



October 21, 2016

Mr. Danny Still, P.E., C.F.M.
Drainage Engineer
City of McKinney
972-547-7631

RE: Westwood Park – Drainage Improvements – Proposal

Dear Mr. Still:

As you requested, HDR is pleased to submit this proposal to provide professional engineering services for the above-referenced project. This scope of engineering services and associated engineering services fees are in accordance with the measures recommended by City of McKinney (CITY).


HDR will provide a long term solution to stabilize and protect 'City owned' infrastructure built within the main channel areas. HDR will perform the necessary analysis to fully improve and permanently protect the outfall headwall at the upper end of the Tributary as well as the stepped concrete retaining wall.

We have divided the services into *basic* and *additional services*. **Basic Services** provides the CITY with the design and effort to produce sealed construction documents to produce the aforementioned improvements. It also includes ground survey, performance specifications and erosion control plans. Section 404 NWP evaluation, hydraulic modeling, bidding support and construction phase services are **Additional Services**.

Attached to this letter you will find the scope of services and project schedule. The compensation is reflected as **Exhibit A**. As directed by the City, this contract will be invoiced as a lump sum basis shown in Exhibit A.

Please review this proposal and submit any inquiries to Mr. Rodrigo Vizcaino at (972) 960-4466. We appreciate the opportunity to submit this proposal, and look forward to continuing our partnership with the City of McKinney.

Respectfully,
HDR



Ramon F. Miguez, P.E.
Vice President



Rodrigo Vizcaino, P.E.
Project Manager



I. SCOPE OF SERVICES

PROJECT OBJECTIVES

The channel is an Unnamed Tributary (Trib) to Jeans Creek located near the intersection of Westpark Drive South and Rockhill Road. The City of McKinney (CITY) seeks to provide a long term solution to stabilize and protect 'City owned' infrastructure built within the main channel areas. HDR Engineering, Inc. (ENGINEER) will perform the necessary analysis to improve and protect the outfall headwall at the upper end of the Tributary as well as a stepped concrete retaining wall.

Engineering Services to be provided under this Agreement shall include the following:

A. BASIC SERVICES

ENGINEER has divided the services as *basic* and *additional services*. **Basic Services** provides the CITY with the design and effort to produce sealed construction documents to produce the aforementioned improvements. It also includes ground survey, performance specifications and erosion control plans. Section 404 NWP evaluation, hydraulic modeling, bidding support and construction phase services are considered **Additional Services**.

1. PROJECT MANAGEMENT

Provide project management to coordinate with sub-consultants and internal design team. General project management will be ongoing through the period of the contract and include items such as development of a project management plan, preparing contract correspondence, developing monthly status reports, transmitting deliverables, documenting the quality control process, managing sub consultant's work production, and other project oversight activities. The final activity of this task is the overall project closeout, which includes a meeting with the City Project Manager.

ENGINEER shall attend a maximum of four (4) meetings with the CITY during the course of the project for the purpose of regular project coordination, discussion of review comments, and any other issues for which the CITY feels meetings are necessary. One (1) more public meeting is scheduled after the 90% submittal to inform residents of the project improvements. An additional three (3) meeting are anticipated during construction. Meetings have been estimated as follows:

1. Site Visit
2. 30% Design – 1 meeting
3. 60% Design – 1 meeting
4. 90% Design – 1 meeting
5. 1 meeting with residents
6. Pre bid meeting – 1 meeting
7. Construction site visits – maximum of 3 site visits

Project Limits

The project will be limited to the project area as shown in **Figure 1**. Any additional channel locations will be considered out-of-scope and additional services.

Project Assumptions

1. Project improvements are fully contained on CITY easements.
2. Hydraulic modeling and calculations for a stable longitudinal channel slope will be required and are considered additional services.
3. Design will attempt to protect CITY infrastructure including the stepped back concrete wall and the headwall of the 60" RCP.
4. Design will not attempt to repair eroded channel banks outside of City owned infrastructure.
5. Design Platform and File Setup will utilize Microstation V8i unless CITY requires a different CAD program.

2.0 DATA COLLECTION AND FIELD ASSESSMENT

1. Obtain and review available utility and as-built documents.
2. Perform a site reconnaissance to assess the nature of the channel and structures within the project limits.
3. There are no soil data collection and lab testing activities required for this project.
4. Survey for design (by North Texas Surveying, LLC (NTS)).

Refer to attached proposal from NTS. Overall, survey will provide detailed topographic survey for project with control. This will include horizontal and vertical location of right-of-way, easements, existing above ground features, trees, and visible utility appurtenances throughout the project area.

3.0 EXISTING CONDITIONS ASSESSMENT – 30% DESIGN

Preliminary design services shall include the following:

1. ENGINEER shall develop appropriate project design and drafting standards in Microstation V8i and confirm acceptance with the City prior to beginning the design.
2. Collect information gathered in the data collection and survey phase (planning) and incorporate this data into a base map file (or files) reflecting existing conditions, right of way and easements, property ownership, and utilities.

3. Produce a cover sheet, location map, sheet index, and coordinate sheet for the project.
4. Generate general notes and project layout sheet (include standard CITY's general notes). Establish preliminary horizontal and vertical centerline alignments of proposed improvements.
5. Right-of-way preparation and tree removal sheets.
6. Perform calculations (per HEC-14) to calculate the adequate protection measures to slow the velocities of the flows exiting the 60" RCP at the **existing headwall**. This may include energy dissipators.
 - a. Mitigate the potential impacts of the proposed energy dissipators on the existing channel.
 - b. Prepare a preliminary plan view layout of proposed design improvements at headwall (details and section views not included for 30% submittal).
7. Civil design and material and dimensions evaluation to determine adequate locations for **grade control structures** (based on hydraulic modeling (per additional services). Design and size grade control structures to contain the channel forming discharges along channel bottom and up into the bank as necessary. (Assumes maximum of 3 grade control structures).
 - a. Prepare a preliminary plan view layout of proposed grade control structures including section views (details not included for 30% submittal).
8. Civil design and material and dimensions evaluation for adequate protection to the existing stepped **concrete retaining wall**. Includes adding flowable fill under the undermined locations of wall. Also includes protecting channel bottom at outfall of storm drain pipe.
 - a. Prepare a preliminary plan view layout of proposed improvements to wall (section views and details not included for 30% submittal).
9. Evaluate Utility Conflicts. Prepare preliminary utility layout sheets showing horizontal location and size of existing lines, manholes, valves, and other appurtenances. If relocation of a service line is required, this will be clearly identified in the layout sheet and coordination with the utility company will be required.
10. Prepare a detailed opinion of probable construction costs (OPCC).
11. QC review and plans submittal. Preparation and submittal of up to three (3) sets of preliminary construction plans (11"x17" sheet size).
12. ENGINEER will review plans to assess the potential impacts of each component alternative and combination thereof and offer input and

coordination on the design work to avoid and minimize impacts to waters of the U.S. to the extent practicable. Permitting recommendations will be made based on the proposed impacts.

4.0 PRELIMINARY DESIGN – 60% DESIGN

Preliminary design services shall include revisions as requested (per the 30% design review).

1. Cover sheet and sheet index.
2. General notes and project layout sheet.
3. Right-of-way preparation and tree removal sheets.
4. Improvements to 60” RCP at the existing headwall.
 - i. Design adequate channel bed and slope protection around the existing headwall area. Design energy dissipators.
 - ii. Prepare a plan view layout and section views of proposed design improvements around headwall. Include details of energy dissipators.
5. Civil design and material and dimensions evaluation to determine adequate locations for grade control structures (based on hydraulic modeling (per additional services). (Assumes maximum of 3 grade control structures).
 - i. Prepare a plan view layout, section views, and details of proposed grade control structures.
6. Civil design and material and dimensions evaluation for adequate protection to the existing stepped concrete retaining wall. Includes adding flowable fill under the undermined locations of wall. Also includes protecting channel bottom at outfall of storm drain pipe.
 - i. Prepare a preliminary plan view layout of proposed improvements to wall (details included for 60% submittal).
7. Prepare utility relocation sheet (if required).
8. Prepare a preliminary outline of technical specifications and a detailed opinion of probable construction costs (OPCC).
9. QC review and plans submittal. Preparation and submittal of up to three (3) sets of preliminary construction plans, details, specifications and cost estimates (plans in 11”x17” sheet size).

5.0 90% DESIGN

Final design services shall include the following:

1. Revise 60% plans incorporating comments from the CITY.
2. Incorporate comments from the utility companies pertaining to the location of existing facilities and organize a utility coordination meeting among all impacted utilities with the CITY.
3. Finalize design of the headwall improvements, grade control structures, and improvements to the stepped concrete retaining wall. These services include:
 - a. Finalize design and technical recommendations.
 - b. Final plan, section views and details sheets.
4. Update technical specifications.
5. Calculate and provide final quantities and opinions of probable constructions costs (OPCC).
6. Design appurtenances such as special details to incorporate into the project design.
7. Final utility relocation sheet (if required).
8. QC review and plans submittal. Preparation and submittal of up to three (3) sets of preliminary construction plans, details, specifications and cost estimates (plans in 11"x17" sheet size).

6.0. 100% FINAL DESIGN

Final design services shall include the following:

1. Revise 90% plans incorporating comments from the CITY.
2. Finalize technical specifications.
3. Prepare a final OPCC based on final plans.
4. Prepare and submit final plans, section views and detail sheets. Plans will be signed and sealed.
5. Preparation and submittal of up to five (5) sets of final construction plans (11"x17" sheet size), three (3) sets of technical specifications and an estimate of probable construction costs.

B. ADDITIONAL SERVICES

1.0 RUNOFF CALCULATIONS AND HYDRAULIC MODELING

1. Perform a hydrologic analysis based on fully developed flows for the 1, 2, 10, and 100-year storm events. The Rational Method approach will be used. The project scope includes accounting for full build out of the contributing watershed.
2. Perform an open channel hydraulic model (HEC-RAS 5.0) of the Trib. from the confluence at Jeans Creek to the 60" headwall at the upstream end. This model will assist with determining flow velocities and shear forces at design locations. This information will also be used for the stream stability analysis and for rock riprap sizing. It will also be used to determine the bend and bed contraction scour on the channel.
3. Perform a stream stability analysis of the existing stream. This analysis is needed to efficiently determine a stable channel longitudinal slope to appropriately set the locations of the **grade control structures**. The soil characteristics (collected thru the USGS) will be combined with the results of the existing condition hydraulic model to determine an approximate stable longitudinal slope (slope between grade control structures). The equilibrium calculations for stable channel design parameters will be in accordance with the procedures described in Copeland et al (USACE 2001) and Stream Corridor Restoration (USDA 1998). A series of "alternative approved methods" such as the Schoktlish (1984), the Meyer-Peter (1984), will also be implemented to determine a stable channel slope. A brief technical memo and results table will be provided to the CITY explaining the methodologies used and results obtained.

2.0 SECTION 404 NWP (ENVIRONMENTAL EVALUATION)

Provide environmental services to comply with Sections 401 and 404 of the Clean Water Act (CWA). To meet the requirements of Section 404, this project could be authorized without requiring notification, under one or multiple nationwide permits (NWP), or with an individual permit.

This work shall include the following:

- a. Delineation of Waters of the U.S. and Texas Rapid Assessment Method (TXRAM).

Conduct a delineation of waters of the U.S. and gather the field data necessary to prepare a Preliminary Jurisdictional Determination (PJD) of all waters of the U.S. in the project area. Concurrently, ENGINEER will evaluate waters of the U.S. using the Texas Rapid Assessment Method (TXRAM), which is the recommended method for evaluating impacts and mitigation requirements in the USACE, Fort Worth District. The TXRAM evaluation and report may be used to calculate potential mitigation requirements should the project require a Pre-Construction Notification (PCN).

Assumptions:

- The area for delineation will include the study area sufficient in size to adequately evaluate each of the alternatives outlined as part of the feasibility analysis of this scope.
- Waters of the U.S., including wetlands, will be delineated in accordance with the USACE 1987 Wetland Delineation Manual and the 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual for the Great Plains Region: Version 2.0.
- Delineations will be recorded using a Trimble Geo XT sub-meter Global Positioning System (GPS) unit.

b. Preliminary Impact Assessment.

Assess potential impacts of each component alternative and combination thereof and offer input and coordination on the design work to avoid and minimize impacts to waters of the U.S. to the extent practicable. Possible NWP3s to consider for authorization of the proposed project include NWP3 for maintenance, NWP 13 for bank stabilization, or an individual permit.

Assumptions:

- This scope of work does not include the preparation of a PCN or Individual Permit application, should one be deemed necessary. If a PCN or Individual Permit application is necessary, a supplemental agreement (to this scope of work) will be required for a Pre-Construction Notification (PCN) to the USACE for authorization under Section 404 of the CWA.
- Expansion of the proposed development outside of the field-verified area is considered out of scope work and will require additional field work and fee.

c. Preparation of Delineation (PJD) and TXRAM Report.

Prepare a combined Delineation (PJD) and TXRAM Report to include the findings, including potential permitting recommendations for the final components selected for design.

d. Deliverables.

- A Delineation and TXRAM Report. Report will detail the findings of the Delineation and TXRAM field evaluation, and include potential permitting recommendations for final components selected for design.

3.0 BIDDING PHASE

- 1 Advertisement for Bids
The Consultant shall prepare the advertisement for bids.
- 2 Pre-Bid Meeting
The Consultant shall prepare a Pre-Bid meeting agenda and assist in conducting the Pre-Bid meeting. Consultant will provide plans and specs to potential bidders and track the potential bidders' contact information.
- 3 Addenda
The Consultant shall prepare and issue addenda as needed for bidding document modifications, including in response to issues raised by prospective bidders at the Pre-Bid Meeting as directed by the City.
- 4 Bid Opening and Tabulation
The Consultant shall attend the bid opening and tabulate all bids, check the references of the low bidder and prepare a recommendation letter to the City.

4.0 CONSTRUCTION PHASE

1. Pre-Construction Meeting
The Consultant shall assist with conducting the Pre-Construction meeting following Council award of the project.
2. Construction Site Visits
Consultant shall visit the construction site at critical stages of construction and provide written documentation. This scope of services estimates a schedule of construction of 4 months, and assumes one (1) site visit per month during construction, for a total of 4 site visits. Each site visit will include the Project Manager or his designate.
3. Shop Drawing Review
If requested by City, the Consultant shall review shop drawings, samples, concrete batch mix design and other submittals submitted by the Contractor for general conformance with the design concepts and general compliance with the requirements of the contract for construction. Such review shall not relieve the Contractor from its responsibility for performance in accordance with the contract for construction, nor is such review a guarantee that the work covered by the shop drawings, samples and submittals is free of errors, inconsistencies or omissions. The Consultant shall log and track all shop drawings, samples and other submittals.

4. **Change Orders**
The Consultant shall prepare change orders and plan revisions as needed during the construction of the project. This scope of service anticipates a reasonable number of Requests for Information (RFIs). This effort will provide necessary interpretation and clarification of the contract documents, preparation and/or review of Change Orders, and the recommendation as to the acceptability of the work.
5. **Final Walk Through**
Consultant shall conduct a final walk through to determine if the work has been completed; generate a punch list of remaining items. Consultant shall provide a letter of reconciliation for general project conformance to the City, outlining the remaining items to complete before the City can issue the Contractor a letter of acceptance.
6. **Record Drawings**
Once construction is complete, the Contractor will provide one full size set of marked up plans to serve as the primary basis for the Record Drawings. Upon receipt of the red-line markups from the Contractor and/or Inspector, Consultant shall prepare record drawings.

C. EXCLUSIONS

The intent of this scope of services is to include only the services specifically listed herein and none others. Services specifically excluded from this scope of services include, but are not necessarily limited to the following:

- a. Providing an on-site representative.
- b. Environmental impact statements and assessments.
- c. Fees for permits or advertising.
- d. Certification that work is in accordance with plans and specifications.
- e. Environmental cleanup.
- f. Landscape architecture.
- g. Flood plain reclamation plans.
- h. Trench safety designs.
- i. Quality control and testing services during construction.
- j. Services in connection with condemnation hearings.
- k. Preliminary engineering report.
- l. On-site safety precautions, programs and responsibility.

- m. Consulting services by others not included in proposal.
- n. Traffic engineering report or study.
- o. Preparation of hydrologic or hydraulic studies (or FEMA submittals). Computer modeling except as defined in the scope of services.
- p. Revisions and/or change orders as a result of revisions after completion of original design (unless to correct an error or ambiguity on the plans).

COMPLETION SCHEDULE

	Drainage Improvements
Notice to Proceed	1 day
Preliminary Meeting with City to Obtain Record Information and Review Routes	1 day
Begin Field Surveys	-
Complete Field Surveys	3 weeks
Submit Preliminary 30% Plans to City for Review	5 weeks
Submit Preliminary 60% Documents to City for Review	4 weeks
Submit Preliminary 90% Documents to City for Review	1 weeks
Complete Final Signed and Sealed Documents	2 weeks

Construction Administration Services will continue for the duration of the Construction Contracts.

IX. COMPENSATION

Payment for services shall be lump sum as shown below:

Refer to attached **Exhibit A** for a detailed breakdown of design related fees. The total amount shall not exceed **\$93,964** without written approval from the City. Payments are to be made monthly based on percent complete as determined by HDR Engineering, Inc. Invoices shall include a breakdown of costs by task, a summary of billings to date of invoice for each task, and the balance remaining for each task (as well as the total contract remaining).

November 8, 2016

Michael Arthur RPLS, President
North Texas Surveying, LLC
1010 W. University Dr, McKinney, TX 75069

***Rodrigo Vizcaino, P.E. (TX), CFM, Senior Project Manager / North Texas, HDR
17111 Preston Road, Suite 200 / Dallas, TX 75248-1232
D 972.960.4466***

Rodrigo,
Thank you for the opportunity to submit this proposal for the Topographic Design Survey for the West Park Drainage Survey.

Scope:

A detailed design survey of the existing features in the area designated by the exhibit provided by HDR and items in the Surveying scope of services provided by HDR on November 8th with the exception of the following.

-N.T.S. will depict only the platted easements and any other easements they have been advised of. If a title search of the subject area is conducted, N.T.S. will depict any easement that is discovered by said search.

-N.T.S. will depict only the visible above ground utilities but will get inverts where accessible.

Cost Breakdown:

Due to the amount of debris, trees to be located and the tight area in which to survey we the time estimation will be determined on an hourly basis and not to exceed. **\$19,000**

Additional design survey will be charged at an hourly rate of \$175 per hour.

If you agree to the above proposal, please sign and fax back to me at 214-504-0938 to begin the work. Thank you again for the opportunity to provide these services. Please contact me if you have any questions.

Sincerely,

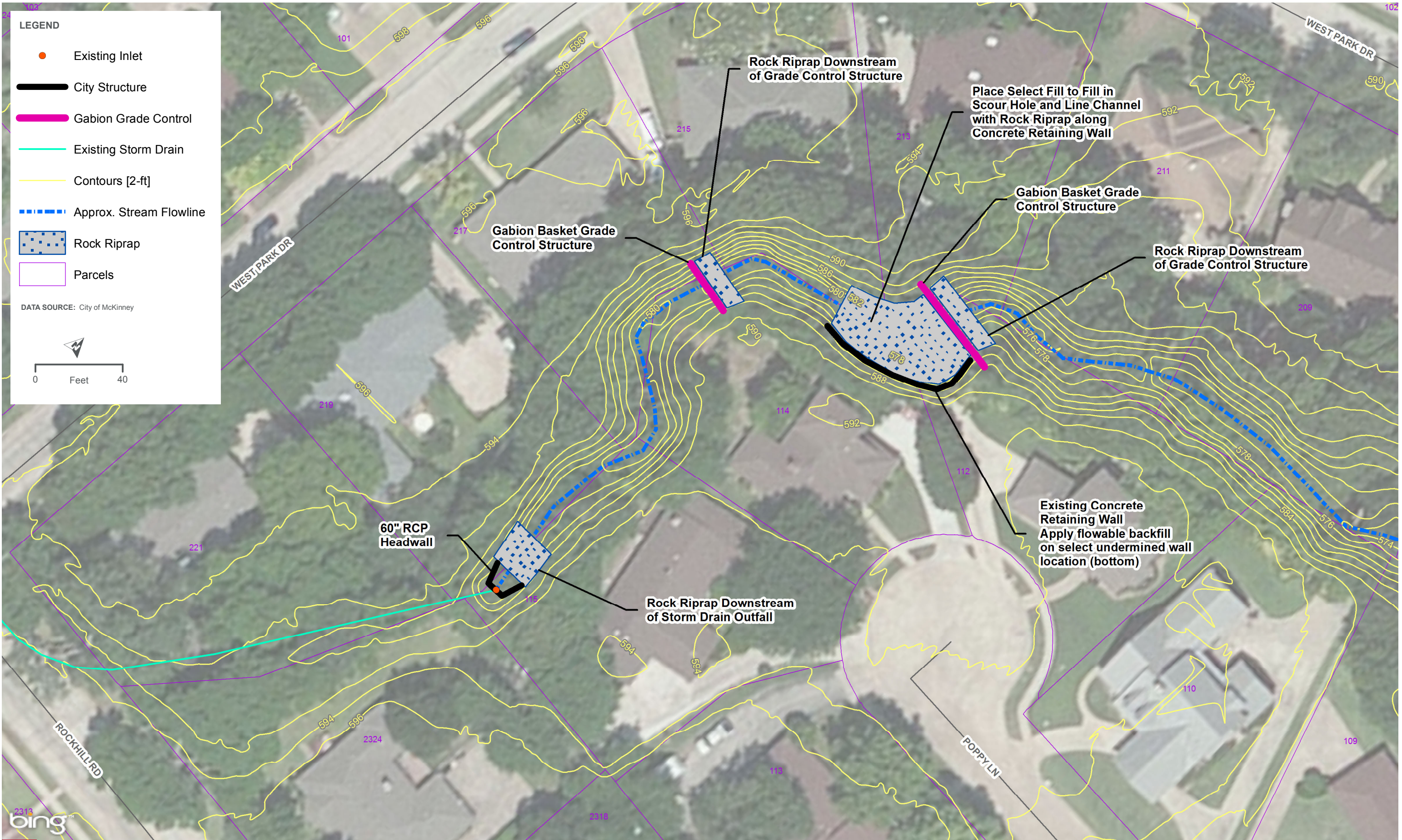
Michael B. Arthur R.P.L.S., President , North Texas Surveying L.L.C.

AGREED to on this _____ day of _____, 2016.

By: _____

Client Name: _____

Title: _____



LEGEND

- Existing Inlet
- City Structure
- Gabion Grade Control
- Existing Storm Drain
- Contours [2-ft]
- Approx. Stream Flowline
- Rock Riprap
- Parcels

DATA SOURCE: City of McKinney

0 Feet 40



Client:	City of McKinney, Texas
Project Name:	Westwood Park Ravine Erosion Control
City Project Manager:	Danny Still, P.E., CFM
HDR Project Manager:	Rodrigo Vizcaino, P.E., CFM
Client Project Number:	NA
Date Prepared:	11/14//2016

PRELIMINARY ENGINEER'S OPINION OF PROBABLE CONSTRUCTION COST (OPCC)

Item No.	Description	Units	Quantity	Unit Price	Item cost
	Mobilization - Site Preparation, Clearing and Grubbing	LS	1	\$20,000	\$20,000
	Unclassified channel excavation & removal	CY	185	\$25	\$4,630
	Density controlled channel fill	CY	253	\$24	\$6,080
	Flowable backfill	CY	53	\$130	\$6,933
	3'x3' Gabion Basket (PVC Coated)	CY	180	\$300	\$54,000
	Rock Riprap (D50=15")	CY	294	\$170	\$50,056
	Concrete Baffles (Energy Dissipaters)	EA	6	\$300	\$1,800
	Erosion Control Plan & SWPPP	LS	1	\$5,000	\$5,000
	CONSTRUCTION SUB-TOTAL				\$148,500
				CONTINGENCY (30%)	
					\$44,550
	TOTAL CONSTRUCTION WITH CONTINGENCY				\$193,050
	ENGINEERING ANALYSIS & DESIGN & SURVEY SERVICES				\$93,964
	GRAND TOTAL INCLUDING CONSTRUCTION AND DESIGN SERVICES				\$287,014