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6060 North Central Expressway, Suite 400, Dallas, Texas 75206

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March 22, 2024

Mike Garza, PE  
City of Coppell  
265 E Parkway Boulevard  
Coppell, Texas 75019

Re: Northlake Woodlands Drainage Study  
City of Coppell, Dallas County, Texas  
LJA Job No. NTP3341-0391  
LJA Proposal No. 24-28029

Dear Mr. Garza:

LJA Engineering, Inc. is pleased to submit the attached Scope of Services for Northlake Woodlands Drainage Study. If this proposal meets with your approval, please prepare an Engineering Services Contract for execution.

We appreciate the opportunity to submit this proposal and look forward to working with you on this project. If you have any questions regarding this information, please contact one of us.

Sincerely,

Maria C. Martinez, PE, CFM  
Project Manager  
214.620.2800  
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**EXHIBIT A**  
**SCOPE OF SERVICES AND COMPENSATION**

**PROJECT IDENTIFICATION**

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Northlake Woodlands Drainage Study  
City of Coppell, Dallas County, Texas  
LJA Job No. NTP3341-0391  
LJA Proposal No. 24-28029

**PROJECT DESCRIPTION**

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LJA Engineering, Inc. is pleased to present this proposal to provide professional engineering services to analyze the runoff patterns that impact the Northlake Woodlands neighborhood. The area along Arbor Brook Lane, Leavalley Lane, Rocky Branch Lane and Rolling Hills Lane has experienced frequent flooding complaints from its residents over the years. This study is to determine the cause of flooding, establish flooding relief alternative solutions, and determine potential conceptual construction cost associated with those solutions.

This project will be a full dynamic two-dimensional (2-D) analysis of the existing storm drainage system in order to evaluate the flood problem area based on the 2-, 25-, and 100-year storm event per City Criteria. XPSTORM software will be used to perform this analysis. In order to evaluate better the flow patterns for the area a rain on grid (direct rainfall) methodology will be implemented. This means that rainfall will be applied to the entire area directly to the 2D grid cells. Figure 1 shows the storm drainage that will be modeled.

**SCOPE OF SERVICES**

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**MUNICIPAL SERVICES**

**260. LOCALIZED FLOODING ANALYSIS**

**XPSTORM Direct Rainfall Analysis**

Task 1: Project Initiation:

1. Kick-off Meeting
  - Develop a detailed project schedule.
  - Discuss any known drainage complaints with City staff.
  - Discuss scope of work with City staff.

2. Data collection:
  - Obtain Geographic Information System (GIS) data for storm sewer lines, inlets, manholes, and outfalls from the City.
  - Obtain the as-built storm sewer plans for the area of interest from the City.
  - Obtain design plans for the proposed storm sewer system between Arbor Brook Lane and Leavalley Lane.
  - Obtain the 2020 Master Drainage Plan and Stormwater Utility Rate Study report, models, and GIS digital files.
  - Obtain water and sanitary GIS data for the area of interest from the City.
  - Obtain the rainfall depths for the 2-, 25-, and 100-year storm events from Dallas County section 5.0 of the iSWM manual.
  - Obtain the latest topographic data (2019 LiDAR points) from the City.
  - Obtain the latest aerial photography for the project area from the City.
3. Terrain Preparation:
  - Develop a Digital Elevation Model (DEM) of the watershed.
  - Prepare 1-foot contours.
  - Prepare a base map for the project.
4. Field Verification
  - Perform field reconnaissance to verify storm water infrastructure features.

Task 2: XPSTORM Existing Conditions Analysis based on existing Land Use:

Model approximately 4,120 LF of storm sewer system (this includes existing storm sewer systems and the proposed storm sewer system between Arbor Brook Lane and Leavalley Lane currently under design).

1. Hydrologic Analysis:
  - Delineate a drainage area boundary for the project site.
  - Prepare land use based on existing land use conditions.
  - Prepare 2D grid and apply rainfall for the 2-yr, 25-yr & 100-yr storm event
  - Internal QAQC – Hydrologic data.
  - Address QAQC Comments.
2. Hydraulics Analysis:
  - Create the storm water system in GIS referencing the as-built plans, and City's GIS layers.
  - Generate inlet rating curves based on inlet characteristics.
  - Calculate minor losses for the main trucks and major laterals.
  - Roadside ditches along Arbor Brook Lane Leavalley Lane, Rocky Branch, and Rolling Hills Road will be modeled in 2D using the survey data (xml files provided by survey). Other tributaries, ditches, swales within the watershed will be modeled in 2D as well utilizing the LiDAR terrain.
  - Import the storm sewer lines (links) and the inlets, manholes, and outfalls (nodes) into XPSTORM model.
  - Input the inlet rating curves and minor losses for storm sewer mains.
  - Any detention basins located within the watershed will be modeled in 2D utilizing the LiDAR terrain.
  - Run model and debug.
  - Internal QAQC – Hydraulic and Hydrologic data and results.

- Address QAQC Comments.
- Map the XPSTORM existing 2-, 25-, and 100-year floodplains.
- Identify problem areas based on the 100-year storm event.
- Provide digital files of the floodplains and existing storm sewer system in a format compatible with City's GIS.
- One (1) meeting with City to discuss existing results, problem areas and possible solutions.

#### Task 3: XPSTORM Proposed Conditions Analysis:

1. Meet internally to brainstorm possible alternatives to reduce flood depths at the subject properties.
2. Storm drainage alternatives will be evaluated for the 100-year storm event based upon flooding problems identified during the existing conditions modeling. The types of projects that will be evaluated are installing new storm sewer systems where none currently exists, and ditch roadside improvements. Up to three (3) alternatives will be evaluated. The alternatives to be evaluated are: Roadside ditches improvements only, a combination of roadside ditch improvements and storm sewer systems, and storm sewer system only. Alternatives will be evaluated to meet City Drainage Criteria Manual requirements. Note: the ditch improvements will be modeled in 1D with 2D overbanks.
3. Meet one (1) time with the City to review alternatives to obtain feedback and select the recommended alternative for the 100-year storm event.
4. The recommended 100-year storm event alternative will be evaluated for the 25-year storm event, therefore adjustment to the 100-year recommended alternative will be considered.
5. Internal QAQC.
6. Address QAQC Comments.
7. Meet one (1) time with the City to review the 25-year storm event alternative.
8. Develop conceptual level construction cost estimates that includes contingency and engineering testing for the recommended alternative for the 100-year and 25-year storm events.

#### Task 4: Technical Memorandum (TM)

1. Prepare a technical memorandum (TM) describing study methodologies and results. TM will also include exhibits and tables.
2. Prepare digital file to submit to the City: ditch centerline, storm sewer system modeled, survey data, 2-, 25-, and 100-year floodplain.
3. Submit one (1) draft copy to the City for review and comment.
4. Prepare final memorandum incorporating City comments. All digital data including final memorandum will be provided.

#### Task 5: Project Coordination and Management

1. Provide periodic status reports.
2. Provide meeting minutes.
3. Coordination/communication with the City of Coppell for the duration of the study.
4. Internal coordination of project tasks.
5. Maximum four (4) meetings with City Staff.

## **SURVEYING SERVICES**

### **610. TOPOGRAPHIC SURVEY**

Conduct topographic survey along Arbor Brook Lane, Leavalley Lane, Rocky Branch Lane, and Rolling Hills Road that includes roadway pavement, sidewalks, roadside ditches and all appurtenances associated. Storm sewer infrastructure will also be surveyed where exists along these roadways. Figure 2, shows the survey locations.

Perform a field topographic survey that is in compliance with the standards and specifications of a Category 6, Topographical Survey as defined in the current MANUAL OF PRACTICE for Land Surveying in the State of Texas, published by the Texas Society of Professional Surveyors. The surveys horizontal and vertical control will be established from City of Arlington Control Monument network. The horizontal datum will be Texas State Plane Coordinate System NAV83 Texas North Central Zone 4202 and the vertical datum will be the North American Vertical Datum (NAVD) 88.

### **ADDITIONAL SERVICES**

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Compensation for any other Additional Services not listed herein will be billed on a time and materials basis in accordance with LJA Standard Rate Schedule below or on a lump sum basis agreed upon at the time the work is authorized. Additional services include, but are not limited to:

- Civil Design Services
- Environment Impact statements and assessments
- FEMA submittals
- Permitting of any kind

**EXHIBIT B  
 COMPENSATION SCHEDULE/PRICING**

**COMPENSATION SCHEDULE**

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**(00) MUNICIPAL SERVICES**

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<b>MUNICIPAL SERVICES</b>			
260	Localized Flooding Analysis	Lump Sum	\$114,275
<b>SURVEYING SERVICES</b>			
610	Topographic Survey	Lump Sum	\$42,000
Z99	Reimbursable Expenses	Estimated	\$1,000
<b>TOTAL</b>			<b>\$157,275</b>

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**BILLING RATES**

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<b>LABOR CATEGORY</b>	<b>LOWEST</b>	<b>HIGHEST</b>
Department Head (VP, Division Manager)	\$225.00	\$295.00
Senior Consultant	\$220.00	\$290.00
Director	\$210.00	\$285.00
Group/Design Manager	\$195.00	\$280.00
Sr. Project Manager	\$190.00	\$275.00
Project Manager	\$150.00	\$235.00
Senior Project Engineer	\$145.00	\$235.00
Professional Engineer (Project Engineer, APM)	\$120.00	\$195.00
Graduate / Design Engineer	\$100.00	\$160.00
Sr. Civil Designer	\$120.00	\$185.00
Civil Designer	\$ 85.00	\$150.00
Sr. Planner	\$130.00	\$195.00
Planner	\$ 85.00	\$150.00
Sr. Landscape Architect (Studio Lead)	\$170.00	\$230.00
Landscape Architect	\$115.00	\$165.00
Landscape Designer	\$ 90.00	\$140.00
Sr. Construction Manager	\$120.00	\$215.00
Construction Manager	\$105.00	\$165.00
Resident Project Representative	\$ 85.00	\$165.00
Construction Engineer	\$ 90.00	\$180.00
Construction Inspector	\$ 85.00	\$150.00
GIS Developer	\$100.00	\$190.00
GIS Analyst	\$ 70.00	\$125.00
Survey Project Manager	\$130.00	\$210.00
Project Surveyor	\$110.00	\$170.00
Survey Technician	\$ 75.00	\$155.00
3 Man Survey Crew	\$200.00	\$240.00

2 Man Survey Crew	\$160.00	\$200.00
Clerical (Admin. Assistant)	\$ 60.00	\$125.00
Intern	\$ 50.00	\$ 90.00

**REIMBURSABLE EXPENSES**

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In performance of the Scope of Services attached to the Project specific Proposal, the following types of expenses are not contemplated in the Total Proposal Fee. These are considered Reimbursable Expenses and LJA will be compensated for in accordance with the following:

1. Reproduction, out-of-town travel expenses, employee travel and mileage, and other non-labor charges directly related to the Project will be billed at cost plus ten percent.
2. Filing fees, permit fees, and other special charges which are advanced on behalf of the Client will be billed at cost plus ten percent.
3. Subcontracted services and other services by outside consultants will be billed at cost plus ten percent.
4. Vehicle mileage will be charged at the current IRS mileage rate per mile for all travel.

Contact for all Correspondence

Maria C. Martinez, PE, CFM  
Project Manager  
214.620.2800  
[mmartinez@lja.com](mailto:mmartinez@lja.com)





Key to Features	
	Road
	Stream Centerline
	Existing Storm Sewer System to Model
	Existing Storm Sewer System not to Model
	Proposed Storm Sewer to Model

**City of Coppel  
Proposal**

City of Coppel  
Dallas County,  
Texas

**Figure 1  
Storm Drainage to Be Modeled Map**

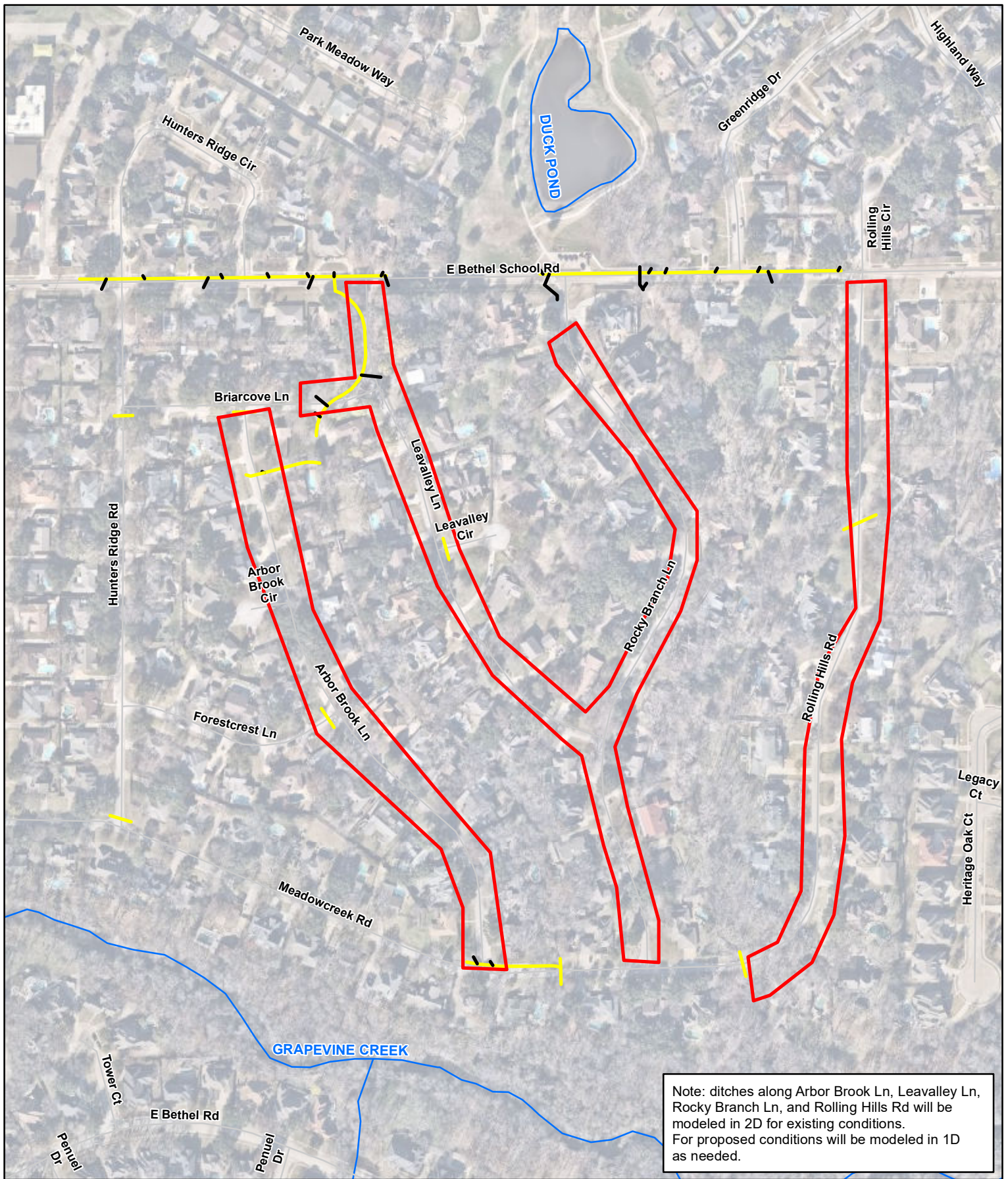
Sources: Nearmap, 2022; NFHL, 2021  
US Census Bureau, 2021

Horizontal Datum: NAD 83  
Vertical Datum: NAVD 88

0 300  
1 inch = 300 feet

FRN - F - 1386





Key to Features	
	Road
	Stream Centerline
	Existing Storm Sewer System to Model
	Existing Storm Sewer System not to Model
	Survey_Location

**City of Coopell  
Proposal**  
 City of Coppell  
 Dallas County,  
 Texas

**Figure 2  
Survey Location**

Sources: Nearmap, 2022; NFHL, 2021  
 US Census Bureau, 2021  
 Horizontal Datum: NAD 83  
 Vertical Datum: NAVD 88

1 inch = 300 feet

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