

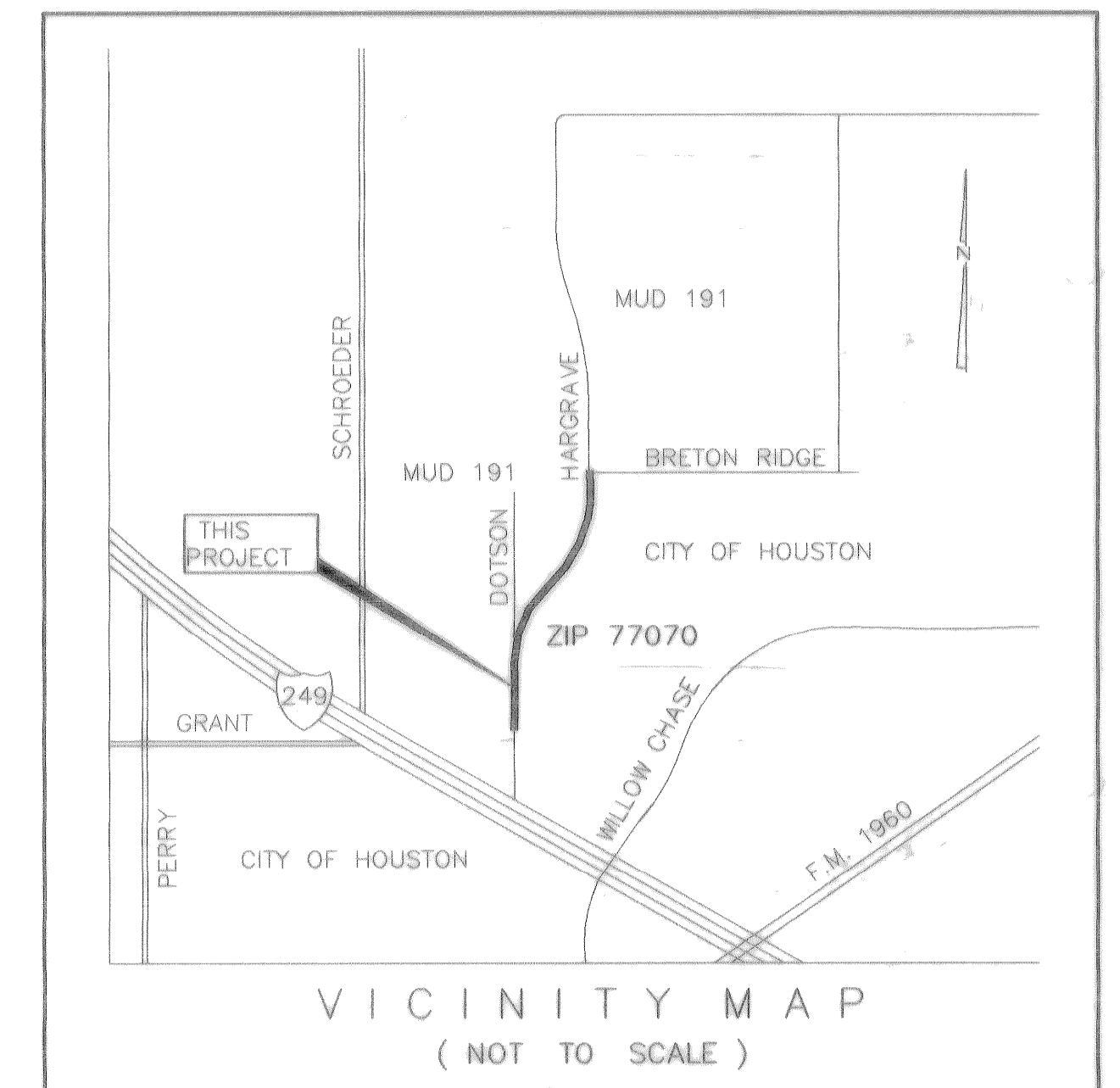
MUNICIPAL UTILITY DISTRICT NO. 191
HARGRAVE ROAD
PROPOSED SANITARY SEWER AND WATER EXTENSION
HARRIS COUNTY, TEXAS

REVISIONS

ISSUED FOR PRELIMINARY REVIEW	02/26/04
ISSUED FOR FINAL REVIEW	03/17/05
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DRAWING INDEX

1 OF 10	COVER SHEET
2 OF 10	GENERAL NOTES
3 OF 10	OVERALL LAYOUT
4 OF 10	PLAN & PROFILE
5 OF 10	PLAN & PROFILE
6 OF 10	PLAN & PROFILE
7 OF 10	PLAN & PROFILE
8 OF 10	PLAN & PROFILE
9 OF 10	DETAIL SHEET
10 OF 10	DETAIL SHEET



KEY MAP #369-H GIMMS 4966C

AS-ABUILTS BY : DEEP SOUTH CONSTRUCTION 3-16-07

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SURVEYED BY: J. WEEKS FB NO. <i>41467</i>		
WATER	STORM WATER QUALITY	
WASTEWATER	TRAFFIC AND TRANSPORTATION	
STORM WATER	WATER PRODUCTION	
STREET & BRIDGE		
CITY ENGINEER		
DIRECTOR OF PUBLIC WORKS AND ENGINEERING		
SHEET NO 1 OF 10 SHEETS		

GENERAL CONSTRUCTION NOTES

1. CONTRACTOR(S) SHALL NOTIFY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT - ENGINEERING DIVISION - PERMIT OFFICE 24-HOURS IN ADVANCE OF COMMENCING UTILITY AND/OR PAVING CONSTRUCTION AT (713) 316-3565 AND WRITTEN NOTIFICATION 48-HOURS IN ADVANCE OF COMMENCING CONSTRUCTION AT 9900 NORTHWEST FREEWAY, SUITE 103, HOUSTON, TX 77092-8615. CONTRACTOR SHALL ALSO NOTIFY THE FOLLOWING AGENCIES AT LEAST 48 HOURS BEFORE STARTING WORK:

UTILITY COORDINATING COMMITTEE (713) 223-4567 OR (800) 245-4545

UTILITY DISTRICT TEXAS DEPARTMENT OF TRANSPORTATION

2. CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS.

3. EXISTING UNDERGROUND UTILITIES ARE NOT GUARANTEED TO BE SHOWN IN THEIR ENTIRETY OR IN EXACT LOCATIONS, BUT WERE OBTAINED FROM BEST INFORMATION AVAILABLE. CONTRACTOR HAS SOLE RESPONSIBILITY FOR FIELD VERIFICATION OF ALL EXISTING UTILITIES. CONTRACTOR SHALL COORDINATE ALL CONFLICTS WITH APPROPRIATE AGENCY.

4. CONTRACTOR SHALL COMPLY WITH OSHA REGULATIONS AND TEXAS STATE LAW CONCERNING TRENCHING AND SHORING. CONTRACTOR SHALL PROVIDE A TRENCH SAFETY SYSTEM TO MEET, AS A MINIMUM, REQUIREMENTS OF OSHA SAFETY AND HEALTH REGULATION, PART 1926.

5. ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION. ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO SATISFACTION OF OWNING AUTHORITY. ALL STORM POLLUTION PREVENTION MEASURES SHALL COMPLY WITH STORM WATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY CITY OF HOUSTON, HARRIS COUNTY AND HARRIS COUNTY FLOOD CONTROL DISTRICT.

6. EXISTING TO REMAIN PAVEMENT, CURBS, SIDEWALKS, AND DRIVEWAYS DAMAGED OR REMOVED DURING CONSTRUCTION SHALL BE REPLACED TO HARRIS COUNTY REQUIREMENTS AT NO ADDITIONAL COST.

7. CONDITION OF ROAD, UTILITIES OR RIGHT-OF-WAY, UPON COMPLETION OF WORK, SHALL BE AS GOOD AS OR BETTER THAN CONDITION PRIOR TO STARTING WORK. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY.

8. CONTRACTOR SHALL TAKE PRECAUTIONS TO PROTECT ROOT SYSTEM OF SHRUBS, PLANTS AND TREES ALONG THE WORK AREA.

9. CONSTRUCTION ACTIVITIES SHALL BE LIMITED TO AREA WITHIN PROJECT PROPERTY BOUNDARIES AND ADJACENT RIGHTS-OF-WAY. CONTRACTOR SHALL OBTAIN WRITTEN PERMISSION FROM OWNERS FOR CONSTRUCTION ACTIVITIES THAT MAY INFRINGE UPON ADJACENT PROPERTIES PRIOR TO STARTING WORK.

10. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES TO EXISTING PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITED TO WATER LINES, WASTEWATER COLLECTION SYSTEMS AND STORM SEWERS DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "STANDARD CONSTRUCTION SPECIFICATIONS" WITH LATEST ADDENDA AND AMENDMENT THEREOF, WITH NO ADDITIONAL COST.

11. ENGINEER IS NOT RESPONSIBLE FOR CONSTRUCTION MEANS, METHODS OR CONTROL, OR FOR CONSTRUCTION SAFETY.

12. FINAL ACCEPTANCE OF THE UTILITIES WILL NOT BE GIVEN UNTIL INSPECTED AND APPROVED BY THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY (TCEQ).

13. SHOULD CONTRACTOR FIND ANY DISCREPANCIES, ERRORS OR OMISSIONS FROM PLANS, NOTIFY ENGINEER AT ONCE TO OBTAIN CLARIFICATION PRIOR TO STARTING OR PROCEEDING WITH CONSTRUCTION.

14. ALL DISTURBED AREAS SHALL BE TREATED WITH N/A

15. SURVEY PERFORMED BY WILSON SURVEY GROUP ON 11-22-03

16. REFER TO REPORT NO. DATED FOR SOILS INFORMATION AND CONSTRUCTION CRITERIA. (SEE ARCHITECT FOR SOILS REPORT)

17. WATER LINES, WASTEWATER COLLECTION SYSTEMS, AND STORM DRAINAGE SYSTEMS SHALL BE DESIGNED AND CONSTRUCTION IN ACCORDANCE WITH CITY OF HOUSTON'S, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "INFRASTRUCTURE DESIGN MANUAL", LATEST EDITION.

18. REINFORCED CONCRETE (C76 CLASS III) STORM SEWERS SHALL BE INSTALLED, BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF HOUSTON'S DRAWINGS 02317-04, 02371-05, 02317-06, 02317-07 AND 02371-09 AS APPLICABLE.

19. ALL STORM SEWERS CONSTRUCTED IN SIDE LOT EASEMENTS SHALL BE RCP, MINIMUM 20"-FOOT WIDE EASEMENTS SHALL BE PROVIDED.

20. ALTERNATIVE TO CEMENT STABILIZED SAND BACKFILL FOR PIPES 6-12 INCH AND LARGER, FROM 1'-FOOT ABOVE TOP OF PIPE TO BOTTOM OF SUBGRADE. CONTRACTOR MAY BACKFILL WITH SUITABLE MATERIAL, PROVIDED BACKFILL MATERIAL IS PLACED IN 6-INCH LIFTS AND MECHANICALLY COMPACTED TO 95% STANDARD PROCTOR DENSITY. TESTS SHALL BE TAKEN AT 100'-FOOT INTERVALS ON EACH LIFT. BEDDING AND BACKFILL TO 1'-FOOT ABOVE TOP OF PIPE SHALL BE CEMENT STABILIZED-SAND.

21. ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8-INCH BRICK WALLS UNLESS OTHERWISE NOTED.

22. PAVING SHALL BE IN ACCORDANCE WITH "REGULATIONS OF HARRIS COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" AND/OR AMENDMENTS OF SAME.

23. GUIDELINES SET FORTH IN "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE OBSERVED.

24. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION.

25. OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN HARRIS COUNTY ROAD RIGHTS-OF-WAY.

26. NO NET FILL ALLOWED IN FLOOD PLAIN.

27. NO FILL ALLOWED IN FLOODWAY.

28. ALL HABITABLE OR INSURABLE AREAS WILL HAVE FINISHED FLOOR A MINIMUM OF 18-INCHES ABOVE THE BASE (100-YEAR) FLOOD ELEVATION.

29. OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING DEVELOPMENT WITHIN HARRIS COUNTY AND HARRIS COUNTY ROAD RIGHTS-OF-WAY.

30. AS PER FIRM PANEL NO. 4820CI105K, DATED APRIL 20, 2000, THIS TRACT IS NOT IS BARRIALLY WITHIN 100-YEAR FLOOD PLAIN NEAREST APPLICABLE 100-YEAR FLOOD PLAIN ELEVATION IS 32 (1973 DATUM ADJUSTMENT).

TRAFFIC CONTROL NOTES

1. ALL WORKS SHALL BE PURSUED IN ACCORDANCE WITH CITY OF HOUSTON REQUIREMENTS. NO WORK SHALL BE DONE ON ROADWAYS BETWEEN HOURS OF 7:00 A.M. TO 8:30 A.M. AND 4:00 P.M. TO 8:00 P.M. (MONDAY THROUGH FRIDAY) UNLESS PUBLIC NOTIFICATION IS PROVIDED AND UNIFORMED POLICE USED TO CONTROL TRAFFIC.

2. CONTRACTOR SHALL PROVIDE AND INSTALL TRAFFIC CONTROL DEVICES IN CONFORMANCE WITH PART 14 OF TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES WITH MOST RECENT EDITION AND REVISIONS DURING CONSTRUCTION.

3. OFF DUTY UNIFORMED POLICE OFFICER(S) ARE REQUIRED TO DIRECT TRAFFIC WHERE TRAFFIC LANES ARE BLOCKED.

4. CONTRACTOR SHALL COVER OPEN EXCAVATIONS WITH ANCHORED STEEL PLATES SUITABLE FOR LOADS DURING NON WORKING HOURS.

5. MAINTAIN AT LEAST ONE LANE OF TRAFFIC IN EACH DIRECTION DURING WORKING HOURS. ACCESS SHALL BE PROVIDED TO ADJACENT PROPERTIES AT ALL TIMES.

7. ALL EXISTING TRAFFIC CONTROL SIGNS SHALL BE MAINTAINED IN PLACE AS NECESSARY DURING CONSTRUCTION. CONTRACTOR SHALL REMOVE OR COVER ANY EXISTING SIGNS OR MARKINGS WHICH CONFLICT WITH CONSTRUCTION TRAFFIC CONTROL.

PAVING CONSTRUCTION NOTES

1. PAVING SHALL BE CONSTRUCTED IN ACCORDANCE WITH HARRIS COUNTY'S PUBLIC INFRASTRUCTURE DEPARTMENT, ENGINEERING DIVISION'S CURRENT EDITION OF "SPECIFICATIONS FOR THE CONSTRUCTION OF ROADS AND BRIDGES WITHIN HARRIS COUNTY, TEXAS" UNDER PARAGRAPHS ENTITLED MEASUREMENT AND PAYMENT ALL REFERENCE TO UNIT PRICE PAYMENT IS DELETED. ADDITIONAL SECTIONS OTHER THAN THOSE LISTED BELOW MAYBE INCORPORATED BY REFERENCE. APPLICABLE SECTIONS TO THIS PROJECT ARE:

- 102 CLEARING AND GRUBBING
104 REMOVING OLD CONCRETE
110 ROADWAY EXCAVATION
120 CHANNEL EXCAVATION
130 BORROW
132 EMBANKMENT
160 FURNISHING AND PLACING TOPSOIL
162 SODDING FOR EROSION CONTROL (BLOCK SODDING)
164 SEEDING FOR EROSION CONTROL
165 HYDRO-MULCH SEEDING
166 FERTILIZER
200 STRIPPING
205 SUBGRADE
220 LIME STABILIZED SUBGRADE
222 PORTLAND CEMENT STABILIZED SUBGRADE
223 LIME-FLYASH OR FLYASH STABILIZED SUBGRADE
230 CRUSHED AGGREGATE BASE COURSE
231 CEMENT STABILIZED CRUSHED AGGREGATE BASE COURSE
250 HOT MIX ASPHALTIC CONCRETE BASE COURSE (BLACK BASE)
251 BASE REPAIR WITH HOT MIX ASPHALTIC CONCRETE BASE COURSE
252 IN-PLACE FULL DEPTH COLD FLEXIBLE PAVEMENT RECYCLING
309 MILLING EXISTING PAVEMENT
310 PRIME COAT
320 SINGLE COURSE SURFACE TREATMENT
340 HOT MIX-HOT LAID ASPHALTIC CONCRETE
360 CONCRETE PAVEMENT
402 BANK SAND BACKFILL
429 TRENCH SAFETY SYSTEM
437 ELASTOMERIC MATERIALS
438 PREFORMED JOINT SEAL
439 POLYURETHANE JOINT SEAL
440 REINFORCING STEEL
452 REMOVING RAILING
493 RIPRAP
494 GEOTEXTILES FOR EROSION CONTROL STRUCTURES
495 REMOVING OLD STRUCTURES
496 REMOVE & RELOCATE TRAFFIC SIGNS, MAIL BOXES, ROADWAY SIGNS, LIGHT & TRAFFIC SIGNAL POLES
501 TREE PROTECTION AND TRIMMING
510 PLANNING AND/OR TEXTURING PAVEMENT
515 ROADWAY SHELL
516 FLEX BEAM GUARDRAIL
526 MEMBRANE CURING
530 CONCRETE CURB, GUTTER, CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS (WITH DRAWINGS)
535 ESPLANADES, MEDIANS AND DIRECTIONAL ISLANDS
536 COLORING CONCRETE MEDIANS AND SIDEWALKS
537 WHEEL STOPS (WITH DRAWINGS)
540 REMOVING AND DISPOSING OF EXISTING ASPHALTIC SURFACE AND FLEXIBLE BASE MATERIAL
550 FENCING REMOVAL
554 WOOD FENCING
555 CHAIN LINK FENCING (WITH DRAWINGS)
556 FOUR STRAND BARBED WIRE FENCE (WITH DRAWINGS)
560 CLEANUP
562 PREPARING THE RIGHT-OF-WAY
624 ALUMINUM SIGNS
646 ROADSIDE TRAFFIC SIGN SUPPORT (WITH A DRAWING)
658 DELINEATORS AND OBJECT MARKERS
660 REFLECTOR PAVEMENT MARKINGS
661 TRAFFIC PAINT
662 GLASS REFLECTIVE SPHERES FOR TRAFFIC PAINT
663 TRAFFIC BUTTONS AND PAVEMENT MARKERS
665 WORK ZONE PAVEMENT MARKINGS
666 PREFABRICATED PAVEMENT MARKINGS
669 PAVEMENT SURFACE PREPARATION FOR MARKINGS
670 BARRICADES (WITH A DRAWING)
671 TRAFFIC CONTROL
672 FLAGMEN
673 CONSTRUCTING DETOURS FOR MAINTAINING TWO-WAY TRAFFIC
674 REMOVING PAVEMENT STRIPING AND MARKINGS
696 LOW PROFILE CONCRETE BARRIER
698 TEMPORARY POLYETHYLENE WATER-FILLED BARRIER

- 501 TREE PROTECTION AND TRIMMING
510 PLANNING AND/OR TEXTURING PAVEMENT
515 ROADWAY SHELL
516 FLEX BEAM GUARDRAIL
526 MEMBRANE CURING
530 CONCRETE CURB, GUTTER, CURB AND GUTTER, SIDEWALKS AND DRIVEWAYS (WITH DRAWINGS)
535 ESPLANADES, MEDIANS AND DIRECTIONAL ISLANDS
536 COLORING CONCRETE MEDIANS AND SIDEWALKS
537 WHEEL STOPS (WITH DRAWINGS)
540 REMOVING AND DISPOSING OF EXISTING ASPHALTIC SURFACE AND FLEXIBLE BASE MATERIAL
550 FENCING REMOVAL
554 WOOD FENCING
555 CHAIN LINK FENCING (WITH DRAWINGS)
556 FOUR STRAND BARBED WIRE FENCE (WITH DRAWINGS)
560 CLEANUP
562 PREPARING THE RIGHT-OF-WAY
624 ALUMINUM SIGNS
646 ROADSIDE TRAFFIC SIGN SUPPORT (WITH A DRAWING)
658 DELINEATORS AND OBJECT MARKERS
660 REFLECTOR PAVEMENT MARKINGS
661 TRAFFIC PAINT
662 GLASS REFLECTIVE SPHERES FOR TRAFFIC PAINT
663 TRAFFIC BUTTONS AND PAVEMENT MARKERS
665 WORK ZONE PAVEMENT MARKINGS
666 PREFABRICATED PAVEMENT MARKINGS
669 PAVEMENT SURFACE PREPARATION FOR MARKINGS
670 BARRICADES (WITH A DRAWING)
671 TRAFFIC CONTROL
672 FLAGMEN
673 CONSTRUCTING DETOURS FOR MAINTAINING TWO-WAY TRAFFIC
674 REMOVING PAVEMENT STRIPING AND MARKINGS
696 LOW PROFILE CONCRETE BARRIER
698 TEMPORARY POLYETHYLENE WATER-FILLED BARRIER

2. ESPLANADE NOSES AT CROSSOVER ARE TO BE BULLET TYPE, PAINTED REFLECTORIZED YELLOW, IN ACCORDANCE WITH HARRIS COUNTY PAVEMENT MARKING DETAIL AND TO BE 6-INCH REINFORCED CONCRETE WALK COLORED BLACK ON CONCRETE PAVEMENT, AND 6-INCH HMAC ON ASPHALT PAVEMENT.

3. RELOCATION OF EXISTING TREES, LANDSCAPING, SPRINKLER SYSTEMS, WATER METERS, FIRE HYDRANTS, MANHOLES, AND PIPELINES (IF APPLICABLE) ARE TO BE REINSTALLED AS RECOMMENDED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT - ENGINEERING DIVISION - PERMIT OFFICE AND/OR HARRIS COUNTY PRECINCT (IF LOCATED IN PRECINCT 3, ADD NOTE.) CONTRACTOR(S) TO CONTRACT WALT PEGHMAN WITH PARKS ADMINISTRATION OFFICE AT (281) 531-1592 48-HOURS PRIOR TO CONSTRUCTION FOR TREE(S) AND LANDSCAPING RELOCATION.

4. EXISTING REINFORCED CONCRETE PAVEMENT IS TO BE MACHINE SAW-CUT 1-1/2 INCHES DEEP TO EXPOSE A MINIMUM OF 24-INCHES OF REINFORCING BARS AND PLACE NEW REINFORCING (1/2-INCH DIAMETER DEFORMED BARS) 24-INCHES CENTER TO CENTER BOTH WAYS AND THE NEW REINFORCING BARS 10-INCH LAPS TO EXISTING REINFORCING BARS.

5. REINFORCING CONCRETE PAVEMENT IS TO BE A MINIMUM 8-INCHES WITH A MINIMUM OF 5 SACK CEMENT PER CUBIC YARD, (3,000 PSI IN 28-DAYS). DEPTH OF CONCRETE TO MEET CURRENT REQUIREMENTS OF DEPTH OF EXISTING PAVEMENT WHICH EVER IT IS GREATER.

6. SUBGRADE SHALL BE 6-INCHES LIME STABILIZATION AND COMPACTED TO 95% STANDARD PROCTOR DENSITY +/- 2% MOISTURE.

7. SLOPE ON PROPOSED CONCRETE LEFT TURN SLOTS IS TO BE A MINIMUM OF 1/8-INCH PER FOOT WITH CROWN AT CENTER OF ESPLANADE.

8. ALL SEWERS UNDER OR WITHIN 1-FOOT OF PROPOSED OR FUTURE PAVEMENT SHALL BE BACKFILLED WITH 1-1/2 SACK CEMENT STABILIZED SAND TO WITHIN 1-FOOT OF SUBGRADE.

9. PAVING SHALL BE IN ACCORDANCE WITH THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR THE APPROVAL AND ACCEPTANCE OF INFRASTRUCTURE" RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS OR RE-APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS OR RE-SUBDIVISIONS AND/OR AMENDMENTS OF SAME.

10. GUIDELINES SET FOR IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL BE OBSERVED.

11. AUTHORIZATION NOTICE ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE ENGINEERING DEPARTMENT PERMIT OFFICE REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT TURN LANES WITHIN HARRIS COUNTY RIGHTS-OF-WAY. CONTACT HARRIS COUNTY PERMIT OFFICE AT (713) 956-3000.

SANITARY SEWER CONSTRUCTION NOTES

1. SANITARY SEWER ITEMS LISTED BELOW SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S LATEST EDITION "STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING". UNDER PARAGRAPHS ENTITLED MEASUREMENT AND PAYMENT ALL REFERENCE TO UNIT PRICE PAYMENT IS DELETED. ADDITIONAL SECTIONS OTHER THAN THOSE LISTED BELOW MAYBE INCORPORATED BY REFERENCE. APPLICABLE SECTIONS TO THIS PROJECT ARE:

- 2081 CAST-IN-PLACE CONCRETE MANHOLES
2082 PRECAST CONCRETE MANHOLES
2083 FIBERGLASS MANHOLES
2084 FRAMES, GRATES, RINGS, AND COVERS
2222 ABANDONMENT OF SEWERS
2316 EXCAVATION AND BACKFILL FOR STRUCTURES
2317 EXCAVATION AND BACKFILL FOR UTILITIES
2320 UTILITY BACKFILL MATERIALS

WATER LINE CONSTRUCTION NOTES

1. WATER LINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S LATEST EDITION "STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING". UNDER PARAGRAPHS ENTITLED MEASUREMENT AND PAYMENT ALL REFERENCE TO UNIT PRICE PAYMENT IS DELETED. ADDITIONAL SECTIONS OTHER THAN THOSE LISTED BELOW MAYBE INCORPORATED BY REFERENCE. APPLICABLE SECTIONS TO THIS PROJECT ARE:

- 2085 VALVE BOXES, METER BOXES, AND METER VAULTS
2316 EXCAVATION AND BACKFILL FOR STRUCTURES
2317 EXCAVATION AND BACKFILL FOR UTILITIES
2320 UTILITY BACKFILL MATERIALS
2321 CEMENT STABILIZED SAND
2447 AUGERING PIPE AND CONDUIT
2448 PIPE AND CASING AUGERING FOR SEWERS
2501 DUCTILE IRON PIPE AND FITTINGS
2502 STEEL PIPE AND FITTINGS
2503 COPPER TUBING
2506 POLYVINYL CHLORIDE PIPE
2511 WATER MAINS
2512 WATER TAP AND SERVICE LINE INSTALLATION
2513 WET CONNECTIONS
2514 DISINFECTION OF WATER LINES
2515 HYDROSTATIC TESTING OF PIPELINES
2516 CUT, PLUG, AND ABANDONMENT OF MAINS
2517 WATER LINE IN TUNNELS
2518 STEEL PIPE AND FITTINGS FOR LARGE-DIAMETER WATER LINES
2520 FIRE HYDRANT
2521 GATE VALVES
2522 BUTTERFLY VALVES
2523 PRESSURE REDUCING VALVES
2524 AIR RELEASE AND VACUUM RELIEF VALVES
2525 TAPPING SLEEVES AND VALVES
2526 WATER METERS
2527 POLYURETHANE COATINGS ON STEEL OR DUCTILE IRON PIPE
2528 POLYETHYLENE WRAP
3315 CONCRETE FOR UTILITY CONSTRUCTION

STORM SEWER CONSTRUCTION NOTES

1. STORM SEWER ITEMS LISTED BELOW SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING'S LATEST EDITION "STANDARD CONSTRUCTION SPECIFICATIONS FOR WASTEWATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING". UNDER PARAGRAPHS ENTITLED MEASUREMENT AND PAYMENT ALL REFERENCE TO UNIT PRICE PAYMENT IS DELETED. ADDITIONAL SECTIONS OTHER THAN THOSE LISTED BELOW MAYBE INCORPORATED BY REFERENCE. APPLICABLE SECTIONS TO THIS PROJECT ARE:

- 2081 CAST-IN-PLACE CONCRETE MANHOLES
2082 PRECAST CONCRETE MANHOLES
2084 FRAMES, GRATES, RINGS, AND COVERS
2087 BRICK MANHOLE FOR STORM SEWERS
2316 EXCAVATION AND BACKFILL FOR STRUCTURES
2317 EXCAVATION AND BACKFILL FOR UTILITIES
2320 UTILITY BACKFILL MATERIALS
2321 CEMENT STABILIZED SAND
2431 TUNNEL GRIT
2441 MICROTUNNELING AND PIPE-JACKED TUNNELS
2505 HIGH DENSITY POLYETHYLENE (HDPE) SOLID AND PROFILE WALL PIPE
2506 POLYVINYL CHLORIDE PIPE
2507 PRESTRESSED CONCRETE CYLINDER PIPE
2508 EXTRA STRENGTH CLAY PIPE
2611 REINFORCED CONCRETE PIPE
2612 PRECAST REINFORCED CONCRETE BOX SEWERS
2613 BAR WRAPPED STEEL CYLINDER PIPE
2631 STORM SEWERS
2632 CAST-IN-PLACE INLETS, HEADWALLS, AND WINGWALLS
2633 PRECAST CONCRETE INLETS, HEADWALLS, AND WINGWALLS
2642 CORRUGATED METAL PIPE
2643 STRUCTURAL PLATE CULVERT STRUCTURES
3315 CONCRETE FOR UTILITY CONSTRUCTION
4061 MORTAR
4210 BRICK MASONRY FOR UTILITY CONSTRUCTION

CAUTION: UNDERGROUND ELECTRICAL CABLES

CONTRACTOR SHALL USE THE UTMOST CAUTION WHEN PERFORMING CONSTRUCTION ACTIVATES IN THE PROJECT AREA. SHOULD ANY UNDERGROUND ELECTRICAL CABLES BE EXPOSED DURING THE COURSES OF THIS PROJECT, CONTRACTOR SHALL CALL RELIANT ENERGY / HL&P CUSTOMER SERVICE DEPARTMENT AT (713) 228-7800

CAUTION: OVERHEAD ELECTRICAL FACILITIES

OVERHEAD LINE MAY EXIST ON THE PROPERTY. RELIANT ENERGY HAS NOT ATTEMPTED TO MARK THOSE LINES SINCE THEY ARE CLEARLY VISIBLE, BUT CONTRACTOR SHOULD LOCATE THEM PRIOR TO BEGINNING ANY CONSTRUCTION. TEXAS LAW, SECTION 752, HEALTH & SAFETY CODE, FORBIDS ALL ACTIVITIES IN WHICH PERSONS OR THINGS MAY COME WITHIN 6- FEET OF LINE OVERHEAD HIGH VOLTAGE LINES. PARTIES RESPONSIBLE FOR THE WORK, INCLUDING CONTRACTORS, ARE LEGALLY RESPONSIBLE FOR SAFETY OF CONSTRUCTION WORKERS UNDER THIS LAW. THIS LAW CARRIES BOTH CRIMINAL AND CIVIL LIABILITY. TO ARRANGE FOR LINES TO BE TURNED OFF OR REMOVED, CALL RELIANT HL&P AT (713) 207-7777.

CAUTION: UNDERGROUND GAS FACILITIES

LOCATION OF RELIANT ENERGY ENTEX MAIN LINES (TO INCLUDE UNIT GAS TRANSMISSION AND/OR INDUSTRIAL GAS SUPPLY COLLECTION WHERE APPLICABLE) ARE SHOWN IN AN APPROXIMATE LOCATION ONLY. SERVICE LINES ARE USUALLY NOT SHOWN. THE CONTRACTOR SHALL CONTACT THE UTILITY COORDINATING COMMITTEE AT (713) 223-4567 OR (800) 669-8344 A MINIMUM OF 48 HOUR PRIOR TO CONSTRUCTION TO HAVE MAIN AND SERVICE LINES FIELD LOCATED.

WHEN RELIANT ENERGY ENTEX PIPE LINE MARKINGS ARE NOT VISIBLE, CALL (713) 967-9037 (7:00 A.M. TO 4:30 P.M.) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

WHEN EXCAVATING WITHIN 18-INCHES OF THE INDICATED LOCATION OF RELIANT ENERGY ENTEX FACILITIES, ALL EXCAVATION MUST BE ACCOMPLISHED USING NON-MECHANICAL EXCAVATION PROCEDURES.

WHEN RELIANT ENERGY ENTEX FACILITIES ARE EXPOSED, SUFFICIENT SUPPORT MUST BE PROVIDED TO THE FACILITIES TO PREVENT EXCESS STRESS ON THE PIPING.

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

CAUTION: UNDERGROUND TELEPHONE FACILITIES

THE LOCATIONS OF SOUTHWESTERN BELL TELEPHONE COMPANY 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 UTILITIES.

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

WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF SOUTHWESTERN BELL TELEPHONE FACILITIES, ALL EXCAVATIONS MUST BE ACCOMPLISHED USING NON-MECHANIZED EXCAVATION PROCEDURES. WHEN BORING THE CONTRACTOR SHALL EXPOSE THE SOUTHWESTERN BELL TELEPHONE FACILITIES.

WHEN SOUTHWESTERN BELL TELEPHONE FACILITIES ARE EXPOSED, CONTRACTOR SHOULD PROVIDE SUPPORT TO PREVENT DAMAGE TO THE CONDUIT DUCTS OR CABLES. WHEN EXCAVATING NEAR TELEPHONE POLES THE CONTRACTOR SHALL BRACE THE POLE FOR SUPPORT.

ABBREVIATIONS

- & AND
A AT
DEFLECTION ANGLE
ABAN ABANDONED
AD ALL BELL
AC ACRE
ADJ ADJUSTMENT
APP APPROXIMATE
ASPH ASPHALT
AUG AUGER
AVE AVENUE
B-B BACK TO BACK
BC BACK OF CURB
B/F BLIND FLANGE
BL BASE LINE OR BUILDING LINE
BLDG BUILDING
BLVD BOULEVARD
BM BENCH MARK
BV BUTTERFLY VALVE
BW BOTH WAYS
C CURVE
C-C CENTER TO CENTER
CF CUBIC FEET
CL CENTERLINE
CMP CORRUGATED METAL PIPE
CO CLEAN OUT OR COUNTY
COH CITY OF HOUSTON
COMM COMMERCIAL
CON CONCRETE
COND CONDUIT
CONN CONNECTION
COR CORNER
CP&A CUT PLUG AND ABANDON
C&P CUT AND PLUG
CR GREER
CTB CONCRETE TRAFFIC BARRIER
CUL CULVERT
CV CHECK VALVE
CY CUBIC YARD
D DEGREE OR DEGREE OF CURVATURE
DIA DIAMETER
DIP DUCTILE IRON PIPE
DR DRIVE
DRW DRIVEWAY
DTL DETAIL
DWG DRAWING
E EAST
EA EACH
EC EDGE OF CONCRETE
EL ELEVATION
ELEC ELECTRIC
EP EDGE OF PAVEMENT
ESMT EASEMENT
ESPL ESPLANADE
EXIST EXISTING
EXC EXCAVATION
EXP EXPANSION
FEN FENCE
FF FINISHED FLOOR
F-F FACE TO FACE
FFF FILTER FABRIC FENCE
FH FIRE HYDRANT
FL FLOW LINE
FM FORCE MAIN
FD FOUND
FT FEET
FV FLUSH VALVE
G GAS OR GUTTER
GALV GALVANIZED
GM GAS METER
GRAV GRAVEL
GV GATE VALVE OR GAS VALVE
HB HIGH BANK
HC HARRIS COUNTY
HCFCD HARRIS COUNTY FLOOD CONTROL DISTRICT
HGL HYDRAULIC GRADE LINE
HL&P HOUSTON LIGHTING & POWER
HMABC HOT MIX ASPHALTIC BASE COURSE
HP HIGH POINT
HWY HIGHWAY
I TOTAL INTERSECTION ANGLE
ID INSIDE DIAMETER
INL INLET
INV INVERT ELEVATION
IP IRON PIPE
IR IRON ROD
JT JOINT
L LENGTH OF CURVE
LB POUNDS
LC CHORD LENGTH OF CURVE
LF LINEAL FEET
LN LANE
LP LOW POINT OR LIGHT POLE
LS LUMP SUM
LSSG LIME STABILIZED SUBGRADE
LT LEFT OR LIGHT
MAX MAXIMUM
MATL MATERIAL
MEG MATCH EXISTING GRADE
NH MANHOLE
MIN MINIMUM
M/L MATCH LINE
MOD MODIFY
MON MONUMENT
MRC MONOLITHIC REINFORCED CONCRETE
MW MONITORING WELL
N NORTH
NE NORTHEAST
NC NATURAL GROUND
NIC NOT IN CONTRACT
NO NUMBER
NOR NORMAL
NTS NOT TO SCALE
NW NORTHWEST
OC ON CENTER
OD OUTSIDE DIAMETER
OH OVERHEAD
ONE OVERHEAD ELECTRIC
PC POINT OF CURVATURE
PCC PORTLAND CEMENT CONCRETE OR POINT OF COMPOUND CURVATURE
PI POINT OF INTERSECTION
PL PROPERTY LINE OR PIPE LINE OR PLACE
POC POINT ON CURVE
POT POINT ON TANGENT
PP POWER POLE
PROP PROPOSED
PSI POUNDS PER SQUARE INCH
PT POINT ON POINT OF TANGENCY
PVC POINT OF VERTICAL CURVATURE OR POLYVINYL CHLORIDE
PVI POINT OF VERTICAL INTERSECTION
PVM PAVEMENT
PVT POINT OF VERTICAL TANGENCY
QTY QUANTITY
G GAS OR GUTTER
GALV GALVANIZED
GM GAS METER
GRAV GRAVEL
GV GATE VALVE OR GAS VALVE

LEGEND

Table with columns: EXISTING, PROPOSED, LINE TYPE. Includes symbols for telephone riser, manhole, gas valve, power pole, street light, traffic pull box, manhole clean out, area inlet, water valve, fire hydrant, water meter, deciduous tree, conifer tree, shrub, handicap symbol, and sign.

STANDARD PROFILE LEGEND

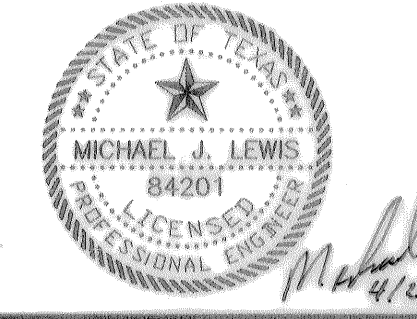
Table with columns: CENTER LINE OF R.O.W., PROPERTY LINE N & E, PROPERTY LINE S & W, DITCH OR CURB N & E, DITCH OR CURB S & W.

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE. 1-800-245-4545

PRIVATE UTILITY LINES SHOWN

Table listing utility lines shown: CenterPoint Energy/ Gas Facilities, S.B.C. VALID FOR ONE YEAR, CenterPoint Energy/ Electric Facilities, CABLE COMPANY.

NOTE: LOCATIONS OF EXISTING UTILITY LINES ARE BASED ON AVAILABLE CONSTRUCTION PLANS.



AS-BULTS 3-16-07

MUNICIPAL UTILITY DISTRICT NO. 191 HARGRAVE ROAD GENERAL NOTES

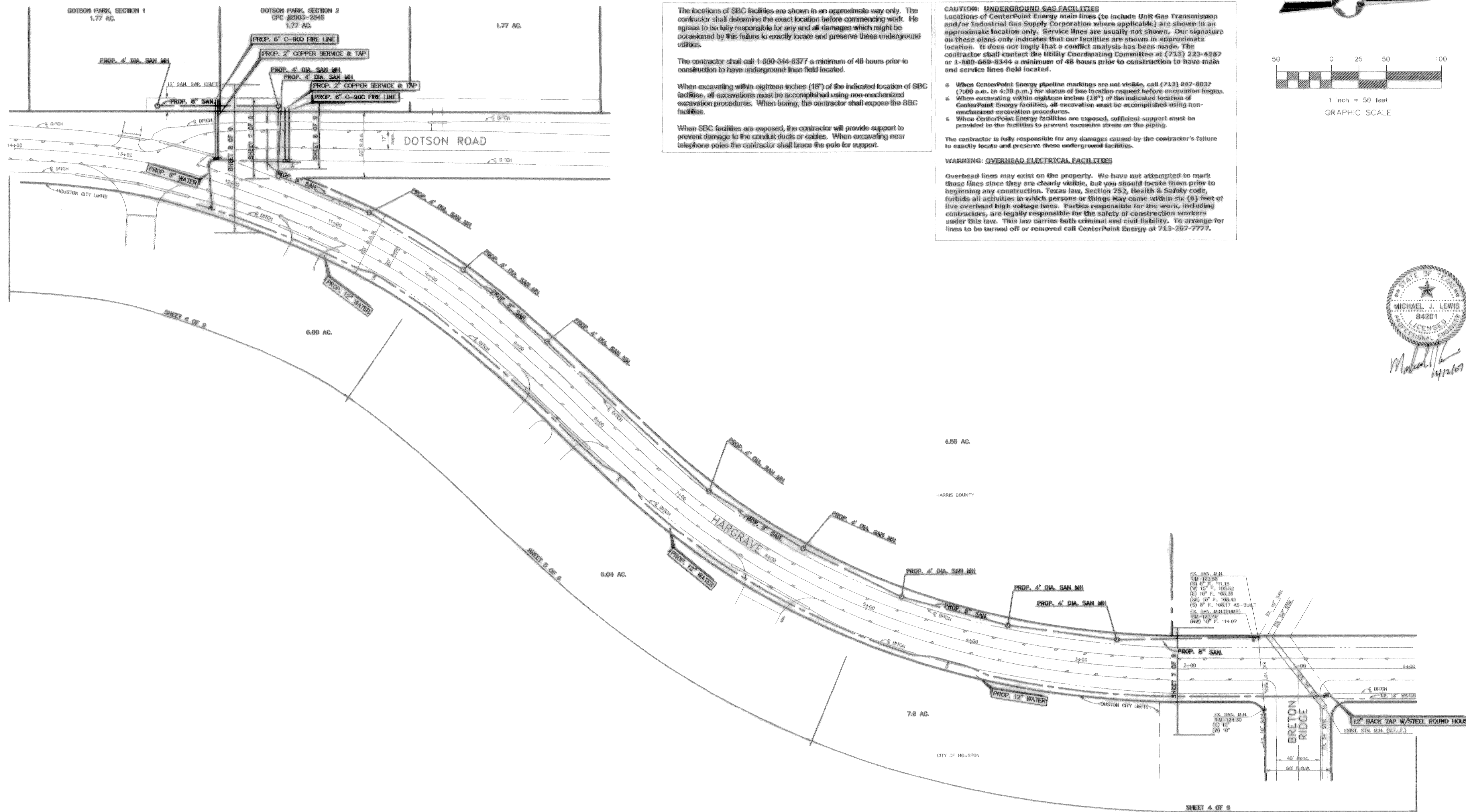
ASPEN CIVIL DESIGN

(832) 607-5551 (281) 285-3551 Fax 14019 S.W. Freeway, Suite 301-278 Sugar Land, Texas 77478

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

Table with columns: WATER, WASTEWATER, TRAFFIC, ST. & BRIDGE, STORMWATER, SWD.

Table with columns: FILE NO., DRAWING SCALE, VERT. 1"=2' HORIZ. 1"=20', SHEET, CITY DWG NO., 2 OF 10.



SBC NOTES

The locations of SBC 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 utilities.

The contractor shall call 1-800-344-8377 a minimum of 48 hours prior to construction to have underground lines field located.

When excavating within eighteen inches (18") of the indicated location of SBC facilities, all excavations must be accomplished using non-mechanized excavation procedures. When boring, the contractor shall expose the SBC facilities.

When SBC 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.

CENTERPOINT NOTES

CAUTION: UNDERGROUND GAS FACILITIES

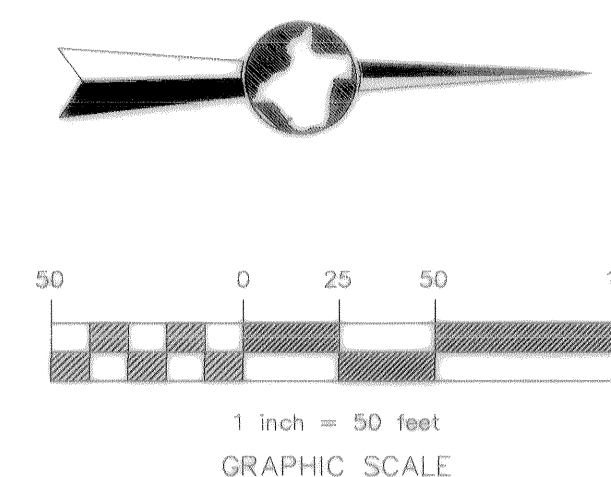
Locations of CenterPoint Energy main lines (to include Unit Gas Transmission and/or Industrial Gas Supply Corporation where applicable) are shown in an approximate location only. Service lines are usually not shown. Our signature on these plans only indicates that our facilities are shown in approximate location. It does not imply that a conflict analysis has been made. The contractor shall contact the Utility Coordinating Committee at (713) 223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have main and service lines field located.

- When CenterPoint Energy pipeline markings are not visible, call (713) 967-8037 (7:00 a.m. to 4:30 p.m.) for status of line location request before 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 the contractor's failure to exactly locate and preserve these underground facilities.

WARNING: OVERHEAD ELECTRICAL FACILITIES

Overhead lines may exist on the property. We have not attempted to mark those lines since they are clearly visible, but you should locate them prior to beginning any construction. Texas law, Section 752, Health & Safety code, forbids all activities in which persons or things may come within six (6) feet of live overhead high voltage lines. Parties responsible for the work, including contractors, are legally responsible for the safety of construction workers under this law. This law carries both criminal and civil liability. To arrange for lines to be turned off or removed call CenterPoint Energy at 713-207-7777.



AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE. 1-800-245-4545

STANDARD PROFILE LEGEND

CENTER LINE OF R.O.W.	_____
PROPERTY LINE N & E	-----
PROPERTY LINE S & W	-----
DITCH OR CURB N & E	-----
DITCH OR CURB S & W	-----

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE. 1-800-245-4545

PRIVATE UTILITY LINES SHOWN

CenterPoint Energy/ Gas Facilities
S.B.C. VALID FOR ONE YEAR APPROVED ONLY FOR CROSSING UNDERGROUND DUCTILES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
CenterPoint Energy/ Electric Facilities APPROVED ONLY FOR CROSSING UNDERGROUND DUCTILES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
CABLE COMPANY

NOTE:
LOCATIONS OF EXISTING UTILITY LINES ARE BASED ON AVAILABLE CONSTRUCTION PLANS.

AS-BUILTS 3-16-07

App.	Revisions	Date	No.
ASBUILT		4-2-07	

T.B.M. TOP OF FIRE HYDRANT
G STA. 0+84.82, 174.17' LT. @ HARGRAVE
ELEV. = 126.67
REFERENCE BENCHMARK #AW5511
TO REACH THE STATION FROM THE INTERSECTION OF FARM ROAD 1960 AND FARM ROAD 148, WHICH IS ABOUT 27.4 KM (17.0 MI) NORTHWEST OF HOUSTON, GO NORTHEAST ON FARM ROAD 1960 FOR 1.0 KM (0.6 MI) TO A SIDE ROAD LEFT, TURN LEFT, ON BRETON RIDGE ROAD FOR ABOUT 30.5 METERS (100 FT) TO THE STATION ON THE RIGHT. THE STATION IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PVC PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED IN A 5-INCH PVC PIPE WITH A LOG CAP STAMPED: --HGSD 11 1986--. THE ROD IS RECESSED 8 CM BELOW THE GROUND, LOCATED 35.4 METERS (116.0 FT) NORTHEAST FROM A FIRE HYDRANT THAT IS ACROSS BRETON RIDGE ROAD, 30.8 METERS (101.0 FT) NORTHWEST FROM A RED GRANITE WALL AND 9.9 METERS (32.6 FT) NORTHEAST FROM THE NORTHEAST CURB OF BRETON RIDGE ROAD. ELEV. = 121.3 NGS DATUM (1986 ADJ.)

**MUNICIPAL UTILITY DISTRICT NO. 191
HARGRAVE ROAD
OVERALL LAYOUT
TO SERVE DOTSON PARK, SECTION 2
ASPEN CIVIL DESIGN**

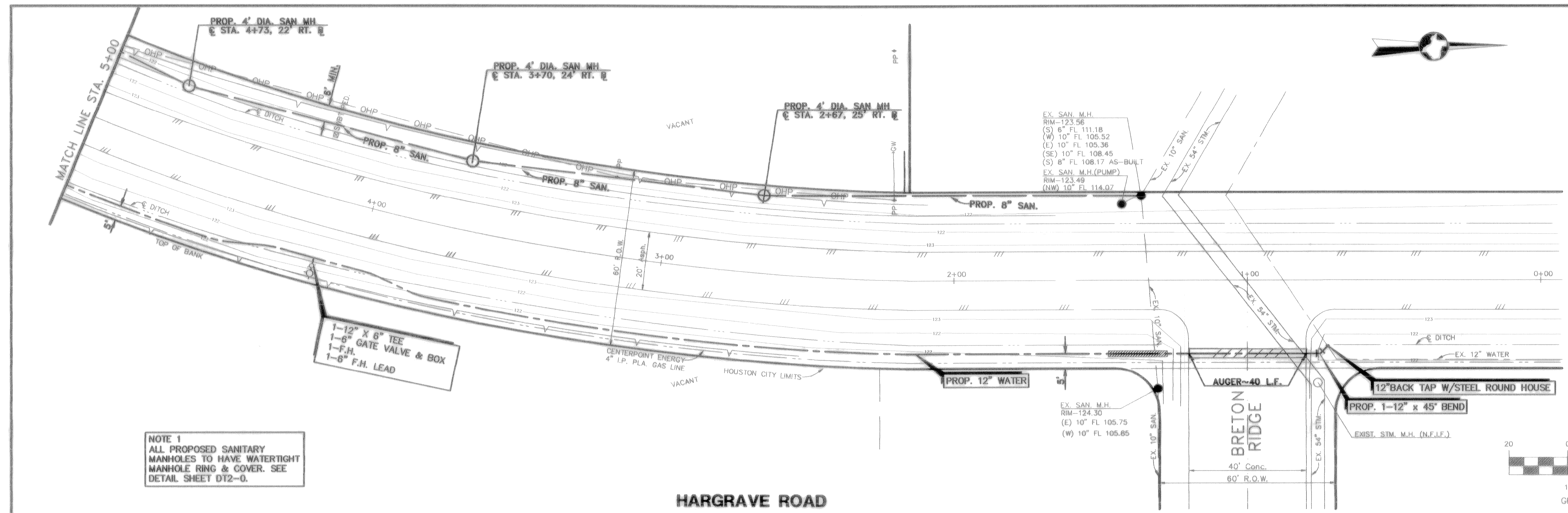
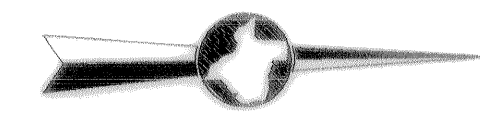
(832) 607-3551 14019 S.W. Freeway, Suite 301-278
(281) 265-3551 Fax Sugar Land, Texas 77478

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWD

FILE NO: 225 L01-0	CITY DWG NO:
DRAWING SCALE:	
VERT: 1"=50'	
HORIZ:	
SHEET:	3 OF 10

THE 100-YEAR FLOOD PLAN PER F.I.R.M. MAP COMMUNITY PANEL No. 48201C0435L, DATED SEPT. 30, 2004, AND IS DESIGNATED TO BE IN ZONE "X".



NOTE 1
ALL PROPOSED SANITARY MANHOLES TO HAVE WATERTIGHT MANHOLE RING & COVER. SEE DETAIL SHEET DT2-0.

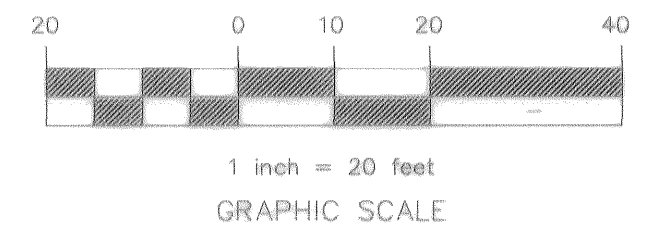
STANDARD PROFILE LEGEND

CENTER LINE OF R.O.W.	---
PROPERTY LINE N & E	---
PROPERTY LINE S & W	---
DITCH OR CURB N & E	---
DITCH OR CURB S & W	---

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE. 1-800-245-4545

PRIVATE UTILITY LINES SHOWN

- CenterPoint Energy/ Gas Facilities
- S.B.C. VALID FOR ONE YEAR
APPROVED ONLY FOR CROSSING UNDERGROUND DUCTILES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
- CenterPoint Energy/ Electric Facilities
APPROVED ONLY FOR CROSSING UNDERGROUND DUCTILES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
- CABLE COMPANY



HARGRAVE ROAD



NOTE:
LOCATIONS OF EXISTING UTILITY LINES ARE BASED ON AVAILABLE CONSTRUCTION PLANS.

AS-BUILTS 3-16-07

App.	Revisions	Date	No.
ASBUILT		4-2-07	

T.B.M.: TOP OF FIRE HYDRANT @ STA. 0+84.82, 174.17' LT. @ HARGRAVE ELEV.=126.67
REFERENCE BENCHMARK #AW5011 TO REACH THE STATION FROM THE INTERSECTION OF FARM ROAD 1960 AND FARM ROAD 149, WHICH IS ABOUT 27.4 KM (17.0 MI) NORTHWEST OF HOUSTON, GO NORTHEAST ON FARM ROAD 1960 FOR 1.0 KM(0.6 MI) TO A SIDE ROAD LEFT, TURN LEFT, ON BRETON RIDGE ROAD FOR ABOUT 30.5 METERS (100 FT) TO THE STATION ON THE RIGHT. THE STATION IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PVC PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED IN A 5-INCH PVC PIPE WITH A LOGO CAP STAMPED---HOCSB 11 1986---. THE ROD IS RECESSED 8 CM BELOW THE GROUND, LOCATED 35.4 METERS (116.0 FT) NORTHEAST FROM A FIRE HYDRANT THAT IS ACROSS BRETON RIDGE ROAD, 30.8 METERS (101.0 FT) NORTHWEST FROM A RED GRANITE WALL AND 9.9 METERS (32.6 FT) NORTHEAST FROM THE NORTHEAST CURB OF BRETON RIDGE ROAD ELEV.=121.3 NGS DATUM (1988 ADJ.)

**MUNICIPAL UTILITY DISTRICT NO. 191
HARGRAVE ROAD
PROP. SANITARY SEWER AND
WATER EXTENSION.**

ASPEN CIVIL DESIGN

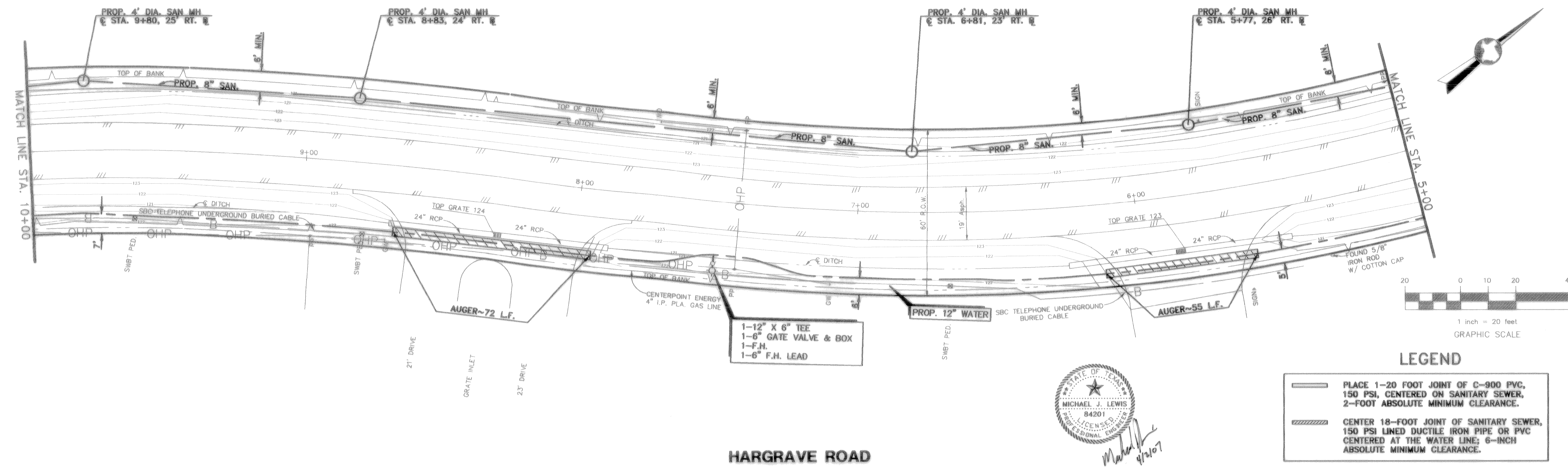
(832) 907-5051 14019 S.W. Parkway, Suite 301-278
(281) 265-3551 Fax Sugar Land, Texas 77478

**CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWG

FILE NO.: 225PP1
DRAWING SCALE:
VERT: 1"=20'
HORIZ: 1"=20'
SHEET:
4 OF 10

THE 100-YEAR FLOOD PLAN PER F.I.R.M. MAP COMMUNITY PANEL No. 48201C0435L, DATED SEPT. 30, 2004, AND IS DESIGNATED TO BE IN ZONE "X".



STANDARD PROFILE LEGEND	
CENTER LINE OF R.O.W.	_____
PROPERTY LINE N & E	_____
PROPERTY LINE S & W	_____
DITCH OR CURB N & E	_____
DITCH OR CURB S & W	_____

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE. 1-800-245-4545

PRIVATE UTILITY LINES SHOWN

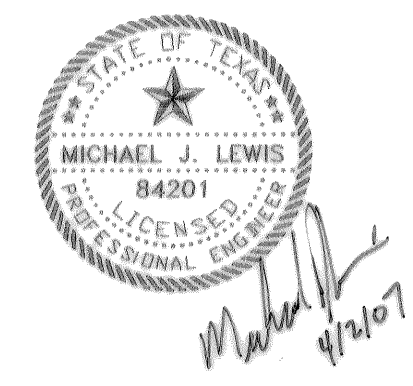
CenterPoint Energy/ Gas Facilities
 CenterPoint Energy/ Electric Facilities
 APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.

NOTE:
 LOCATIONS OF EXISTING UTILITY LINES ARE BASED ON AVAILABLE CONSTRUCTION PLANS.

LEGEND

PLACE 1-20 FOOT JOINT OF C-900 PVC, 150 PSI, CENTERED ON SANITARY SEWER, 2-FOOT ABSOLUTE MINIMUM CLEARANCE.

CENTER 18-FOOT JOINT OF SANITARY SEWER, 150 PSI LINED DUCTILE IRON PIPE OR PVC CENTERED AT THE WATER LINE; 6-INCH ABSOLUTE MINIMUM CLEARANCE.



HARGRAVE ROAD



AS-BUILTS 3-16-07

App.	Revisions	Date	No.
ASBUILT		4-2-07	

T.B.M. TOP OF FIRE HYDRANT @ STA. 0+84.82, 174.17' L.T. @ HARGRAVE ELEV.=126.67
 REFERENCE BENCHMARK JAW5511 TO REACH THE STATION FROM THE INTERSECTION OF FARM ROAD 1960 AND FARM ROAD 149, WHICH IS ABOUT 27.4 KM (17.0 MI) NORTHWEST OF HOUSTON, GO NORTHEAST ON FARM ROAD 1960 FOR 1.0 KM(0.6 MI) TO A SIDE ROAD LEFT, TURN LEFT, ON BRETON RIDGE ROAD FOR ABOUT 30.5 METERS (100 FT) TO THE STATION ON THE RIGHT. THE STATION IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PVC PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED IN A 5-INCH PVC PIPE WITH A LOG GAP STAMPED:---HCSID 11 1986---. THE ROD IS RECESSED 8 CM BELOW THE GROUND, LOCATED 35.4 METERS (116.0 FT) NORTHEAST FROM A FIRE HYDRANT THAT IS ACROSS BRETON RIDGE ROAD, 30.8 METERS (101.0 FT) NORTHWEST FROM A RED GRANITE WALL AND 9.9 METERS (32.6 FT) NORTHEAST FROM THE NORTHEAST CURB OF BRETON RIDGE ROAD. ELEV.=121.3 NGS DATUM (1988 ADJ.)

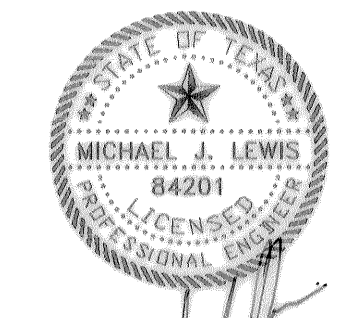
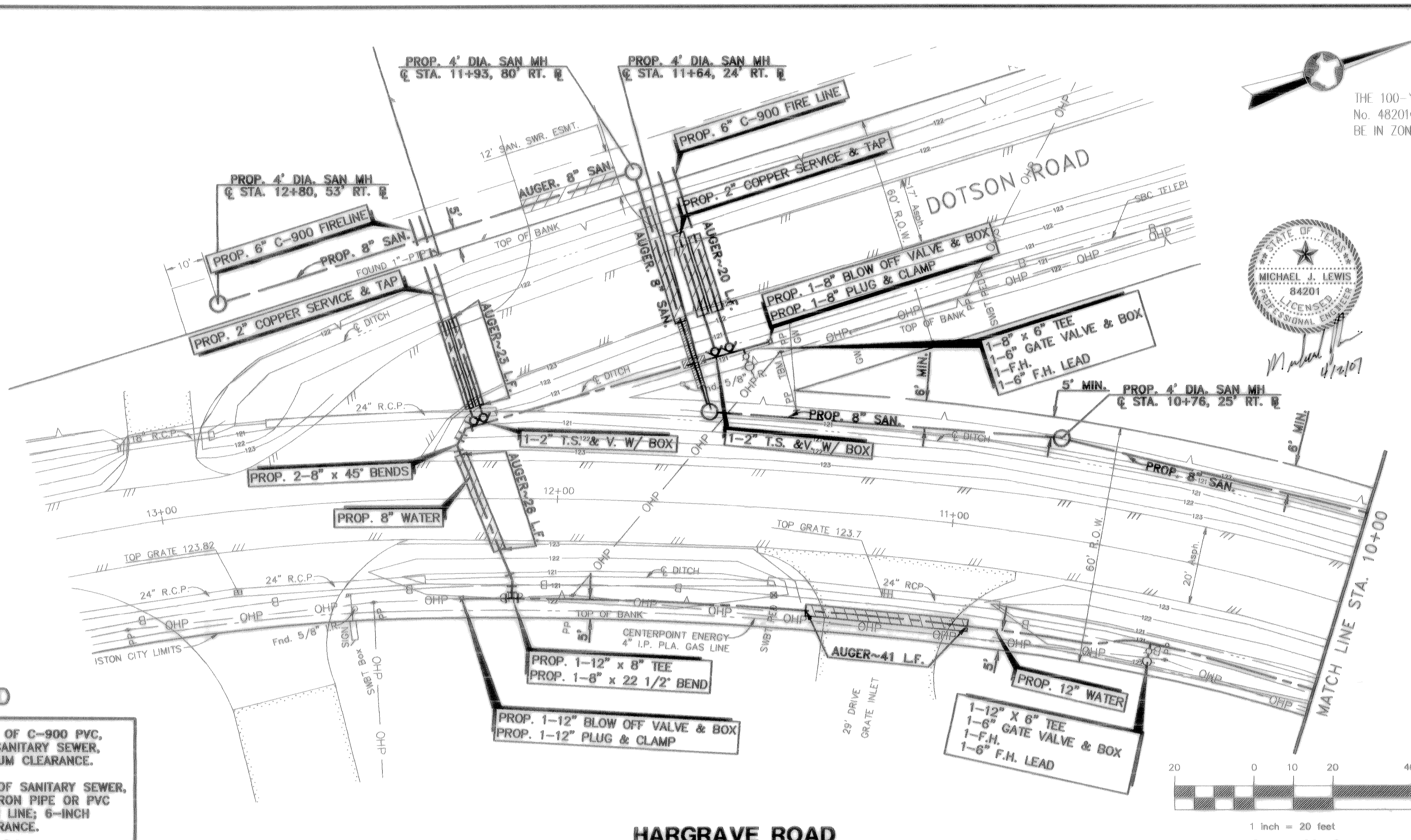
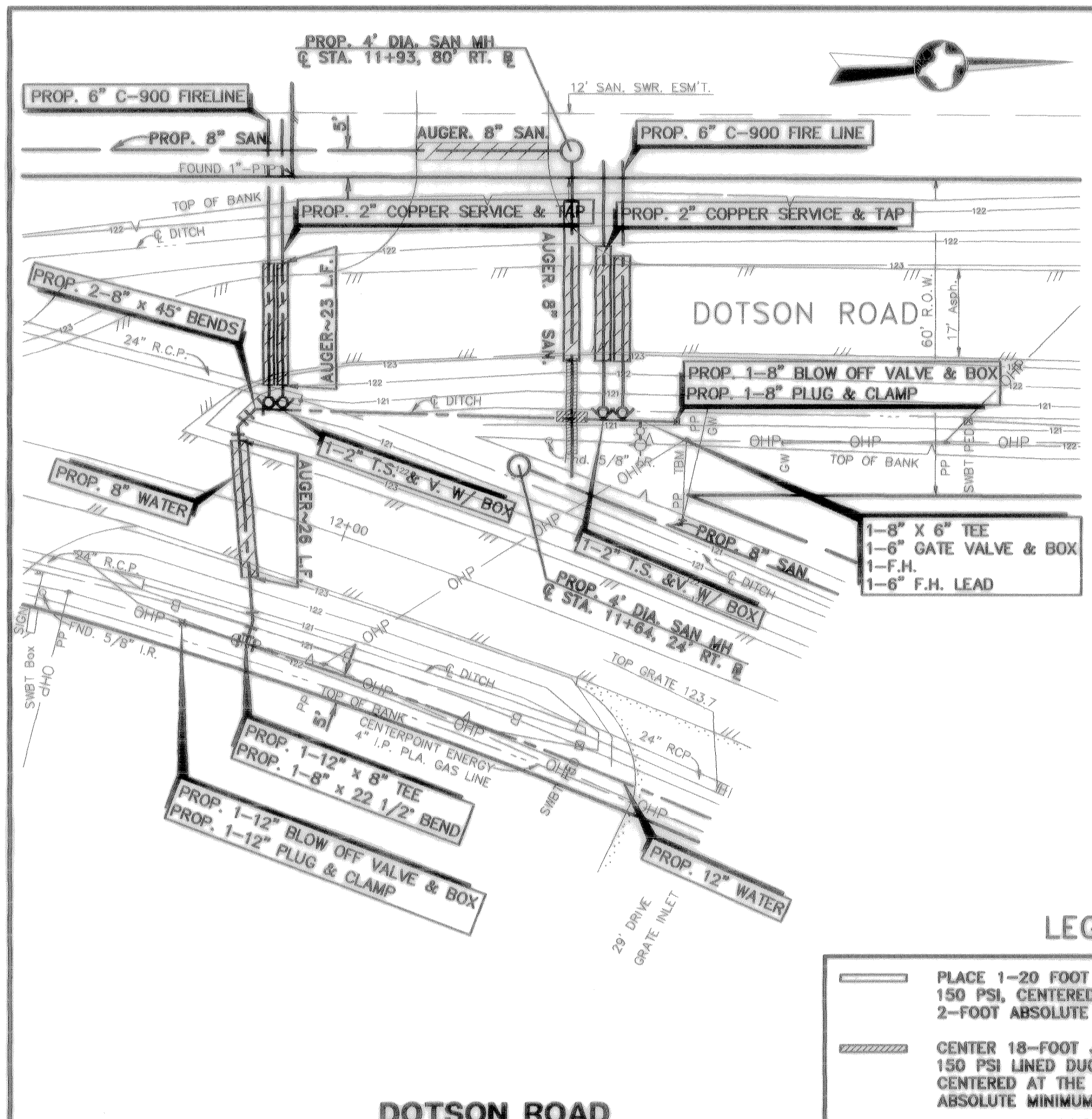
**MUNICIPAL UTILITY DISTRICT NO. 191
 HARGRAVE ROAD
 PROP. SANITARY SEWER AND
 WATER EXTENSION.**

ASPEN CIVIL DESIGN

(832) 607-3551 14019 S.W. Freeway, Suite 301-278
 (281) 265-3551 Fax Sugar Land, Texas 77478

**CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWI
FILE NO.: 225PP2	CITY DWG NO:	
DRAWING SCALE:		
VERT: 1"=2'		
HORIZ: 1"=30'		
SHEET:		
5 OF 10		



THE 100-YEAR FLOOD PLAN PER F.I.R.M. MAP COMMUNITY PANEL No. 48201C0435L, DATED SEPT. 30, 2004, AND IS DESIGNATED TO BE IN ZONE "X".

STANDARD PROFILE LEGEND

CENTER LINE OF R.O.W.	---
PROPERTY LINE N & E	---
PROPERTY LINE S & W	---
DITCH OR CURB N & E	---
DITCH OR CURB S & W	---

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE. 1-800-245-4545

PRIVATE UTILITY LINES SHOWN

CenterPoint Energy/ Gas Facilities

S.B.C. VALID FOR ONE YEAR
APPROVED ONLY FOR CROSSING UNDERGROUND DUCTILES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.

CenterPoint Energy/ Electric Facilities
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CABLE COMPANY

NOTE:
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AS-BUILTS 3-16-07

App.	Revisions	Date	No.
ASBUILT		4-2-07	

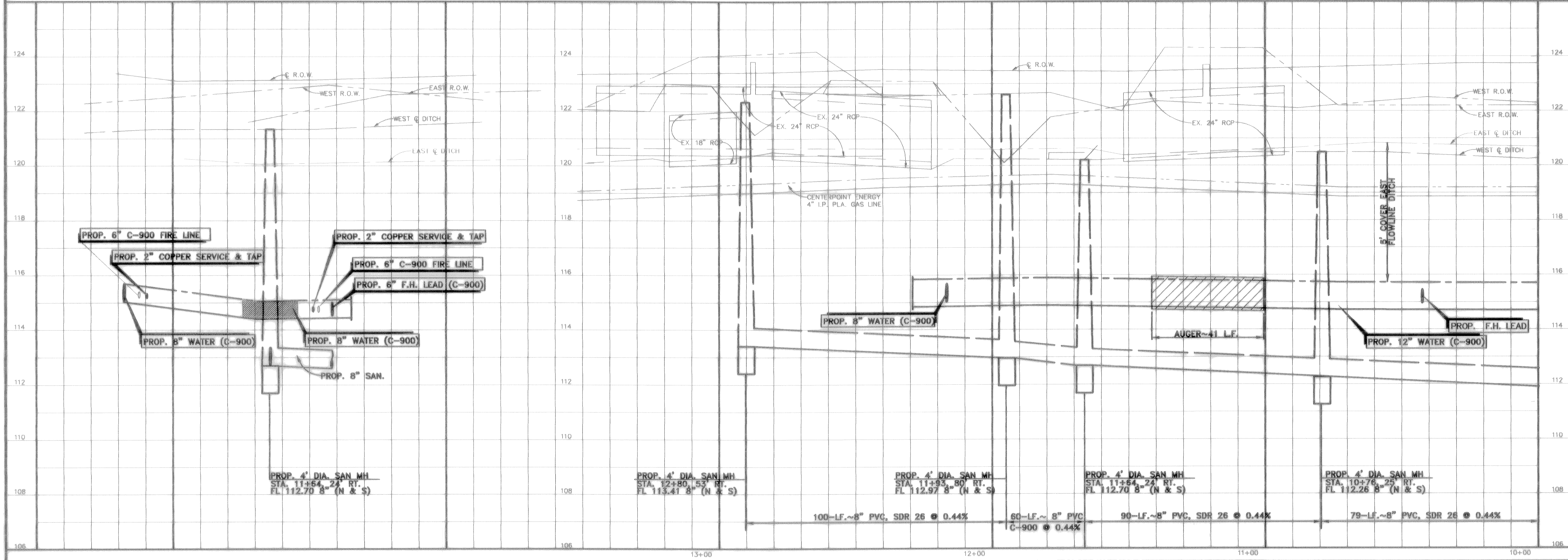
T.B.M.: TOP OF FIRE HYDRANT
 @ STA. 0+84.82, 174.17' LT. @ HARGRAVE
 ELEV. = 126.67'
 REFERENCE BENCHMARK #AW5811
 TO REACH THE STATION FROM THE INTERSECTION OF FARM ROAD 1960 AND FARM ROAD 149, WHICH IS ABOUT 27.4 KM (17.0 MI) NORTHWEST OF HOUSTON, GO NORTHEAST ON FARM ROAD 1960 FOR 1.0 KM (0.6 MI) TO A SIDE ROAD LEFT, TURN LEFT, ON BRETON RIDGE ROAD FOR ABOUT 30.5 METERS (100 FT) TO THE STATION ON THE RIGHT. THE STATION IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PVC PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED IN A 5-INCH PVC PIPE WITH A LOGO GAP STAMPED---HGSD 11 1986---. THE ROD IS RECESSED 8 CM BELOW THE GROUND. LOCATED 35.4 METERS (116.0 FT) NORTHEAST FROM A FIRE HYDRANT THAT IS ACROSS BRETON RIDGE ROAD, 30.8 METERS (101.0 FT) NORTHWEST FROM A RED GRANITE WALL AND 9.8 METERS (32.6 FT) NORTHEAST FROM THE NORTHEAST CURB OF BRETON RIDGE ROAD. ELEV. = 121.3 NOS DATUM (1986 ADJ.)

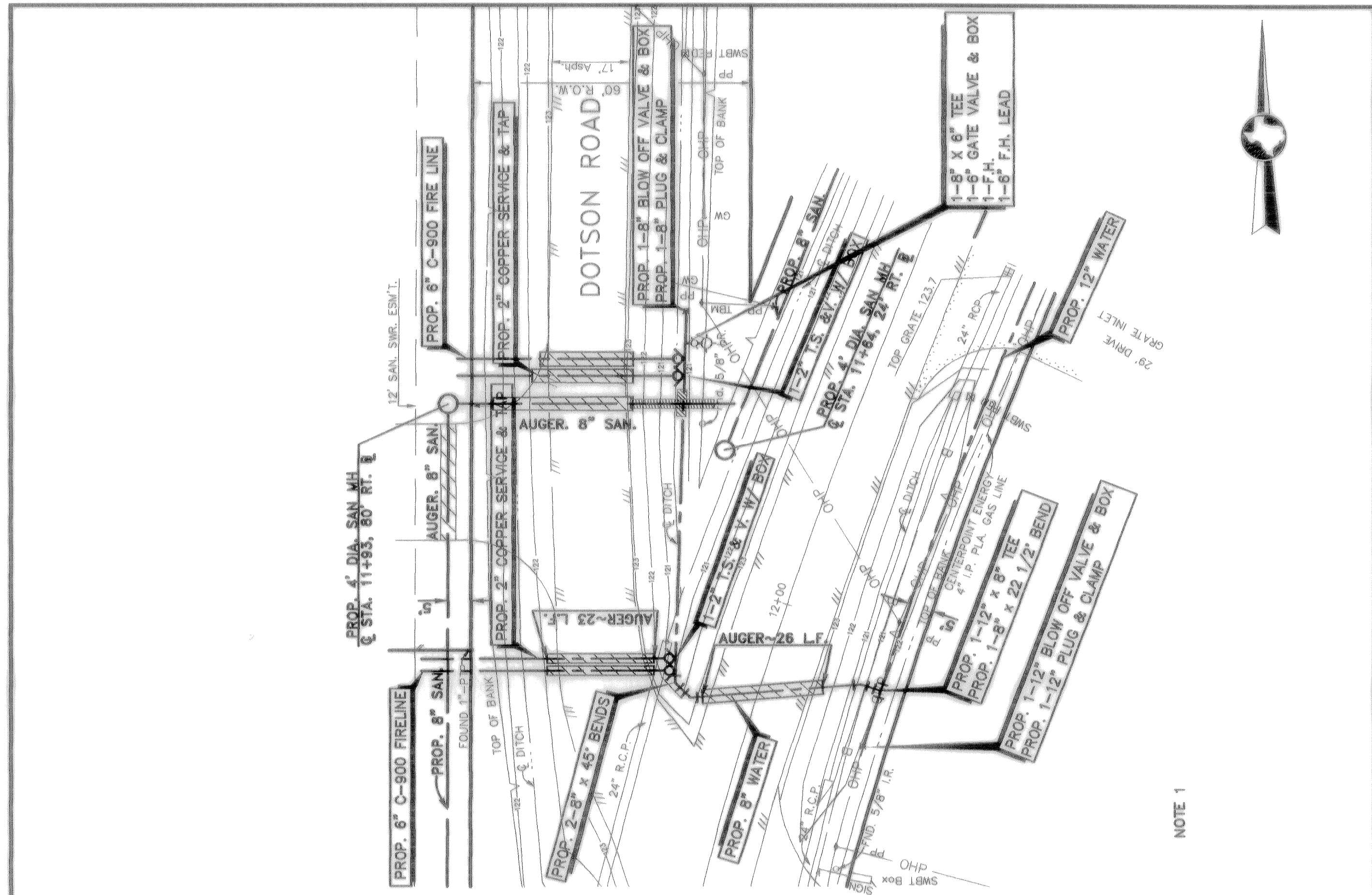
MUNICIPAL UTILITY DISTRICT NO. 191
HARGRAVE ROAD
 PROP. SANITARY SEWER AND WATER EXTENSION.

ASPEN CIVIL DESIGN
 (832) 607-3551 14019 S.W. Freeway, Suite 301-278
 (281) 265-3551 Fax Sugar Land, Texas 77478

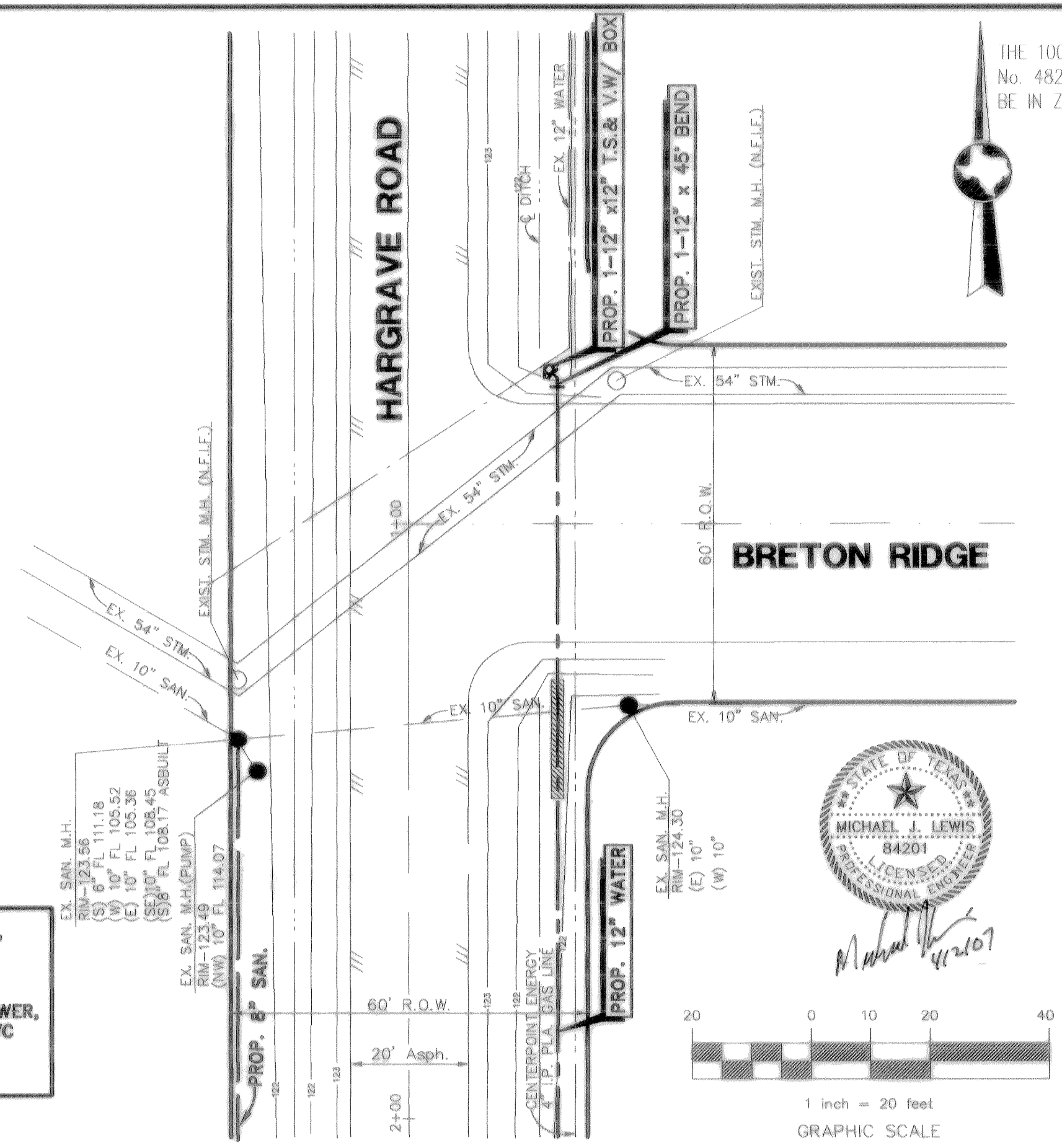
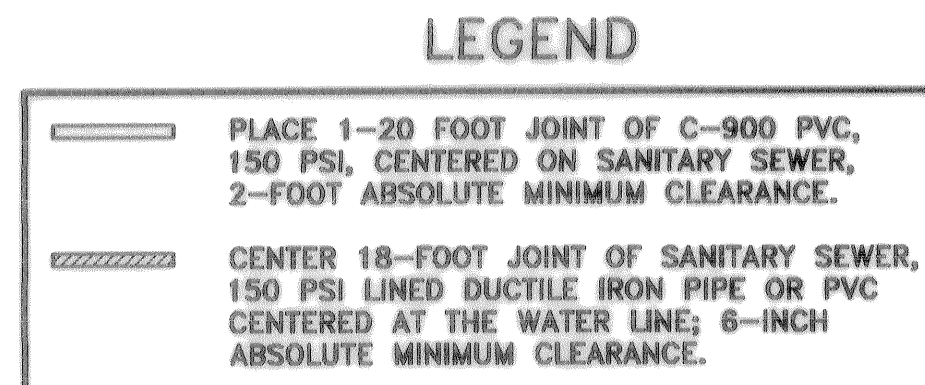
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWD
FILE NO.: 225PP3	CITY DWG NO.:	
DRAWING SCALE:		
VERT: 1"=2'		
HORIZ: 1"=20'		
SHEET:	6 OF 10	

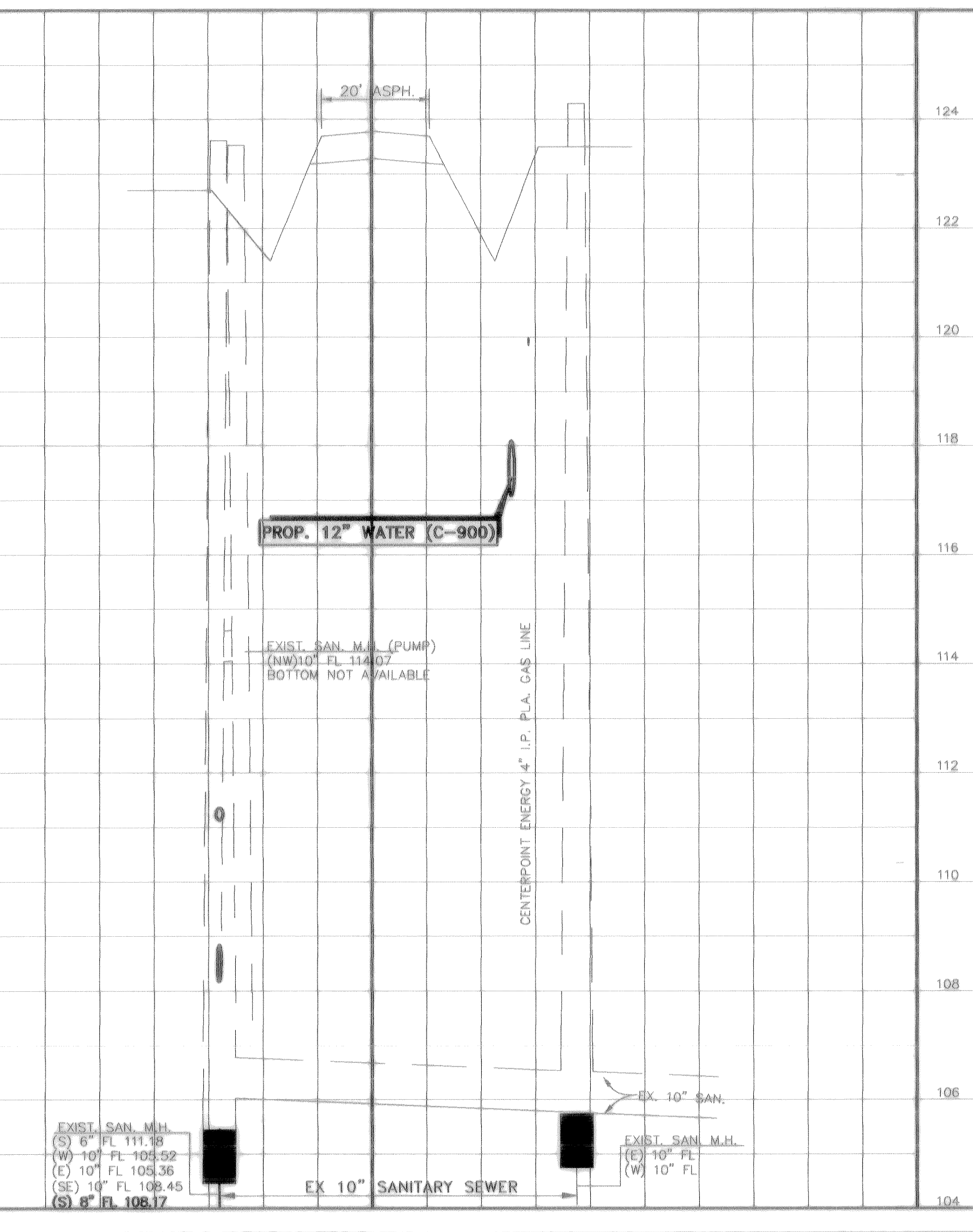
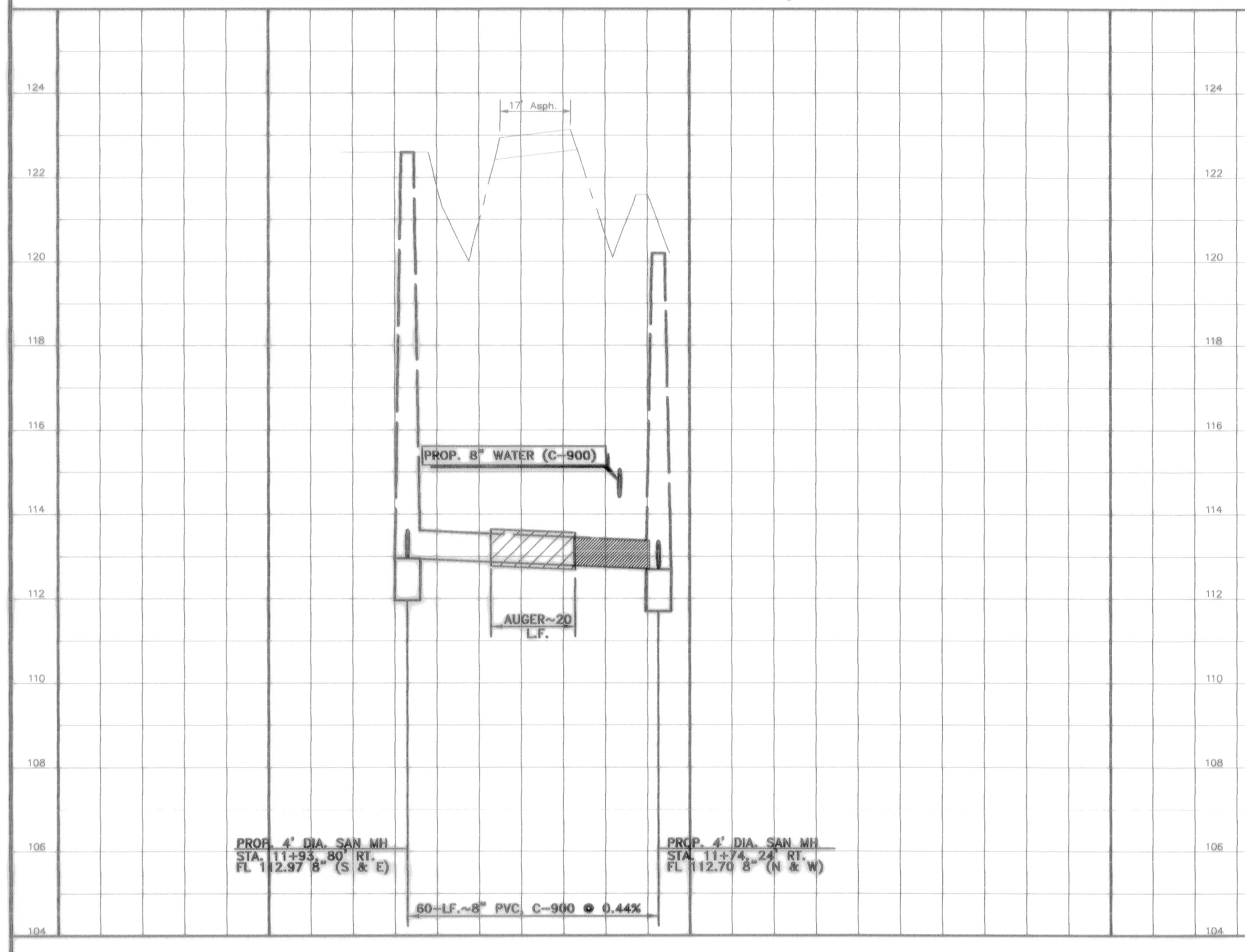




NOTE 1



THE 100-YEAR FLOOD PLAN PER F.I.R.M. MAP COMMUNITY PANEL No. 48201C0435L, DATED SEPT. 30, 2004, AND IS DESIGNATED TO BE IN ZONE "X".



STANDARD PROFILE LEGEND

CENTER LINE OF R.O.W.	---
PROPERTY LINE N & E	----
PROPERTY LINE S & W	----
DITCH OR CURB N & E	----
DITCH OR CURB S & W	----

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE.
1-800-245-4545

PRIVATE UTILITY LINES SHOWN

CenterPoint Energy/ Gas Facilities
S.B.C. VALID FOR ONE YEAR
APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
CenterPoint Energy/ Electric Facilities
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CABLE COMPANY

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LOCATIONS OF EXISTING UTILITY LINES ARE BASED ON AVAILABLE CONSTRUCTION PLANS.

AS-BUILTS 3-16-07

App.	Revisions	Date	No.
ASBUILT		4-2-07	

T.B.M.: TOP OF FIRE HYDRANT @ STA. 0+84.82, 174.17' LT. @ HARGRAVE ELEV.=126.67
REFERENCE BENCHMARK #AH5511 TO REACH THE STATION FROM THE INTERSECTION OF FARM ROAD 1960 AND FARM ROAD 149, WHICH IS ABOUT 27.4 KM (17.0 MI) NORTHWEST OF HOUSTON, GO NORTHEAST ON FARM ROAD 1960 FOR 1.0 KM(0.6 MI) TO A SIDE ROAD LEFT, TURN LEFT, ON BRETON RIDGE ROAD FOR ABOUT 30.5 METERS (100 FT) TO THE STATION ON THE RIGHT. THE STATION IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PVC PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED IN A 5-INCH PVC PIPE WITH A LOGO CAP STAMPED---HOCS 11 1986---, THE ROD IS RECESSED 8 CM BELOW THE GROUND. LOCATED 35.4 METERS (116.0 FT) NORTHEAST FROM A FIRE HYDRANT THAT IS ACROSS BRETON RIDGE ROAD, 30.8 METERS (101.0 FT) NORTHWEST FROM A RED GRANITE WALL AND 9.9 METERS (32.6 FT) NORTHEAST FROM THE NORTHEAST CURB OF BRETON RIDGE ROAD. ELEV.=121.3 NOS DATUM. (1986 AD.)

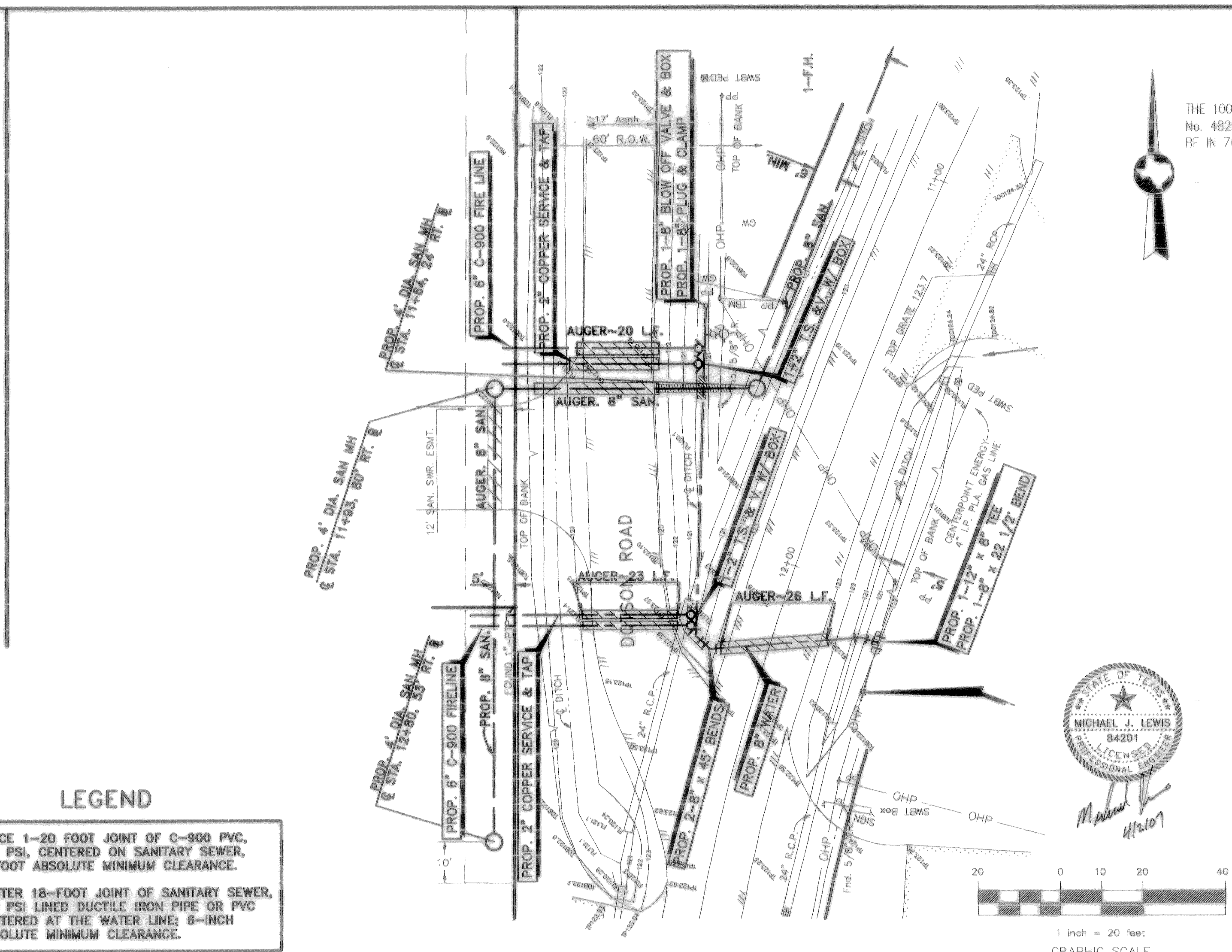
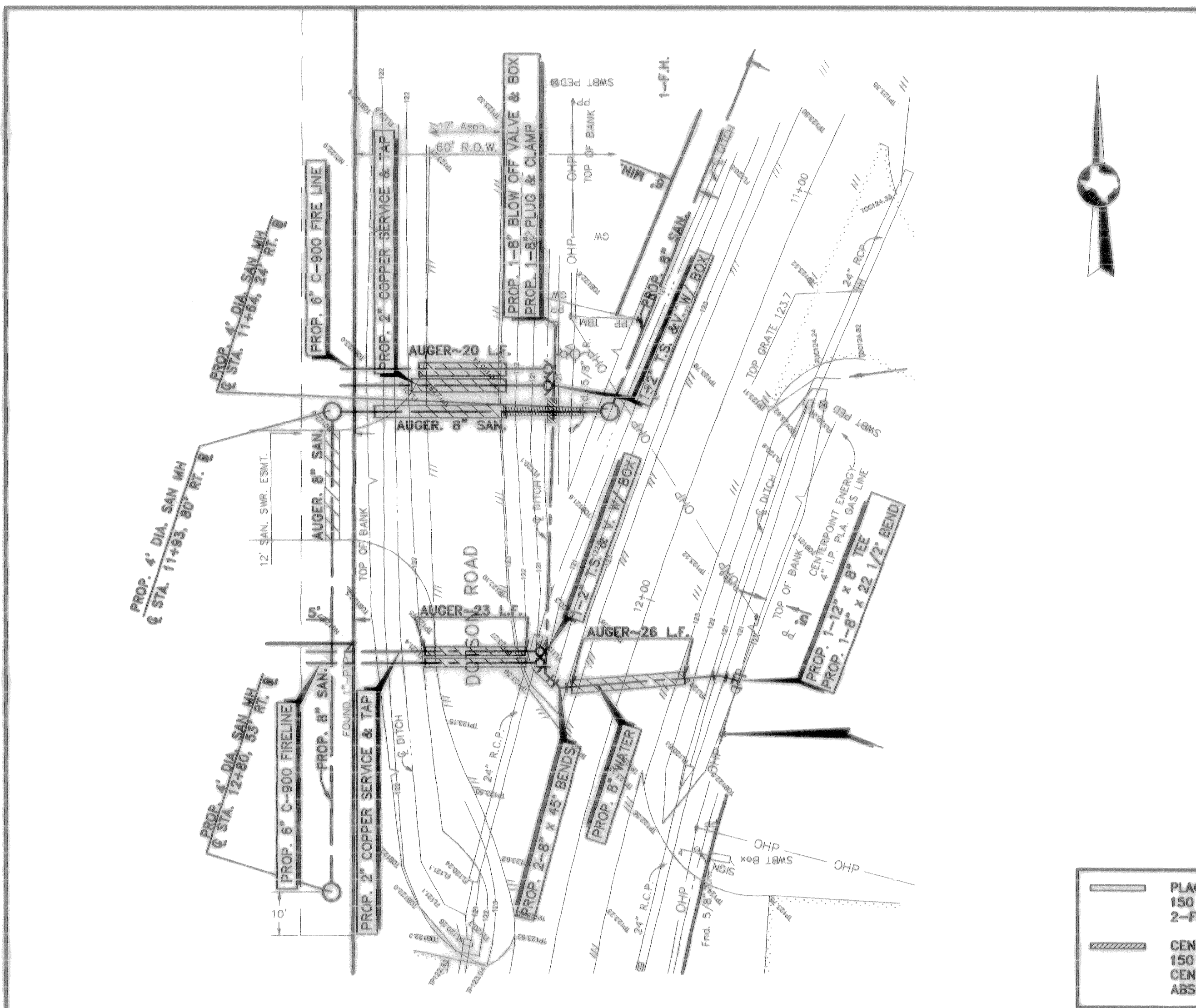
**MUNICIPAL UTILITY DISTRICT NO. 191
HARGRAVE ROAD
PROP. SANITARY SEWER AND
WATER EXTENSION.**

ASPEN CIVIL DESIGN
(832) 607-3551 14019 S.W. Freeway, Suite 301-278
(281) 265-3551 Fax Sugar Land, Texas 77478

**CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWD
FILE NO.: 225PP4	CITY DWG NO.	
DRAWING SCALE:		
VERT: 1"=2'		
HORIZ: 1"=20'		
SHEET:		

THE 100-YEAR FLOOD PLAN PER F.I.R.M. MAP COMMUNITY PANEL No. 48201C0435L, DATED SEPT. 30, 2004, AND IS DESIGNATED TO BE IN ZONE "X"



LEGEND

- PLACE 1-20 FOOT JOINT OF C-900 PVC, 150 PSI, CENTERED ON SANITARY SEWER, 2-FOOT ABSOLUTE MINIMUM CLEARANCE.
- CENTER 18-FOOT JOINT OF SANITARY SEWER, 150 PSI LINED DUCTILE IRON PIPE OR PVC CENTERED AT THE WATER LINE; 6-INCH ABSOLUTE MINIMUM CLEARANCE.

STANDARD PROFILE LEGEND

CENTER LINE OF R.O.W.	---
PROPERTY LINE N & E	----
PROPERTY LINE S & W	----
DITCH OR CURB N & E	----
DITCH OR CURB S & W	----

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE. 1-800-245-4545

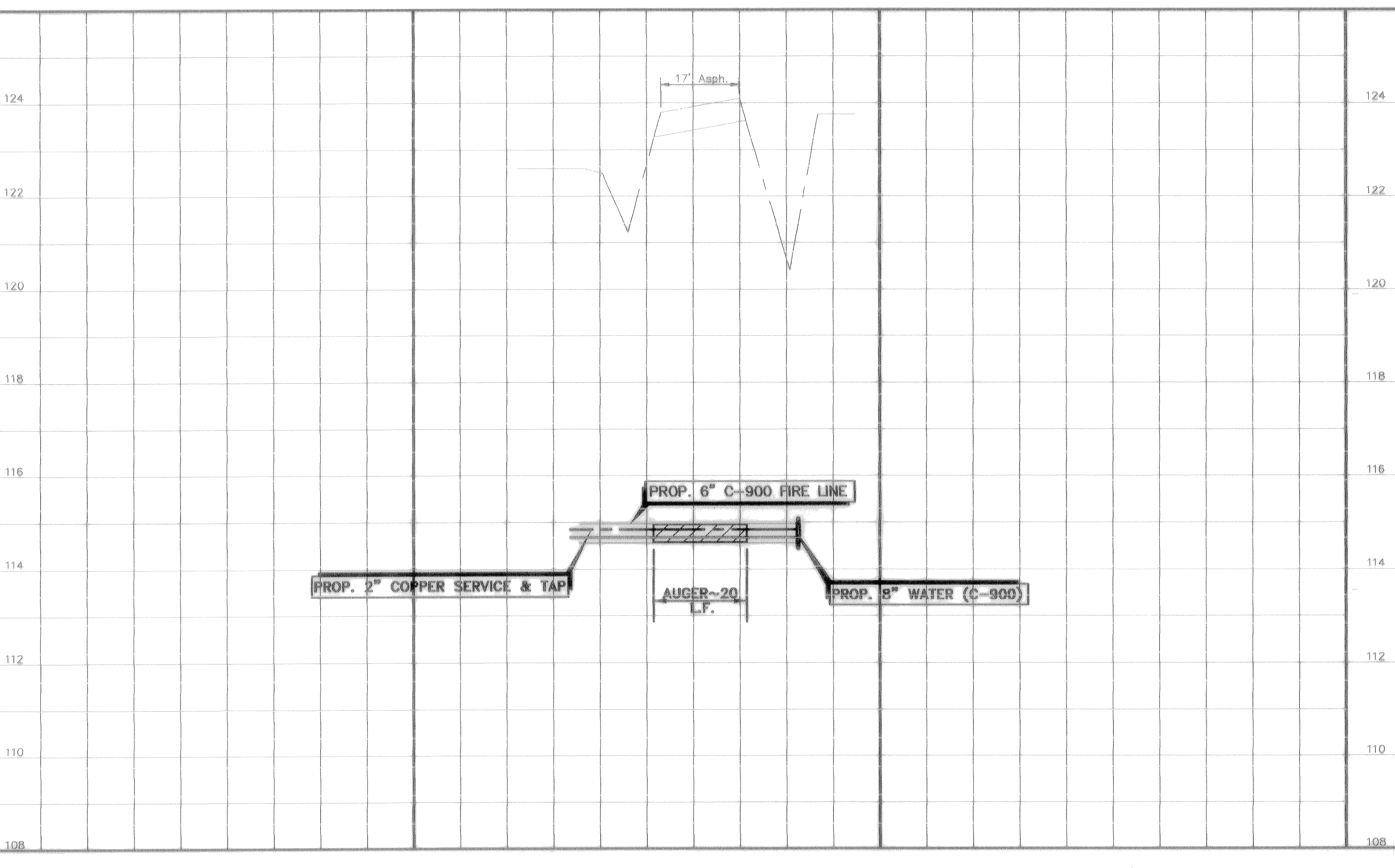
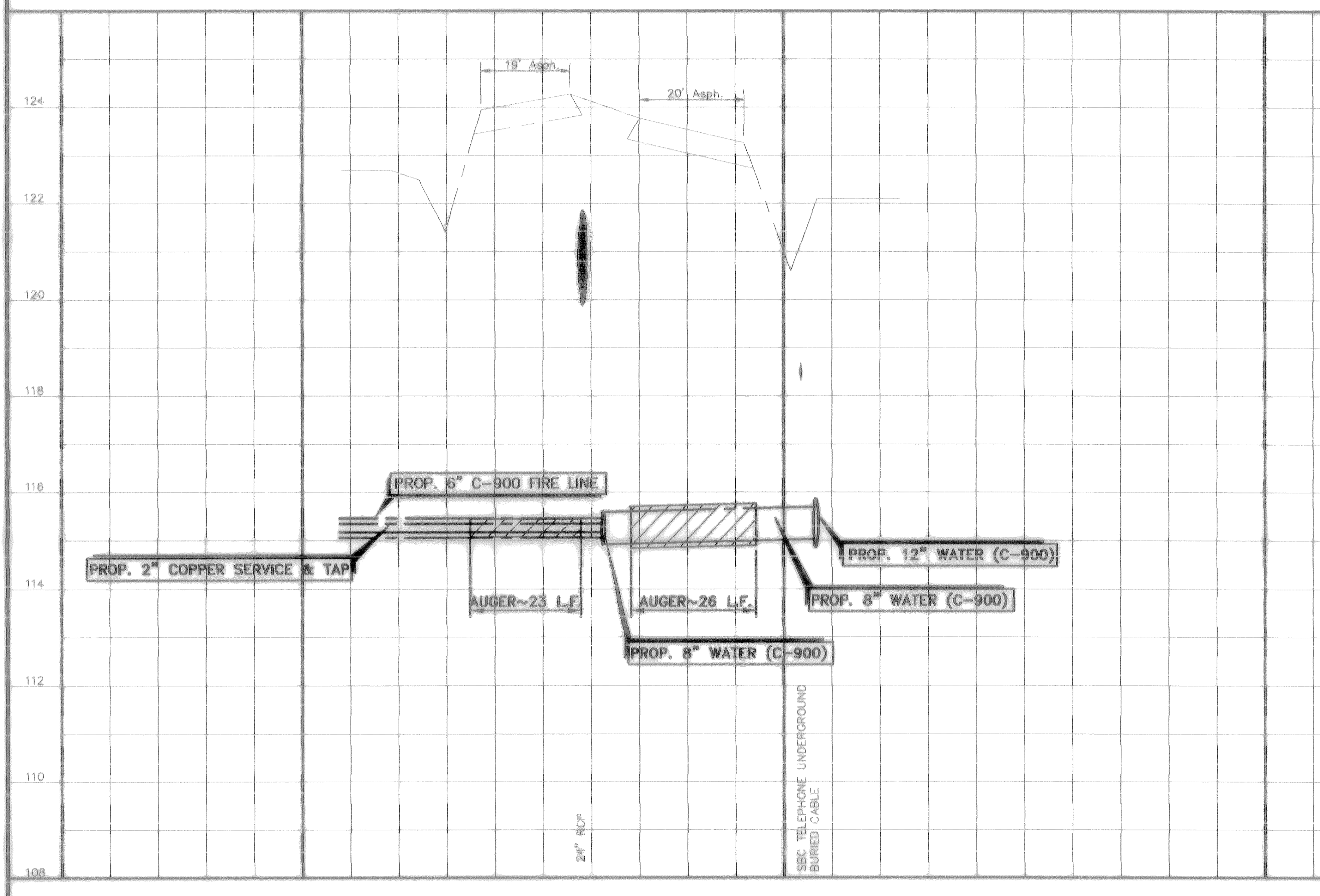
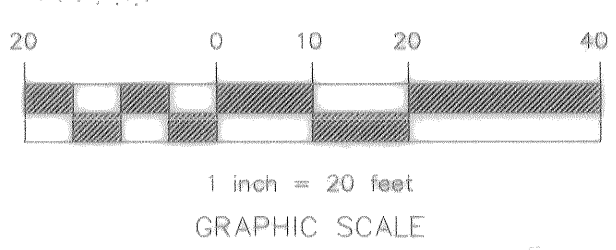
PRIVATE UTILITY LINES SHOWN

CenterPoint Energy/ Gas Facilities
 S.B.C. VALID FOR ONE YEAR
 APPROVED ONLY FOR CROSSING UNDERGROUND DUCTILES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
 CenterPoint Energy/ Electric Facilities
 APPROVED ONLY FOR CROSSING UNDERGROUND DUCTILES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
 CABLE COMPANY

NOTE:
 LOCATIONS OF EXISTING UTILITY LINES ARE BASED ON AVAILABLE CONSTRUCTION PLANS.

AS-BUILTS 3-16-07

App.	Revisions	Date	No.
ASBUILT		4-2-07	



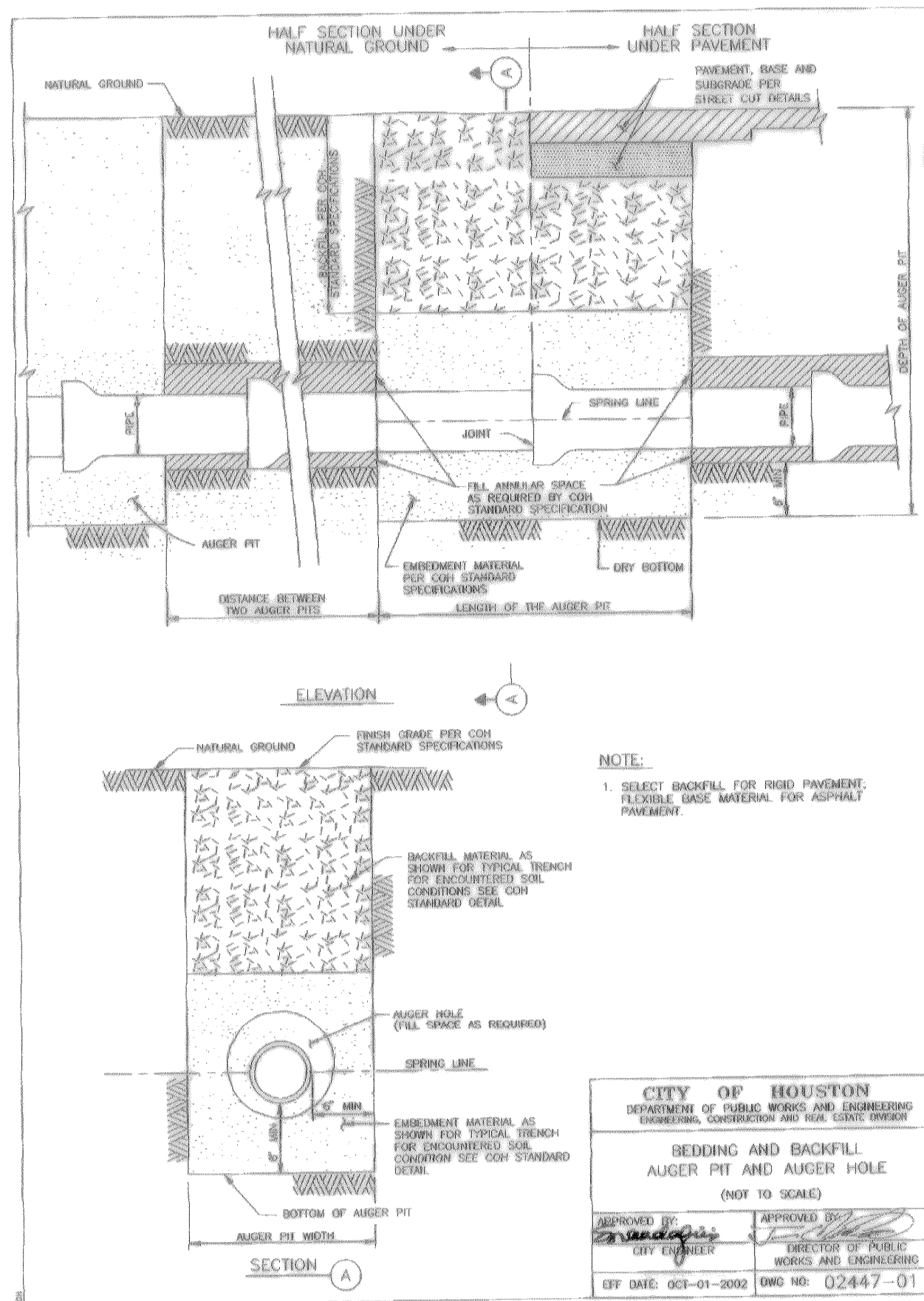
T.B.M.: TOP OF FIRE HYDRANT
 C. STA. 0+84.82, 174.17 I.T. & HARGRAVE
 ELEV.=126.67
 REFERENCE BENCHMARK #AW5511
 TO REACH THE STATION FROM THE INTERSECTION OF FARM ROAD 196D AND FARM ROAD 149, WHICH IS ABOUT 27.4 KM (17.0 MI) NORTHWEST OF HOUSTON, GO NORTHEAST ON FARM ROAD 196D FOR 1.0 KM(0.6 MI) TO A SIDE ROAD LEFT, TURN LEFT, ON BRETON RIDGE ROAD FOR ABOUT 30.5 METERS (100 FT) TO THE STATION ON THE RIGHT. THE STATION IS A PUNCH MARK IN THE TOP OF A STAINLESS STEEL ROD DRIVEN INTO THE GROUND AND INSIDE A 1-INCH PVC PIPE THAT IS 20 FEET LONG FILLED WITH GREASE THAT IS ENCASED IN A 5-INCH PVC PIPE WITH A LOGO GAP STAMPED ---HOCSD 11 1986---. THE ROD IS RECESSED 8 CM BELOW THE GROUND. LOCATED 35.4 METERS (116.0 FT) NORTHEAST FROM A FIRE HYDRANT THAT IS ACROSS BRETON RIDGE ROAD, 30.8 METERS (101.0 FT) NORTHWEST FROM A RED GRANITE WALL AND 9.9 METERS (32.6 FT) NORTHEAST FROM THE NORTHEAST CURB OF BRETON RIDGE ROAD. ELEV.=121.3 MGS DATUM (1986 ADJ.)

**MUNICIPAL UTILITY DISTRICT NO. 191
 HARGRAVE ROAD
 PROP. SANITARY SEWER AND
 WATER EXTENSION.**

ASPEN CIVIL DESIGN
 (832) 607-3551 14019 S.W. Freeway, Suite 301-278
 (281) 265-3551 Fax Sugar Land, Texas 77478

**CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING**

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWG
FILE NO.: 225PP5	CITY DWG NO.	
DRAWING SCALE:	VERT: 1"=2'	
	HORIZ: 1"=20'	
SHEET:	8 OF 10	

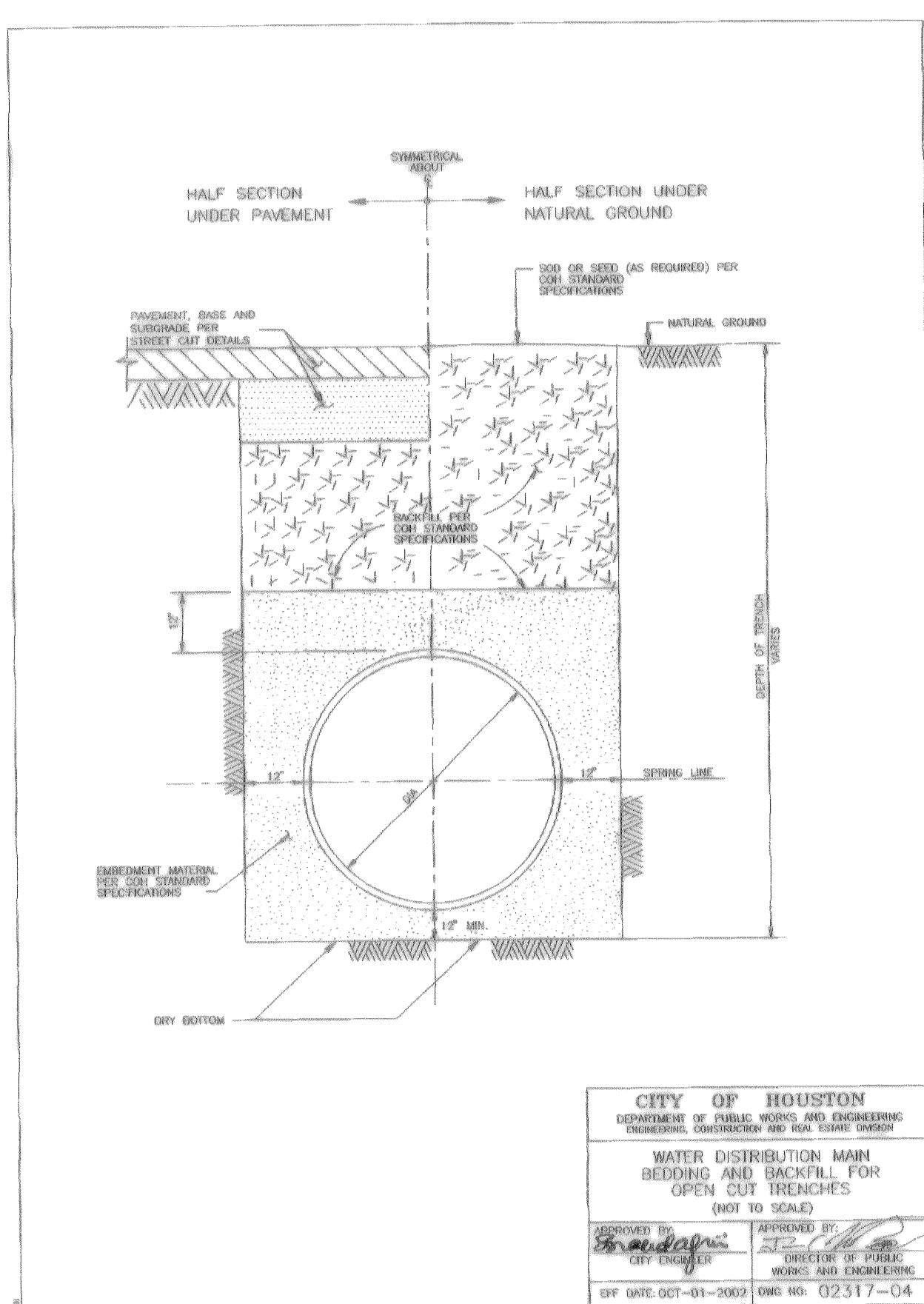


NOTE:
1. SELECT BACKFILL FOR ROAD PAVEMENT, FLEXIBLE BASE MATERIAL FOR ASPHALT PAVEMENT.

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
BEDDING AND BACKFILL AUGER PIT AND AUGER HOLE
(NOT TO SCALE)

APPROVED BY: [Signature]
CITY ENGINEER
APPROVED BY: [Signature]
DIRECTOR OF PUBLIC WORKS AND ENGINEERING

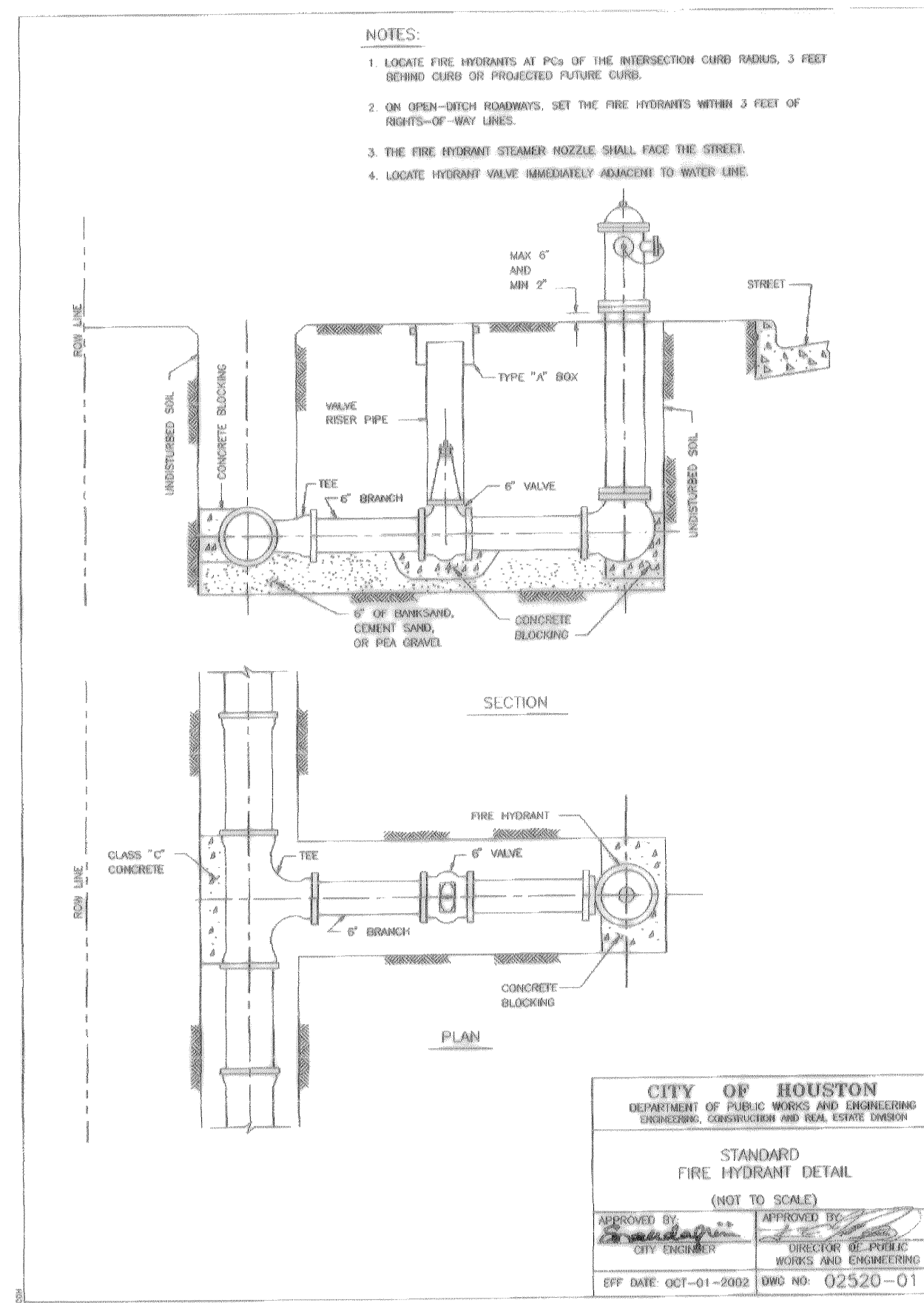
OFF DATE: OCT-01-2002 DWG NO. 02447-01



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
WATER DISTRIBUTION MAIN BEDDING AND BACKFILL FOR OPEN CUT TRENCHES
(NOT TO SCALE)

APPROVED BY: [Signature]
CITY ENGINEER
APPROVED BY: [Signature]
DIRECTOR OF PUBLIC WORKS AND ENGINEERING

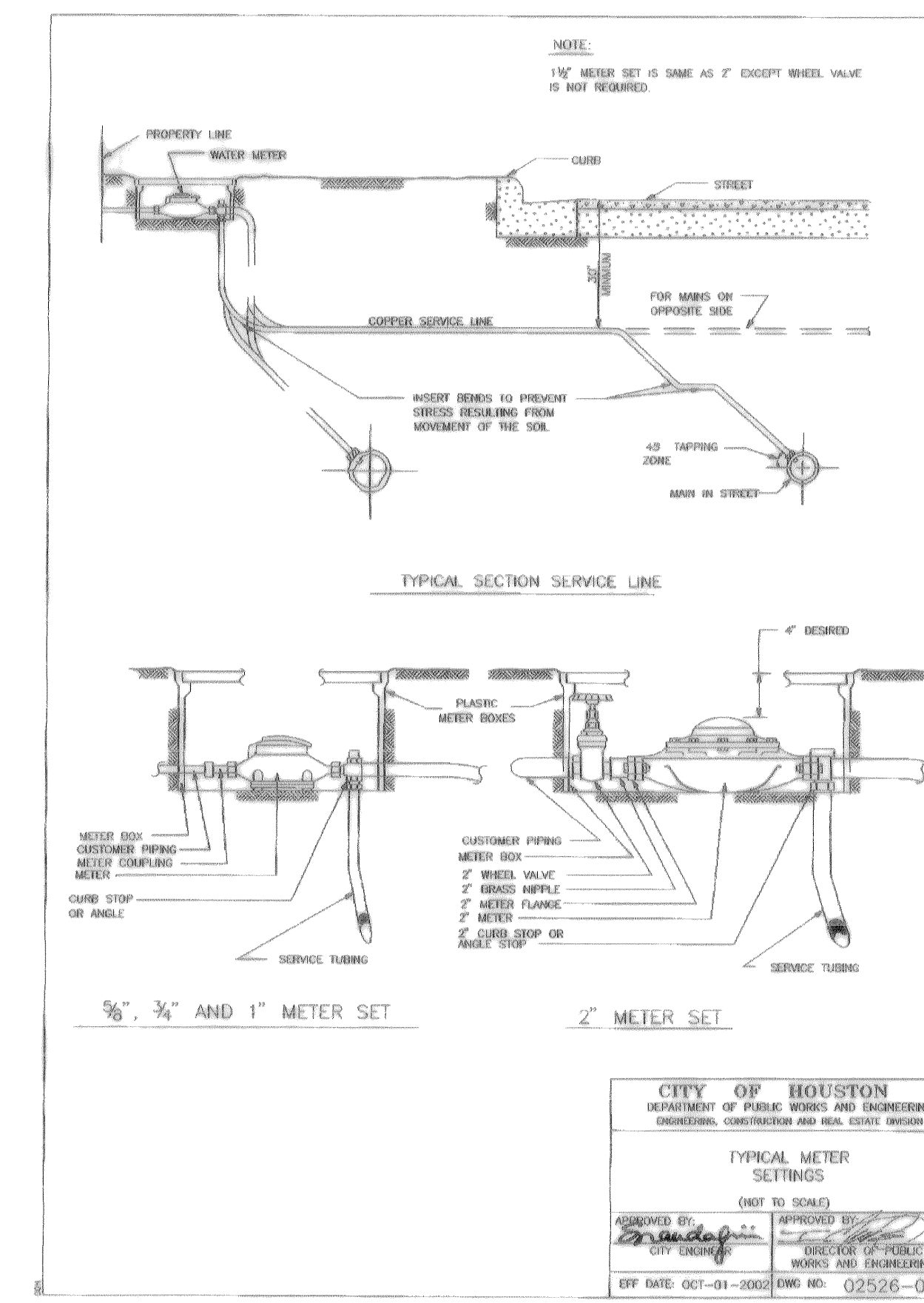
OFF DATE: OCT-01-2002 DWG NO. 02517-04



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
STANDARD FIRE HYDRANT DETAIL
(NOT TO SCALE)

APPROVED BY: [Signature]
CITY ENGINEER
APPROVED BY: [Signature]
DIRECTOR OF PUBLIC WORKS AND ENGINEERING

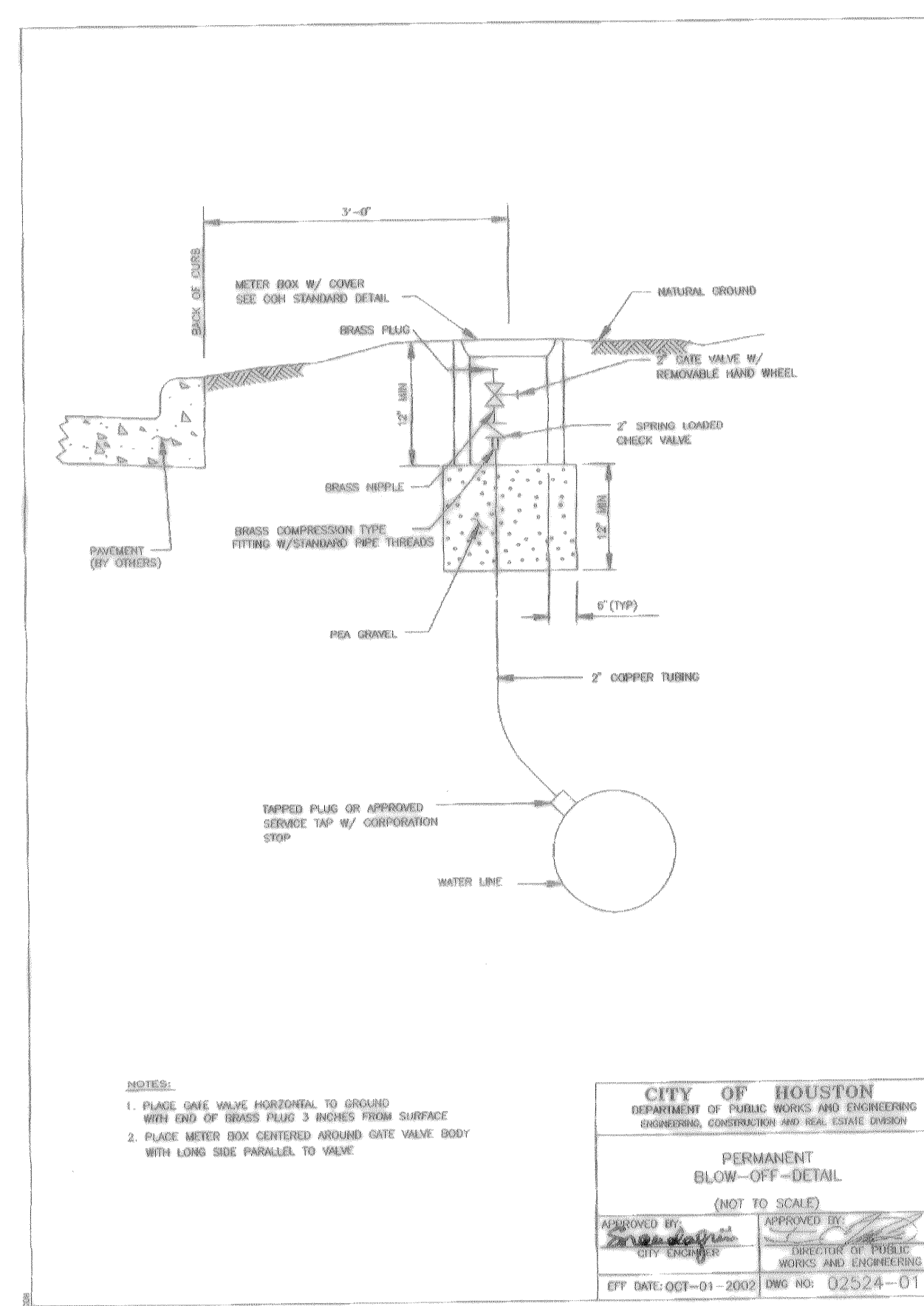
OFF DATE: OCT-01-2002 DWG NO. 02520-01



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
TYPICAL METER SETTINGS
(NOT TO SCALE)

APPROVED BY: [Signature]
CITY ENGINEER
APPROVED BY: [Signature]
DIRECTOR OF PUBLIC WORKS AND ENGINEERING

OFF DATE: OCT-01-2002 DWG NO. 02526-01



CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
PERMANENT BLOW-OFF-DETAIL
(NOT TO SCALE)

APPROVED BY: [Signature]
CITY ENGINEER
APPROVED BY: [Signature]
DIRECTOR OF PUBLIC WORKS AND ENGINEERING

OFF DATE: OCT-01-2002 DWG NO. 02524-01

WATER MAIN TYPE AND DIAMETER	SERVICE SIZE			
	3/4"	1"	1 1/2"	2"
4" CAST IRON OR DUCTILE IRON	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
4" ASBESTOS (EXISTING) CEMENT	WESS	WESS	DSS, WESS	DSS, WESS
4" PVC (AWWA C900)	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
6" AND 8" ASBESTOS (EXISTING) CEMENT	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
6" AND 8" CAST IRON OR DUCTILE IRON	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
6" AND 8" PVC (AWWA C900)	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
12" CAST IRON OR DUCTILE IRON	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
12" ASBESTOS (EXISTING) CEMENT	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
12" PVC (AWWA C900)	DSS, WESS	DSS, WESS	DSS, WESS	DSS, WESS
16" AND UP CAST IRON OR DUCTILE IRON	DWESS	DWESS	DWESS	DWESS
16" AND UP ASBESTOS (EXISTING) CEMENT	DWESS	DWESS	DWESS	DWESS
16" AND UP PVC (AWWA C900)	DWESS	DWESS	DWESS	DWESS

DSS - DUAL STRAP SADDLES
WESS - WIDE BAND STRAP SADDLES
DWESS - DUAL WIDE BAND STRAP SADDLES

SERVICE TAPS TO BE MADE IN THIS ZONE EXCEPT FOR PVC FASTTAP

BLOW-OFF & CORROBORATION TAPS ARE MADE IN VERTICAL POSITION

WIDE BAND SINGLE SADDLE OR DUAL SADDLES

CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
SERVICE TAPS
(NOT TO SCALE)

APPROVED BY: [Signature]
CITY ENGINEER
APPROVED BY: [Signature]
DIRECTOR OF PUBLIC WORKS AND ENGINEERING

OFF DATE: OCT-01-2002 DWG NO. 02512-02

STANDARD PROFILE LEGEND

CENTER LINE OF R.O.W. _____
PROPERTY LINE N & E _____
PROPERTY LINE S & W _____
DITCH OR CURB N & E _____
DITCH OR CURB S & W _____

AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE.
1-800-245-4545

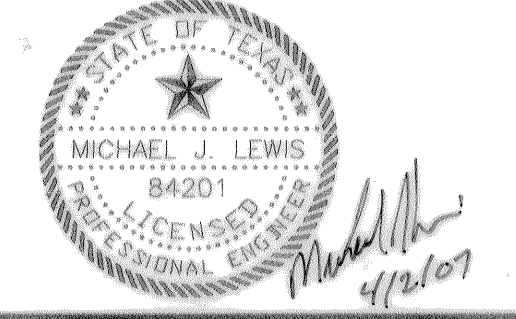
PRIVATE UTILITY LINES SHOWN

CenterPoint Energy/ Gas Facilities _____
CenterPoint Energy/ Electric Facilities _____

S.B.C. VALID FOR ONE YEAR
APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.

CABLE COMPANY _____

NOTE:
LOCATIONS OF EXISTING UTILITY LINES ARE BASED ON AVAILABLE CONSTRUCTION PLANS.



App.	Revisions	Date	No.

AS-BUILTS 3-16-07

MUNICIPAL UTILITY DISTRICT NO. 191
HARGRAVE ROAD
DETAIL SHEET

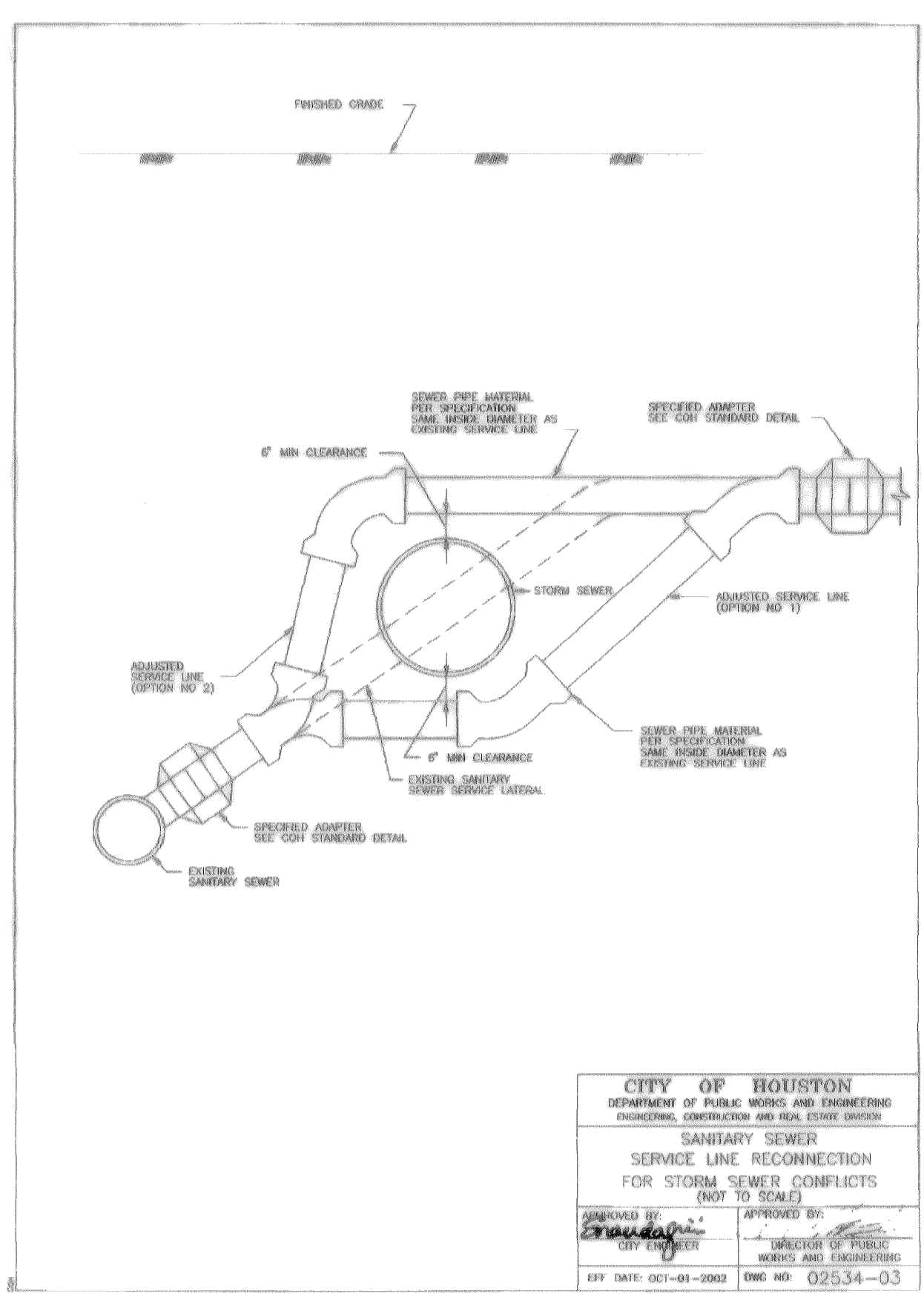
ASPEN CIVIL DESIGN

(832) 607-3551 Fax 14019 S.W. Freeway, Suite 301-278
(281) 265-3551 Fax Sugar Land, Texas 77478

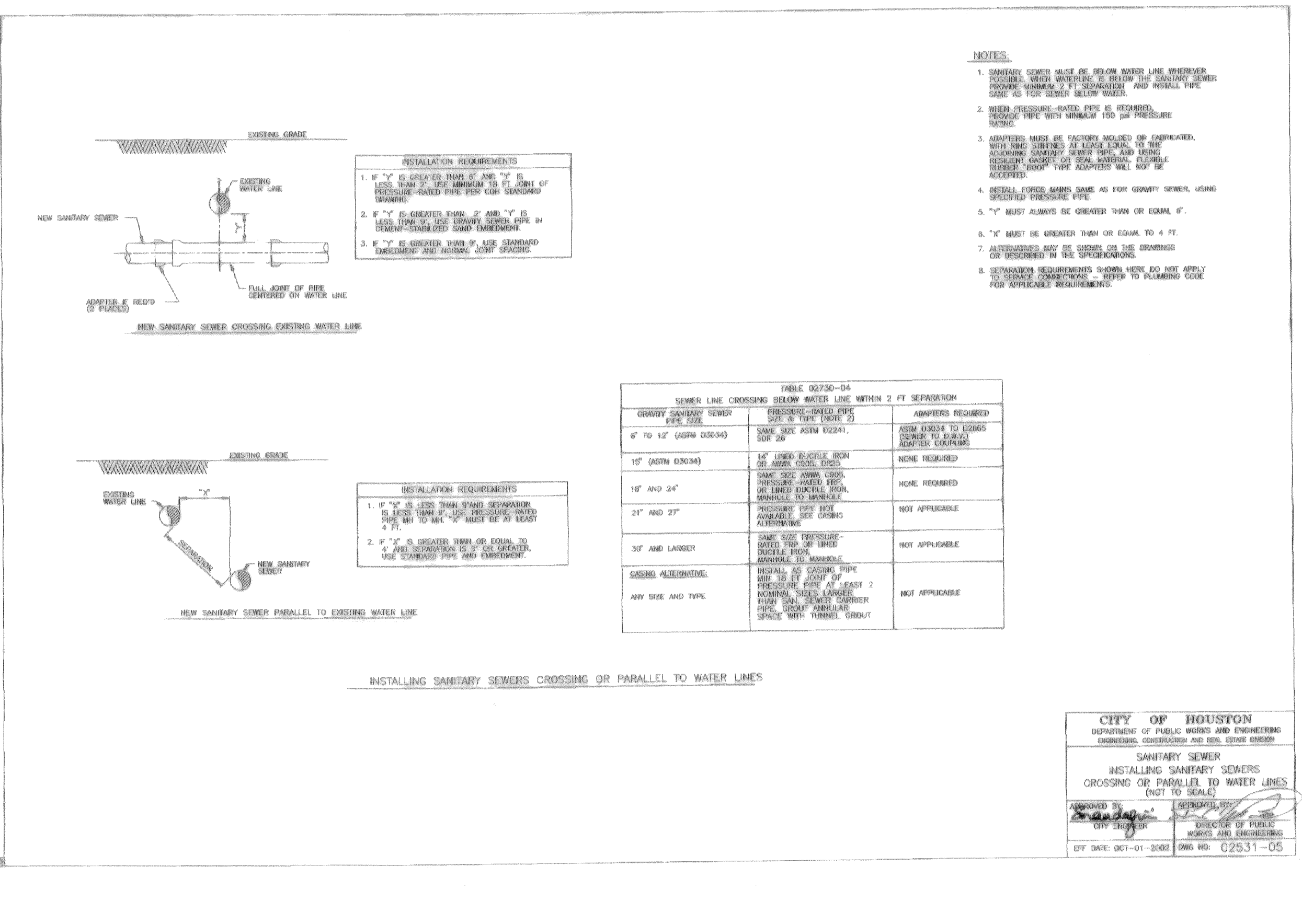
CITY OF HOUSTON
DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWG

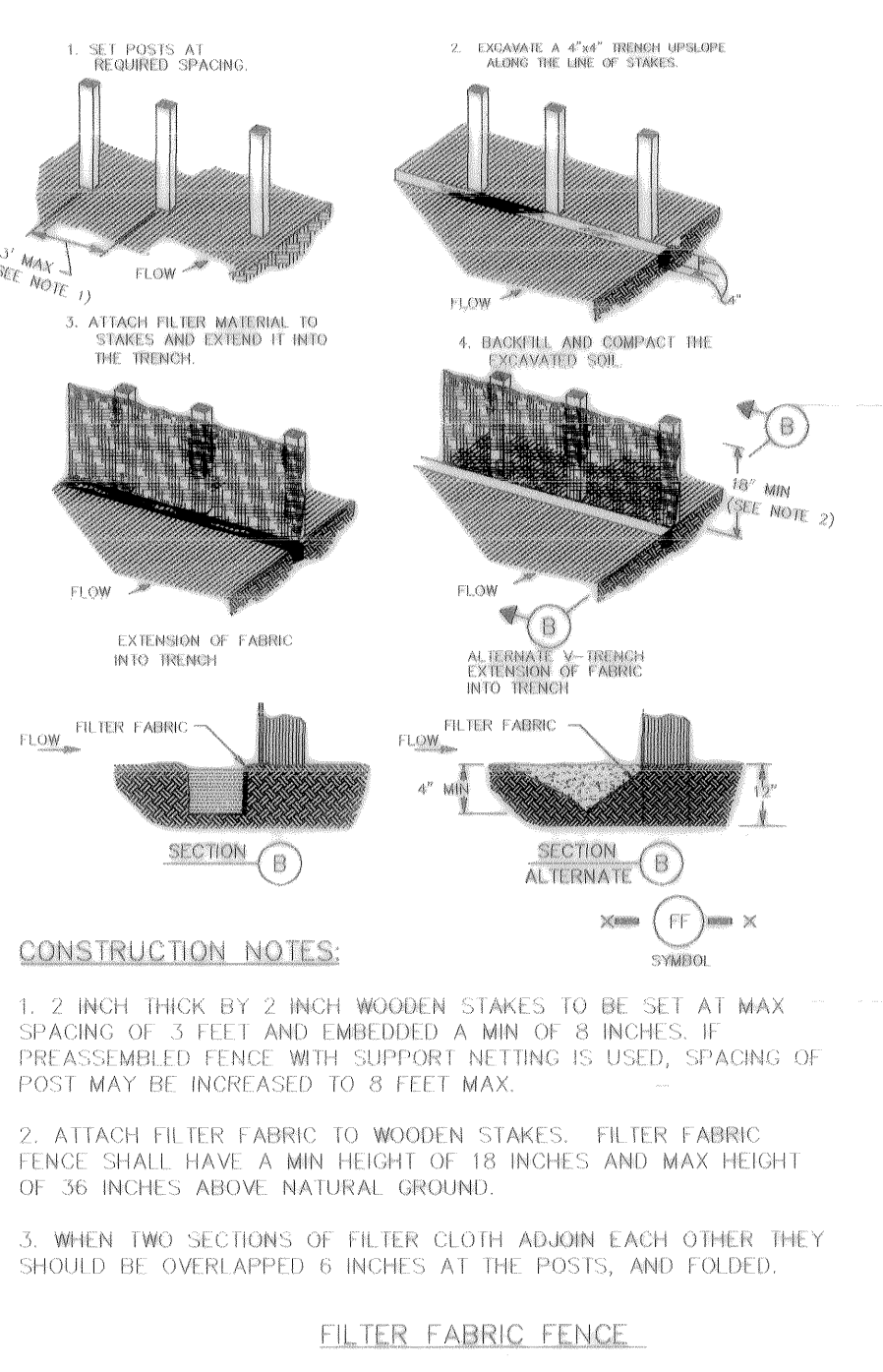
FILE NO.: 225071-0
DRAWING SCALE:
VERT: 1"=2'
HORIZ: 1"=20'
SHEET:
9 OF 10



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)
 DESIGNED BY: [Signature]
 CITY ENGINEER
 APPROVED BY: [Signature]
 CHIEF OF PUBLIC WORKS AND ENGINEERING
 OFF DATE: OCT-01-2002 DWG NO: 02534-03



CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
 ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
SANITARY SEWER
 INSTALLING SANITARY SEWERS
 CROSSING OR PARALLEL TO WATER LINES
 (NOT TO SCALE)
 DESIGNED BY: [Signature]
 CITY ENGINEER
 APPROVED BY: [Signature]
 CHIEF OF PUBLIC WORKS AND ENGINEERING
 OFF DATE: OCT-01-2002 DWG NO: 02531-05

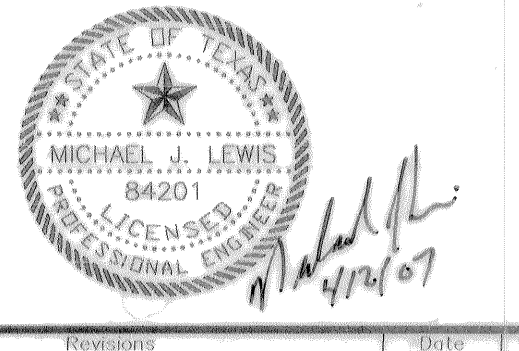


CONSTRUCTION NOTES:
 1. 2 INCH THICK BY 2 INCH WOODEN STAKES TO BE SET AT MAX SPACING OF 3 FEET AND EMBEDDED A MIN OF 8 INCHES. IF PRE-ASSEMBLED FENCE WITH SUPPORT NETTING IS USED, SPACING OF POST MAY BE INCREASED TO 8 FEET MAX.
 2. ATTACH FILTER FABRIC TO WOODEN STAKES. FILTER FABRIC FENCE SHALL HAVE 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.
FILTER FABRIC FENCE

STANDARD PROFILE LEGEND
 CENTER LINE OF R.O.W. _____
 PROPERTY LINE N & E _____
 PROPERTY LINE S & W _____
 DITCH OR CURB N & E _____
 DITCH OR CURB S & W _____
 AT LEAST 48 HOURS BEFORE EXCAVATING IN STREET R.O.W. OR EASEMENTS CALL UTILITY COORDINATING COMMITTEE 1-800-245-4545

PRIVATE UTILITY LINES SHOWN
 CenterPoint Energy/ Gas Facilities
 S.B.C. VALID FOR ONE YEAR
 APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
 CenterPoint Energy/ Electric Facilities
 APPROVED ONLY FOR CROSSING UNDERGROUND DUCTLINES UNLESS NOTED. VALID AT TIME OF REVIEW ONLY.
 CABLE COMPANY _____

NOTE:
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App.	Revisions	Date	No.

AS-BUILTS 3-16-07

MUNICIPAL UTILITY DISTRICT NO. 191
HARGRAVE ROAD
 DETAIL SHEET

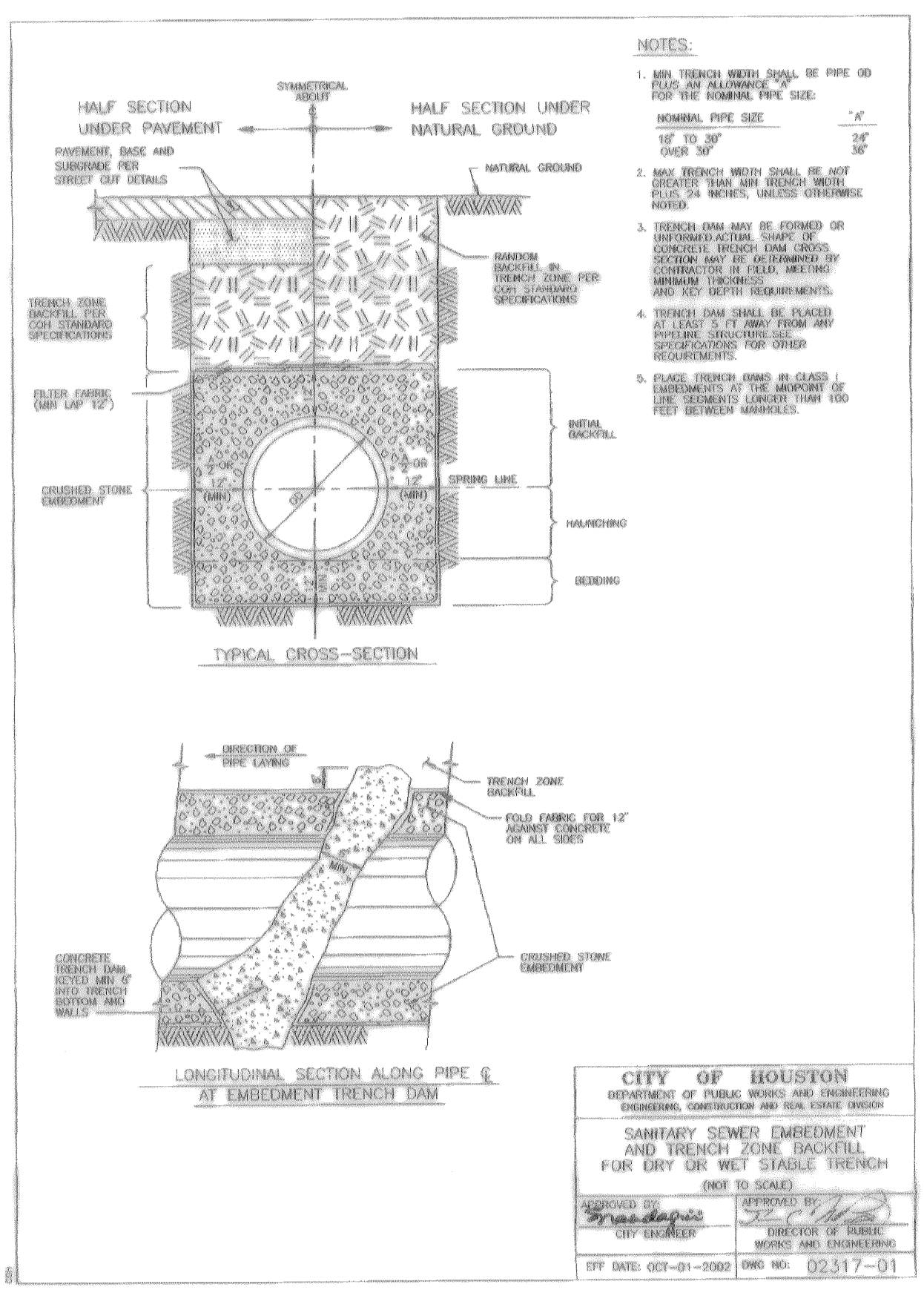
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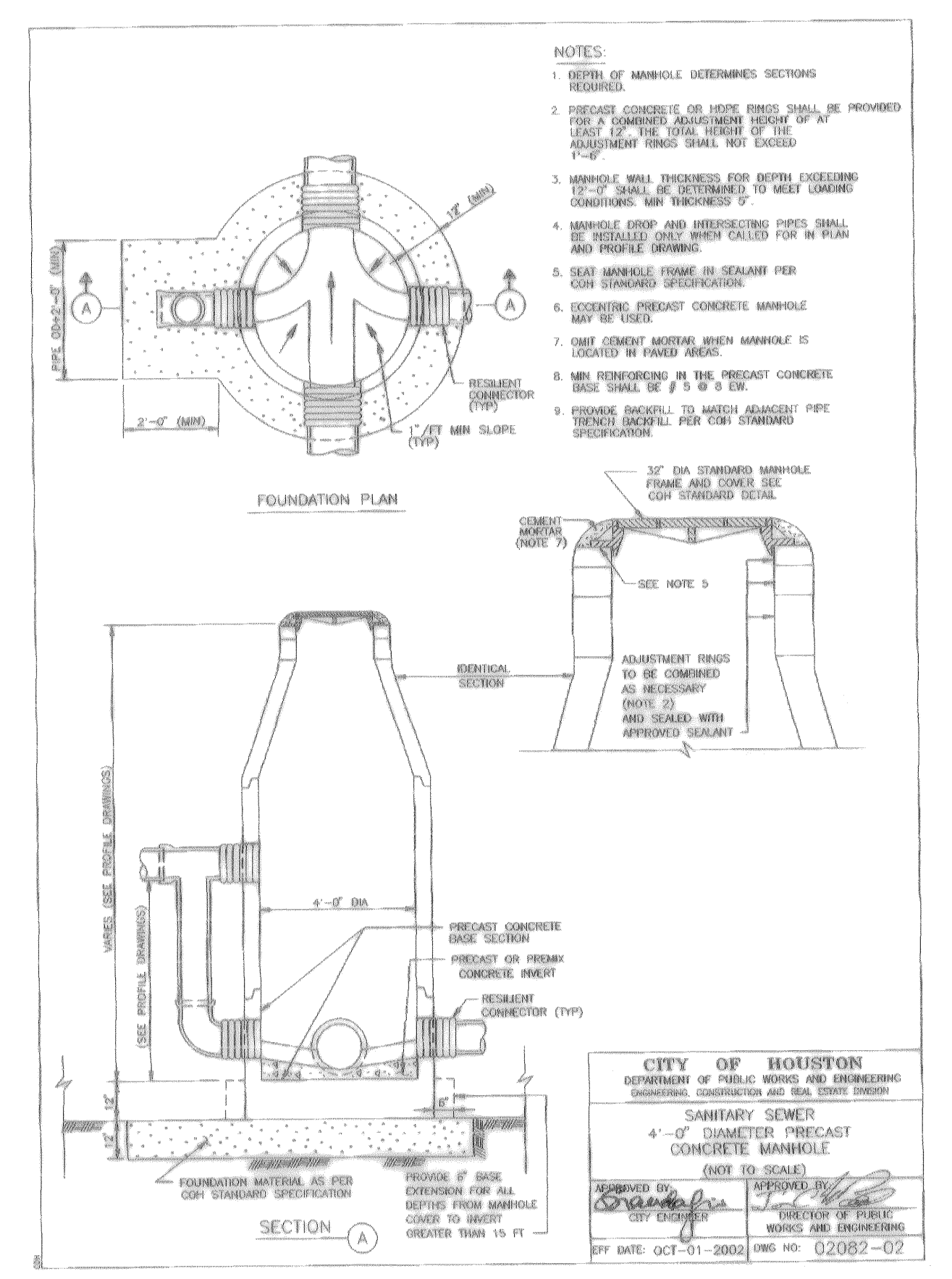
CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING

WATER	WASTEWATER	TRAFFIC
ST. & BRIDGE	STORMWATER	SWD

FILE NO.: 225D12-0
 DRAWING SCALE:
 VERT. 1"=2'
 HORIZ. 1"=20'
 SHEET:
 10 OF 10



CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
 ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
SANITARY SEWER
 EMBEDMENT AND TRENCH ZONE BACKFILL
 FOR DRY OR WET STABLE TRENCH
 (NOT TO SCALE)
 DESIGNED BY: [Signature]
 CITY ENGINEER
 APPROVED BY: [Signature]
 CHIEF OF PUBLIC WORKS AND ENGINEERING
 OFF DATE: OCT-01-2002 DWG NO: 02317-01



CITY OF HOUSTON
 DEPARTMENT OF PUBLIC WORKS AND ENGINEERING
 ENGINEERING, CONSTRUCTION AND REAL ESTATE DIVISION
SANITARY SEWER
 4'-0" DIAMETER PRECAST CONCRETE MANHOLE
 (NOT TO SCALE)
 DESIGNED BY: [Signature]
 CITY ENGINEER
 APPROVED BY: [Signature]
 CHIEF OF PUBLIC WORKS AND ENGINEERING
 OFF DATE: OCT-01-2002 DWG NO: 02082-02