

**SANITARY SEWER NOTES:**

- DESIGN AND CONSTRUCTION OF SANITARY SEWER SUBJECT TO DESIGN MANUAL, STANDARD SPECIFICATIONS, AND STANDARD DETAILS PUBLISHED SEPTEMBER 30, 1997. CONTRACTOR SHALL OBTAIN COPY OF SAME & USE IT. OBTAIN FROM MAIN ST. FILE ROOM.
- ALL SANITARY SEWERS SHALL BE INSTALLED BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS 02601-02C, 02227-01C, AND 02227-08B AS APPLICABLE.

**GENERAL NOTES - STORM SEWERS**

- STORM SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF HOUSTON DESIGN MANUAL AND STANDARD CONSTRUCTION DETAILS (SEPTEMBER 30, 1997) AS CURRENTLY AMENDED.
- REINFORCED CONCRETE PIPE (C-76 CLASS III) STORM SEWER SHALL BE INSTALLED BEDDED AND BACKFILLED IN ACCORDANCE WITH CITY OF HOUSTON DRAWINGS 02317-04, 02317-05 AND 02317-09 AS APPLICABLE.
- ALL SEWERS CONSTRUCTED INSIDE LOT EASEMENTS SHALL BE R.C.P. TWENTY (20) FOOT WIDE EASEMENTS SHALL BE PROVIDED.
- ALTERNATIVE TO CEMENT-STABILIZED SAND BACKFILL FOR PIPES 54-INCH AND LARGER, FROM 1-FOOT ABOVE THE TOP OF THE PIPE TO THE BOTTOM OF THE SUBGRADE. CONTRACTOR MAY BACKFILL WITH SUITABLE MATERIAL, PROVIDED THE BACKFILL MATERIAL IS PLACED IN 8-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 THE TOP OF THE PIPE SHALL BE CEMENT-STABILIZED SAND.
- ALL PROPOSED PIPE STUB-OUTS FROM MANHOLES OR INLETS ARE TO BE PLUGGED WITH 8" BRICK WALLS UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION, (755-8210), AND WRITTEN NOTIFICATION 48 HOURS IN ADVANCE.
- CONTRACTOR TO OBTAIN ALL CONSTRUCTION PERMITS REQUIRED BY THE "REGULATIONS OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT."
- ALL STORM SEWER MANHOLE RIMS LOCATED OUTSIDE THE PROPOSED PAVING SHALL BE SET TO PROPOSED FINISH GRADE ELEVATION.
- BEFORE UTILITY CONSTRUCTION BEGINS, ADEQUATE DRAINAGE MUST BE PROVIDED SO THAT NO SHEET FLOW FLOODING OF ROADWAY OR ADJOINING PROPERTIES OCCURS.
- THE CONTRACTOR MAY USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
- ADEQUATE DRAINAGE SHALL BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION AND ANY DRAINAGE DITCH OR STRUCTURE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE OWNING AUTHORITY. ALL CONSTRUCTION STORM RUNOFF SHALL COMPLY WITH THE FINAL DRAFT OF STORMWATER MANAGEMENT HANDBOOK FOR CONSTRUCTION ACTIVITIES AS PREPARED BY HARRIS COUNTY/HCFCD, AND THE CITY OF HOUSTON ALL IN COMPLIANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) REQUIREMENTS.
- CONDITION OF THE ROAD AND/OR RIGHT-OF-WAY, UPON COMPLETION OF JOB, SHALL BE AS GOOD AS OR BETTER THAN THE CONDITION PRIOR TO STARTING WORK.

**GENERAL NOTES - WATER**

- ALL WATER LINES TO HAVE A MINIMUM OF FOUR (4) FEET OF COVER TO TOP OF CURB.
- WATER MAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH CITY OF HOUSTON, DEPARTMENT OF PUBLIC WORKS AND ENGINEERING "STANDARD SPECIFICATIONS AND STANDARD CONSTRUCTION DETAILS FOR WASTE WATER COLLECTION SYSTEMS, WATER LINES, STORM DRAINAGE AND STREET PAVING" SEPTEMBER 1996.
- ALL A.C. WATER MAINS USED IN THIS PROJECT RANGING IN SIZE FROM 6 INCHES THRU 16 INCHES SHALL BE AWWA C-400-80 CLASS 200 OR LATEST REVISION WITH MAXIMUM PIPE LENGTH OF 6 FEET 6 INCHES.
- ALL WATER MAINS UNDER STREET PAVEMENT - 4 INCHES THRU 12 INCHES IN DIAMETER, IF NOT SPECIFIED OTHERWISE, SHALL BE AWWA C-900 PVC PIPE.
- ALL FLUSHING VALVES SHALL BE SET THREE (3) FEET BEHIND BACK OF CURB.
- STEEL WATER LINE SECTION TO EXTEND A OF FIVE (5) FEET MINIMUM BEYOND 45° BENDS.
- THE CONTRACTOR MAY USE A BACKHOE FOR TRENCH EXCAVATION IN LIEU OF A TRENCHING MACHINE.
- WHENEVER SANITARY SEWERS CROSS UNDER WATER MAINS, A 6" MINIMUM CLEARANCE IS REQUIRED. WHENEVER SANITARY SEWERS CROSS OVER WATER MAINS, A 2' MINIMUM CLEARANCE IS REQUIRED. ONE 18' JOINT OF DUCTILE PIPE SHALL BE INSTALLED IN THE SEWER LINE AND CENTERED AT THE WATER LINE CROSSING.
- DUCTILE IRON PIPE SHALL BE MINIMUM THICKNESS CLASS 50. THE PRESSURE RATING FOR BOTH THE PIPE AND THE JOINTS SHALL BE 150 PSI OR GREATER.
- WHENEVER SANITARY SEWERS CROSS OVER WATER MAINS, AND THE OUT-TO-OUT PIPE CLEARANCE IS LESS THAN 24", A CENTERED 18' JOINT OF DUCTILE IRON PIPE SHALL BE USED.
- WHENEVER WATER MAINS CROSS UNDER SANITARY SEWERS, AND THE MINIMUM PIPE CLEARANCE IS 2' OR GREATER, BUT LESS THAN 9', A CENTERED 20' OF CEMENT STABILIZED SAND BACKFILL (2 SACKS OF CEMENT PER CUBIC YARD OF SAND) STARTING AT A POINT 1/4 OF THE PIPE DIAMETER ABOVE THE BOTTOM OF SANITARY SEWER TO 1-FOOT ABOVE THE TOP OF SANITARY SEWER, OR ONE SANITARY DIAMETER, WHICHEVER IS LARGER. CENTER ONE JOINT OF SANITARY SEWER PIPE ABOUT THE WATER MAIN.
- ALL P.V.C. WATER MAINS SHALL BE F C-900, DR 18, CLASS 150.
- ALL WATER METERS MUST HAVE INDIVIDUAL SERVICE LEADS AS PER CITY OF HOUSTON STANDARDS.

**GENERAL NOTES - PAVING**

- PAVING SHALL BE IN ACCORDANCE WITH HARRIS COUNTY "RULES, REGULATIONS AND REQUIREMENTS RELATING TO THE APPROVAL AND ACCEPTANCE OF IMPROVEMENTS IN SUBDIVISIONS OR RE-SUBDIVISIONS" AND THE LATEST REVISIONS AND/OR AMENDMENTS OF SAME.
- GUIDELINES SET FORTH IN THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES SHALL BE OBSERVED.
- ALL RADII AT CURB RETURNS TO BE 25.0' TO BACK OF CURB UNLESS OTHERWISE NOTED.
- THE CONTRACTOR SHALL NOTIFY HARRIS COUNTY ENGINEERING DEPARTMENT 24 HOURS IN ADVANCE OF COMMENCING CONSTRUCTION, (713-755-8210), AND WRITTEN NOTIFICATION 48 HOURS IN ADVANCE.
- STOP SIGN (R1 - 1A) TO BE PLACED AT INTERSECTIONS.
- OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY FOR CONSTRUCTION OF UTILITIES AND/OR CULVERTS WITHIN COUNTY ROAD R.O.W.
- CONTRACTOR TO OBTAIN ALL PERMITS REQUIRED BY REGULATION OF HARRIS COUNTY, TEXAS FOR FLOOD PLAIN MANAGEMENT. PRIOR TO STARTING CONSTRUCTION.
- OWNER TO OBTAIN ALL PERMITS REQUIRED BY HARRIS COUNTY, TEXAS PRIOR TO STARTING CONSTRUCTION OF UTILITY AND/OR CULVERTS WITHIN COUNTY ROAD RIGHTS OF WAY.

**NOTE:**

FORMAL "NOTIFICATION" APPROVED BY COMMISSIONERS COURT REQUIRED PRIOR TO CONSTRUCTION OF UTILITIES WITHIN HARRIS COUNTY R.O.W. CONTACT HARRIS COUNTY PERMIT OFFICE AT 956-3000. CONSTRUCTION TO BE IN ACCORDANCE WITH SPECIFICATIONS DETAILED IN THE APPLICABLE HARRIS COUNTY COMMISSIONERS COURT ORDER.

**PRIVATE UTILITY COMPANY NOTES**

**Houston Lighting and Power Company**

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. Contractors and owners 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 moved, call HL&P at 228-7400.

**Entex**

Location of Entex main lines (to include United Gas Transmission, and/or Industrial Gas Supply Corporation where applicable) are shown in an approximate location only. Service lines are usually not shown. The contractor shall contact the Utility Coordinating Committee at 223-4567 or 1-800-669-8344 a minimum of 48 hours prior to construction to have main and service lines field located. The contractor shall determine the exact location before commencing work and agree to be fully responsible for any damages caused by his failure to exactly locate and preserve these underground facilities.

**Southwestern Bell Telephone Company**

The locations of Southwestern Bell Telephone Co. utilities 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 his failure to exactly locate and preserve these underground utilities.



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Rev.	Date	Description	App.
<b>PRIVATE UTILITY LINES SHOWN</b>			
ENTEX, INC.			
SOUTHWESTERN BELL TELEPHONE CO. Valid for One Year Only			
HOUSTON LIGHTING & POWER CO. Approval Only for Crossing Underground Ductlines Unless Noted. Valid at Time of Review Only.			

CITY OF HOUSTON DEPARTMENT OF PUBLIC WORKS & ENGINEERING ENGINEERING, CONSTRUCTION AND REAL ESTATE GROUP	
SECTION APPROVALS	
<i>Michael V. Baldwin</i> 12-9-97 WATER ENGINEERING	TRAFFIC AND SIGNAL ENGINEERING
<i>John P. ...</i> 1-9-98 WASTEWATER ENGINEERING	STREET & BRIDGE ENGINEERING
<i>Christina ...</i> 1/15/98 STORM SEWER ENGINEERING	CONSTRUCTION

OTHER DEPARTMENTS	
PLANNING AND DEVELOPMENT	SPONSOR DEPARTMENT

<i>Al ...</i> CITY ENGINEER	1/15/98 DATE
<i>Michael V. Baldwin</i> DIRECTOR OF PUBLIC WORKS AND ENGINEERING	1-16-98 DATE

SUBMITTED: _____	DESIGNED BY: TIM
SCALE: 1" = 1'	DRAWN BY: TIM
DATE: AUGUST 1997	SHEET NO. 4 OF 27 SHEETS
SURVEY BY: _____	DWG. NO. _____
F B NO: _____	

<b>ESTATES AT CHAMPIONS PARK NORTH</b>	
<b>NOTES</b>	
<b>M.U.D. 191</b>	

**PEI** PROVIDENT ENGINEERS, INC.  
11241 RICHMOND, SUITE E107  
Houston, Texas 77082