ATTACHMENT "B" – SPECIAL SCOPE OF SERVICES

The **Engineer** agrees to render services necessary on a Time and Materials basis for the special services related to engineering design of the Project as outlined herein. Both **City** and **Engineer** have attempted to clearly define the work to be performed and address the needs of the project. The Special Services that may be performed by **Engineer** under this Contract include the following:

Southwestern Boulevard from Freeport Parkway to South Coppell Road

Task 1 – Geotechnical Investigations

Engineer will perform soil investigations, including field and laboratory tests, borings, related engineering analysis and recommendations for determining soil conditions; and prepare a detailed geotechnical engineering study and pavement design, including recommendations regarding utility trenching and identifying existing groundwater elevation at each boring.

Assumptions:

1. Ten (10) soil borings are assumed.

Deliverables:

1. Geotechnical report.

Task 2 – Subsurface Utility Engineering (SUE)

Engineer will provide SUE to Quality Level B for the extents of the project and Quality Level A as needed in up to four (4) locations. Quality Level D, C, B, and A are defined below:

A. Subsurface Utility Engineering

Subsurface Utility Engineering includes utility investigations subsurface and above ground prepared in accordance with AASHTO standards [ASCE C-1 38-02 (http://www.fhwa.dot.gov/programadmin/asce.cfm)] and Utility Quality Levels.

1. UTILITY QUALITY LEVELS

Utility Quality Levels are defined in cumulative order (least to greatest) as follows:

a. Quality Level D - Existing Records: Utilities are plotted from review of available existing records.

b. Quality Level C - Surface Visible Feature Survey: Quality level "D" information from existing records is correlated with surveyed surface-visible features. Includes Quality Level D information.

c. Quality Level B - Designate: Two-dimensional horizontal mapping. This information is obtained through the application and interpretation of appropriate non-destructive surface geophysical methods. Utility indications are referenced to established survey control. Incorporates quality levels C and D information to produce Quality Level B.

d. Quality Level A - Locate (Test Hole): Three-dimensional mapping and other characterization data. This information is obtained through exposing utility facilities through test holes and measuring and recording (to appropriate survey control) utility/environment data. Incorporates quality levels B, C and D information to produce Quality Level A.

2. DESIGNATE (QUALITY LEVEL B)

Designate means to indicate the horizontal location of underground utilities by the application and interpretation of appropriate non-destructive surface geophysical techniques and reference to established survey control. Designate (Quality Level B) Services are inclusive of Quality levels C and D.

The Engineer shall:

a. As requested by the Client compile "As Built" information from plans, plats and other location data as provided by the utility owners.

b. Coordinate with utility owner when utility owner's policy is to designate their own facilities at no cost for preliminary survey purposes. The Engineer shall examine utility owner's work to ensure accuracy and completeness.

c. Designate, record, and mark the horizontal location of the existing utility facilities and their service laterals to existing buildings using non-destructive surface geophysical techniques.

d. Correlate utility owner records with designating data and resolve discrepancies using professional judgment. A color-coded composite utility facility plan with utility owner names, quality levels, line sizes and subsurface utility locate (test hole) locations, shall be prepared and delivered to the Client. It is understood by both the Engineer and the Client that the line sizes of designated utility facilities detailed on the deliverable are from the best available records and that an actual line size is normally determined from a test hole vacuum excavation. All above ground appurtenance locations must be included in the deliverable to the Client. This information shall be provided in the latest version of AutoCAD or Civil 3D used by the Client. A hard copy is required and must be signed, sealed, and dated by the Engineer.

e. Clearly identify all utilities that were discovered from quality levels C and D investigation, but cannot be depicted in quality level B standards. These utilities must have a unique line style and symbology in the designate (Quality Level B) deliverable.

3. SUBSURFACE UTILITY LOCATE (TEST HOLE) SERVICE (QUALITY LEVEL A)

Locate means to obtain precise horizontal and vertical position, material type, condition, size and other data that may be obtainable about the utility facility and its surrounding environment through exposure by non-destructive excavation techniques that ensures the integrity of the utility facility. Subsurface Utility Locate (Test Hole) Services (Quality Level A) are inclusive of Quality Levels B, C, and D.

The Engineer shall:

a. Review requested test hole locations and advise the Client in the development of an appropriate locate (test hole) work plan relative to the existing utility infrastructure and proposed highway design elements.

b. Coordinate with utility owner inspectors as may be required by law or utility owner policy.

c. Neatly cut and remove existing pavement material, such that the cut not to exceed 0.10 square meters (1.076 square feet) unless unusual circumstances exist.

d. Measure and record the following data on an appropriately formatted test hole data sheet that has been sealed and dated by the Engineer:

i. Elevation of top and/or bottom of utility tied to the datum of the furnished plan.

ii. Identify a minimum of two benchmarks utilized. Elevations shall be within an accuracy of 15mm (.591 inches) of utilized benchmarks.

iii. Elevation of existing grade over utility at test hole location.

iv. Horizontal location referenced to project coordinate datum.

v. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems.

vi. Utility facility material(s).

vii. Utility facility condition.

viii. Pavement thickness and type.

ix. Coating/Wrapping information and condition.

x. Unusual circumstances or field conditions.

e. Excavate test holes in such a manner as to prevent any damage to wrappings, coatings, cathodic protection or other protective coverings and features.

f. Be responsible for any damage to the utility during the locating process. In the event of damage, the Engineer shall stop work, notify the appropriate utility facility owner, the Client and appropriate regulatory agencies. The regulatory agencies include, but are not limited to the Railroad Commission of Texas and the Texas Commission on Environmental Quality. The Engineer shall not resume work until the utility facility owner has determined the corrective action to be taken. The Engineer shall be liable for all costs involved in the repair or replacement of the utility facility.

g. Back fill all excavations with appropriate material, compact backfill by mechanical means, and restore pavement and surface material. The Engineer shall be responsible for the integrity of the backfill and surface restoration for a period of three years. Install a marker ribbon throughout the backfill.

h. Furnish and install a permanent above ground marker (as specified by the Client, directly above center line of the utility facility.

i. Provide complete restoration of work site and landscape to equal or better condition than before excavation. If a work site and landscape is not appropriately restored, the Engineer shall return to correct the condition at no extra charge to the Client.

j. Plot utility location position information to scale and provide a comprehensive utility plan sign and sealed by the responsible Engineer. This information shall be provided in the latest version of AutoCAD or Civil 3D format used by the Client.

Assumptions:

1. Four (4) Level A test holes are assumed.

Deliverables:

1. Utility Records/As-builts obtained from utility owners
2. AutoCAD file depicting utility line work

3. Final SUE test hole data sheets signed & sealed on 8.5”x11” sheets (two (2) copies)
4. Existing Utility (SUE) layouts (two (2) copies)

Task 3 – Sanitary Sewer Design

Engineer will design sanitary sewer improvements at the direction of the City. Engineer will prepare plan sheets for sanitary sewer layout, sanitary sewer plan and profile, and details; include specifications; and provide an opinion of probable construction cost.

Assumptions:

1. Design limited to in-place pipe removal and replacement of approximately 1,700 linear feet; no sizing calculations or study included.
2. Digital (PDF) delivery of plans and specifications.
3. The NCTCOG Standard Specifications for Public Works Construction along with the City’s Supplementary Conditions will be used.

Deliverables:

1. Schematic, preliminary, and final design drawings and specifications (same as Task 2 through 4 Basic Services).
2. Opinion of probable construction cost.

Task 4 – Storm Drain Design

Engineer will design storm drain improvements at the direction of the City. Engineer will prepare plan sheets for storm drain improvements, and drainage details; include specifications; and provide an opinion of probable construction cost.

Assumptions:

1. Design limited to in-place pipe removal and replacement of approximately 3,500 linear feet; no sizing calculations or study included.
2. Digital (PDF) delivery of plans and specifications.
3. The NCTCOG Standard Specifications for Public Works Construction along with the City’s Supplementary Conditions will be used.

Deliverables:

1. Schematic, preliminary, and final design drawings and specifications (same as Task 2 through 4 Basic Services).
2. Opinion of probable construction cost.