PROFESSIONAL ENGINEERING SERVICES AGREEMENT

ENGINEER & CITY OF DULUTH

THIS AGREEMENT, effective as of the date of attestation by the City Clerk, is made by and between the City of Duluth, Minnesota hereinafter referred to as the "City" and:

Name: TRC Environmental Corporation
Address: 21 Griffin Road North, Windsor, CT

hereinafter referred to as the "Engineer", in consideration of the mutual promises contained herein.

Payments as described in Section V shall be made from Funding 535-500-1905-5533; Project #1867; and Resolution No. 20-0276R, passed on March 23, 2020.

The professional engineering services obtained by the City under this agreement concern the following described project hereinafter referred to as the "Project":

Project Number:	1867
Project Name:	MNDOT Outfalls 1 and 2/3 Engineering Services
Project Description:	Professional services include assessment, design, bidding, and construction administration services for the improvement of MNDOT Outfalls 1 and 2/3

The professional engineering services to be provided under this agreement consist of those phases A through G checked below. A more particular description of each phase is contained in Section II, "Basic Services", of the agreement.

	Phase	Description
☒	A.	Study and Report Phase
☒	B.	Preliminary Survey Phase
☒	C.	Preliminary Design Phase
☒	D.	Final Design Phase
☐	E.	Bidding Phase
☐	F.	Construction Survey and Layout Phase
☐	G.	Construction Administration and Inspection Phase

SECTION I. GENERAL

A. ENGINEER
The Engineer shall provide professional engineering services for the City in all phases of the Project to which this agreement applies, serve as the City's professional engineering representative for the Project as set forth below and shall give professional engineering consultation and advice to the City during the performance of services hereunder. All services provided hereunder shall be performed by the Engineer in accordance with generally accepted Engineering standards to the satisfaction of the City.

B. NOTICE TO PROCEED
The Engineer shall only begin performance of each Phase of work required hereunder upon receipt of a written Notice to Proceed by City representative with that Phase.

C. TIME
The Engineer shall begin work on each successive phase promptly after receipt of the Notice to Proceed and shall devote such personnel and materials to the Project so as to complete each phase in an expeditious manner within the time limits set forth in Section II. Time is of the essence to this agreement.

D. CITY'S REPRESENTATIVE
The City's representative to the Engineer shall be the City Engineer or his or her designees assigned in writing.

E. ENGINEERING GUIDELINES

All work performed as part of this project shall conform to the most current edition of the Engineering Guidelines for Professional Engineering Services and Developments as approved by the City Engineer and on file in the office of the City Engineer.

F. SUBCONSULTANTS

Engineer may contract for the services of sub-consultants to assist Engineer in the performance of the services to be provided by Engineer hereunder but the selection of any sub-consultant to perform such services shall be subject to the prior written approval of the City Engineer. Engineer shall remain responsible for all aspects of any services provided by such sub-consultants to City under this Agreement. City shall reimburse Engineer for sub-consultant services under the categories of services to be provided by Engineer under Phases A through G, as applicable.

SECTION II. BASIC SERVICES

A. STUDY AND REPORT PHASE

☒ Included in this Agreement
☐ Not included in this Agreement

The Engineer shall:

1) City's Requirements

Review available data and consult with the City to clarify and define the City's requirements for the Project.

2) Advise Regarding Additional Data

Advise the City as to the necessity of the City's providing or obtaining from others data or services in order to evaluate or complete the Project and, if directed by the City's representative, act on behalf of the City in obtaining other data or services.

3) Technical Analysis

Provide analysis of the City's needs, planning surveys, site evaluations, and comparative studies of prospective sites and solutions.

4) Economic Analysis

Provide a general economic analysis of various alternatives based on economic parameters and assumptions provided by the City.

5) Report Preparation

Prepare a report containing schematic layouts, sketches and conceptual design criteria with appropriate exhibits to indicate clearly the considerations involved and the alternative solutions available to the City and setting forth the Engineer's findings and recommendations with opinions of probable total costs for the Project, including construction cost, contingencies, allowances for charges of all professionals and consultants, allowances for the cost of land and rights-of-way, compensation for or damages to properties and interest and financing charges (all of which are hereinafter called "Project Costs").

6) Report Presentation

Furnish three copies of the report and present and review the report in person with the City as the City Representative shall direct.

7) Supplementary Duties

The duties and responsibilities of Engineer during the Study and Report Phase shall also include any additional duties and responsibilities to be provided pursuant to the Engineer’s proposal attached as Exhibit B.

8) Completion Time

The Study and Report Phase shall be completed and report submitted by May 31, 2020.

B. PRELIMINARY SURVEY PHASE

☒ Included in this Agreement
☐ Not included in this Agreement

After written authorization by the City's representative to proceed with the preliminary survey phase, the Engineer shall:

1) General
Perform topographic survey as necessary to prepare the design and provide Construction Survey and Layout as described in Section II.F

2) Boundary Survey
Perform boundary survey if checked.

3) Document Presentation
Furnish a CADD file of the survey base map to the City. Files shall be in the software specified in the Engineering Guidelines for Professional Engineering Services and Developments described in Section I.E.

4) Supplementary Duties
The duties-responsibilities of the Engineer during the preliminary survey phase shall also include any additional duties and responsibilities to be provided pursuant to the Engineer's proposal attached as Exhibit B.

5) Completion Time
The preliminary survey phase shall be completed and submitted by June 30, 2020.

C. PRELIMINARY DESIGN PHASE

☒ Included in this Agreement
☐ Not included in this Agreement

After written authorization by the City's Representative to proceed with the Preliminary Design Phase, the Engineer shall:

1) Preliminary Design Documents
Prepare preliminary design documents consisting of final design criteria, preliminary drawings and outline specifications.

2) Revised Project Costs
Based on the information contained in the preliminary design documents, submit a revised opinion of probable Project costs.

3) Preparation of Grants; Environmental Statements
Preparation of applications and supporting documents for governmental grants, loans or advances in connection with the Project, preparation or review of environmental assessments and impact statements; review and evaluation of the effect on the design requirements of the Project of any such statements and documentation prepared by others; and assistance in obtaining approvals of authorities having jurisdiction over the anticipated environmental impact of the Project.

4) Renderings and Models
Providing renderings or models for the City's use.

5) Economic Analysis
Investigations involving detailed consideration of operations, maintenance and overhead expenses; providing value engineering during the course of design; the preparation of feasibility studies, cash flow and economic evaluations, rate schedules and appraisals; assistance in obtaining financing for the Project; evaluating processes available for licensing and assisting the City in obtaining licensing; detailed quantity surveys of material, equipment and labor; and audits of inventories required in connection with

construction performed by the City.

6) Document Presentation
Furnish three copies of the above preliminary design documents and present and review such documents in person with the City as the City Engineer may direct.

7) Supplementary Duties
The duties and responsibilities of the Engineer during the Preliminary Design Phase shall also include any additional duties and responsibilities to be provided pursuant to the Engineer's proposal attached as Exhibit B.

8) Completion Time
The Preliminary Design Phase shall be completed and report or plan submitted by August 31, 2020.

D. FINAL DESIGN PHASE

☒ Included in this Agreement
☐ Not included in this Agreement

1) Drawings and Specifications
On the basis of the accepted preliminary design documents and the revised opinion of probable Project costs, prepare for incorporation in the contract documents Construction Plans to show the character and extent of the Project and specifications.

2) Approvals of Governmental Entities
Furnish to the City such documents and design data as may be required for, and prepare the required documents so that the City may apply for approvals and permits of such governmental authorities as have jurisdiction over design criteria applicable to the Project, and assist in obtaining such approvals by participating in submissions to and negotiations with appropriate authorities.

3) Adjusted Project Costs
Advise the City of any adjustments to the latest opinion of probable Project costs, identify cause of change and furnish a revised opinion of probable Project cost based on the drawings and specifications.

4) Contract Document Preparation
Prepare for review and approval by the City, its Attorney and other advisors, contract agreement forms, general conditions and supplementary conditions and (where requested) bid forms, invitations to bid and instructions to bidder, including for federally funded Projects, all documentation, including wage determinations, in order to comply with Davis-Bacon Act or City code requirements, and assist in the preparation of other related contract documents. To the extent possible, the Engineer will follow the document format supplied by the City and use the standard terms and conditions supplied by the City in preparation of these documents.

5) Real Estate Acquisition: Legal Description
Based on preliminary design documents, furnish a legal description and recordable reproducible 8-1/2" X 11" plat of each parcel of real estate in which the City must acquire an interest in order to proceed with construction of the Project.

6) Document Presentation
Furnish three copies of the above documents and present and review them in person with the City.

7) Supplementary Duties
The duties and responsibilities of the Engineer during the Final Design Phase shall also include any additional duties and responsibilities to be provided pursuant to the Engineer's proposal attached as Exhibit B.

8) Completion Time
The Final Design Phase shall be completed and contract documents submitted by April 30, 2020.

E. BIDDING PHASE

☐ Included in this Agreement
☒ Not included in this Agreement

The Engineer shall:

1) Assist in Bidding
Assist the City in obtaining bids for each separate City contract for construction, materials, equipment and services.

2) Advise Regarding Contractors and Subcontractors
Consult with and advise the City as to the acceptability of subcontractors and other persons and organizations proposed by the City's contractor(s) (hereinafter called "Contractor(s)" for those portions of the work as to which such acceptability is required by the bidding documents).

3) Consult Regarding Substitutes
Consult with and advise the City as to the acceptability of substitute materials and equipment proposed by the contractor(s) when substitution prior to the award of contracts is allowed by the bidding documents.

4) Evaluation of Bids
Assist the City in evaluating bids or proposals and in assembling and awarding contracts.

5) Supplementary Duties
The duties and responsibilities of the Engineer during the Bidding Phase shall also include any additional duties and responsibilities to be provided pursuant to the Engineer's proposal attached as Exhibit B.

6) Completion Time
The bidding phase shall be completed by n/a.

F. CONSTRUCTION SURVEY AND LAYOUT PHASE

☐ Included in this Agreement
☒ Not included in this Agreement

1) General
This phase of work may or may not be performed in conjunction with Phase G, "Construction Administration and Inspection Phase" of this agreement. Inclusion of this phase in the agreement does not imply that services identified under Phase G are to be provided unless specifically indicated in this agreement.

2) Duties
The Engineer shall provide horizontal and vertical control line and grade to enable construction of the improvement as depicted in the Project plans. The number of control points to be established by the Engineer shall be sufficient to permit the construction contractor to construct the improvement within the construction tolerances established in the Project specifications. In addition, the number of control points shall be consistent with standard engineering practice.

3) Accuracy
The Engineer shall provide the horizontal and vertical control points within the same measurement tolerances as the construction tolerances established in the Project specifications. The Engineer shall be responsible for the accuracy of the control points which are established. The Engineer shall be responsible for costs which may result from errors in placement of control points. The Engineer shall be required to establish control points at Engineer's costs only one time. Control points which are lost, damaged, removed or otherwise moved by the Contractor or others shall be promptly replaced by the Engineer and costs for such replacement shall be computed on a time and materials basis, and reimbursed by the City. The Engineer shall take all reasonable and customary actions to protect the control points established by the Engineer.

4) Supplementary Duties

The duties and responsibilities of the Engineer during the construction survey and layout phase shall also include any additional duties and responsibilities to be provided pursuant to the Engineer's proposal attached as Exhibit B.

5) Completion Time

The construction survey & layout phase shall be completed by n/a.

G. CONSTRUCTION ADMINISTRATION AND INSPECTION PHASE

☐ Included in this Agreement

☒ Not included in this Agreement

1) General Duties

Consult with and advise the City and act as its representative as provided herein and in the General Conditions of the construction contract for the Project. This phase of the work may or may not be performed in conjunction with Phase F "Construction Survey and Layout Phase" of this agreement. Inclusion of this phase in the agreement does not imply that services identified under Phase F are to be provided unless specifically indicated in this agreement.

2) Construction Inspection and Reporting

Make visits to the site with sufficient frequency at the various stages of construction to observe as an experienced and qualified design professional the progress and quality of the executed work of the contractor(s) and to insure that such work is proceeding in accordance with the contract documents. During such visits and on the basis of on-site observations, the Engineer shall keep the City informed of the progress of the work, shall endeavor to guard the City against defects and deficiencies in such work and may disapprove or reject work failing to conform to the contract documents.

3) Warranty Inspection

Eleven months following construction completion, conduct an inspection to document any items to be repaired by the contractor under the conditions of the construction contract warranty. Submit work to be corrected to the Contractor and the City.

4) Review of Technical and Procedural Aspects

Review and approve (or take other appropriate action in respect to Shop Drawings), the results of tests and inspections and other data which each contractor is required to submit, determine the acceptability of substitute materials and equipment proposed by the contractor(s), and receive and review (for general content as required by the specifications) maintenance and operating instructions, schedules, guarantees, bonds and certificates of inspection which are to be assembled by the contractor(s).

5) Contract Documents

Receive from each contractor and review for compliance with contract documents all required document submissions including but not limited to performance and payment bonds, certificates of insurance report forms required by any City, State or Federal law or rule or regulation and submit the forms to the City for final approval.

6) Conferences and Meetings

Attend meetings with the contractor, such as preconstruction conferences, progress meetings, job conferences and other Project-related meetings, and prepare and circulate copies of the minutes thereof including to the City.

7) Records

a) Maintain orderly files for correspondence, reports of job conferences, shop drawings and samples, reproductions of original contract documents, including all work directive changes, addenda, change orders, field orders, additional drawings issued subsequent to the execution of the contract, the Engineer's clarifications and interpretations of the contract documents, progress reports, and other Project-related documents.

b) Keep a diary or log book, recording the contractor's hours on the job site, weather conditions, data relative to questions of work directive changes, change orders, or changed conditions, list of job site

visitors, daily activities, decisions, observations in general, and specific observations in more detail, as in the case of observing test procedures and send copies to the City. Take multiple photographs of the Work and keep a log and file of the photos. Specifically maintain records of acceptance and rejection of materials and workmanship.

c) Record names, addresses and telephone numbers of all the contractors, subcontractors, and major suppliers of materials and equipment.

8) Reports

a) Furnish the City periodic reports, as required, on progress of the work and of the contractor's compliance with the progress schedule and schedule of shop drawings and sample submittals.

b) Consult with the City, in advance of scheduled major tests, inspections, or start of important phases of the Work.

c) Draft proposed change orders and work directive changes, obtaining back-up material from the contractor, and make recommendations to the City regarding change orders, work directive changes and field orders.

d) Report immediately to the City upon the occurrence of any accident.

9) Contract Interpretation, Review of Quality of Work

Issue all instruction of the City to the contractor(s); issue necessary interpretations and clarifications of the contract Documents and in connection therewith prepare change orders as required, subject to the City's approval; have authority, as the City's representative, to require special inspection or testing of the work; act as initial interpreter of the requirements of the contract documents and judge of the acceptability of the work there under and make decisions on all claims of the contractor(s) relating to the acceptability of the work or the interpretation of the requirements of the contract documents pertaining to the execution and progress of the work.

10) Change Orders and Revisions

Prepare change orders to reflect changes in the Project requested or approved by the City, evaluate substitutions proposed by the contractor(s) and make revisions to drawings and specifications occasioned thereby, and provide any additional services necessary as the result of significant delays, changes or price increases occurring as a direct or indirect result of material, equipment or energy shortages.

11) Review of Applications for Payment

Based on the Engineer's on-site observations as an experienced and qualified design professional and on review of applications for payment and the accompanying data and schedules, determine the amount owing to the contractor(s) and recommend in writing payments to the contractor(s) in such amounts; such recommendations of payment will constitute a representation to the City, based on such observations and review, that the work has progressed to the point indicated, that, to the best of the Engineer's knowledge, information and belief, the quality of such work is in accordance with the contract documents (subject to an evaluation of such work as a functioning Project upon substantial completion, to the results of any subsequent tests called for in the contract documents, and to any qualifications stated in his recommendation), and that payment of the amount recommended is due the contractor(s).

12) Determination of Substantial Completion

Conduct an inspection to determine if the Project is substantially complete and a final inspection to determine if the work has been completed in accordance with the contract documents and if each contractor has fulfilled all of his obligations there under so that the Engineer may recommend, in writing, final payment to each contractor and may give written notice to the City and the contractor(s) that the work is acceptable (subject to any conditions therein expressed).

13) Authority and Responsibility

The Engineer shall not guarantee the work of any contractor or subcontractor, shall have no supervision or control as to the work or persons doing the work, shall not have charge of the work, shall not be responsible for safety in, on, or about the job-site or have any control of the safety or adequacy of any equipment, building component, scaffolding, supports, forms or other work aids. If the Engineer determines that there are deficiencies in materials or workmanship on the Project, or otherwise deems it to be in the best interest of the City to do so, the Engineer shall be responsible to stop any contractor or subcontractor from

performing work on the Project, until conditions giving rise to this need, therefore, are rectified.

14) Engineer Not Responsible for Acts of Contractor
The Engineer shall not be responsible for the supervision or control of the acts or omissions or construction means, methods or techniques of any contractor, or subcontractor, or any of the contractor(s)' or subcontractors' or employees or any other person (except the Engineer's own employees and agents) at the site or otherwise performing any of the contractor(s) work; however, nothing contained in this paragraph shall be construed to release the Engineer from liability for failure to properly perform duties undertaken by him in these contract documents or this agreement.

15) Preparation of Record Drawings
The Engineer shall prepare a set of record drawings in accordance with the Engineering Guidelines for Professional Engineering Services and Development described in Section I.E.

16) Manuals
The Engineer shall furnish operating and maintenance manuals; protracted or extensive assistance in the utilization of any equipment or system (such as initial start-up, testing, and adjusting and balancing); and training personnel for operation and maintenance.

17) Supplementary Duties
The duties and responsibilities of the Engineer during the construction administration and inspection phase shall also include any additional duties and responsibilities to be provided pursuant to the Engineer's proposal attached as Exhibit B.

18) Completion Time
The construction administration and inspection phase shall be completed by n/a.

SECTION III. CITY'S RESPONSIBILITIES

A. FURNISH REQUIREMENTS AND LIMITATIONS
Provide all criteria and full information as to the City's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility and expendability, economic parameters and any budgetary limitations; and furnish copies of all design and construction standards which the City will require to be included in the Drawings and Specifications.

B. FURNISH INFORMATION
Assist the Engineer by placing at the Engineer's disposal all available information reasonably known to and in possession of the City.

C. REVIEW DOCUMENTS
Examine all studies, reports, sketches, drawings, specifications, proposals and other documents presented by the Engineer.

D. OBTAIN APPROVALS AND PERMITS
Furnish approvals and permits from all governmental authorities having jurisdiction over the Project and such approvals and consents from others as may be necessary for completion of the Project.

E. ACCOUNTING, LEGAL AND INSURANCE SERVICE
Provide such accounting, independent cost estimating and insurance counseling services as may be required for the Project, such auditing service as the City may require to ascertain how or for what purpose any contractor has used the monies paid to him under the construction contract, and such inspection services as the City may require to ascertain that the contractor(s) are complying with any law, rule or regulation applicable to their performance of the work except as otherwise provided in Section II.

F. NOTIFY THE ENGINEER OF DEFECTS OR DEVELOPMENT
Give prompt written notice to the Engineer whenever the City observes or otherwise becomes aware of any development that affects the scope or timing of the Engineer's services, or any defect in the work of the contractor(s).

G. COSTS OF THE CITY'S RESPONSIBILITIES

Bear all costs incidental to compliance with the requirements of this Section III.

SECTION IV. GENERAL CONSIDERATIONS

A. SUCCESSORS AND ASSIGNS

The City and the Engineer each binds their respective partners, successors, executors, administrators and assigns to the other party of this agreement and to the partners, successors, executors, administrators, and assigns of such other party, in respect to all covenants of this agreement; the Engineer shall not assign, sublet, or transfer their respective interests in this agreement without the written consent of the City. Nothing herein shall be construed as creating any personal liability on the part of any officer or agent of any public body which may be a party hereto, nor shall it be construed as giving any rights or benefits hereunder to anyone other than the City and the Engineer.

B. OWNERSHIP OF DOCUMENTS

All drawings, specifications, reports, records, and other work product developed by the Engineer in connection with this Project shall remain the property of the City whether the Project is completed or not. Reuse of any of the work product of the Engineer by the City on extensions of this Project or any other Project without written permission of the Engineer shall be at the City's risk and the City agrees to defend, indemnify and hold harmless the Engineer from all damages and costs including attorney fees arising out of such reuse by the City or others acting through the City.

C. ESTIMATES OF COST (COST OPINION)

Estimates of construction cost provided are to be made on the basis of the Engineer's experience, qualifications and the best of their professional judgment, but the Engineer does not guarantee the accuracy of such estimates as compared to the contractor's bids or the Project construction cost.

D. INSURANCE

1) Engineer shall provide the following minimum amounts of insurance from insurance companies authorized to do business in the state of Minnesota unless Engineer shall have successfully demonstrated to the City Attorney, in the reasonable exercise of his or her discretion that such insurance is not reasonably available in the market. If the Engineer demonstrates to the reasonable satisfaction of the City Attorney that such insurance requires hereunder is not reasonably available in the market, the City Attorney may approve an alternative form of insurance which is reasonably available in the market which he or she deems to provide the highest level of insurance protection to the city which is reasonably available.

   a) Workers' compensation insurance in accordance with the laws of the State of Minnesota.
   b) Public Liability Insurance and Automobile Liability Insurance with limits not less than **$1,500,000** Single Limit, and twice the limits provided when a claim arises out of the release or threatened release of a hazardous substance; shall be in a company approved by the city of Duluth; and shall provide for the following: Liability for Premises, Operations, Completed Operations, Independent Contractors, and Contractual Liability.
   c) Professional Liability Insurance in an amount not less than **$1,500,000** Single Limit; provided further that in the event the professional malpractice insurance is in the form of "claims made," insurance, Engineer hereby commits to provide at least 60 days' notice prior to any change to the Professional Liability Insurance policy or coverage ; and in event of any change, Engineer agrees to provide the City with either evidence of new insurance coverage conforming to the provisions of this paragraph which will provide unbroken protection to the City, or, in the alternative, to purchase at its cost, extended coverage under the old policy for the period the state of repose runs; the protection to be provided by said "claims made" insurance shall remain in place until the running of the statute of repose for claims related to this Agreement.
   d) **City of Duluth shall be named as Additional Insured** under the Public Liability and Automobile Liability, or as an alternate, Engineer may provide Owners-Contractors Protective policy, naming himself and City of Duluth. Engineer shall also provide evidence of Statutory Minnesota Workers' Compensation Insurance. Engineer to provide Certificate of

Insurance evidencing such coverage with notice to City of cancellation in accordance with the provisions of the underlying insurance policy included. The City of Duluth does not represent or guarantee that these types or limits of coverage are adequate to protect the Engineer's interests and liabilities.

e) If a certificate of insurance is provided, the form of the certificate shall contain an unconditional requirement that the insurer notify the City without fail not less than the notice provisions contained in the underlying insurance policy or policies. In addition, Engineer commits to provide to City notice to City at least 30 days prior to any change of the policy or coverages.

2) The insurance required herein shall be maintained in full force and effect during the life of this Agreement and shall protect Engineer, its employees, agents and representatives from claims and damages including but not limited to personal injury and death and any act or failure to act by Engineer, its employees, agents and representatives in the performance of work covered by this Agreement.

3) Certificates showing that Engineer is carrying the above described insurance in the specified amounts shall be furnished to the City prior to the execution of this Agreement and a certificate showing continued maintenance of such insurance shall be on file with the City during the term of this Agreement.

4) The City shall be named as an additional insured on each liability policy other than the professional liability and the workers' compensation policies of the Engineer.

5) The certificates shall provide that the policies shall not be cancelled during the life of this Agreement without advanced notice being given to the City at least equal to that provided for in the underlying policy of insurance.

6) Except as provided for in Section IV.D.1.d) above, Engineer hereby commits to provide notice to City at least 30 days in advance of any change in the insurance provided pursuant to this Section IV or in advance of that provided for in the underlying insurance policy or policies whichever is longer. For the purposes of Section IV.D of this Agreement, the term, "changed", shall include cancellation of a policy of insurance provided hereunder and any modification of such policy which reduces the amount of any coverage provided thereunder below the amounts required to be provided hereunder or otherwise reduces the protections provided under such policy to City.

E. HOLD HARMLESS

The Engineer agrees that it shall defend, indemnify and hold harmless the City of Duluth and its officers, agents, servants and employees from any and all claims including claims for contribution or indemnity, demands, suits, judgments, costs and expenses asserted by any person or persons including agents or employees of the City of Duluth or the Engineer by reason of death or injury to person or persons or the loss or damage to property arising out of, or by reason of, any act, omission, operation or work of the Engineer or its employees while engaged in the execution or performance of services under this Agreement except to the extent that such indemnification is specifically prohibited by Minnesota Statutes Chapter 337 or Section 604.21. Engineer shall not be required to indemnify City for claims of liability arising out of the sole negligent or intentional acts or omission of the City but shall be specifically required to and agrees to defend and indemnify City in all cases where claims of liability against the City arise out of acts or omissions which are passive or derivative of the negligent or intentional acts or omissions of Engineer, including but not limited to, the failure of the City to supervise, the failure to warn, the failure to prevent such acts or omission by Engineer and any other such source of liability. On ten days' written notice from the City of Duluth, the Engineer shall appear and defend all lawsuits against the City of Duluth growing out of such injuries or damages.

F. TERMINATION

1) This agreement may be terminated in whole or in part in writing by either party in the event of substantial failure by the other party to fulfill its obligation under this agreement through no fault of the terminating party; provided that no such termination may be affected unless the other party is given not less than fifteen (15) calendar days' prior written notice (delivered by certified mail, return receipt requested) of intent to terminate.

2) This agreement may be terminated in whole or in part in writing by the City for its convenience; provided that the Engineer is given (1) not less than fifteen (15) calendar days' prior written notice (delivered by certified mail, return receipt requested) of intent to terminate and (2) an opportunity for

consultation with the City prior to termination.

3) Upon receipt of a notice of intent to terminate from the City pursuant to this agreement, the Engineer shall (1) promptly discontinue all services affected (unless the notice directs otherwise), and (2) make available to the City at any reasonable time at a location specified by the City all data, drawings, specifications, reports, estimates, summaries, and such other information and materials as may have accumulated by the Engineer in performing this agreement, whether completed or in process.

4) Upon termination pursuant to this agreement, the City may take over the work and prosecute the same to completion by agreement with another party or otherwise.

G. LAWS, RULES AND REGULATIONS

The Engineer agrees to observe and comply with all laws, ordinances, rules and regulations of the United States of America, State of Minnesota, the City of Duluth and their respective agencies and instrumentalities which are applicable to the work and services to be performed hereunder.

H. INDEPENDENT CONTRACTOR STATUS

Nothing contained in this agreement shall be construed to make the Engineer an employee or partner of the City. The Engineer shall at all times hereunder be construed to be an independent contractor.

I. FEDERAL FUNDING

If Federal Funds (i.e. HUD, FEMA, Revenue Sharing) are utilized as a source of Project funding, the Engineer shall abide by the terms of all Federal requirements in the performance of duties hereunder.

J. AMENDMENT OF AGREEMENT

This agreement shall be amended or supplemented only in writing and executed by both parties hereto.

SECTION V. PAYMENT

A. BASIS OF BILLING

City shall pay the Engineer based on hourly rates for all services rendered under Section II Phases A through G, an amount not to exceed the amount in Section V.C, including any and all Project-related expenses such as travel, reproduction of reports and drawings, tolls, mileage, etc. For the purposes of this agreement, the principals and employees of the Engineer and their hourly rates are set forth in Exhibit A.

B. PAYMENT FOR WORK COMPLETED

1) Monthly progress payments may be requested by the Engineer for work satisfactorily completed and shall be made by the City to the Engineer as soon as practicable upon submission of statements requesting payment by the Engineer to the City. When such progress payments are made, the City may withhold up to five percent (5%) of the vouchered amount until satisfactory completion by the Engineer of all work and services within a phase called for under this agreement. When the City determines that the work under this agreement for any specified phase hereunder is substantially complete, it shall release to the Engineer any retainage held for that phase.

2) No payment request made pursuant to subparagraph 1 of this Section V shall exceed the estimated maximum total amount and value of the total work and services to be performed by the Engineer under this agreement without the prior authorization of the City. These estimates have been prepared by the Engineer and supplemented or accompanied by such supporting data as may be required by the City.

3) Upon satisfactory completion of the work performed hereunder, and prior to final payment under this agreement, and as a condition precedent thereto, the Engineer shall execute and deliver to the City a release of all claims against the City arising under or by virtue of this agreement.

4) In the event of termination by City under Section IV.F., upon the completion of any phase of the Basic Services, progress payments due Engineer for services rendered through such phase shall constitute total payment for such services. In the event of such termination by City during any phase of the Basic Services, Engineer also will be reimbursed for the charges of independent professional associates and consultants employed by Engineer to render Basic Services, and paid for services rendered during that phase on the

basis of hourly rates defined in Exhibit A of this agreement for services rendered during that phase to date of termination by Engineer's principals and employees engaged directly on the Project. In the event of any such termination, Engineer will be paid for all unpaid additional services plus all termination expenses. Termination expenses mean additional expenses directly attributable to termination, which, if termination is at City's convenience, shall include an amount computed as a percentage of total compensation for basic services earned by Engineer to the date of termination as follows: 10% of the difference between the amount which the Engineer has earned computed as described in paragraphs A and B of this section and the maximum payment amount described in paragraph C of this section. The above applies only if termination is for reasons other than the fault of the Engineer.

C. TOTAL NOT TO EXCEED:

All payments under this Contract are not to exceed Two Hundred Thousand, Seven Hundred Eighty-Two and 00/100 Dollars ($200,782.00).

SECTION VI. SPECIAL PROVISIONS

The following exhibits are attached to and made part of this agreement:

1) Exhibit A, Engineer's Hourly Rates
2) Exhibit B**,** Engineer's Proposal

In the event of a conflict between the agreement and any Exhibit, the terms of the Agreement will be controlling.

SECTION VII. COUNTERPARTS

This Agreement may be executed in two or more counterparts, each of which shall be deemed to be an original as against any party whose signature appears thereon, but all of which together shall constitute but one and the same instrument. Signatures to this Agreement transmitted by facsimile, by electronic mail in "portable document format" (".pdf"), or by any other electronic means which preserves the original graphic and pictorial appearance of the Agreement, shall have the same effect as physical delivery of the paper document bearing the original signature.

[Remainder of this page intentionally left blank. Signature page to follow.]

IN WITNESS WHEREOF, the parties have hereunto set their hands on the date of attestation shown below.

CITY OF DULUTH-Client

By:_____
Mayor

Attest:

By:_____
City Clerk

Date: _____

Countersigned:

_____
City Auditor

Approved as to Form:

_____
City Attorney

TRC ENVIRONMENTAL CORPORATION

By:_____

Its: _____
Title of Representative

Date: _____

EXHIBIT A

City of Duluth, MN MNDOT Outfalls 1, 2, 3 Date: March 16, 2020

TRC Proposal Number 371147.9990.0000

Firm	Project Role	Rate ($/hr)
TRC		
Dan Veriotti, PE	Project Manager, Principal Coastal Engineer	175
Brian Iwaniuk, PE	Project Civil Engineer	120
Emily Kahanic, EIT	Project Civil Engineer	108
Scott Weyandt, PE	Construction Manager	135
Roberta Hendriksen	Administrative Support	90
AMI		
Chad Scott, PE	Principal Marine Structural QA/QC	248
Chase Dewhirst, PE	Marine Structural Engineer	160
Zac Morris, PE	Coastal Engineer	160
Ryan Dagger, EIT	Project Engineer	105
Noah Tapper, EIT	Project Engineer	105
Kareen Keenan, PE	Marine Engineer	204
Kristi Mehrman, EIT	Project Engineer	127
Seth Johnson	Engineering Technician-Permitting	127
Survey Crew	Surveying	165
Resolution Studio		
Ben Yahr, RLA	Landscape Architect	127

EXHIBIT B

TRC

230 W. Monroe Street
Suite 630
Chicago, IL 60606

November 25, 2019

City of Duluth
Mr. Mike LeBeau
Construction and Energy Project Supervisor
Mr. Tom Johnson, PE
Senior Engineer
Duluth, MN 55802

Subject: Proposal for Engineering Services – MNDOT Outfalls 1 and 2/3
TRC Proposal No. 371147.9990.0000

Dear Mr. LeBeau and Mr. Johnson,

We are pleased to submit this proposal for *Engineering Services, MNDOT Outfalls 1 and 2/3.* We are aware of the critical importance of maintaining the outfalls' functionality, reducing the periodic maintenance, and providing a more robust system that will work in a variety of design conditions.

Enhancing public access safety and restoring an eroding shoreline are also very important for the project. Toward that end, we have assembled a team of Great Lakes experts in the disciplines relevant to this important project, including Coastal, Marine Structural, Civil, and Geotechnical Engineers. Individually and collectively, we are committed to meeting and exceeding your expectations by providing the timely and on-budget delivery of an outstanding project that responds to your needs.

The Project Team will be led by Dan Veriotti, MSc, PE (Project Manager, Principal Coastal Engineer) working closely with the AMI team that prepared the MNDOT Design Study report (Chase Dewhirst, PE and Zac Morris, PE). Dan is a specialized Coastal Engineer with over 23 years of experience and has led numerous similar projects. The Project Team is assisted by Resolution Studio, LLC (Ben Yahr, RLA) for site public access and grading services. AMI and Resolution Studio are Federal registered Small Businesses. All the project members listed in this proposal have been working together on City of Duluth shoreline projects as a cohesive team.

We appreciate the opportunity to submit this proposal and to continue working with you. You can reach us via the phone numbers provided below.

Sincerely,

TRC

Dan Veriotti, MSc, PE
Chicago Principal Engineer
Phone: 312.800.5916

Kristopher Krause, PE
Vice President, National Practice Leader
608.826.3637

Proposal for Engineering Services – MNDOT Outfalls 1 and 2/3

Proposal| November 25, 2019

Prepared by:
TRC
230 W. Monroe Street, Suite 2300
Chicago, IL 60606

Prepared for:
City of Duluth
ATTN: Mike LeBeau,
Tom Johnson, PE
Duluth, MN 55802

Table of Contents

1.0 Project Understanding and Objectives

A. Overview

The Project Team is pleased to respond to the City of Duluth's Request for Proposal for the MNDOT Outfalls 1 and 2/3 engineering and construction administration services. We look forward to the opportunity to apply our decades of Great Lakes-specific expertise to the challenge of restoring the Duluth outfalls and shoreline. We plan to leverage our previous and on-going shoreline and outfall project experience in Duluth to efficiently evaluate the site conditions/damages from recently recorded storms. Our Team will then collect new site data, prepare improvement alternatives with construction cost estimates, prepare design development drawings, coordinate with the regulatory agencies, prepare final construction plans, and assist with bidding and perform full time construction administration.

B. Project Understanding

Outfalls 1 and 2/3 are located at the southwest corner of Lake Superior. Due to the long fetch over the lake, significant storms are recorded every year, which result in sedimentation and sometimes total blockage of the outfalls (during these events, I-35 freeway flooding is recorded and MNDOT personnel needs to perform emergency outfall cleaning operations). There are some important Coastal considerations regarding these outfalls, as summarized below:

- Due to the shoreline geometry, the net longshore (parallel to the shoreline) sediment transport is from the north to the south; as the shoreline is primarily composed of man-made stone armoring and ledges/bedrock, the sediment supply to the littoral transport is limited, resulting in a small net quantity of sediment moving south;

- The Duluth shoreline along Canal Park and Outfall 1 is a "closed cell" and long-term stable; in other words, there is no sediment exchange with other downdrift areas, as the site is bound by the Duluth Harbor jetty to the south and the man-made armored shoreline to the north and the shoreline positioning has not significantly changed over the years;

- The Canal Park beach and near-shore area consists of coarse sands and gravels, with materials moving through cross-shore transport (deposited in the near-shore during high water and "erosional" waves and pushed back on the beach during low water levels and "constructive" waves). Based on our sampling studies and underwater investigations, the near-shore bed material is represented by gravels and coarse sands; during significant storms, this material will move through induced cross-shore transport in the Outfall 1 and 2/3 pipes;

- The outfall pipes have low inverts, placing them in shallow water and in the active zone of sediment transport; and

- Intuitively, increasing the outfall pipe lengths will reach to deeper water, with better mixing and less maintenance needed (sediment removal), but will have a higher construction cost.

The site constraints include the following:

- The outfalls need to work during variable water levels and ice conditions;
- Risk of sedimentation and blockage; a longer structure will decrease this risk, but increase the regulatory permitting difficulty;
- Design for exposed lake conditions; the outfall improvements need to be robust, withstanding severe wave and ice action;
- Safety, not impacting water-based recreational activities;
- The net sediment transport is small; based on previous studies, this accounts for less than 100 CYDS/year; however, significant storms will rapidly mobilize the existing coarse material in the near-shore and on the beaches at the water's edge, and push it towards the outfall pipes, creating sedimentation and clogging;
- The success of creating a stable beach at the Outfalls 2/3 location relies on the pre-fill quantity during construction, adequate slope and geometry; and
- Aesthetics; the outfalls' structure total footprint, top elevation, and length will have to be carefully considered.

The site opportunities include the following:

- The shoreline immediately north of the Outfalls 2/3 is actively eroding, with an annual recession rates of 2-3 feet/year; extending the outfalls and creating a groin structure will help stabilize the shoreline, especially if coarse beach material pre-fill is provided; the beach pre-fill will also attenuate the wave energy that impacts the proposed groin structure;
- Trapping sediment at the location of Outfalls 2/3 in a beach cell will reduce the amount of sediment moving towards Outfall 1;
- The existing grade elevations at Outfalls 2/3 are lower on the north side of the site, providing an opportunity for public access from the boardwalk;
- The Outfall 1 beach is long-term stable and wide; an improved outfall structure will be protected against wave scour;

- There is a significant amount of stone and coarse stone material that can be re-used at both outfall locations.

Between October 2017 and October 2019, four major Lake Superior storms were recorded.

- October 26 and 27, 2017, significant waves up to 15.7 feet at buoy 45028 in deep water (161 feet), while the water level increase (due to storm surge) was 1.3 feet, superimposed on a Lake Superior high-water level (604.4 feet total);
- April 14, 2018, significant waves up to 15 feet, with a storm surge of 0.8 feet on top of Lake Superior high-water level (603.14 ft total);
- October 10 and 11, 2018, 15.4 feet significant wave heights in deep water, with storm surge of 1.0 foot, and water level of 604.4 feet; and
- October 21, 2019 with approximately 15.2 feet of significant wave heights of 15.2 feet in deep water, storm surge of 1.2 feet, and water level of 604.75 feet.

Three of these storms exceeded the 100-Year water level (604.24 feet). This will be an important consideration for selecting the project design set of conditions.

C. Project Goals

The project's main goals are to:

- Refine the initial AMI Design Study (November 2018) and TRC concepts (April 2019);
- Select a preferred alternative for implementation at each outfall location, which will combine the outfall functionality (reduce maintenance) and public benefit (incorporate public safe access and restore an eroding shoreline);
- Prepare construction plans and secure regulatory permitting, having two "shovel ready" projects with an anticipated construction start in July 2020. It is expected that only one project will be implemented in 2020 (site to be determined), based on limited available construction funds.

2.0 Project Team Resources, Capabilities and Responsibilities

A. Resources and Capabilities

With hundreds of Great Lakes based and available professionals, the Project Team offers a comprehensive range of services for this study, including:

- **Coastal and Civil Engineering** (experience with site investigations and assessments, data collection and analysis, coastal processes-water levels, wind waves, wave transformations, sediment transport, conceptual and final design of proposed improvements, Opinion of Probable Construction Costs, preparation of construction plans and construction administration);

- **Geotechnical and Structural Engineering** (data collection and analysis, calculation in support of design development and construction plans);
- **Landscape Architecture** (harmonious integration of land-based improvements with the Coastal shoreline protection program, conceptual and final design of public improvements, recreational opportunities, Opinion of Probable Construction Costs, and construction administration);
- **Data Collection** (bathymetric and topographic surveys, specialized aerial survey, underwater investigation, and creation of a project Digital Elevation Model-DEM);
- **Regulatory Coordination** (preparation of permit applications and coordination with the regulatory agencies); and
- **Construction Administration** (site observations, familiarity with State and Federal project reporting procedures).

We are a regionally-based team highly accessible to the City of Duluth and MNDOT. Our customized team features project principals that live and work in the Great Lakes area. We are available (on short notice) to meet in-person with the City and MNDOT members to discuss project approach, progress and outcomes.

We offer Subject Matter Experts in all relevant disciplines. This project requires the services of highly experienced professionals in multiple disciplines that include (among others) Coastal and Marine Engineering, Marine Structural, Survey and Landscape Architecture. We assembled our team to provide the City of Duluth with Subject Matter Experts that not only have technical credentials but are also intimately familiar with the Lake Superior Basin.

The project main responsibilities are summarized below:

- **TRC** will provide the overall project management, independent Coastal analysis (select basis of design), design development for the shoreline protection (beach, stone armoring) and grading, and assist with construction observations; Dan Veriotti, PE will be the Project Manager;
- **AMI** will provide the Marine Structural design, site surveying, regulatory coordination, preparation of design development and construction plans, bidding and lead the field construction administration; Chase Dewhirst, PE will be the Team design lead engineer, local point of contact and responsible for the construction plans (Engineer of Record);
- **Resolution Studio** (Ben Yahr, RLA) will provide assistance with design development for all the land-based proposed site improvements.

The three firms and their lead professionals have cohesively worked together as a team on various City of Duluth shoreline restoration projects. Detailed team resumes and project abstracts are available upon request.

3.0 Proposed Work Plan

We believe that a good understanding of the existing conditions and close coordination with the City and MNDOT personnel will be key elements to the project. The ability to provide a successful project also depends on identifying the most efficient and economical construction methods, incorporation of locally available materials, and including key local team members for the construction administration services.

In general terms, TRC's approach will be to rely on all completed AMI work to date for these outfalls, our Team design for other outfalls in Duluth, shoreline rehabilitation projects, Coastal analysis (which will be refined), use the previously collected data (leveraged to the maximum extent), and our great site knowledge. This previous experience will be supplemented by updated and/or check surveys; a Design Development phase to validate and refine the design elements; preparation of construction plans; coordination meetings with the City and MNDOT personnel, and bidding and construction administration services, which are described in the next sections.

The project will have four main proposed tasks, as follows:

Task 1: Data Collection and Analysis;

Task 2: Design Development and Regulatory Coordination;

Task 3: Final Design and Bidding Phase;

Task 4: Construction Administration and Inspection Phase.

3.1 Task 1: Data Collection and Analysis

The new data collection and analysis will include the following tasks and main team responsibilities:

- Geotechnical investigation, two borings total to be collected at the Outfalls 2/3 location from a barge with one located 50 feet offshore; one boring from the beach at the Outfall 1 location; the borings will be collected to a depth of 40 feet below the lake bottom elevations (AMI);
- Site survey, topographic survey (aerial and conventional methods) of the project site above the water level; the collected data will be assembled with the previous collected bathymetric data (AMI);
- Stone material inventory and search; this task will quantify the approximate quantities and size ranges of stone materials that can be re-used in the project; also, the availability and unit costs for new materials as may be needed for the project (armor stone, coarse gravel, concrete, steel sheet piling); our team will strive to identify potential construction cost savings, by incorporating these locally available materials in the Design Development phase (TRC lead, AMI support);
- Coastal analysis; an independent analysis will be conducted to refine the AMI analysis for the outfalls and TRC for various Duluth shoreline projects, and select the basis of design (water level and offshore wave); from our previous design experience in Duluth, our team recommends the 100-Year water level and a 50-Year offshore wave height, which will be revisited; conduct a wave transformation analysis for the selected design conditions; and

- Marine design; outfall pipe hydraulics, wave loading and marine structures requirements (AMI); beach stability and fill requirements (TRC)-this may involve the use of a "sill" structure at the toe of the beach fill for Outfalls 2/3, and re-use of the armor stone for Outfall 1 to create a groin for the structure addended protection against wave energy.

3.2 Task 2: Design Development and Regulatory Coordination

Outfall 1

In the Design Development phase, our project team will evaluate the two main alternatives that TRC proposed: concept Sketches "C" and "D" (see Figure 1).

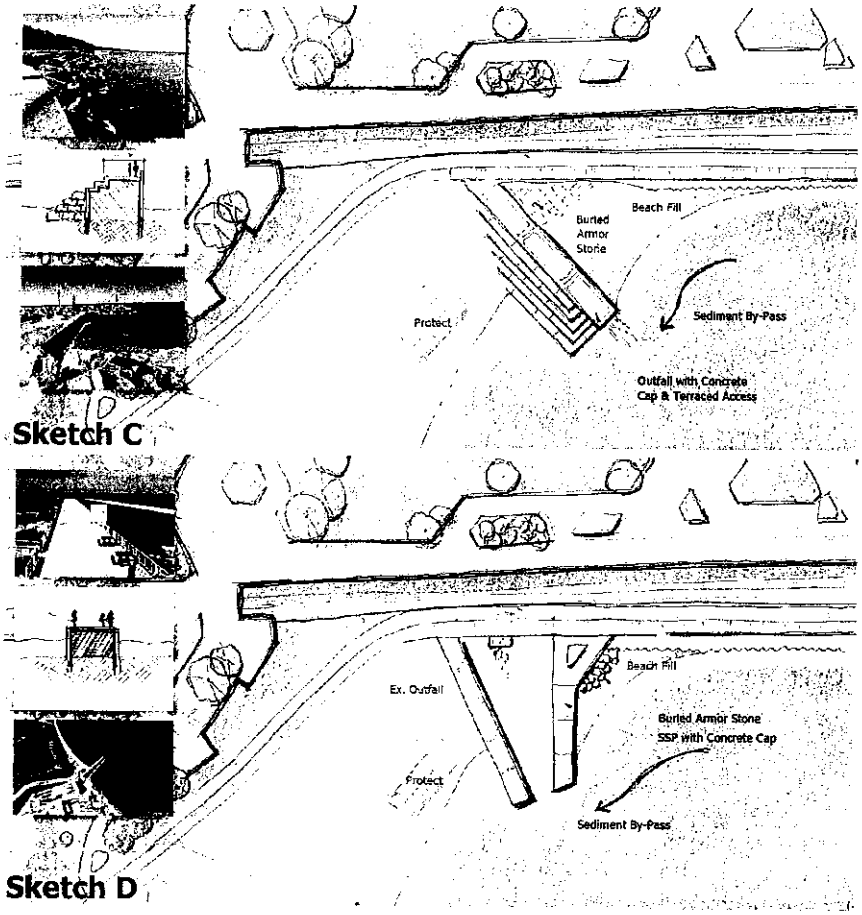

Figure 1. Outfall 1 Proposed Alternatives C and D

A preliminary Value Engineering analysis will be conducted based on the stone materials inventory and search and summarize the two alternatives with advantages and disadvantages, and estimated construction

costs. We will discuss them with the City and MNDOT personnel for the selection of the final design alternative, with the anticipated main discussion topics being:

- Estimated cost;
- Structural requirements;
- Site grading;
- Public access, beach amenities;
- Land-based construction and a methodology (equipment, sequencing, site access, and staging) will be developed to provide a buildable design for all project areas; and
- Lights along the new outfall structure might not be required), due to the new lightling system to be provided by the Canal Park project.

Outfalls 2/3

In the Design Development phase, we will evaluate and develop two main alternatives that will include a refinement of the TRC proposed concept Sketch "A" (see Figure 2).

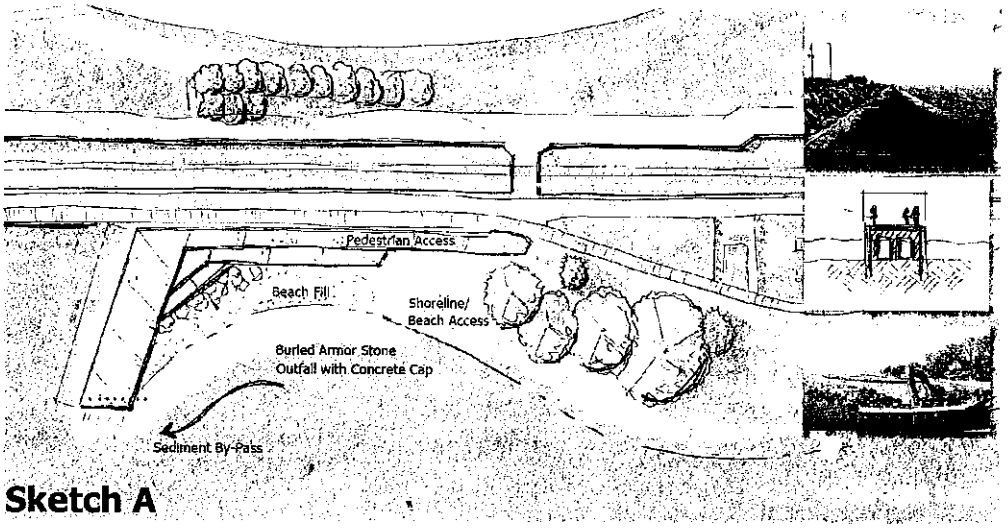

Figure 2. Outfalls 2/3 Proposed Alternative A

The two refinements will include:

- Short groin, 50 feet long; two outfall pipes transitioning to one outfall to increase the self-flushing capability; provide one or two manholes for access and maintenance cleaning; potential for a vacuum truck to access the manhole from the Lakewalk, without accessing the top of the structure; Steel Sheet Piling (SSP) with bracing and fill; outfall pipe with discharge to the east (straight pipe) or

south (bent pipe); build a beach facing south with a sill structure (beach fill anchoring at the toe) for increased stability during storms and steep slope; and

- Longer groin, approximately 75 feet; vacuum trucks will likely need access from the SSP structure; build a wider beach with or without the sill structure.

Similar to Outfall 1, a preliminary Value Engineering analysis will be conducted based on the stone materials inventory and search and summarize the two alternatives with advantages and disadvantages, and estimated construction costs. We will discuss them with the City and MNDOT personnel for the selection of the final design alternative, with the anticipated main discussion topics being:

- Estimated cost;
- Structural requirements;
- Site grading;
- Public access, safety gate at the Lakewalk (closed during significant storms), beach amenities;
- Constructability to identify marine (from a barge) versus land-based (from the beach and near-shore) construction, contractor staging, and phasing. A construction methodology (equipment, sequencing, site access, and staging) will be developed to provide a buildable design for all project areas; and
- Lights along the new outfall structure will be limited to provide enough lighting for the walking surfaces only. Lights will be mounted to the new or existing sheet pile and be angled downward to be "Dark Sky Compliant".

We have budgeted four meetings in Duluth for our presentations and discussions. It is assumed that Outfalls 1 and 2/3 will be presented and discussed together in the same meetings.

Pending the selection of a preferred alternative for each outfall location, the Project Team will prepare permit applications and supporting materials, for securing construction permits from MNDNR and USACE.

3.3 Task 3: Final Design and Bidding Phase

The Project Team will develop 60% and 100% construction documents (two deliverables) ready for contractor bidding, to include the following, for each outfall location (two sets of plans total):

- Construction drawing preparation with an updated and detailed Engineering Opinion of Probable Construction Cost;
- Prepare technical specifications and include supplementary contract conditions not part of the Construction Drawings or in the City of Duluth front end bid and construction documents. Also prepare a project description and bid sheet for the bid documents. We assume that the City of Duluth will provide the front-end construction contract documents. We will review these documents to help develop our Plans and Specifications to be compatible;
- Bid ready sealed plans and specifications;

- Contractor Request for Clarification (RFC);
- Preparation of Addenda if needed;
- Attendance at mandatory pre-bid meeting;
- Attendance at bid opening; and
- Evaluation of the bids and written recommendation for contract award.

3.4 Task 4: Construction Administration and Inspection Phase

We assume that the project will have the following construction durations and man-hours:

- Outfalls 2/3: 12 weeks of construction, 40 hours per week (480 total man-hours, with 360 man-hours for AMI and 120 man-hours for TRC);
- Outfall 1: 8 weeks of construction, 40 hours per week (320 total man-hours, with 240 man-hours for AMI and 80 man-hours for TRC);
- An additional of 2 hours per week for progress reporting, or a total of 24 additional man-hours (Outfalls 2/3) and 16 man-hours (Outfall 1).

The Project Team will provide the following field and office construction administration services:

- Conduct a pre-construction meeting;
- Inspect test sections built by contractor for construction drawings conformance;
- Provide responses and clarifications to Contractor questions;
- Evaluate Contractor request for Charge Orders;
- Preparation of Change Orders, if approved;
- Full time observation of the Work for contractor performance oversight, measurement of materials quantities placed, and in-office of review contractor submittals, pay application and change order requests and respond to clarification questions;
- Review and recommendation of approval or denial of the Contractor's Requests for Payment;
- The performance of a walk-through and preparation of a punch list upon the Contractor's request for a determination of Substantial Completion;
- A determination of completion and recommendation for final payment upon satisfaction of the project punch list and completion of all Work; and
- Project close-out and As-Built plans.

4.0 Assumptions

The following is a list of assumptions used in the preparation of this proposal:

- Project meetings will be local in Duluth;
- Construction for the first selected outfall project will start in July 2020; the construction schedule for the second project to be determined;
- The only permits required will be from MnDNR and USACE; the contractor will be responsible for any City required permit;
- The two geotechnical borings for Outfalls 2/3 will be performed from a barge, weather dependent (before ice forms on Lake Superior);
- A total of six meetings will be attended by the Project Team (four during the design development and two during bidding phase);
- No large overhead lights will be provided;
- Public coordination and presentations/meetings with the public are not required;
- The City will provide official public notice and coordinate with stakeholders for the project; and
- Permitting fees will be paid separately by the City of Duluth.

5.0 Schedule

The following represents a draft schedule, assuming that a Notice to Proceed is granted by mid-December, 2019:

- The data collection, regulatory permitting, Design Development, preparation of construction plans, can be completed by June 2020 (both outfall locations);
- Project Bidding and start construction for the first selected project: July 2020;
- Construction completion by October 2020; and
- Construction for the second project: to be determined.

We can also accommodate an accelerated schedule based on our staff availability and will coordinate with the City of Duluth as needed to expedite the completion of the main tasks presented above.

6.0 Fees

Our team will complete all services described in this proposal for a lump sum cost of $304,817.00, including all direct work and associated expenses. The following table summarizes the cost breakdown by task:

Item	Fee
3.1 Data Collection and Analysis	$44,200
3.2 Design Development and Regulatory Coordination	$79,068
3.3 Final Design and Bidding Phase	$77,514
3.4 Construction Administration and Inspection Phase	$104,036
Total	**$304,817**

The following is a summary of the assumed man-hours for the project team:

- AMI: 1,424 hours;
- TRC: 554 hours;
- Resolution Studio: 87 hours.
- Project Total 2,065 hours.

Not accounting for expenses such as geotechnical borings, the average labor rate for the project team is $135 per hour.