



**CITY OF PLANO
COUNCIL AGENDA ITEM**

CITY SECRETARY'S USE ONLY				
<input type="checkbox"/> Consent <input type="checkbox"/> Regular <input type="checkbox"/> Statutory				
Council Meeting Date:		04/25/16		
Department:		Engineering		
Department Head:		B. Caleb Thornhill, P.E.		
Agenda Coordinator (include phone #):			Kathleen Schonne 7198	
			Project No. 6721	
CAPTION				
To approve a Professional Services Agreement by and between the City of Plano and Pipeline Analysis, LLC, in the amount of \$123,388, for the Inflow & Infiltration Study – J Place and Upper White Rock Basins project; and authorizing the City Manager to execute all necessary documents.				
FINANCIAL SUMMARY				
<input type="checkbox"/> NOT APPLICABLE <input type="checkbox"/> OPERATING EXPENSE <input type="checkbox"/> REVENUE <input checked="" type="checkbox"/> CIP				
FISCAL YEAR:	2015-16	Prior Year (CIP Only)	Current Year	Future Years
				TOTALS
Budget		0	150,000	0
Encumbered/Expended Amount		0	0	0
This Item		0	-123,388	0
BALANCE		0	26,612	0
FUND(S): SEWER CIP				
<p>COMMENTS: Funding is available in the 2015-16 Sewer CIP for this item. This professional services agreement for a study of the J Place and Upper White Rock Sanitary Sewer Basins, in the amount of \$123,388, will leave a project balance of \$26,612 available for future expenditures on this or other Sewer CIP projects.</p> <p>STRATEGIC PLAN GOAL: Undertaking studies to identify issues with inflow and infiltration of sanitary sewer lines relates to the City's Goal of a Financially Strong City with Service Excellence.</p>				
SUMMARY OF ITEM				
See Recommendation Memorandum.				
List of Supporting Documents:			Other Departments, Boards, Commissions or Agencies	
Location Maps; Recommendation Memorandum			N/A	
Professional Services Agreement				



Memorandum

TO: Bruce D. Glasscock, City Manager

FROM: B. Caleb Thornhill, P.E., Director of Engineering

DATE: April 25, 2016

SUBJECT: Professional Services Agreement – Inflow and Infiltration Study- J Place and Upper White Rock Creek sewer basins

The Engineering Department is recommending entering into an agreement with Pipeline Analysis, LLC for engineering services for the Inflow and Infiltration Study- J Place and Upper White Rock Creek sewer basins project.

Pipeline Analysis, LLC is an engineering consulting firm who has expertise in field of I & I studies and has worked with the City of Plano in the past on several similar projects with satisfactory results. They were selected based on their City of Plano Bid No. 2015-260-X submission and deemed the most qualified for this project.

The J Place and Upper White Rock Sewer basins are having issues with sewer capacity after heavy rain events, indicating that there are areas of storm water inflow and infiltration within those basins. By putting flow monitors in selected manholes we will be able to better estimate where those areas are.

The Professional services Fee is broken down as follows:

Upper White Rock Creek and J Place Basin Flow Monitoring

Task	Description	Quantity	Unit Price	Total
1	Temporary Flow Monitoring			
	a. Installation/Calibration	16	\$ 450	\$ 7,200.00
	b. Monitoring - 16 sites at 60 days = 960 meter days	960	\$ 88	\$ 84,480.00
	c. Extended Monitoring at City Option (per site/day)	0	\$ 68	\$ -
	Rainfall Gauging			
	a. Installation/Calibration	6	\$ 250	\$ 1,500.00
	b. Monitoring - 6 sites at 60 days = 360 meter days	360	\$ 17	\$ 6,120.00
	c. Extended Monitoring at City Option (per site/day)	0	\$ 15	\$ -
2	Flow Data Analysis	L.S.	L.S.	\$ 13,742.00
3	Final Report	L.S.	L.S.	\$ 8,320.00
4	Project Admin./Mobilization	L.S.	L.S.	\$ 2,026.00
	Total Not to Exceed without Extended Monitoring			\$ 123,388.00

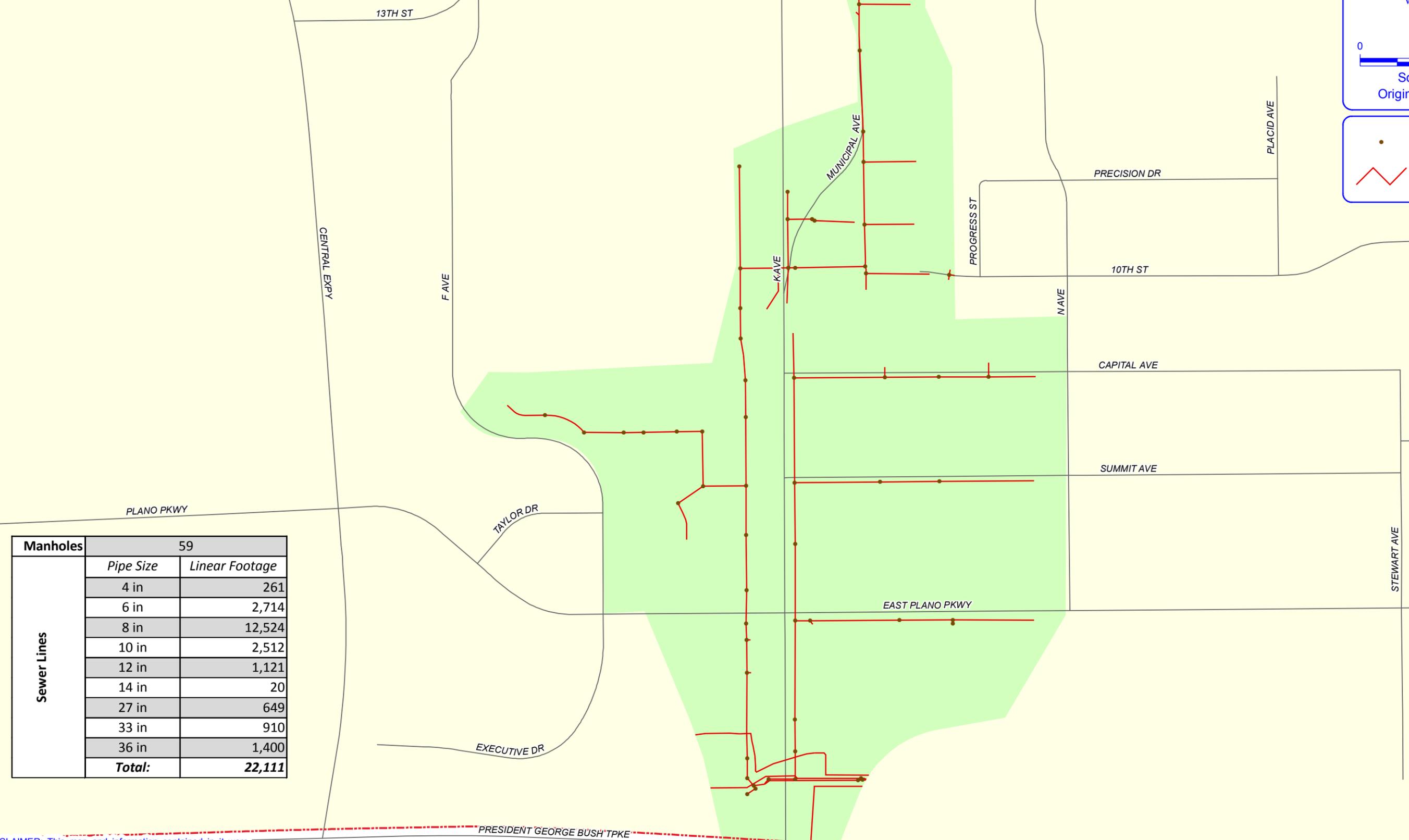
CITY OF PLANO

J Place Lift Station Sanitary Sewer Basin

Source: City of Plano
GIS Division
Date: 3/4/2016

Scale in Feet
Original: 1" = 560'

- Sewer Manholes
- Sewer Lines



Manholes		59
Sewer Lines	Pipe Size	Linear Footage
	4 in	261
	6 in	2,714
	8 in	12,524
	10 in	2,512
	12 in	1,121
	14 in	20
	27 in	649
	33 in	910
	36 in	1,400
Total:	22,111	

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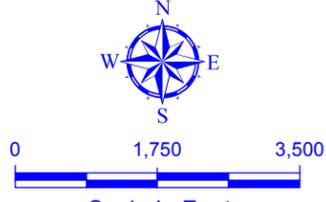
DISCLAIMER: This map and information contained in it were developed exclusively for use by the City of Plano. Any use or reliance on this map by anyone else is at that party's own risk and without liability to the City of Plano, its officials or employees for any discrepancies, errors, or variances which may exist.



CITY OF PLANO

Upper White Rock Sanitary Sewer Basin

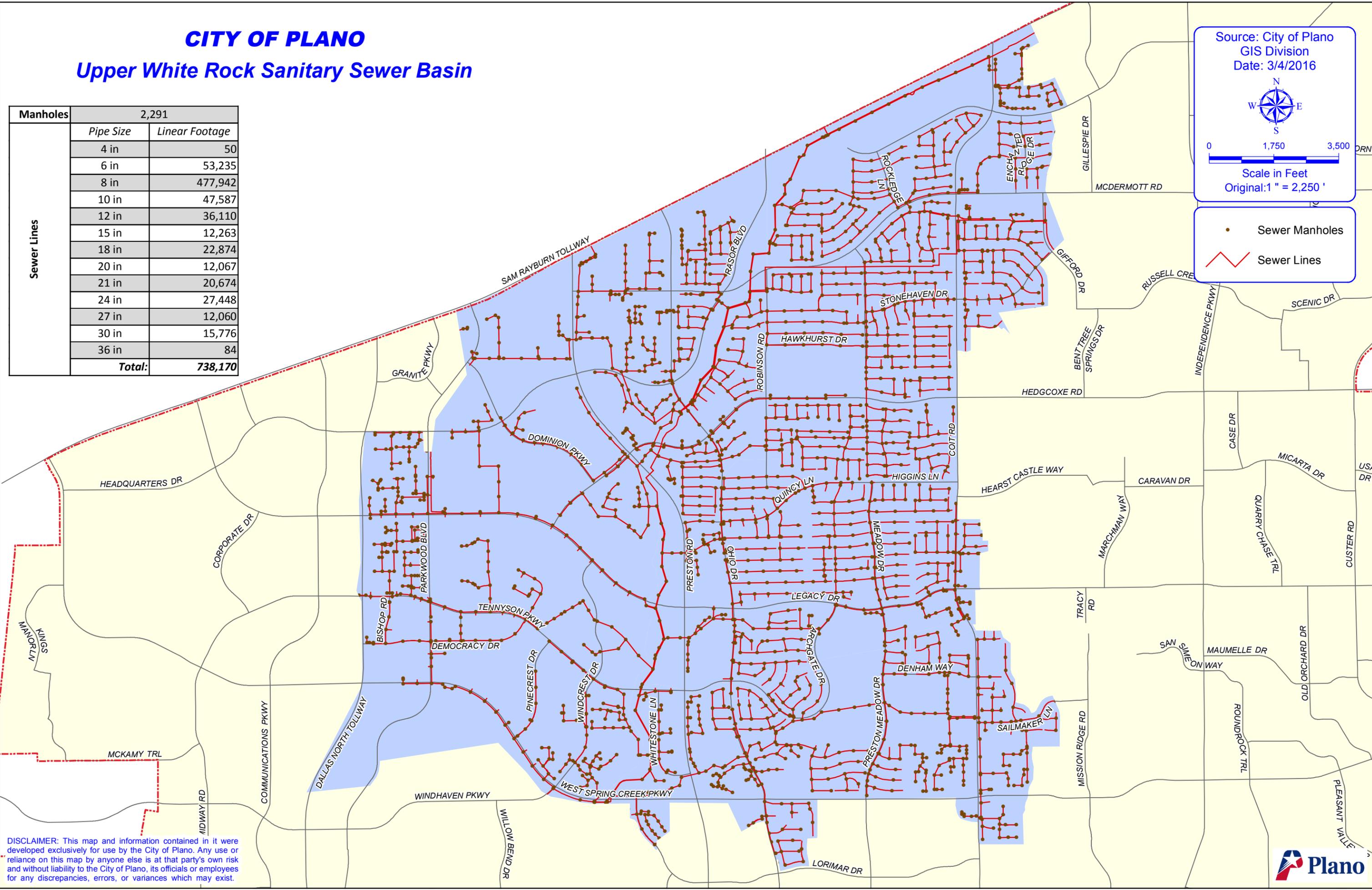
Source: City of Plano
GIS Division
Date: 3/4/2016



Scale in Feet
Original: 1" = 2,250'

- Sewer Manholes
- Sewer Lines

Manholes		2,291
Pipe Size	Linear Footage	
4 in	50	
6 in	53,235	
8 in	477,942	
10 in	47,587	
12 in	36,110	
15 in	12,263	
18 in	22,874	
20 in	12,067	
21 in	20,674	
24 in	27,448	
27 in	12,060	
30 in	15,776	
36 in	84	
Total:	738,170	



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I & I STUDY – J PLACE & UPPER WHITE ROCK BASINS

PROJECT NO. 6721

**ENGINEERING
PROFESSIONAL SERVICES AGREEMENT**

THIS AGREEMENT is made and entered by and between the **CITY OF PLANO, TEXAS**, a Home-Rule Municipal Corporation, hereinafter referred to as "City", and **PIPELINE ANALYSIS LLC**, a **TEXAS** Limited Liability Company, hereinafter referred to as "Engineer", to be effective from and after the date as provided herein.

WITNESSETH:

WHEREAS, the City desires to engage the services of the Engineer to prepare construction plans, specifications, details and special provisions and to perform other related engineering services in connection with the **I & I STUDY – J PLACE & UPPER WHITE ROCK BASINS** project located in the City of Plano, Collin County, Texas, hereinafter referred to as the "Project"; and

WHEREAS, the Engineer desires to render such engineering services for the City upon the terms and conditions provided herein.

NOW, THEREFORE, for and in consideration of the covenants contained herein, and for the mutual benefits to be obtained hereby, the parties hereto agree as follows:

I. Employment of the Engineer

The City hereby agrees to retain the Engineer to perform professional engineering services in connection with the Project. Engineer agrees to perform such services in accordance with the terms and conditions of this Agreement.

II. Scope of Services

The parties agree that Engineer shall perform such services as are set forth and described in Exhibit "A", which is attached hereto and thereby made a part of this Agreement. The parties understand and agree that deviations or modifications in the form of written contract modifications may be authorized from time to time by the City.

Engineer shall perform his or her professional engineering services with the professional skill and care ordinarily provided by competent engineers practicing in the same or similar locality and under the same or similar circumstances and professional

license. All such professional services shall be performed as expeditiously as is prudent considering the ordinary professional skill and care of a competent engineer.

III. Schedule of Work

The Engineer agrees to commence work immediately upon execution of this Agreement, and to proceed diligently with said work, except for delays beyond the reasonable control of Engineer, to completion as described in the Completion Schedule, attached hereto as Exhibit "B" and thereby made a part of this Agreement.

IV. Compensation and Method of Payment

The parties agree that Engineer shall be compensated for all services provided pursuant to this Agreement in the amount and manner described and set forth in the Payment Schedule attached hereto and incorporated herein as Exhibit "C". The contract amount specified in Exhibit "C" shall not be exceeded without the written permission of the City.

V. Information to be Provided by the City

The City agrees to furnish, prior to commencement of work, all that information requested by Engineer and available in City's files.

VI. Insurance

Engineer agrees to meet all insurance requirements, and to require all consultants who perform work for Engineer to meet all insurance requirements, as set forth on Exhibit "D", which is attached hereto and thereby made a part of this Agreement.

Engineer agrees to notify the City of any changes in insurance policy coverage, including but not limited to changes in limits and cancellation. The Engineer shall notify the City in writing of any changes within forty-eight (48) hours of the change. The Engineer's notice shall include a description of the changes and how those changes vary from the insurance requirements of the contract/agreement.

VII. INDEMNITY

THE ENGINEER SHALL INDEMNIFY AND HOLD HARMLESS THE CITY, ITS OFFICERS, OFFICIALS, AGENTS AND EMPLOYEES FROM AND AGAINST ALL CLAIMS, CAUSES OF ACTION, LOSSES, LAWSUITS, JUDGMENTS, FINES, PENALTIES, COSTS, DAMAGES, OR LIABILITY OF ANY CHARACTER, TYPE OR DESCRIPTION INCLUDING WITHOUT LIMITATION, ALL EXPENSES OF LITIGATION, INCLUDING EXPERT OR CONSULTANT FEES, COURT COSTS, AND

ATTORNEY'S FEES, RESULTING FROM PERSONAL INJURY (INCLUDING DEATH), PROPERTY DAMAGE OR OTHER HARM, TO THE EXTENT SUCH PERSONAL INJURY, PROPERTY DAMAGE OR HARM ARISES OUT OF OR IS OCCASIONED BY THE NEGLIGENCE, INTENTIONAL TORT, INTELLECTUAL PROPERTY INFRINGEMENT, OR FAILURE TO PAY OBLIGATIONS OWED BY THE ENGINEER, ITS OFFICERS, AGENTS, EMPLOYEES, CONSULTANTS, AND REPRESENTATIVES, IN THE PERFORMANCE OF THIS AGREEMENT.

IF THE CITY DEFENDS AN ACTION, CLAIM, LAWSUIT OR OTHERWISE INCURS ATTORNEY'S FEES AS A RESULT OF AN INDEMNIFIED CLAIM AS STATED ABOVE, ENGINEER AGREES TO REIMBURSE THE CITY IN PROPORTION TO THE ENGINEER'S LIABILITY.

VIII. Independent Contractor

Engineer covenants and agrees that Engineer is an independent contractor and not an officer, agent, servant or employee of City; that Engineer shall have exclusive control of and exclusive right to control the details of the work performed hereunder and all persons performing same, and shall be responsible for the acts and omissions of its officers, agents, employees, contractors, subcontractors and consultants; that the doctrine of respondeat superior shall not apply as between City and Engineer, its officers, agents, employees, contractors, subcontractors and consultants, and nothing herein shall be construed as creating a partnership or joint enterprise between City and Engineer.

IX. Assignment and Subletting

The Engineer agrees that neither this Agreement nor the work to be performed hereunder will be assigned or sublet without the prior written consent of the City. The Engineer further agrees that the assignment or subletting of any portion or feature of the work or materials required in the performance of this Agreement shall not relieve the Engineer from its full obligations to the City as provided by this Agreement.

X. Audits and Records/Prohibited Interest

The Engineer agrees that at any time during normal business hours and as often as City may deem necessary, Engineer shall make available to representatives of the City for examination all of its records with respect to all matters covered by this Agreement, and will permit such representatives of the City to audit, examine, copy and make excerpts or transcripts from such records, and to make audits of all contracts, invoices, materials, payrolls, records of personnel, conditions of employment and other data relating to all matters covered by this Agreement, all for a period of one (1) year from the date of final settlement of this Agreement or for such other or longer period, if any, as may be required by applicable statute or other lawful requirement.

The Engineer agrees that it is aware of the prohibited interest requirements of the City Charter and Code of Conduct and will abide by the same. Further, a lawful representative of Engineer shall execute the affidavit shown in Exhibit "E". Engineer understands and agrees that the existence of a prohibited interest during the term of this contract will render the contract voidable.

XI. Contract Termination

The parties agree that City shall have the right to terminate this Agreement with or without cause upon thirty (30) days written notice to Engineer. In the event of such termination, Engineer shall deliver to City all finished or unfinished documents, data, studies, surveys, drawings, maps, models, reports, photographs or other items prepared by Engineer in connection with this Agreement. Engineer shall be entitled to compensation for any and all work completed to the satisfaction of City in accordance with the provisions of this Agreement prior to termination.

XII. Engineer's Opinion of Probable Construction Costs

The parties recognize and agree that any and all opinions of probable construction costs prepared by Engineer in connection with the Project represent the best judgment of Engineer as a design professional familiar with the construction industry, but that the Engineer does not guarantee that any bids solicited or received in connection with the Project will not vary from opinions prepared by Engineer.

XIII. Ownership of Documents

Original drawings and specifications are the property of the Engineer; however, the Project is the property of the City and Engineer may not use the drawings and specifications therefor for any purpose not relating to the Project without City's consent. City shall be furnished with such reproductions of drawings and specifications as City may reasonably require. Upon completion of the work or any earlier termination of this Agreement under Article XI, Engineer will revise drawings to reflect changes made during construction and he will promptly furnish the City with one (1) complete set of reproducible record prints. Prints shall be furnished, as an additional service, at any other time requested by City. All such reproductions shall be the property of the City who may use them without Engineer's permission for any proper purpose including, but not limited to, additions to or completion of the Project. However, use of the documents for other than their intended purpose shall be at the sole risk of the City.

XIV. Complete Contract

This Agreement, including the Exhibits lettered "A" through "E", constitute the entire agreement by and between the parties regarding the subject matter hereof and supersedes all prior or contemporaneous written or oral understandings. This

Agreement may only be amended, supplemented, modified or canceled by a duly executed written instrument.

XV. Mailing of Notices

Unless instructed otherwise in writing, Engineer agrees that all notices or communications to City permitted or required under this Agreement shall be addressed to City at the following address:

City of Plano
Engineering Department, Suite 250
Attn: Tim Bennett, PE
P.O. Box 860358
Plano, TX 75086-0358

City agrees that all notices or communications to Engineer permitted or required under this Agreement shall be addressed to Engineer at the following address:

Pipeline Analysis, LLC
Attn: James H. Forbes, Jr. – President
1115 Main Street
Garland, TX 75040

All notices or communications required to be given in writing by one party or the other shall be considered as having been given to the addressee on the date such notice or communication is posted by the sending party.

XVI. Miscellaneous

A. Paragraph Headings:

The paragraph headings contained herein are for convenience only and are not intended to define or limit the scope of any provision in this Agreement.

B. Contract Interpretation:

Although this Agreement is drafted by the City, should any part be in dispute, the parties agree that the Agreement shall not be construed more favorably for either party.

C. Venue/Governing Law:

The parties agree that the laws of the State of Texas shall govern this Agreement, and that it is performable in Collin County, Texas. Exclusive venue shall lie in Collin County, Texas.

D. Successors and Assigns:

City and Engineer, and their partners, successors, subcontractors, executors, legal representatives, and administrators are hereby bound to the terms and conditions of this Agreement.

E. Severability:

In the event a term, condition, or provision of this Agreement is determined to be void, unenforceable, or unlawful by a court of competent jurisdiction, then that term, condition, or provision, shall be deleted and the remainder of the Agreement shall remain in full force and effect.

F. Effective Date:

This Agreement shall be effective from and after execution by both parties hereto.

G. Authority to Sign:

The undersigned officers and/or agents of the parties hereto are the properly authorized officials and have the necessary authority to execute this Agreement on behalf of the parties hereto.

SIGNED on the date indicated below.

PIPELINE ANALYSIS LLC
A Texas Limited Liability Company

DATE: _____

BY: _____
James H. Forbes, Jr.
PRESIDENT & MANAGING MEMBER

CITY OF PLANO, TEXAS

DATE: _____

BY: _____
Bruce D. Glasscock
CITY MANAGER

APPROVED AS TO FORM:

Paige Mims
CITY ATTORNEY

ACKNOWLEDGMENTS

STATE OF TEXAS §
 §
COUNTY OF DALLAS §

This instrument was acknowledged before me on the _____ day of _____, 2016, by **JAMES H. FORBES, JR., PRESIDENT & MANAGING MEMBER**, of **PIPELINE ANALYSIS LLC**, a **TEXAS** Limited Liability Company, on behalf of said limited liability company.

Notary Public, State of Texas

STATE OF TEXAS §
 §
COUNTY OF COLLIN §

This instrument was acknowledged before me on the _____ day of _____, 2016, by **BRUCE D. GLASSCOCK, CITY MANAGER**, of the **CITY OF PLANO, TEXAS**, a Home-Rule Municipal Corporation, on behalf of said municipal corporation.

Notary Public, State of Texas

EXHIBIT "A"
SCOPE OF SERVICES
I/I STUDY - J PLACE & UPPER WHITE ROCK BASINS
PROJECT NO. 6721

PROJECT DESCRIPTION

This project will consist of a sanitary sewer Infiltration/Inflow (I/I) Analysis of the Upper White Rock Sanitary Sewer Basin and Sanitary Sewer Assessment of the J Place Lift Station Sanitary Sewer Basin. The service areas included in this scope of services is shown in Figures 1 and 2 – Study Area Maps. The approach to the work tasks is organized around the City's objectives for this project:

- Reduction in dry and wet weather infiltration/inflow
- Cost controls and Least Cost Rehabilitation Alternatives
- Attainment of long-term Infiltration/Inflow solutions
- Collection System Capacity Assurance
- Regulatory compliance
- Customer satisfaction

BASIC SERVICES

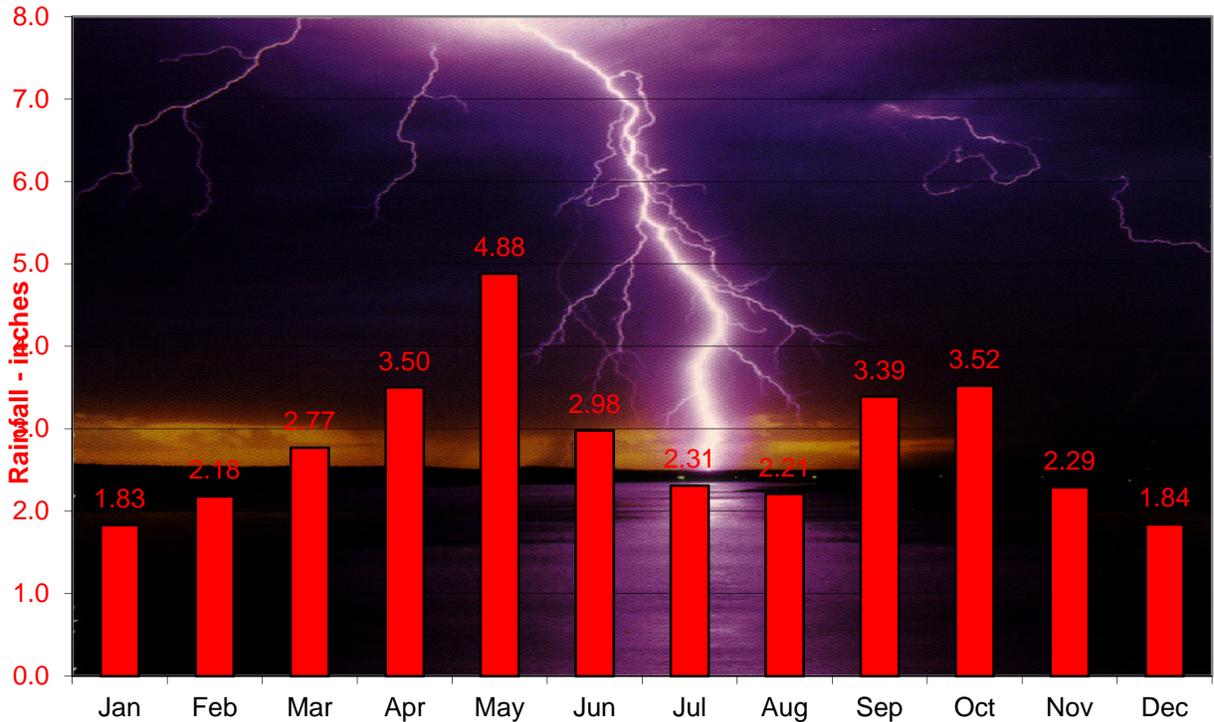
The investigation objectives and goals will be achieved through the performance of the following tasks:

TEMPORARY FLOW MONITORING – UPPER WHITE ROCK CREEK BASIN AND J PLACE LIFT STATION BASIN

In order to perform an I/I analysis and establish the existing capacity being used during dry and wet weather, it will be necessary to obtain flow monitoring information during both dry and wet weather. Under ideal conditions, multiple events are recorded to establish the volume of extraneous water that enters the collection system. From this collected data the inflow response for each storm event is determined. Information obtained during the monitoring period will be used to determine the following for each metering site:

- Average daily flow-dry weather
- Peak flow-dry weather
- Average daily flow-wet weather
- Peak flow-wet weather
- Peak inflow rates
- Total I/I volume

Normal Monthly Rainfall Dallas - Fort Worth Airport



The preliminary meter site selection has been accomplished following review of the collection system map. Each monitoring site will be selected so that the footage of the collection system upstream of the meter can be isolated for the purposes of determining extraneous I/I and other engineering analysis. Flow meters that record flow depth and velocity are used to obtain the necessary hydraulic information for subsequent analysis. By undertaking temporary flow monitoring, the existing performance of the collection system can be determined. From a review of the collection system, fourteen (14) metering sites in the Upper White Rock Creek Basin and two (2) in "J" Place Lift Station Basin have been identified (See Figure 1 and 2). Flow monitoring will be undertaken for sixty (60) consecutive days starting in April 2016 or early May depending on receipt of the notice to proceed. The target start date is April 15. Note that a milestone will occur sixty (60) days into the flow monitoring where a determination will be made with respect to the adequacy of recorded rainfall events. If adequate rainfall (as determined by the City project manager) has occurred within the sixty (60) days of initial monitoring then the flow metering portion of the project will be terminated and flow and rainfall metering billings will cease. If inadequate rainfall is determined, then at City's option, the metering may be extended and additional thirty (30) days.

RAINFALL MONITORING

Rainfall meters are used to accurately measure rainfall intensity and duration throughout the monitoring period. This data will be used to establish the rainfall

distribution over the entire study area using GIS mapping tools. The rainfall distribution will establish the amount of rain that fell over each meter basin. Analysis of the flow meter data for each rain event will establish the percentage of rainfall that entered the wastewater collection system. The results obtained from field testing of wastewater collection systems are, to a great degree, weather dependent. In order to minimize the negative impact of inadequate rainfall on the proposed project, the project schedule must consider the local rainfall patterns in order to optimize the field efforts.

It is anticipated that six (6) rainfall gauges will be installed, five (5) in the Upper White Rock Creek Basin and one (1) in the J Place Lift Station Basin.

TASK 1 - METER INSTALLATION, CALIBRATION AND DATA COLLECTION

Understanding the hydraulics of each proposed metering location will ensure that the site selection is appropriate and that the recorded data is accurate. Where flow hydraulics are poor due to abrupt changes in flow direction, large deposits of silt, restrictions, etc. a proposed meter location may be changed upstream or downstream to ensure proper hydraulic conditions in order to obtain accurate flow data.

The temporary flow meters proposed will utilize the area/velocity technology. Flow information is critical in determining the effects of inadequate capacity, I/I, bottlenecks, and backwater conditions. Both the Manning and continuity equations can be compared for analysis. Under ideal free flow hydraulic conditions the two different equations for flow should provide the same result. However, in a backwater or restrictive hydraulic situation, the Manning equation will over quantify flows and diverge from the continuity equation. Such an occurrence will indicate to the data analyst that a backwater condition was observed and a downstream restriction should be investigated. By obtaining continuous velocity and depth data, the engineer can further isolate hydraulic problems within the collection system.

Each meter will be calibrated in a hydraulic flume located at Pipeline Analysis's office. In addition, a field calibration check will be performed following installation. Calibration of each meter is a simple procedure consisting of verification of the depth of flow and velocity. The flow sensors will be secured to a steel mounting band that fits securely in the pipeline. The data logger for each site will be installed in the top of each manhole and the meter will be activated at user defined sampling intervals; typically 15 minutes. Routine maintenance and service will be undertaken weekly to confirm normal operation. A review of the collection system map indicates that a total of sixteen (16) flow meters and six (6) rainfall gauges would provide the desired resolution for establishing dry and wet weather flow data.

TASK 2 – DATA ANALYSIS

During and following completion of the flow and rainfall monitoring, Engineer will analyze the gathered data and develop tabular and graphical summaries. Comparisons

with any previous historical flow meter data will be reviewed. The impact of silt and debris will also be evaluated. Information obtained during the monitoring period will be used to determine the following for each site:

1. Dry Weather Average daily flow – A typical dry weather week will be established that is not impacted by rainfall. Velocity data will be compared to debris levels to analyze the scouring velocity necessary to prevent deposition in the lines. Discrete flows from each monitored sub-basin will be calculated.
2. Dry Weather Peak Flow – Peak flows during dry weather will be determined from the recorded data.
3. Wet Weather Average daily flow - Wet weather flows for each rainfall event will be analyzed to determine the percentage of rainfall that enters the collections system (also known as the leakiness factor). By comparing the storm event flow with the dry weather flows will establish the Rainfall Derived Infiltration/Inflow (RDII). This value will vary for each storm duration and intensity. The discrete RDII for each sub-basin will be determined and will allow the ranking (prioritization) of each sub-basin by severity of RDII.
4. Wet Weather Peak Flow – Peak flow rates during wet weather are critical to the capacity analysis. Peaking ratios (Peak flow rate to average dry weather flow) will be compared for dry and wet weather.
5. Peak Inflow Rates – Peak inflow rates are calculated by observing peak flow during a wet weather event and subtracting the “normal” flow rate during dry weather.
6. Total I/I volume- The area under each storm event curve will be evaluated to establish the volume of rainfall induced infiltration/inflow. These values can then be normalized to establish the volume of RDII per inch of rainfall. Projections can then be made to accurately determine the impact of RDII during a normal year.

TASK 3– DRAFT AND FINAL REPORT

Prepare and submit one (1) Draft Final Report for review and comments. The Draft Report will include an electronic copy of the report with all supporting data for staff distribution and review. Incorporate comments and prepare three (3) copies of the Final Report and electronic spreadsheets including electronic copy of the Final Report. The project report will include the following sections:

1. Executive Summary
2. Description of all tasks
3. Rainfall data
4. Dry/Wet weather flows
5. Conclusions and Recommendations
6. Appendix of flow data, hydrographs and rainfall data

All data, photographs, maps, report narrative, etc. will be placed on CD-ROM and included with the Final Report. The Final Report will be in MSWord and Adobe pdf formats.

Engineer Deliverables:

1. One (1) copy of Draft Final Report and one (1) CD-ROM Draft Final Report
2. Three (3) bound copies of the final report.
3. Three (3) copies CD-ROM Final Report
4. Presentation of Final Report to staff

TASK 4 – PROJECT ADMINISTRATION/MOBILIZATION

Mobilize project team and coordinate startup. Establish personnel assignments and responsibilities. Inventory equipment needs and order expendable supplies. Perform meter pre-calibration, prepare mounting rings for various pipe sizes, set-up meter database and project information.

Preliminary placement of flow meters and rainfall gauges will be field verified to finalize meter placement. The site inspection will verify wastewater flows, line sizes, debris levels, flow hydraulics and access. Site inspection reports will be prepared based on the field observations. Meter sites will be finalized or new alternative sites established.

This task includes internal project administration and oversight including scheduling, budget, quality assurance and control and reporting. The project schedule will be reviewed in detail and milestones for the completion of each task will be assigned. The project schedule will be reviewed and updated monthly to ensure that all tasks are completed in a timely and organized fashion.

Management work items include:

1. Field crew supervision and project planning
2. Obtain initial maps for field use and verification
3. Prepare monthly billings
4. Schedule equipment and order supplies
5. Monthly meetings and progress reports

Meet with the City Project Team to coordinate upcoming work, receive City Project Team input, discuss major milestones and provide report presentations. ENGINEER will prepare an agenda for meetings. Meeting notes will be prepared for each meeting and distributed to the project team members. Copies of handouts will be prepared for distribution at the meeting. ENGINEER will supply all meeting presentation materials.

Figure 1 – Upper White Rock Creek Study Area Map

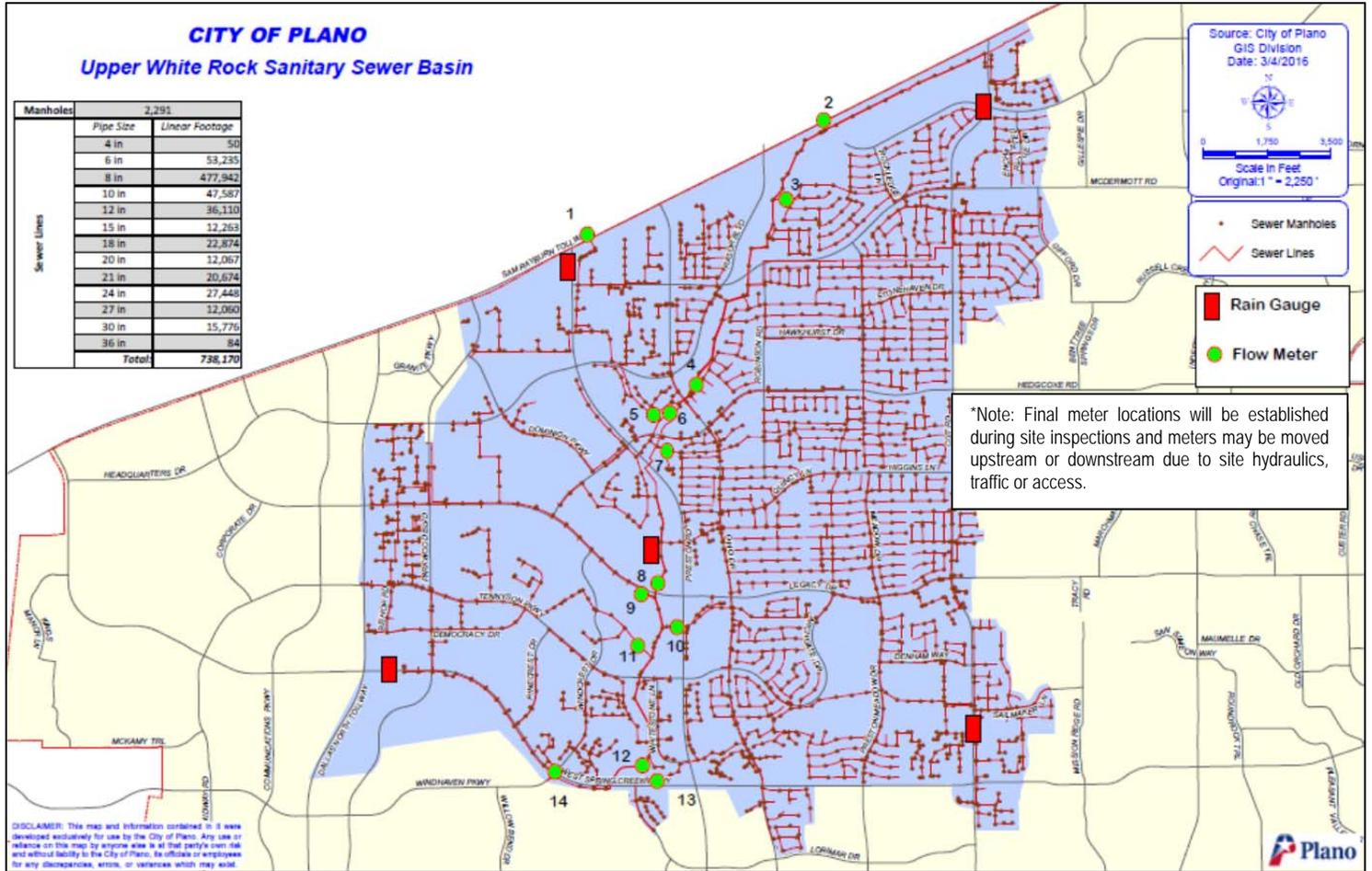


Figure 2 – J Place Lift Station Study Area Map

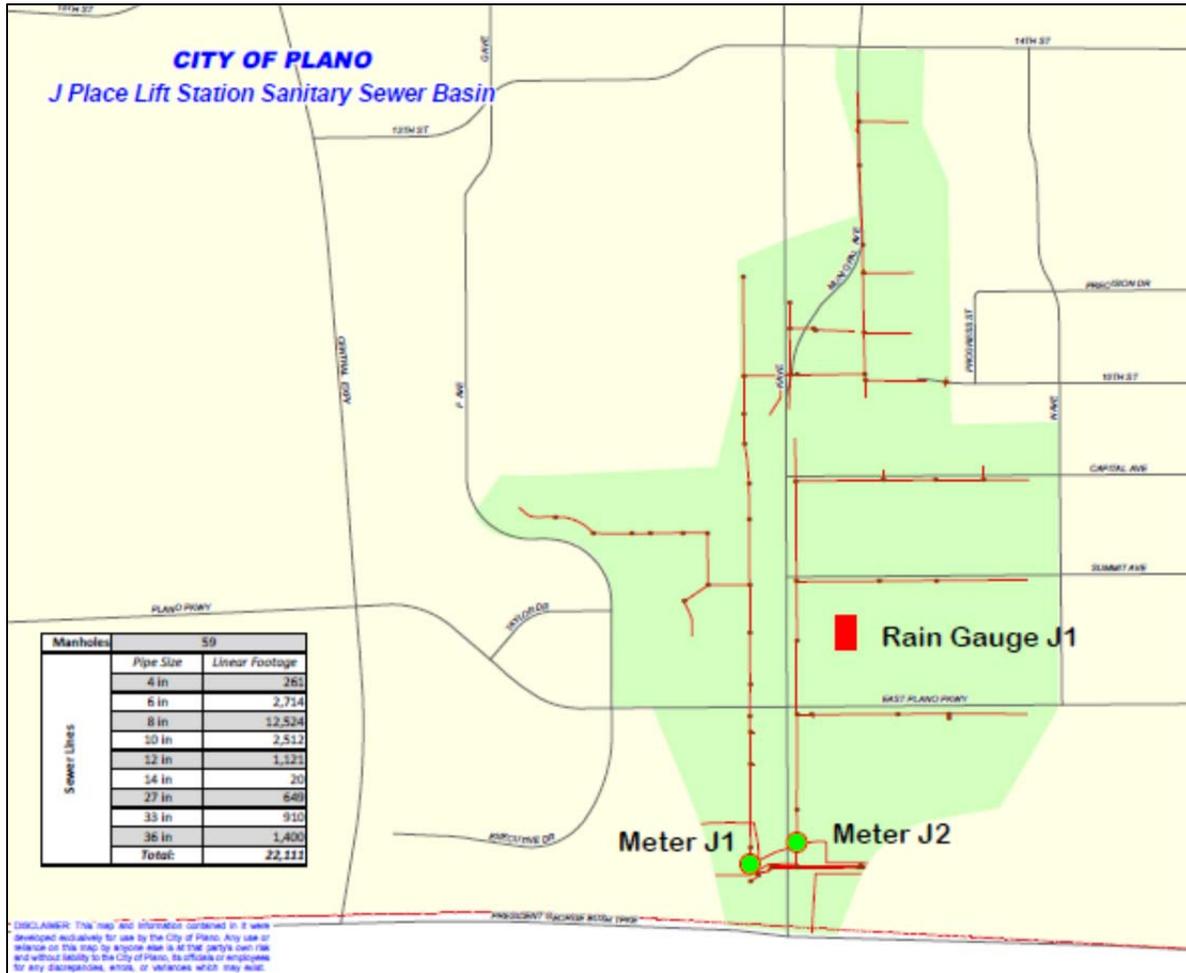


EXHIBIT "B"
SCHEDULE OF WORK
I/I STUDY - J PLACE & UPPER WHITE ROCK BASINS
PROJECT NO. 6721

The work will be initiated immediately upon receipt of Authorization to Proceed, and is estimated to be completed within approximately three (3) to five (5) months from the notice to proceed, depending on rainfall. If inadequate rainfall, preventing analysis of wet weather infiltration/inflow, occurs then the project schedule may be extended at the City's option.

Basic Services Schedule

Upper White Rock Creek and J Place Lift Station Flow Monitoring

Task Description	2 Weeks	Month 1	Month 2	Month 3	Month 4	Month 5
Temporary Flow Monitoring						
a. Installation/calibration						
b. Monitoring - 16 sites at 60 days						
c. Extended Monitoring at City Option 16 sites at 30 days				City Option		
Rainfall Gauging						
a. Installation/calibration						
b. Monitoring - 6 site for 60 days						
c. Extended Monitoring at City Option 6 sites for 30 days				City Option		
Flow Data Analysis					With Option	
Draft/Final Report						With Option
Project Adm./ Mobilization						With Option

EXHIBIT "C"
COMPENSATION AND METHOD OF PAYMENT
I/I STUDY - J PLACE & UPPER WHITE ROCK BASINS
PROJECT NO. 6721

Basic Services

Payment for this work shall be a unit price for each flow meter and rain gauge installation and a daily rate for each day of monitoring. The basis for partial payment will be the daily rate multiplied by the number of meters times the number of days installed. Lump sum items will be billed based on the percentage completion of the work task.

The total contract for basic services will not exceed \$123,388 without an amendment to this contract or authorization by the City to perform additional services associated with extended monitoring.

Upper White Rock Creek and J Place Basin Flow Monitoring

Task	Description	Quantity	Unit Price	Total
1	Temporary Flow Monitoring			
	a. Installation/Calibration	16	\$ 450	\$ 7,200.00
	b. Monitoring - 16 sites at 60 days = 960 meter days	960	\$ 88.00	\$ 84,480.00
	c. Extended Monitoring at City Option (per site/day)	0	\$ 68	\$ -
	Rainfall Gauging			
	a. Installation/Calibration	6	\$ 250	\$ 1,500.00
	b. Monitoring - 6 sites at 60 days = 360 meter days	360	\$ 17	\$ 6,120.00
	c. Extended Monitoring at City Option (per site/day)	0	\$ 15	\$ -
2	Flow Data Analysis	L.S.	L.S.	\$ 13,742.00
3	Final Report	L.S.	L.S.	\$ 8,320.00
4	Project Admin./Mobilization	L.S.	L.S.	\$ 2,026.00
Total Not to Exceed without Extended Monitoring				\$ 123,388.00

Note: City Option to Extended Monitoring to be determined at 60 days into the monitoring.

Additional Services

Payment for additional services associated with the Upper White Rock Creek Basin and J Place Lift Station Sewer System Assessment will be based on the flow monitoring study results and quantities of work established after consultation with the City project manager.

EXHIBIT "D"
ENGINEERING
INSURANCE

INSURANCE: (Review this section carefully with your insurance agent prior to bid or proposal submission. See "Insurance Checklist" on the last page or specific coverages applicable to this contract).

1. General Insurance Requirements:

- 1.1 The Engineer (hereinafter called "Engineer") shall not start work under this contract until the Engineer has obtained at his own expense all of the insurance called for here under and such insurance has been approved by the City. Approval of insurance required of the Engineer will be granted only after submission to the Purchasing Agent of original, signed certificates of insurance or, alternately, at the City's request, certified copies of the required insurance policies.
- 1.2 All insurance policies required hereunder shall be endorsed to include the following provision: "It is agreed that this policy is not subject to cancellation, non-renewal, without first providing the Risk Manager, City of Plano, at least ten (10) days prior written notice."
- 1.3 No acceptance and/or approval of any insurance by the City shall be construed as relieving or excusing the Engineer from any liability or obligation imposed upon the provisions of the Contract.
- 1.4 The City of Plano (including its elected and appointed officials, agents, volunteers, and employees) is to be named as an additional insured under Engineer's General Liability Policy, and the certificate of insurance, or the certified policy, if requested, must so state. Coverage afforded under this paragraph shall be primary as respects the City, its elected and appointed officials, agents and employees.
 - 1.4.1 The following definition of the term "City" applies to all policies issued under the contract:

The City Council of the City of Plano and any affiliated or subsidiary Board, Commission Authority, Committee, or Independent Agency (including those newly constituted), provided that such affiliated or subsidiary Board Commission, Authority, Committee, or Independent Agency is either a Body Politic created by the City Council of the City of Plano, or one in which controlling interest is vested in the City of Plano; and City of Plano Constitutional Officers.
- 1.5 The Engineer shall provide insurance as specified in the "Insurance Checklist" (Checklist) found on the last page of the bid or proposal form. Full limits of insurance required in the Checklist of this agreement shall be available for claims arising out of this agreement with the City of Plano.

- 1.6 Engineer agrees to defend and indemnify the City of Plano, its officers, agents and employees as provided in Paragraph VII. of this contract.
- 1.7 Insurance coverage required in these specifications shall be in force throughout the Contract Term. Should the Engineer fail to provide acceptable evidence of current insurance within seven (7) days of written notice at any time during the Contract Term, the City shall have the absolute right to terminate the Contract without any further obligation to the Engineer, and the Engineer shall be liable to the City for the entire additional cost of procuring performance and the cost of performing the incomplete portion of the Contract at time of termination.
- 1.8 Written requests for consideration of alternate coverages must be received by the City Purchasing Manager at least ten (10) working days prior to the date set for receipt of bids or proposals. If the City denies the request for alternative coverages, the specified coverages will be required to be submitted.
- 1.9 All required insurance coverages must be acquired from insurers authorized to do business in the State of Texas and acceptable to the City. The City prefers that all insurers also have a policyholder's rating of "A-" or better, and a financial size of "Class VI" or better in the latest edition of A.M. Best, or A or better by Standard and Poors, unless the City grants specific approval for an exception.
- 1.10 Any deductibles shall be disclosed in the Checklist and all deductibles will be assumed by the Engineer. Engineer may be required to provide proof of financial ability to cover deductibles, or may be required to post a bond to cover deductibles.

2. Engineer's Insurance - "Occurrence" Basis:

- 2.1 The Engineer shall purchase the following insurance coverages, including the terms, provisions and limits shown in the Checklist.
 - 2.1.1 Commercial General Liability - Such Commercial General Liability policy shall include any or all of the following as indicated on the Checklist:
 - i. General aggregate limit is to apply per project;
 - ii. Premises/Operations;
 - iii. Actions of Independent Contractors;
 - iv. Contractual Liability including protection for the Engineer from claims arising out of liability assumed under this contract;
 - v. Personal Injury Liability including coverage for offenses related to employment;
 - vi. Explosion, Collapse, or Underground (XCU) hazards; if applicable. This coverage required for any and all work involving drilling, excavation, etc.
 - 2.1.2 Business Automobile Liability including coverage for any owned, hired, or non-owned motor vehicles and automobile contractual liability.

- 2.1.3 Workers' Compensation - statutory benefits as required by the State of Texas, or other laws as required by labor union agreements, including Employers' Liability coverage.

3.0 Engineer's Insurance – Claims Made

Professional Errors and Omissions

The Engineer shall carry Professional Liability insurance which will pay for injuries arising out of negligent errors or omissions in the rendering, or failure to render professional services under the contract, for the term of the Contract and up to three years after the contract is completed in the amount shown in the Checklist.

Professional Errors and Omissions, Limit \$1,000,000
per claim and aggregate of \$2,000,000

ENGINEERING

City of Plano - Insurance Checklist

("X" means the coverage is required.)

Coverages Required

Limits (Figures Denote Minimums)

<input checked="" type="checkbox"/> 1. Workers' Compensation & Employers' Liability	Statutory limits of State of Texas \$100,000 accident \$100,000 disease \$500,000 policy limit disease
<input type="checkbox"/> 2. For Future Use	
<input type="checkbox"/> 3. City Approved Alternative Workers' Comp. Program	\$150,000 medical, safety program
<input checked="" type="checkbox"/> 4. General Liability	Complete entry No. 26 Minimum \$500,000 each occurrence \$1,000,000 general aggregate
<input checked="" type="checkbox"/> 5. General aggregate applies per project (CGL)	
<input checked="" type="checkbox"/> 6. Premises/Operations	(Items No. 3-10 & 12 require)
<input checked="" type="checkbox"/> 7. Independent Contractors	<u>\$500,000</u> combined single limit for bodily injury and property damage
<input type="checkbox"/> 8. Products	damage each occurrence with
<input type="checkbox"/> 9. Completed Operations	\$1,000,000 general aggregate that applies to project under contract
<input checked="" type="checkbox"/> 10. Contractual Liability	
<input checked="" type="checkbox"/> 11. Personal Injury Liability	\$500,000 each offense & aggregate
<input type="checkbox"/> 12. XCU Coverages	
<input checked="" type="checkbox"/> 13. Automobile Liability	\$500,000 Bodily Injury & Property
<input checked="" type="checkbox"/> 14. Owned, Hired & Non-owned	Damage each accident
<input type="checkbox"/> 15. Motor Carrier Act Endorsement	
<input checked="" type="checkbox"/> 16. Professional Liability	\$1,000,000 each claim \$2,000,000 aggregate
<input type="checkbox"/> 17. Garage Liability	\$_____ BI & PD each occurrence

EXHIBIT "E"

AFFIDAVIT OF NO PROHIBITED INTEREST AND COMPLIANCE WITH CITY OF PLANO'S EQUAL RIGHTS ORDINANCE

A. No Prohibited Interest

I, the undersigned, declare that I am authorized to make this statement on behalf of **Pipeline Analysis LLC**, a limited liability company organized under the laws of the State of Texas, and I have made a reasonable inquiry and, to the best of my knowledge, no person or officer of **Pipeline Analysis LLC**, is employed by the City of Plano or is an elected or appointed official of the City of Plano within the restrictions of the Plano City Charter.

I am aware that Section 11.02 of the City Charter states:

"No officer or employee of the city shall have a financial interest, direct or indirect, in any contract with the city, nor shall be financially interested, directly or indirectly, in the sale to the city of any land, or rights or interest in any land, materials, supplies or service. The above provision shall not apply where the interest is represented by ownership of stock in a corporation involved, provided such stock ownership amounts to less than one (1) per cent of the corporation stock. Any violation of this section shall constitute malfeasance in office, and any officer or employee of the city found guilty thereof shall thereby forfeit his office or position. Any violation of this section with the knowledge, express or implied, of the persons or corporation contracting with the city shall render the contract voidable by the city manager or the city council."

B. Equal Rights Compliance

1. Section 2-11(F) of the City Code of Ordinances reads as follows:

"It shall be unlawful for an employer to discriminate against any person on the basis of race, color, sex, religion, age, national origin, genetic information, sexual orientation, gender identity, disability status or United States military/veteran status by the following actions or inactions:

- (a) for an employer to fail or refuse to hire, or to discharge, any person;
- (b) for an employer to discriminate against any person with respect to compensation, terms, conditions or privileges, of employment;
- (c) for an employer to limit, segregate or classify employees or applicants for employment in any way that would deprive or tend to deprive a person of employment or employment opportunities, or that would otherwise adversely affect a person's status as an employee;
- (d) for an employment agency to fail or refuse to refer for employment, or to otherwise discriminate against, any person because of a protected employment characteristic;
- (e) for an employment agency to classify or refer for employment any person, on the basis of a protected employment characteristic;
- (f) for a labor organization to exclude or expel from its membership, or to otherwise discriminate against, any person because of a protected employment characteristic;
- (g) for a labor organization to fail or refuse to refer for employment any person because of a protected employment characteristic;
- (h) for a labor organization to limit, segregate or classify its members or applicants for membership, in any way that would deprive or tend to deprive a person of employment or employment opportunities, or that would otherwise adversely affect a person's status as an employee or as an applicant for employment; or
- (i) for a labor organization to cause or attempt to cause an employer to discriminate against a person in violation of this subsection;
- (j) for an employer, a labor organization or a joint labor-management committee, to discriminate against any person because of a protected employment characteristic in the admission to, or

- employment in, any program established to provide apprenticeship or other training;
- (k) for an employer to print or publish, or cause to be printed or published, any notice or advertisement relating to employment by the employer that indicates any preference, limitation, specification or discrimination, based on a protected employment characteristic;
- (l) for an employment agency to print or publish, or cause to be printed or published, any notice or advertisement relating to membership in or any classification or referral for employment by the employment agency that indicates any preference, limitation, specification or discrimination, based on a protected employment characteristic; or
- (m) for a joint labor-management committee to print or publish, or cause to be printed or published, any notice or advertisement relating to admission to, or employment in, any program established to provide apprenticeship or other training by the joint labor-management committee that indicates any preference, limitation, specification or discrimination, based on a protected employment characteristic.”

2. I am aware that my company, its directors, officers and employees must comply with Section 2-11(F) of the City Code of Ordinances unless an exclusion applies, as indicated below. Further, I understand that if Section 2-11(F) applies, I am entitled to apply to the City Manager for a waiver from signing this section of the affidavit based on a conflict with state or federal law. The contract will not be executed prior to the waiver issue being resolved.

Having made reasonable inquiry, I affirm that my company, its directors, officers and employees agree to comply with Section 2-11(F); or my company is excluded from this Ordinance based on the following: **[PLEASE CHECK BELOW, IF APPLICABLE]**

_____ A religious organization.

_____ A political organization.

_____ An educational institution.

_____ A branch or division of the United States government or any of its departments or agencies.

_____ A branch or division of the State of Texas or any of its departments, agencies or political subdivisions.

_____ A private club that is restricted to members of the club and guests and not open to the general public.

_____ Is not an “employer” under Section 2-11(F) because it has not had 15 or more employees for each working day in each of 20 or more calendar weeks in the current or preceding calendar year.

[THIS SPACE INTENTIONALLY LEFT BLANK]

I also understand and acknowledge that a violation of Section 11.02 of the City Charter or Section 2-11(F) of the City Code of Ordinances, if applicable, at any time during the term of this contract may render the contract voidable by the City.

Pipeline Analysis LLC

By: _____
Signature

Print Name

Title

Date

STATE OF TEXAS §
 §
COUNTY OF DALLAS §

SUBSCRIBED AND SWORN TO before me this _____ day of _____, 2016.

Notary Public, State of Texas