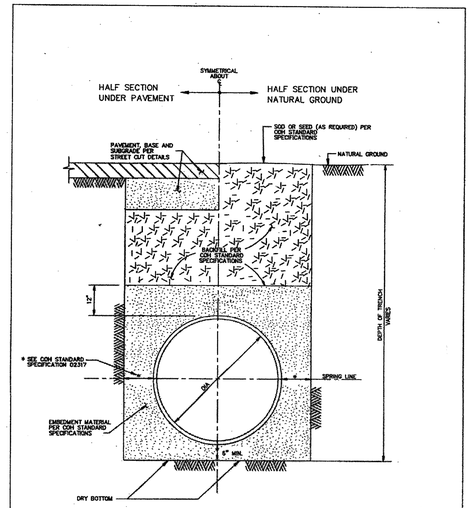
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
PROPOSED WATERLINE LATERALS

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 100 OF 151	

9:14:03 AM
matthew
9/17/13
...\CAM-UTL-Laterals-02.dgn

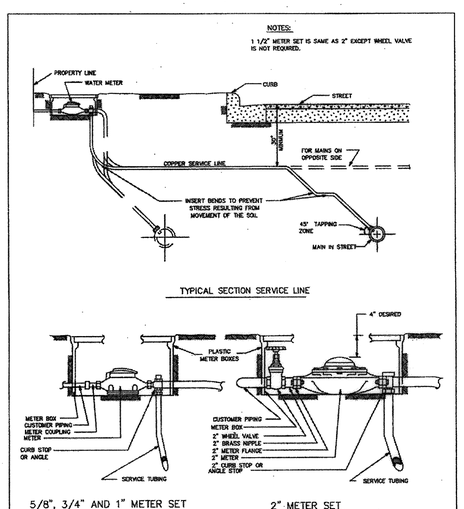
CAM-UTL-Laterals-02.dgn



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER DISTRIBUTION MAIN BEDDING AND BACKFILL FOR OPEN CUT TRENCHES
(NOT TO SCALE)

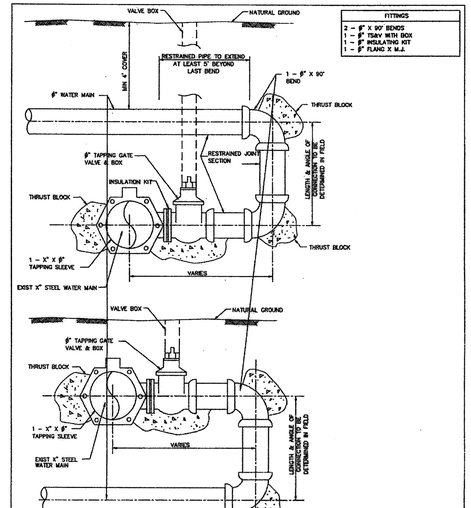
APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010 | DWG NO: 02317-04



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL METER SETTINGS
(NOT TO SCALE)

APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010 | DWG NO: 02526-01



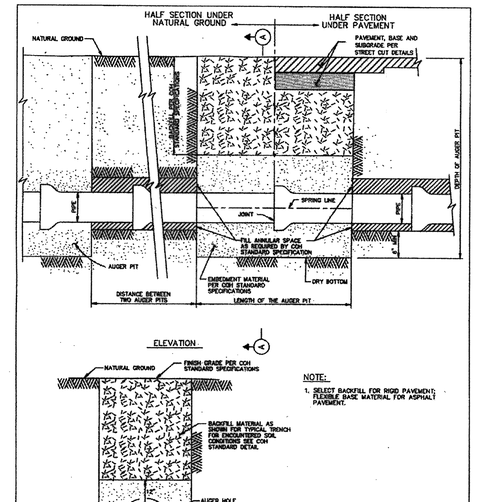
FITTINGS
2 - 8" X 90° BENDS
1 - 8" TSAV WITH BOX
1 - 8" INSULATING KIT
1 - 8" FLANG X M.J.

GENERAL NOTES:
1. X" AND 8" DENOTE RUN AND BRANCH LINE SIZES RESPECTIVELY.
2. 90° BENDS ARE TO BE ROLLED TO PROVIDE CLEARANCE FOR VALVE BOX.
3. WATER MAIN ASSEMBLY FOR BACK TAP SAME FOR PROPOSED WATER MAIN UNDER EXISTING MAIN.
4. PROVIDE RESTRAINED JOINT PIPE AS SHOWN.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

BACK TAP ON EXISTING STEEL LINE
(NOT TO SCALE)

APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010 | DWG NO: 02512-03

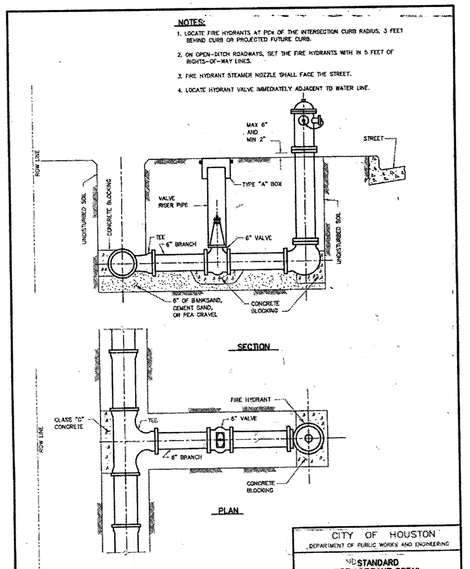


NOTE:
1. SELECT BACKFILL FOR RIGID PAVEMENT; FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

BEDDING AND BACKFILL AUGER PIT AND AUGER HOLE
(NOT TO SCALE)

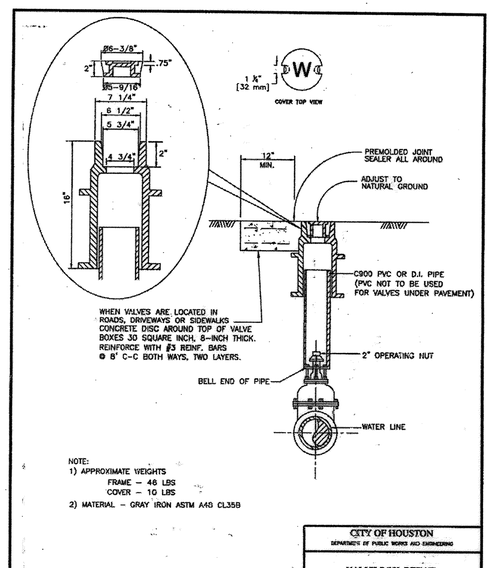
APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010 | DWG NO: 02447-01



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STANDARD FIRE HYDRANT DETAIL
(NOT TO SCALE)

APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010 | DWG NO: 02520-01

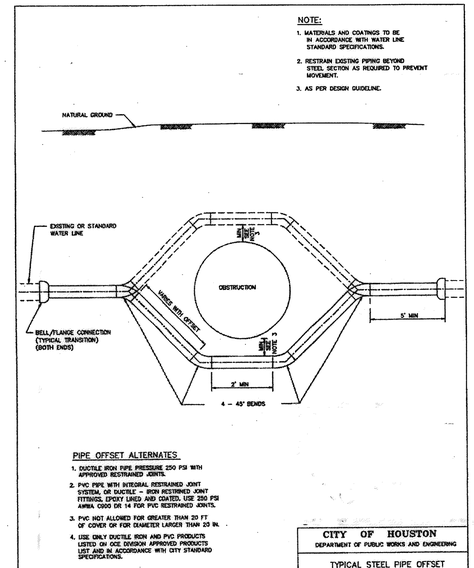


NOTE:
1) APPROXIMATE WEIGHTS
FRAME – 48 LBS
COVER – 10 LBS
2) MATERIAL – GRAY IRON ASTM A48 CL35B

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

VALVE BOX DETAIL
(NOT TO SCALE)

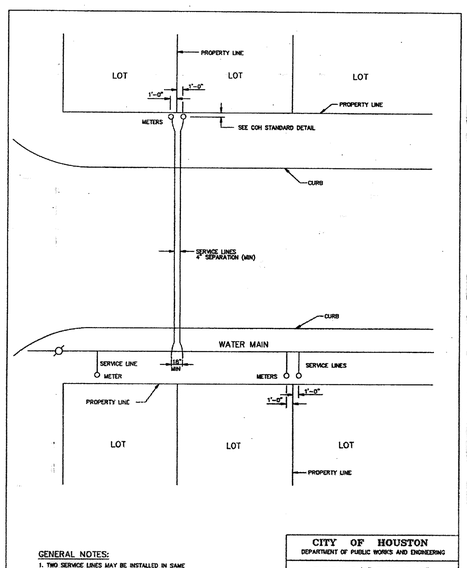
APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF. DATE: JULY 01, 2010 | DWG. NO: 02065-03



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL STEEL PIPE OFFSET SECTION FOR WATER LINES
(NOT TO SCALE)

APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010 | DWG NO: 02511-01



GENERAL NOTES:
1. TWO SERVICE LINES MAY BE INSTALLED IN SAME TRENCH PROVIDING 4" CLEARANCE IS MAINTAINED.
2. ONE METER PER SERVICE LINE

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL 3/4" THROUGH 2" SERVICE ARRANGEMENTS
(NOT TO SCALE)

APPROVED: CITY ENGINEER | DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010 | DWG NO: 02512-01

IDC
Planners-Engineers-Program Managers
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SURVEYED BY: JAG
FB. NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-13-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
STANDARD WATERLINE DETAILS

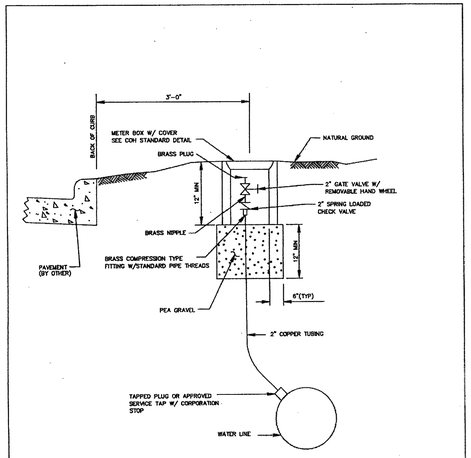
SHEET 1 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 101 OF 151	

51277

4:33:52 PM 9/10/13
mattnewl
...\STANDARDS\CAM-STD-WAT-01.dgn

CAM-STD-WAT-01.dgn



GENERAL NOTES:

1. PLACE GATE VALVE VERTICAL TO GROUND WITH END OF BRASS PLUG 3 INCHES FROM SURFACE
2. PLACE METER BOX CENTER AROUND GATE VALVE BOX WITH LONG SIDE PARALLEL TO VALVE.

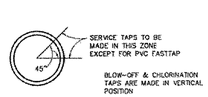
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

PERMANENT
BLOW-OFF-DETAIL
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010 | DWG NO: 02524-01

PIPE TAPPING SCHEDULE				
WATER MAIN TYPE AND DIAMETER	SERVICE SIZE			
	3/4"	1"	1 1/2"	2"
4" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
4" ASBESTOS (EXISTING) CEMENT	WBSS	WBSS	DSS, WBSS	DSS, WBSS
4" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" ASBESTOS (EXISTING) CEMENT	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
6" AND 8" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" CAST IRON OR DUCTILE IRON	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" ASBESTOS (EXISTING) CEMENT	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
12" PVC (AWWA C900)	DSS, WBSS	DSS, WBSS	DSS, WBSS	DSS, WBSS
16" AND UP CAST IRON OR DUCTILE IRON	DWBSS	DWBSS	DWBSS	DWBSS
16" AND UP ASBESTOS (EXISTING) CEMENT	DWBSS	DWBSS	DWBSS	DWBSS
16" AND UP PVC (AWWA C900)	DWBSS	DWBSS	DWBSS	DWBSS

DSS = DUAL STRAP SADDLES
WBSS = WIDE BAND STRAP SADDLES
DWBSS = DUAL WIDE BAND STRAP SADDLES

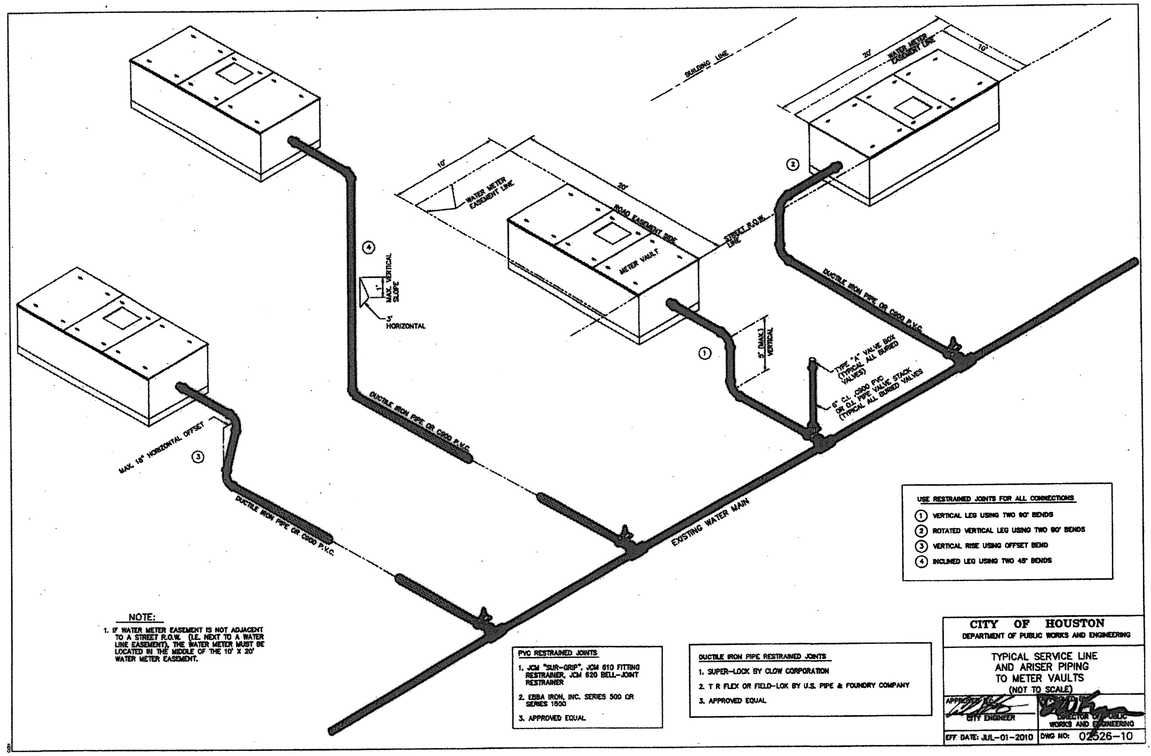




CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SERVICE TAPS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010 | DWG NO: 02512-02



USE RESTRAINED JOINTS FOR ALL CONNECTIONS

1. VERTICAL LEG USING TWO 90° BENDS
2. ROTATED VERTICAL LEG USING TWO 90° BENDS
3. VERTICAL RISE USING OFFSET BEND
4. INCLINED LEG USING TWO 45° BENDS

NOTE:

1. IF WATER METER EASEMENT IS NOT ADJACENT TO A STREET R.O.W. (I.E. NEXT TO A WATER LINE EASEMENT), THE WATER METER MUST BE LOCATED IN THE MIDDLE OF THE 10' X 20' WATER METER EASEMENT.

PVC RESTRAINED JOINTS

1. JCM "SUR-GRIP", JCM 610 FITTING RESTRAINER, JCM 625 BELL-JOINT RESTRAINER
2. EBBA IRON, INC. SERIES 500 OR SERIES 1900
3. APPROVED EQUAL

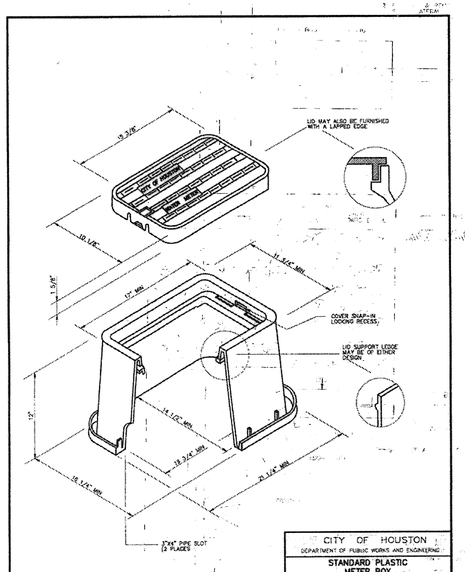
DUCTILE IRON PIPE RESTRAINED JOINTS

1. SUPER-LOCK BY CLOW CORPORATION
2. T R FLEX OR FIELD-LOK BY U.S. PIPE & FOUNDRY COMPANY
3. APPROVED EQUAL

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TYPICAL SERVICE LINE AND ARISER PIPING TO METER VAULTS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010 | DWG NO: 02526-10



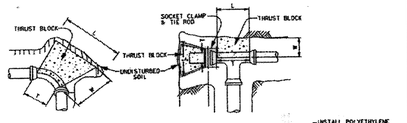
NOTE.

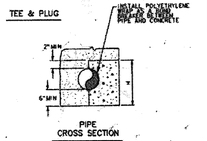
1. LID MUST BE ABLE TO ACCEPT THE CITY'S AMR TRANSMITTING ENDPOINT.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

STANDARD PLASTIC METER BOX FOR ¾" AND 1" METERS
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010 | DWG NO: 02085-01





MINIMUM BLOCKING DIMENSION IN INCHES												
PIPE SIZE	90° BEND				45° BEND				TEE/PLUG			
	W	H	L	T	W	H	L	T	W	H	L	T
4"	6	12	14	10	6	8	11	8	6	10	12	12
6"	8	14	26	12	6	14	14	12	8	14	18	18
8"	10	16	40	16	10	18	20	16	10	18	26	26
10"	12	24	42	18	12	22	25	18	12	24	30	30
12"	14	36	50	24	14	26	30	22	14	26	40	40

CORRECTION FACTORS		
SOIL TYPE	SOIL BEARING STRENGTH S_b (lb/ft²)	MULTIPLY "L" AND "H" BY
SOFT CLAY	1000	1.73
SILT	1500	1.41
SANDY SILT	3000	1.00
SAND	4000	0.87
SANDY CLAY	6000	0.71
HARD CLAY	9000	0.58

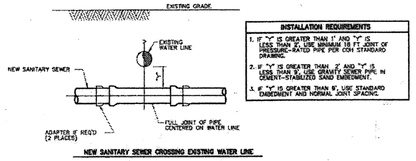
NOTES:

1. DEPTH "H" MAY BE GREATER THAN SPECIFIED TO ALLOW WORKING SPACE.
2. BLOCKING MUST BE PLACED AGAINST UNDISTURBED EARTH. WHERE THIS IS NOT POSSIBLE, THE FILL BETWEEN THE BEARING SURFACE AND UNDISTURBED SOIL MUST BE COMPACTED TO AT LEAST 90% STANDARD PROCTOR DENSITY.
3. PROVIDE CONCRETE IN ACCORDANCE WITH STANDARD SPECIFICATION SECTION 03315 – CONCRETE FOR UTILITY CONSTRUCTION.
4. BLOCKING DIMENSIONS SHOWN ARE BASED ON 3000 PSI SOIL BEARING STRENGTH AND 150 PSI INTERNAL WATER PRESSURE. FOR OTHER SOIL CONDITIONS, MULTIPLY DIMENSIONS "L" AND "H" BY THE APPROPRIATE CORRECTION FACTOR.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

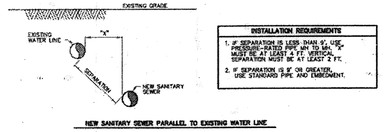
THRUST BLOCK DETAIL FOR WATER LINES (4-INCH TO 12 INCH)
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2010 | DWG NO: 02511-02



INSTALLATION REQUIREMENTS

1. IF "V" IS GREATER THAN 1' AND "V" IS LESS THAN 2', USE MINIMUM 18 FT. JOINT OF PRESSURE-RATED PIPE PER COH STANDARD DRAWING.
2. IF "V" IS GREATER THAN 2' AND "V" IS LESS THAN 9', USE GRANITY SEWER PIPE IN CEMENT-STABILIZED SAND EMBEDMENT.
3. IF "V" IS GREATER THAN 9', USE STANDARD EMBEDMENT AND NORMAL JOINT SPACING.



INSTALLATION REQUIREMENTS

1. IF SEPARATION IS LESS THAN 6', USE PRESSURE-RATED PIPE WITH NO MIN. 'V' MUST BE AT LEAST 6' VERTICAL SEPARATION MUST BE AT LEAST 2' FT.
2. IF SEPARATION IS 9' OR GREATER, USE STANDARD PIPE AND EMBEDMENT.

INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES

NOTES:

1. SANITARY SEWER MUST BE BELOW WATER LINE WHEREVER POSSIBLE. WHEN WATERLINE IS BELOW THE SANITARY SEWER PROVIDE MINIMUM 2 FT SEPARATION AND INSTALL PIPE IN ACCORDANCE TO CHAPTER 7 TABLE 7.3 OF COH DESIGN MANUAL.
2. WHEN PRESSURE-RATED PIPE IS REQUIRED, PROVIDE PIPE WITH MINIMUM 150 psi PRESSURE RATING.
3. ADAPTERS MUST BE FACTORY MOLDED OR FABRICATED, WITH RING STIFFNES AT LEAST EQUAL TO THE ADJOINING SANITARY SEWER PIPE, AND USING RESILIENT GASKET OR SEAL MATERIAL FLEXIBLE ELASTOMERIC "SLIP" TYPE ADAPTERS WILL NOT BE ACCEPTED.
4. INSTALL FORCE MAINS SAME AS FOR GRAVITY SEWER, USING SPECIFIED PRESSURE PIPE.
5. "V" MUST ALWAYS BE GREATER THAN OR EQUAL TO 1 FT FOR PRESSURE RATED SS AND 2 FT FOR NON-PRESSURE RATED SS.
6. "V" MUST BE GREATER THAN OR EQUAL TO 4 FT.
7. ALTERNATIVES MAY BE SHOWN ON THE DRAWINGS OR DESCRIBED IN THE SPECIFICATIONS.
8. SEPARATION REQUIREMENTS SHOWN HERE DO NOT APPLY TO SERVICE LINES. REFER TO PLUMBING CODE FOR APPLICABLE REQUIREMENTS.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

SANITARY SEWER
INSTALLING SANITARY SEWERS CROSSING OR PARALLEL TO WATER LINES
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2010 | DWG NO: 02531-05

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Planners-Engineers-Program Managers
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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-22-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STANDARD WATERLINE DETAILS

SHEET 2 OF 2

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 102 OF 151	

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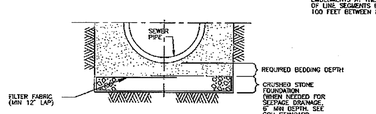
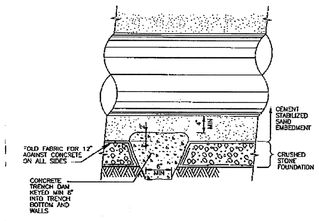
matthew
...\STANDARDS\CAM-STD-WAT-02.dgn

NOTES:

1. ACTUAL SHAPE OF CONCRETE TRENCH DAM CROSS SECTION MAY BE DETERMINED BY CONTRACTOR TO MEET MINIMUM WIDTH, THICKNESS AND KEY DEPTH REQUIREMENTS
2. THIS DETAIL SHALL BE USED WITH CEMENT STABILIZED SAND EMBEDMENT, OR OTHER CLASS II EMBEDMENT, IN WET STABLE TRENCH CONDITIONS.
3. PLACE TRENCH DAMS IN CLASS I EMBEDMENTS AT THE MIDPOINT OF LINE SEGMENTS LONGER THAN 100 FEET BETWEEN MANHOLES.



CROSS-SECTION OF CRUSHED STONE FOUNDATION



LONGITUDINAL SECTION ALONG PIPE ℄ AT FOUNDATION TRENCH DAM

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY OR STORM SEWER
CRUSHED STONE FOUNDATION
FOR WET STABLE TRENCH
(NOT TO SCALE)

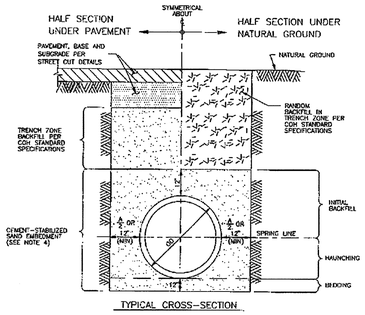
APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO. 02317-07

NOTES:

1. THIS DETAIL MAY BE USED ONLY FOR DRY STABLE TRENCH CONDITIONS PER COH STANDARD. SEE COH STANDARD SPECIFICATION FOR REQUIREMENTS IN OTHER CONDITIONS.
2. MIN TRENCH WIDTH SHALL BE PIPE OD PLUS AN ALLOWANCE "A" FOR ANY NOMINAL PIPE SIZE:

NOMINAL PIPE SIZE	"A"
18" TO 30"	24"
OVER 30"	36"

3. MAX TRENCH WIDTH SHALL BE NOT GREATER THAN MIN TRENCH WIDTH PLUS 24 INCHES, UNLESS OTHERWISE NOTED.
4. ALTERNATIVE EMBEDMENT BACKFILL MATERIALS FOR FORCE MAINS MAY BE ALLOWED. SEE COH STANDARD SPECIFICATIONS.



TYPICAL CROSS-SECTION

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

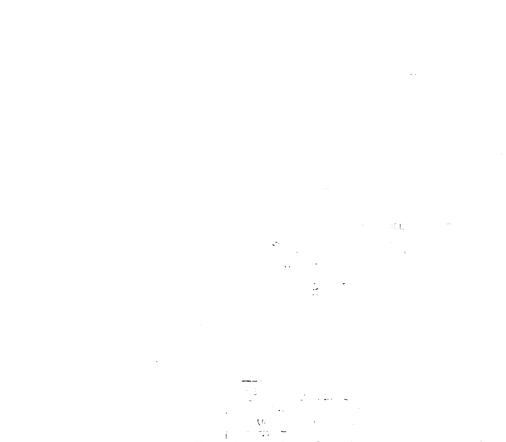
SANITARY OR STORM SEWER
BEDDING AND BACKFILL
FOR DRY STABLE TRENCH
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO: 02317-03

NOTES:

1. REPLACE EXISTING SERVICE LINE TO EXTENT SHOWN ON PLAN AND PROFILE DRAWINGS, OR AS SPECIFIED.
2. EXCAVATE & REMOVE EXISTING SEWER LATERAL AS REQUIRED TO ALLOW RECONSTRUCTION.

PLAN

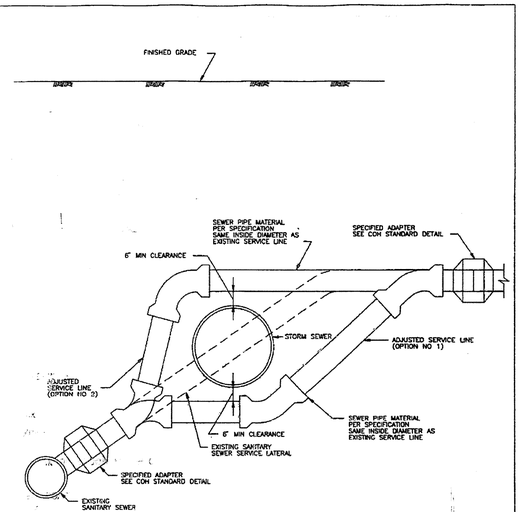


CROSS-SECTION OF SEWER AT SERVICE CONNECTION

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
SERVICE RECONNECTION WITH STACK
ON NEW OR REPLACEMENT SEWER
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO: 02534-02



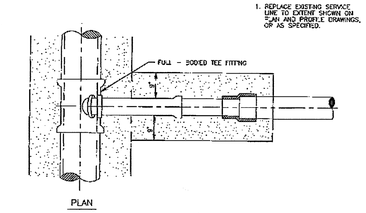
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
SERVICE LINE RECONNECTION
FOR STORM SEWER CONFLICTS
(NOT TO SCALE)

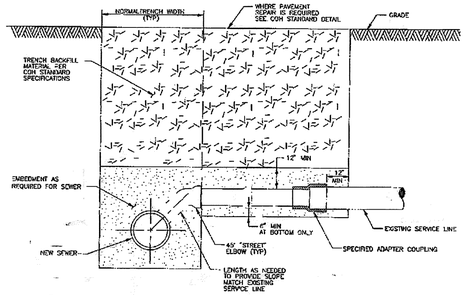
APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO: 02534-03

NOTE:

1. REPLACE EXISTING SERVICE LINE TO EXTENT SHOWN ON PLAN AND PROFILE DRAWINGS, OR AS SPECIFIED.



PLAN



CROSS-SECTION OF SEWER AT SERVICE CONNECTION

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SANITARY SEWER
SERVICE RECONNECTION
ON NEW OR REPLACEMENT SEWER
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER — APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002 DWG NO: 02534-04

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TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STANDARD SANITARY SEWER DETAILS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 103 OF 151	

4:44:35 PM 9/10/13
matthewl
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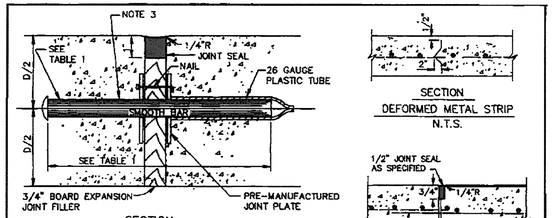
CAM-STD-SAN-01.dgn



SECTION

DOWEL TYPE EXPANSION JOINT

N.T.S

SECTION

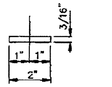
DEFORMED METAL STRIP

N.T.S.

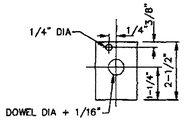
SECTION

CONSTRUCTION JOINT SEAL

N.T.S.



PLAN – JOINT PLATE



ELEVATION – JOINT PLATE

N.T.S.

NOTES:

1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS. UNITS TO BE SPACED ON 12" CENTERS.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS.
3. CENTER DOWEL HORIZONTALLY ON JOINT.
4. CENTER DOWEL VERTICALLY IN CONCRETE BASE. EXTEND THICKENED CONCRETE AS NEEDED TO MAINTAIN 3" MIN. COVER.
5. CITY OF HOUSTON APPROVED PRODUCTS MAY BE USED AS JOINT PLATE ALTERNATIVE

TABLE 1

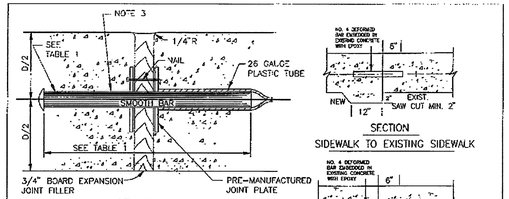
PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
6	3/4	18	12
7	1	18	12
8	1	18	12
9	1 1/4	18	12
10	1 1/4	18	12
11	1 1/4	18	12
12	1 1/4	18	12

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

PAVEMENT EXPANSION AND CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)

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

EFF DATE: June-01-2003 | DWG NO: 02752-01



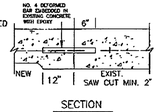
SECTION

DOWEL TYPE EXPANSION JOINT

N.T.S

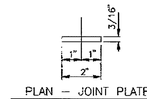
SECTION

SIDEWALK TO EXISTING SIDEWALK

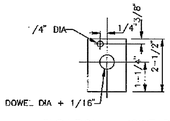


SECTION

SIDEWALK TO EXISTING DRIVEWAY

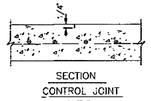


PLAN – JOINT PLATE



ELEVATION – JOINT PLATE

N.T.S.



SECTION

CONTROL JOINT

N.T.S.

NOTES:

1. STEEL TO MEET ASTM STANDARD SPECIFICATIONS FOR CONCRETE REINFORCING BARS.
2. EXPANSION JOINT TO BE PLACED AT THE END OF EACH CURB RADIUS AND SPACED AT A MAXIMUM DISTANCE OF 36' FEET. MAXIMUM SPACING FOR CONTROL JOINTS SHALL BE 5' FEET.
3. CENTER DOWEL HORIZONTALLY ON JOINT.
4. CENTER DOWEL VERTICALLY IN CONCRETE AS NEEDED TO MAINTAIN 2" MIN. COVER.

TABLE 1

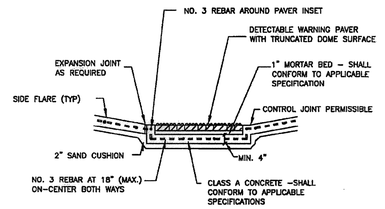
PAVEMENT THICKNESS (IN)	DOWEL SIZES AND SPACINGS		
	DIAMETER (IN)	LENGTH (IN)	SPACING (IN)
4 1/2	1/2	18	12
5	1/2	18	12
6	3/4	18	12
7	1	18	12

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

SIDEWALK EXPANSION AND CONSTRUCTION JOINT DETAILS
(NOT TO SCALE)

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

EFF DATE: OCT-01-2002 | DWG NO: 02752-02

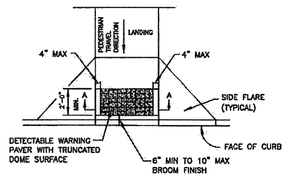


SECTION Ⓐ

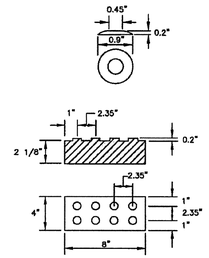
GENERAL NOTES (PAVERS)

1. FURNISH DETECTABLE WARNING PAVER UNITS MEETING ALL REQUIREMENTS OF ASTM C-936, C-33. LAY IN A TWO BY TWO UNIT BASKET WEAVE PATTERN OR AS DIRECTED.

2. LAY FULL-SIZE UNITS FIRST FOLLOWED BY CLOSURE UNITS CONSISTING OF AT LEAST 25 PERCENT OF A FULL UNIT. CUT DETECTABLE WARNING PAVER UNITS USING A POWER SAW.



DETECTABLE WARNING PAVER (OPTION)



DETECTABLE WARNING PAVER

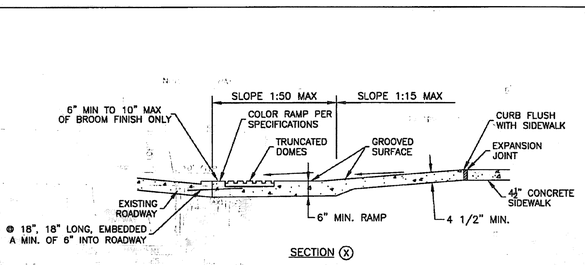
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

DETECTABLE WARNING PAVER (OPTION)

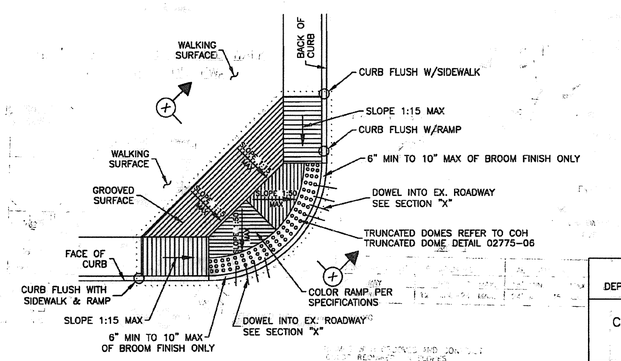
(NOT TO SCALE)

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

EFF DATE: JULY-01-2012 | DWG NO: 02775-07



SECTION Ⓧ



COMMERCIAL & HIGH-DENSITY CONDITIONS

NTS

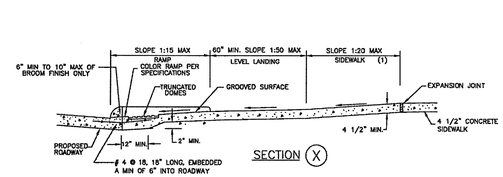
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

COMMERCIAL CURB RAMP DETAIL

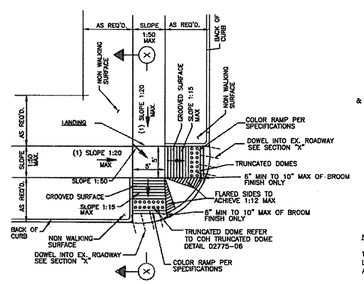
(NOT TO SCALE)

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

EFF DATE: JULY-01-2012 | DWG NO: 02775-05



SECTION Ⓧ

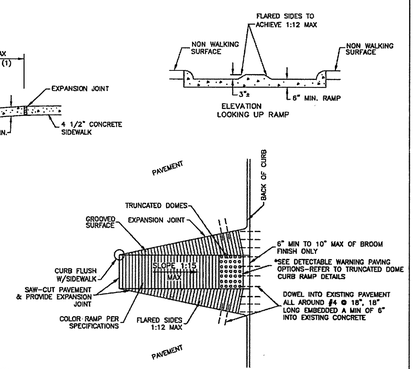


STREETS WITH NON-WALKING SURFACE BEHIND CURB

N.T.S.

NOTES:

1. REPLACE EXISTING SIDEWALK FROM LEVEL LANDING AS NECESSARY TO ACHIEVE 1:20 SLOPE
2. SLOPES GREATER THAN 1:20 BUT LESS THAN 1:15 (MAX) REQUIRE GROOVES AND COLORING
3. BROOM FINISH IS MEASURED FROM FACE OF CURB.



RAMP CONSTRUCTION FOR EXISTING PAVEMENT

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WHEEL CHAIR RAMP DETAILS

(NOT TO SCALE)

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

EFF DATE: JULY-01-2012 | DWG NO: 02775-02

IDC
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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
Stephen K. Yu
7-02-13

SURVEYED BY: JAG
FB NO. P-5694

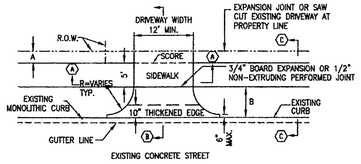
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

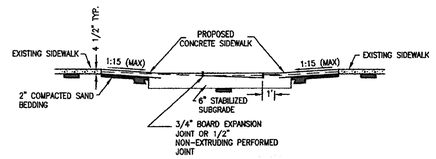
STANDARD PAVING DETAILS

SHEET 1 OF 3

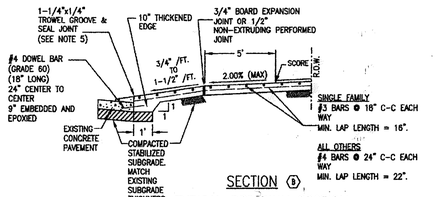
WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 104 OF 151	



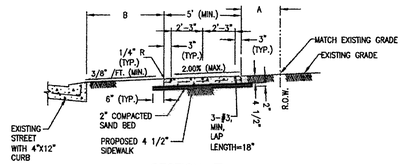
PLAN VIEW – DRIVEWAY



SECTION (A)
PROPOSED SIDEWALK, THROUGH DRIVEWAY WITH EXCESSIVE GRADES
N.T.S.



SECTION (B)
TYPICAL DRIVEWAY SECTION
N.T.S.

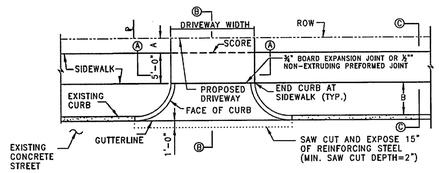


SECTION (C)
TYPICAL SIDEWALKS SECTION
N.T.S.

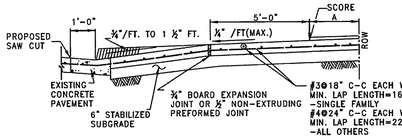
NOTES

1. IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE A 5-FEET SIDEWALK, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER FOR A 4-FEET WIDE SIDEWALK.
2. DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY
3. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5 1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
4. THE OUTER DOWEL BARS ARE TO BE LOCATED 12" FROM END OF PROPOSED EDGE OF DRIVEWAY RETURN. EXTEND DOWEL 3" INCHES INTO PROPOSED DRIVEWAY AND BEND REMAINING BAR TO EXTEND TO RADIUS RETURN BOTH SIDES.
5. TROWEL GROOVE SEALANT SHALL BE LOW MODULUS SILICONE OR POLYURETHANE SEALANT.
6. EXPANSION & CONSTRUCTION JOINTS ALONG SIDEWALK SHALL BE ACCORDING TO DRAWING No. 02752-02.
7. REFER CHAPTER 10 DESIGN REQUIREMENTS FOR A AND B.

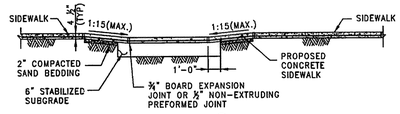
CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
DRIVEWAY / LOCAL RESIDENTIAL STREETS (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2009	DWG NO: 02754-01A



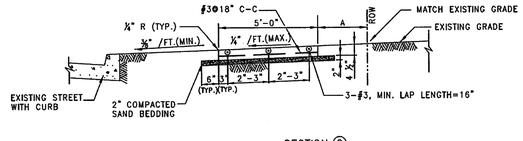
PLAN VIEW – DRIVEWAY
NTS



SECTION (B)
TYPICAL DRIVEWAY SECTION
NTS



SECTION (A)
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE WITH EXISTING SIDEWALK
NTS

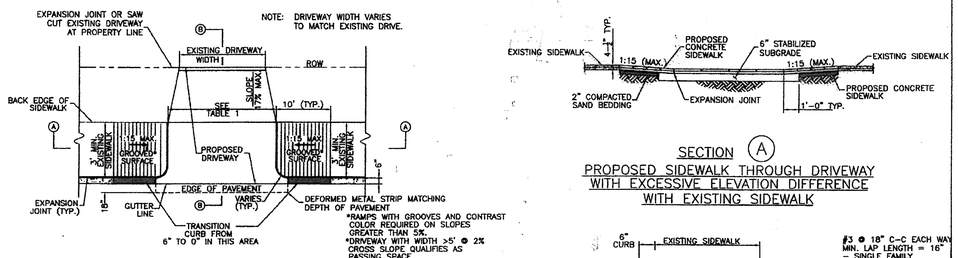


SECTION (C)
TYPICAL SIDEWALK SECTION
NTS

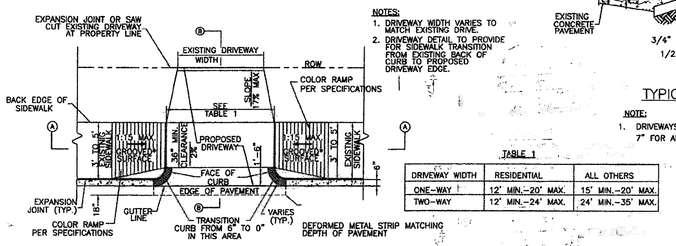
NOTES

1. IF AVAILABLE ROW IS NOT SUFFICIENT TO ACCOMMODATE A 5-FEET SIDEWALK, ENGINEER SHALL OBTAIN A VARIANCE FROM THE CITY ENGINEER FOR A 4-FEET WIDE SIDEWALK.
2. DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY USE AND 7" THICK FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)
3. DRIVEWAYS AND SIDEWALKS SHALL BE CONSTRUCTED WITH PORTLAND CEMENT CONCRETE AND INCLUDE 5-1/2 SACKS OF CEMENT PER CUBIC YARD OF CONCRETE.
4. 6X6-W2.9 X W2.9 WELDED WIRE FABRIC MAY BE USED IN LIEU OF THE REINFORCING STEEL.
5. EXPANSION & CONSTRUCTION JOINTS ALONG SIDEWALKS SHALL BE ACCORDING TO DRAWING NO. 02752-02.
6. REFER CHAPTER 10 DESIGN REQUIREMENTS FOR A AND B.

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
DRIVEWAY DETAIL WITH 6" CURBED STREETS (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2009	DWG NO: 02754-01B



OPTION 1 – CURB LEVEL SIDEWALK
PLAN VIEW – DRIVEWAY



NOTES:
1. DRIVEWAY WIDTH VARIES TO MATCH EXISTING DRIVE.
2. DRIVEWAY DETAIL TO PROVIDE FOR SIDEWALK TRANSITION FROM EXISTING BACK OF CURB TO PROPOSED DRIVEWAY EDGE.

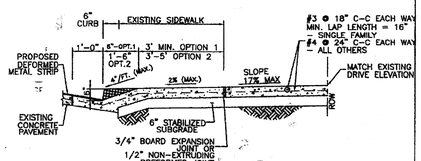
TABLE 1

DRIVEWAY WIDTH	RESIDENTIAL	ALL OTHERS
ONE-WAY	12' MIN.-20' MAX.	15' MIN.-20' MAX.
TWO-WAY	12' MIN.-24' MAX.	24' MIN.-35' MAX.

*RAMPS WITH GROOVES AND CONTRAST COLOR REQUIRED ON SLOPES GREATER THAN 5%.
*DRIVEWAY WITH WIDTH >5' @ 2% CROSS SLOPE QUALIFIES AS PASSING SPACE

OPTION 2 – CURB LEVEL SIDEWALK
PLAN VIEW – DRIVEWAY

SECTION (A)
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE WITH EXISTING SIDEWALK



SECTION (B)
TYPICAL DRIVEWAY SECTION

NOTE:
1. DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY USE AND 7" FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE (NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2009	DWG NO: 02754-03

IDC
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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
STANDARD PAVING DETAILS

SHEET 2 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 105 OF 151	

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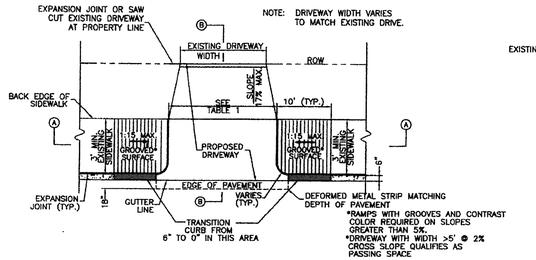
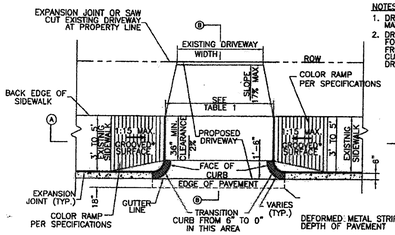


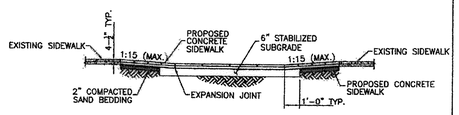
OPTION 1 – CURB LEVEL SIDEWALK
PLAN VIEW – DRIVEWAY



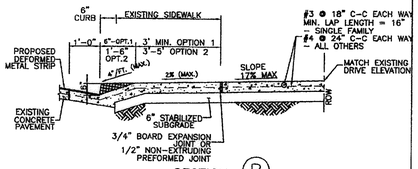
OPTION 2 – CURB LEVEL SIDEWALK
PLAN VIEW – DRIVEWAY

NOTES:
1. DRIVEWAY WIDTH VARIES TO MATCH EXISTING DRIVE.
2. DRIVEWAY DETAIL TO PROVIDE FOR SIDEWALK TRANSITION FROM EXISTING BACK OF CURB TO PROPOSED DRIVEWAY EDGE.

*RAMPS WITH GROOVES AND CONTRAST COLOR REQUIRED ON SLOPES GREATER THAN 5%.
*DRIVEWAY WITH WIDTH ≥5' @ 2% CROSS SLOPE QUALIFIES AS PASSING SPACE



SECTION (A)
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE WITH EXISTING SIDEWALK



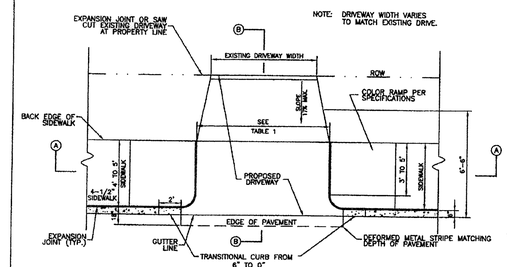
SECTION (B)
TYPICAL DRIVEWAY SECTION

NOTE:
1. DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY USE AND 7" FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL, ETC.)

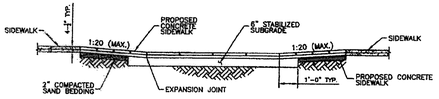
TABLE 1

DRIVEWAY WIDTH	RESIDENTIAL	ALL OTHERS
ONE–WAY	12' MIN.–20' MAX.	15' MIN.–20' MAX.
TWO–WAY	12' MIN.–24' MAX.	24' MIN.–35' MAX.

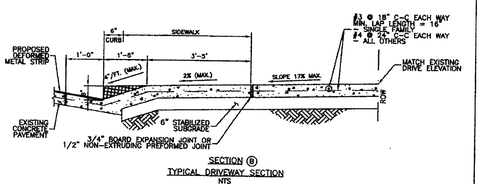
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH EXCESSIVE ELEVATION DIFFERENCE	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY–01–2009	DWG NO: 02754–03



PLAN VIEW – DRIVEWAY
NTS



SECTION (A)
PROPOSED SIDEWALK THROUGH DRIVEWAY WITH MINIMAL ELEVATION DIFFERENCE WITH EXISTING SIDEWALK
NTS



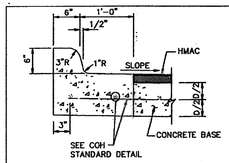
SECTION (B)
TYPICAL DRIVEWAY SECTION
NTS

NOTE:
1. DRIVEWAYS SHALL BE 6" THICK FOR SINGLE FAMILY USE AND 7" FOR ALL OTHERS (I.E. COMMERCIAL, INDUSTRIAL ETC.)

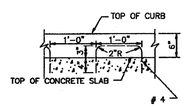
TABLE 1

DRIVEWAY WIDTH	RESIDENTIAL	ALL OTHERS
ONE–WAY	12' MIN.–20' MAX.	15' MIN.–20' MAX.
TWO–WAY	12' MIN.–24' MAX.	24' MIN.–35' MAX.

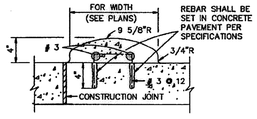
CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING	
EXISTING/PROPOSED CURB LEVEL SIDEWALK CONDITIONS	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY–01–2009	DWG NO: 02754–04



ESPLANADE CURB CONNECTED TO CONCRETE BASE



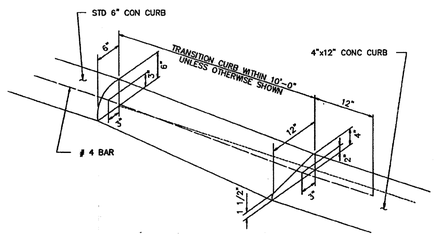
ALTERNATE CONCRETE CURB REINFORCEMENT



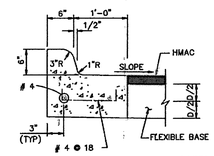
MOUNTABLE CURB

4"x12" MONOLITHIC AND TRANSITION CURB NOTES:

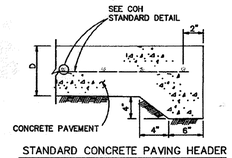
1. 6–INCH CONCRETE CURB TO BE CONSTRUCTED ON ALL ESPLANADES, ISLANDS NON–RESIDENTIAL STREETS, AND RESIDENTIAL STREETS.
2. TRANSITIONS FROM 6–INCH CONCRETE CURB TO 4–INCH x 12–INCH CONCRETE CURB TO BE ACCOMPLISHED WITHIN 10 FEET, UNLESS OTHERWISE SHOWN. IF THIS 10–FOOT TRANSITION CURB IS NOT POURED MONOLITHICLY WITH THE PAVEMENT, THEN REINFORCING STEEL AS SHOWN IN "4–INCH x 12–INCH TRANSITION CURB" IS TO BE INSTALLED.



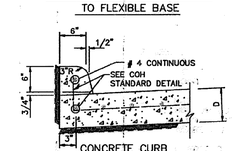
CURB TRANSITION



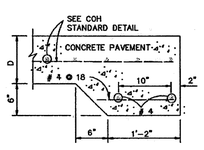
ESPLANADE CURB CONNECTED TO FLEXIBLE BASE



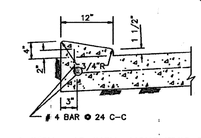
STANDARD CONCRETE PAVING HEADER



CONCRETE CURB

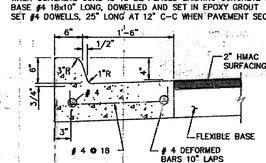


STANDARD RAILROAD HEADER

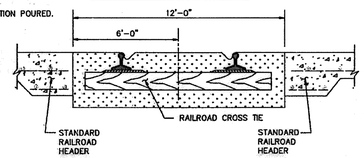


4–INCH x 12–INCH MONOLITHIC CURB

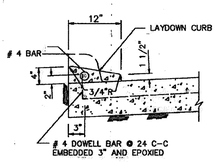
WHEN CONCRETE CURB IS TO BE PLACED EXISTING CONCRETE USE BASE #4 18x10" LONG, DOWELLED AND SET IN EPOXY GROUT SET #4 DOWELLS, 25" LONG AT 12" C–C WHEN PAVEMENT SECTION POURED.



MONOLITHIC CURB AND GUTTER



STANDARD RAILROAD CROSSING – SINGLE TRACK



4–INCH x 12–INCH TRANSITION CURB

CITY OF HOUSTON	
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION	
CURB, CURB AND GUTTER AND HEADER DETAILS	
(NOT TO SCALE)	
APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY–01–2009	DWG NO: 02771–01

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Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

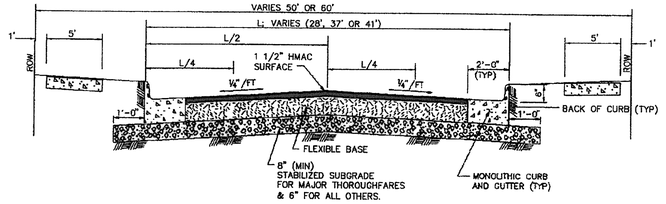
WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
STANDARD PAVING DETAILS

SHEET 3 OF 3

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 106 OF 151	

4:53:17 PM 9/10/13
matthewl
...\STANDARDS\CAM-STD-PAV-03.dgn

CAM-STD-PAV-03.dgn

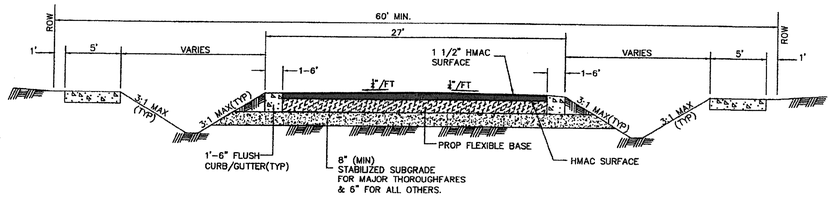


FLEXIBLE BASE PAVEMENT – CURB & GUTTER SECTION
(NOT APPLICABLE TO ETJ OF CITY OF HOUSTON)

NOTE:
FLEXIBLE BASE SHALL BE:

ALTERNATES: 1. 6" (MIN) HOT MIX ASPHALTIC CONCRETE.

2. 8" (MIN) CRUSHED CONCRETE.



FLEXIBLE BASE PAVEMENT – DITCH SECTION
(NOT APPLICABLE TO ETJ OF CITY OF HOUSTON)

NOTE:
FLEXIBLE BASE SHALL BE:

ALTERNATES: 1. 6" (MIN) HOT MIX ASPHALTIC CONCRETE.

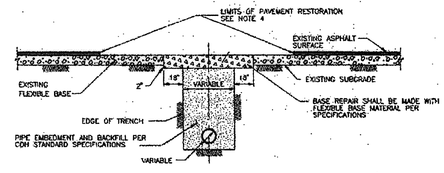
2. 8" (MIN) CRUSHED CONCRETE.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

HOT-MIX ASPHALTIC CONCRETE PAVEMENT DETAILS

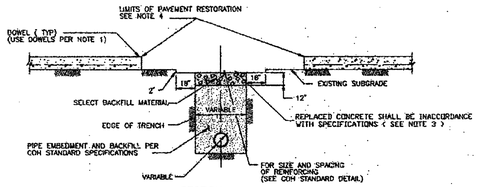
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JULY-01-2009	DWG NO: 02741-01



SECTION (A)

REPAIR OF FLEXIBLE BASE PAVEMENT



SECTION (B)

REPAIR OF REINFORCED CONCRETE PAVEMENT

NOTE:

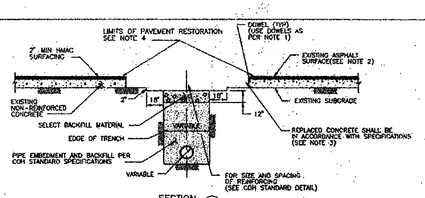
1. EXPOSE 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS.
   HORIZONTAL DOWELS SHALL BE # 6 BARS, 24" LONG, 24" C-C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB. WITH "PO ROC" OR EQUAL.
2. IF REINFORCED CONCRETE IS OVERLAYED WITH ASPHALT, REPLACE WITH 2" MIN HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751-01 FOR REINFORCING STEEL REQUIREMENTS
4. REFER TO STANDARD DETAIL 02951-01 FOR PAVEMENT RESTORATION LIMITS.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

PAVEMENT REPAIR DETAILS FOR STREET CUTS

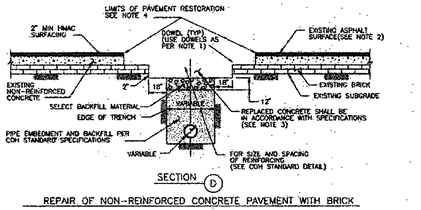
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02902-01



SECTION (C)

REPAIR OF NON-REINFORCED CONCRETE PAVEMENT



SECTION (D)

REPAIR OF NON-REINFORCED CONCRETE PAVEMENT WITH BRICK

NOTE:

1. EXPOSE 15" OF REINFORCING STEEL AT PROPOSED SAWED JOINT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS.
   HORIZONTAL DOWELS SHALL BE # 6 BARS, 24" LONG, 24" C-C, DRILLED AND EMBEDDED 8" INTO THE CENTER OF THE EXISTING SLAB. WITH "PO ROC" OR EQUAL.
2. IF REINFORCED CONCRETE IS OVERLAYED REPLACE WITH SAME THICKNESS OF HMAC SURFACING.
3. REFER TO STANDARD DETAIL 02751-01 FOR REINFORCING STEEL REQUIREMENT
4. REFER TO STANDARD DETAIL 02951-01 FOR PAVEMENT RESTORATION LIMITS.

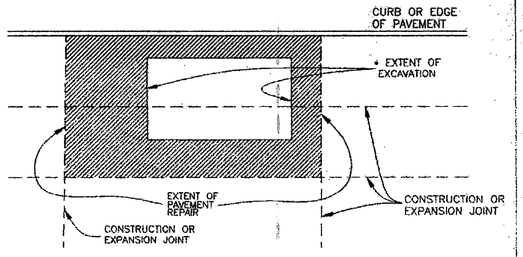
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

PAVEMENT REPAIR DETAILS FOR STREET CUTS
NON-REINFORCED CONCRETE AND BRICK PAVEMENT
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 02902-02

CONCRETE PAVEMENT RESTORATION

AGE OF PAVEMENT
LESS THAN OR EQUAL TO 5 YEARS



NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. REPLACE ENTIRE PANEL WIDTH AND LENGTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL WITHIN EXISTING PAVEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02902-01) IF EXISTING REINFORCING IS BROKEN OFF.
4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
5. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
6. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
7. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY SPECIFICATIONS 02764 AND 02767.

* EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02902-01.

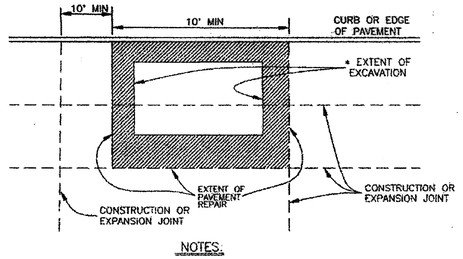
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP

Street Cut Pavement Replacement
CONCRETE PAVEMENT LESS THAN 5 YRS IN AGE
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUNE 2002	DWG NO: 02951-01

CONCRETE PAVEMENT RESTORATION

AGE OF PAVEMENT
GREATER THAN 5 YEARS



NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.
2. WIDTH:
   REPLACE PANEL WIDTH TO NEAREST CONSTRUCTION OR EXPANSION JOINT BEYOND EDGE OF EXCAVATION.
3. LENGTH:
   a. MINIMUM LENGTH OF PAVEMENT REPAIR ALONG TRAVEL WAY IS 10' FROM THE NEAREST JOINT.
   b. IF EDGE OF EXCAVATION IS LESS THAN 10' FROM EXISTING CONSTRUCTION OR EXPANSION JOINT, REPLACE PAVEMENT TO EXISTING JOINT.
4. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF PANEL REPLACEMENT. PROVIDE HORIZONTAL DOWELS (PER SPECIFICATION SECTION 02902-01) IF REINFORCING IS BROKEN OFF OR DOES NOT EXIST.
5. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
6. MAINTAIN EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE DIRECTED BY CITY ENGINEER.
7. SPECIALTY PAVEMENTS (IE: BRICK PAVERS) TO BE REPLACED WITH MATCHING PAVEMENT IN ALL CASES.
8. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY SPECIFICATIONS 02764 AND 02767.

* EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02902-01.

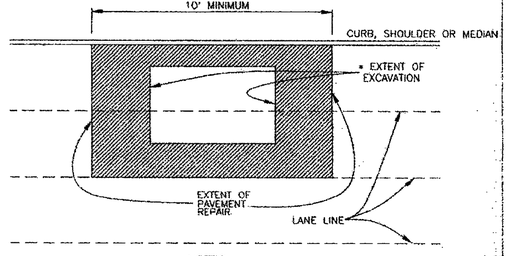
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP

Street Cut Pavement Replacement
CONCRETE PAVEMENT OVER 5 YRS IN AGE
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUNE 2002	DWG NO: 02951-02

ASPHALT PAVEMENT RESTORATION

FOR PAVEMENT OF ALL AGES



NOTES:

1. EXTENT OF PAVEMENT REPAIR SHALL BE PERPENDICULAR AND PARALLEL TO TRAVEL WAY.

2. FLEXIBLE BASE:
   REPLACE BASE TO SAME THICKNESS PLUS TWO INCHES (2") FOR EXTENT OF EXCAVATION. USE APPROVED BASE MATERIAL TYPE. *

3. SURFACE COURSE:

A. WIDTH:
   SURFACE MILL AND OVERLAY FULL WIDTH OF LANE(S) TO NEAREST LANE DIVIDER BEYOND EDGE OF EXCAVATION.

B. LENGTH:
   MINIMUM LENGTH OF SURFACE MILL ALONG TRAVEL WAY IS 10'.

C. REPLACE PAVEMENT MARKINGS IN ACCORDANCE WITH CITY SPECIFICATIONS 02764 & 02767.

ADDITIONAL REQUIREMENTS FOR ASPHALT OVERLAY ON CONCRETE PAVEMENT:

1. REPLACE CONCRETE FOR EXTENT OF EXCAVATION. REPLACE TO SAME THICKNESS PLUS TWO INCHES (2").
2. WIDTH:
   IF EXCAVATION EXTENDS MORE THAN HALF OF A LANE, REPLACE ENTIRE LANE OF CONCRETE. OTHERWISE USE STANDARD DETAIL 02902-01.
3. SAW CUT AND EXPOSE 15" OF REINFORCING STEEL AROUND EDGE OF CONCRETE REPLACEMENT. IF NO REINFORCING STEEL EXISTS, USE HORIZONTAL DOWELS PER SPECIFICATION SECTION 02902.
4. REPLACE CURB WHEN ADJACENT LANE IS REPLACED.
5. MAINTAIN CONCRETE EXPANSION JOINTS AT EXISTING LOCATIONS UNLESS OTHERWISE APPROVED BY CITY ENGINEER.

* EXTENT OF EXCAVATION INCLUDES 18" OVERCUT AS SHOWN ON STANDARD DETAIL 02902-01.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP

Street Cut Pavement Replacement
ASPHALT PAVEMENT
FOR PAVEMENT OF ALL AGES
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUNE 2002	DWG NO: 02951-03

IDC
Planners-Engineers-Program Managers
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TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

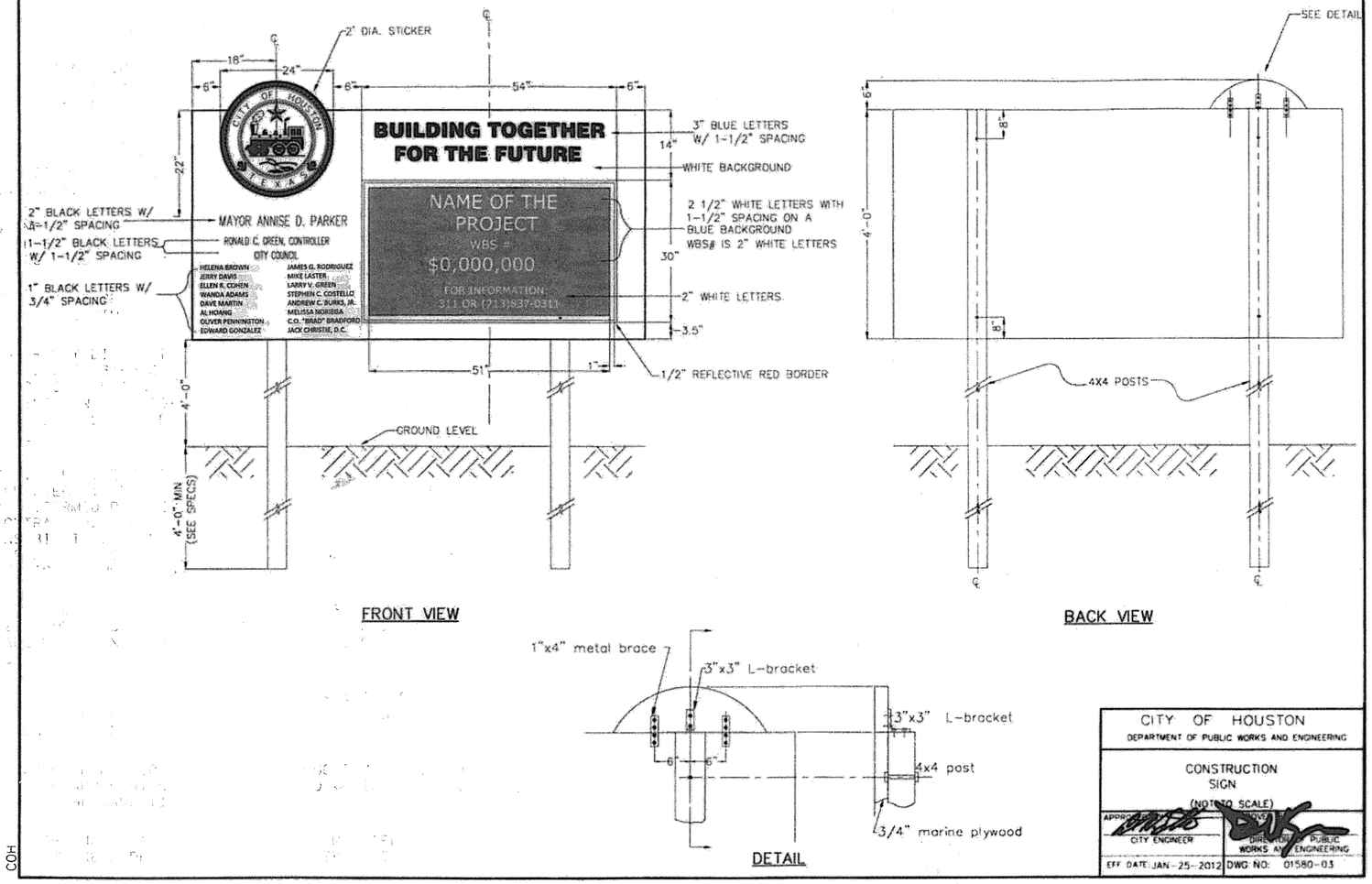
STANDARD STREET CUT DETAILS

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 107 OF 151	

4:58:27 PM
matthewl 9/10/13
...\STANDARDS\CAM-STD-STR-01.dgn

CAM-STD-STR-01.dgn



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

CONSTRUCTION SIGN
(NOT TO SCALE)

APPROVED: CITY ENGINEER
APPROVED: DIRECTOR, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

EFF. DATE: JAN-25-2012 DWG NO: 01580-03

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
STEPHEN K. YU
67965
REGISTERED
PROFESSIONAL ENGINEER
9-13-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

CONSTRUCTION SIGN DETAIL

SHEET 1 OF 1

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=20' (H); 1"=2' (V)	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 108 OF 151	

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CAM-STD-SGN-01.dgn

TRAFFIC CONTROL NOTES

1. THE CONSTRUCTION TRAFFIC CONTROL SIGNS, DEVICES AND BARRICADES ON THESE DRAWINGS CONSTITUTE MINIMUM REQUIREMENTS AND ARE NOT INTENDED TO COVER SPECIAL CIRCUMSTANCES OR OTHER CONDITIONS THAT MAY ARISE DUE TO UNFORESEEN FIELD CONDITIONS. THE CONTRACTOR SHALL PLACE AND MAINTAIN SUFFICIENT ADDITIONAL SIGNS, BARRICADES, AND WARNING DEVICES TO WARN THE PUBLIC AND PROVIDE FOR THE SAFE MOVEMENT OF TRAFFIC AND THE CONSTRUCTION ZONE SAFETY. WHERE PROJECT REQUIREMENTS ARE NOT FULLY SATISFIED BY THE STANDARDS SHOWN HEREON "THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL GOVERN.

2. CONTRACTOR SHALL PROVIDE AND INSTALL ALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART VI OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (T.M.U.T.C.D.), MOST RECENT EDITION WITH REVISIONS, DURING CONSTRUCTION.

3. BARRICADES, SIGNS, CHANNELIZING DEVICES, AND TRAFFIC HANDLING DEVICES AS SHOWN SHALL BE ADJUSTED TO FIT FIELD CONDITIONS OR AS DIRECTED BY THE ENGINEER.

4. CONTRACTOR SHALL PROVIDE ACCESS TO ALL BUSINESSES AND RESIDENCES ALONG THIS PROJECT AT ALL TIMES DURING THE ENTIRE PERIOD OF CONSTRUCTION UNLESS OTHERWISE AUTHORIZED BY THE ENGINEER.

5. ALL EXISTING STOP SIGNS, STREET NAME SIGNS AND WARNING SIGNS SHALL BE MAINTAINED IN PLACE DURING THE ENTIRE PERIOD OF CONSTRUCTION BY THE CONTRACTOR.

6. NO WORK WILL BE PERFORMED IN THE TRAVELED WAY INCLUDING LOADING AND UNLOADING OF TRUCKS.

7. THE ENGINEER MAY DIRECT THE CONTRACTOR TO FURNISH ADDITIONAL SIGNS, BARRICADES, AND CHANNELIZING DEVICES AS REQUIRED TO MAINTAIN TRAFFIC AND CONSTRUCTION ZONE SAFETY DURING CONSTRUCTION. ANY SUCH ADDITIONAL SIGNS, BARRICADES, ETC. SHALL BE CONSIDERED A PART OF THE LUMP SUM PAY ITEM.

8. WHEN DIRECTED BY THE ENGINEER, THE CONTRACTOR SHALL PROVIDE FLAGGERS TO DIRECT TRAFFIC. FLAGGERS SHALL BE OFF-DUTY UNIFORMED POLICE OFFICERS AND SHALL BE PAID FOR BY THE CONTRACTOR. THIS DOES NOT RELIEVE THE CONTRACTOR OF RESPONSIBILITY OR TAKING OTHER STEPS AND PROVIDING OTHER PERSONNEL WHICH THE CONTRACTOR MAY DEEM NECESSARY FOR PROTECTION OF WORK AND THE PUBLIC.

9. CONTRACTOR SHALL INSURE THAT ALL BARRICADES, SIGNS, CHANNELIZING DEVICES, WARNING LIGHTS, AND TRAFFIC HANDLING DEVICES ARE MAINTAINED IN A CLEAN FUNCTIONAL CONDITION AT ALL TIMES.

10. ALL SIGNS, WARNING DEVICES, AND BARRICADES ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR, INCLUDING ACTS OF VANDALISM OR ACCIDENT.

11. THE CONTRACTOR SHALL SEQUENCE THE CONSTRUCTION IN SUCH A MANNER THAT NO ADJACENT CROSS STREETS AND MEDIAN OPENINGS ARE CLOSED AT THE SAME TIME.

12. THE CONTRACTOR SHALL MAINTAIN BARRICADES AND SAFETY FENCES AT EACH SITE WHERE PEDESTRIAN TRAFFIC IS EVIDENT.

13. THE CONTRACTOR SHALL CALL THE CITY OF HOUSTON TRAFFIC SIGNAL SHOP WHEN WORK IS SCHEDULED NEAR SIGNAL CONDUIT AT (713) 803-3000.

14. THE TRAFFIC SIGNAL SHALL REMAIN IN OPERATION DURING THE ENTIRE PERIOD OF CONSTRUCTION. IT IS THE CONTRACTOR'S RESPONSIBILITY TO MAINTAIN THE SIGNAL IN PROPER AND SAFE OPERATION. THE CONTRACTOR WILL BE RESPONSIBLE FOR ADJUSTING, RELOCATING, AND/OR PROVIDING TEMPORARY SIGNALS AND POLES, IF REQUIRED, TO FACILITATE THE VARIOUS TRAFFIC HANDLING SEQUENCES. IMMEDIATELY CALL THE CITY OF HOUSTON, SIGNAL SHOP AT (713) 803-3000.

15. CONTRACTOR SHALL REALIGN AND READJUST SIGNAL HEADS AS REQUIRED AND DIRECTED BY THE CITY OF HOUSTON AND THE FIELD ENGINEER DURING ENTIRE CONSTRUCTION ACTIVITY. IMMEDIATELY CALL THE CITY OF HOUSTON, SIGNAL DISPATCHER AT (713)803-3000.

16. ALL TEMPORARY SIGNAL WORK AND REPAIR SHALL BE COMPLETED IN CONFORMANCE WITH TRAFFIC AND TRANSPORTATION BOOKLET 202 SPECIFICATIONS AND c-3900 SERIES STANDARD DRAWINGS AND CALL IMMEDIATELY THE CITY OF HOUSTON, SIGNAL DISPATCHER AT (713) 803-3000.

17. THE CONSTRUCTION SIGNS, WARNING DEVICES, AND BARRICADES SHALL REMAIN IN PLACE UNTIL THEIR REMOVAL IS DIRECTED BY THE ENGINEER.

18. AT THE CONCLUSION OF THE CONSTRUCTION, THE CONTRACTOR SHALL RESTORE ALL PAVEMENT MARKINGS TO THEIR ORIGINAL CONDITION WITH TRAFFIC PAINT STRIPES, RAISED PAVEMENT MARKER BUTTONS AND RE-INSTALL THE SIGNS AT THEIR EXISTING LOCATION.

19. CONSTRUCTION IN ANY AREA, THAT IS ADVERSLY AFFECTING TRAFFIC FLOW AND SAFETY, MUST BE PURSUED DILIGENTLY BY THE CONTRACTOR. IF, IN THE OPINION OF THE ENGINEER, THE CONTRACTOR IS NOT DIRECTLY PURSUING THE CONSTRUCTION IN THOSE AREAS, THE ENGINEER MAY REQUIRE THE CONTRACTOR TO CHANGE HIS/HER WORK SCHEDULE TO EXPEDITE COMPLETION OF THOSE AREAS OF CONCERN.

20. (a) NO LANES SHALL BE CLOSED DURING THE HOURS OF 7:00 AM TO 9:00 AM AND 4:00 PM TO 6:00 PM MONDAY THRU FRIDAY.

20. (b) NO LANES SHALL BE CLOSED IN RESIDENTIAL AREA FROM 7:00 PM TO 7:00 AM.

21. CONTRACTOR SHALL MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS.

22. CONTRACTOR SHALL COVER OPEN EXCAVATIONS WITH STEEL PLATES ANCHORED PROPERLY DURING NON-WORKING HOURS AND OPEN LANES FOR NORMAL TRAFFIC FLOW.

23. OFF-DUTY UNIFORMED POLICE OFFICER(S)/FLAGGERS(S) IS/ARE REQUIRED TO DIRECT TRAFFIC WHEN LANES ARE BLOCKED.

24. IF THE CONTRACTOR CHOOSES TO USE A DIFFERENT METHOD OF "TRAFFIC CONTROL PLANS" DURING THE CONSTRUCTION THAN WHAT IS OUTLINED IN THE CONTRACT DRAWINGS. HE/SHE SHALL BE RESPONSIBLE TO PREPARE AND SUBMIT AN ALTERNATE SET OF PLANS* TO TRAFFIC MANAGEMENT AND MAINTENANCE DIVISIONS, PUBLIC WORKS AND ENGINEERING DEPARTMENT, FOR REVIEW AND APPROVAL TEN WORKING DAYS PRIOR TO IMPLEMENTATION.
* THESE PLANS SHALL BE DRAWN TO ACCEPTABLE SCALE ON REPRODUCIBLE MYLARS AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF TEXAS. PLANS SHALL BECOME A PART OF THE CONTRACT DRAWINGS.

25. APPROVED COPIES OF "TRAFFIC CONTROL PLANS" AND LANE/SIDEWALK CLOSURE PERMITS** SHALL BE AVAILABLE FOR INSPECTION AT JOB SITE AT ALL TIMES.
** CONTRACTOR MUST SECURE "LANE/SIDEWALK CLOSURE PERMITS" FROM CITY'S TRAFFIC MANAGEMENT AND MAINTENANCE BRANCH BEFORE CLOSING A LANE/SIDEWALK. THE REQUEST MUST BE MADE AT LEAST TEN DAYS PRIOR TO THE DATE FOR WHICH THE CLOSURE IS SOUGHT. NOTE THAT WORKING HOURS MAY BE RESTRICTED OR THE REQUEST MAY BE DENIED. CALL (713) 837-7280 FOR AN APPLICATION.

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE # 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
TCP NOTES

SHEET 1 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	51277
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 109 OF 151	

1:33:26 PM 9/13/2013
schultz
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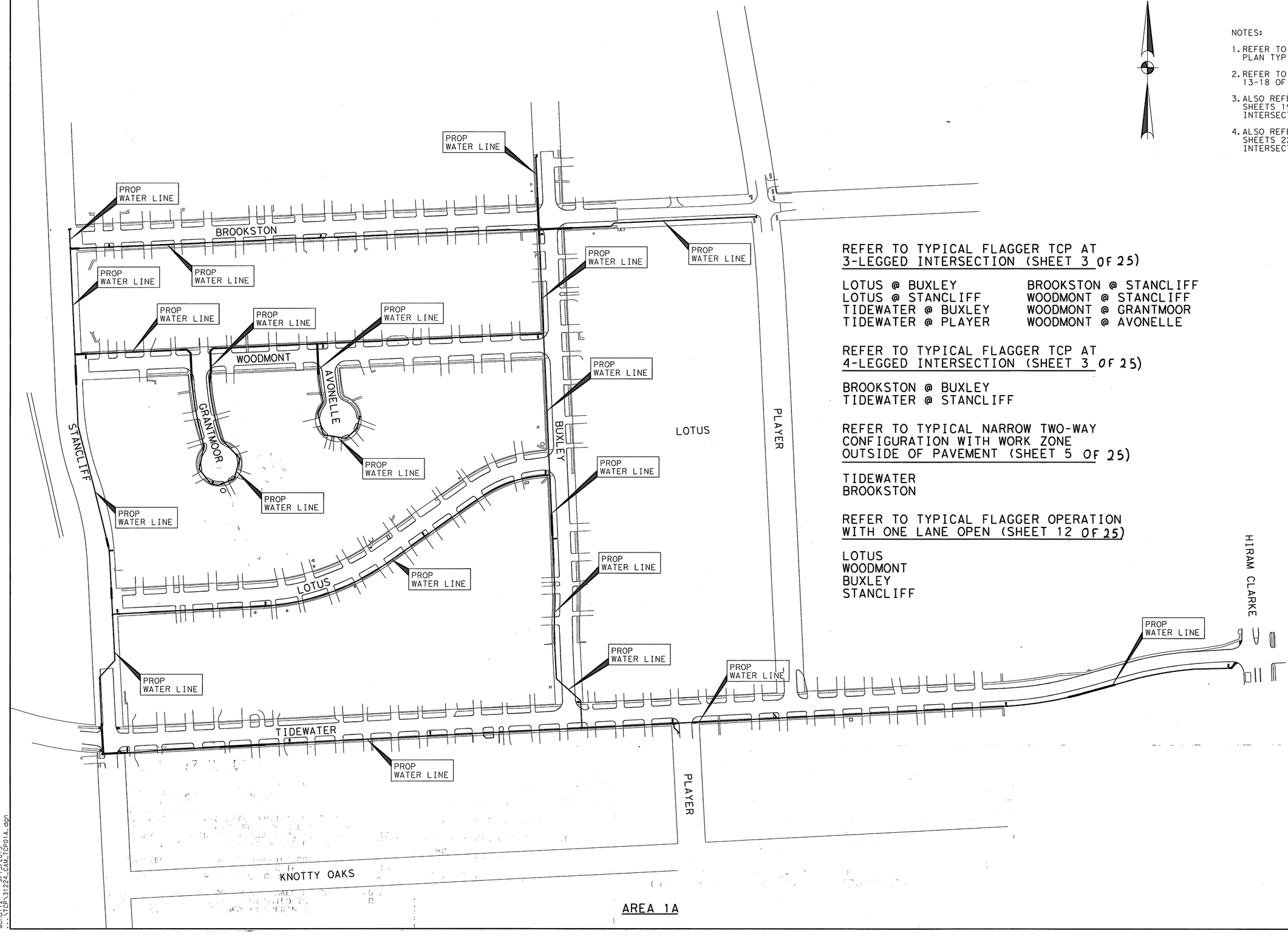
31224CAM_TCPNOTE.dgn



NOTES:

1. REFER TO SHEET 12 OF 25 FOR TRAFFIC CONTROL PLAN TYPICAL DETAILS.
2. REFER TO CITY OF HOUSTON STANDARDS ON SHEETS 13-18 OF 25 FOR TRAFFIC CONTROL PLAN DETAILS.
3. ALSO REFER TO CITY OF HOUSTON STANDARDS ON SHEETS 19-21 OF 25 FOR TYPICAL 3-WAY INTERSECTION TCP PHASING DETAILS.
4. ALSO REFER TO CITY OF HOUSTON STANDARDS ON SHEETS 22-25 OF 25 FOR TYPICAL 4-WAY INTERSECTION TCP PHASING DETAILS.

REFER TO TYPICAL FLAGGER TCP AT 3-LEGGED INTERSECTION (SHEET 3 OF 25)

LOTUS @ BUXLEY
LOTUS @ STANCLIFF
TIDEWATER @ BUXLEY
TIDEWATER @ PLAYER
BROOKSTON @ STANCLIFF
WOODMONT @ STANCLIFF
WOODMONT @ GRANTMOOR
WOODMONT @ AVONELLE

REFER TO TYPICAL FLAGGER TCP AT 4-LEGGED INTERSECTION (SHEET 3 OF 25)

BROOKSTON @ BUXLEY
TIDEWATER @ STANCLIFF

REFER TO TYPICAL NARROW TWO-WAY CONFIGURATION WITH WORK ZONE OUTSIDE OF PAVEMENT (SHEET 5 OF 25)

TIDEWATER
BROOKSTON

REFER TO TYPICAL FLAGGER OPERATION WITH ONE LANE OPEN (SHEET 12 OF 25)

LOTUS
WOODMONT
BUXLEY
STANCLIFF

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
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(Gas service lines are not shown)

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TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
Herald C. Scheffler III
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN PROJECT LAYOUT AREA 1A

SHEET 2 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 110 OF 151	

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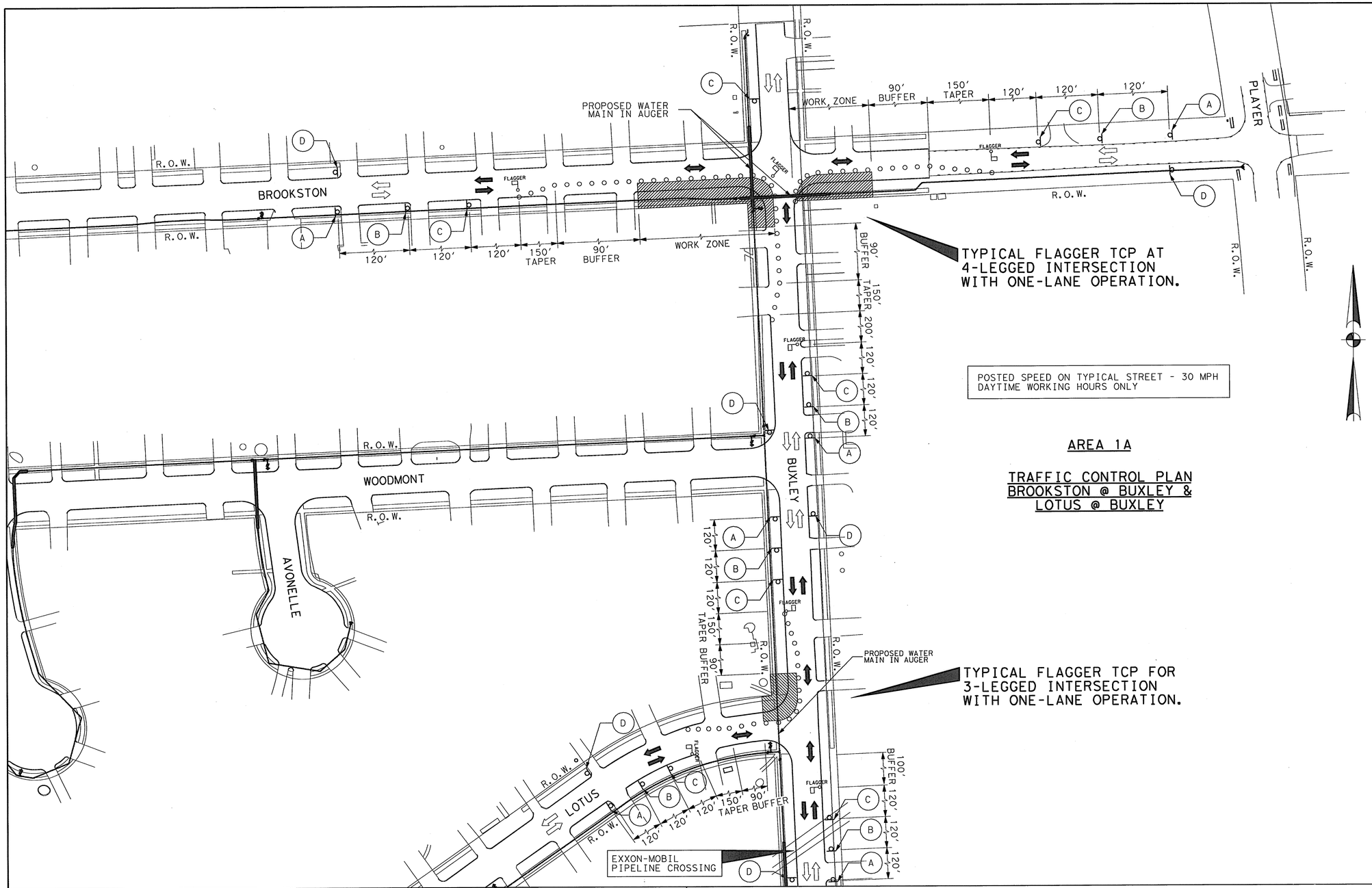

NOTES:

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4. ALSO REFER TO CITY OF HOUSTON STANDARDS ON SHEETS 22-25 OF 25 FOR TYPICAL 4-WAY INTERSECTION TCP PHASING DETAILS.

POSTED SPEED ON TYPICAL STREET - 30 MPH
DAYTIME WORKING HOURS ONLY

AREA 1A

TRAFFIC CONTROL PLAN BROOKSTON @ BUXLEY & LOTUS @ BUXLEY

SPACING FOR CHANNELIZING DEVICES

A. PLASTIC DRUMS ON MERGING TAPER @ 30' C-C WITH CHEVRON SIGN @ 60' C-C AND TYPE "C" WARNING LIGHT (FOR OVERNIGHT CLOSURE)
B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 35' C-C
C. PLASTIC DRUMS ON RADII @ 5' C-C
D. PLASTIC DRUMS ON TANGENT @ 35' C-C WITH VERTICAL PANEL @ 70' C-C AND TYPE "C" WARNING LIGHT @ 70' C-C (FOR OVERNIGHT CLOSURE)
E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C-C WITH VERTICAL PANEL @ 40' C-C AND TYPE "A" WARNING LIGHT @ 40' C-C (FOR OVERNIGHT CLOSURE)
F. CONCRETE TRAFFIC BARRIER (C.T.B) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (L.P.C.T.B) WITH REFLECTORS @ 11' C-C IF PAVEMENT DROP IS MORE THAN TWELVE INCHES (12") OR PLASTIC DRUMS W/ GUARD RAIL MOUNTED.

NOTE: SPACINGS SHOWN ON TRAFFIC CONTROL PLANS SHALL BE SUPERSEDED BY THE ABOVE SPACINGS. SPACINGS MAY BE ADJUSTED TO PROVIDE FOR DRIVEWAYS, INTERSECTIONS AND/OR MEDIAN OPENINGS.

LEGEND

- EXISTING TRAFFIC PATTERN
- PROPOSED TRAFFIC PATTERN
- PLASTIC DRUMS
- PROPOSED WATER LINE
- FLAGGER
- WORK ZONE

A — UTILITY WORK AHEAD — CW21-7D (48"X48")

B — ONE LANE ROAD AHEAD — CW20-4D (48"X48")

C — CW20-7a (36"X36")

D — END ROAD WORK — G20-2a (48"X24")

PRIVATE UTLITY LINES SHOWN
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N/A Date:
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N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN AREA 1A

SHEET 3 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=50'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 111 OF 151	

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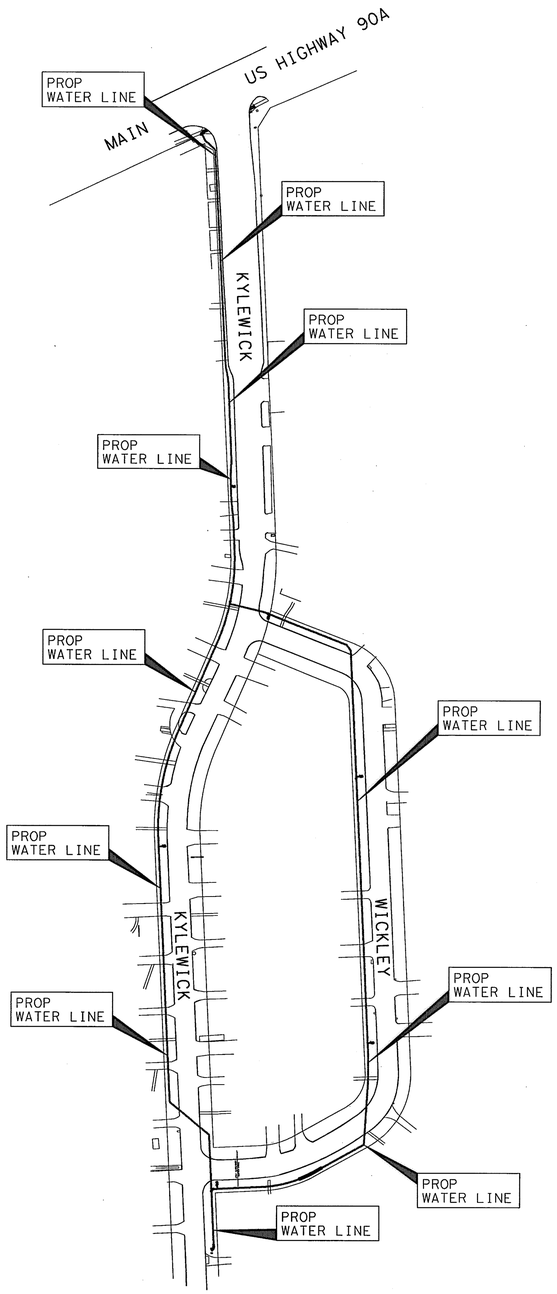

AREA 1B

NOTES:

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REFER TO TYPICAL FLAGGER TCP AT 3-LEGGED INTERSECTION (SHEET 3 OF 25)

KYLEWICK @ WICKLEY(N)
KYLEWICK @ WICKLEY(S)

REFER TO TYPICAL NARROW TWO-WAY CONFIGURATION WITH WORK ZONE OUTSIDE OF PAVEMENT (SHEET 5 OF 25)

KYLEWICK @ US 90A

REFER TO TYPICAL FLAGGER OPERATION WITH ONE LANE OPEN (SHEET 12 OF 25)

KYLEWICK
WICKLEY

PRIVATE UTLITY LINES SHOWN

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N/A Date:
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N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

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Houston, TX 77084 TBPE * 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
PROJECT LAYOUT
AREA 1B

SHEET 4 OF 25

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1"=100'-0"
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 112 OF 151

FOR CITY OF HOUSTON USE ONLY
51277

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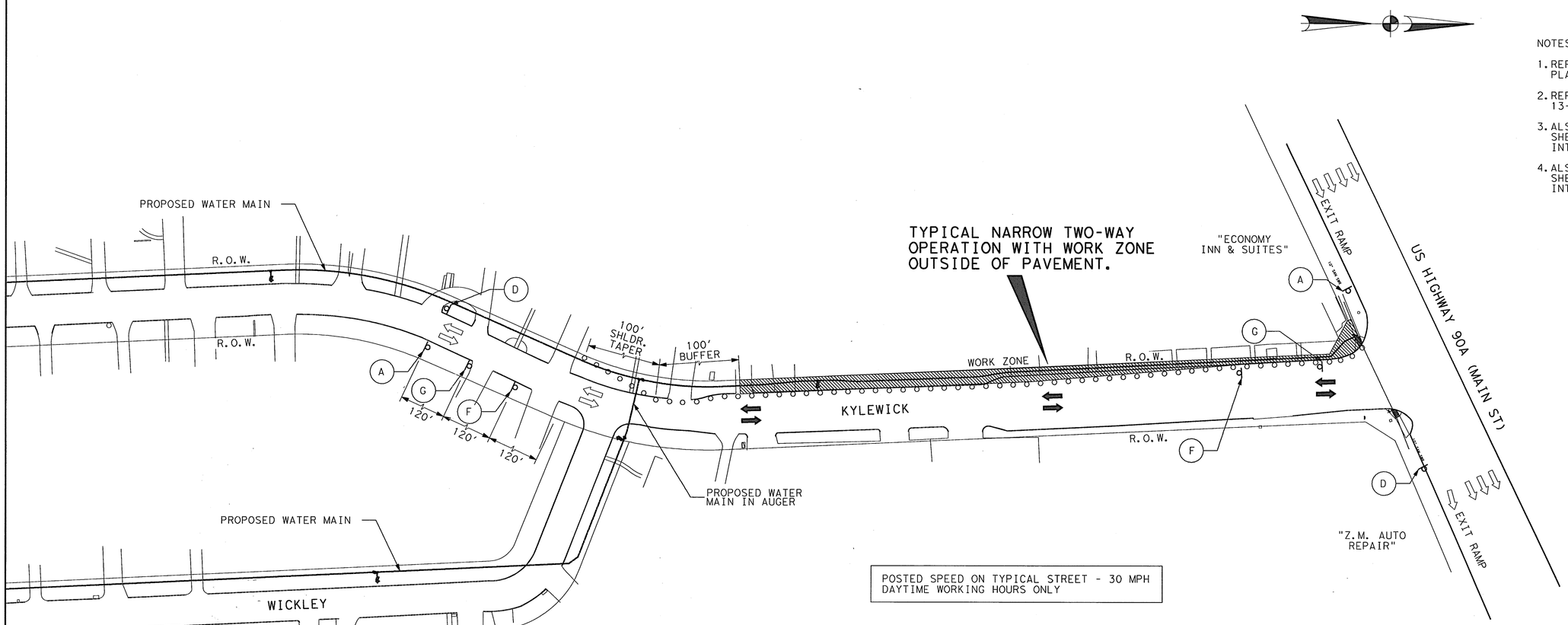

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POSTED SPEED ON TYPICAL STREET - 30 MPH
DAYTIME WORKING HOURS ONLY

AREA 1B

TRAFFIC CONTROL PLAN
US HIGHWAY 90A @ KYLEWICK

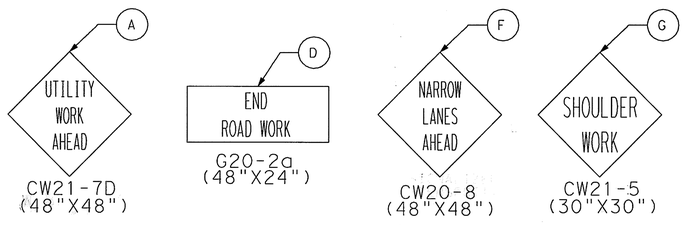
SPACING FOR CHANNELIZING DEVICES

A. PLASTIC DRUMS ON MERGING TAPER @ 30' C-C WITH CHEVRON SIGN @ 60' C-C AND TYPE "C" WARNING LIGHT (FOR OVERNIGHT CLOSURE)
B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 35' C-C
C. PLASTIC DRUMS ON RADII @ 5' C-C
D. PLASTIC DRUMS ON TANGENT @ 35' C-C WITH VERTICAL PANEL @ 70' C-C AND TYPE "C" WARNING LIGHT @ 70' C-C (FOR OVERNIGHT CLOSURE)
E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C-C WITH VERTICAL PANEL @ 40' C-C AND TYPE "A" WARNING LIGHT @ 40' C-C (FOR OVERNIGHT CLOSURE)
F. CONCRETE TRAFFIC BARRIER (C.T.B) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (L.P.C.T.B) WITH REFLECTORS @ 11' C-C IF PAVEMENT DROP IS MORE THAN TWELVE INCHES (12") OR PLASTIC DRUMS W/ GUARD RAIL MOUNTED.

NOTE: SPACINGS SHOWN ON TRAFFIC CONTROL PLANS SHALL BE SUPERSEDED BY THE ABOVE SPACINGS. SPACINGS MAY BE ADJUSTED TO PROVIDE FOR DRIVEWAYS, INTERSECTIONS AND/OR MEDIAN OPENINGS.

LEGEND

- EXISTING TRAFFIC PATTERN
- PROPOSED TRAFFIC PATTERN
- PLASTIC DRUMS
- PROPOSED WATER LINE
- FLAGGER
- WORK ZONE



PRIVATE UTLITY LINES SHOWN
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N/A Date:
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N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
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CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE • 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED
PROFESSIONAL ENGINEER
Hanla C. Scheffler III
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
AREA 1B

SHEET 5 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1"=50'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 113 OF 151	

51277

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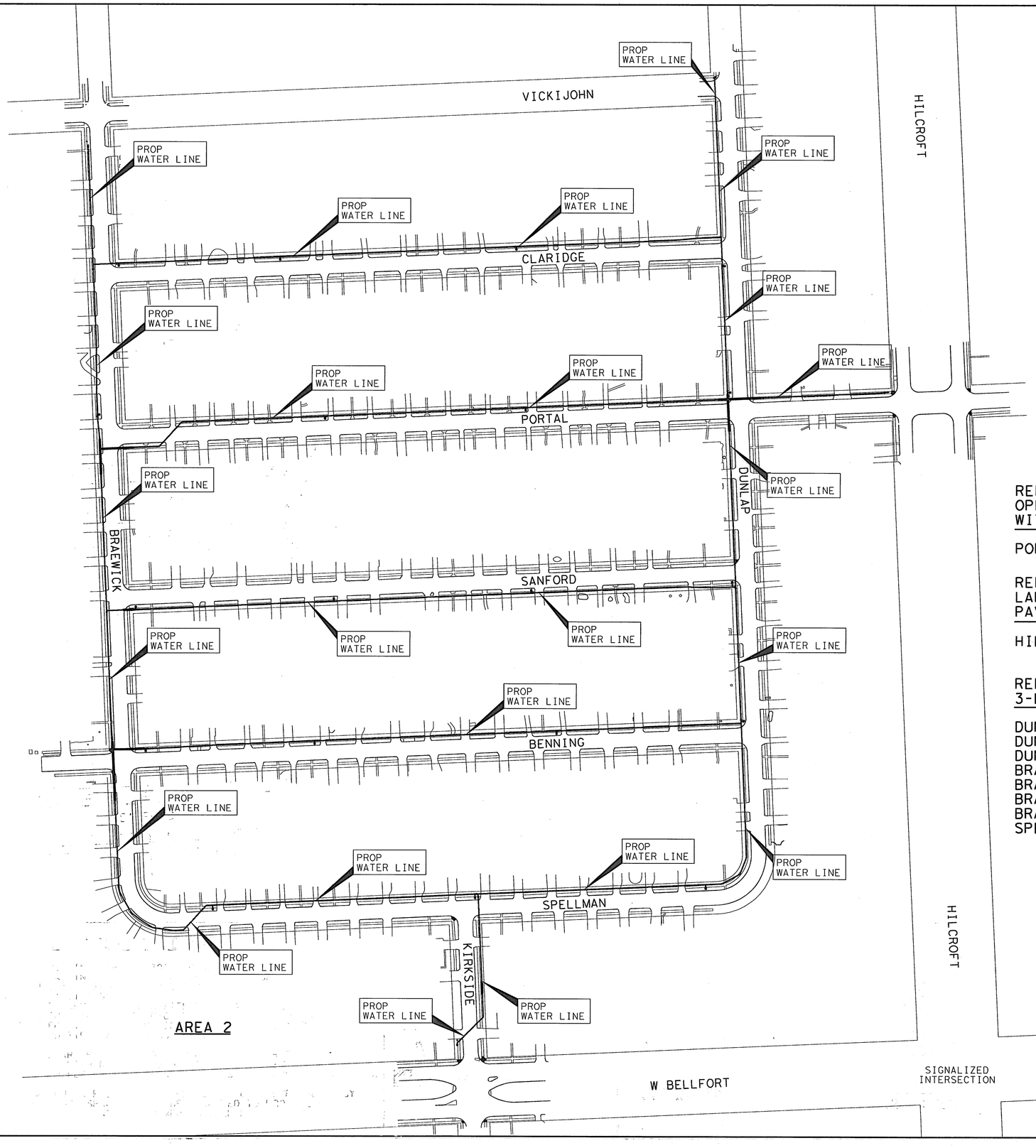

NOTES:

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4. ALSO REFER TO CITY OF HOUSTON STANDARDS ON SHEETS 22-25 OF 25 FOR TYPICAL 4-WAY INTERSECTION TCP PHASING DETAILS

REFER TO TYPICAL NARROW TWO-WAY OPERATION AT FOUR-WAY INTERSECTION WITH SHOULDER-AREA WORK ZONE (SHEET 9 OF 25)

PORTAL @ DUNLAP

REFER TO TYPICAL MERGE CONDITION/ LANE CLOSURE AND WORK ZONE WITHIN PAVEMENT (SHEET 9 OF 25)

HILLCROFT @ PORTAL

REFER TO TYPICAL FLAGGER TCP AT 3-LEGGED INTERSECTION (SHEET 3 OF 25)

DUNLAP @ CLARIDGE
DUNLAP @ SANFORD
DUNLAP @ BENNING
BRAEWICK @ CLARIDGE
BRAEWICK @ PORTAL
BRAEWICK @ SANFORD
BRAEWICK @ BENNING
SPELLMAN @ KIRKSIDE

PRIVATE UTLITY LINES SHOWN

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N/A Date:
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TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
Horace C. Scheffler III
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
PROJECT LAYOUT
AREA 2

SHEET 6 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 114 OF 151	

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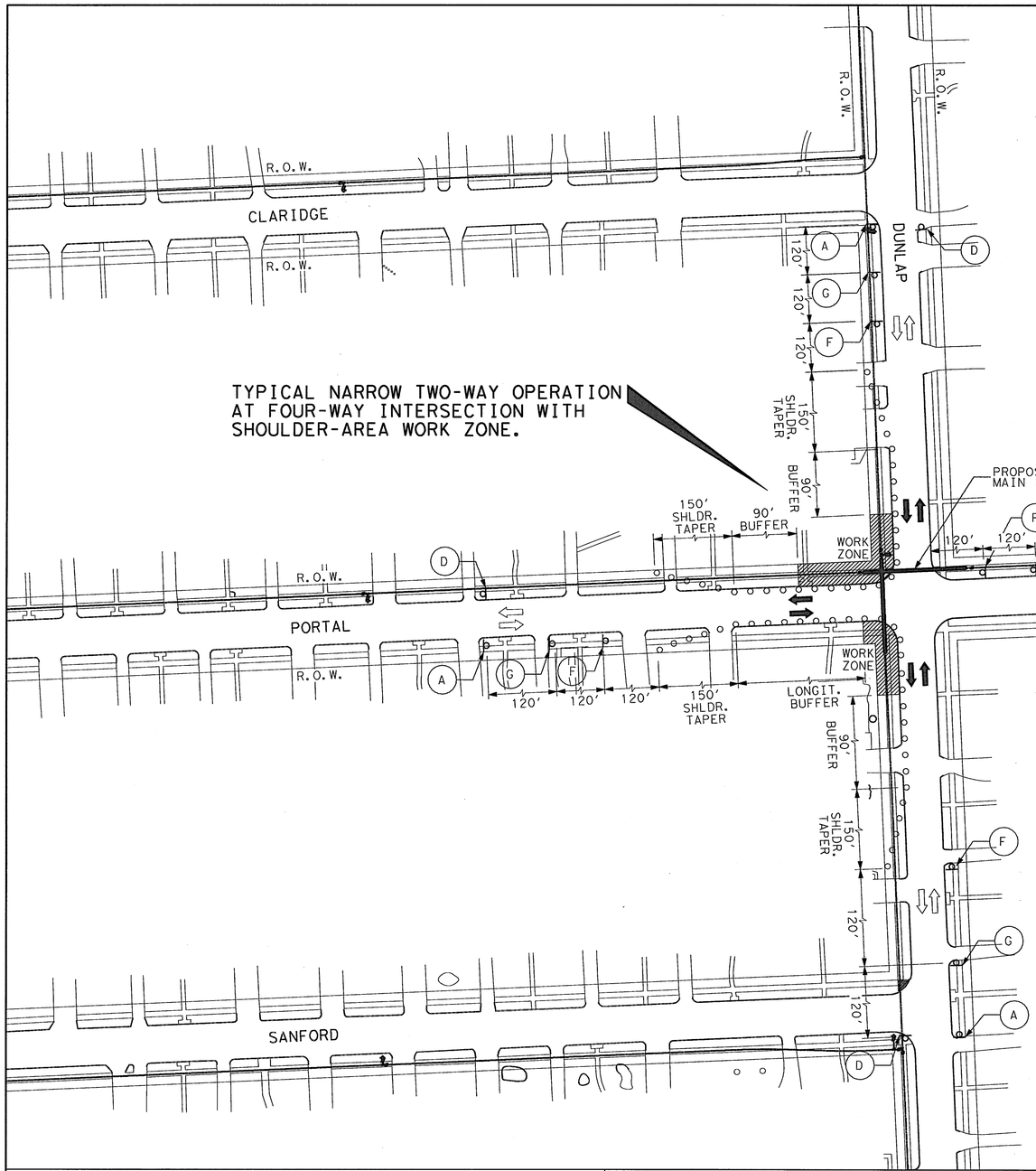

TYPICAL NARROW TWO-WAY OPERATION AT FOUR-WAY INTERSECTION WITH SHOULDER-AREA WORK ZONE.

TYPICAL MERGE CONDITION/ LANE CLOSURE AND WORK ZONE WITHIN PAVEMENT.

NOTES:

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* HILLCROFT/PORTAL INTERSECTION IS UNSIGNALIZED. STOP-SIGN CONTROL EXISTS ONLY ON THE PORTAL APPROACHES.

TYPICAL POSTED SPEED ON HILLCROFT - 35 MPH
TYPICAL POSTED SPEED ON OTHERS - 30 MPH
DAYTIME WORKING HOURS ONLY

AREA 2

TRAFFIC CONTROL PLAN DUNLAP @ PORTAL & HILLCROFT @ PORTAL

SPACING FOR CHANNELIZING DEVICES

A. PLASTIC DRUMS ON MERGING TAPER @ 30' C-C WITH CHEVRON SIGN @ 60' C-C AND TYPE "C" WARNING LIGHT (FOR OVERNIGHT CLOSURE)
B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 35' C-C
C. PLASTIC DRUMS ON RADII @ 5' C-C
D. PLASTIC DRUMS ON TANGENT @ 35' C-C WITH VERTICAL PANEL @ 70' C-C AND TYPE "C" WARNING LIGHT @ 70' C-C (FOR OVERNIGHT CLOSURE)
E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C-C WITH VERTICAL PANEL @ 40' C-C AND TYPE "A" WARNING LIGHT @ 40' C-C (FOR OVERNIGHT CLOSURE)
F. CONCRETE TRAFFIC BARRIER (C.T.B) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (L.P.C.T.B) WITH REFLECTORS @ 11' C-C IF PAVEMENT DROP IS MORE THAN TWELVE INCHES (12") OR PLASTIC DRUMS W/ GUARD RAIL MOUNTED.

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LEGEND

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- PROPOSED TRAFFIC PATTERN
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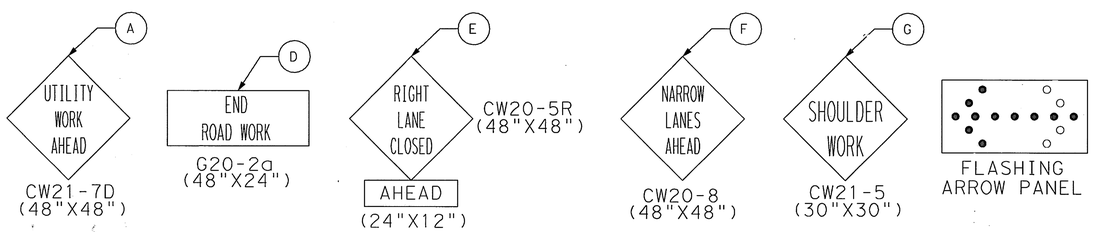
- PROPOSED WATER LINE
- FLAGGER
- WORK ZONE



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9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN AREA 2

SHEET 7 OF 25

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=50'-0"
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO. 115 OF 151	

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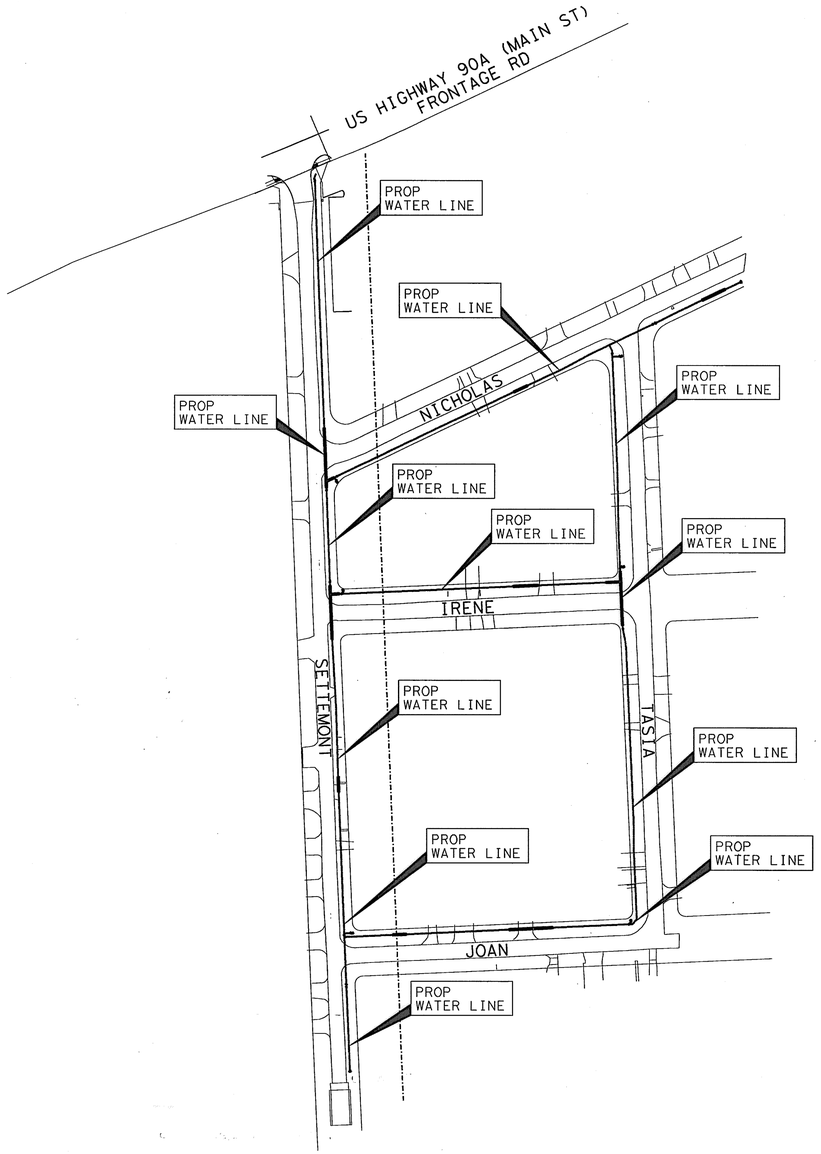

AREA 3

NOTES:

1. REFER TO SHEET 12 OF 25 FOR TRAFFIC CONTROL PLAN TYPICAL DETAILS.
2. REFER TO CITY OF HOUSTON STANDARDS ON SHEETS 13-18 OF 25 FOR TRAFFIC CONTROL PLAN DETAILS.
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REFER TO TYPICAL FOR MAINTAINING EXISTING TWO-WAY OPERATION WITH SHOULDER-AREA WORK ZONE (SHEET 7 OF 25)

SETTEMONT @ US 90A

REFER TO TYPICAL FLAGGER TCP AT 3-LEGGED INTERSECTION (SHEET 3 OF 25)

SETTEMONT @ NICHOLAS
SETTEMONT @ IRENE
SETTEMONT @ JOAN
TASIA @ NICHOLAS
TASIA @ IRENE
TASIA @ JOAN

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
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N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
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Houston, TX 77084 TBPE * 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED
PROFESSIONAL ENGINEER
Harold C. Scheffler III
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
PROJECT LAYOUT
AREA 3

SHEET 8 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 116 OF 151	

1:30:59 PM 9/13/2013
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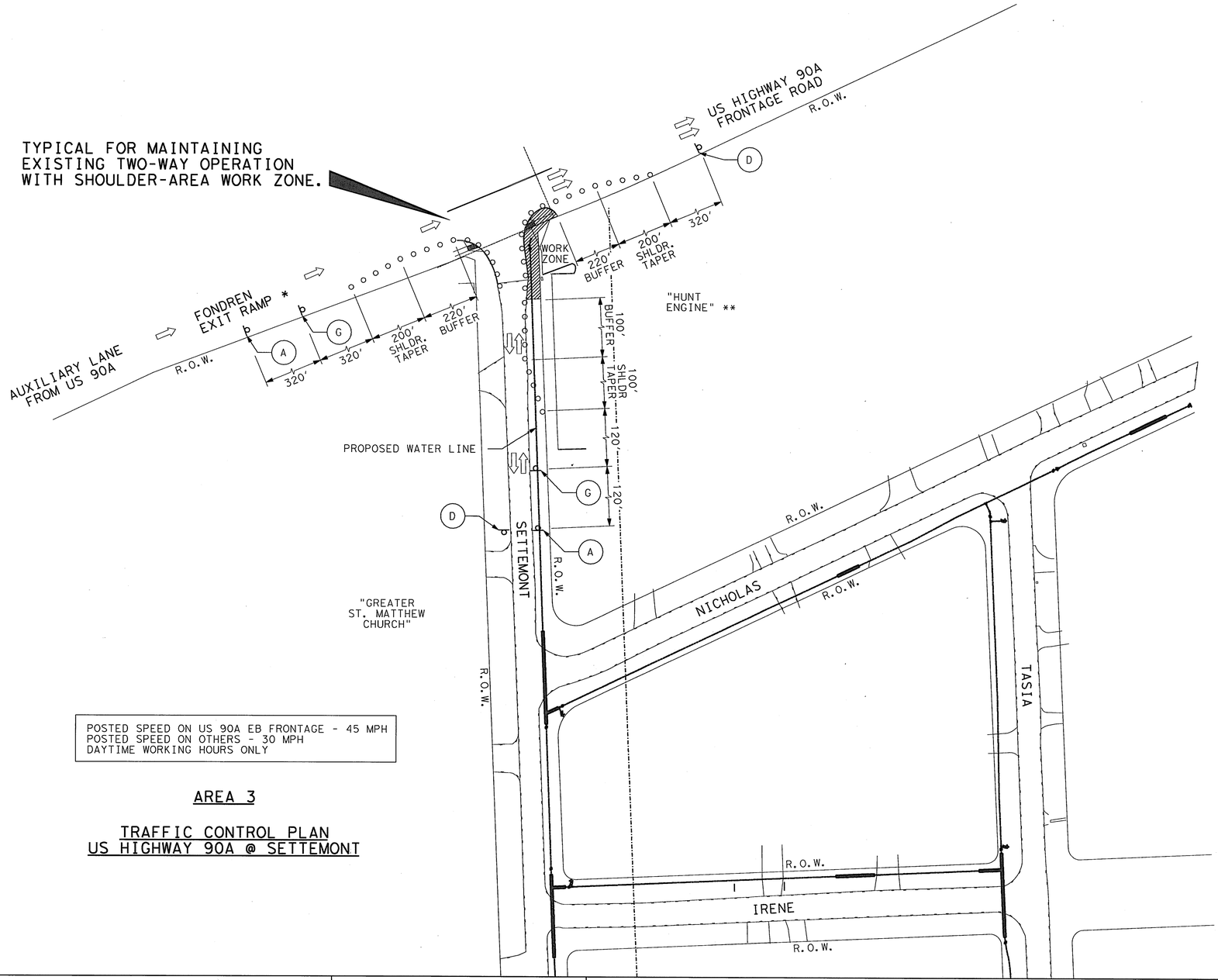
31224*CAM*TCP03A.dgn



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* THE EXISTING EXIT RAMP TRANSITIONS FROM ONE-LANE TO TWO-LANE AFTER THE SETTEMONT INTERSECTION.

** THE CONTRACTOR SHALL COORDINATE WITH THE BUSINESS OWNER AT SOUTHEAST QUADRANT OF US 90A FRONTAGE/SETTEMONT.

POSTED SPEED ON US 90A EB FRONTAGE - 45 MPH
POSTED SPEED ON OTHERS - 30 MPH
DAYTIME WORKING HOURS ONLY

AREA 3

TRAFFIC CONTROL PLAN
US HIGHWAY 90A @ SETTEMONT

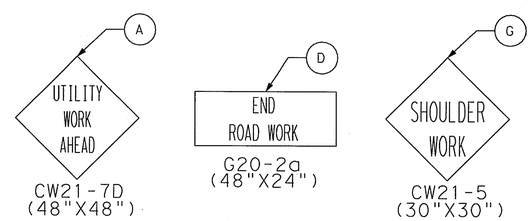
SPACING FOR CHANNELIZING DEVICES

A. PLASTIC DRUMS ON MERGING TAPER @ 30' C-C WITH CHEVRON SIGN @ 60' C-C AND TYPE "C" WARNING LIGHT (FOR OVERNIGHT CLOSURE)
B. PLASTIC DRUMS ON DOWNSTREAM TAPER @ 35' C-C
C. PLASTIC DRUMS ON RADII @ 5' C-C
D. PLASTIC DRUMS ON TANGENT @ 35' C-C WITH VERTICAL PANEL @ 70' C-C AND TYPE "C" WARNING LIGHT @ 70' C-C (FOR OVERNIGHT CLOSURE)
E. PLASTIC DRUMS IN FRONT OF CONSTRUCTION ZONE @ 20' C-C WITH VERTICAL PANEL @ 40' C-C AND TYPE "A" WARNING LIGHT @ 40' C-C (FOR OVERNIGHT CLOSURE)
F. CONCRETE TRAFFIC BARRIER (C.T.B) OR LOW PROFILE CONCRETE TRAFFIC BARRIER (L.P.C.T.B) WITH REFLECTORS @ 11' C-C IF PAVEMENT DROP IS MORE THAN TWELVE INCHES (12") OR PLASTIC DRUMS W/ GUARD RAIL MOUNTED.

NOTE: SPACINGS SHOWN ON TRAFFIC CONTROL PLANS SHALL BE SUPERSEDED BY THE ABOVE SPACINGS. SPACINGS MAY BE ADJUSTED TO PROVIDE FOR DRIVEWAYS, INTERSECTIONS AND/OR MEDIAN OPENINGS.

LEGEND

- EXISTING TRAFFIC PATTERN
- PROPOSED TRAFFIC PATTERN
- PLASTIC DRUMS
- PROPOSED WATER LINE
- FLAGGER
- WORK ZONE



PRIVATE UTLITY LINES SHOWN

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N/A Date:
CenterPoint Energy/Electric Facilities
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N/A Date:
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IDC
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TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED
PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
AREA 3

SHEET 9 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=50'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 117 OF 151	

1:31:42 PM 9/13/2013
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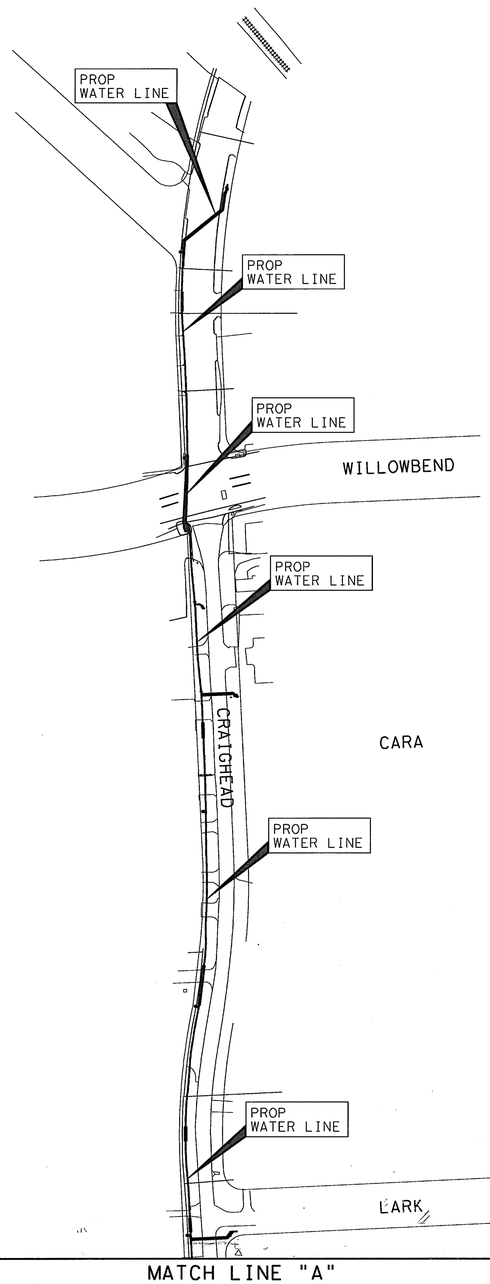
31224•CAM•TCP03B.dgn



CARA

REFER TO TYPICAL MERGE CONDITION/ LANE CLOSURE AND TWO-WAY OPERATION FOR CROSS-STREET (SHEET 11 OF 25)

CRAIGHEAD @ WILLOWBEND

REFER TO TYPICAL FLAGGER TCP AT 3-LEGGED INTERSECTION (SHEET 3 OF 25)

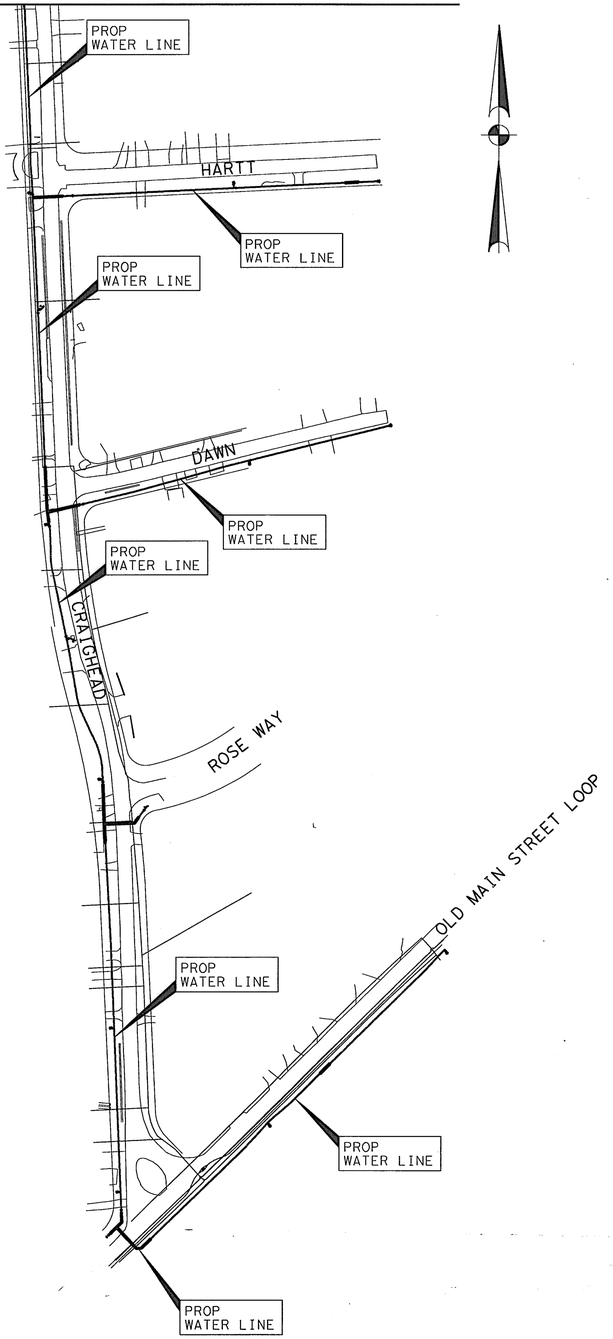
CRAIGHEAD @ HARTT
CRAIGHEAD @ DAWN

REFER TO TYPICAL FLAGGER OPERATION WITH ONE LANE OPEN (SHEET 12 OF 25)

CRAIGHEAD
HARTT
DAWN

REFER TO TYPICAL FOR MAINTAINING EXISTING TWO-WAY OPERATION WITH SHOULDER-AREA WORK ZONE (SHEET 7 OF 25)

OLD MAIN ST LOOP



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AREA 4

PRIVATE UTLITY LINES SHOWN

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N/A Date:
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TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
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REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
PROJECT LAYOUT
AREA 4

SHEET 10 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1"=100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 118 OF 151	

1:32:43 PM 9/13/2013
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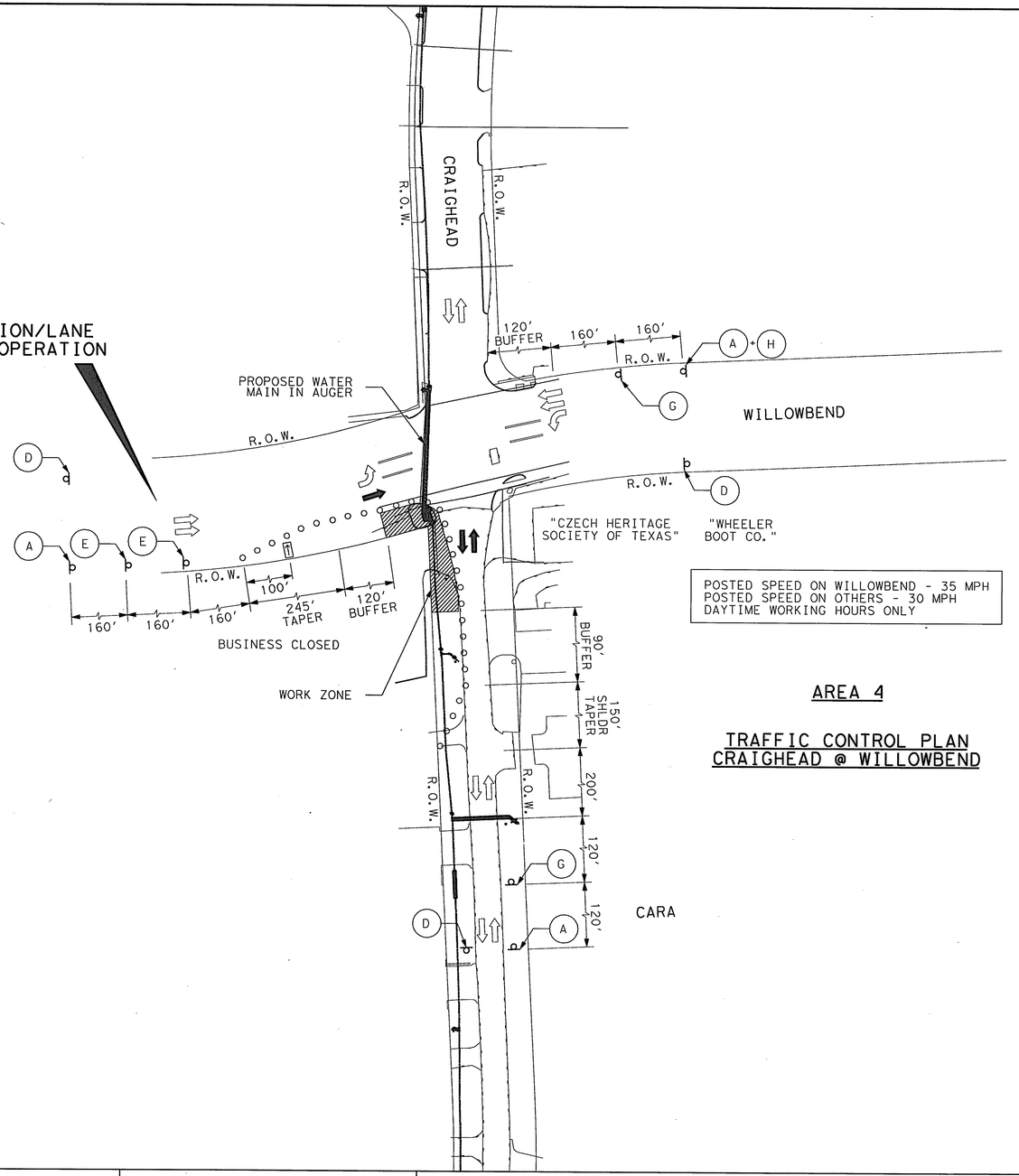
TYPICAL MERGE CONDITION/LANE CLOSURE AND TWO-WAY OPERATION FOR CROSS-STREET.



POSTED SPEED ON WILLOWBEND - 35 MPH
POSTED SPEED ON OTHERS - 30 MPH
DAYTIME WORKING HOURS ONLY

AREA 4

TRAFFIC CONTROL PLAN CRAIGHEAD @ WILLOWBEND

NOTES:

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C. PLASTIC DRUMS ON RADII @ 5' C-C
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LEGEND

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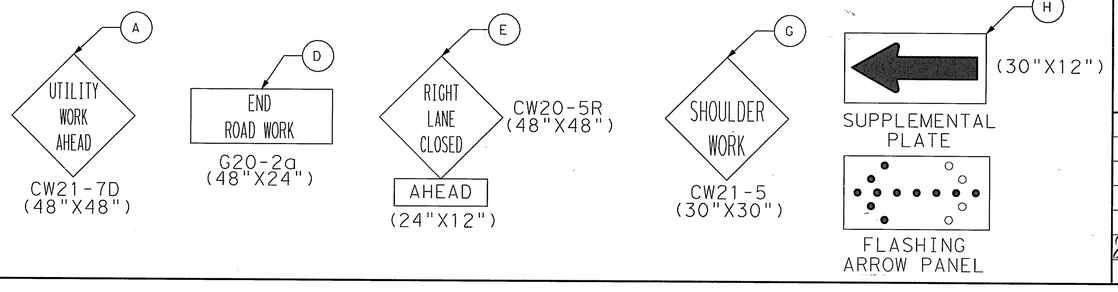
- PLASTIC DRUMS
- PROPOSED WATER LINE
- FLAGGER
- WORK ZONE



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(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
Harold C. Scheffler III
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN AREA 4

SHEET 11 OF 25

WBS NUMBER	S-000035-188-4
DRAWING SCALE	1"=50'-0"
CITY OF HOUSTON PM	JOHN MSIGWA, P.E.
SHEET NO. 119 OF 151	

FOR CITY OF HOUSTON USE ONLY
51277

1:33:01 PM 9/13/2013
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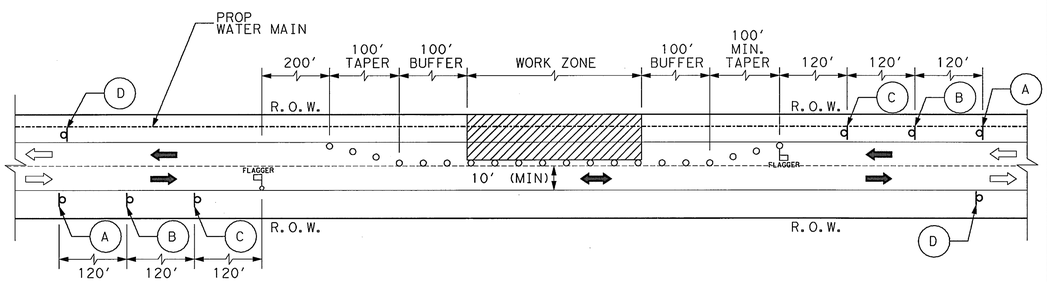
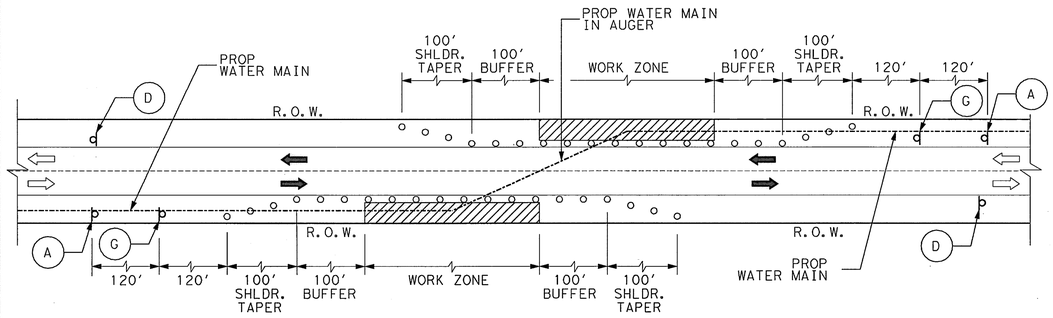
31224•CAM•TCP05B.dgn



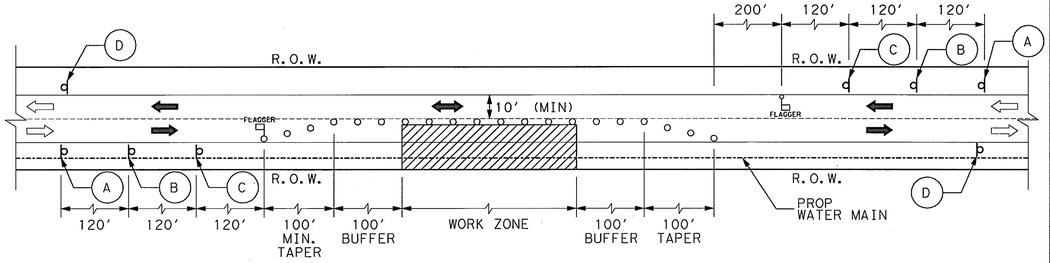
TYPICAL POSTED SPEED - 30 MPH
DAYTIME WORKING HOURS ONLY

TRAFFIC CONTROL PLAN FOR TYPICAL STREET SECTION



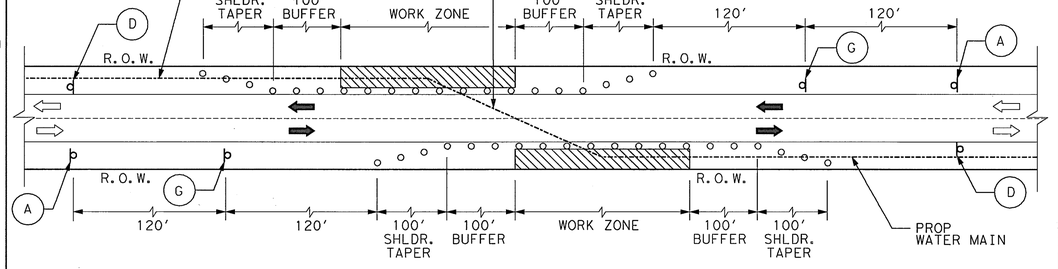
TYPICAL POSTED SPEED - 30 MPH
DAYTIME WORKING HOURS ONLY

TRAFFIC CONTROL PLAN AT DIAGONAL WATER LINE CROSSING



TYPICAL POSTED SPEED - 30 MPH
DAYTIME WORKING HOURS ONLY

TRAFFIC CONTROL PLAN FOR TYPICAL STREET SECTION



TYPICAL POSTED SPEED - 30 MPH
DAYTIME WORKING HOURS ONLY

TRAFFIC CONTROL PLAN AT DIAGONAL WATER LINE CROSSING

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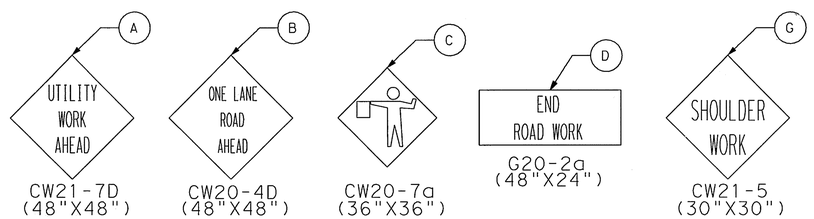
- FLAGGER
- WORK ZONE



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9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
TYPICAL DETAILS

SHEET 12 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 120 OF 151	

51277

1:33:47 PM 9/13/2013
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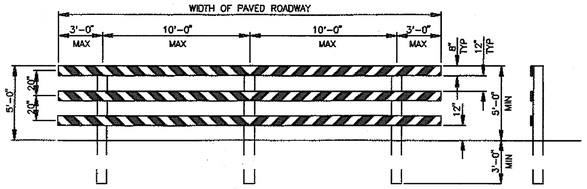
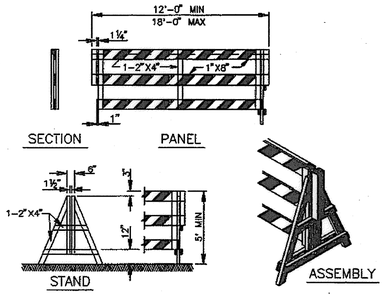


TYPE III BARRICADE
FOR END OF ROAD

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



DEMOUNTABLE TYPE III BARRICADE

BARRICADE NOTES

THE MOST RECENT EDITION OF THE TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, AND IT'S REVISIONS, SHALL GOVERN THE CONSTRUCTION AND USE OF ALL ITEMS HEREIN DESCRIBED.

CHANNELIZATION DEVICES OTHER THAN BARRICADES SHOULD NORMALLY BE USED FOR CHANNELIZATION PURPOSES.

BARRICADES SHOULD NORMALLY BE PLACED PERPENDICULAR TO THE TRAFFIC FLOW. OTHER CHANNELIZING DEVICES, SUCH AS DRUMS, VERTICAL PANELS OR PORTABLE BARRIERS, SHOULD BE USED WHERE NEEDED TO SEPARATE TRAFFIC FROM THE WORK AREA. IN ALL CASES, THE BARRICADES SHOULD BE SO LOCATED AS TO MOST ADVANTAGEOUSLY WARN AND DIRECT TRAFFIC.

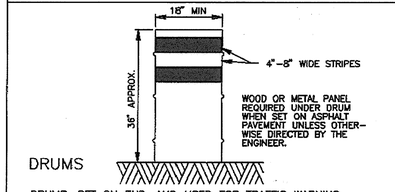
BARRICADES MAY BE DESIGNED AND CONSTRUCTED FROM WOOD OR ANY OTHER SUITABLE MATERIAL IN A MANNER APPROVED BY THE DEPARTMENT OF TRAFFIC AND TRANSPORTATION. THE CONSTRUCTION DETAILS SHOWN HEREON ARE TYPICAL AND ARE SUGGESTED DETAILS FOR WOOD SUPPORT SYSTEMS FOR BARRICADES. THE DETAILS OF RAIL WIDTH AND STRIPING, NUMBER AND SPACING OF RAILS, MINIMUM LENGTH AND HEIGHT (ABOVE PAVEMENT) OF RAILS MUST BE ADHERED TO WHEN ALTERNATE DESIGNS ARE USED.

BARRICADES ARE TO BE CONSTRUCTED OF CLEAN SOUND MATERIAL. ALL SURFACES ABOVE GROUND, WHICH ARE NOT STRIPED, SHALL BE WHITE EXCEPT THE UNPAINTED GALVANIZED METAL OR ALUMINUM COMPONENTS MAY BE USED.
COMPONENTS MADE OF LUMBER SHALL BE PAINTED WITH A MINIMUM OF TWO COATS OF AN APPROVED BRAND OF WHITE PAINT TO SECURE THOROUGH COVERAGE AND A UNIFORM WHITE COLOR.

THE REFLECTORIZED WHITE AND REFLECTORIZED ORANGE (REFLECTORIZED RED) STRIPES FOR BARRICADES, DRUMS AND VERTICAL PANELS SHALL BE CONSTRUCTED OF "HIGH INTESITY SHEETING AND SHALL BE MAINTAINED TO MEET THE APPEARANCE, COLOR AND REFLECTIVITY REQUIREMENTS SET BY DOTT.

THE CONTRACTOR SHALL MAINTAIN EACH BARRICADE IN A CLEAN AND GOOD CONDITION.

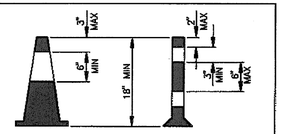
BARRICADES SHALL BE REMOVED UPON COMPLETION OF THE WORK AND/OR THE ELIMINATION OF THE HAZARD ON ANY SECTION.



DRUMS

DRUMS, SET ON END, AND USED FOR TRAFFIC WARNING OR CHANNELIZATION SHALL BE APPROX 36" IN HEIGHT AND A MIN OF 18" IN DIAMETER. THE CONTRACTOR, AT HIS OPTION, MAY USE DRUMS MADE FROM STEEL BARRELS OR BLACK POLYETHYLENE PLASTIC DRUM LINERS WEIGHING APPROX EIGHT POUNDS EACH. THE MARKINGS ON DRUMS SHALL BE HORIZONTAL, CIRCUMFERENTIAL, REFLECTORIZED ORANGE AND REFLECTORIZED WHITE STRIPES, 4 TO 8 INCHES WIDE. THE FIRST REFLECTORIZED STRIPE SHOULD START WITHIN TWO (2) INCHES OF THE TOP OF THE DRUM. THERE SHALL BE AT LEAST TWO ORANGE AND TWO WHITE STRIPES ON EACH DRUM. IF THERE ARE NON-REFLECTORIZED SPACES BETWEEN THE HORIZONTAL ORANGE AND WHITE STRIPES, THEY SHALL BE NO MORE THAN 2 INCHES WIDE. METAL DRUMS SHALL BE PAINTED BLACK OR ORANGE BEFORE REFLECTORIZED STRIPES ARE ADDED. ALL DRUMS ON PROJECT WILL BE THE SAME COLOR. WHEN DRUMS ARE PLACED IN THE ROADWAY, APPROPIATE WARNING SIGNS SHOULD BE USED. DURING HOURS OF DARKNESS, A FLASHING WARNING LIGHT SHOULD BE PLACED ON DRUMS USED SINGLY AS A WARNING DEVICE. STEADY BURN ELECTRIC LIGHTS OR DELINEATORS SHOULD BE PLACED ON DRUMS USED IN SERIES FOR TRAFFIC CHANNELIZATION. DRUMS SHALL BE WEIGHTED WITH SAND TO THE EXTENT INDICATED IN THE PLANS.

CWI-8 CHEVRON SIGNS, CWI-6A ARROW SIGNS OR VP-1 VERTICAL PANELS MOUNTED ABOVE DRUMS MAY BE USED AS SUPPLEMENTS TO DRUM DELINEATION.

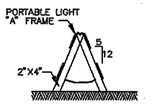


CONES

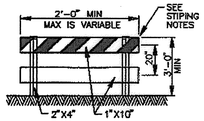
TRAFFIC CONES AND TUBULAR MARKERS SHALL BE A MIN OF 18" INCHES IN HEIGHT WITH A BROADENED BASE AND MAY BE MADE OF VARIOUS MATERIALS TO WITHSTAND IMPACT WITHOUT DAMAGE TO THEMSELVES OR TO VEHICLES. LARGER SIZES SHOULD BE USED ON FREEWAYS AND OTHER ROADWAYS WHERE SPEED ARE RELATIVELY HIGH OR WHERE EVER MORE CONSPICUOUS GUIDANCE IS NEEDED. ORANGE SHALL BE THE PREDOMINANT COLOR ON CONES AND TUBULAR MARKERS. THEY SHOULD BE KEPT CLEAN AND BRIGHT FOR MAX TARGET VALUE. FOR NIGHTTIME USE THEY SHALL BE REFLECTORIZED OR EQUIPPED WITH LIGHTING DEVICES FOR MAX VISIBILITY. REFLECTORIZED MATERIAL SHALL HAVE A SMOOTH, SEALED OUTER SURFACE WHICH WILL DISPLAY THE SAME APPROX COLOR DAY AND NIGHT.

REFLECTORIZATION OF TUBULAR MARKERS SHALL BE A MIN OF TWO THREE-INCH BANDS PLACED A MAX OF 2" FROM THE TOP WITH A MAX OF 6" BETWEEN THE BANDS. REFLECTORIZATION OF CONES SHALL BE PROVIDED BY A MIN 6" BAND PLACED A MAX OF 3" FROM THE TOP.

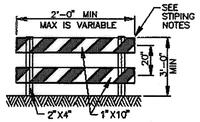
CONES OR TUBULAR MARKERS ARE GENERALLY ONLY SUITABLE FOR TEMPORARY USAGE (UP TO 8 HOURS) WITH OTHER CHANNELIZATION DEVICES SUCH AS VERTICAL PANELS OR BARRICADES PREFERRED FOR LONGER TERM USAGE. CARE SHOULD BE TAKEN TO INSURE THAT THEY REMAIN IN THEIR PROPER LOCATION AND IN AN UPRIGHT POSITION.



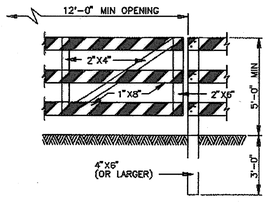
"A" FRAME



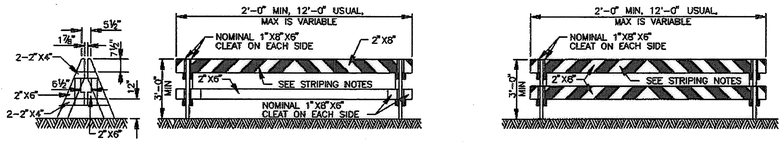
TYPE I



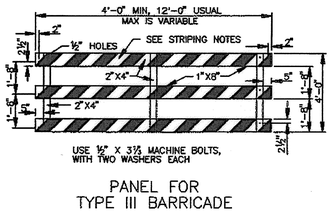
TYPE II



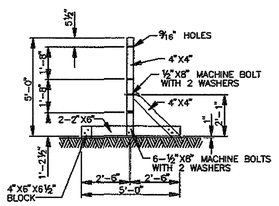
GATE FOR
TYPE III BARRICADE



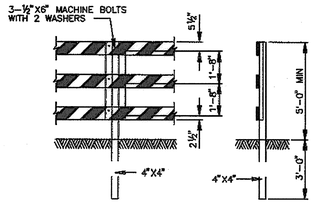
DEMOUNTABLE TYPE I TYPE II



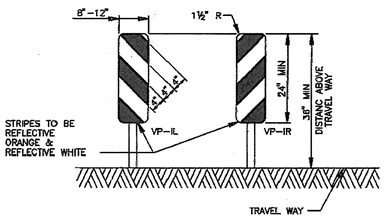
PANEL FOR
TYPE III BARRICADE



STAND FOR
TYPE III BARRICADE

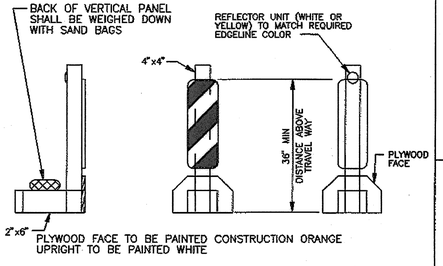


POST FOR
TYPE III BARRICADE



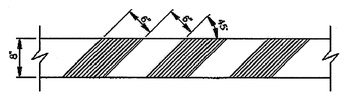
VERTICAL PANELS (VP)

VERTICAL PANELS ARE NORMALLY USED AS CHANNELIZING DEVICES TO INDICATE TANGENT OR NEARLY TANGENT ROADWAY ALIGNMENT WHERE GOOD TARGET VALUE OF A DEVICE IS NEEDED IN DAYTIME AS WELL AS THE NIGHTTIME. IN ADDITION, VERTICAL PANELS SHOULD BE USED AT THE EDGE OF SHOULDER DROP-OFFS AND OTHER SUCH AREAS AS LANE TRANSITIONS WHERE POSITIVE DAY AND NIGHT DELINEATION MAY BE REQUIRED. VERTICAL PANELS SHOULD BE MOUNTED BACK TO BACK IF USED AT THE EDGE OF CUTS ADJACENT TO TWO-WAY TWO LANE ROADWAYS. STRIPES SHOULD ALWAYS SLOPE DOWNWARD TOWARD THE TRAVELED WAY.



TYPICAL PORTABLE VERTICAL PANEL
OR DELINEATOR

OTHER SIMILAR SUPPORTS MAY BE USED WHEN APPROVED OR DIRECTED BY THE COH DEPT OF TRAFFIC AND TRANSPORTATION



STRIPING FOR BARRICADE

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

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

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

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION

BARRICADE STANDARD

(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: OCT-01-2002	DWG NO: 01580-01

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE # 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
BARRICADE DETAILS

SHEET 13 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 121 OF 151	

51277

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GENERAL NOTES

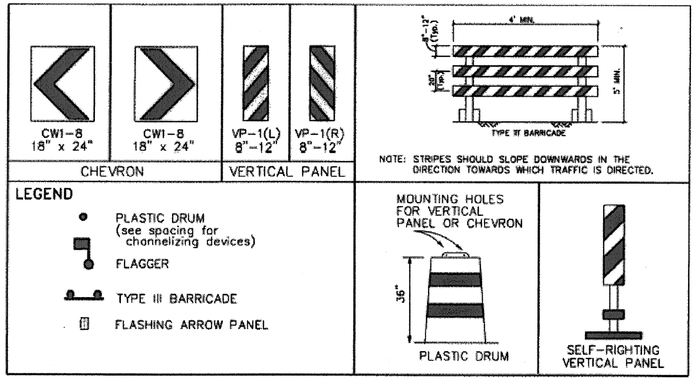
1. The Contractor shall provide and install traffic control devices in conformance with Part VI of Texas Manual on Uniform Traffic Control Devices (TMUTCD) latest edition with revisions during the entire construction period.
2. All signs and traffic control devices shall conform to the latest version of the TMUTCD.
3. No lanes shall be closed during the hours of 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM Monday thru Friday without approval of the City Traffic Engineer.
4. No work shall be performed in residential areas from 7:00 PM to 7:00 AM.
5. Contractor shall maintain approved number of thru lanes of traffic in each direction during construction working hours. Traffic control plans shall include one-way and/or detour plans.
6. Contractor shall maintain traffic lanes and detours according to traffic control plans during working hours.
7. Contractor shall cover open pavement excavations for minor utility work with anchored steel plates during non-working hours, and open lanes for normal traffic flow when feasible.
8. If the Contractor chooses to use a different method of "Traffic Control Plans" during the construction than what is outlined in the contract drawings, the Contractor shall be responsible to prepare and submit an alternate set of traffic control plans to the City of Houston Project Manager for approval ten working days prior to implementation. These plans shall be drawn to scale on reproducible mylars and shall be sealed by a Licensed Engineer in the State of Texas. Traffic Operations Division representative approval is required to accept the proposed changes.
9. Contractor shall secure lane/sidewalk closure permits from Traffic Operations Division (Mobility Permit Section at http://www.gims.houstontx.gov/portalWS/MainPortal.aspx) before implementing the traffic control plan. The application must be submitted at least ten business days prior to the implementation of the traffic control plan and/or beginning construction work. The contractor shall provide traffic control plans, construction sequencing, and schedule with the application.
10. Contractor shall have approved traffic control plan and permit at the job site for inspection at all times.
11. During pavement surface restoration projects; the Contractor shall not open closed lanes until the pavement surface has cured enough to allow vehicular traffic according to City of Houston Standard Specifications.
12. The Contractor is responsible for scheduling and coordinating all construction activities with stake holders in the vicinity including emergency response agencies such as Houston Police Department, Houston Fire Department, and Metropolitan Transit Authority.
13. Contractor shall be responsible for issuing all work directives to all sub-contractors, utility companies, and all other entities performing construction work associated with the project.
14. Nothing in these notes or plans shall relieve the Contractor of the responsibility for job site conditions during the course of construction of the project; including safety of all modes of transportation, persons, and property, and that this requirement shall apply continuously and not be limited to working hours.
15. The Traffic Operation Division (Mobility Permits Group) per the direction of the City Traffic Engineer have the right to demand the installation of additional traffic control devices or modifications to these plans and notes, as deemed necessary to promote the safe and orderly flow of traffic and pedestrians through the construction work zone. The Contractor shall comply with these additional requests or modifications with due diligence.
16. All existing traffic control signs and pavement markings shall be maintained in visible locations during construction unless prior written approval is obtained from City of Houston Project Manager. The Contractor shall restore or replace (at the discretion of the City Traffic Engineer) any pavement marking or signing damaged during construction operations, including Raised Pavement Markers (RPMs) and chip seal markers.
17. When entering or leaving roadways carrying public traffic, the Contractor's equipment, whether empty or loaded shall in all cases yield to public traffic with assistance by Contractor provided certified flagger/peace officer.
18. Access to driveways adjacent to the construction work zone shall be maintained at all times as much as possible. Additional cones delineators may be required to delineate the driveway access route through the construction work zone. A minimum of one travel lane shall be maintained across the driveways, unless prior written approval is obtained from City of Houston Project Manager.
19. Spillage resulting from hauling operations along or across any public traveled way shall be removed immediately by the Contractor.
20. The Contractor shall submit an application for temporary parking restrictions if there are parking meters located at the proposed lane closures from Parking Management Division (832-393-8690) at least ten business days before implementation of lane closures. In addition, temporary no parking signs shall be posted 24 hours prior to commencement of work.
21. Additional off duty police officers/flaggers may be requested to direct traffic when lanes are blocked at the discretion of the City Project Manager even if they are not specifically identified on the project plans.
22. The Contractor shall replace within 72 hours, all traffic signal loop detectors damaged during construction.
23. In general, a solar powered flashing arrow board shall be required on all major thoroughfare lane closures. Exceptions to flashing arrow boards and/or implementation on residential lane closures shall be approved by the City Traffic Engineer.
24. Approved traffic control plan shall be in place before starting any excavation.

SPACING FOR CHANNELIZING DEVICES

A. Plastic drums on merging taper @ 30' c - c with chevron sign @ 50' c - c and warning lights for overnight closure.
B. Plastic drums on downstream taper @ 30' c - c (return taper and barricade are optional and divided roadway section)
C. Plastic drums on radii @ 35' c -c.
D. Plastic drums on tangent @ 35' c - c with vertical panel at 70' c - c and approved warning light @ 70' c - c (for overnight closure).
E. Plastic drums in front of construction zone @ 20' c - c with vertical panel at 40' c - c and approved warning light @ 40' c - c (for overnight closure).
F. Concrete Traffic Barrier (CTB) or Low Profile Concrete Traffic Barrier (LPCTB) with approved reflectors @ 10' c - c if pavement drop is greater than 1 foot.
G. Plastic drums w/Guard rail mounted.
H. Self- Righting vertical panel spacing.
   - 4 lanes to 2 lanes undivided roadway section @ 20' c - c.
   - 4 lanes divided roadway to one side two way roadway @ 20' c - c.
   - Left lane and right lane storage bays @ 15' c - c.

I. Spacing shown on traffic control shall supersede the above spacing.
J. Spacing may be adjusted to provide driveways, intersections and /or median openings.

CHANNELIZATION AND BARRICADES



TYPICAL SIGN SPACING, TAPER LENGTHS, AND SUGGESTED SPACING OF CHANNELIZATION DEVICES

Posted Speed (mph)	Sign Spacing "X"	Min. Desirable Taper Length "L" 10' Offset	11' Offset	12' Offset	Suggested Maximum Spacing Of Device On a Taper	On a Tangent
30	120'	150'	165'	180'	30'	60' – 75'
35	160'	205'	225'	245'	35'	70' – 90'
40	240'	265'	295'	320'	40'	80' – 100'
45	320'	450'	495'	540'	45'	90' – 110'
50	400'	500'	550'	600'	50'	100' – 125'
55	500'	550'	605'	660'	55'	110' – 140'

Length for Buffers	
Posted Speed (mph)	Length in Feet (B)
20	40
25	60
30	90
35	120
40	155
45	195
50	240
55	295
60	350
65	410
70	475

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP NOTES
CHANNELIZING DEVICES
AND BARRICADES

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER

APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2012

DWG NO: 01512-01

PRIVATE UTLITY LINES SHOWN
AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE • 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED
PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
CHANNELIZING DEVICES
AND BARRICADES

SHEET 14 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 122 OF 151	

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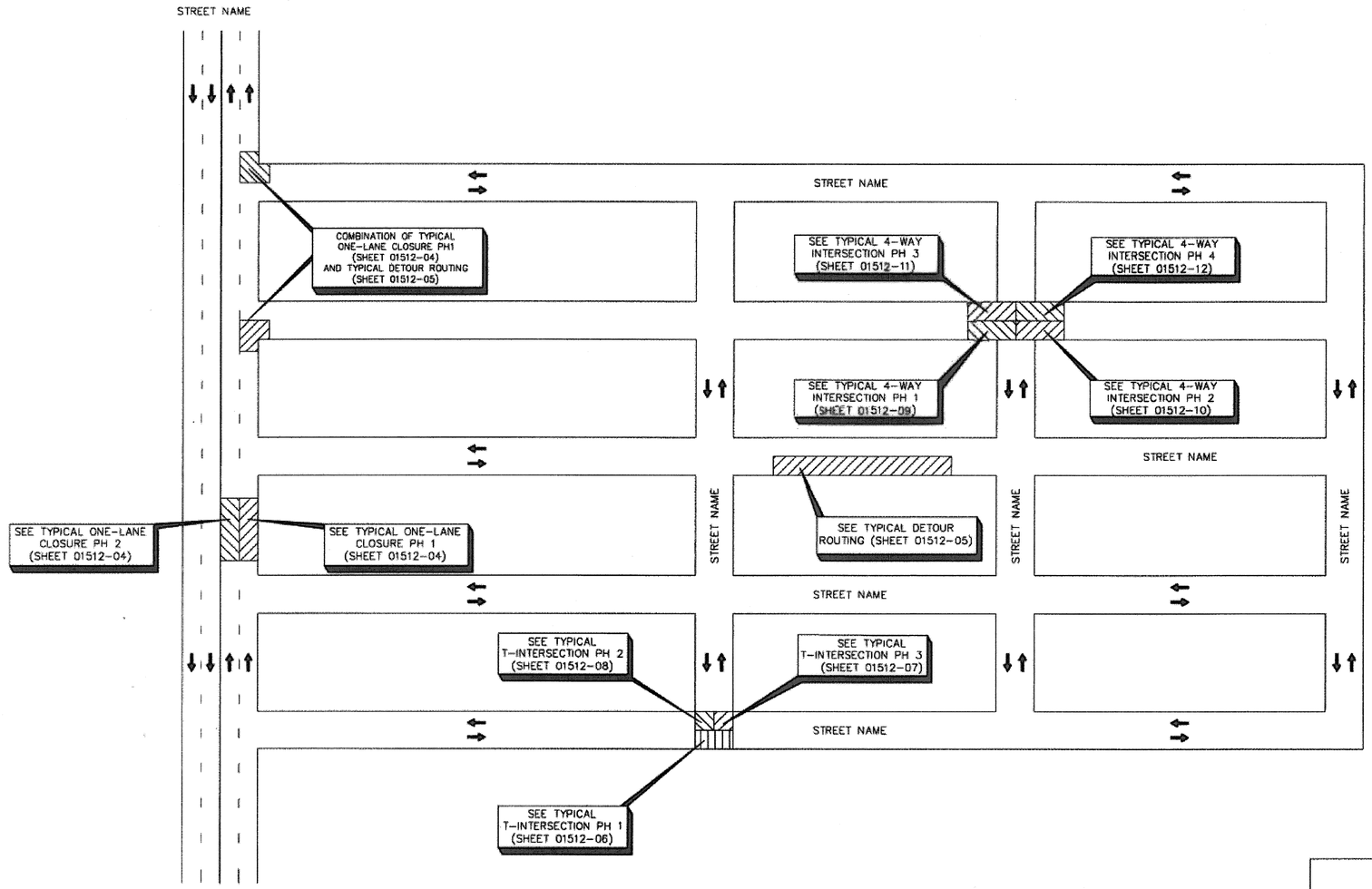

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP OVERALL
TRAFFIC CONTROL LAYOUT

(NOT TO SCALE)

APPROVED BY:	
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-02

PRIVATE UTLITY LINES SHOWN

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SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
Harold C. Scheffler III
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
TYPICAL OVERALL

SHEET 15 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 123 OF 151	

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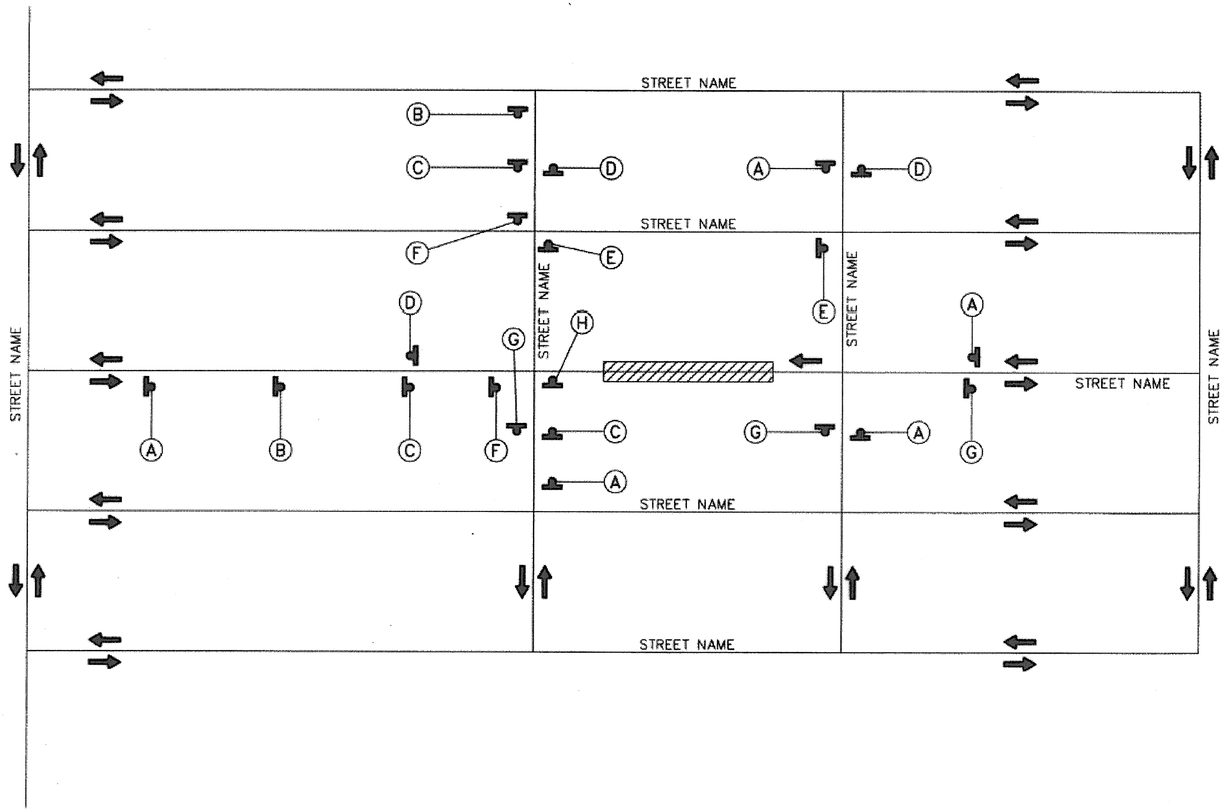
A	B	C	D	E	F	G	H
ROAD WORK AHEAD	ONE LANE ROAD	DETOUR AHEAD	END ROAD WORK	STREET NAME DETOUR →	STREET NAME DETOUR ←	END DETOUR	STREET NAME DETOUR ↑
CW20-1	CW20-4	CW20-2	G20-2	M4-9R	M4-9L	M4-8a	M4-9T

LEGEND

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- TRAFFIC FLOW
- CONSTRUCTION AREA



DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TRAFFIC CONTROL LAYOUT

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-03

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STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
TYPICAL LAYOUT

SHEET 16 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 124 OF 151	

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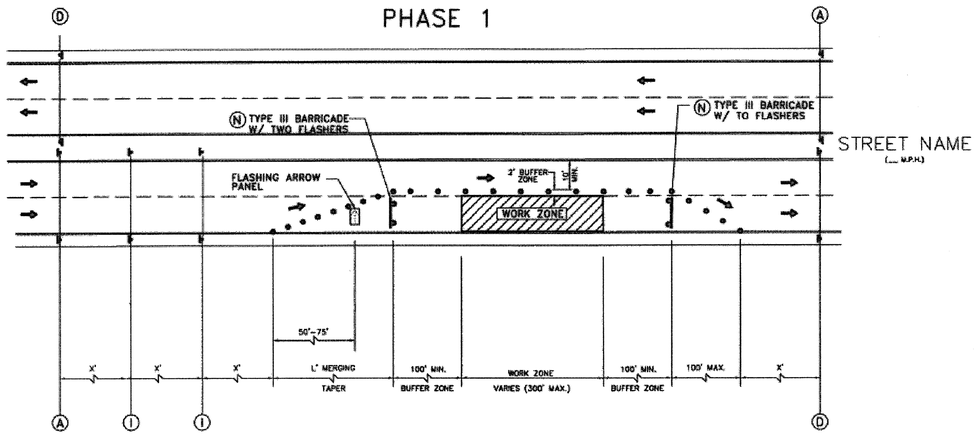
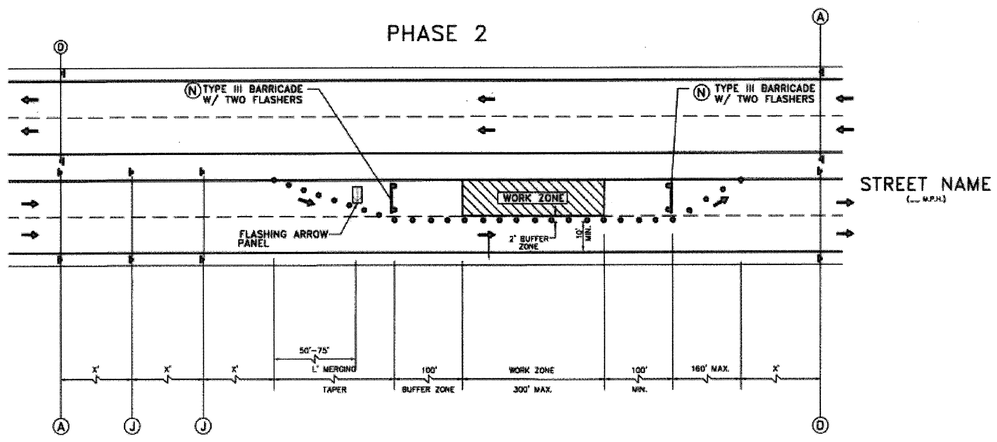
A	D	I	J	N
ROAD WORK AHEAD	END ROAD WORK	RIGHT LANE CLOSED AHEAD	LEFT LANE CLOSED AHEAD	ROAD CLOSED
CW20-1	G20-2	CW20-5(2) CW16-3	CW20-3(1) CW16-3	R11-2

PHASE 1



PHASE 2



LEGEND

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- TRAFFIC FLOW
- CONSTRUCTION AREA

NOTE:

1. RETURN TAPERS AND DOWNSTREAM BARRICADES ARE OPTIONAL ON A DIVIDED ROADWAY SECTION.
2. DOUBLE SIGNS SHALL BE USED ONLY ON ROADWAYS WITH MEDIANS.
3. FOR DIMENSIONS REFER TO SHEET 01512-01.

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP ONE LANE CLOSURE
PHASE 1 & 2

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-04

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE # 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN ONE-LANE CLOSURE FOR DIVIDED ROADWAY

SHEET 17 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 125 OF 151	

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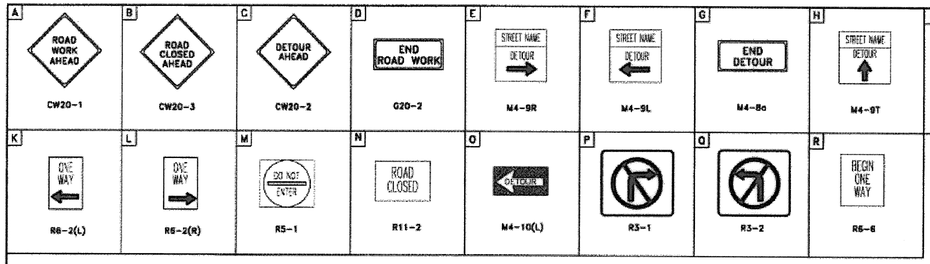
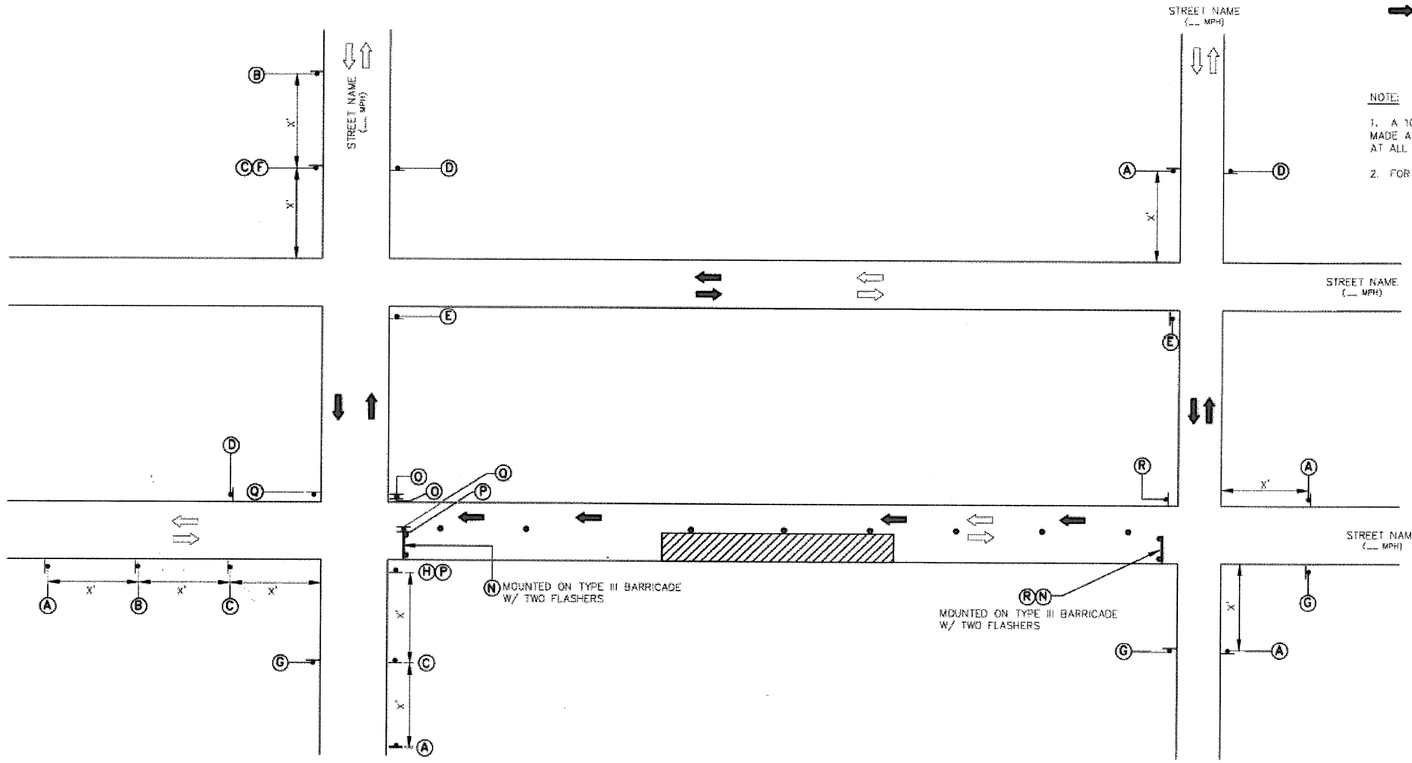


LEGEND

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- BARRICADE
- FLASHING ARROW PANEL
- AREA UNDER CONSTRUCTION
- EXISTING TRAVELWAY
- TRAFFIC CONTROL PLAN DETOUR TRAVEL WAY

NOTE:

1. A 10' MINIMUM LANE WIDTH FOR EMERGENCY SHALL BE MADE AVAILABLE AND MAINTAINED BY THE CONTRACTOR AT ALL TIMES.
2. FOR DIMENSIONS REFER TO SHEET 01512-01.



DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP ONE LANE CLOSURE

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER

APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING

EFF DATE: JUL-01-2012

DWG NO: 01512-05

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE • 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
Harold C. Scheffler III
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN ONE-LANE CLOSURE WITH ONE-WAY CONVERSION

SHEET 18 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 126 OF 151	

51277

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			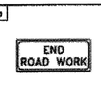	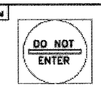	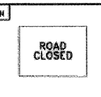
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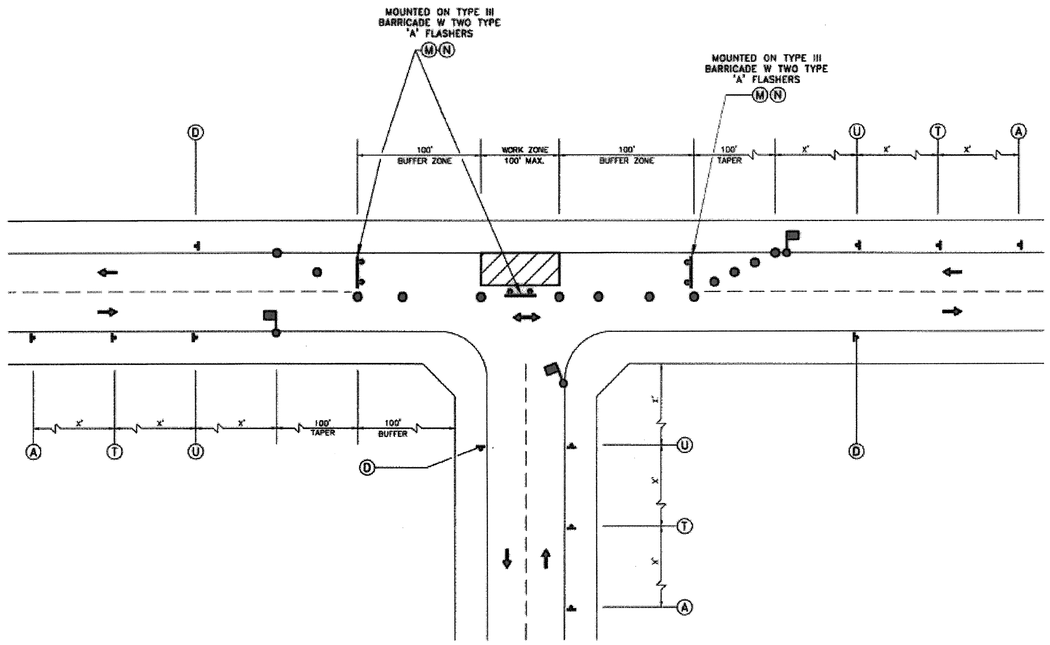

LEGEND

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- TRAFFIC FLOW
- BARRICADE
- FLASHING ARROW PANEL

NOTE:

1. MINOR WORK ONLY.
2. CONTRACTOR SHALL USE ONE-LANE ROAD CLOSURE AND DETOUR ROUTING FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01512-01

PHASE 1 OF 3
TYPICAL CONSTRUCTION ZONE AT A T-INTERSECTION

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP TYPICAL 3-WAY INTERSECTION PHASE 1 OF 3 (NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-06

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE • 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
3-WAY INTERSECTION
PHASE 1 OF 3

SHEET 19 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 127 OF 151	

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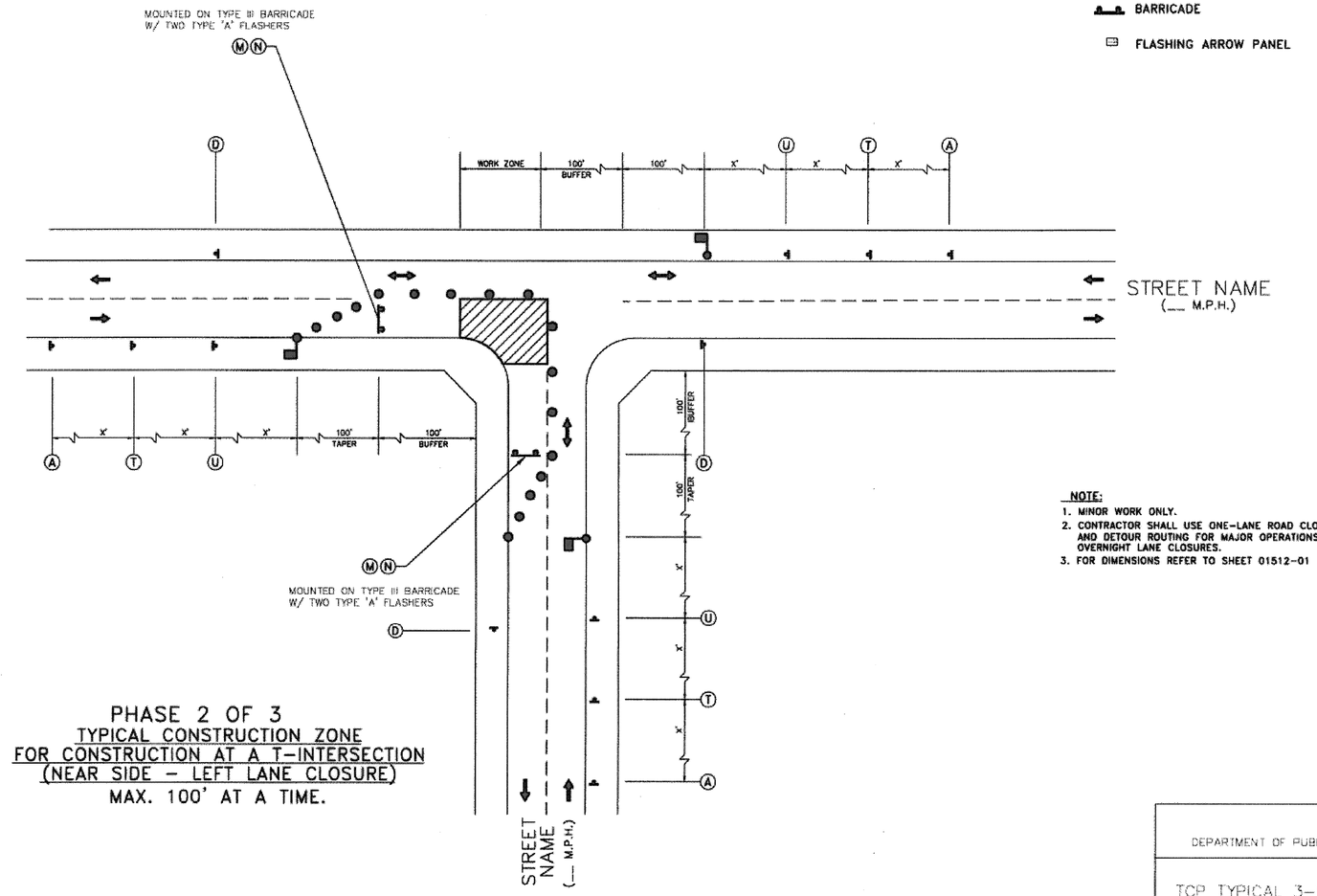
31224CAM TCPSTD08.dgn

A	T	U	D	M	N
ROAD WORK AHEAD	ONE LANE ROAD		END ROAD WORK	DO NOT ENTER	ROAD CLOSED
CW20-1	CW20-4	CW20-7	G20-2	R5-1	R11-2

LEGEND

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- TRAFFIC FLOW
- BARRICADE
- FLASHING ARROW PANEL



NOTE:

1. MINOR WORK ONLY.
2. CONTRACTOR SHALL USE ONE-LANE ROAD CLOSURE AND DETOUR ROUTING FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01512-01

PHASE 2 OF 3
TYPICAL CONSTRUCTION ZONE FOR CONSTRUCTION AT A T-INTERSECTION (NEAR SIDE - LEFT LANE CLOSURE)
MAX. 100' AT A TIME.

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP TYPICAL 3-WAY INTERSECTION
PHASE 2 OF 3
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-07

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE # 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS · H.C. SCHEFFLER III · 78147 · REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
3-WAY INTERSECTION
PHASE 2 OF 3

SHEET 20 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 128 OF 151	

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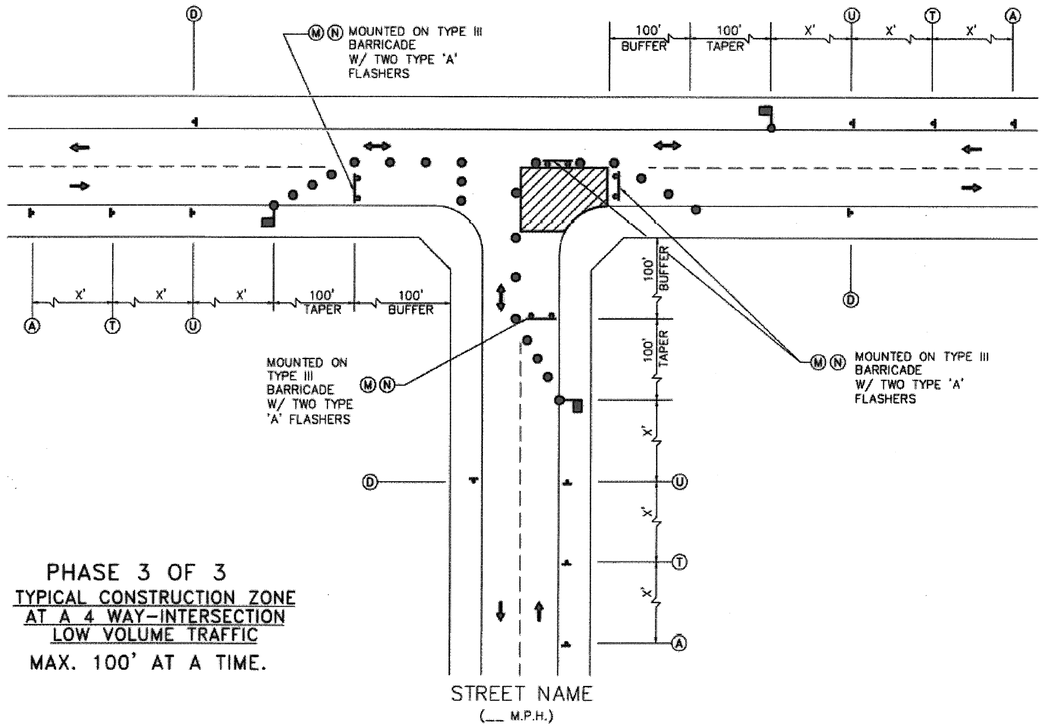
A	T	U	D	M	N
ROAD WORK AHEAD	ONE LANE ROAD		END ROAD WORK	DO NOT ENTER	ROAD CLOSED
CW20-1	CW20-4	CW20-7	G20-2	R5-1	R11-2

LEGEND

- SIGN
- FLAGGER
- APPROVED CHANNELIZATION DEVICE
- TRAFFIC FLOW
- BARRICADE
- FLASHING ARROW PANEL



NOTE:

1. MINOR WORK ONLY.
2. CONTRACTOR SHALL USE ONE-LANE ROAD CLOSURE AND DETOUR ROUTING FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01512-01

PHASE 3 OF 3
TYPICAL CONSTRUCTION ZONE AT A 4 WAY-INTERSECTION LOW VOLUME TRAFFIC
MAX. 100' AT A TIME.

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP TYPICAL 3-WAY INTERSECTION PHASE 3 OF 3

(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-08

COH

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE # 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
TRAFFIC CONTROL PLAN 3-WAY INTERSECTION PHASE 3 OF 3

SHEET 21 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 129 OF 151	

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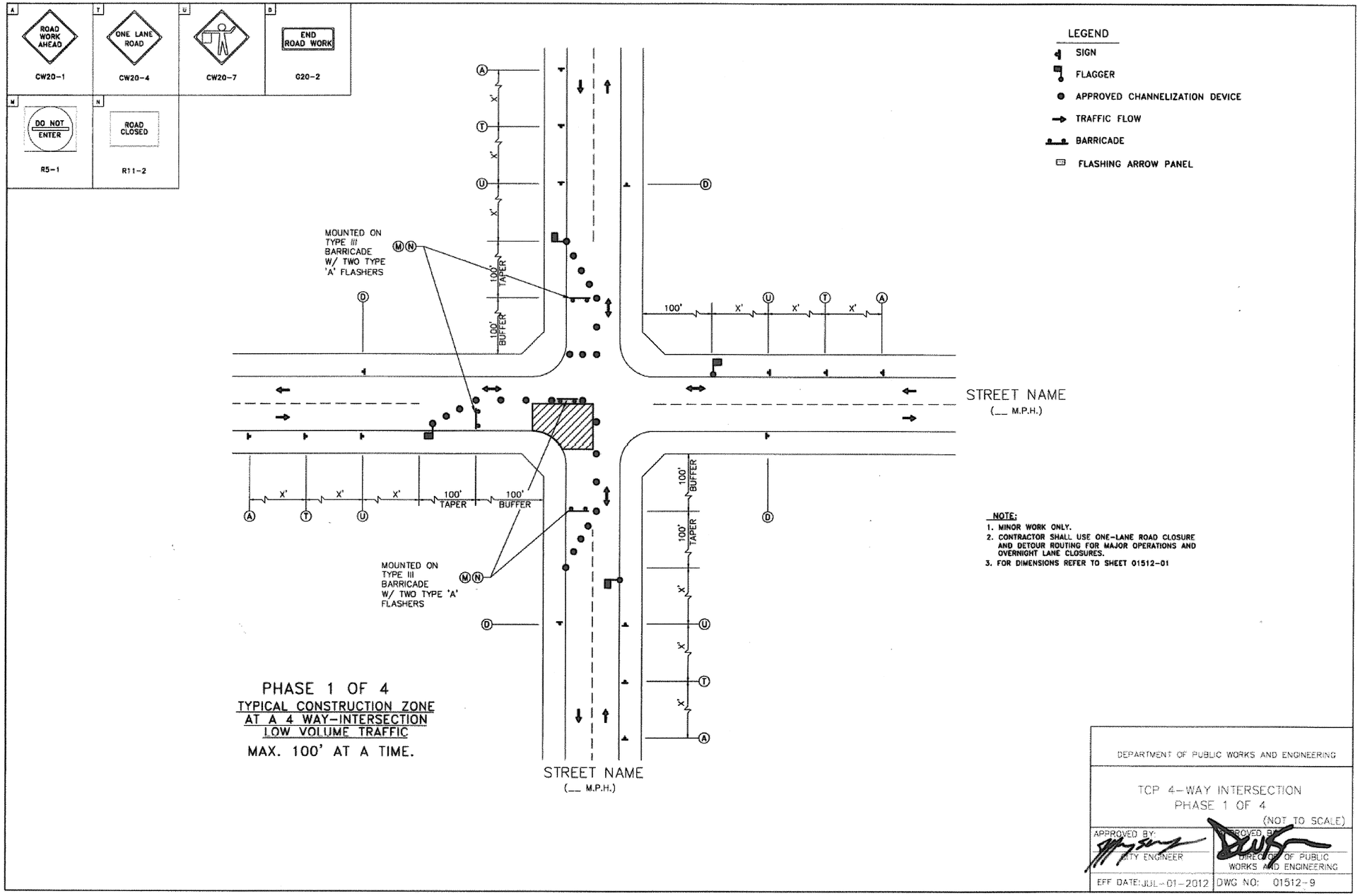

NOTE:

1. MINOR WORK ONLY.
2. CONTRACTOR SHALL USE ONE-LANE ROAD CLOSURE AND DETOUR ROUTING FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01512-01

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP 4-WAY INTERSECTION
PHASE 1 OF 4
(NOT TO SCALE)

APPROVED BY:	APPROVED BY:
CITY ENGINEER	DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-9

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated (Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE * 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
4-WAY INTERSECTION
PHASE 1 OF 4

SHEET 22 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 130 OF 151	

51277

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9/13/2013
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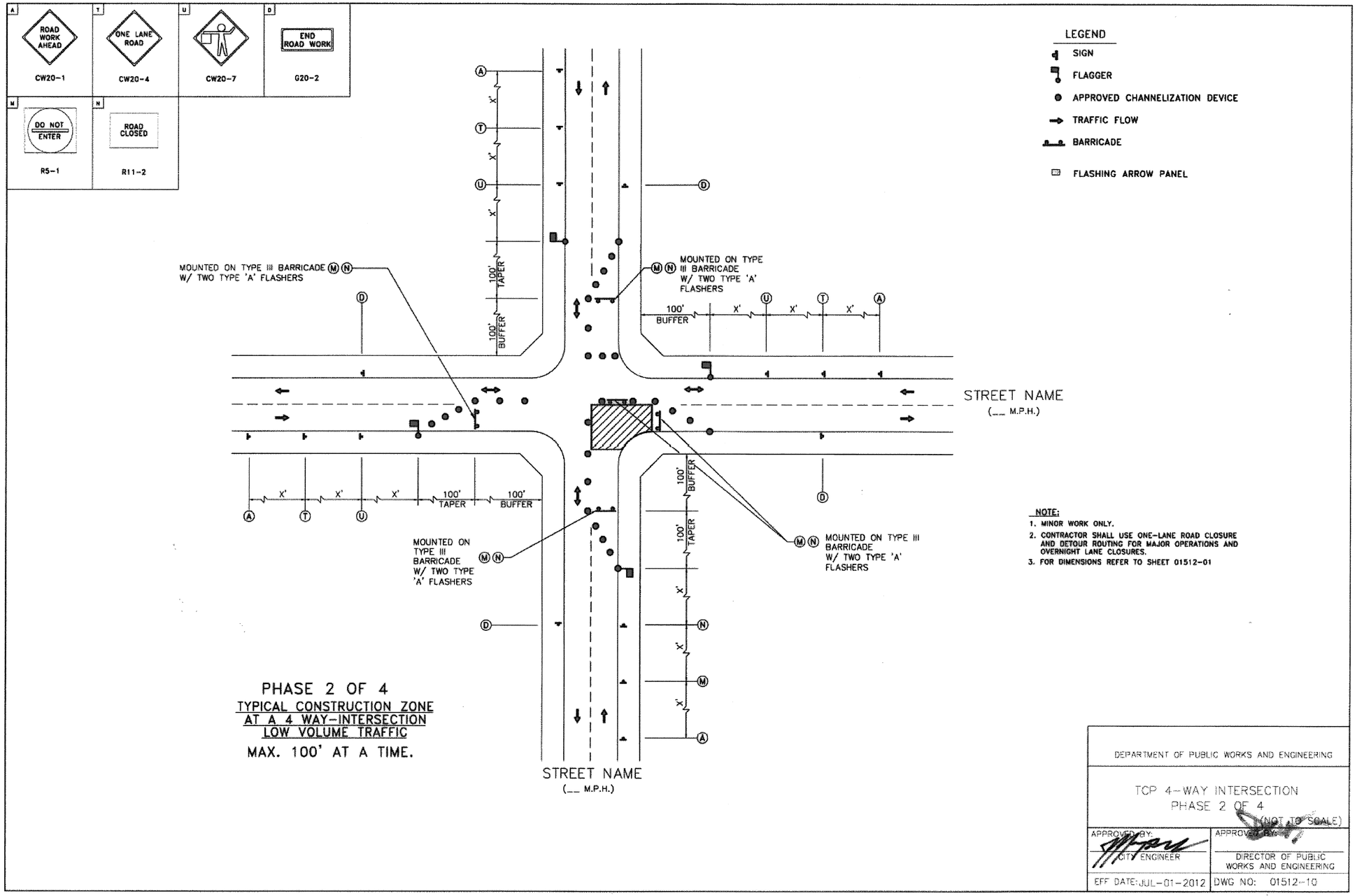

PHASE 2 OF 4

TYPICAL CONSTRUCTION ZONE AT A 4 WAY-INTERSECTION LOW VOLUME TRAFFIC

MAX. 100' AT A TIME.

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP 4-WAY INTERSECTION PHASE 2 OF 4 (NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-10

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE # 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-8825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN 4-WAY INTERSECTION PHASE 2 OF 4

SHEET 23 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277-1
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 131 OF 151	

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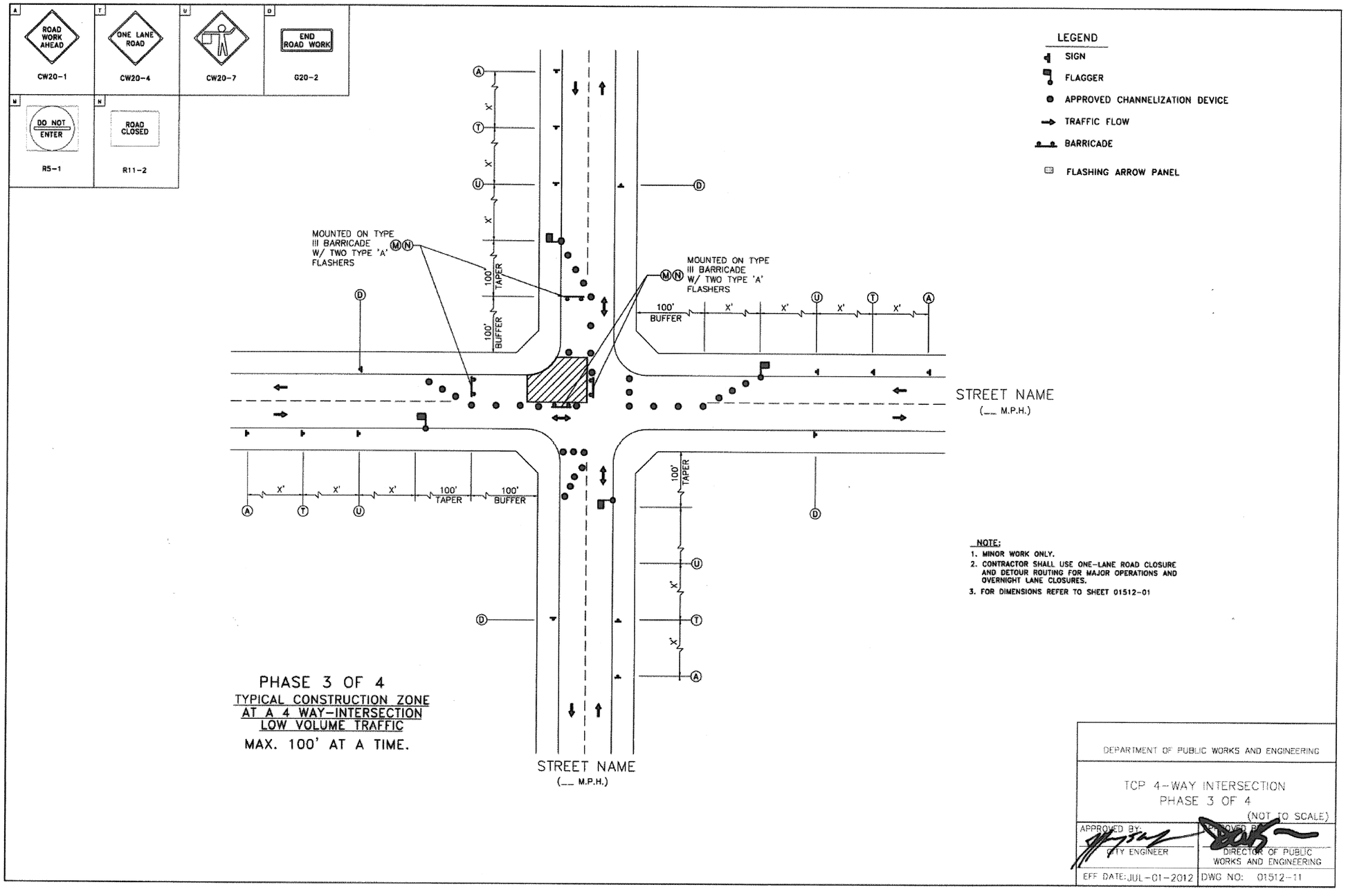

PHASE 3 OF 4

TYPICAL CONSTRUCTION ZONE AT A 4 WAY-INTERSECTION LOW VOLUME TRAFFIC

MAX. 100' AT A TIME.

NOTE:

1. MINOR WORK ONLY.
2. CONTRACTOR SHALL USE ONE-LANE ROAD CLOSURE AND DETOUR ROUTING FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01512-01

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP 4-WAY INTERSECTION
PHASE 3 OF 4
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-11

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE * 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
4-WAY INTERSECTION
PHASE 3 OF 4

SHEET 24 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 132 OF 151	

2:06:33 PM 9/13/2013
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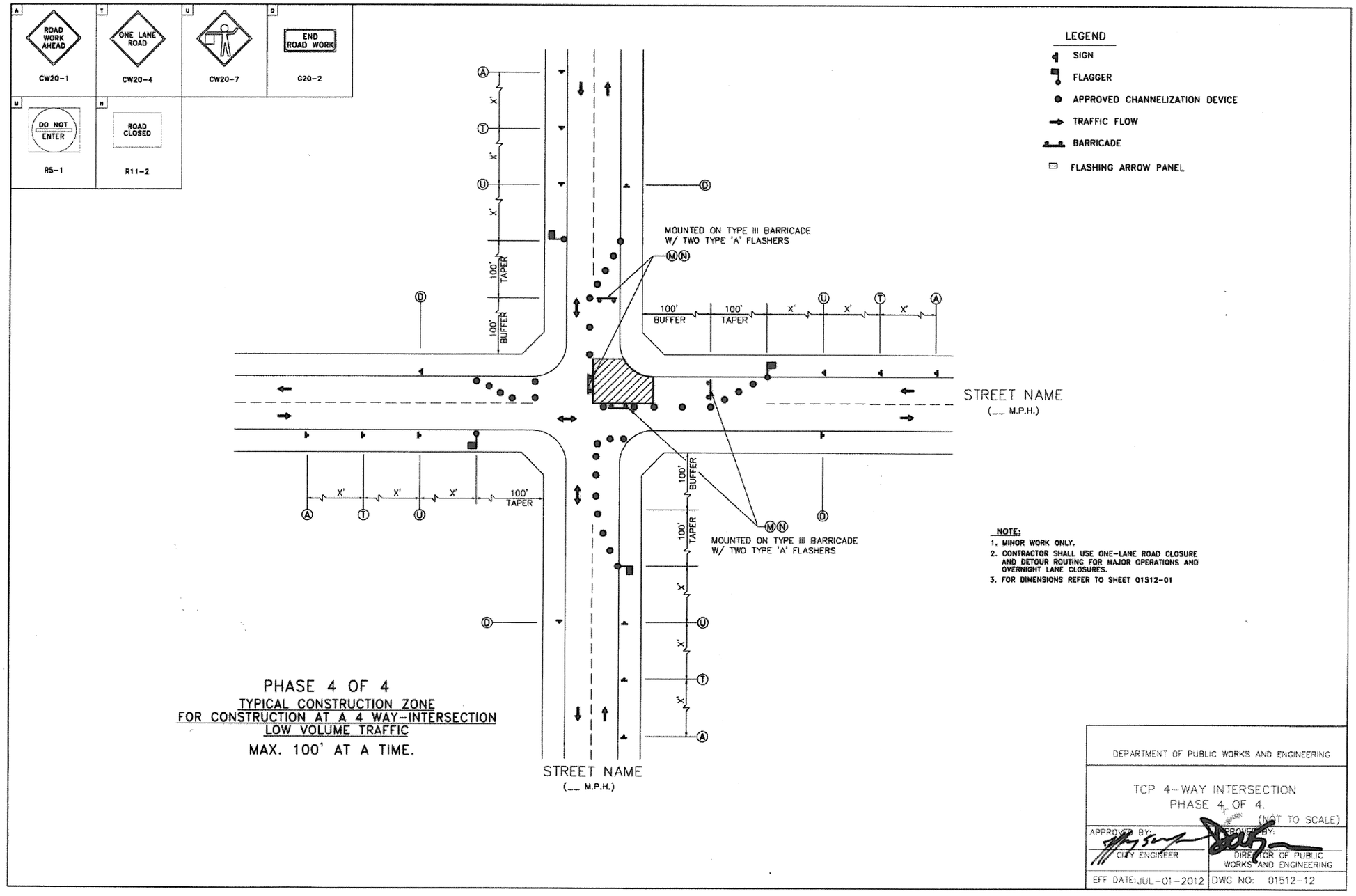

PHASE 4 OF 4

TYPICAL CONSTRUCTION ZONE
FOR CONSTRUCTION AT A 4 WAY-INTERSECTION
LOW VOLUME TRAFFIC

MAX. 100' AT A TIME.

NOTE:

1. MINOR WORK ONLY.
2. CONTRACTOR SHALL USE ONE-LANE ROAD CLOSURE AND DETOUR ROUTING FOR MAJOR OPERATIONS AND OVERNIGHT LANE CLOSURES.
3. FOR DIMENSIONS REFER TO SHEET 01512-01

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

TCP 4-WAY INTERSECTION
PHASE 4 OF 4.
(NOT TO SCALE)

APPROVED BY: CITY ENGINEER	APPROVED BY: DIRECTOR OF PUBLIC WORKS AND ENGINEERING
EFF DATE: JUL-01-2012	DWG NO: 01512-12

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE * 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
H.C. SCHEFFLER III
78147
REGISTERED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TRAFFIC CONTROL PLAN
4-WAY INTERSECTION
PHASE 4 OF 4

SHEET 25 OF 25

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
N.T.S.	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 133 OF 151	

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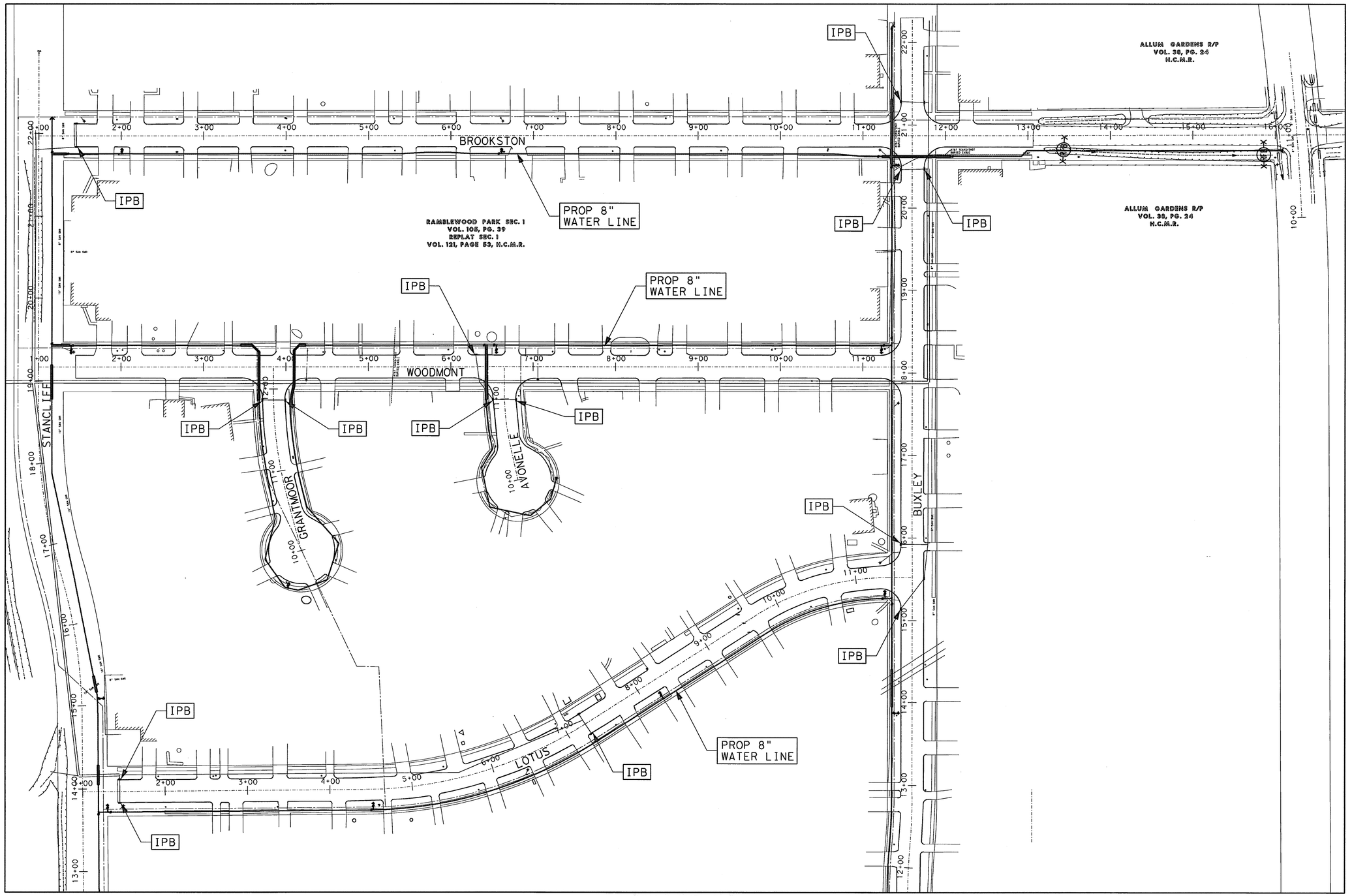

MATCH LINE B-B

AREA 1A

LEGEND

- IPB — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- EXISTING STORM INLET
- DITCH FLOW

NOTES

1. STORM WATER POLLUTION PREVENTION PLAN SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND DRAWINGS.
2. ALL DISTURBED AREAS THAT ARE NOT PAVED, COVERED BY PAVEMENT, SIDEWALK OR STRUCTURE SHALL BE SODDED.
3. PROVIDE A STABILIZED CONSTRUCTION EXIT IN THE CONTRACTOR'S LAY DOWN/ STORAGE AREA.

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

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SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
SANTIAGO PONS
93892
LICENSED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STORM WATER POLLUTION PREVENTION PLAN AREA 1A

SHEET 1 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1" = 60'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 134 OF 151	

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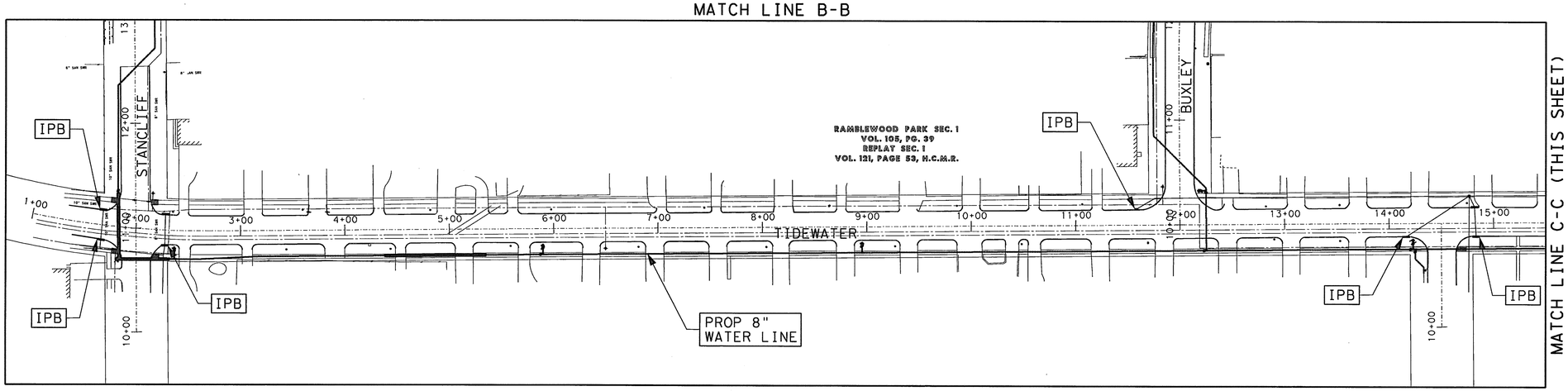
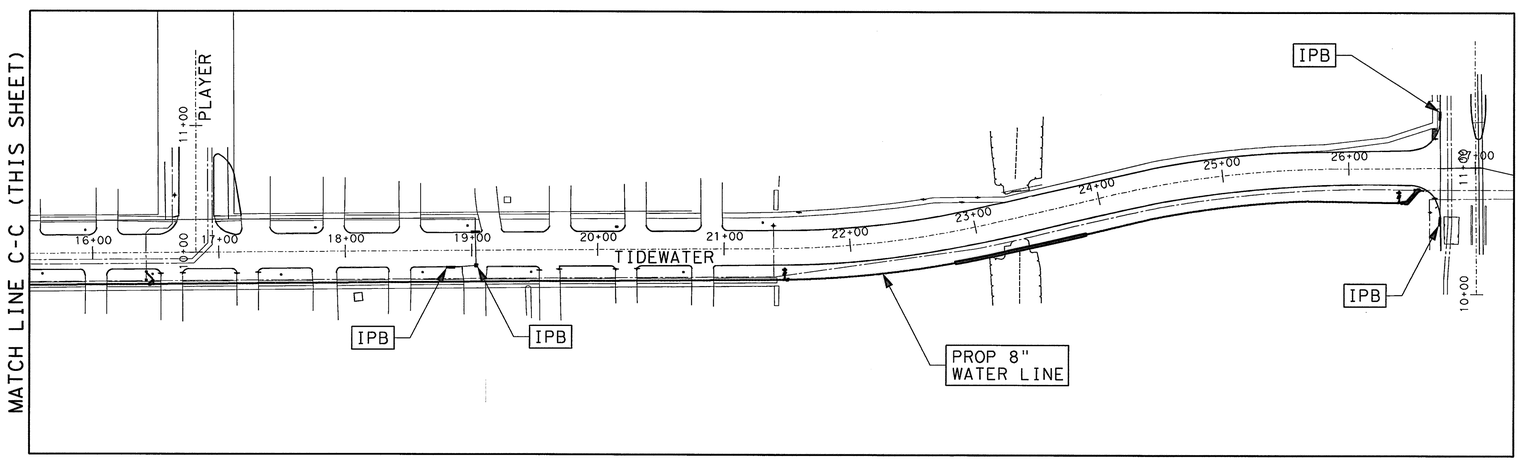
MATCH LINE B-B



MATCH LINE C-C (THIS SHEET)

MATCH LINE C-C (THIS SHEET)



AREA 1A

LEGEND

- IPB — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- EXISTING STORM INLET
- DITCH FLOW

NOTES

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TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
SANTIAGO PONS
93892
LICENSED PROFESSIONAL ENGINEER
SANTIAGO PONS
9-12-13

CITY OF HOUSTON

DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STORM WATER POLLUTION PREVENTION PLAN AREA 1A

SHEET 2 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1" = 60'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 135 OF 151	

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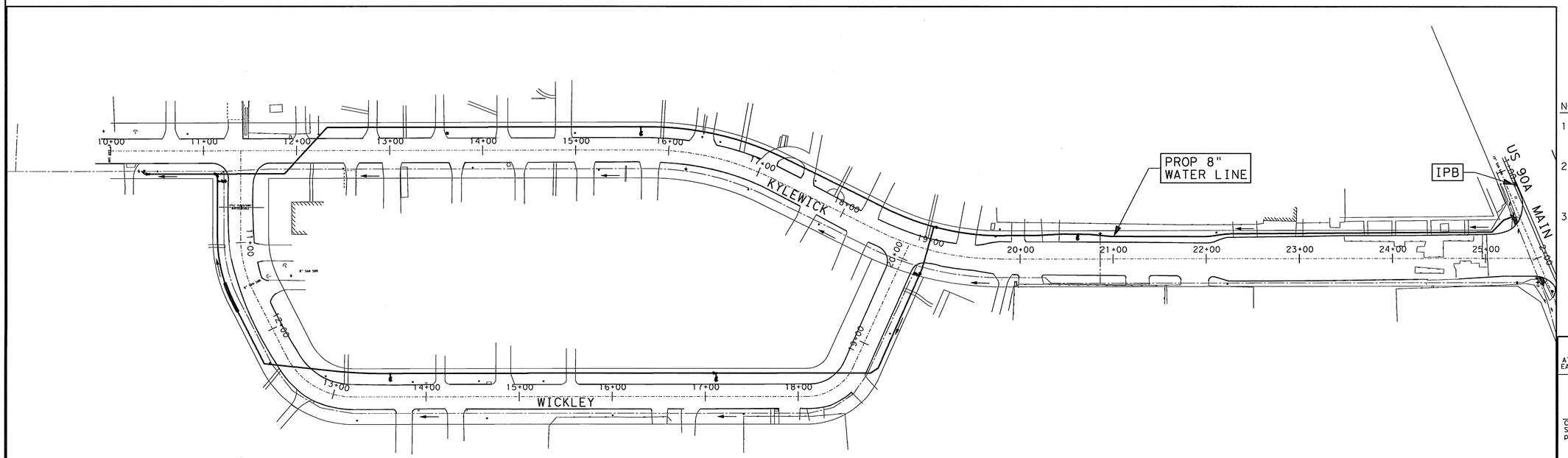

LEGEND

- IPB — INLET PROTECTION BARRIER
- X (RFB) X — REINFORCED FILTER FABRIC BARRIER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- EXISTING STORM INLET
- DITCH FLOW

NOTES

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STATE OF TEXAS
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LICENSED
PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STORM WATER POLLUTION PREVENTION PLAN AREA 1B

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1" = 60'-0"
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 136 OF 151

FOR CITY OF HOUSTON USE ONLY

51277

AREA 1B

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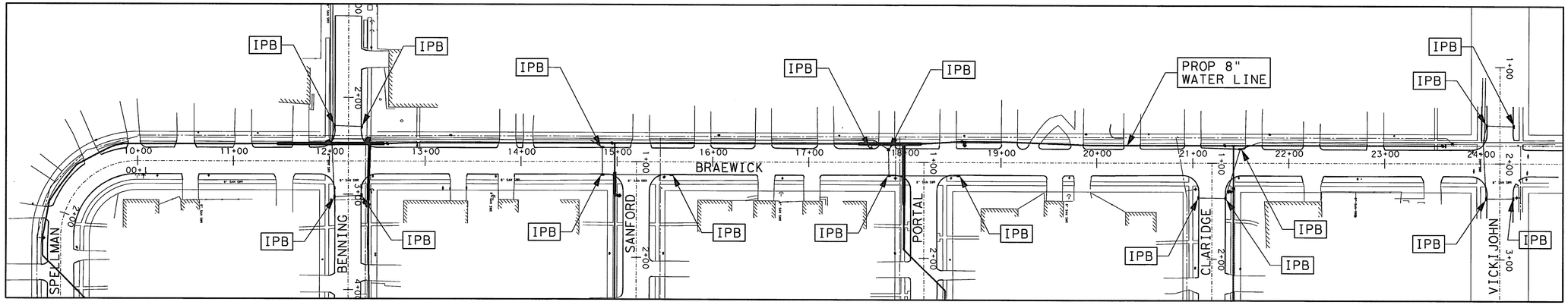

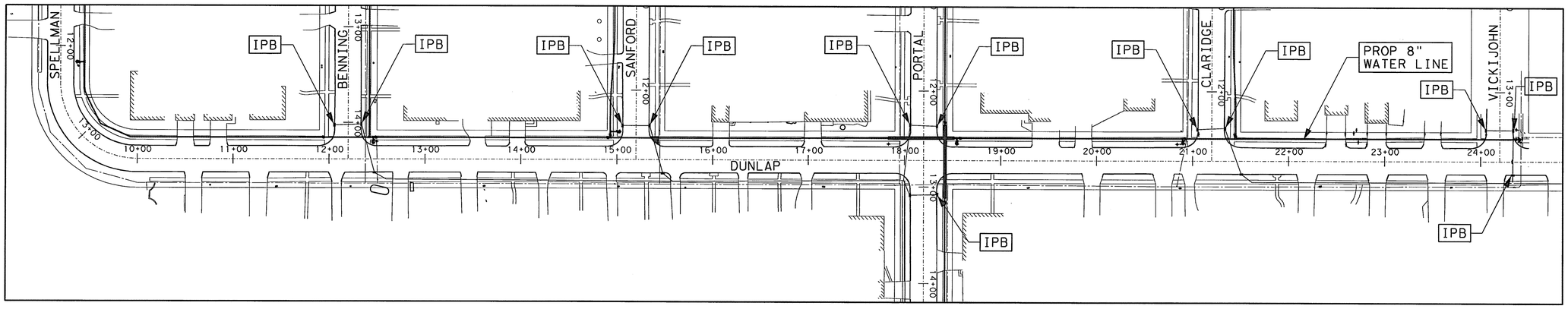

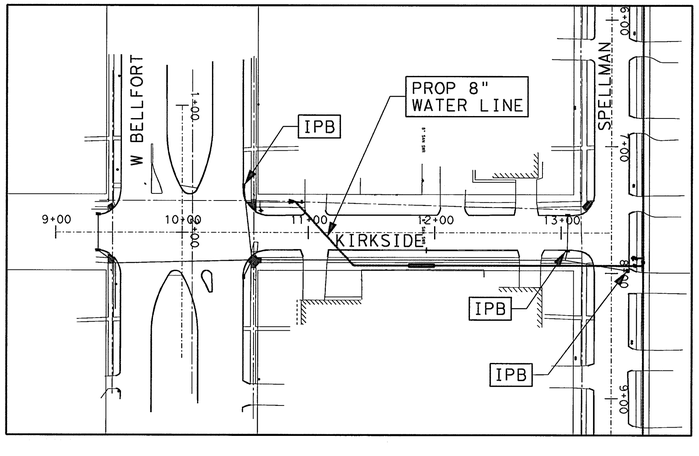

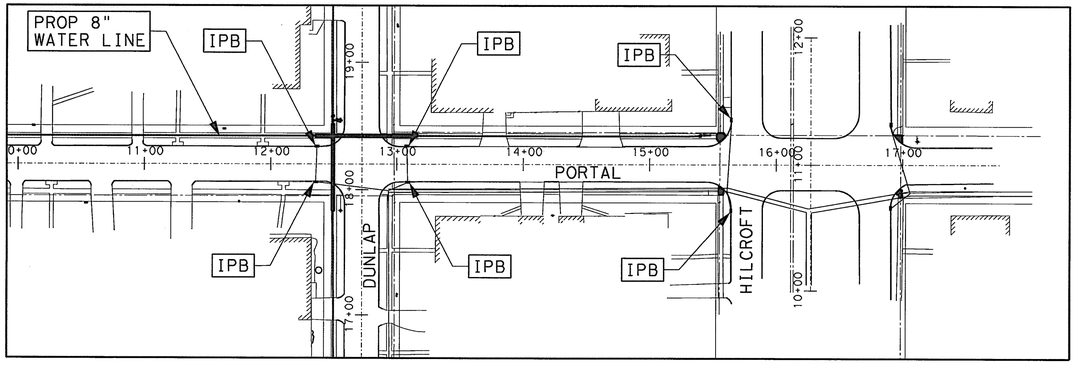

AREA 2

LEGEND

- IPB — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- EXISTING STORM INLET
- DITCH FLOW

NOTES

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PRIVATE UTLITY LINES SHOWN

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CABLE COMPANY

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IDC
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Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
SANTIAGO PONS
93892
LICENSED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STORM WATER POLLUTION PREVENTION PLAN AREA 2

SHEET 4 OF 7

WBS NUMBER
S-000035-188-4
DRAWING SCALE
1" = 60'-0"
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 137 OF 151

FOR CITY OF HOUSTON USE ONLY

51277

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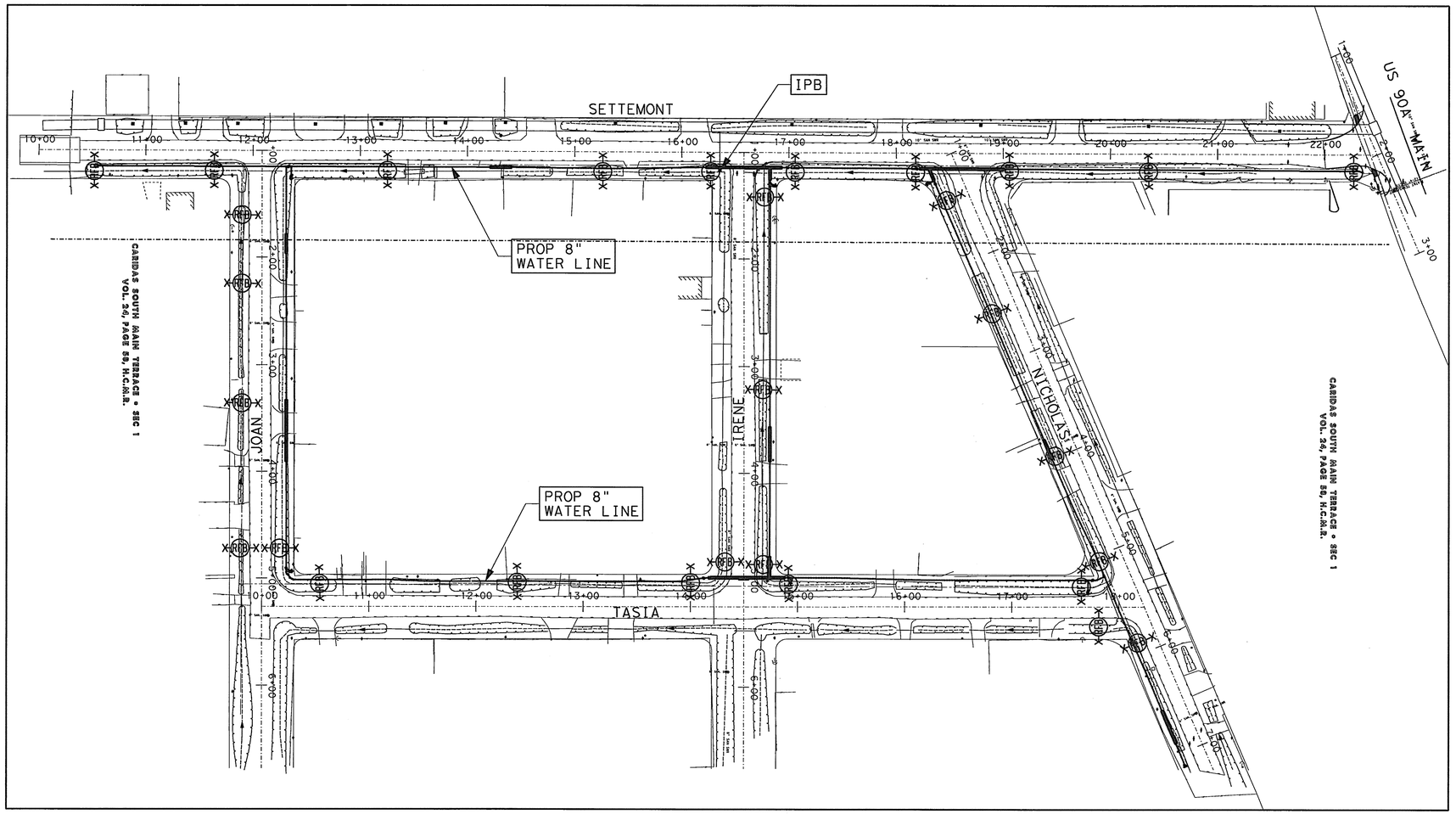

AREA 3

LEGEND

- IPB — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- EXISTING STORM INLET
- DITCH FLOW

NOTES

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FB NO. P-5694

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9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STORM WATER POLLUTION PREVENTION PLAN AREA 3

SHEET 5 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1" = 60'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 138 OF 151	

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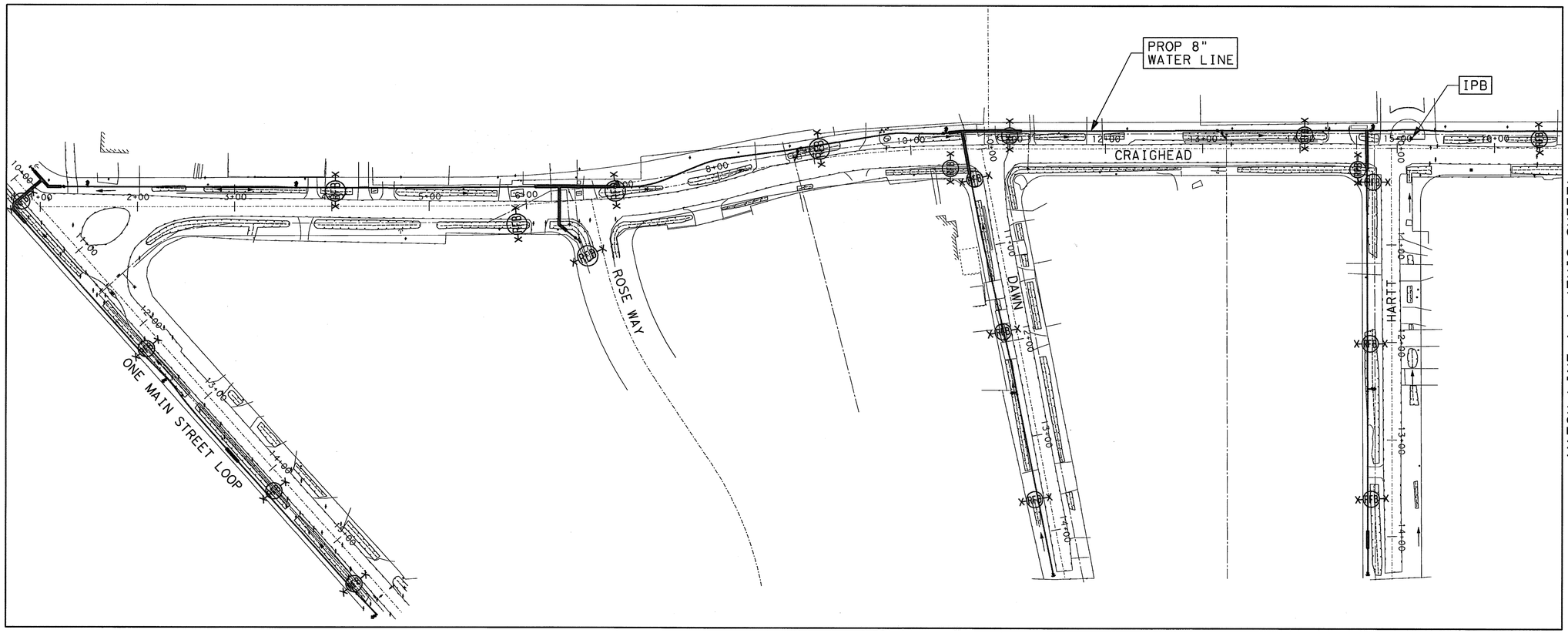
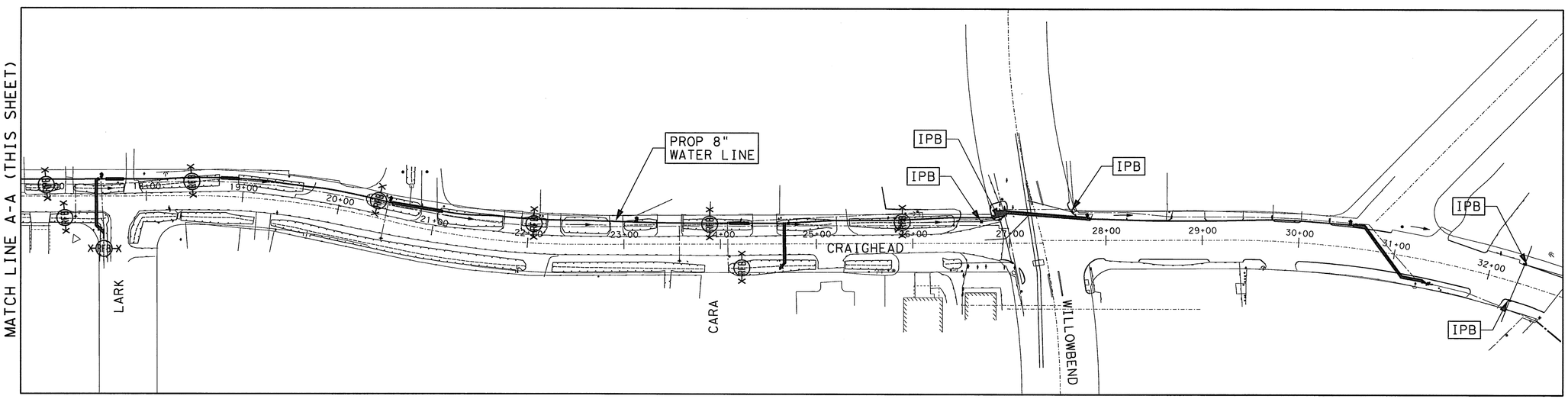


MATCH LINE A-A (THIS SHEET)

MATCH LINE A-A (THIS SHEET)



AREA 4

LEGEND

- IPB — INLET PROTECTION BARRIER
- RFB — REINFORCED FILTER FABRIC BARRIER
- PROPOSED WATER LINE
- EXISTING WATER LINE
- EXISTING STORM INLET
- DITCH FLOW

NOTES

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IDC
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TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
SANTIAGO PONS
93892
LICENSED PROFESSIONAL ENGINEER
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STORM WATER POLLUTION PREVENTION PLAN AREA 4

SHEET 6 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1" = 60'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 139 OF 151	

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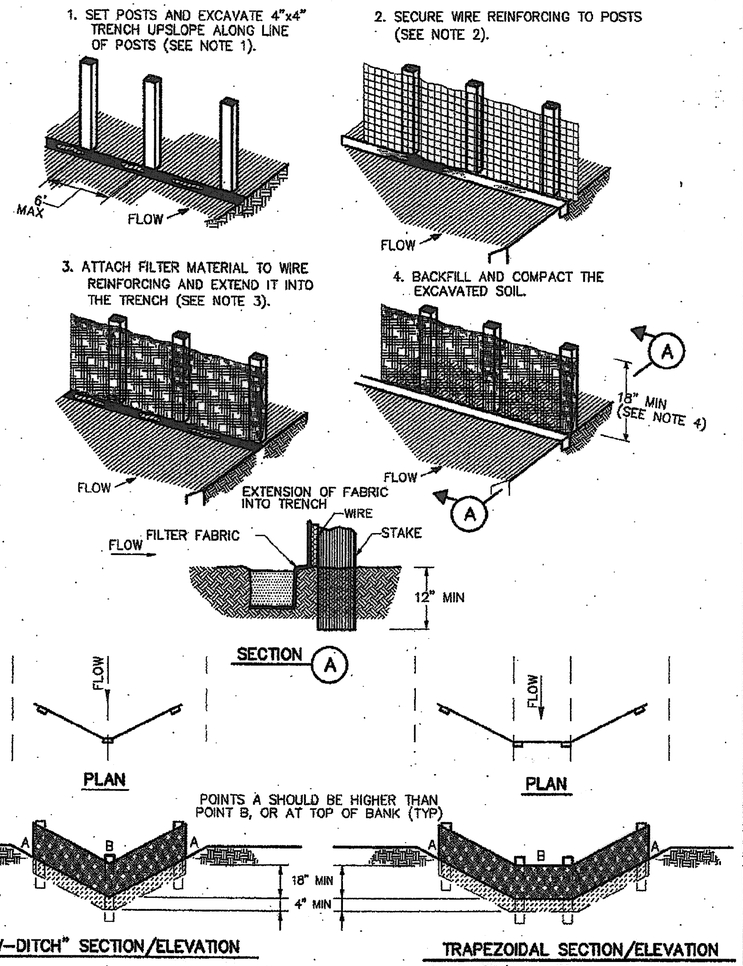
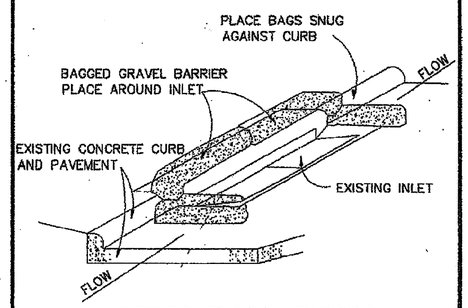


CONSTRUCTION NOTES:

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

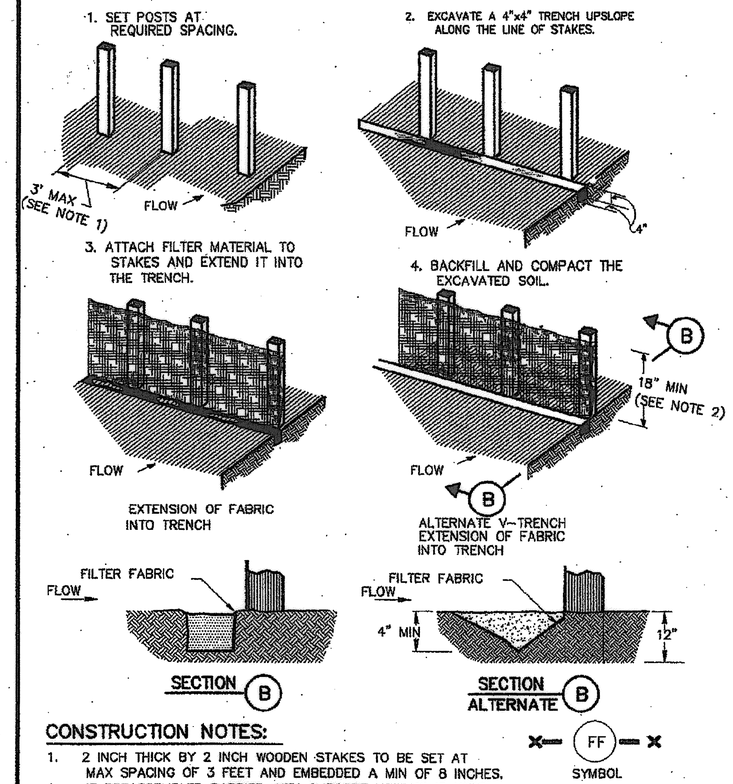
SYMBOL

REINFORCED FILTER FABRIC BARRIER



INLET PROTECTION BARRIER

(FOR STAGE II INLETS)
BAGGED GRAVEL BARRIER



CONSTRUCTION NOTES:

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

SYMBOL

FILTER FABRIC BARRIER

PRIVATE UTLITY LINES SHOWN

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N/A
CABLE COMPANY

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FB NO. P-5694

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9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

STORM WATER POLLUTION PREVENTION PLAN DETAILS

SHEET 7 OF 7

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
NA	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 140 OF 151	

51277

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NOTE:

WHERE THERE IS A DISCREPANCY ON THE TREE CALLOUT THE TREE PROTECTION PLAN GOVERNS

PRIVATE UTLITY LINES SHOWN

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STATE OF TEXAS
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SANTIAGO PONS
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TREE PROTECTION AND DISPOSITION PLAN AREA 1A

SHEET 1 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
1" = 100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 141 OF 151	

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9/13/2013
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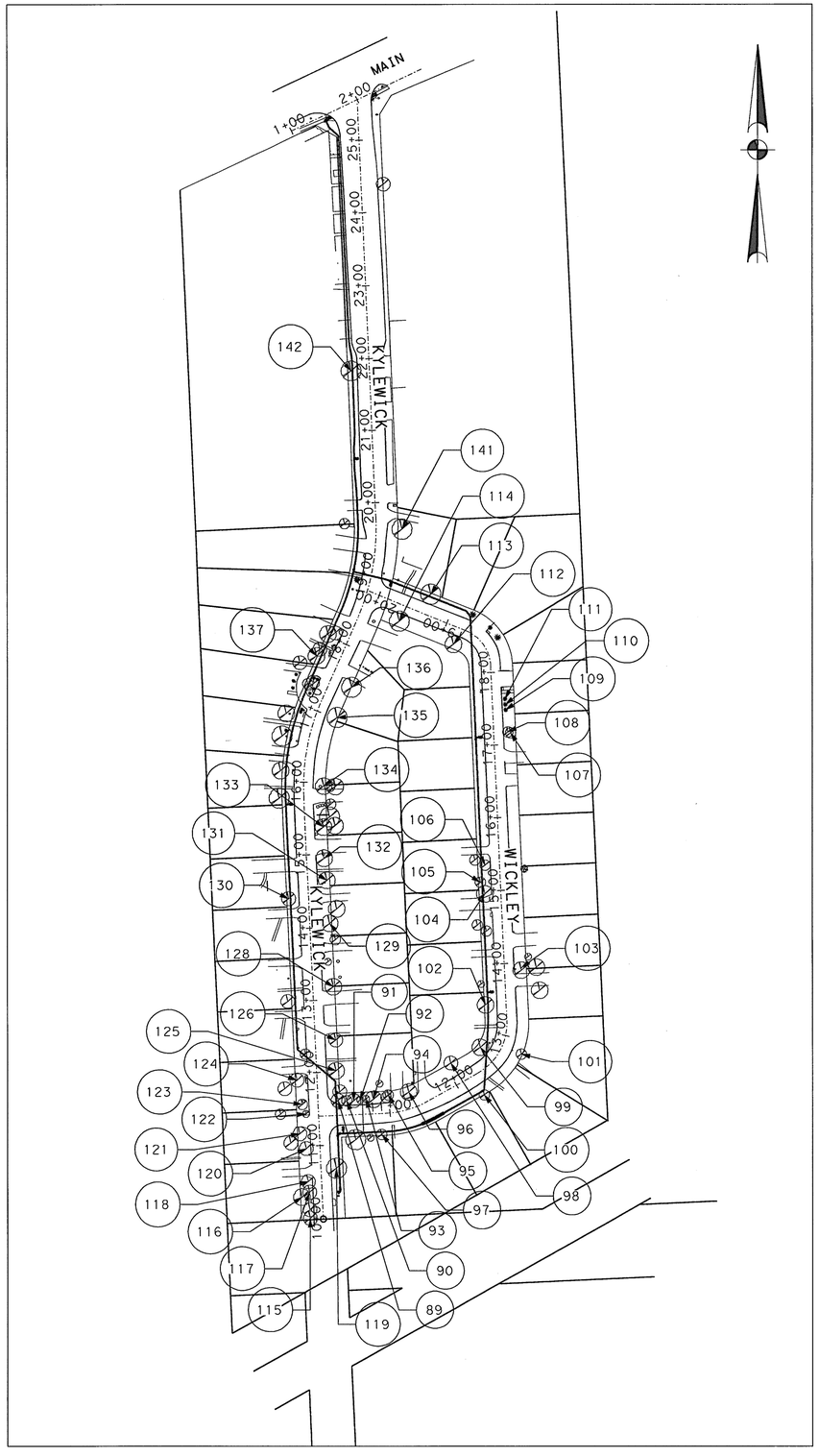

AREA 1B

PRIVATE UTLITY LINES SHOWN

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CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE * 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

SURVEYED BY: JAG
FB NO. P-5694

STATE OF TEXAS
SANTIAGO PONS
93892
LICENSED
PROFESSIONAL ENGINEER
S. Santiago Pons
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TREE PROTECTION AND DISPOSITION PLAN
AREA 1B

SHEET 2 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1" = 100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 142 OF 151	

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PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

N/A Date:
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DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TREE PROTECTION AND DISPOSITION PLAN AREA 2

SHEET 3 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1" = 100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 143 OF 151	

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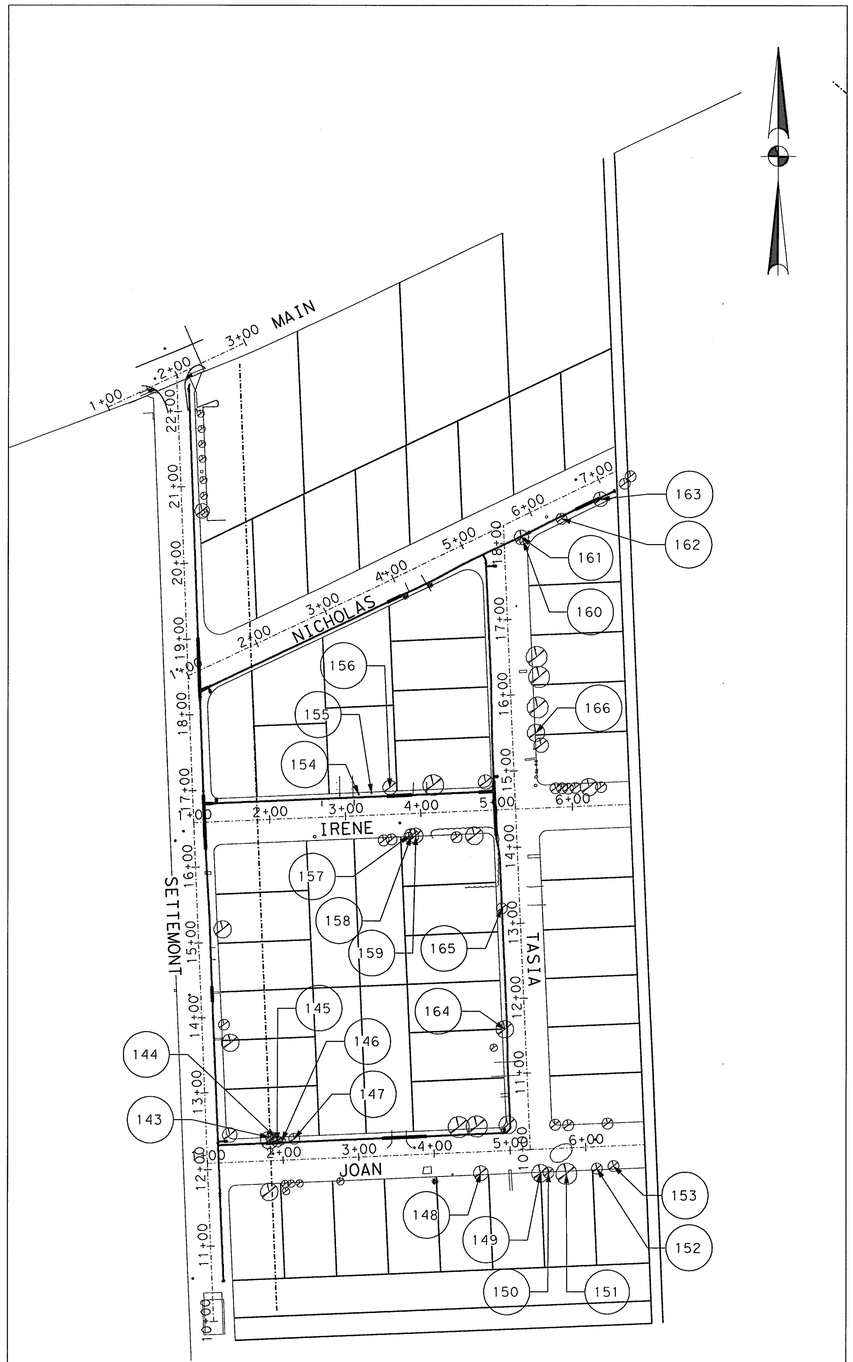

AREA 3

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TREE PROTECTION AND DISPOSITION PLAN
AREA 3

SHEET 4 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
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CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 144 OF 151	

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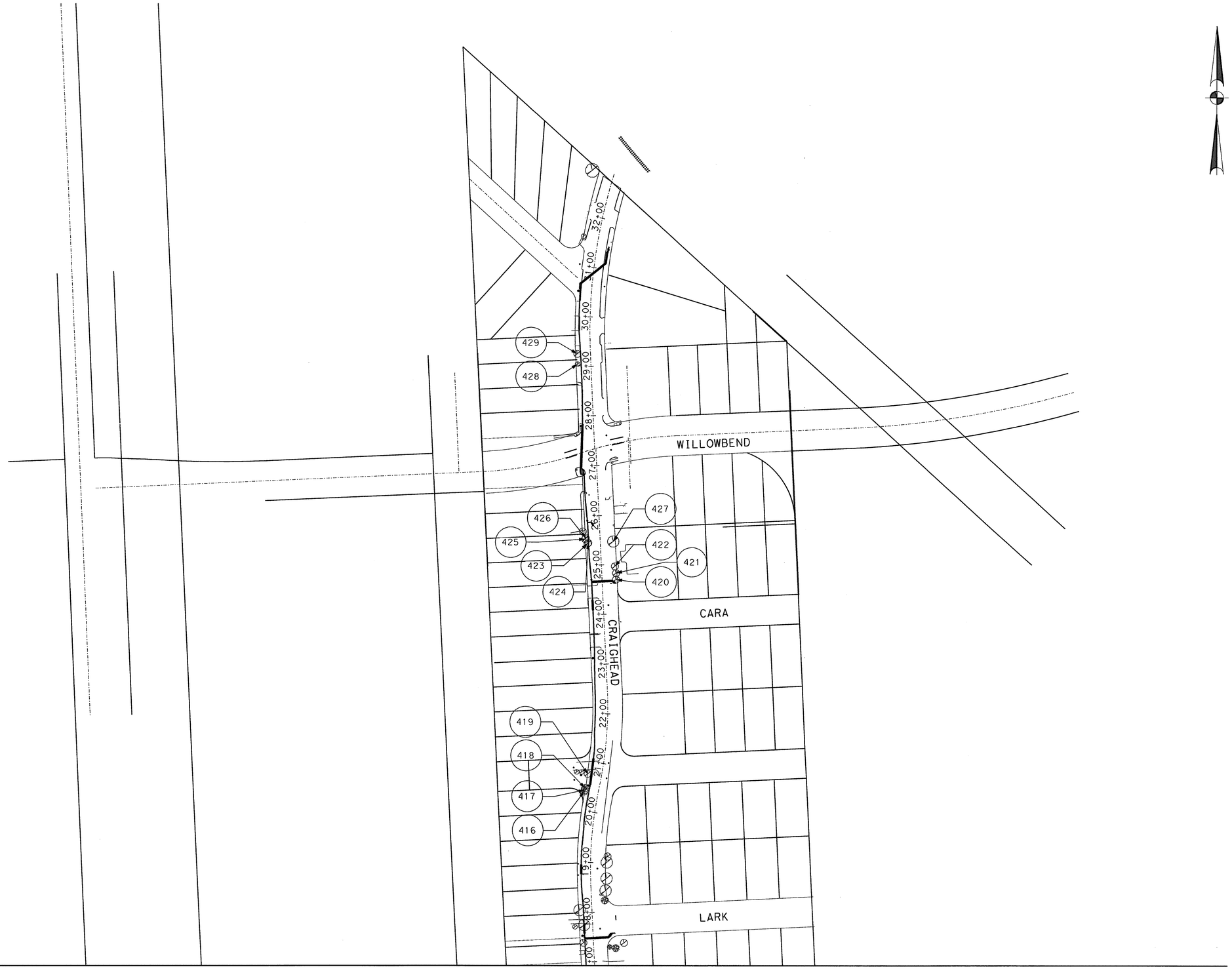

MATCH LINE "A"

AREA 4

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIFICATION 713-223-4567.

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TREE PROTECTION AND DISPOSITION PLAN AREA 4

SHEET 5 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
1" = 100'-0"	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 145 OF 151	

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AREA 4

PRIVATE UTLITY LINES SHOWN

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CITY OF HOUSTON
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WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TREE PROTECTION AND DISPOSITION PLAN AREA 4

SHEET 6 OF 11

WBS NUMBER
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DRAWING SCALE
1" = 100'-0"
CITY OF HOUSTON PM
JOHN MSIGWA, P.E.
SHEET NO. 146 OF 151

FOR CITY OF HOUSTON USE ONLY

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TREES ON TIDEWATER (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
1	18" Live Oak	4842 Tidewater	Private Tree	Fence
2	4" Loquat	4839 Tidewater	Non-Ordinance Tree	Not Impacted
3	6" Pine	4839 Tidewater	Ordinance Tree	Not Impacted
4	8" Pine	4839 Tidewater	Ordinance Tree	Hand dig water tap lead
5	8" Magnolia	4822 Tidewater	Ordinance Tree	Fence
6	20" Ash	4822 Tidewater	Non-Ordinance Tree	Not Impacted
7	20" Ash	4822 Tidewater	Non-Ordinance Tree	Hand dig water tap lead
8	14" Palm	4802 Tidewater	Non-Ordinance Tree	Fence
9	14" Palm	4746 Tidewater	Non-Ordinance Tree	Fence
10	12" Palm	4746 Tidewater	Non-Ordinance Tree	Fence
11	12" Tallow	4739 Tidewater	Non-Ordinance Tree	Not Impacted
12	8" Crape Myrtle	4726 Tidewater	Non-Ordinance Tree	Fence
13	5" Crape Myrtle	4726 Tidewater	Non-Ordinance Tree	Fence
14	4" Crape Myrtle	4726 Tidewater	Non-Ordinance Tree	Fence
15	3" Loquat	4614 Tidewater	Non-Ordinance Tree	Fence
TREES ON LOTUS STREET (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
16	16" Palm	4826 Lotus	Non-Ordinance Tree	Fence
17	16" Palm	4826 Lotus	Non-Ordinance Tree	Fence
18	16" Palm	4826 Lotus	Non-Ordinance Tree	Fence
19	14" Tallow	4823 Lotus	Non-Ordinance Tree	Not Impacted
20	8" Crape Myrtle	4810 Lotus	Non-Ordinance Tree	Fence
21	8" Crape Myrtle	4803 Lotus	Non-Ordinance Tree	Not Impacted
22	14" Crape Myrtle	4807 Lotus	Non-Ordinance Tree	Not Impacted
23	18" Pine	4802 Lotus	Private Tree	Fence
24	20" Pine	4730 Lotus	Private Tree	Fence
25	16" Pine	4730 Lotus	Private Tree	Fence
26	24" Live Oak	4726 Lotus	Private Tree	Fence
27	12" Shumard Oak	Lotus	Ordinance Tree	Fence
28	8" Shumard Oak	4722 Lotus	Ordinance Tree	Fence
29	2" Crape Myrtle	4722 Lotus	Non-Ordinance Tree	Fence
30	6" Pear	4715 Lotus	Non-Ordinance Tree	Not Impacted
31	2" Loquat	4707 Lotus	Non-Ordinance Tree	Not Impacted
32	8" Loquat	4707 Lotus	Non-Ordinance Tree	Not Impacted
TREES ON WOODMONT DR. (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
33	3" Pear	4822 Woodmont	Non-Ordinance Tree	Not Impacted
34	3" Pear	4822 Woodmont	Non-Ordinance Tree	Not Impacted
35	4" Pear	4822 Woodmont	Non-Ordinance Tree	Not Impacted
36	14" Pine	4818 Woodmont	Ordinance Tree	Not Impacted
37	4" Loquat	4818 Woodmont	Non-Ordinance Tree	Not Impacted
38	28" Shumard oak	13202 Grantmoor	Ordinance Tree	Fence
39	18" Tallow	4806 Woodmont	Non-Ordinance Tree	Not Impacted
40	14" Crape Myrtle	4806 Woodmont	Non-Ordinance Tree	Not Impacted
41	3" Crape Myrtle	4806 Woodmont	Non-Ordinance Tree	Not Impacted
42	16" Tallow	4806 Woodmont	Non-Ordinance Tree	Not Impacted
43	12" Crape Myrtle	13202 Avonelle	Non-Ordinance Tree	Fence
44	12" Crape Myrtle	13202 Avonelle	Non-Ordinance Tree	Fence
45	12" Crape Myrtle	13202 Avonelle	Non-Ordinance Tree	Fence
46	12" Crape Myrtle	13202 Avonelle	Non-Ordinance Tree	Fence
47	20" Pine	4722 Woodmont	Ordinance Tree	Not Impacted
48	16" Pine	4722 Woodmont	Ordinance Tree	Not Impacted
49	2" Crape Myrtle	4716 Woodmont	Ordinance Tree	Not Impacted
50	24" Pine	4707 Woodmont	Private Tree	Fence
51	18" Pine	4707 Woodmont	Private Tree	Fence
TREES ON GRANTMOOR DRIVE (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
52	2" Leland Cypress	13203 Grantmoor	Non-Ordinance Tree	Fence
53	30" Live Oak	13203 Grantmoor	Private Tree	Fence
54	30" Live Oak	13207 Grantmoor	Private Tree	Fence
TREES ON AVONELLE DRIVE (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
55	18" Pine	13206 Avonelle	Private Tree	Fence

TREES ON BROOKSTONE STREET (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
56	18" Pine	4815 Brookston	Private Tree	Fence
57	16" Pine	4815 Brookston	Private Tree	Fence
58	14" Pine	4815 Brookston	Ordinance Tree	Fence
59	14" Pine	4815 Brookston	Ordinance Tree	Fence
60	18" Cedar	4815 Brookston	Non-Ordinance Tree	Fence
61	6" Ligustrum	4807 Brookston	Non-Ordinance Tree	Fence
62	6" Loquat	4810 Brookston	Non-Ordinance Tree	Not Impacted
63	10" Crape Myrtle	4810 Brookston	Non-Ordinance Tree	Not Impacted
64	18" Pine	4803 Brookston	Ordinance Tree	Hand dig water tap lead, Fence
65	20" Pine	4803 Brookston	Ordinance Tree	Relocate FH tie-in outside of drip line, Fence
66	2" Crape Myrtle	4726 Brookston	Non-Ordinance Tree	Not Impacted
67	2" Crape Myrtle	4726 Brookston	Non-Ordinance Tree	Not Impacted
68	2" Crape Myrtle	4726 Brookston	Non-Ordinance Tree	Not Impacted
69	24" Catalpa	4722 Brookston	Ordinance Tree, Topped	Not Impacted
70	28" Catalpa	4722 Brookston	Ordinance Tree, Topped	Not Impacted
71	4" Crape Myrtle	4719 Brookston	Non-Ordinance Tree	Fence
72	16" Arborvitae	4715 Brookston	Non-Ordinance Tree	Fence
73	16" Arborvitae	4715 Brookston	Non-Ordinance Tree	Fence
74	2" Crape Myrtle	4714 Brookston	Non-Ordinance Tree	Not Impacted
75	2" Crape Myrtle	4714 Brookston	Non-Ordinance Tree	Not Impacted
76	2" Crape Myrtle	4714 Brookston	Non-Ordinance Tree	Not Impacted
77	2" Crape Myrtle	4714 Brookston	Non-Ordinance Tree	Not Impacted
78	10" Crape Myrtle	4711 Brookston	Non-Ordinance Tree	Fence
79	10" Crape Myrtle	4711 Brookston	Non-Ordinance Tree	Fence
79A	26" Live Oak	Brookston	Ordinance Tree	Fence
TREES ON STANCLIFF STREET (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
80	16" Water Oak	Stancliff	Ordinance Tree	Fence
81	18" Hackberry	Stancliff	Non-Ordinance Tree	Fence
82	18" Water Oak	Stancliff	Ordinance Tree	Fence
TREES ON BUXLEY STREET (AREA 1A)				
Tree #	Size & Species	Location/Address	Comments	Treatment
83	16" Palm	4726 Tidewater	Non-Ordinance Tree	Fence
84	8" Live Oak	4726 Tidewater	Ordinance Tree	Not Impacted
85	18" Palm	4726 Tidewater	Non-Ordinance Tree	Not Impacted
86	18" Live Oak	13227 Buxley	Ordinance Tree	Not Impacted
87	6" Juniper	13215 Buxley	Non-Ordinance Tree	Not Impacted
88	2" Crape Myrtle	13115 Buxley	Non-Ordinance Tree	Not Impacted
TREES ON WICKLEY DRIVE (AREA 1B)				
Tree #	Size & Species	Location/Address	Comments	Treatment
89	18" Magnolia	12821 Kylewick	Ordinance Tree	Not Impacted
90	14" Black Walnut	12821 Kylewick	Ordinance Tree	Not Impacted
91	16" Water Oak	12821 Kylewick	Ordinance Tree	Not Impacted
92	6" Crape Myrtle	12821 Kylewick	Non-Ordinance Tree	Not Impacted
93	4" Hackberry	12821 Kylewick	Non-Ordinance Tree	Not Impacted
94	24" Black Walnut	12821 Kylewick	Ordinance Tree	Not Impacted
95	4" Loquat	12821 Kylewick	Non-Ordinance Tree	Not Impacted
96	20" Pecan	12821 Kylewick	Ordinance Tree	Not Impacted
97	15" Magnolia	12837 Wickley	Ordinance Tree	Fence
98	16" Live Oak	12818 Wickley	Ordinance Tree	Not Impacted
99	18" Live Oak	12818 Wickley	Ordinance Tree	Not Impacted
100	15" Magnolia	12829 Wickley	Ordinance Tree	Fence
101	12" Magnolia	12821 Wickley	Ordinance Tree	Fence
102	28" Live Oak	12818 Wickley	Ordinance Tree	Not Impacted
103	16" Pecan	12813 Wickley	Ordinance Tree	Fence
104	18" Live Oak	12810 Wickley	Ordinance Tree	Not Impacted
105	10" Chinese Elm	12806 Wickley	Ordinance Tree	Not Impacted
106	18" Chinese Elm	12806 Wickley	Ordinance Tree	Not Impacted
107	8" Ash	12721 Wickley	Non-Ordinance Tree	Fence
108	8" Live Oak	12721 Wickley	Ordinance Tree	Fence
109	12" Palm	12717 Wickley	Non-Ordinance Tree	Fence
110	12" Palm	12717 Wickley	Non-Ordinance Tree	Fence
111	12" Palm	12717 Wickley	Non-Ordinance Tree	Fence
112	28" Sycamore	12702 Wickley	Ordinance Tree, 40% Die-back	Not Impacted
113	32" Water Oak	12701 Wickley	Ordinance Tree	Fence
114	40" Ash	12702 Wickley	Non-Ordinance Tree	Not Impacted

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SURVEYED BY: JAG
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STATE OF TEXAS
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SANTIAGO PONS
9-12-13

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA
TREE PROTECTION AND DISPOSITION PLAN
TREE TABLES

SHEET 7 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
DRAWING SCALE	
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CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 147 OF 151	

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TREES ON KYLEWICK DRIVE (AREA 1B)

Tree #	Size & Species	Location/Address	Comments	Treatment
115	16" Arborvitae	12830 Kylewick	Non-Ordinance Tree	Not Impacted
116	24" Live Oak	12830 Kylewick	Ordinance Tree	Not Impacted
117	10" Crape Myrtle	12830 Kylewick	Non-Ordinance Tree	Not Impacted
118	18" Arborvitae	12830 Kylewick	Non-Ordinance Tree	Not Impacted
119	32" Live Oak	12837 Wickley	Ordinance Tree	Fence
120	16" Shumard Oak	12826 Kylewick	Ordinance Tree	Not Impacted
121	14" Live Oak	12826 Kylewick	Ordinance Tree	Not Impacted
122	6" Crape Myrtle	12826 Kylewick	Non-Ordinance Tree	Not Impacted
123	12" Loquat	12822 Kylewick	Non-Ordinance Tree	Not Impacted
124	18" Pecan	12822 Kylewick	Ordinance Tree	Not Impacted
125	30" Ash	12821 Wickley	Non-Ordinance Tree	Fence
126	18" Tallow	12821 Wickley	Non-Ordinance Tree	Fence
127	14" Ash	12818 Wickley	Non-Ordinance Tree	Not Impacted
128	18" Tallow	12813 Kylewick	Non-Ordinance Tree	Fence
129	24" Live Oak	12809 Kylewick	Ordinance Tree	Fence
130	18" Ash	N/A	Non-Ordinance Tree	Not Impacted
131	24" Water Oak	12805 Kylewick	Ordinance Tree	Fence
132	26" Water Oak	12805 Kylewick	Ordinance Tree	Fence
133	20" Water Oak	12801 Kylewick	Ordinance Tree	Fence
134	20" Live Oak	12801 Kylewick	Ordinance Tree	Fence
135	26" Ash	Kylewick	Non-Ordinance Tree	Hand dig water tap lead, Fence
136	32" Ash	Kylewick	Non-Ordinance Tree	Fence
137	20" Ash	12730 Kylewick	Non-Ordinance Tree	Not Impacted
138	12" Pine	12730 Kylewick	Ordinance Tree	Not Impacted
139	22" Tallow	12730 Kylewick	Non-Ordinance Tree	Not Impacted
140	18" Cedar	12730 Kylewick	Non-Ordinance Tree	Not Impacted
141	28" Water Oak	12714 Kylewick	Private Tree	Fence
142	24" Ash	12626 Kylewick	Non-Ordinance Tree	Not Impacted

TREES ON CLARIDGE DRIVE (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
167	22" Ash	6031 Claridge	Non-Ordinance Tree, Poor conditio	Not Impacted
168	22" Pine	6034 Claridge	Ordinance Tree	Fence
169	6" Crape Myrtle	6034 Claridge	Non-Ordinance Tree	Fence
170	6" Crape Myrtle	6034 Claridge	Non-Ordinance Tree	Fence
171	6" Crape Myrtle	6034 Claridge	Non-Ordinance Tree	Fence
172	6" Crape Myrtle	6034 Claridge	Non-Ordinance Tree	Fence
173	24" Ash	6031 Claridge	Non-Ordinance Tree	Not Impacted
174	8" Crape Myrtle	6023 Claridge	Non-Ordinance Tree	Not Impacted
175	28" Live Oak	6018 Claridge	Private Tree	Fence
176	16" Pine	6018 Claridge	Private Tree	Fence
177	18" Pine	6019 Claridge	Ordinance Tree	Not Impacted
178	16" Pine	6019 Claridge	Ordinance Tree	Not Impacted
179	18" Pine	6007 Claridge	Ordinance Tree	Not Impacted
180	18" Live Oak	6007 Claridge	Ordinance Tree	Not Impacted
181	18" Live Oak	6007 Claridge	Ordinance Tree	Hand dig water tap lead, Fence
182	26" American Elm	5946 Claridge	Private Tree	Fence
183	14" Bald Cypress	5934 Claridge	Ordinance Tree	Fence
184	14" Bald Cypress	5934 Claridge	Ordinance Tree	Fence
185	4" Pear	5935 Claridge	Ordinance Tree	Not Impacted
186	4" Pear	5935 Claridge	Ordinance Tree	Not Impacted
187	2" Crape Myrtle	5931 Claridge	Non-Ordinance Tree	Not Impacted
188	2" Crape Myrtle	5931 Claridge	Non-Ordinance Tree	Not Impacted
189	2" Crape Myrtle	5931 Claridge	Non-Ordinance Tree	Not Impacted
190	2" Crape Myrtle	5926 Claridge	Non-Ordinance Tree	Fence
191	2" Crape Myrtle	5926 Claridge	Non-Ordinance Tree	Fence
192	10" Water Oak	5926 Claridge	Ordinance Tree	Shift FH 10' to west, Fence
193	14" Water oak	5922 Claridge	Ordinance Tree	Fence
194	12" Rain Tree	5919 Claridge	Non-Ordinance Tree	Not Impacted
195	16" Water Oak	5918 Claridge	Ordinance Tree	Fence

TREES ON PORTAL DRIVE (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
196	6" Ash	6039 Portal	Non-Ordinance Tree	Not Impacted
197	10" Water Oak	6039 Portal	Ordinance Tree	Not Impacted
198	18" Chinese Elm	6030 Portal	Ordinance Tree	Fence
199	6" Crape Myrtle	6035 Portal	Non-Ordinance Tree	Not Impacted
200	6" Crape Myrtle	6035 Portal	Non-Ordinance Tree	Not Impacted
201	16" Pecan	6022 Portal	Ordinance Tree	Fence
202	20" Live Oak	6027 Portal	Ordinance Tree	Not Impacted
203	22" Live oak	6027 Portal	Ordinance Tree	Not Impacted
204	18" Chinese Elm	6018 Portal	Ordinance Tree	Fence
205	32" Ash	6018 Portal	Non-Ordinance Tree	Fence
206	6" Crape Myrtle	6023 Portal	Non-Ordinance Tree	Fence
207	14" Sweet Gum	6015 Portal	Ordinance Tree	Not Impacted
208	20" Live Oak	6010 Portal	Ordinance Tree	Fence
209	24' Live oak	6010 Portal	Ordinance Tree	Fence
210	2" Crape Myrtle	6011 Portal	Non-Ordinance Tree	Not Impacted
211	2" Crape Myrtle	6011 Portal	Non-Ordinance Tree	Not Impacted
212	12" Ash	6007 Portal	Non-Ordinance Tree	Not Impacted
213	14" Ash	6007 Portal	Non-Ordinance Tree	Not Impacted
214	20" Water Oak	5938 Portal	Ordinance Tree	Fence
215	18" Live Oak	5922 Portal	Ordinance Tree	Fence
216	16" Live Oak	5922 Portal	Ordinance Tree	Fence
217	16" Pine	5923 Portal	Ordinance Tree	Not Impacted
218	18" Pine	5923 Portal	Ordinance Tree	Not Impacted
219	18" Pine	5923 Portal	Ordinance Tree	Hand dig water tap lead, Fence
220	8" Red Maple	5919 Portal	Ordinance Tree	Not Impacted
221	10" Red Maple	5919 Portal	ordinance Tree	Not Impacted
222	3" Tx Mtn Laurel	5818 Portal	Ordinance Tree	Fence
223	8" Rain Tree	5918 Portal	Non-Ordinance Tree	Fence
224	18" Pine	5918 Portal	Ordinance Tree	Fence

TREES ON SANFORD ROAD (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
225	3" Citrus	6035 Sanford	Non-Ordinance Tree	Fence
226	3" Citrus	6035 Sanford	Non-Ordinance Tree	Fence
227	3" Citrus	6035 Sanford	Non-Ordinance Tree	Fence
228	3" Ash	6035 Sanford	Non-Ordinance Tree	Fence
229	8" Rain Tree	6031 Sanford	Non-Ordinance Tree	Fence
230	16" American Elm	6030 Sanford	Ordinance Tree	Not Impacted
231	6" Crape Myrtle	6022 Sanford	Non-Ordinance Tree	Not Impacted
232	4" Shumard Oak	6023 Sanford	Ordinance Tree	Fence
233	4" Chinese Elm	6019 Sanford	Ordinance Tree	Fence
234	10" Vitex	6018 Sanford	Non-Ordinance Tree	Not Impacted
235	32" Ash	6015 Sanford	Non-Ordinance Tree, Limb decay	Fence
236	15" Cedar	6007 Sanford	Non-Ordinance Tree	Fence
237	4" Crape Myrtle	6007 Sanford	Non-Ordinance Tree	Fence
238	2" Shumard Oak	6006 Sanford	Ordinance Tree	Not Impacted
239	12" Ash	6006 Sanford	Non-Ordinance Tree, Poor conditio	Not Impacted
240	15" Tallow	6002 Sanford	Non-Ordinance Tree	Not Impacted
241	6" Crape Myrtle	6003 Sanford	Non-Ordinance Tree	Fence
242	6" Crape Myrtle	6003 Sanford	Non-Ordinance Tree	Fence
243	3" Shumard oak	5947 Sanford	Ordinance Tree	Fence
244	4" Pistache	5947 Sanford	Ordinance Tree	Fence
245	8" Water Oak	5946 Sanford	Ordinance Tree	Not Impacted
246	20" Water Oak	5946 Sanford	Ordinance Tree	Not Impacted
247	10" Lombardy Popl	5947 Sanford	Non-Ordinance Tree	Fence
248	18" Pine	5943 Sanford	Ordinance Tree	Fence
249	14" Pine	5943 Sanford	Private Tree	Fence
250	6" Red Maple	5934 Sanford	Ordinance Tree	Not Impacted
251	20" Ash	5935 Sanford	Non-Ordinance Tree	Fence
252	15" Ash	5935 Sanford	Non-Ordinance Tree	Fence
253	16" Pine	5931 Sanford	Ordinance Tree	Fence
254	12" Tallow	5927 Sanford	Non-Ordinance Tree	Fence
255	18" Ash	5918 Sanford	Non-Ordinance Tree	Not Impacted
256	14" Pine	5918 Sanford	Ordinance Tree	Not Impacted
257	26" Live Oak	5919 Sanford	Private Tree	Fence
258	24" Live Oak	5919 Sanford	Private Tree	Fence
259	20" Live Oak	5919 Sanford	Private Tree	Fence

PRIVATE UTLITY LINES SHOWN

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CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

TREE PROTECTION AND DISPOSITION PLAN TREE TABLES

SHEET 8 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
NA	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 148 OF 151	

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TREES ON BENNING DRIVE (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
260	20" Live Oak	6034 Benning	Ordinance Tree	Not Impacted
261	26" Live Oak	6034 Benning	Ordinance Tree	Not Impacted
262	24" Live Oak	6030 Benning	Ordinance Tree	Not Impacted
263	24" Live Oak	6030 Benning	Ordinance Tree	Not Impacted
264	36" Ash	6031 Benning	Non-Ordinance Tree	Fence
265	8' Magnolia	6031 Benning	Ordinance Tree	Fence
266	34" Ash	6027 Benning	Non-Ordinance Tree	Fence
267	12" Tallow	6019 Benning	Non-Ordinance Tree	Fence
268	6" Crape Myrtle	6018 Benning	Non-Ordinance Tree	Not Impacted
269	32" Ash	6015 Benning	Non-Ordinance Tree	Fence
270	2" Live oak	6006 Benning	Ordinance Tree	Not Impacted
271	2" Live oak	6006 Benning	Ordinance Tree	Not Impacted
272	6" Live Oak	6007 Benning	Ordinance Tree	Fence
273	6" Live Oak	6007 Benning	Ordinance Tree	Fence
274	26" Ash	6002 Benning	Non-Ordinance Tree, Poor conditio	Not Impacted
275	18" Ash	6002 Benning	Non-Ordinance Tree	Not Impacted
276	2" Shumard Oak	6003 Benning	Ordinance Tree	Fence
277	4" Live oak	6003 Benning	Ordinance Tree	Fence
278	22" Ash	5947 Benning	Non-Ordinance Tree	Fence
279	26" Ash	5943 Benning	Non-Ordinance Tree	Fence
280	20" Ash	5943 Benning	Non-Ordinance Tree	Fence
281	34" Ash	5939 Benning	Non-Ordinance Tree	Hand dig water tap lead, Fence
282	4" Holly	5935 Benning	Ordinance Tree	Fence
283	4" Holly	5935 Benning	Ordinance Tree	Fence
284	4" Holly	5935 Benning	Ordinance Tree	Fence
285	34" Ash	5931 Benning	Non-Ordinance Tree	Hand dig water tap lead, Fence
286	14" Live Oak	5919 Benning	Ordinance Tree	Fence
287	14" Live Oak	5919 Benning	Ordinance Tree	Fence

TREES ON SPELLMAN ROAD (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
288	30" Ash	6038 Spellman	Non-Ordinance Tree	Not Impacted
289	12" Pine	4039 Braewick	Ordinance Tree	Fence
290	6" Crape Myrtle	6034 Spellman	Non-Ordinance Tree	Fence
291	6" Crape Myrtle	6034 Spellman	Non-Ordinance Tree	Fence
292	6" Crape Myrtle	6034 Spellman	Non-Ordinance Tree	Fence
293	8" Crape Myrtle	6031 Spellman	Non-Ordinance Tree	Not Impacted
294	8" Ash	6023 Spellman	Non-Ordinance tree	Not Impacted
295	10" Pine	6022 Spellman	Ordinance Tree	Fence
296	16" Pine	6018 Spellman	Ordinance Tree	Fence
297	12" Ash	6019 Spellman	Non-Ordinance Tree	Not Impacted
298	6" Crape Myrtle	6015 Spellman	Non-Ordinance Tree	Not Impacted
299	12" Crape Myrtle	6011 Spellman	Non-Ordinance Tree	Not Impacted
300	4" Palm	6011 Spellman	Non-Ordinance Tree	Not Impacted
301	8" Pecan	6010 Spellman	Ordinance Tree	Fence
302	8" Pecan	6010 Spellman	Ordinance Tree	Fence
303	16" Ash	6006 Spellman	Non-Ordinance Tree	Fence
304	10" Tallow	6003 Spellman	Non-Ordinance Tree	Not Impacted
305	16" Pine	6003 Spellman	Ordinance Tree	Not Impacted
306	20" Ash	5946 Spellman	Non-Ordinance Tree	Fence
307	18" Ash	5943 Spellman	Non-Ordinance Tree	Not Impacted
308	16" Ash	5943 Spellman	Non-Ordinance Tree	Not Impacted
309	4" Red Bud	5942 Spellman	Ordinance Tree	Fence
310	26" Ash	5942 Spellman	Non-Ordinance Tree	Fence
311	12" Live Oak	5938 Spellman	Ordinance Tree	Fence
312	12" Live Oak	5938 Spellman	Ordinance Tree	Fence
313	8" Water Oak	5934 Spellman	Ordinance Tree	Fence
314	6" Fig	5930 Spellman	Non-Ordinance Tree	Fence
315	4" Citrus	5930 Spellman	Non-Ordinance Tree	Fence
316	8" Water Oak	5927 Spellman	Ordinance Tree	Not Impacted
317	6" Water oak	5927 Spellman	Ordinance Tree	Not Impacted
318	24" Live Oak	5923 Spellman	Ordinance Tree	Not Impacted
319	8" Ash	5926 Spellman	Non-Ordinance Tree	Fence
320	10" Live Oak	5919 Spellman	Ordinance Tree	Not Impacted
321	20" Ash	5918 Spellman	Non-Ordinance Tree	Fence
322	8" Catalpa	N/A	Non-Ordinance Tree	Not Impacted
323	14" Live Oak	N/A	Ordinance Tree	Not Impacted
324	12" Pine	N/A	Ordinance Tree	Not Impacted

TREES ON KIRKSIDE DRIVE (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
~~325~~	~~20" Ash~~	~~6002 West Belfort~~	~~Non-Ordinance Tree~~	~~Not Impacted~~
~~326~~	~~30" Ash~~	~~6002 West Belfort~~	~~Non-Ordinance Tree~~	~~Not Impacted~~
327	20" Ash	5943 Spellman	Non-Ordinance Tree	Fence
328	20" Ash	5943 Spellman	Non-Ordinance Tree	Fence

TREES ON BRAEWICK DRIVE (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
329	5" Pistache	Braewick	Ordinance Tree	Fence
330	8" Crape Myrtle	Braewick	Non-Ordinance Tree	Fence
331	8" Crape Myrtle	Braewick	Non-Ordinance Tree	Fence
332	6" Crape Myrtle	Braewick	Non-Ordinance Tree	Relocate FH tie-in outside of drip line, Fence
333	22" Sycamore	11014 Braewick	Ordinance Tree	Fence
334	15" Pear	11004 Braewick	Non-Ordinance Tree	Fence
335	15" Pear	11004 Braewick	Non-Ordinance Tree	Fence
336	10" Sycamore	Braewick	Ordinance Tree	Fence
337	8" Sycamore	Braewick	Ordinance Tree	Fence
338	12" Sycamore	Braewick	Ordinance Tree	Fence
339	(8) 5" Crape Myrtl	6030 Portal	Non-Ordinance Tree	Adjust WL connection/crossing to avoid excavation
340	10" Water Oak	Braewick	Ordinance Tree	Fence
341	5" Crape Myrtle	Braewick	Non-Ordinance Tree	Fence

TREES ON DUNLAP DRIVE (AREA 2)

Tree #	Size & Species	Location/Address	Comments	Treatment
342	12" Tallow	11111 Dunlap	Non-Ordinance Tree	Not Impacted
343	5" Crape Myrtle	5915 Benning	Non-Ordinance Tree	Fence
344	18" Live Oak	11103 Dunlap	Ordinance Tree	Not Impacted
345	20" Ash	11031 Dunlap	Non-Ordinance Tree	Not Impacted
346	20" Ash	11031 Dunlap	Non-Ordinance Tree	Not Impacted
347	14" Pine	5918 Benning	Ordinance Tree	Fence
348	22" Ash	5918 Benning	Non-Ordinance Tree	Fence
349	6" Crape Myrtle	5918 Benning	Non-Ordinance Tree	Fence
350	22" Ash	11027 Dunlap	Non-Ordinance Tree	Not Impacted
351	16" Pecan	11023 Dunlap	Ordinance Tree	Not Impacted
352	18" Tallow	5919 Sanford	Non-Ordinance Tree	Fence
353	18" Catalpa	5919 Sanford	Non-Ordinance Tree	Fence
354	12" Tallow	5919 Sanford	Non-Ordinance Tree	Fence
355	16" Pecan	11023 Dunlap	Ordinance Tree	Not Impacted
356	24" Live Oak	5919 Sanford	Private Tree	Fence
357	22" Water Oak	11019 Dunlap	Ordinance Tree	Not Impacted
358	6" Live Oak	5918 Sanford	Ordinance Tree	Fence
359	16" Pine	5918 Sanford	Ordinance Tree	Fence
360	18" Live Oak	11011 Dunlap	Ordinance Tree	Not Impacted
361	18" Live Oak	11011 Dunlap	Ordinance Tree	Not Impacted
362	6" Live Oak	5918 Sanford	Ordinance Tree	Fence
363	6" Live Oak	5918 Sanford	Ordinance Tree	Fence
364	14" Tallow	11003 Dunlap	Non-Ordinance Tree	Not Impacted
365	2" Red Maple	5919 Portal	Ordinance Tree	Fence
366	2" Red Maple	5919 Portal	Ordinance Tree	Fence
367	2" Red Maple	5919 Portal	Ordinance Tree	Fence
370	18" Pine	5919 Portal	Ordinance Tree	Fence
371	4" Pecan	5918 Portal	Ordinance Tree	Fence
372	5" Pecan	5918 Portal	Ordinance Tree	Fence
373	4" TX Mtn Laurel	5918 Portal	Ordinance Tree	Fence
374	16" Ash	10923 Dunlap	Non-Ordinance Tree	Not Impacted
375	30" Ash	5919 Claridge	Non-Ordinance Tree	Fence
376	4" Live oak	10919 Dunlap	Ordinance Tree	Not Impacted
377	20" Water Oak	5918 Claridge	Ordinance Tree	Fence
378	28" Water Oak	5918 Claridge	Ordinance Tree	Fence
379	16" Tallow	3918 Claridge	Non-Ordinance Tree	Fence
380	22" Live oak	5919 Vicki Jon	Ordinance Tree	Fence
381	6" Crape Myrtle	10819 Dunlap	Non-Ordinance Tree	Fence
382	4" Crape Myrtle	10819 Dunlap	Non-Ordinance Tree	Fence

PRIVATE UTILITY LINES SHOWN

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TREE PROTECTION AND DISPOSITION PLAN
TREE TABLES

SHEET 9 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	51277
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NA	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 149 OF 151	

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TREES ON JOAN STREET (AREA 3)				
Tree #	Size & Species	Location/Address	Comments	Treatment
143	10" Live Oak	12423 Joan	Ordinance Tree	Not Impacted
144	10" Ligustrum	12423 Joan	Non-Ordinance Tree	Not Impacted
145	10" Hackberry	12423 Joan	Non-Ordinance Tree	Not Impacted
146	8" Hackberry	12423 Joan	Non-Ordinance Tree	Not Impacted
147	14" Hackberry	12423 Joan	Non-Ordinance Tree	Not Impacted
148	18" Arborvitae	14813 Joan	Non-Ordinance Tree	Hand dig water tap lead, Fence
149	24" American Elm	14809 Joan	Private Tree	Fence
150	14" American Elm	14809 Joan	Private Tree	Fence
151	30" American Elm	14809 Joan	Private Tree	Fence
152	10" Hackberry	14805 Joan	Non-Ordinance Tree	Fence
153	12" Hackberry	14805 Joan	Non-Ordinance Tree	Extend WL end out of drip line, Fence
TREES ON IRENE STREET (AREA 3)				
Tree #	Size & Species	Location/Address	Comments	Treatment
154	10" Crape Myrtle	14818 Irene	Non-Ordinance Tree	Fence
155	10" Crape Myrtle	14818 Irene	Non-Ordinance Tree	Fence
156	Paulownia	14818 Irene	Private Tree	Fence
157	8" Hackberry	12402 Tasia	Non-Ordinance Tree	Not Impacted
158	16" Hackberry	12402 Tasia	Non-Ordinance Tree	Not Impacted
159	20" Hackberry	12402 Tasia	Non-Ordinance Tree	Not Impacted
TREES ON NICHOLAS STREET (AREA 3)				
Tree #	Size & Species	Location/Address	Comments	Treatment
160	6" Tallow	14805 Nicholas	Non-Ordinance Tree	Fence
161	10" Tallow	14805 Nicholas	Non-Ordinance Tree	Fence
162	10" Sycamore	14805 Nicholas	Ordinance Tree	Not Impacted
163	18" Tallow	14805 Nicholas	Non-Ordinance Tree	Not Impacted
TREES ON SETTEMONT STREET - NO TREES IMPACTED ON SETTEMONT (AREA 3)				
TREES ON TASIA DRIVE (AREA 3)				
Tree #	Size & Species	Location/Address	Comments	Treatment
164	20" Tallow	12416 Tasia	Non-Ordinance Tree	Not Impacted
165	12" Tallow	12406 Tasia	Non-Ordinance Tree	Not Impacted
166	20" Tallow	12325 Tasia	Private Tree	Fence
TREES ON CRAIGHEAD DRIVE (AREA 4)				
Tree #	Size & Species	Location/Address	Comments	Treatment
383	18" Cedar	Craighead	Non-Ordinance Tree	Not Impacted
384	10" Cedar	Craighead - Lot 66	Non-Ordinance Tree	Not Impacted
385	10" Cedar	Craighead - Lot 66	Non-Ordinance Tree	Not Impacted
386	10" Cedar	Craighead - Lot 66	Non-Ordinance Tree	Not Impacted
387	10" Cedar	Craighead - Lot 66	Non-Ordinance Tree	Not Impacted
388	12" Hackberry	Craighead - Lot 11	Non-Ordinance Tree	Fence
389	14" China Berry	Craighead Lot 12	Non-Ordinance Tree	Fence
390	10" Ash	Craighead - Lot 19	Non-Ordinance Tree	Fence
391	14" Ash	Craighead -Lot 19	Non-Ordinance Tree	Fence
392	6" Huisache	Craighead-Lot 23	Ordinance Tree	Fence
393	12" Crape Myrtle	Craighead - Lot 23	Non-Ordinance Tree	Fence
393A	12" Crape Myrtle	Craighead - Lot 23	Non-Ordinance Tree	Fence
394	14" Pine	Craighead - Lot 25	Ordinance Tree	Fence
395	18" Sycamore	Craighead - Lot 23	Ordinance Tree	Fence
396	6" Pine	Craighead - Lot 83	Ordinance Tree	Not Impacted
397	4" Pine	Craighead - Lot 83	Ordinance Tree	Not Impacted
398	24" Ash	Craighead - Lot 83	Non-Ordinance Tree	Not Impacted
399	24" Ash	Craighead - Lot 83	Non-Ordinance Tree	Not Impacted
400	24" Ash	Craighead - Lot 83	Non-Ordinance Tree	Not Impacted
401	22" Ash	Craighead - Lot 28	Non-Ordinance Tree	Fence
402	22" Sycamore	Craighead - Lot 30	Ordinance Tree	Fence
403	8" Crape Myrtle	Craighead - Lot 31	Non-Ordinance Tree	Fence
404	8" Crape Myrtle	Craighead - Lot 31	Non-Ordinance Tree	Fence
405	8" Crape Myrtle	Craighead - Lot 31	Non-Ordinance Tree	Fence
406	8" Crape Myrtle	Craighead - Lot 31	Non-Ordinance Tree	Fence
407	8" Crape Myrtle	Craighead - Lot 32	Non-Ordinance Tree	Fence
408	6" Ligustrum	Craighead - Lot 32	Non-Ordinance Tree	Fence
409	8" Crape Myrtle	Craighead - Lot 32	Non-Ordinance Tree	Fence
410	8" Crape Myrtle	Craighead - Lot 32	Non-Ordinance Tree	Fence
411	4" Citrus	Craighead - Lot 34	Non-Ordinance Tree	Fence
412	22" Ash	Craighead - Lot 35	Non-Ordinance Tree, Topped	Fence

TREES ON CRAIGHEAD DRIVE (AREA 4)(CONTINUED)				
Tree #	Size & Species	Location/Address	Comments	Treatment
413	20" Hackberry	Craighead - Lot 36	Non-Ordinance Tree, Poor conditio	Fence
414	16" Crape Myrtle	Craighead - Lot 106	Non-Ordinance Tree	Not Impacted
415	20" Tallow	Craighead - Lot 106	Non-Ordinance Tree	Not Impacted
416	8" American Elm	Craighead - Lot 40	Ordinance Tree	Fence
417	8" Hackberry	Craighead - Lot 40	Non-Ordinance Tree	Fence
418	8" Hackberry	Craighead - Lot 40	Non-Ordinance Tree	Fence
419	16" Hackberry	Craighead	Non-Ordinance Tree	Fence
420	8" Chinese Elm	Craighead - Lot 128	Ordinance Tree	Not Impacted
421	8" Chinese Elm	Craighead - Lot 128	Ordinance Tree	Not Impacted
422	10" Chinese Elm	Craighead - Lot 128	Ordinance Tree	Not Impacted
423	14" Hackberry	Craighead - Lot 49	Non-Ordinance Tree	Fence
424	14" Hackberry	Craighead - Lot 49	Non-Ordinance Tree	Fence
425	14" Catalpa	Craighead - Lot 49	Non-Ordinance Tree	Fence
426	10" Hackberry	Craighead - Lot 49	Non-Ordinance Tree	Fence
427	16" Chinese Elm	Craighead - Lot 128	Ordinance Tree	Not Impacted
428	6" Pear	Craighead - Lot 56	Non-Ordinance Tree	Fence
429	10" Pecan	Craighead - Lot 57	Ordinance Tree	Fence
TREES ON HARTT LANE (AREA 4)				
Tree #	Size & Species	Location/Address	Comments	Treatment
430	10" Pine	Hartt - Lot 93	Ordinance Tree	Not Impacted
431	14" Ash	Hartt - Lot 93	Non-Ordinance Tree	Not Impacted
432	16" Sycamore	Hartt - Lot 93	Ordinance Tree	Not Impacted
433	18" Sycamore	Hartt - Lot 93	Ordinance Tree	Not Impacted
434	10" Crape Myrtle	Hartt - Lot 95	Non-Ordinance Tree	Fence
435	10" Crape Myrtle	Hartt - Lot 95	Non-Ordinance Tree	Fence
436	8" Hackberry	Hartt - Lot 89	Non-Ordinance Tree	Not Impacted
437	8" Hackberry	Hartt - Lot 89	Non-Ordinance Tree	Not Impacted
TREES ON DAWN LANE (AREA 4)				
Tree #	Size & Species	Location/Address	Comments	Treatment
438	8" Crape Myrtle	Dawn - Lot 79	Non-Ordinance Tree	Fence
439	6" Hackberry	Dawn - Lot 84	Non-Ordinance Tree	Not Impacted
440	4" Hackberry	Dawn - Lot 84	Non-Ordinance Tree	Not Impacted
441	16" American Elm	Dawn	Ordinance Tree	Not Impacted
442	8" Hackberry	Dawn	Non-Ordinance Tree	Not Impacted
443	10" Hackberry	Dawn	Non-Ordinance Tree	Not Impacted

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JOHN MSIGWA, P.E.
SHEET NO. 150 OF 151

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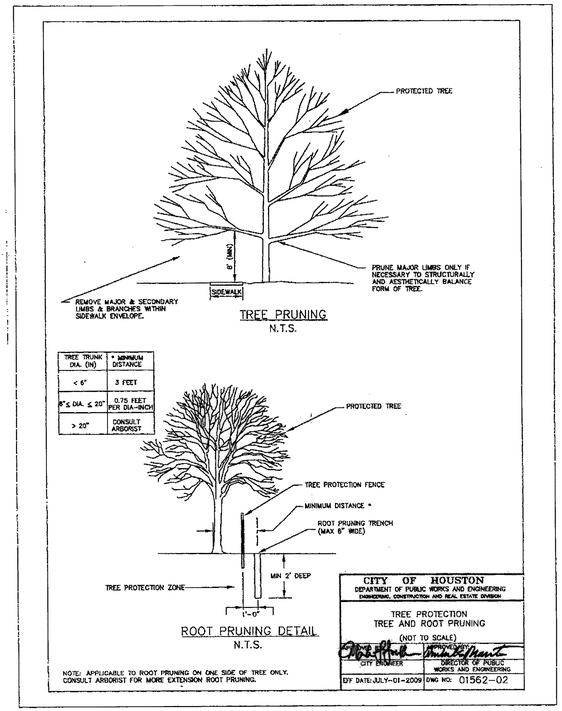
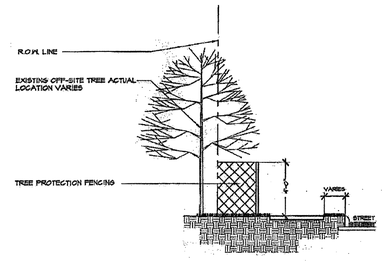
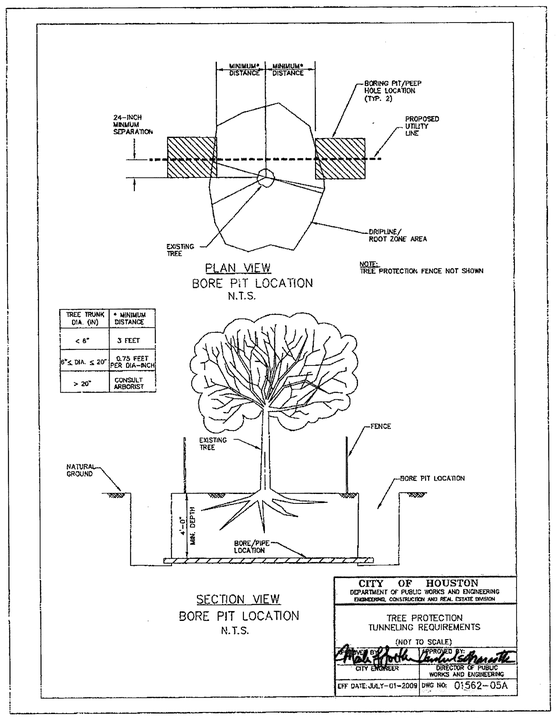


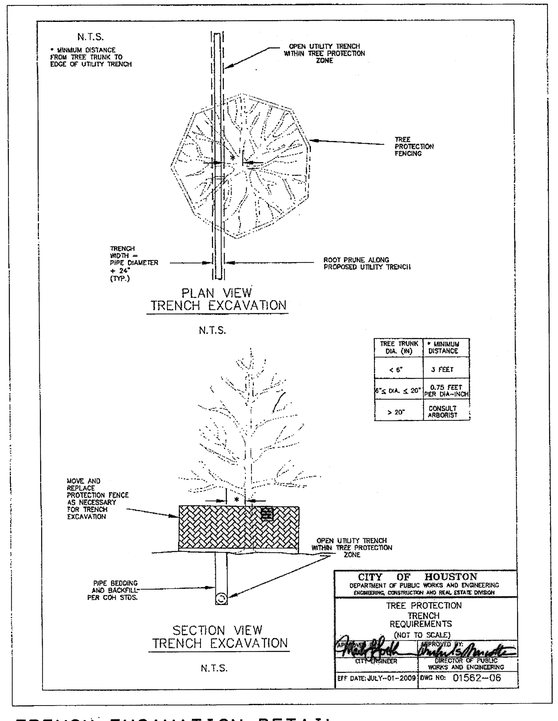
4 TREE AND ROOT PRUNING DETAIL



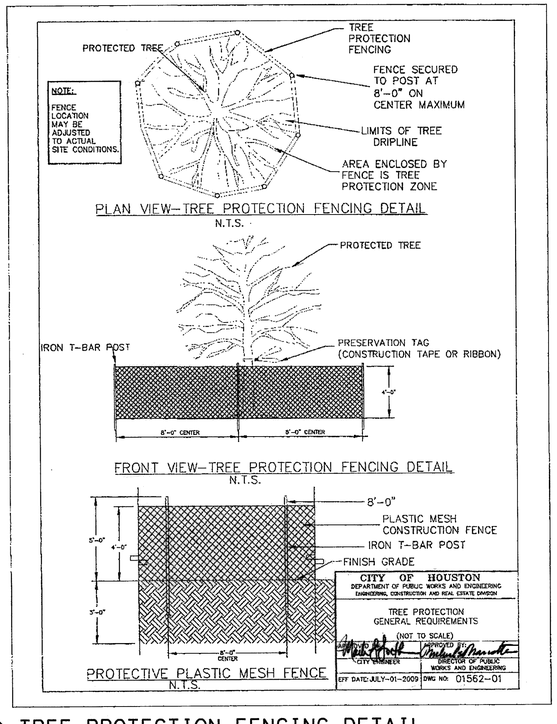
2 TREE PROTECTION FENCING FOR OFF-STIE TREES



5 TREE PROTECTION AT BORE PIT LOCATION



3 TRENCH EXCAVATION DETAIL



1 TREE PROTECTION FENCING DETAIL

PRIVATE UTLITY LINES SHOWN

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL THE LONE STAR NOTIIFICATION 713-223-4567.

N/A Date:
CenterPoint Energy/Electric Facilities
Signature indicates underground electric lines are properly shown. No approval for construction is given.

N/A Date:
Approved for AT&T Texas/SWBT underground conduit facilities only. Signature valid for one year.

N/A Date:
CenterPoint Energy/Gas Facilities/ENTEX Incorporated
(Gas service lines are not shown)

CABLE COMPANY

PARSONS BRINCKERHOFF
16285 Park Ten Place, Suite 400
Houston, TX 77084 TBPE # 2263

IDC
Planners-Engineers-Program Managers
11111 Wilcrest Green, Suite 250
Houston, Texas 77042
(713) 541-5591
TBPE FIRM REGISTRATION NO. F-6825

STATE OF TEXAS
SANTIAGO PONS
93892
LICENSED
PROFESSIONAL ENGINEER
9-12-13

SURVEYED BY: JAG
FB NO. P-5694

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATERLINE REPLACEMENT IN CAMBRIDGE PARK AREA

LANDSCAPE DETAILS

SHEET 11 OF 11

WBS NUMBER	FOR CITY OF HOUSTON USE ONLY
S-000035-188-4	
DRAWING SCALE	
NA	
CITY OF HOUSTON PM	
JOHN MSIGWA, P.E.	
SHEET NO. 151 OF 151	

51277

1:25:02 PM 9/13/2013
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