DYER ENGINEERING CONSULTANTS

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May 13, 2019

Via email: kporter@cityofsparks.us

Kevin Porter, PE
City of Sparks Community Services
Engineering Division
431 Prater Way
Sparks, NV 89431

Re: Tyler Way & 18th Street Sanitary Sewer Capacity Improvement

Dear Mr. Porter:

Dyer Engineering Consultants (DEC) is pleased to submit this Proposal to provide Civil Engineering services for design of sanitary sewer mainline capacity improvements, topographical surveying, geotechnical investigation, and bidding support services for the Tyler Way & 18th Street Sanitary Sewer Capacity Improvement Project, located in the City of Sparks along 18th Street from York Way to Tyler Way, and along Tyler Way from 18th Street to 16th St./Trabert Way.

The Scope of Services outlined on the following pages is based on our recent meeting, site visit and understanding of your needs and information provided to DEC.

The following assumptions were made while preparing this scope of work:

- All new sanitary sewer pipe and manholes will be installed using "open dig" methods
- Sanitary sewer laterals will not be replaced – they will be reconnected at edge of trench
- All sanitary sewer manholes along the alignment will be replaced with new manholes
- All trenches will receive permanent T-patch, with half-street mill and overlay along the entire length of pipe alignment

PHASE 1 – DESIGN & BIDDING SERVICES

Task 1: Team Meetings & Coordination $5,000

During the design efforts DEC's project manager and other design staff will be available to meet in person or by conference call and coordinate with City of Sparks management and staff, utility agencies, and other consultants (Survey, Geotech etc.), as needed. DEC will be available for coordination regarding the sewer upgrade design, geotechnical investigation, survey of existing conditions, potential site constraints/work-arounds, files exchange, and other coordination efforts.

Task 2: Existing Utility Research $6,130

DEC will research existing utility locations. Data for existing sanitary sewer in the vicinity has been provided by the City of Sparks. City of Sparks will also provide data for existing storm drain infrastructure. We will contact utility purveyors and local permitting agencies regarding locations of existing water, telephone, gas, data (fiber and/or communications) and electrical service. AT&T charges $200 fee for their existing utility information. This fee is included in this task. DEC will also make site visits to investigate manholes, locate existing clean-outs, and verify lateral connections (utilize dye testing or other methods, as needed, to confirm connections).

Task 3: Topographic Survey $12,650

Conduct field surveys, photogrammetric mapping and office support to provide topographic design survey of the proposed sewer upgrade area (width at least 15-feet behind the curbs) and will include cross-sections at 50+/- foot intervals in sufficient detail to allow for development of a plan and profile set of design drawings. DEC will utilize Mapca Surveys Inc. as a sub-consultant in support of this task. Topographic information will include centerline spot elevations, edge of pavement and striping, curb/gutter, sidewalk, driveways, flowlines, hinge points, utility poles/anchors, fences, signs, gas and water valves, survey monuments, storm drain and sewer manholes (rim/invert), sewer clean-outs and storm drain catch basins. Location of underground utility carsonite markers (if any). Overlay record property and right-of-way information (County GIS) to include assessor's parcel numbers. Measure inverts of manholes drain inlets and top of valve nut for gas and water valves. A Pipe-mic II measuring instrument will be used to accurately measure invert and size of pipes. Horizontal Datum shall be Nevada State Plane Coordinate System, West Zone NAD83/94 (HARN). Vertical Datum shall be NAVD88 based on digital bar-code leveling circuits to published City benchmarks.

Task 4: Geotechnical Investigation $9,570

Perform a geotechnical investigation and associated laboratory testing in order to develop geotechnical design recommendations for the referenced project. DEC will utilize Black Eagle Consulting, Inc. (BEC) in support of this task. Perform research, field exploration, field and laboratory testing, and engineering analyses to allow formulation of geotechnical recommendations for design and construction of the sanitary sewer pipe, manholes and roadway restoration. All of the above items will be summarized in a report suitable for use by project design team members and for submittal to City of Sparks.

Research associated with this proposal included a review of published geologic maps and fault hazard reports to establish the presence of any documented geologic hazards along the alignment. Existing geotechnical reports for other projects in the area will also be reviewed, as available, to supplement information obtained during this investigation.

We will obtain utility clearance from Underground Service Alert (USA) prior to exploration. Additionally, we will obtain an excavation and encroachment permit through the City of Sparks. Exploration of the proposed sewer project will be performed via drilling 3 borings (2 borings on 18th Street and 1 boring on Tyler Way) to sufficient depths to adequately reveal subsurface soil and groundwater conditions. Based on the expected sewer main depths, we have budgeted to advance the borings to an average depth of 15 feet depth and the boring depths will be coordinated based on the preliminary sewer line depths which will become available after survey of the existing sewer line. Because of the roadway width and no expected significant traffic conditions (will work around school and/or morning/evening commute peak times), we anticipate the borings can be advanced with typical traffic setup and takedown (e.g., shoulder closure or bubble setup), and we do not expect the need for traffic control setup with lane closure and flagger support. The expected traffic control for the advancement of borings will be provided by BEC. The borings will be located slightly offset from the existing sewer main, subject to other utility conflicts and site constraints for advancement of borings. We will also locate the borings on the same side of the sewer main (expected to be along the northbound lane/shoulder of 18th Street and along the eastbound lane/shoulder of Tyler Way, but this will depend on the other utilities in the area and other site constraints.

All borings will be advanced using hollow-stem auger drilling techniques. Soils will be sampled with a 2-inch outside-diameter, split-spoon sampler driven by a standard 140-pound drive hammer with a 30-inch stroke. The number of blows to drive the sampler 1 foot into undisturbed soil (standard penetration test) is an indication of the density and shear strength of

the material. Larger diameter in-place samples will be taken if compressible or expansive soils are present. Material encountered during exploration will be logged in the field by geotechnical personnel. The existing pavement structural section (asphalt and aggregate base thicknesses) at each boring will also be measured. The groundwater surface will be measured if encountered. Representative soil samples will be returned to our Reno laboratory for testing. The borings will be backfilled with drill spoils, and the asphalt will be patched with commercially available asphalt patch material or non-shrink grout.

Representative samples of significant soil types will be tested in the laboratory to characterize the index properties of foundation soils, such as moisture content, grain size distribution, and plasticity. These index properties are indicative of the mechanical behavior of the soils and govern the remainder of the testing program. One moisture-density-relationship test will be conducted on a selected sub surface soils sample that could be used as trench backfill during project construction. Soluble sulfate testing will be performed to evaluate the site soils' potential to corrode Portland cement concrete (PCC); replacement of PCC flatwork along street edges may be necessary on the project.

The results of our research, site exploration, laboratory testing, and engineering analyses will allow formulation of geotechnical recommendations for the design and construction of this project. These recommendations will be summarized in a geotechnical report that will cover:

- brief discussion of site geology and geologic hazards
- existing pavement structural section information
- site soil and groundwater information
- corrosion potential to PCC
- excavation and trenching characteristics
- structural and trench backfill requirements
- structural sections for asphalt pavement patching
- aggregate base sections for concrete slabs
- identification of recognizable construction problems

We assume any fees for the encroachment permit through the City of Sparks will be waived. We will initiate our City of Sparks permit process immediately upon authorization. We can

begin exploration within 5 days of obtaining the permit. Verbal recommendations can be advanced within 10 days following exploration. A final report will typically be available within about 3 weeks following exploration. The final report can be completed sooner, if necessary, to meet project scheduling.

Task 5: 50% Plans Production $25,100

DEC will develop preliminary 50% plans based on the preferred design option. In conformance with City of Sparks and Orange Book requirements, the plans will show the general intent and major elements of the design, including horizontal pipe alignment, preliminary vertical pipe profile, major structures (new manholes), any needed utility conflict resolution and connections to existing manhole structures.

The plan package will consist of the following:

A. Cover and General Notes Sheets with Vicinity Map, Plan Specifications (General) and Sparks specifications (as-needed), Legend, and Abbreviations

B. Plan and Profile Sheets
Sheets showing the horizontal and vertical locations of proposed sewer pipes and structures will be prepared for the project. The plan views will show existing surface features and existing utilities as depicted in the topographic survey. The plan will show any needed grading modifications. Design assumption is that the pipe will achieve minimum clearances needed with respect to existing utilities in the vicinity. If potential conflicts arise, or "vulnerable" utilities are within excavation limits (eg. aging transite water mains), offsets, relocations, or replacements will be shown or called-out for further design recommendations.

C. Surface Restoration
Provide sheet showing street restoration per Sparks & Orange Book requirements, as needed. Restoration sheets will display anticipated limits of trench patch, 2-inch mill and overlay, striping and concrete restoration based on the limits of removal and replacement of the manholes, pipe and half-street limits.

D. Details
DEC will provide details of pipe trench backfill, underground structures such as manholes, permanent patching, and other features, as required.

DEC will review the 50% plans with the City of Sparks and incorporate comments into the final design.

Task 6: Issue for Permit Plans Production $14,300

DEC will further develop the plans based on input from the City of Sparks. DEC will refine horizontal and vertical locations of pipes and structures, provide additional details (as needed), and will develop a detailed Opinion of Probable Construction Cost (Engineer's Estimate). DEC will submit plans to the City of Sparks. It is assumed that front-end project specifications will be provided by the City of Sparks and the Standard Specifications for Public Works Construction (SSPWC "Orange Book") will be utilized for project technical specifications with minor modifications, as needed, to fit the work. The SSPWC will be referenced or provided on the plans or for inclusion in the contract documents. Additional specifications are not included in this scope of work.

Task 7: Issue for Bid Plans and Bid Support $4,000

DEC will provide support for the bidding process. DEC shall issue bid documents to prospective bidders, maintain the document holders list, and attend a pre-bid meeting. Other assistance includes issuing addenda and conformed drawings as appropriate, interpreting and/or clarifying the bidding documents; assisting in the evaluation of the bid proposals and recommendation of a contract award. Electronic drawing files of the conformed bid documents can be made available upon request to the successful bidder. DEC shall not prepare front-end bid documents, or contracts between the client and contractor/builder.

PHASE 2 – CONSTRUCTION SERVICES

Upon selection of contractor and development of construction schedule, construction management and administration, Engineer-of-Record inspection, and materials testing services will be provided under a separate contract.

SCHEDULE

We will work with the City of Sparks to develop a final schedule that is acceptable to all parties. The general goal of the project is to perform design mid-summer to early fall, and begin construction late fall. This schedule can be adjusted, as needed, to best suit the needs of the City of Sparks with respect to desired date of substantial completion of construction.

ITEMS PROVIDED BY CLIENT OR OTHERS

It is assumed that Client will provide the following items:

1) All fees payable to government entities and utility purveyors/agencies, unless otherwise stated in the Scope of Services.

ADDITIONAL SERVICES

Any items requested not specifically outlined in the above scope will be considered additional services and will be provided as requested and authorized by the Client. DEC can provide the following services, however; they are not included in the limited scope of this agreement:

1) Phasing of project/separate plan sets
2) Significant revisions to Plans and/or desired Scope to Reduce Cost after 50% Design
3) Analysis or design for other utilities outside of the sewer alignment (storm drain, water and sewer, or other relocations of gas, electrical, fiber, communications) if necessary.

FEE AND BILLING

DEC proposes to perform the services in Tasks 1 – 7 of the Scope of Services on a Lump Sum basis, with reimbursable expenses charged on a Time and Materials Basis (T&M) as follows:

Task 1	Team Meetings & Coordination	$ 5,000
Task 2	Existing Utility Research	$ 6,130
Task 3	Topographic Survey	$ 12,650
Task 4	Geotechnical Investigation	$ 9,570
Task 5	50% Plans Production	$ 25,100
Task 6	Issue for Permit Plans Production	$ 14,300
Task 7	Issue for Bid Plans and Bid Support	$ 4,000
	Reimbursable Fees (T&M, not-to-exceed)	$ 2,000
	TOTAL Services	**$ 78,750**

Direct reimbursable expenses such as express delivery services, fees, plotting and other direct expenses will be billed at cost. All permitting, application and similar project fees will be paid directly by the Client, unless otherwise stated in the Scope of Services.

Fees and expenses will be invoiced monthly based, as applicable, upon the percentage of services performed or actual services performed, and expenses incurred as of the invoice date. Payment will be due within 30 days of your receipt of the invoice.

CLOSURE

Fees stated in this Agreement are valid for sixty (60) days after the date of this letter.

We look forward to working with the City of Sparks on this important infrastructure project. Please do not hesitate to contact us if you have questions.

Sincerely,

Dyer Engineering Consultants, Inc.

Lonnie J. Johnson, P.E.
Vice President / Principal

Attachments:
2019 DEC Rate Schedule

DYER ENGINEERING CONSULTANTS

2019 Rate Schedule

Classification/ Title	Rate ($/hr)
Principal	$170-$190
Senior Professional	$150-$180
Professional	$115-$160
Analyst/Designer	$100-$120
CAD /Technician	$80-$140
Support Staff	$50-$80
Mileage (outside 35 miles of office)	$0.58/mile
Copies (8.5x11)	$0.10/copy
Direct Costs (Equipment Rental, Sub-consultants, etc.)	Cost +10%