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CONSTRUCTION

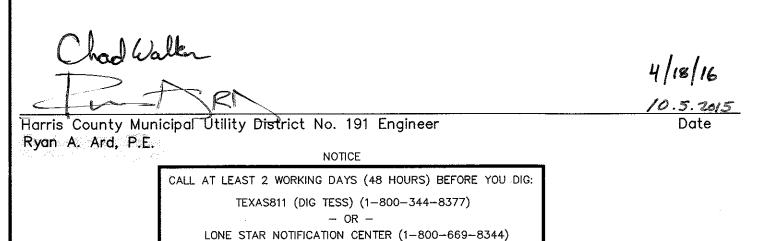
BRABAND HAMMETT PHASE II UTILITY EXTENSIONS AND SANITARY SEWER PIPE REPLACEMENT **FOR**

HARRIS COUNTY MUNICIPAL UTILITY DISTRICT No. 191

HARRIS COUNTY, TEXAS

INDEX OF DRAWINGS

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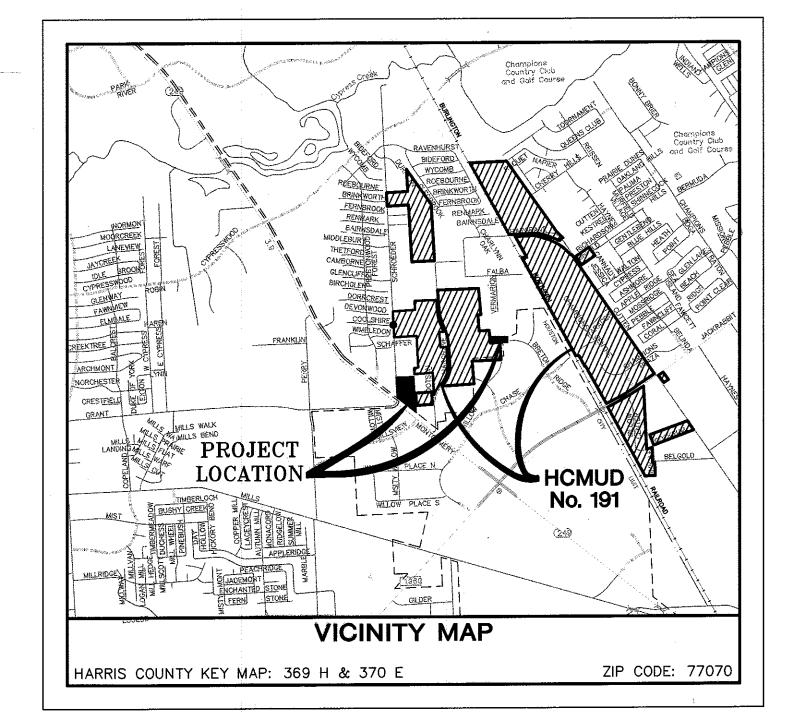


HARRIS COUNTY ROW NOTICE: A NOTIFICATION ISSUED BY HC INFRASTRUCTURE DEPARTMENT-PERMITS OFFICE- IS REQUIRED FOR PROPOSED WORK WITHIN HARRIS COUNTY RIGHT—OF—WAY. THE PROJECT MUST BE APPROVED PRIOR TO OBTAIN THE REQUIRED NOTIFICATION. A NOTIFICATION MUST BE OBTAINED SEPARATELY UTILITIES. CONTRACTOR(S) FROM SITE DEVELOPMENT PERMIT PACKAGE. FOR ADDITIONAL

http://hcpid.org/permits/pr_notification_of_construction.html OR CONTACT PUBLIC REVIEW INSPECTIONS OF DEPARTMENT @ \((713-316-3562) \) (713-956-3033)

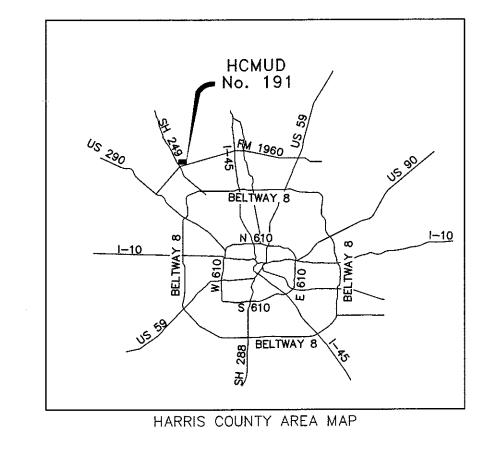
INFORMATION PLEASE VISIT:

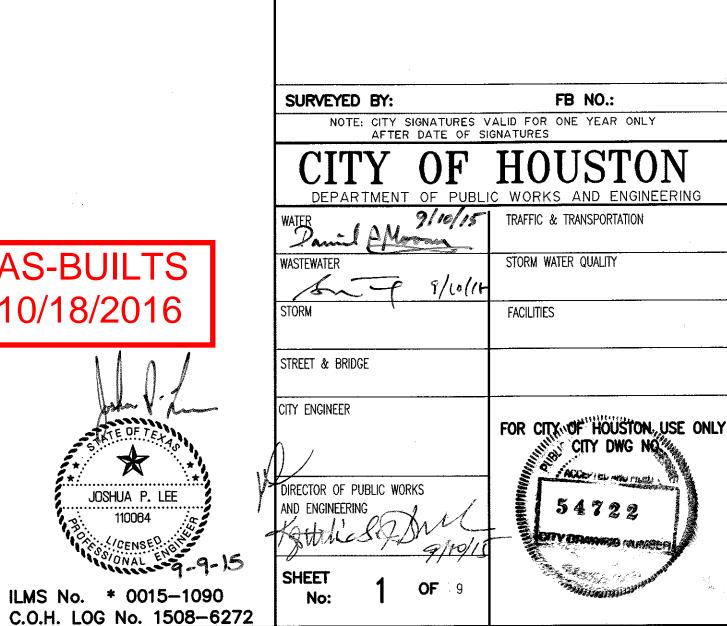
48 HOURS NOTICE: CONTRACTOR SHALL NOTIFY HARRIS COUNTY PRIOR TO COMMENCING CONSTRUCTION AND/OR BACKFILLING ANY TO CONTACT MARC BARBE WITH PUBLIC REVIEW DEPARTMENT @ OR (marc.barbe@hcpid.org)



SEPTEMBER 2015







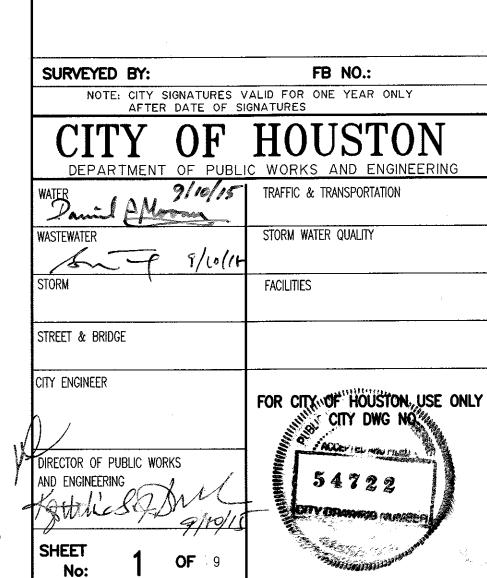
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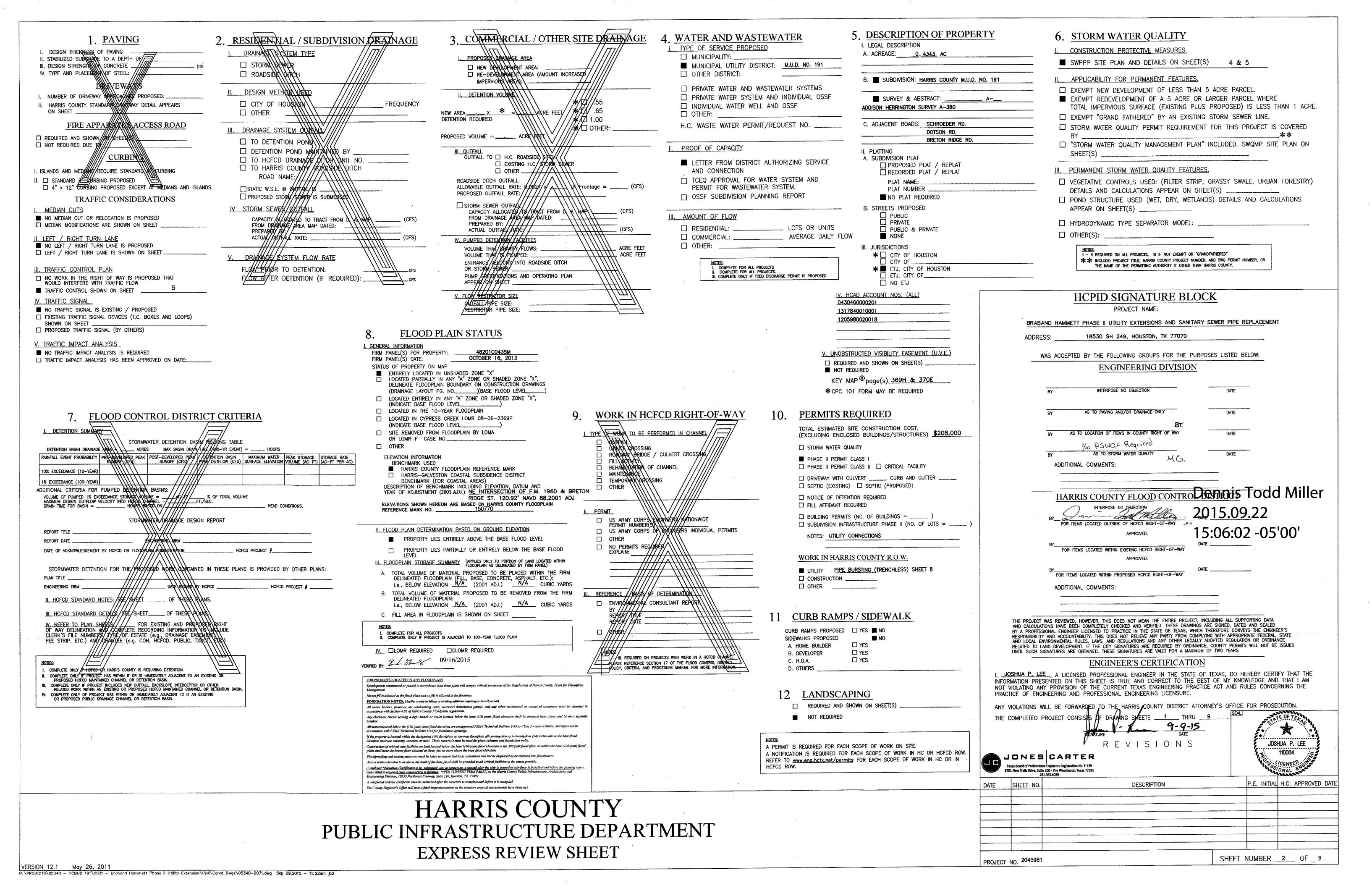
ILMS No. * 0015-1090



P:\PROJECTS\05340 - HCMUD 191\0031 - Braband Hammett Phase II Utility Extension\Civil\Const Dwgs\05340-0031.dwg Sep 09,2015 - 11:22am jb2

Contractor shall notify the City of Houston, Department of Public Works and Engineering

(713-837-7000) 48 hours before starting work on this project.



HARRIS COUNTY GENERAL CONSTRUCTION NOTES

- 1. THE CONTRACTOR(S) SHALL NOTIFY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT ARCHITECTURE AND ENGINEERING DIVISION - PERMIT OFFICE TWENTY-FOUR (24) HOURS IN ADVANCE OF COMMENCING UTILITY AND/OR PAVING CONSTRUCTION AT (713) 316-3561 AND WRITTEN NOTIFICATION FORTY-EIGHT (48) HOURS IN ADVANCE OF COMMENCING CONSTRUCTION AT 10555 NORTHWEST FREEWAY, SUITE 146, HOUSTON, TEXAS 77092
- 2. GUIDELINES SET FORTH IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" SHALL

GENERAL CONSTRUCTION NOTES

- WASTEWATER COLLECTION SYSTEMS, WATER, PAVING, TRAFFIC SIGNALS AND DRAINAGE SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE FOLLOWING CITY DOCUMENTS. THESE DOCUMENTS ARE "STANDARD CONSTRUCTION SPECIFICATIONS (MOST RECENT ISSUE DECEMBER 2014) AND "STANDARD CONSTRUCTION DETAILS FOR WASTEWATER COLLECTION SYSTEMS, WATERLINES, STORM DRAINAGE AND STREET PAVING" (MOST RECENT ISSUE DECEMBER 2014) WITH ALL SUBSEQUENT AMENDMENTS ADDED THERETO UNLESS OTHERWISE NOTED AND APPROVED ON THESE PLANS. THE DESIGN MUST AGREE WITH THE MINIMUM STANDARDS ESTABLISHED IN THE LATEST ISSUE OF THE "INFRASTRUCTURE DESIGN MANUAL" (MOST RECENT ISSUE JANUARY 2011). NOTE THAT PLAN SIGNATURES AND LETTERS OF CAPACITY AVAILABILITY FOR STORM, WASTEWATER AND WATER EXPIRE AFTER ONE YEAR AND THE LATEST EDITIONS OF DESIGN RULES. SPECIFICATIONS. STANDARD DETAILS AND MANUALS SHALL GOVERN AS OF THE DATES FOR RESIGNING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT HE/SHE HAS THE MOST RECENT EDITIONS. THESE DOCUMENTS MAY BE OBTAINED FROM THE CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS, 611 WALKER.
- 2. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGE TO EXISTING PUBLIC OR PRIVATE UTILITY LINES, INCLUDING BUT NOT LIMITED TO PAVING. WATERLINES, WASTEWATER COLLECTION SYSTEMS, STORM SEWER AND TRAFFIC SIGNALS DURING CONSTRUCTION. ALL DAMAGES SHALL BE REPAIRED IN ACCORDANCE WITH CURRENT EDITIONS OF CITY OF HOUSTON STANDARD CONSTRUCTION SPECIFICATIONS, DESIGN DETAILS AND DESIGN MANUALS. REPAIRS SHALL BE AT NO COST TO THE CITY
- 3. ALIGNMENT, CENTERLINE CURVE DATA, AND STATIONING TO BE DETERMINED FROM APPROVED, RECORDED SUBDIVISION PLAT OR ROAD RIGHT-OF-WAY.
- 4. PLACEMENT OF UTILITIES IN EASEMENTS SHALL BE GOVERNED BY THE "STANDARD 10-FOOT AND 14-FOOT EASEMENTS" AS ADOPTED BY THE UTILITY COORDINATING COMMITTEE FOR THE HOUSTON METROPOLITAN AREA.
- 5. THE APPROXIMATE LOCATION OF EXISTING UTILITIES ARE GIVEN FOR REFERENCE ONLY. BEFORE COMMENCING THE WORK ON THIS CONTRACT, THE CONTRACTOR SHALL VERIFY BY FIELD INVESTIGATION THE ACTUAL LOCATIONS OF ALL UTILITY FACILITIES WITHIN AND ADJACENT TO THE LIMITS OF THE WORK THAT MAY BE AFFECTED BY THE WORK. CONFLICTS WHICH RESULT DUE TO NEGLIGENCE BY THE CONTRACTOR TO LOCATE, HORIZONTALLY AND VERTICALLY, EXISTING UTILITIES WHICH ARE SHOWN ON THE CONSTRUCTION DRAWINGS, OR WHICH THE CONTRACTOR HAS BEEN GIVEN NOTICE OR HAS KNOWLEDGE. SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF REMEDIAL WORK, REMOVAL OF PORTIONS OF THE WORK OR EXTENSIVE DESIGN CHANGES OCCASIONED BY THE FAILURE OF THE CONTRACTOR TO VERIFY THE LOCATION OF EXISTING UTILITIES AS DESCRIBED ABOVE SHALL BE BORNE BY THE CONTRACTOR.
- 6. CONTRACTOR IS TO CONTACT THE UTILITY COORDINATING COMMITTEE AT (713)223-4567 OR 1(800)669-8344 FOR LOCATION OF EXISTING FACILITIES THAT MAY NOT BE SHOWN ON THE PLANS AT LEAST 24 HOURS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES.
- 7. CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS, FOR FLOOD PLAIN MANAGEMENT" PRIOR TO STARTING CONSTRUCTION.
- 8. CONTRACTOR TO OBTAIN ALL NOTIFICATIONS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN HARRIS COUNTY AND HARRIS COUNTY FLOOD CONTROL DISTRICT RIGHTS-OF-WAY.
- 9. CONTRACTOR SHALL COMPLY WITH O.S.H.A. REGULATIONS AND TEXAS STATE LAW CONCERNING TRENCH SAFETY SYSTEMS.
- 10. CONTRACTOR TO FOLLOW CONSTRUCTION DETAILS IF DRAWINGS DEVIATE FROM CITY OF HOUSTON STANDARDS.
- 11. THE CONTRACTOR SHALL RETURN ALL EXISTING FACILITIES TO EXISTING OR BETTER CONDITION UNLESS OTHERWISE NOTED AT NO ADDITIONAL COST TO THE OWNER.
- 12. NOTIFICATIONS ISSUED BY HARRIS COUNTY PUBLIC INFRASTRUCTURE DEPARTMENT -ARCHITECTURE AND ENGINEERING DIVISION - PERMIT OFFICE - REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES OR LEFT TURN LANES WITHIN HARRIS COUNTY RIGHTS-OF-WAY. CONTACT HARRIS COUNTY PERMIT OFFICE (713) 956-3033.
- 13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING RED LINE RECORD DRAWINGS (INCLUDING MEASUREMENTS FROM TWO FIXED OBJECTS TO ENDS OF SANITARY SEWER SERVICES) AT THE COMPLETION OF THIS JOB, PRIOR TO FINAL PAYMENT.
- 14. THE CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING AND MAINTAINING SITE DRAINAGE AT ALL TIMES AT NO ADDITIONAL COST TO THE OWNER WHETHER BY GRADING OR PUMPING.

EROSION AND SEDIMENTATION CONTROL NOTES

- PRIOR TO START OF CONSTRUCTION, CONTRACTOR SHALL INSTALL EROSION AND SEDIMENTATION CONTROLS AT LOCATION SHOWN ON PLANS.
- CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL SYSTEMS SPECIFIED HEREIN, AT A MINIMUM OF ONCE EVERY CALENDAR DAY.
- CONTRACTOR SHALL MAINTAIN, REPAIR AND/OR REPLACE DAMAGED EROSION AND SEDIMENTATION CONTROL SYSTEM THROUGHOUT THE DURATION OF THE CONTRACT. (NO SEPARATE PAY).
- CONTRACTOR SHALL PROVIDE PROTECTED STORAGE AREAS FOR CHEMICALS, PAINTS, SOLVENTS, FERTILIZERS, AND OTHER POTENTIALLY TOXIC MATERIALS.
- CONTRACTOR SHALL LOCATE FUEL/MATERIAL STORAGE AREAS AWAY FROM STORM WATER CONVEYANCE SYSTEMS. CONTRACTOR SHALL USE SILT FENCING, HAY BALES, OR BERMS AROUND FUEL STORAGE AREAS. (NO SEPARATE PAY).
- CONTRACTOR SHALL ADVISE OWNER IMMEDIATELY, VERBALLY, AND IN WRITING, OF ANY FUEL OR TOXIC MATERIAL SPILLS ONTO THE PROJECT/CONSTRUCTION AREA AND THE ACTION TAKEN TO REMEDY THE PROBLEM.
- CONTRACTOR IS RESPONSIBLE FOR DISPOSING OF HIS FUELS, MATERIALS, AND CONTAMINATED EXCAVATIONS IN A LEGALLY APPROVED MANNER. (NO SEPARATE PAY).
- 8. CONTRACTOR IS RESPONSÍBLE FOR COMPLYING WITH ALL APPLICABLE ENVIRONMENTAL. LAWS.
- 9. CONTRACTOR IS RESPONSIBLE FOR PROVIDING ADEQUATELY MAINTAINED SANITARY
- 10. AT COMPLETION OF THE CONTRACT, OWNER AND/OR OWNER'S REPRESENTATIVE WITH THE CONTRACTOR SHALL EXAMINE EROSION AND SEDIMENTATION CONTROL SYSTEM BEFORE RELIEVING CONTRACTOR OF HIS MAINTENANCE RESPONSIBILITIES.
- 11. IF EROSION AND SEDIMENTATION CONTROL SYSTEM IS EXISTING FROM PRIOR CONTRACTS, OWNER AND/OR OWNER'S REPRESENTATIVES WITH THE CONTRACTOR SHALL EXAMINE THE EXISTING EROSION AND SEDIMENTATION CONTROL SYSTEM FOR DAMAGE PRIOR TO CONTRACTOR STARTING CONSTRUCTION OF THE CONTRACT. ANY DAMAGE NOTED AT THIS TIME SHALL BE REPAIRED AT OWNER'S EXPENSE.
- 12. CONTRACTOR SHALL BE RESPONSIBLE FOR STREET CLEANING, ON A DAILY BASIS, ALL MUD AND DIRT DEPOSITED ON THE EXISTING PAVEMENT DUE TO HIS CONSTRUCTION ACTIVITY.
- 13. IF PAVING CONTRACTOR REMOVES OR PUNCTURES TIMBER GRATE TO ESTABLISH DRAINAGE, INLET MUST BE BE SURROUNDED BY FILTER FABRIC FENCE AS SHOWN IN DETAIL ON THIS SHEET.

WATERLINE CONSTRUCTION NOTES

- 1. WATERLINES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE LATEST CITY OF HOUSTON RULES AND REGULATIONS, STANDARD SPECIFICATION, AND CONSTRUCTION
- 2. 4" THRU 12" WATERLINES SHALL BE P.V.C. CLASS 150, DR-18, AWWA C-900 AND 1" THRU 3" WATERLINES SHALL BE PVC SCHEDULE 40. 4" THRU 54" D.I.P. WATERLINES SHALL BE AWWA C151 (ANSI A21.51) AND DOUBLE WRAPPED IN 8-MIL POLYETHYLENE. PIPE SHALL BE LINED IN ACCORDANCE WITH AWWA C104 (ANSI A21.4).
- 3. CONCRETE THRUST BLOCKS SHALL BE PROVIDED AS NECESSARY TO PREVENT PIPE MOVEMENT. WHERE PREVENTING MOVEMENT OF 16" OR GREATER PIPE NECESSARY DUE TO THRUST, USE RESTRAINED JOINTS.
- 4. ALL WATERLINES UNDER PROPOSED OR FUTURE PAVING AND TO A POINT ONE (1) FOOT BACK OF ALL PROPOSED OR FUTURE CURBS SHALL BE ENCASED IN BANK SAND TO 12" OVER PIPE AND BACKFILLED WITH CEMENT STABILIZED SAND TO WITHIN ONE (1) FOOT OF SUBGRADE.
- 5. ALL WATERLINE AND SEWER LINE CROSSINGS SHALL BE CONSTRUCTED PER CITY OF HOUSTON AND TCEQ REGULATIONS.
- 6. ALL WATER VALVES SHALL BE SUPPLIED AND INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF AWWA C-500 AND SHALL BE OF THE RESILIENT SEAT TYPE.
- 7. ALL WATERLINES TO BE DISINFECTED IN CONFORMANCE WITH AWWA C-651 AND THE TEXAS STATE DEPARTMENT OF HEALTH. AT LEAST ONE BACTERIOLOGICAL SAMPLE SHALL BE COLLECTED FOR EACH 1,000 LINEAR FEET OF WATERLINE AND SHALL BE REPEATED IF CONTAMINATION PERSISTS.
- 8. ALL BELOW GRADE VALVES SHALL BE GASKETED, HUB-END GATE VALVES WITH A CAST IRON BOX, EXCEPT WHERE FLANGES ARE CALLED OUT ON THE PLANS.
- 9. 4" THRU 12" FITTINGS SHALL BE CEMENT MORTAR LINED COMPACT DUCTILE IRON PRESSURE FITTINGS PER ANSI A21.53, OR PUSH ON FITTINGS PER ANSI A21.10 PRESSURE RATED AT 250 PSIG.
- 10. HYDROSTATIC TESTING: ALL WATER PIPE SHALL BE TESTED FOR LEAKAGE IN ACCORDANCE WITH THE LATEST CITY OF HOUSTON STANDARD CONSTRUCTION SPECIFICATIONS. TESTS ARE TO BE PERFORMED ON THE TOTAL FOOTAGE OF WATER PIPE LINE INCLUDED IN THE PROJECT.
- 11. ALL WATERLINES TO HAVE 5' MINIMUM COVER TO FINISHED GRADE AND MINIMUM 12" CLEAR TO OTHER UTILITIES AT CROSSING UNLESS OTHERWISE NOTED ON PLANS. ALL WATERLINE INSTALLED OVER 8' DEEP SHALL UTILIZE RESTRAINED JOINT FITTINGS.
- 12. CONTRACTOR SHALL KEEP WATER PIPE CLEAN AND CAP (OR OTHERWISE EFFECTIVELY COVER) OPEN PIPE ENDS TO EXCLUDE INSECTS, ANIMALS OR OTHER SOURCES OF CONTAMINATION FROM UNFINISHED PIPE LINES AT TIMES WHEN CONSTRUCTION IS NOT
- 13. CONTRACTOR TO USE C-900, DR14, PVC OR APPROVED EQUAL FOR ALL TRENCHLESS CONSTRUCTION FOR WATERLINES AND ALL WATERLINES DEEPER THAN 8 FEET.

UTILITY NOTES

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 AND 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 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 713-207-2222.

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

CAUTION: UNDERGROUND ELECTRICAL FACILITIES

UNDERGROUND ELECTRICAL FACILITIES EXIST IN THE AREA OF THIS PROJECT. DO NOT BEGIN CONSTRUCTION UNTIL THESE FACILITIES HAVE BEEN LOCATED AND STAKED. TO HAVE THESE UNDERGROUND FACILITIES STAKED, CALL THE UTILITY COORDINATING COMMITTEE AT (713) 223-4567, OR TOLL FREE AT 1-800-669-8344, AT LEAST 48 HOURS PRIOR TO ANY CONSTRUCTION.

Mmmon CenterPoint Energy/Electric Facilities VALID AT TIME OF REVIEW ONLY SIGNATURE VALID FOR 6 MONTHS

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 OR 811 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) 945-8036 (7:00 AM TO 4:30 PM) FOR STATUS OF LINE LOCATION REQUEST BEFORE EXCAVATION BEGINS.

-WHEN EXCAVATING WITHIN EIGHTEEN INCHES (18") OF THE INDICATED LOCATION OF 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.

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

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

1mma CenterPoint Energy/Gas Facilities (Gas service lines are not shown) VALID AT TIME OF REVIEW ONLY SIGNATURE VALLO FOR 6 MONTHS

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 UTILITIES.

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

3. WHEN EXCAVATING 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 CONTRACTOR 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 ABSENCE 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. FOLLOW THE DIRECT CABLE PROCEDURES TO LOCATE THE AT&T TEXAS/SWBT DIRECT BURIED CABLES AS INDICATED IN THE AT&T TEXAS RESEARCH AND SIGNATURE PROCESS FOR AT&T TEXAS/SWBT FACILITIES.

6. PLEASE CONTACT THE AT&T TEXAS DAMAGE PREVENTION MANGER, 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.

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

PROTECTION REQUIREMENTS AT WATERLINE - SANITARY SEWER CROSSINGS

| | | PROPOSED | WATERLINE | | PROPOSED SANITARY SEWER | | | |
|---|------------------|----------------|----------------|----------------|-------------------------|-----------------------|-------------|----------------|
| | OVER | | UNDER | | OVER | | UNDER | |
| | EXISTING SS | PROP SS | EXISTING SS | PROP SS | EXISTING WL | PROP WL | EXISTING WL | PROP WL |
| Minimum 2 feet vertical clearance | √1 | √1 | ✓ | V | | ✓ | √1 | √1 |
| Place 1 full section (min 18 ft) of WL centered at SS crossing. Provide restrained joints on WL, spaced at least 9 ft. horizontally from centerline of SS | ~ | * | > | > | | * | ., | ✓ |
| Place 1 full section (min 18 ft) of SS centered at WL crossing. Provide restrained joints on SS, spaced at least 9 ft. horizontally from centerline of WL | | \ | | | VED | | ~ | ✓ |
| Replace 1 full section of existing SS with pressure—rated DIP or pressure rated PVC pipe with adapters and restrained joints centered at WL crossing | √2,3 | | √3 | | ALLOWED | A | | |
| Provide DIP for small diameter WL (less than 24 inches), PVC pipe is only allowed if encased per TAC § 290.44, and use restrained joints for both DIP and PVC pipe | | | ~ | \ | NOT / | * | | |
| Embed SS with CSS for the total length of 1 pipe segment plus 1 foot beyond the joints on each end | √ ^{2,3} | √ ⁴ | √ ³ | √ ⁴ | | √ ⁴ | √4 | √ ⁴ |
| Place 1 full section (min 18 ft) of min 150 psi SS centered at WL crossing. Provide restrained joints on SS, spaced at least 9 ft horizontally from centerline of WL or encase in a joint of 150 psi pressure pipe (min 18 ft) two nominal sizes larger with spacers at 5 ft interval. | | | | ~ | | ~ | | |

. Minimum clearance is 2 feet for non-pressure rated SS and 6 inches for pressure rated SS.

2. Required if existing SS is disturbed and/or there is evidence of leakage. 3. Not required for augered WL unless there is evidence of leakage; completely fill augered hole with bentonite/clay mixture. 4. Not required for augered SS; completely fill augered hole with bentonite/clay mixture.

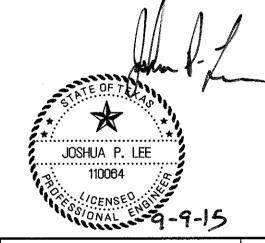
a. Both WATERLINEs and wastewater main or lateral must pass a pressure and leakage test as specified in AWWA C600 standards. b. Sanitary sewers (SS) is applicable to both gravity sanitary sewers and forcemains.

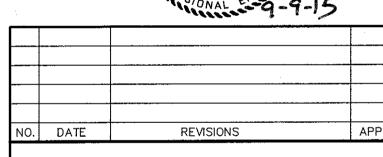
HC MUD NO. 191 GENERAL CONSTRUCTION NOTES

- 1. CONTRACTOR SHALL CONTACT HC MUD NO. 191 DISTRICT ENGINEER, CHAD WALKER AT (281) 363-4039, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION.
- 2. CONTRACTOR SHALL CONTACT HC MUD NO. 191 DISTRICT OPERATOR, HOWARD WILHITE OF WATER DISTRICT MANAGEMENT, AT 281-330-6761, A MINIMUM OF 48 HOURS PRIOR TO COMMENCING CONSTRUCTION TO SET UP AN INSPECTION TO VERIFY DISTRICT'S FACILITIES.
- 3. CONTRACTOR SHALL CONTACT THE DISTRICT OPERATOR TO OPERATE ALL VALVES. AT NO TIME IS THE CONTRACTOR OR CONTRACTOR'S REPRESENTATIVE TO OPERATE ANY PART OF THE HC MUD NO. 191 WATER SYSTEM.

SANITARY SEWER CONSTRUCTION NOTES

- ALL PROPOSED 8-INCH TO 12-INCH GRAVITY SANITARY SEWER LINES WILL BE DUCTILE IRON OR SDR 26 PVC PIPE ASTM D-3034, UNLESS OTHERWISE NOTED ON PLANS. 15 INCH GRAVITY LINES WILL BE SDR-35PVC, ASTMD-3034, AND 18-INCH TO 27 INCH GRAVITY LINES WILL BE SDR-35 PVC, ASTM F-679, UNLESS OTHERWISE NOTED ON PLANS. NON-PRESSURE PVC MAY NOT BE SUBSTITUTED FOR DIP OR C-900 PVC, (DR 18 ONLY).
- ALL TYPES OF SANITARY SEWER PIPE SHALL BE CEMENT SAND BEDDED AND BACKFILLED AS
- NOTED ON CITY OF HOUSTON DWG. 02317-03 FOR DRY STABLE TRENCH (NO SEPARATE PAY). MAINTAIN 12-INCH MINIMUM CLEARANCE BETWEEN ALL SANITARY SEWERS, STORM SEWERS AND CULVERTS UNLESS OTHERWISE NOTED.
- SEWER TRENCHES UNDER OR WITHIN ONE (1) FOOT OF PROPOSED OR FUTURE PAVEMENT TO BE BACKFILLED WITH CEMENT-SAND BACKFILL AS SPECIFIED, TO WITHIN ONE (1) FOOT OF SUBGRADE. INCLUDE COST OF BACKFILL IN UNIT PRICE BID PER LINEAR FOOT OF PIPE.
- ALL SEWER LINES SHALL BE AIR-TESTED IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS WHICH MUST MEET OR EXCEED CITY OF HOUSTON SPECIFICATIONS.
- FOR ALL PVC PIPE, USE MANHOLE WATERSTOP GASKET AND CLAMP ASSEMBLY AT MANHOLE CONNECTIONS (NO SEPARATE PAY).
- SANITARY SEWER MANHOLES SHALL BE STANDARD PRECAST CITY OF HOUSTON, UNLESS OTHERWISE NOTED. ALL SANITARY MANHOLES WITHIN THE 100-YEAR FLOOD HAVE THE TOP SET AT LEAST TWELVE (12) INCHES ABOVE THE BASE FLOOD ELEVATION OR BE SEALED AND VENTED.
- ALL MANHOLES SHALL BE SET SO THAT THE TOP OF THE CONE IS NO HIGHER THAN THE ADJACENT TOP OF CURB ELEVATION, UNLESS DIRECTED OTHERWISE BY THE ENGINEER. THE FINISH RIM ELEVATION SHALL BE MET WITH PRE-CAST RINGS.
- ALL FAR SIDE LEADS SHALL BE SIX (6) INCHES OR EIGHT (8) INCHES AT 0.70% MINIMUM SLOPE AND SHALL BE PVC, DR 26, 160 PSI PRESSURE PIPE CONFORMING TO ASTM D-2241. STUBS AND FAR-SIDE LEADS WILL BE AWWA C-900, DR 18, WHERE THERE IS LESS THAN THREE (3) FOOT COVER TO TOP OF CURBS.
- LEADS SERVING TWO LOTS SHALL HAVE A SERVICE "WYE" WITH PLUGS (NO SEPARATE PAY). "WYE" SHALL BE LOCATED WITHIN THE STREET RIGHT-OF-WAY OR ADJOINING UTILITY
- 11. ALL DUCTILE IRON PIPE SHALL BE 150 PSI WITH EIGHT (8) MIL, BLACK VIRGIN POLYETHYLENE WRAP AS SPECIFIED IN ANSI/AWWA C105/A21.5.
- ALL D.I.P. SHALL BE LINED WITH VIRGIN POLYETHYLENE CONFORMING TO ASTM D-1248; 40 MIL THICKNESS (NOMINAL), 35 MILS (MINIMUM). LINER TO BE POLYCIZE, POLYBOND, OR EQUAL. AT ANY POINT WHERE D.I.P. CAN NOT BE WRAPPED IN POLYETHYLENE TUBING, COAT THE EXTERIOR WITH POLYBOND OR APPROVED EQUAL.
- MANHOLE RIMS ARE TO BE SET AT THE ELEVATIONS SHOWN ON THE PLANS INITIALLY. AFTER PAVING AND GRADING IS COMPLETED, RIMS ARE TO BE ADJUSTED TO THREE (3) TO SIX (6) INCHES ABOVE FINAL GRADE AND BACK-DRESSED WITH DIRT TO PROVIDE DRAINAGE AWAY FROM THE MANHOLE.
- 14. ALL PVC PIPE (ALL TYPES AND SDR/DR WALL THICKNESS TO BE USED) SHALL HAVE RUBBER GASKET EQUIPPED BELL AND SPIGOT JOINTS CONFORMING TO ASTM D-3212. THE GASKET MATERIAL SHALL CONFORM TO ASTM F-477. SOLVENT WELDED JOINTS WILL NOT BE APPROVED FOR THIS PROJECT.
- 15. IF WET SAND IS ENCOUNTERED IN THE FIELD, USE SPECIAL BEDDING PER CITY OF HOUSTON DWG 02317-01, 02317-02 AND AS DIRECTED BY THE ENGINEER.
- 16. WATER AND SANITARY SEWER SEPARATION DISTANCES SHALL BE IN ACCORDANCE WITH THE PROTECTION REQUIREMENTS TABLE SHOWN ON THIS SHEET, AND THE REQUIREMENTS LISTED IN 30 TAC 290.44, WHICHEVER IS MORE STRINGENT







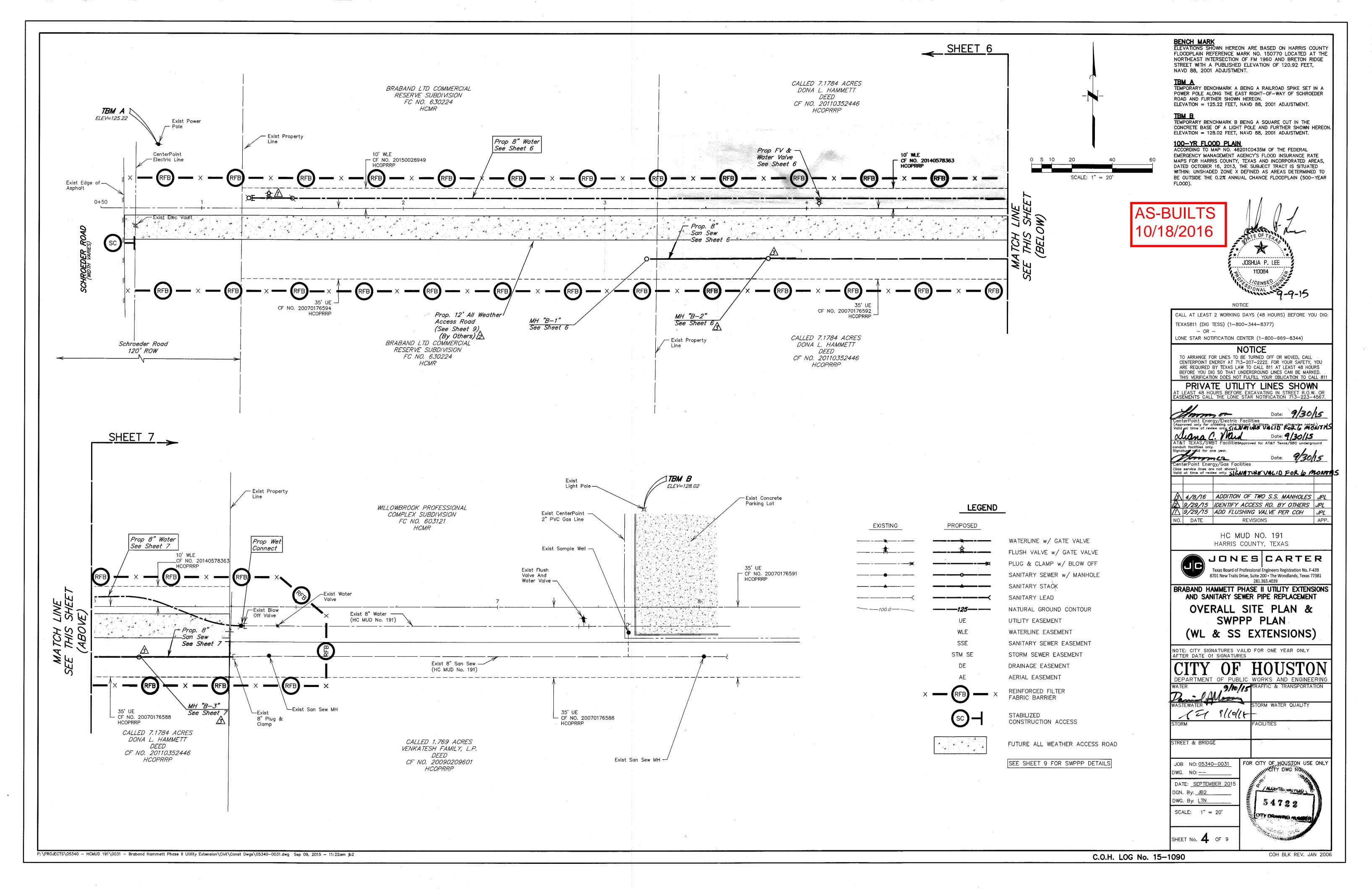
8701 New Trails Drive, Suite 200 • The Woodlands, Texas 77381 281.363.4039 BRABAND HAMMETT PHASE II UTILITY EXTENSIONS AND SANITARY SEWER PIPE REPLACEMENT

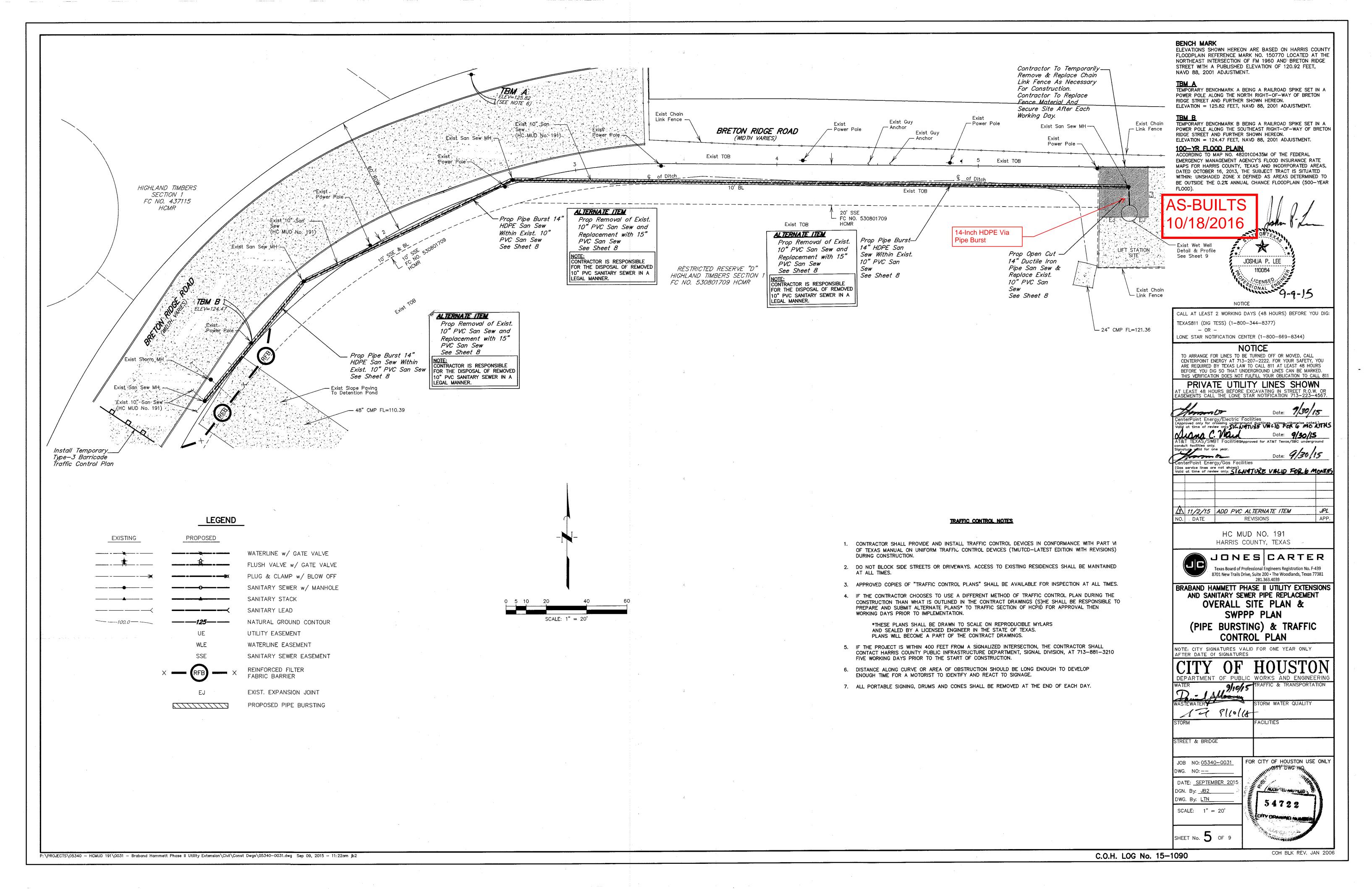
GENERAL NOTES

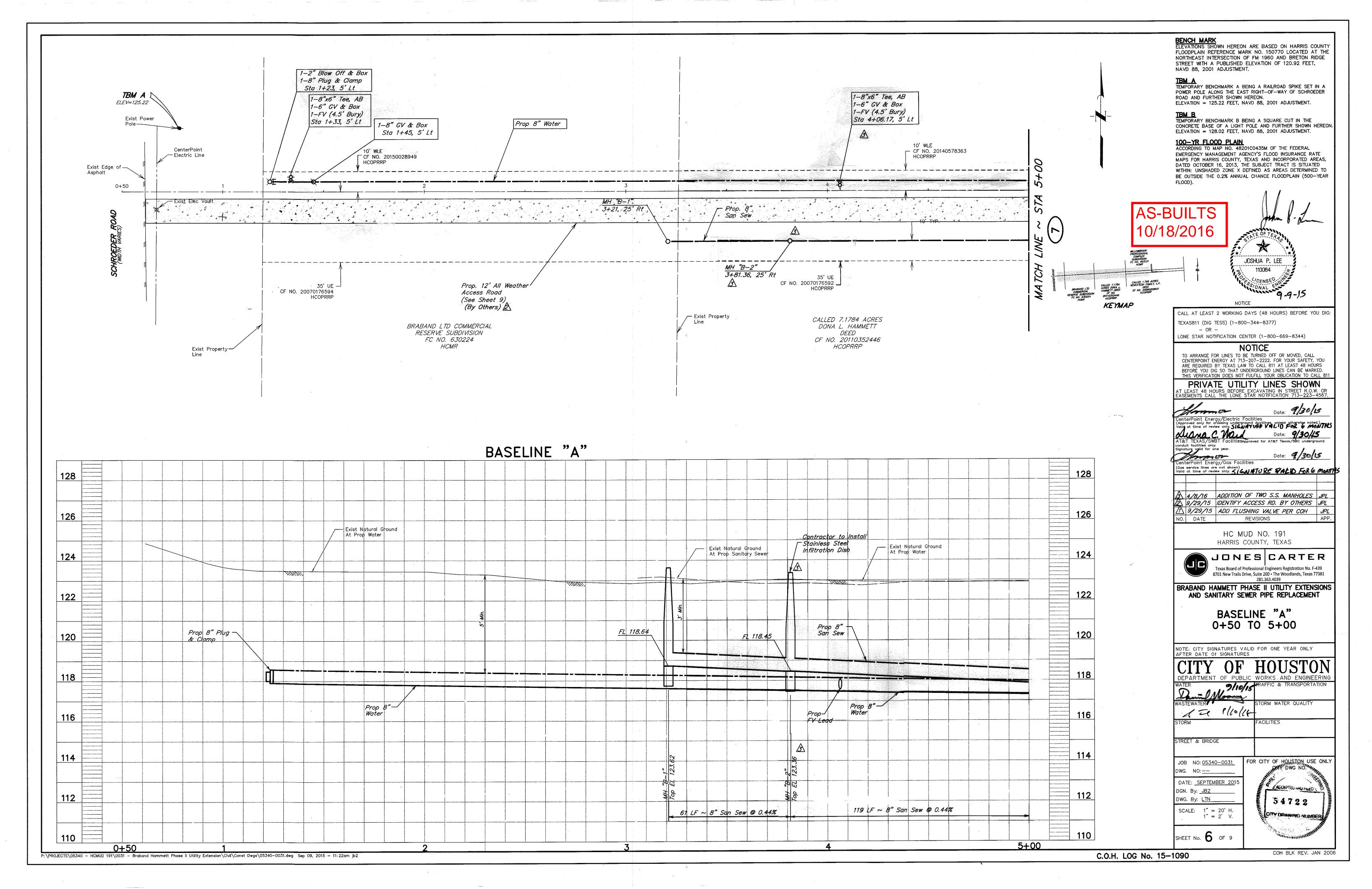
NOTE: CITY SIGNATURES VALID FOR ONE YEAR ONLY

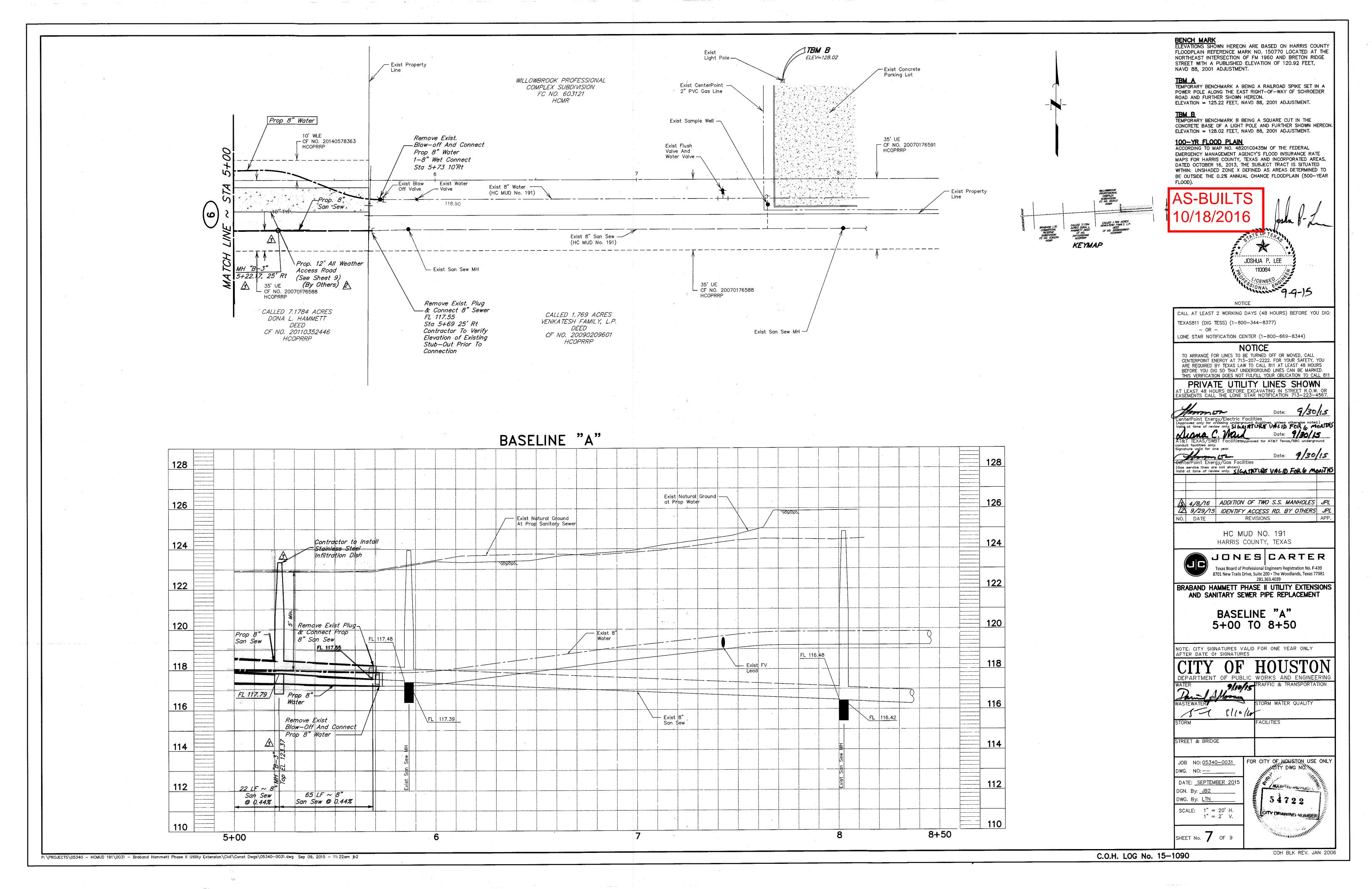
| AFTER DATE OF SIGNATOR | (E2) |
|---|-----------------------------------|
| CITY OF PUB | HOUSTON LIC WORKS AND ENGINEERING |
| WATER Stop | TRAFFIC & TRANSPORTATION |
| WASTEWATER 9/10/ | STORM WATER QUALITY |
| STORM | FACILITIES |
| STREET & BRIDGE | |
| JOB NO: <u>05340-0031</u> DWG. NO: <u></u> | FOR CITY OF HOUSTON USE ONLY |
| DATE: <u>SEPTEMBER 20</u> 15 DGN. By: <u>JB2</u> | AUGEPTEL AND TONG |
| DWG. By: <u>LTN</u> | 54722 |

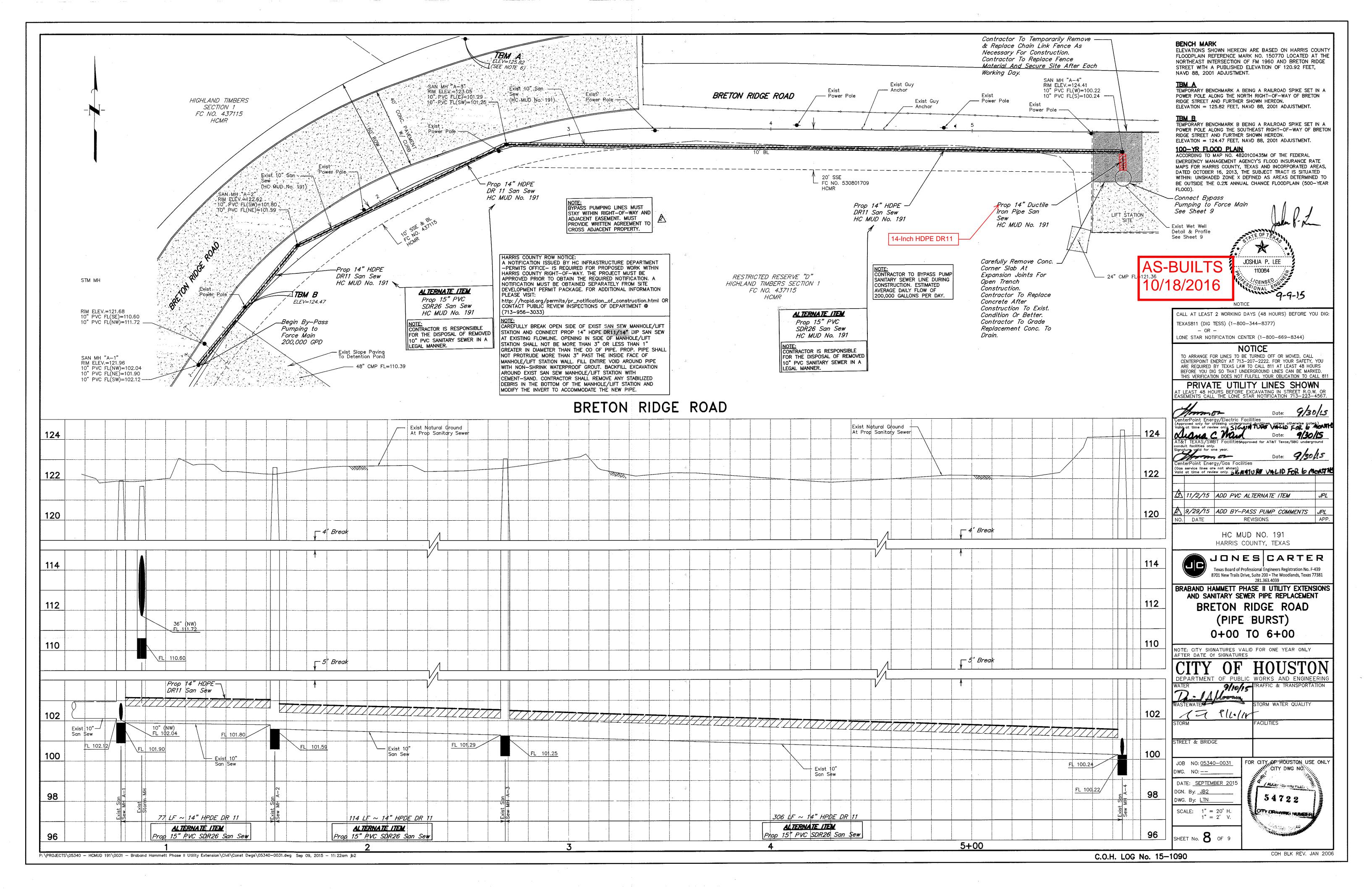
SCALE: N.T.S. SHEET No. 3 OF 9

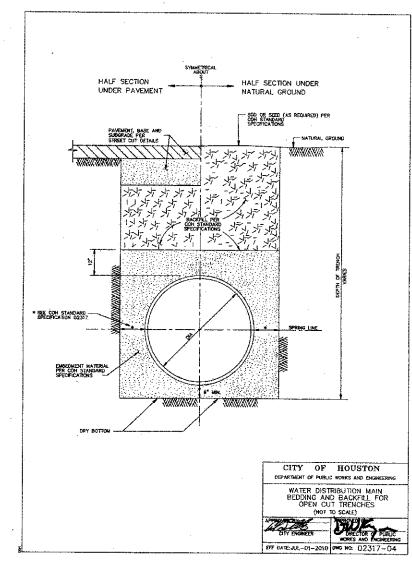


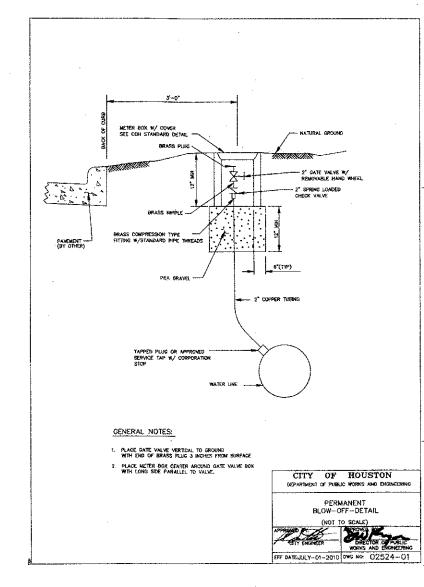


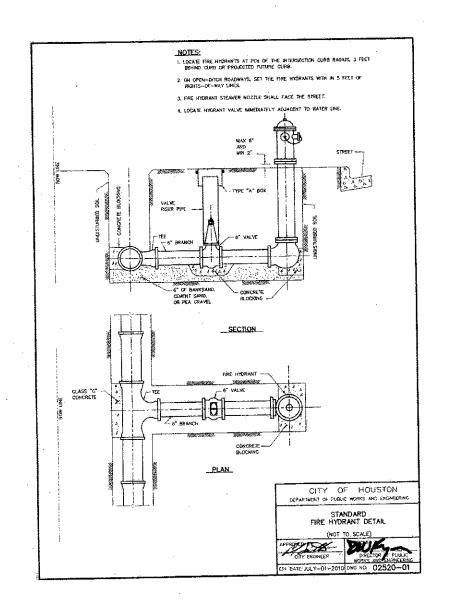


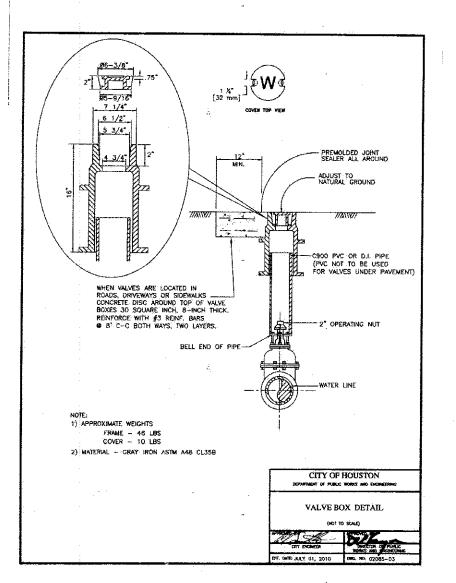


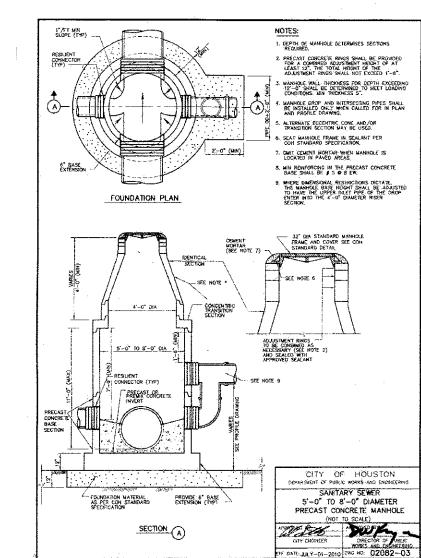


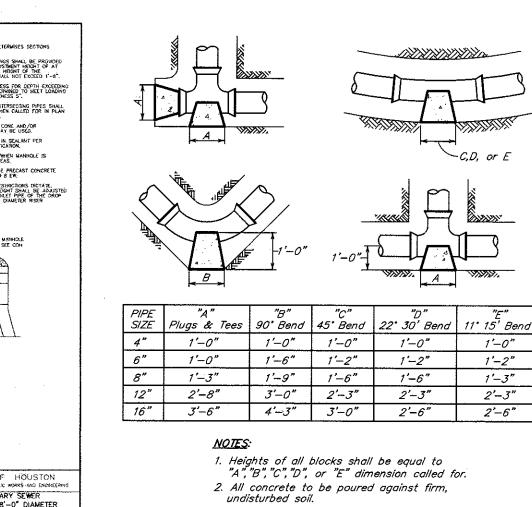






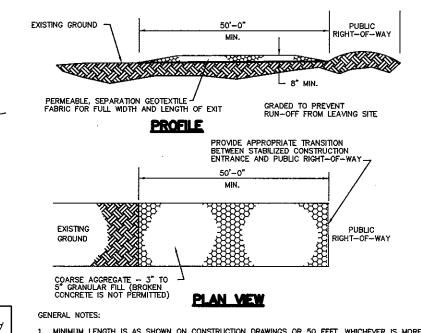






2**'-**-3"

THRUST BLOCK DETAILS



- MINIMUM LENGTH IS AS SHOWN ON CONSTRUCTION DRAWINGS OR 50 FEET, WHICHEVER IS MORE. CONSTRUCT AND MAINTAIN CONSTRUCTION EXIT WITH CONSTANT WIDTH ACROSS ITS LENGTH, INCLUDING ALL POINTS OF INGRESS OR EGRESS.

- 6. PERIODICALLY TURN AGGREGATE TO EXPOSE A CLEAN DRIVING SURFACE.
- 7. ALTERNATIVE METHODS OF CONSTRUCTION INCLUDE

 -CEMENT STABILIZED SOIL: COMPACTED CEMENT STABILIZED SOIL, LIMESTONE AGGREGATE, OR OTHER
 FILL MATERIAL IN AN APPLICATION OF THICKNESS OF 8 INCHES.

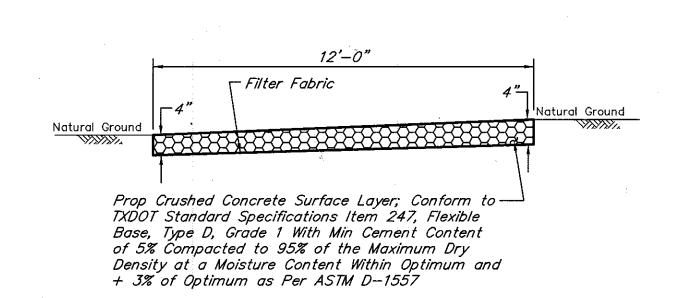
 -WOOD MATS: DAK OR OTHER HARDWOOD TIMBERS PLACED EDGE TO EDGE AND ACROSS SUPPORT
 WOODEN BEAMS WHICH ARE PLACED ON TOP OF EXISTING SOIL IN AN APPLICATION THICKNESS OF 6
 INCHES.

 -STEEL MATS: PERFORATED MATS PLACED ACROSS PERPENDICULAR SUPPORT MEMBERS.
- STABILIZED CONSTRUCTION ACCESS

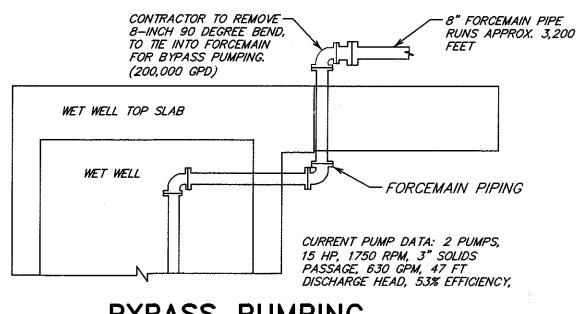
10/18/2016

NO. DATE





ALL-WEATHER ACCESS DRIVE DETAIL



BYPASS PUMPING

HC MUD NO. 191 HARRIS COUNTY, TEXAS



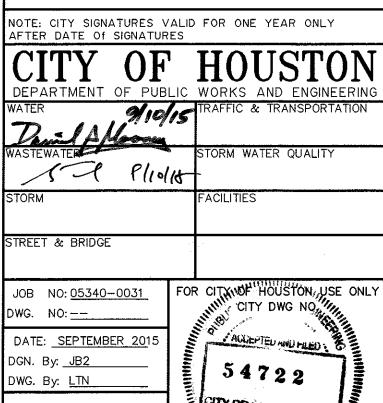
REVISIONS

JOSHUA P. LEE

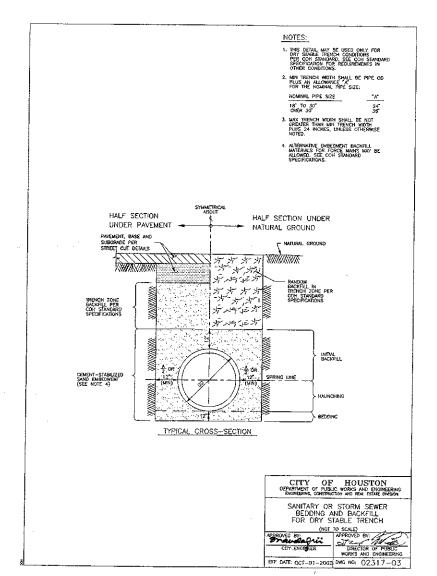
APP.

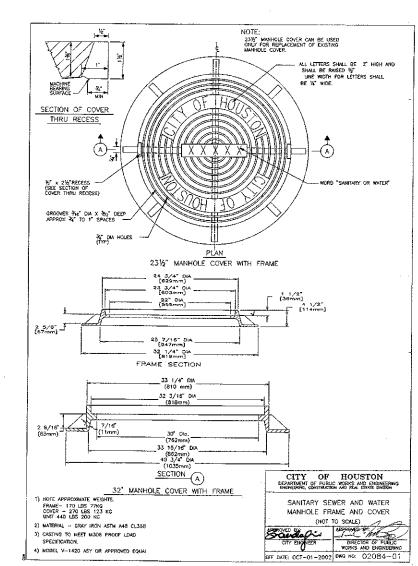
BRABAND HAMMETT PHASE II UTILITY EXTENSIONS AND SANITARY SEWER PIPE REPLACEMENT

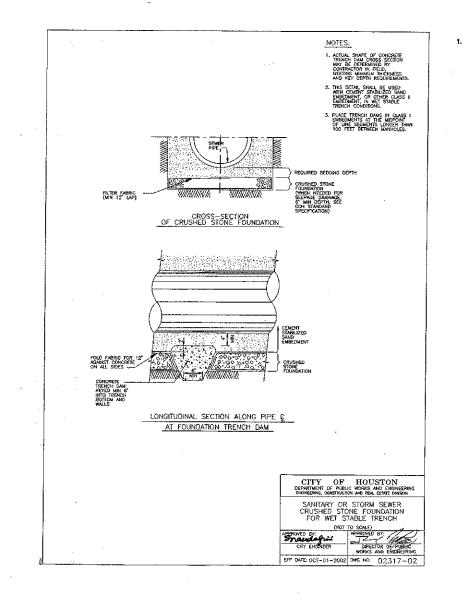
MISCELLANEOUS DETAILS

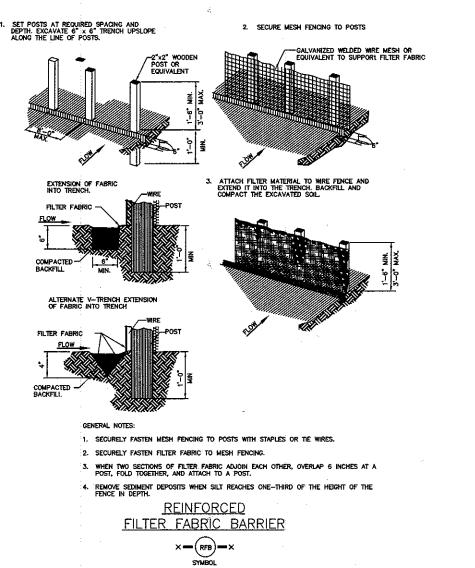


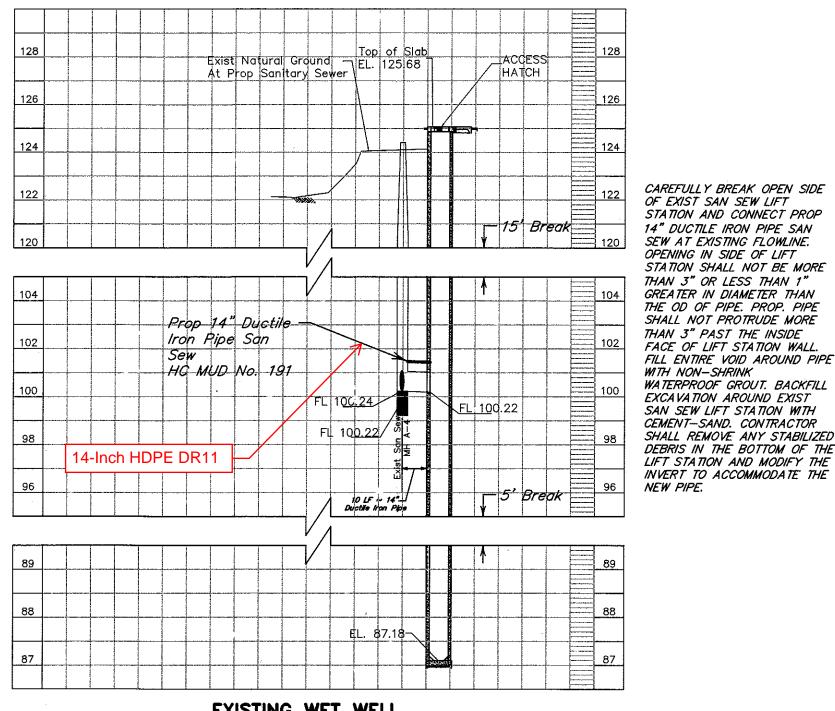
SAN SEW LIFT STATION WITH CEMENT-SAND. CONTRACTOR SHALL REMOVE ANY STABILIZED DEBRIS IN THE BOTTOM OF THE LIFT STATION AND MODIFY THE FL 100.22/ INVERT TO ACCOMMODATE THE NEW PIPE. SCALE: N.T.S. SHEET No. 9 OF 9











EXISTING WET WELL

P:\PROJECTS\05340 - HCMUD 191\0031 - Braband Hammett Phase II Utility Extension\Civil\Const Dwgs\05340-0031.dwg Sep 09, 2015 - 11:22am jb2

C.O.H. LOG No. 15-1090

COH BLK REV. JAN 2006