



April 23, 2021

Mr. Adam Steurer, PE
Utility Engineer
City of Hendersonville
305 Williams Street
Hendersonville, NC 28792

Subject: Scope of Work
Professional Services to Support Mud Creek Interceptor Project
Hendersonville, North Carolina

Dear Mr. Steurer:

Wildlands Engineering, Inc. (Wildlands) is pleased to submit this scope of work to the City of Hendersonville (City) for the Mud Creek Interceptor project. This proposal presents background information and outlines a scope of work, fee and preliminary schedule. The schedule will be refined as part of Task 1; we understand the City wishes to have permits in place to bid the project in early 2022.

Background

This City project proposes to replace approximately 10,600 feet of gravity sewer along Mud Creek in Hendersonville (see Project Area Map at end of scope). The assumed project corridor limits, recommended by the City for scoping purposes, consists of a 60-foot wide corridor (approximately 14 acres). Wildlands will provide the following professional services:

- Threatened and Endangered Species Survey,
- Water of the United States Determination—preliminary jurisdictional determination (PJD) of stream and wetlands,
- 404/401 permitting,
- Floodplain permitting and modeling (if required), and
- Mitigation planning (if required).

ClearWater Environmental Consultants will assist with the first three tasks, leading the first two. Wildlands will oversee all tasks.

At this time, we have assumed that the limits of disturbance will typically not include abandonment of the old sewer alignment. If streams or wetlands are to be impacted by abandonment, this will be required to be added to the current scope.



Scope of Work

Task 1: Project Kickoff Meeting and Data Review

Wildlands will review project information furnished by the City to include preliminary plans, project schedule and other relevant documents such as prior agency communication. A Wildlands Project Manager and Lead Scientist will attend a remote project kickoff meeting to discuss the project and reviewed information. Wildlands and the City will review and verify the proposed limits of assessment (changes to work late in the project may delay permitting so areas of uncertainty should be discussed, particularly as relates to access, laydown, alternative alignments, abandonment, etc.). Wildlands can begin work under the current assumptions, but any areas of potential expansion should be identified in the first month if possible.

The City should provide Wildlands with a final assessment area polygon consistent with their understanding of the maximum limits of disturbance for the project. If at any time during the project the City anticipates expanding the limits in excess of this assessment area, this should be discussed with Wildlands as soon as possible to review the potential permitting implications. Wildlands will use the final assessment area to produce maps and a narrative. These will be used to submit scoping letters to applicable agencies for review. Particularly, a scoping letter will be sent to the State Historic Preservation Office (SHPO) and the Tribal Historic Preservation Office (THPO) for review. This will determine the applicability of the Section 106 of the National Historic Preservation Act. If archeological services are requested by the state, Wildlands will use a qualified archaeological consultant and provide a cost and schedule for this additional work before proceeding.

Property ownership and existing and new easements should be discussed. The PJD submittals requires owner approval to access properties for jurisdictional review. Alternatively, if temporary or permanent easements are in place, this approval may be granted by the City.

Task 1 deliverables will be:

- Meeting minutes and finalized Wildlands project schedule, and
- Project scoping letters submitted to applicable agencies.

Task 2: T&E Species Survey

Wildlands will solicit protected species data from the North Carolina Department of Environmental Quality (NCDEQ), United States Fish and Wildlife Service (USFWS), and the North Carolina Wildlife Resource Commission (NCWRC). Data collection may include conducting interviews with staff from these agencies in order to gather existing data on endangered or threatened animal and plant species occurring or potentially occurring within the project limits. Habitat data (vegetation and soils descriptions) will be compiled for the project limits. Within habitats considered suitable for the occurrence of a particular endangered or threatened species, a cursory pedestrian survey will be performed to ascertain the likelihood of occurrence of the protected plant or animal. More detailed surveys or biological assessment, if required by resource agencies, are not included in the present scope.



For those protected species that potentially occur in the project areas (i.e., suitable habitat is present on site) and that may be readily detectable during the time of the survey (e.g. migratory birds in the fall but not spring), the team will provide a statement concerning the likelihood of the species occurrence on the project site based on available data and habitat observations. The present scope of work does not include coordination of Section 7 consultation if required by the USFWS (may be required where threatened and endangered species are anticipated to be impacted by the proposed work).

Task 2 deliverables will be:

- Memo documenting findings and likelihood of occurrence and impacts to threatened and endangered species or their habitat.

Task 3: Waters of the United States Determinations

Wildlands will complete a comprehensive delineation of jurisdictional wetlands and Waters of the U.S. within the project limits. Wetlands and streams are present throughout the 14-acre corridor. Approximately 14-15 existing potential stream have been identified that may require jurisdictional determination and associated stream forms. This task will include the identification and field demarcation of wetlands and streams. The areas on the site that meet the jurisdictional requirements will be flagged with plastic surveyor's tape. During field studies, wetland limits and stream origins will be located using a sub-meter GPS mapping grade unit. Where present, known points (i.e., property corners) will also be located to provide for accurate referencing. GPS mapping grade data is typically sufficient for US Army Corps of Engineers (USACE) verification and permitting. Wildlands will prepare a Preliminary Jurisdictional Determination (PJD) request for submittal to the USACE and provide ongoing coordination in order to acquire written verification of the jurisdictional limits on the subject property. Wildlands will accompany the USACE to the sites during the verification visits.

Task 3 deliverables will be:

- PJD submittal packet will be provided to the City of Hendersonville for review prior to submitting to the USACE,
- Approved PJD from the USACE, and
- Preliminary and approved jurisdictional features provided in GIS and/or CAD format for design.

Task 4: 404/401 Permitting

404/401

A Section 404 permit from USACE and a Section 401 Water Quality Certification from the NC Division of Water Resources (NCDWR) will need to be obtained. Wildlands will prepare a single Pre-Construction Notification (PCN) documenting the proposed work and related impacts. A Nationwide Permit 58 (NWP 58) and Water Quality general certification number 4133REV (Utility Line Activities for Water and Other Substances) will be requested through the PCN. The NWP 58 is a new permit that was produced from the splitting of NWP 12. Prior to submitting



the PCN, we will discuss the project with USACE and NCDWR representatives. Wildlands will provide copies of the standard permit conditions to the City for their use in preparing design plans. If requested, Wildlands can review these conditions with the City.

The documentation from Task 1, a Threatened and Endangered species survey, and Task 2, delineation of jurisdictional streams and wetlands will be included in the PCN submittal. Additional information that will need to accompany the PCN include:

- Preliminary design plans,
- Memo documenting results of the endangered species survey,
- Jurisdictional stream and wetland delineation boundaries,
- Agent authorization forms from each affected landowner (Wildlands assumes that the City will obtain these signed forms), and
- Photographs data documenting existing conditions.

Wildlands will share the PCN submittal with USFWS and NCWRC, both of which typically comment on stream related projects in Western North Carolina. Wildlands' estimated fee includes payment of the \$570 DWR review fee.

Task 4 deliverables will be:

- Approved 404 permit (Nationwide Permit) from the USACE, and
- Approved 401 permit (Water quality General Certification) from NCDEQ with fee paid by Wildlands.

Task 5: Floodplain Permitting

The proposed Mud Creek Sewer Interceptor project traverses the following special flood hazard areas, documented in the current Flood Insurance Study for Henderson County:

- Detailed study of Mud Creek, and
- Detailed Study of Wash Creek which is crossed in the vicinity of S. Main Street.

Floodplain Development Permit

Work proposed within the regulatory floodplains and floodways of these creeks will require floodplain development permitting, and may require hydraulic modeling analysis if proposed activities within floodway areas consists of significant changes to roughness or results in changes to floodplain elevations or the addition of significant obstructions (e.g. new aerial crossings).

Wildlands will evaluate floodplain impacts based on the preliminary plans provided at the onset of the project and review considerations impacting project design. At major project design milestones, Wildlands will revisit the plans and potential floodplain impacts that would require modeling analysis.



Floodplain Model and Report (if required)

Based on preliminary feedback from the City, new aerial crossings are not anticipated. However, if modeling is required due to new crossings or changes in existing grade or other hydraulic variables within the floodway, the modeling will seek to identify design options that would result in No-rise in base flood elevation (BFE). At this time, it is assumed that a Conditional Letter of Map Revision (CLOMR) would not be required. If a CLOMR or LOMR is required, this work will be defined under a supplemental scope of work. If review of the plans suggests a CLOMR may be required, this must be accounted for in the schedule to avoid impacts to bidding and construction. CLOMR review and acceptance can take four to six months.

Wildlands has allotted approximately 40-50 hours for floodplain modeling. This is sufficient to complete one flood study on one regulatory stream. If both regulatory streams within the corridor are impacted or if extensive trial and error is required to obtain a no-rise, Wildlands will submit a request to supplement this activity. No topographic survey is included in this task. Wildlands will use City-developed topographic data and/or QL1 LiDAR for any required flood study efforts.

Task 5 deliverables will be:

- Plan review memos at various stages to document applicable floodplain permitting requirements and recommendations,
- Floodplain development permit application. and
- Flood study report and modeling (if applicable).

Task 6: Preliminary Evaluation of Project Mitigation Solutions

It is anticipated that the construction of the sanitary sewer improvements will require a permit to temporarily or permanently impact wetlands and/or streams. These impacts may require compensatory mitigation. Compensatory mitigation can be completed by purchasing in-lieu fee credits from NCDMS, by purchasing credits from an approved mitigation bank, or through “on-site” mitigation whereby on-site or nearby restoration and post-project monitoring activities are proposed and accepted by permitting agencies as part of permit conditions and protected by a conservation easement.

The City would like to evaluate the ecological uplift and mitigation credit generation potential on three adjacent City-owned parcels: 9568739214, 9568858793, 9578078262, as well as on an adjacent parcel through which the proposed sewer alignment is proposed to run (9568966774). Mitigation credit potential on the sites will be compared to the anticipated impacts to help determine a mitigation solution for the sanitary sewer project.

Wildlands will document existing conditions, constraints to mitigation (utilities, cost effectiveness, etc.), and quantify mitigation assets (linear feet of stream, acres of wetlands) along with their credit generation potential that is based on ecological uplift that could be achieved through various potential mitigation actions/approaches. Wildlands will estimate the Wetland and Stream Mitigation Units that may be present on the sites and provide the approaches and technical and financial considerations associated with approaches. This is a



cursory evaluation intended to determine the magnitude of credit availability on the sites and assess primary constraints to mitigation and primary drivers of mitigation cost (earthwork, utilities, floodplain permitting, etc.). Wildlands will also evaluate the existing conservation easement language on these parcels to better understand whether easements allow credited mitigation activities. Approximately 1 day of field work and 2 days of mapping and documentation work are anticipated for this preliminary evaluation.

Wildlands will recommend feasible mitigation solutions to meet the mitigation needs of the project which will be estimated based on preliminary fieldwork completed under Task 2.

Regulatory agencies may also have the ability to approve non-traditional mitigation measures, such as stormwater quality treatment activities. Preliminary opportunities for non-traditional mitigation will be documented for further consideration.

Results from this evaluation will be documented in a concept map showing credited restoration approaches and in a credit table. A brief memo will describe the findings along with a preliminary estimate of impacts.

Task 6 deliverable will be:

- Memo documenting assessment and findings.
- Map of mitigation approaches and associated table listing acreage, credit ratio and credit potential.
- Meeting (Teams) to discuss findings and chart a course for meeting project mitigation needs.

Task 7: Mitigation Solution Refinement (Optional)

If the outcome of Task 6 is that one or a combination of the City-owned sites is deemed to be a suitable candidate for a mitigation offset project, Wildlands will conduct more detailed analyses on the candidate areas to completed due diligence and develop documentation that is suitable for an on-site mitigation proposal to regulatory agencies. Wildlands recommends that an agency meeting be held to garner initial support for an on-site mitigation solution prior to commencement of Task 7. Deliverables from Task 6 along with a preliminary jurisdictional map will be shared with agencies to determine whether agencies deem an appropriate subset of the identified activities to be a viable mitigation proposal for the proposed sewerline impacts (Wildlands will refine map to show preliminary proposal based on discussion with City).

If agencies support the proposal in theory, subsequent steps to prepare additional data for agencies and to further evaluate feasibility of implementation are an important next step to identifying the appropriate mitigation solution for the project, and associated costs.

Depending on the mitigation activities, more detailed analysis may entail one or more of the following:

- Soil borings in anticipated wetland reestablishment (restoration) areas – wetland restoration proposals require soil boring by a Licensed Soil Scientist.
- Additional fieldwork or mapping to address data gaps identified in Task 6 and develop documentation to support proposed approaches and crediting.



- Additional engineering analysis to ensure that proposal activities can be completed as proposed and to develop a preliminary estimate of project design and construction costs based on conceptual grading and major project activities. A preliminary design scope will be developed.
- Updates/refinement to proposed mitigation approach map.

Task 7 deliverable will be:

- Technical memo to document task activities and provide data developed under this task suitable for presentation to regulatory agencies to support proposed mitigation solution.
- Updated map showing areas and activities proposed to offset project.
- Budgetary estimate of design and construction costs. Estimate of long-term monitoring costs will also be developed. Current cost of in lieu fee mitigation credits will be referenced.
- Meeting with City to discuss findings.

Task 8: Meetings and Coordination

Wildlands will provide monthly progress updates with invoices. Staff will attend progress meetings or milestone review meetings as scheduled by the City. Wildlands has budgeted for staff to provide 24 hours of support services for these activities.



Budget and Schedule

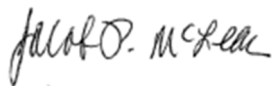
Based on the scope of work described herein, the estimated cost of our services will be as indicated in the following table. For the floodplain task, a separate line item has been added to cover the cost of a flood study model and report if this ends up being required. We will bill on a time-and-materials basis and will not exceed the budget without your prior approval. Target dates for completion of each tasks are listed as well. It is possible that the schedule will need to be adjusted for reasons beyond the control of the City and Wildlands. Wildlands will update the schedule as appropriate.

Task	Budget	Target Completion
Task 1. Project Kickoff and Data Review	\$2,200	May 2021
Task 2. T&E Survey	\$2,900	June 2021
Task 3. Jurisdictional Resources Assessment and PJD	\$14,500	JD Fieldwork: June 2021 PJD Submittal: July-Aug 2021 PJD Issued: Oct-Nov 2021
Task 4. 401/404 Permitting	\$9,700	PCN Submittal: Dec 2021* Permits: Feb 2022
Task 5. Floodplain Permitting (plan reviews, memos, and floodplain development permit application)	\$1,100	Submittal: Dec 2021** Permits: Feb 2022
Task 5a. Floodplain Model & Report (if required)	\$6,000	2 months after 90% plans issued
Task 6. Preliminary Evaluation of Project Mitigation Solutions	\$2,500	June-July 2021
Task 7. Mitigation Solution Refinement (if required)	\$5,500	July-Aug 2021
Task 8. Meetings and Coordination	\$2,800	Ongoing
TOTAL	\$47,200	
*Pending issuance of 60-75% plans by City one month prior to PCN Submittal – plans should contain final limits of disturbance if at all possible, or else largest potential limits of disturbance in order to document and request permitting approval of all project impacts.		
**Pending issuance of 90% plans by City		

Closure

If the scope and budget meet with your approval, we will send our standard agreement. If you have any questions, please call me at 828.545.3865.

Sincerely,

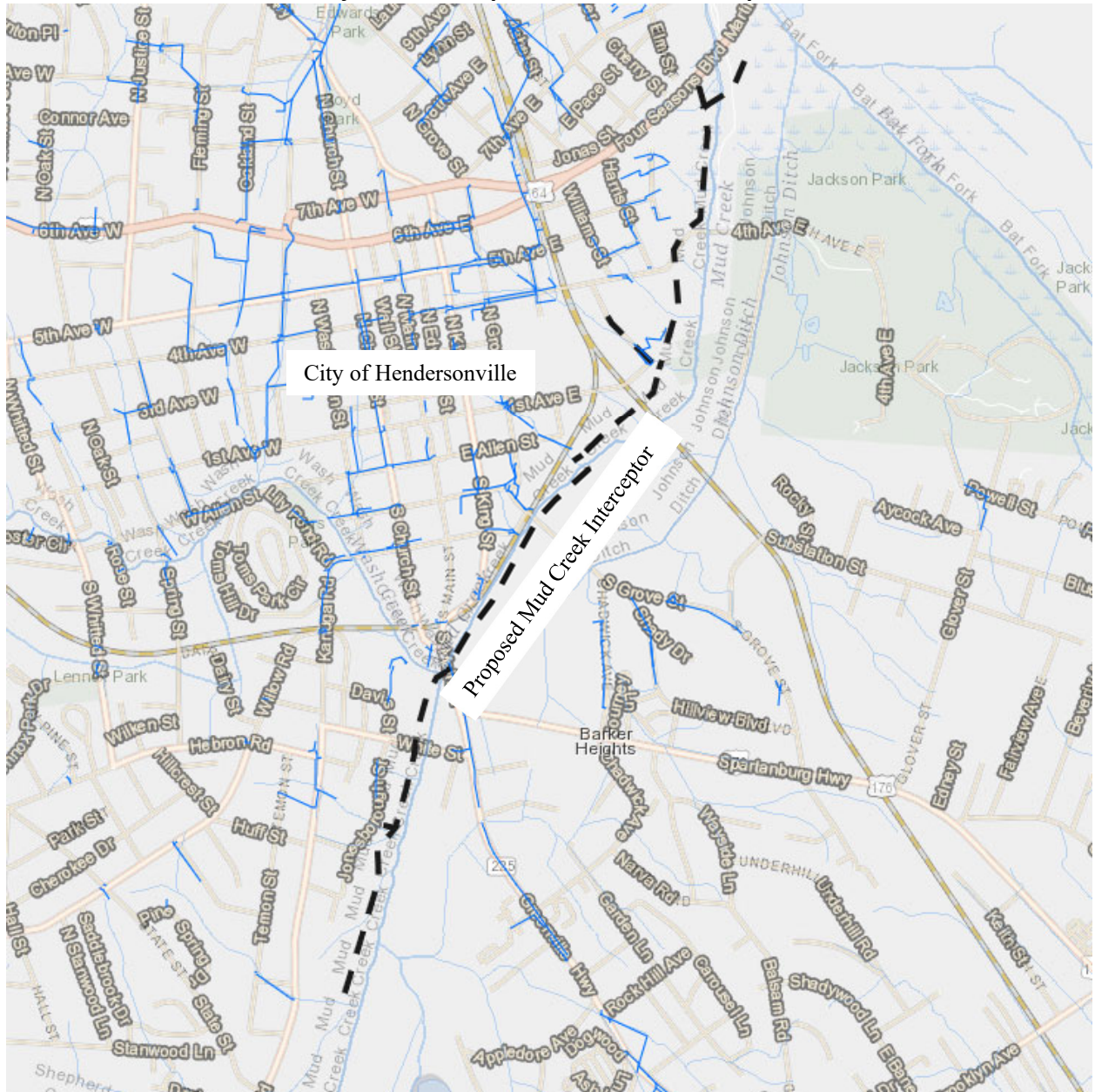


Jake McLean, PE, CFM

Senior Water Resources Engineer, Project Manager



Project Area Map – Mud Creek Interceptor



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