## AGREEMENT FOR PROFESSIONAL ENGINEERING SERVICES ON A DEFINED SCOPE OF SERVICES BASIS

This Agreement for Professional Engineering Services, hereinafter called "Agreement," is entered into by the **City of Kyle, Texas**, a Municipal Corporation, duly authorized to act by the City Council of said Client, hereinafter called "Client," and **Halff Associates, Inc.**, a Texas corporation, acting through a duly authorized officer, herein called "Engineer," relative to Engineer providing professional engineering services to the Client. Client and Engineer when mentioned collectively shall be referred to as the "Parties".

## W I T N E S S E T H:

For the mutual promises and benefits herein described, the Client and Engineer agree as follows:

**1. Term of Agreement.** This Agreement shall become effective on the date of its execution by both Parties, and shall continue in effect thereafter until terminated as provided herein.

**2. Services to be Performed by Engineer.** Engineer shall provide to the Client basic engineering services as described in the scope of services attachment and fully incorporated herein as "**Exhibit A"** which services may include, but will not be limited to, those services normally rendered by an engineer to a Municipal Corporation. Engineer shall perform its obligations under this agreement as an independent contractor and not as an agent or fiduciary of any other party.

**3. Compensation** - Client agrees to pay monthly invoices or their undisputed portions within 30 days of receipt. Payment later than 30 days shall include interest at 1 percent (1%) per month or lesser maximum enforceable interest rate, from the date the Client received the invoice until the date Engineer receives payment. Such interest is due and payable when the overdue payment is made.

It is understood and agreed by the Parties that Engineer's receipt of payment(s) from Client is not contingent upon Client's receipt of payment, funding, reimbursement or any other remuneration from others.

Time-related charges will be billed as specified in this Agreement. Unless stated otherwise in this Agreement, direct expenses, subcontracted services and direct costs will be billed at actual cost plus a service charge of 10 percent. Mileage will be billed at current IRS rates.

**4. Client's Obligations.** The Client agrees that it will (i) designate a specific person to act as the Client's representative, (ii) provide Engineer with any previous studies, reports, data, budget constraints, special Client requirements, or other pertinent information known to the Client, when necessitated by a project, (iii) Client agrees to provide site access, and to provide those services described in the attached Scope of Services assist Engineer in obtaining access to property necessary for performance of Engineer's work for the Client, (iv) make prompt payments in response to Engineer's statements and (v) respond in a timely fashion to requests from Engineer. Engineer is entitled to rely upon and use, without independent verification and without liability, all information and services provided by the Client or the Client's representatives.

**5. Termination of Work** - Either the Client or the Engineer may terminate this Agreement at any time with or without cause upon giving the other Party ten (10) calendar days' prior written notice. Client agrees that termination of Engineer for Client's convenience shall only be utilized in good faith, and shall not be utilized if either the purpose or the result of such termination is the performance of all or part of Engineer's services under this Agreement by Client or by another service provider. Following Engineer's receipt of such termination notice the Client shall, within ten (10) calendar days of Client's receipt of Engineer's final invoice, pay the Engineer for all services rendered and all costs incurred up to the date of Engineer's receipt of such notice of termination.

**6. Ownership of Documents** - Upon Engineer's completion of services and receipt of payment in full, Engineer shall grant to Client a non-exclusive license to possess the final drawings and instruments produced in connection with Engineer's performance of the work under this Agreement, if any. Said drawings and instruments may be copied, duplicated, reproduced and used by Client for the purpose of constructing, operating and maintaining the improvements. Client agrees that such documents are not intended or represented to be suitable for reuse by Client or others for purposes outside the Scope of Services of this Agreement. Notwithstanding the foregoing, Client understands and agrees that any and all computer programs, GIS applications, proprietary data or processes, and certain other items related to the services performable

under this Agreement are and shall remain the sole and exclusive property of Engineer and may not be used or reused, in any form, by Client without the express written authorization of Engineer. Client agrees that any reuse by Client, or by those who obtain said information from or through Client, without written verification or adaptation by Engineer, will be at Client's sole risk and without liability or legal exposure to Engineer or to Engineer's employees, agents, representatives, officers, directors, affiliates, shareholders, owners, members, managers, attorneys, subsidiary entities, advisors, subconsultants or independent contractors or associates. Engineer may reuse all drawings, reports, data and other information developed in performing the services described by this Agreement in Engineer's other activities.

**7. Notices.** Any notices to be given hereunder by either party to the other may be affected either by personal delivery, in writing, or by registered or certified mail.

**8. Sole Parties and Entire Agreement.** This Agreement shall not create any rights or benefits to anyone except the Client and Engineer, and contains the entire agreement between the parties. Oral modifications to this Agreement shall have no force or effect.

**9. Indemnification.** Engineer does hereby agree to, indemnify Client and its officials, officers, agents, representatives, employees and invitees from and against liability, claims, suits, demands and/or causes of action, (including, but not limited to, reasonable attorney's fees and costs of litigation), which arise by reason of death or injury to property or persons but only to the extent caused by the negligent act or omission or willful misconduct of Engineer, Engineer's employees, agents, representatives, officers, directors, affiliates, shareholders, owners, members, managers, attorneys, subsidiary entities, advisors, subconsultants or independent contractors or associates.

In the event that the Client and Engineer are alleged or found to be concurrently negligent, the Parties agree that all liability shall be calculated on a comparative basis of fault and responsibility and that neither Party shall be required to defend or indemnify the other Party for that Party's negligent or intentional acts, errors or omissions.

**10. Insurance.** Engineer shall, at its own expense, purchase, maintain and keep in force throughout the duration of this Agreement and for a period of three years thereafter, professional liability insurance. The limits of liability shall be $1,000,000 per claim and in the aggregate. For coverage provided on a claims-made basis, Engineer agrees to use its best efforts to maintain this policy for a period of four (4) years after the cessation of any work for the Client or shall purchase the extended reporting period or "tail" coverage insurance providing equivalent coverage for the same period of time. Engineer shall submit to the Client a certificate of insurance prior to commencing any work for the Client.

**11. Prompt Performance by Engineer.** All services provided by Engineer hereunder shall be performed in accordance with the degree of care and skill ordinarily exercised under similar circumstances by competent members of the engineering profession in the State of Texas applicable to such engineering services contemplated by this Agreement.

**12. Client Objection to Personnel.** If at any time after entering into this Agreement, the Client has any reasonable objection to any of Engineer's personnel, or any personnel, professionals and/or consultants retained by Engineer, Engineer shall promptly propose substitutes to whom the Client has no reasonable objection, and Engineer's compensation shall be equitably adjusted to reflect any difference in Engineer's costs occasioned by such substitution.

**13. Assignment and Delegation.** Neither the Client nor Engineer may assign their rights or delegate their duties without the written consent of the other party. This Agreement is binding on the Client and Engineer to the fullest extent permitted by law. Nothing herein is to be construed as creating any personal liability on the part of any Client officer, employee or agent.

**14. Jurisdiction and Venue** - This Agreement shall be administered under the substantive laws of the State Texas (and not its conflicts of law principles) which shall be used to govern all matters arising out of, or relating to, this Agreement and all of the transactions it contemplates, including without limitation, its validity, interpretation, construction, performance and enforcement. Exclusive venue shall lie in Hays County, Texas.

**15. Integration, Merger and Severability** – This Agreement and the Scope of Services, including fee and schedule are fully incorporated herein and represent the entire understanding of Client and Engineer. No prior oral or written understanding shall be of any force or effect with respect to those matters covered herein. The Agreement may not be modified or altered except in writing signed by both Parties. This Agreement constitutes, represents and is intended by the Parties to be the complete and final statement and expression of all of the terms and arrangements between the Parties to this Agreement with respect to the matters provided for in this Agreement. This Agreement supersedes any and all prior or contemporaneous agreements, understandings, negotiations, and discussions between the Parties and all such matters are merged into this Agreement. Should any one or more of the provisions contained in this Agreement be determined by a court of competent jurisdiction or by legislative pronouncement to be void, invalid, illegal, or unenforceable in any respect, such voiding, invalidity, illegality, or unenforceability shall not affect any other provision hereof, and this Agreement shall be considered as if the entirety of such void, invalid, illegal, or unenforceable provision had never been contained in this Agreement.

**16. Exclusivity of Remedies** – The Parties acknowledge and agree that the remedies set forth in this Agreement, including those set forth in Article 9. Indemnification and Article 20. Agreed Remedies are and shall remain the Parties' sole and exclusive remedy with respect to any claim arising from, or out of, or related to, the subject matter of this Agreement. The Parties agree that Engineer is to have no liability or responsibility whatsoever to Client for any claim(s) or loss(es) of any nature, except as set forth in this Agreement. No Party shall be able to avoid the limitations expressly set forth in this Agreement by electing to pursue some other remedy.

**17. Timeliness of Performance** - Engineer shall perform its professional services with due and reasonable diligence consistent with sound professional practices.

**18. Dispute Resolution.** In the event of any disagreement or conflict concerning the interpretation of this Agreement, and such disagreement cannot be resolved by the signatories hereto, the signatories agree to schedule a series of no less than two meetings of senior personnel of Client and Engineer in which the disagreement or conflict will be discussed. The first of such meetings will be scheduled as soon as possible following identification of such disagreement or conflict and the second meeting must occur within thirty (30) days following the initial meeting. Subsequent meetings, if any may be scheduled upon mutual agreement of the parties. The parties agree that these two meetings are conditions precedent to the institution of legal proceedings unless such meetings will adversely affect the rights of one or more of the parties as such rights relate to statutes of limitation or repose.

**19. Signatories.** The Client and Engineer mutually warrant and represent that the representation of each who is executing this Agreement on behalf of the Client or Engineer, respectively, has full authority to execute this Agreement and bind the entity so represented.

**20. AGREED REMEDIES - <u>IN RECOGNITION OF THE RELATIVE RISKS AND BENEFITS OF THE PROJECT TO BOTH THE CLIENT AND THE ENGINEER, AND ACKNOWLEDGING THAT THE ALLOCATION OF RISKS AND LIMITATIONS OF REMEDIES ARE BUSINESS UNDERSTANDINGS BETWEEN THE PARTIES AND THESE RISKS AND REMEDIES SHALL APPLY TO ALL POSSIBLE LEGAL THEORIES OF RECOVERY. CLIENT FURTHER AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, AND NOTWITHSTANDING ANY OTHER PROVISIONS OF THIS AGREEMENT OR ANY REFERENCE TO INSURANCE OR THE EXISTENCE OF APPLICABLE INSURANCE COVERAGE, THAT THE TOTAL LIABILITY, IN THE AGGREGATE, OF THE ENGINEER AND ENGINEER'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, AND SUBCONSULTANTS TO THE CLIENT OR TO ANYONE CLAIMING BY, THROUGH OR UNDER THE CLIENT, FOR ANY AND ALL CLAIMS, LOSSES, COSTS OR DAMAGES WHATSOEVER ARISING OUT OF, RESULTING FROM, OR IN ANY WAY RELATED TO, THE SERVICES UNDER THIS AGREEMENT FROM ANY CAUSE OR CAUSES OF THE ENGINEER OR THE ENGINEER'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS, AND SUBCONSULTANTS, SHALL NOT EXCEED THE ENGINEER'S INSURANCE LIABILITY.</u>**



_____/_____
Client Initial / Date

**Further, it is the intent of the Parties to this Agreement that Engineer's services under this Agreement shall not subject Engineer's individual employees, officers or directors to any personal legal exposure for claims and risks associated with the services performed or performable under this Agreement.**

**21. WAIVER** - Any failure by Engineer to require strict compliance with any provision of this Agreement shall not be construed as a waiver of such provision, and Engineer may subsequently require strict compliance at any time, notwithstanding any prior failure to do so.

**IN WITNESS WHEREOF**, the parties, having read and understood this Agreement, have executed such in duplicate copies, each of which shall have full dignity and force as an original, on the _____ day of _____, 20___.

| | **HALFF ASSOCIATES, INC.** | **CITY OF KYLE, TEXAS** |
|---|---|---|
| By: | Michael A Maya<br>Signature | _____<br>Signature |
| | Michael A. Maya<br>Printed Name | _____<br>Printed Name |
| | Vice President<br>Title | _____<br>Title |
| | 3/9/2017<br>Date | _____<br>Date |



_____/_____
Client Initial / Date

# EXHIBIT A

**CITY OF KYLE**
**DRAINAGE MASTER PLAN**
**SCOPE OF WORK**
March 8, 2017
Revised March 30, 2017

## Project Introduction

Over the last several decades, the City of Kyle (City) has experienced significant growth and development. A recent annexation of over 10 square miles of land increased the total area within the City limits to approximately 30 square miles, equating to a 50% increase. The City has an estimated population of 38,800 and has been one of the fastest growing cities in the state. The rapid growth is largely attributed to its proximity to Austin and location along the Interstate Highway 35 corridor. The City is expected to continue to grow, both in population and economic vitality. This has resulted in a significant increase in the amount of drainage infrastructure the City is responsible for maintaining. The City experienced significant flooding as a result of the Halloween storm events in both 2013 and 2015. There were a number of structures flooded throughout the City resulting in varying degrees of damage which included major roadways and other infrastructure.

With development comes an increased risk of flooding from streams as well as other sources, which can present hazards to the public and impede growth. In an effort to more effectively plan drainage improvements and consider regulatory measures aimed at minimizing adverse impacts, the City is taking a proactive approach. As such, the City selected Halff Associates to prepare a Drainage Master Plan that will extend to the City Limits and the Extra-Territorial Jurisdiction (ETJ) (See attached Overview Map). The services and products resulting from the study shall be referred to as the ***City of Kyle Drainage Master Plan (DMP)***.

Streams to be included in the study will be Plum Creek and its tributaries, Bunton Branch and its tributaries, Richmond Branch, Upper Blanco River and associated tributaries, Porter Creek, Andrews Branch, Brushy Creek and associated tributaries, and Mustang Branch and tributaries. The study lies within four (4) Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) panels within Hays County. Local flooding areas will be identified by City staff.

## Project Purpose

The purpose and goal of the DMP is to develop a comprehensive evaluation of the existing drainage conditions throughout the City by developing an accurate and current understanding of the drainage infrastructure. This understanding will include a comprehensive inventory of existing data, accurate simulation, flooding problem area identification, and flood mitigation solutions. A drainage Capital Improvement Project (CIP) plan, including costs and potential funding mechanisms, will be developed to address flooding issues.

A detailed scope for the DMP with specific tasks and associated deliverables are discussed in the following scope of services.

## Project Scope

### Task 1: Project Management and Coordination

Halff Associates project management activities shall include task leadership and direction, telephone and written communication, project status reports, project progress meetings, project invoicing, and personnel and data management among other general project management activities. Specific meetings beyond staff management coordination and regular communication include the following:

**a. Project Meetings**

i. Attend one (1) project kickoff meeting with staff from the City. The meeting will be coordinated by the Halff Project Manager and is intended to discuss key items such as project schedule, budget, and any specific directives. Halff will provide a preliminary schedule of tasks.
ii. Attend up to five (5) progress meetings every two months, over the course of the project schedule, to discuss specific tasks such as data collection and inventory, model evaluation, field verification, ranking criteria, etc.
iii. Attend two (2) public meetings or City Council meetings for the City to discuss process, findings, and recommended flood mitigation solutions.
iv. Meeting minutes shall be submitted to the City Project Manager within five (5) working days after each meeting.

**b. Development of a Project Management Plan**

i. Develop a Project Management Plan (PMP) for the City. This is a planning and communication document that will include specific information regarding the scope and budget, as well as schedule, team resources, discussion of quality control (QA/QC) procedures, and a communication plan. PMP shall be completed prior to the project kickoff meeting.
ii. Within the PMP, the project schedule will be provided. Any delays to the project schedule shall be discussed and provided to the City for review and approval.

**c. Project Status Reports**

i. Monthly project status reports shall be provided to the City with the monthly invoice. Progress shall include notes regarding work completed in the preceding billing cycle, work expected to be completed in the next cycle, and any outstanding questions or issues for discussion.

### Task 2: Obtain and Review Available Data

Data collection and model inventory tasks will generally include gathering, organizing, and reviewing of all data provided, both hard copy and digital format. Data shall be provided by the City, as well as from other sources such as Hays County, FEMA, the U.S Army Corps of Engineers (USACE), and other consultants, if necessary. Data review tasks will generally include comprehensive analysis of all models, reports, record drawings, and GIS information to determine the accuracy and validity of each. Halff will also review the current drainage criteria and work with the City to recommend any potential changes or clarifications that may be needed. Specific tasks relating to data collection include the following:

**a. GIS Data**

i. Data requests will be directed to the City with additional requests made to outside entities, if necessary.
ii. Halff will collect and catalogue all relevant GIS data including, but not limited to, storm drain network, terrain (LiDAR) Data, land use/zoning, FEMA (both mapping and loss data), planimetrics, political boundaries, development and subdivisions, detention pond locations, utility information, parcel information, etc.
iii. All GIS data gathered will be organized in Geodatabase format for use during the DMP process and will be provided to the City.

**b. Hydrologic and Hydraulic Models**

i. Hydrologic and hydraulic (H&H) models prepared as part of the Guadalupe-Blanco River Authority (GBRA) Feasibility Flood Study Phase 1 and 1 will be utilized. These 1D hydraulic models will be leveraged and utilized to ensure flood mitigation solutions within the DMP area do not adversely impact adjacent properties.
ii. Additional models developed within the project boundary will also be requested. These may include models developed for regional detention pond projects, channel improvement projects, large scale developments, etc. A preliminary analysis of the models will be performed to determine relevance or if the GBRA watershed models include that information.
iii. Model results will be compared to the effective Digital Flood Insurance Rate Map (DFIRM) data and the flood insurance claim data provided and discrepancies will be identified. The City will request flood insurance claim data from TWDB/TNRIS. For flood insurance claim data, Halff will compare the effective floodplains to specific claim locations to help determine if the flooding is riverine or caused by a localized (site specific) flooding issue.
iv. Halff will consider the drainage patterns and determine if the modeling tools utilized are appropriate or if other tools, including Unsteady 1D or 2D hydraulic modeling are recommended for complex local drainage problem areas.

**c. Drainage Report and Record Drawings**

i. Drainage reports developed for major development projects or capital projects, including detention, channel improvement, and storm sewer improvement, will be requested from the City. Should additional subdivisions or development be identified at a later date to be included in the analysis, Halff will request additional services at that time. Identified available reports include:
    a. Infrastructure Evaluation and Analysis Report, June 2011
    b. N. Burleson St. Drainage Study, May 2015
    c. Plum Creek Development Study
ii. Record or “As-Built” drawings will be requested from the City for improvements including, but not limited to, creek improvements, detention ponds, storm sewer trunk line, and major developments. Major subdivisions such as Plum Creek Development will be collected as part of this effort.
iii. Conduct a comprehensive evaluation of the LOMRs, CLOMRs, and drainage reports for regional detention, channel improvements or major developments. A cursory review of other drainage reports will be conducted to determine if the information provided impacts the larger study.

Halff will review the scope, assumptions, methodologies, and recommendations of reports. If results were carried forward to design or construction, Halff will compare with the construction or record drawings for consistency. Constructed projects will be evaluated for consistency during the field verification phase, if needed.

**d. Master Plan and CIP Plan Review**

i. Review the current City master plans including:
   a. Comprehensive Plan
   b. Transportation Master Plan
   c. Parks and Recreation Master Plan
   d. Stormwater Management Plan (MS4 Phase 2)

ii. Review the preliminary list of identified flooding problems provided by City staff. Identified areas of flooding may include:
   a. Steeplechase along Plum Creek
   b. Jose Addition at Burleson Road
   c. Park Place/Hitching Post
   d. Lake Kyle (built for sediment retention)

iii. Records of drainage complaints received by City staff.

**e. Drainage Criteria Review**

i. Review the current drainage criteria for the City. Halff understands the City is currently creating a City Engineering Design Manual with a drainage section.

ii. Discuss with the City the general effectiveness of the criteria, areas of concern, clarifications, or additional criteria that should be considered with respect to the design procedure or land use and zoning regulations. Recommendations will be considered as part of Task 5.

**f. Storm Drainage and Flood Risk Mitigation Utility Funding Review**

i. Halff will review the current sources of funding including the current Storm Drainage and Flood Risk Mitigation Utility funding projections to include CIP projects and city-wide detention pond maintenance.

ii. Upon completion of prioritizing the CIP projects, Halff will recommend potential future fee adjustments.

**Task 3: Drainage Problem Identification**

Halff will compile a list of drainage problem area "hot spots" identified in previous studies based on the data collected in the previous task and City staff input. Remaining flood and drainage issues will be identified using the best available existing information, drainage complaints, and City known areas of flooding. A field reconnaissance will be conducted to verify drainage problem areas. The following sub-tasks to be conducted for this task include the following.

**a. Prepare Hydrologic and Hydraulic Models**

i. Utilize existing H&H models developed as part of the GBRA Feasibility Flood Study Phase 2 and 3 and modify subbasins as needed for critical facilities as identified by City staff.

ii. Assist in developing and prioritizing the list of critical facilities for suggested improvements to existing bridge/culvert crossings and future planned developments as they relate to the City's Transportation Master Plan.
iii. Based on City recommendations, develop models for critical facilities listed in Task 3.a.ii.

**b. Identify Drainage Problems**

Halff will identify drainage problems by reviewing existing H&H models from previous studies and information. The identified drainage problems may include:

i. Stream flooding
    1. Road overtopping
    2. Building flooding
ii. Stream erosion
    1. Roads threatened
    2. Buildings threatened
    3. Utility infrastructure threatened
iii. Local drainage
    1. Street flooding
    2. Subdivision (lot) flooding

**c. Field Reconnaissance**

i. Halff will conduct site visits of identified areas where access is available from public right-of-way (ROW) and of selected road crossings, storm sewer outfalls, regional detention ponds~~,~~ and sections of identified streams. Site visits will be conducted by two (2) persons, a engineer and an EIT/Intern. During the site visits, Halff will geo-locate all features, photograph the feature, and include notes regarding the dimensions, conditions, etc. This data will be entered into the Halff GIS iOS app, which is connected to the server in real time through a cellular or Wi-Fi network.
ii. Limited survey will be conducted in select areas, and as required, to verify existing conditions. This scope assume five (5) days of ground survey for a 2-man survey crew.
iii. Once the field verification process is complete, the GIS data developed will be evaluated for completeness and correctness and finalized. The data will be provided to the City as part of the final submittal.

**Task 4: Develop Drainage Solutions**

**a. Flood Mitigation Solutions**

Halff will conduct an H&H analysis of the identified drainage problem areas using updated field and survey data collected. Halff will utilize existing GBRA feasibility models to the maximum extent practicable. Updates may include the use of more advanced modeling techniques such as Unsteady 1D and 2D modeling if necessary. Other updates may include modification of development levels, updated terrain information, etc. Any new modeling will be consistent with previous modeling and be based on available data including State Soil Geographic (STATSGO) or Soil Survey Geographic (SSURGO) soil information, land use, and other available City data. A

desktop environmental assessment will be conducted to identify potential environmental permitting needs for each flood mitigation solution. Flood protection measure may include the following structural and non-structural measures as independent and combination solutions:

Structural Alternatives:

- Storm drain system improvements
- Road crossing improvements
- Channel improvements
- Detention and Retention Ponds

Non-Structural Alternatives:

- Identify flood areas and depths
- Require new buildings to be elevated
- Buy-out of buildings most prone to flooding
- Hazard classification for low water crossings
- Modifications to current drainage maintenance criteria, policies, or standards

**b. Ranking and Categorizing Projects**

Using a systematic process, Halff will rank and categorize each evaluated drainage project. The projects will be classified as Large CIP (regional), Small CIP (local), and O&M (small projects) which will be defined with City staff input. When scoring is complete, Halff will provide a draft drainage matrix for solutions developed for City review. The draft solutions will include a one page project summary that will include the project description, conceptual flood mitigation solution, and probable cost estimate. Benefit-Cost Analysis (BCA) will not be included since City does not anticipate Federal funding for project implementation.

**c. CIP Prioritization**

Halff will meet with City staff to review the project classifications and confirm objectives and assumptions for the CIP prioritization. The prioritization of the drainage CIP projects will likely be evaluated based on criteria that may include Public Safety, Economic Impact, Environmental Impact, and Project Timing among others. Each of the criteria developed will have a description and scoring values. The conceptual drainage projects will be prioritized based on the criteria scoring.

**Task 5: Evaluate Drainage Criteria**

Review and recommend changes, additions, and/or clarifications to the existing drainage criteria the City is currently revising. The following tasks may include the following:

a. Evaluate Design Criteria manual and recommend improvements
b. Recommend stream buffers and detention pond buffers
c. Recommend detention pond criteria improvement
d. Evaluate drainage checklist for development review process

e. Halff will recommend changes to specific design criteria, as well as policy updates aimed at minimizing adverse impacts.
f. Assist City staff in developing a policy, process, and estimated operation & maintenance cost to accept existing drainage infrastructure, primarily for residential subdivisions.

**Task 6: Prepare Drainage Master Plan**

The DMP submittal will include the project deliverables; a detailed narrative discussing the data collection and inventory process, compilation of all the data collected and evaluated, updated digital information, including GIS, H&H models, photos, conceptual solutions, schematic renderings, and a prioritized drainage CIP plan. Specific tasks relating to the submittal preparation include the following:

**a. Digital Data Deliverable**

i. Prepare the DMP Geodatabase for submittal. The Geodatabase will include the feature classes relating to the model inventory and report/plan inventory as well as the field data collected. Other relevant digital data collected will be organized into the Geodatabase as well.
ii. Update delineations of all drainage basins located within the project areas using a polygon feature. These will include delineations for the stream watershed as well as drainage subbasins for contributing streams and ditches. These will be included in the Geodatabase.
iii. Identify service areas for the major regional detention facilities, identifying the contributing area using a polygon feature. The information will be included in the Geodatabase.
iv. Map the 100- and 500-year floodplains. Halff will utilize the GBRA Phase 2 and 3 study and map on the 2008, or latest available, LiDAR terrain surface. The information will be included in the Geodatabase.
v. Provide the full library of scanned documentation, including reports and record drawings. The associated GIS features will be included in the Geodatabase.
vi. Provide all models collected as well as any model updates. The models will be catalogued and include the location, date prepared, and any other information available. The associated GIS features will be included in the Geodatabase. The evaluation will be provided as part of the narrative; but notes will be included in the GIS.
vii. Provide all photos taken during the field verification process in .jpg format. Photos will be compressed to a size not to exceed 1MB. The associated GIS features will be included in the Geodatabase.

**b. Report Deliverable**

i. Prepare a detailed DMP report, including a narrative discussing the procedures and findings of each task, relevant figures and tables, meeting notes, a log of project decisions, conceptual drainage project solutions, probable cost estimate, and prioritized drainage CIP plan. Copies of the digital information will be included on CD/DVD with the report.

**Task 7: Quality Assurance/Quality Control**

Each task will be subjected to internal QA/QC by a separate water resources team at Halff. Associated documentation will be provided with the final report. Specific tasks relating to the QA/QC process include the following:

**a. QA/QC Procedures**

i. The QA/QC program will include a multi-level approach to ensure that senior members review, comment, and approve the completed work. Quality control checklists shall be created for the data collection, GIS data development, and final report elements of the work. Each checklist shall include milestone review events that describe the items to be reviewed and include documentation of the comments by the reviewer and responses from the Project Manager. All project materials presented to the City as draft or final products will be accompanied by QA/QC certification. QA/QC will be performed for the following specific tasks:
   a. Data and Model Inventory – Including the data scans and associated Geodatabase
   b. Field Data Verification – Including notes and photos taken as well as the GIS data developed in the field.
   c. Drainage Master Plan – Including the narrative, exhibits, and tables. The final digital submittal will also be reviewed.

ii. The ENGINEER shall retain all work products generated and information gathered and used during the course of the project. This includes, but is not limited to, base data as well as intermediate work products.

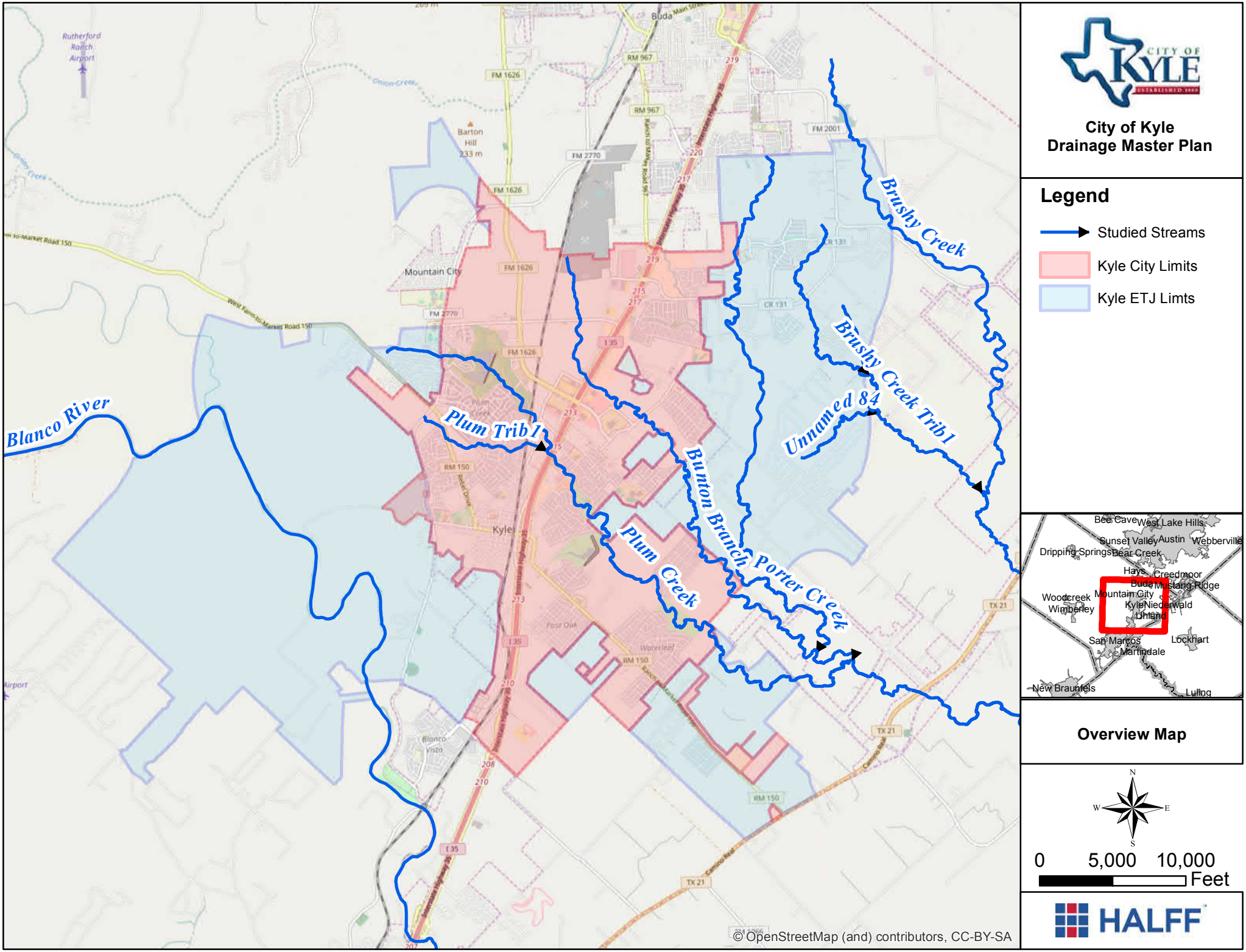
**PROPOSED FEE SCHEDULE**

The fees for Task 1 through 7, established above, shall be considered **lump sum** fees unless otherwise noted. Our services will be invoiced monthly based on the percentage of work completed. Costs incurred will be carefully monitored during the progress of this project and the fees will not be exceeded without prior approval from the City.

| | |
|---|---|
| Task 1: Project Management | $ 21,500.00 |
| Task 2: Obtain and Review Available Data | $ 24,800.00 |
| Task 3: Drainage Problem Identification | $ 34,700.00 |
| Task 4: Develop Drainage Solutions | $ 37,500.00 |
| Task 5: Evaluate Drainage Criteria | $ 20,300.00 |
| Task 6: Prepare Drainage Master Plan | $ 28,500.00 |
| Task 7: Quality Assurance / Quality Control | $ 10,200.00 |
| **TOTAL ENGINEERING SERVICES** | **$ 177,500.00** |

**ANTICIPATED SCHEDULE**

Halff can commence work on this project within 2 week after notice-to-proceed is received from the City of Kyle. Halff anticipates completion of all effort and submittal of deliverables within 14 months of the notice to proceed. The anticipated schedule is attached as Attachment 1 of Exhibit A.




# City of Kyle
# Drainage Master Plan

## Legend

- Studied Streams
- Kyle City Limits
- Kyle ETJ Limts




**Overview Map**

N
W E
S

0 5,000 10,000
Feet

HALFF

# CITY OF KYLE - DRAINAGE MASTER PLAN SCHEDULE

Revised: 3-8-2017

| | | APRIL | | | | MAY | | | | JUNE | | | | JULY | | | | AUGUST | | | | SEPTEMBER | | | | OCTOBER | | | | NOVEMBER | | | | DECEMBER | | | | JANUARY | | | | FEBRUARY | | | | MARCH | | | | APRIL | | | | MAY | | | |
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| | | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 | WK1 | WK2 | WK3 | WK4 |
| **Task 1** | **PROJECT MANAGEMENT** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A. Project Meetings | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B. Develop Project Management Plan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C. Project Status Reports | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Task 2** | **OBTAIN AND REVIEW AVAILABLE DATA** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A. GIS Data | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B. Hydrologic and Hydraulic Models | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C. Drainge Report and Record Drawings | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | D. Master Plan and CIP Plan Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E. Drainge Criteria Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | F. Storm Drainage and Flood Risk Mitigation Utility Funding Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Task 3** | **DRAINAGE PROBLEM IDENTIFICATION** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A. Prepare Hydrologic and Hydraulic Models | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B. Identify Drainage Problems | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C. Field Reconnaissance | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Task 4** | **DEVELOP DRAINAGE SOLUTIONS** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A. Flood Mitigation Solutions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B. Ranking and Categorizing Projects | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C. CIP Prioritization | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Task 5** | **EVALUATE DRAINAGE CRITERIA** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A.Recommend Drainage Criteria improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B. Recommend stream and detention pond buffers | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C. Recommend detention pond criteria improvements | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | D. Evaluate drainage development review checklist | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E. Recommend changes for policy updates to minimize adverse impacts | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | F. Develop policy, process, and O&M cost to for drainage infrastructure | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Task 6** | **PREPARE DRAINAGE MASTER PLAN** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A. Prepare DMP Geodatabase | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B. Update delineation of basins | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C. Identify service areas for regional detention | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | D. Map floodplains | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E. Prepare Drainage Master Plan report | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| **Task 7** | **QUALITY ASSURANCE/QUALITY CONTROL** | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | A. Hydrologic and Hydraulic Model Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | B. Flood Mitigation Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | C. Prioritization Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | D. Geodatabase Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | E. Drainage Master Plan Report Review | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |