

SCOPE OF SERVICES

Contract # 22-122-01 for A/E Continuing Services

HAZEN AND SAWYER SERVICE ORDER No. 32

CITY OF MIAMI BEACH PUBLIC WORKS DEPARTMENT

MACARTHUR CAUSEWAY WATER MAIN UPGRADES DESIGN

PROJECT BACKGROUND

The City of Miami Beach (CITY) receives potable water from the mainland by means of four transmission mains from the Miami-Dade Water and Sewer Department (MDWASD) system. One of the transmission mains that supplies water to the CITY is located along the MacArthur Causeway. The MacArthur Causeway spans from Watson Island to Terminal Island, though includes bridges/intersections for Palm/Hibiscus Islands and Star Island. Refer to **Figure 1**.

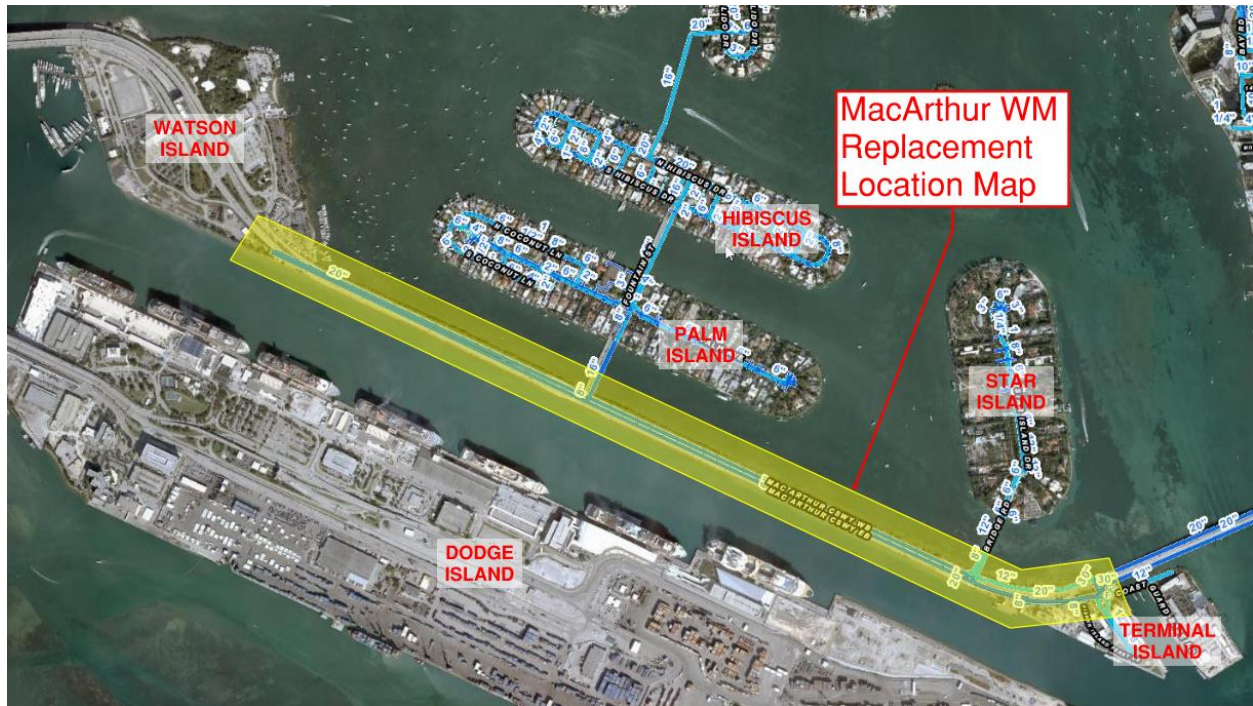


Figure 1: MacArthur WM Replacement Location Map

Water enters the CMB system at Watson Island from MDWASD as one 36-inch main which splits into two 20-inch water mains which traverse MacArthur Causeway. The northern 20-inch ductile iron WM was installed in 1991; the southern cast iron 20-inch WM was installed in 1938 and is at the end of its useful life. These parallel transmission mains, which also provide water service to the adjacent islands, are interconnected at several locations along the Causeway. No CMB sewerage infrastructure is located along the Causeway with the exception of Terminal Island and its force main to Star Island.

The MacArthur Causeway 20" water main was recommended to be replaced due to age and upsized to 30" in the Water and Sewer System Master Plans (2019) under project number W-12. This project was



recommended for implementation in the 2020-2024 range. The CITY agreed to proceed with a 30" diameter for the replacement pipe.

Due to the criticality of these assets, the CITY has requested that HAZEN submit a proposal for engineering services for the detailed design of replacement of the approximately 9,200 LF of water main along the

MacArthur Causeway from the MDWASD meter on Watson Island east to the Booster Pump Station on Terminal Island. The CITY also desires interconnections between the new 30-inch pipeline and the parallel 20-inch main near the Palm/Hibiscus Islands and Star Island branches. The engineering services proposed include the preliminary data collection, contract document development, permitting, bidding services and limited construction services.

SCOPE OF SERVICES AND DELIVERABLES

HAZEN will provide professional engineering services to the CITY as described below.

Task 1 – Site Investigation and Data Collection

Task 1.1 – Topographic Survey and Targeted Underground Utilities Locates

NOTE: HAZEN's preliminary findings confirm that topographic survey was recently prepared throughout the proposed project corridor as a part of the "Miami Dade County Rapid Mass Transit Solution for the Beach Corridor Trunk Line" project (i.e., the Baylink Project). This survey data was provided to the CITY by Miami Dade County Department of Transportation and Public Works (DTPW). As such, it is anticipated that limited survey services will be required.

HAZEN will employ the services of a Certified Land Surveyor in the State of Florida (SURVEYOR SUBCONSULTANT) to perform the required topographic survey necessary to complete the design. Note that the SURVEYOR SUBCONSULTANT previously performed a topographic survey through the desired corridor. The SURVEY SUBCONSULTANT shall perform field verification of the existing survey to confirm it is up to date, capturing additional elements as necessary. The SURVEY SUBCONSULTANT shall obtain City Right-of-Way permits as required. The SURVEY SUBCONSULTANT's work will be split into two phases: "Phase 1", confirmation of existing topographic survey; and "Phase 2", additional selective Subsurface Utility Engineering (SUE) services.

The base map created will be used to generate plan and profile drawings for the subject project. SURVEYOR SUBCONSULTANT will perform topographic surveying of the areas of work. The "Phase 1" survey shall include the following:

- **Code Requirements:** The survey will meet the current surveying requirements of the Board of Professional Surveyors and Mappers of the State of Florida, as defined in Chapter 5J-17.050 - .052, Florida Administrative Code.
- **Extent of Survey:** The survey shall identify right-of-way lines, property lines and platted easements within the survey area identified. Survey shall extend 20 feet outside the right-of-way unless specifically indicated elsewhere (where accessible, as permitted by the adjacent property owners, and can be done safely by the Survey crew in the field).
- **Property Lines:** SURVEYOR SUBCONSULTANT shall conduct deed research to identify property ownership along the survey limits and show property lines and property owners' addresses on the drawings for all adjacent properties. Owners shall be identified by deed book and page number.
- **Easements:** SURVEYOR SUBCONSULTANT shall identify existing easements within the survey area that appear on a recorded plat.
- **Aboveground Improvements:** SURVEYOR SUBCONSULTANT shall locate aboveground and

visible improvements, including pavement, pavement markings, slabs, fences, signs, overhead wires, water meters, valve boxes, cleanouts, handholes, markers, utility poles, trees, manhole covers, and other utility features within the limits of the survey.

- Manholes and Accessible Underground Piping: Manhole covers, rims, pipe inverts, and pipe sizes shall be measured on sanitary and drainage structures found within the survey limits, if accessible and physically unobstructed, otherwise they will be noted on the drawing. In addition, top of nut (TON) elevations for all water valves shall be measured.
- Tree Survey: Existing trees, six (6) inches in diameter and above, at four (4) feet above ground, shall be located and identified with diameter and common name. Each tree shall be assigned a unique tree identification number.
- Topographic Points: Elevations cross sections shall be taken at 50-ft intervals along roadways. Maintenance of traffic to be provided as required for data collection. Areas outside of roadway right-of-way shall include spot elevations on a 50-ft grid, though include interim changes in grade.
- Horizontal Datum and Vertical Datum: Horizontal datum shall be North American Datum of 1983/2011 (NAD 83/11), Florida State Plane Coordinate System, Florida East Zone, scaled to ground. Vertical datum shall be relative to National American Vertical Datum of 1988 (NAVD88), and based on National Geodetic Survey (NGS), or FDOT benchmarks. One sheet of the SURVEYOR SUBCONSULTANT's drawings shall include a graphic that illustrates conversion from NGVD29 to NAVD88.
- Benchmarks: SURVEYOR SUBCONSULTANT shall provide at least four (4) semi-permanent survey control and benchmarks along the project corridor. Elevations shall be tied to at least two (2) National Geodetic Survey (NGS) Benchmarks located on or near the project site.
- Baselines: Survey baseline shall approximate the center of the right-of-way when possible. Baselines shall increase in stationing. The value starting station shall be chosen in such a manner as to guard against the likelihood of negative stationing in the event that the project is extended down-station. Suggested beginning stations are 50+00 for primary baselines.
- Statement of Accuracy: Included with the survey deliverables shall be a statement of accuracy indicating the dates of collection, surveyor name and license number, coordinate systems used, benchmarks referenced, and degree of accuracy achieved (e.g., +/- ft) in the horizontal and vertical planes.
- Survey Limits and Special Requirements: The approximate survey limits are provided in attached **Figure 2**. Additional description for corridor to be surveyed is provided below;
 1. The full land width (approx. 180-ft) of the MacArthur Causeway between Watson Island and Terminal Island in Miami Beach.
 2. The southeastern end of Watson Island as shown in **Figure 2**.
 3. The northwestern end of Terminal Island as shown in **Figure 2**.
 4. Utility locates and vacuum excavations to be performed at select locations identified by HAZEN; refer to **Figure 2** for estimate.
- Phase 2 - Subsurface Utility Engineering: After HAZEN has reviewed the topographic survey information performed under "Phase 1", subsurface utility investigation shall be performed by SURVEYOR SUBCONSULTANT at specific locations identified by HAZEN to determine approximate location of existing underground utilities at potential utility crossings. The extents of these specific locations are estimated as shown on **Figure 2**, though are subject to change. Subsurface utility investigation shall include the following:

- Perform horizontal locations of existing conductive utilities using electromagnetic induction and ground penetrating radar techniques. Work shall be performed to Quality Level B standards in accordance with CI/ASCE 38-02.
- Mark selected targets on the ground surface using American Public Works Association (APWA) color marking standards.
- Request a design ticket through Sunshine One Call of Florida.
- Coordinate with utility owners and review and/or obtain available documentation as it relates to the project.
- Underground utilities shall be provided in a separate CAD file.
- Phase 2 - Vacuum Excavation and Location: After HAZEN has reviewed the topographic survey information performed under “Phase 1”, vacuum excavations shall be performed by SURVEYOR SUBCONSULTANT at specific locations identified by HAZEN to determine precise location of existing underground utilities at potential utility crossings. SURVEYOR SUBCONSULTANT shall perform underground utility locations to verify through vacuum excavation the horizontal and vertical position of existing underground utilities. SURVEYOR SUBCONSULTANT shall subcontract, if necessary, to perform underground utility location to verify through vacuum excavation the horizontal and vertical position of existing underground utilities at the locations selected by HAZEN (to be determined). Utility locates shall be requested through Sunshine One Call of Florida. Work shall be performed to Quality Level A standards in accordance with CI/ASCE 38-02. SURVEYOR SUBCONSULTANT shall submit a report indicating the underground utility horizontal location, the depth, lay direction, diameter and the material for each pot hole. SURVEYOR SUBCONSULTANT shall include the location of each pothole on the final survey. Compensation for vacuum excavation, report, and location on the survey inclusive of travel costs, MOT costs and other direct costs for each pothole shall paid on a per pothole basis, and also based on hard surface or soft surface excavation, and shall be on a not-to exceed basis.
 - The basis for the not-to-exceed proposal shall be 20 hard surface excavations and 10 soft surface excavations.
- Survey Deliverables: SURVEY SUBCONSULTANT shall provide three (3) electronic deliverables to HAZEN following collection of field data – a Point Database, CADD Survey Drawing, and a CADD Surface TIN or Model. These files must be maintained and delivered throughout the project as work is requested. Drawing methods and layering must conform to Hazen and Sawyer standards as provided within or as indicated within the attached “Survey_Seed.dwg” provided to the Surveyor by Hazen and Sawyer. In addition, signed and sealed survey drawings shall be provided as indicated below.
 - Point Database: SURVEY SUBCONSULTANT shall provide all spot elevations in a spreadsheet (i.e. Microsoft Excel) in comma or tab delimited (spaced) format in PNEZD arrangement (Point Number, Northing, Easting, Elevation, Description). These software file extensions may vary from .txt, .xls, or .csv.
 - CADD Survey Drawing: The Survey Drawing shall be provided in a separate AutoDesk (AutoCAD) drawing file (.dwg) including all planimetric data and generated topographic contours. All CADD drawings to be provided to Hazen and Sawyer shall be drawn on the layer system as indicated in the “SURVEY_SEED.dwg” provided with this document. A list of these layers, descriptions, lineweights, types, and colors can be provided upon request. Topographic information for interval contours and index contours shall be drawn using two dimensional (2D) polylines having a fixed elevation equal to the contour elevation and a thickness of zero (0). The contours shall be drawn on appropriate layers for interval or index contours as a single continuous 2D polyline for each elevation. In any case, three dimensional (3D) polylines are not acceptable.

- **CADD Surface TIN or Model:** A Surface Model shall be created and provided by the SURVEY SUBCONSULTANT from ground elevation shots in the specified horizontal and vertical datum and modified by surveyor placed breaklines and boundaries as part of the surveyor's normal best practices for creating topographic contours.
- **Record Survey Drawings:** Two (2) hard copies of signed and sealed survey drawings shall be provided, including the name and license number of the surveyor, name and address of the survey firm, date of survey, datum referenced, statement of accuracy, and all other information as required by the State of Florida.

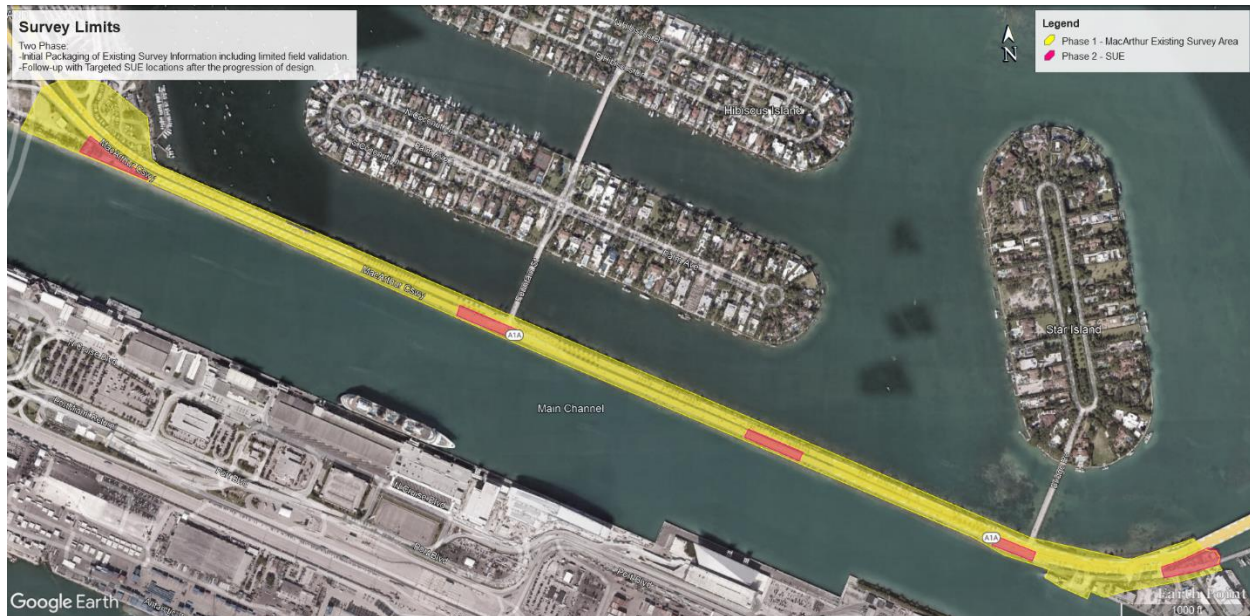


Figure 2: Survey Limits

This proposal includes the use of KEITH to provide specialized services related to surveying and utility locations in the MacArthur corridor. It is requested they be added to Schedule C Approved Subconsultants for RFQ No. 2022-122-ND.

Task 1.2 – Geotechnical Investigation and Report

NOTE: HAZEN's preliminary findings confirm that a large number of geotechnical borings exist throughout the proposed project corridor. Several recent geotechnical investigations have occurred along the MacArthur Causeway as a part of the "Miami Dade County Rapid Mass Transit Solution for the Beach Corridor Trunk Line" project (i.e., the Baylink Project). These Geotechnical Reports were provided to the CITY by Miami Dade County Department of Transportation and Public Works (DTPW). As such, it is anticipated that limited geotechnical services will be required. No new geotechnical borings are proposed.

HAZEN shall employ the services of a professional geotechnical engineer in the State of Florida (GEOTECHNICAL SUBCONSULTANT) to perform geotechnical analyses of the proposed improvement areas. Pipe installations may be constructed via either open-cut or trenchless methods (e.g. horizontal directional drilling). GEOTECHNICAL SUBCONSULTANT shall review available geotechnical data from the project referenced above and prepare a report as follows:

- **Report:** GEOTECHNICAL SUBCONSULTANT shall prepare and provide a written geotechnical report containing as a minimum the following items:
 - Overall site map showing the locations of existing soil borings.
 - Overall site and surface conditions.

- Ground water level elevations (including seasonal fluctuation).
- Results of field exploration and soil laboratory testing.
- Soil borings profiles showing soil identifications, depth, groundwater, and standard penetration “N-values”, and soil description.
- Soil classification per United Soil Classification System (USCS).
- Recommendations for pipeline bedding, backfill and compaction.
- Recommendations for groundwater control during pipeline trenching.
- Engineering recommendations, as applicable, for the following parameters: USCS, unit weight, dry unit weight, shear modulus, cohesion and internal friction angle, soil bearing capacity, and unconfined compressive strength.
- It is anticipated that trenches up to 10-feet deep will be needed for construction of new underground piping and manholes. Provide the following relative to trenching:
 - Permissible excavation slopes;
 - Sheet piling and shoring recommendations;
 - Suitability of excavated material for use as fill or backfill.
- Locations and descriptions of any existing fill or potentially deleterious materials encountered that may interfere with construction progress or structure performance.
- General considerations for temporary excavations as related to Occupational Safety and Health Administration regulations.

Task 1.3 – Data Gathering and Site Visits

HAZEN will coordinate with CITY employees and operators to gather relevant as-builts and site-specific data on the water and sewer main systems/networks. Utility locates will be called for using Sunshine 811 for the entire Causeway. Using this design ticket information, HAZEN will request as-built data from all utilities identified in the area. HAZEN will utilize this data during the design process to verify if any existing utilities will be impacted by the proposed pipe replacement.

HAZEN will also conduct site visits of the corridor to document the accuracy of the record drawings and inspect utility and structural elements to determine potential conflicts.

Task 1.4 – Hydraulic Analysis Technical Memorandum

HAZEN will perform a hydraulic analysis to evaluate the following:

- Assess and update the pipe network in the vicinity of the Terminal Island Booster Pump Station to better understand water flow. The water mains in the hydraulic model will be revised based on review of as-builts, City’s most recent GIS database, and input from the Operations’ staff to reflect the most recent information. The analysis will include investigation of any potential recirculation of water through the Terminal Island Booster Pump Stations pumps. The CITY will need to perform field investigations to confirm or identify changes to the pipe network (including existing interconnections) along the MacArthur corridor, and confirm location and position of valves.
- Perform hydraulic analysis to confirm sizing of proposed replacement pipe. HAZEN’s 2019 Master Plan had recommended a 30” diameter replacement pipe. This hydraulic analysis will consider impacts of the recent MDWASD project which installed a subaqueous 36” WM between approximately the FTX arena and Watson Island replacing the existing water supply connection from MDWASD. The CITY noted this pipe was placed into service in March 2023.

- Assess Terminal Island Booster Pump Station operation with existing / proposed pump curve(s) and provide recommendations for modifications if needed. Evaluate up to four (4) scenarios to determine pump operation for various operating conditions. The scenarios selected for the evaluation shall be discussed with the CITY prior to the evaluation.
- Assess alternatives for inter-connections between the proposed pipe and the parallel 20" water main. The various alternatives to be considered will be determined in conjunction with the CITY based on redundancy requirements, constructability, and hydraulics.
- The CITY will provide extended period pressure data from key locations along MacArthur Causeway. Hazen will provide the locations for pressure recorders to be installed. CITY staff will also provide corresponding operational data for the duration of the pressure recorder installation in CSV or Excel format including but not limited to pump on-off times, pump speed, pump suction and discharge pressure, storage tank levels, flow and pressure data through all WASD inter-connections.

Draft Hydraulic Analysis TM will be submitted to the CITY for review. It is anticipated the CITY will complete its review of the draft TM within 10 working days of receipt of the TM.

HAZEN will coordinate one (1) virtual meeting to discuss the Draft Hydraulic Analysis TM with the CITY receive any feedback. HAZEN will incorporate the CITY's comments on the draft TM and results of the review meeting and subsequently issue a Final Hydraulic Analysis TM.

Task 1.5 – Preliminary Coordination Meetings

Up to eight (8) preliminary meetings will be conducted as follows:

Kickoff Meeting: One (1) virtual meeting will be held between the CITY and HAZEN to review critical design components of the water main replacement and comment as necessary. Topics to be covered during the meeting include but are not limited to:

- Limits of pipe replacement/tie ins
- Tie-ins/shutdowns/bypass requirements
- Pipe materials
- Air release valves
- Permitting
- Maintenance of Traffic
- Staging areas
- Impact on waterways

Stakeholder Meetings: Up to seven (8) virtual meetings will be held with the major stakeholders relevant to the subject project. The purpose of each meeting will be to review and coordinate project/design constraints to the project as it relates to existing conditions, public impacts and future work along the Causeway. These stakeholders are expected to include the entities listed below. Up to 3 additional meetings will occur with entities to be determined; this may or may not include City of Miami Department of Asset Management, Fisher Island Community Association, etc.

- Florida Department of Transportation (FDOT)
- Miami Dade Water and Sewer Department (MDWASD)
- Miami-Dade County Department of Transportation and Public Works (MDCDTPW)
- Florida Power and Light (FPL)
- MDC Regulatory and Economic Resources (RER), Environmental Resource Management

Task 1: Deliverables

1. Survey: (1) electronic copy (ACAD and pdf files)

2. Geotechnical Report: (1) electronic copy
3. Meeting Minutes: (1) Kickoff Meeting minutes (electronic copy); (7) Stakeholder Meeting minutes (electronic copy emailed to participants)
4. Draft Hydraulics Analysis TM: (1) electronic copy
5. Final Hydraulics Analysis TM: (1) electronic copy, (1) signed and sealed copy

Task 2 – Pipeline Alignment Analysis

Concurrent with Task 1, HAZEN will prepare a Pipeline Alignment Analysis. The technical memorandum will include:

- Project design and permitting constraints based on pre-design coordination meetings with stakeholders, with the main focus being maintenance of traffic (MOT) requirements, staging areas, etc.
- The impacts on traffic associated with the various pipeline alignments and interconnects for the proposed water main replacement. The assessment will only consider open-cut and horizontal directional drilling installation methods. The alignment analysis will include:
 - Limited review and summary of major obstacles via available record drawings.
 - Limited review and summary of major utilities within the project corridor.
 - Preliminary layouts for each feasible alignment alternative that identify MOT requirements (lane closures), staging area requirements, easement requirements, etc.
 - The associated construction cost estimates of each feasible alignment alternative. Class 5 level estimate of probable construction cost will be prepared in accordance with AACE International Recommended Practice 56R-08 Cost Estimate Classification System – As Applied for the Building and General Construction Industries.
 - Recommendation for proceeding with a proposed design alignment.

A Draft Technical Memorandum (TM) will be submitted to the CITY for review. It is anticipated the CITY will complete its review of the Draft TM within 10 working days of receipt. HAZEN will attend one (1) virtual meeting with CITY representatives to receive their input on the TM and to reach an agreement on the selected alternative.

HAZEN will incorporate the CITY's comments on the Draft TM and results of the review meeting and subsequently issue a Final TM.

Task 2: Deliverables

1. Draft TM: (1) electronic copy (pdf file)
2. Draft TM Review Meeting Minutes: (1) electronic copy
3. Final TM: (1) electronic copy (pdf file)

Task 3 - Contract Document Development and Cost Estimates

Upon completion of the Data Collection and Pipeline Alignment Analysis, HAZEN will proceed with detailed design. HAZEN will take the information gathered during Task 1 and 2 and prepare drawings and specifications for the replacement of the water main along MacArthur Causeway, including all civil, mechanical, and structural designs/details as necessary. The drawings and specifications will include all necessary information to accommodate the proposed improvements. Under this task, all necessary administrative and managerial efforts are included, such as communication and coordination with the various governmental agencies, CITY representatives, and all other parties involved in the project.

Based on the selected installation, the following items will be required as applicable:

- Develop initial horizontal and vertical alignments along selected route
- In one of the design document review meetings, review risk tolerance and alignments



- Perform final structural computations for design (e.g., HDD pipe design, as applicable)
- Review existing “abandoned” c. 1938 branch mains to both Palm and Star islands and incorporate their removal from service into design drawings. Note the proposed drawings showing abandonment of these mains will utilize aerial imagery in lieu of field survey.

A preliminary drawing list is included within Appendix B – Anticipated Drawings List.

60% Set: The 60 percent complete set of design documents will be submitted to the CITY for review and comment. 60 percent specifications will include a Table of Contents only, indicating the intended specification sections. HAZEN will attend one (1) virtual meeting with CITY representatives to receive their design input. HAZEN will also provide an estimate of probable construction cost in accordance with American Association of Cost Engineering (AACE) International Recommended Practice 56R-08 *Cost Estimate Classification System – As Applied for the Building and General Construction Industries*.

It is anticipated the CITY will complete its review of the 60 percent drawings and specifications within 10 working days of receipt of the submittal package. Written responses will be provided by HAZEN to all review comments received from the CITY.

100% Set: After receipt and incorporation of the 60 percent comments, HAZEN will issue the 100 percent design set construction documents to be utilized for permitting and bidding purposes. HAZEN will also provide a final estimate of probable construction cost in accordance with AACE International Recommended Practice 56R-08 *Cost Estimate Classification System – As Applied for the Building and General Construction Industries*.

It is anticipated the CITY will complete its review of the 100 percent drawings and specifications within 10 working days of receipt of the submittal package. Written responses will be provided by HAZEN to all review comments received from the CITY.

Task 3: Deliverables

1. 60 Percent Submittal: (1) electronic copy of drawings (ACAD and pdf files), specifications and cost estimate (Excel and pdf files)
2. 60 Percent Submittal meeting minutes: (1) electronic copy emailed to meeting participants
3. 60 Percent review comment responses: (1) electronic copy (Excel or pdf files)
4. 100 Percent Submittal: (1) electronic copy of drawings (ACAD and pdf files), specifications and cost estimate (Excel and pdf files)
5. 100 Percent Submittal meeting minutes: (1) electronic copy emailed to meeting participants
6. 100 Percent review comment responses: (1) electronic copy (Excel or pdf files)
7. Final Design Supporting Documentation: HDD pipe installation calculations, utility coordination log, Sunshine 811 Zip file, quantity take-off, casting data (valve box, manhole or water meter data incl. station, offset, type), etc.

Task 4 – Permitting Services

HAZEN will develop permit application packages, including Permit Set drawings, to obtain the following permits/regulatory approvals required for construction of the proposed improvements. HAZEN will hold virtual pre-application meetings as warranted and will respond to requests for additional information submitted by the regulatory agencies.

- Florida Department of Transportation (FDOT) - Utility Permit
- Florida Department of Health (DOH) Water Main Extension (with MDWASD FDEP Form Execution)

Please refer to the Assumptions within this document for further detail relative to the permits not included within this scope.

Task 4: Deliverables

1. Permit Set Drawings: as applicable, hard copy sets of drawings or electronic copies will be provided to the regulatory agencies as part the permit application packages.
2. Permit Packages: HAZEN will submit to the CITY the permit application packages listed above for signature (as required), any RAIs, and the final approval documents from the agencies.
3. Responses to Requests for Additional Information: HAZEN will respond to up to two RAIs from each agency listed above and copy the CITY on correspondence.

Task 5 – Bid and Award Services

HAZEN will produce Bid Set drawings and specifications based on comments received from permitting entities. HAZEN will also assist the CITY in the bidding process in the following ways:

- HAZEN will attend (1) one pre-bid conference. HAZEN will prepare and distribute written meeting minutes for all bidders and attendees within three (3) calendar days after the pre-bid conference.
- HAZEN will receive, log-in, and provide timely responses to Requests for Information (RFIs) from contractors during the bid process. HAZEN will prepare written addenda with RFIs and responses and the final version of each addenda will be transmitted to the CITY project administrator for review and issuance.
- Within five (5) calendar days of receipt of bids, HAZEN will evaluate the bids for technical responsiveness and price and will make a formal recommendation to the CITY regarding award of the contract.
- HAZEN will prepare Conformed Set drawings and specifications incorporating any changes made via addenda issued during bidding.

Task 5: Deliverables

1. Bid Set Contract Documents: (5) hard copy sets of drawings (half size); (5) hard copy sets of specifications; (1) electronic copy of drawings and specifications
2. Pre-bid conference meeting minutes: (1) electronic copy emailed to all bidders and attendees
3. Bid tabulation: (1) electronic copy
4. Recommendation of Award: (1) electronic copy letter discussing the technical responsiveness of the bidders and a recommendation for award.
5. Conformed Set Contract Documents: (5) hard copy sets of drawings (half size); (5) hard copy sets of specifications; (1) electronic copy of drawings and specifications

Task 6 – Engineering Services During Construction

HAZEN will manage and administer the project internally including managing internal resources, monitoring project activities, budgets, schedules, and ensuring and project team follows Hazen's quality assurance and control (QA/QC) policies and procedures throughout the project. Such management activities shall also include project coordination with the CITY, CITY's Construction Management Consultant, and Contractor, coordinating and scheduling inspections, and general correspondence with the CITY, CITY's Construction Management Consultant, and Construction Contractor.

HAZEN will receive all shop drawings and technical submittals required to be submitted by the Contractor. HAZEN will review and return the submittals to the CITY and the Contractor in the time allotted by the Contract Documents. HAZEN's review will approve, approve as noted, or reject the submittal. HAZEN will assure that the Contractor provides materials as specified in the Contract Documents. HAZEN anticipates reviewing up to 40 shop drawings as part of this task.

The CITY will be responsible for coordinating all meetings with the Contractor. HAZEN will be present at (1) preconstruction meeting to discuss technical issues and/or field inquiries associated with the project.



The attendance of a total of 1 meeting has been budgeted for this task.

Hazen shall issue necessary technical interpretation of field inquiries, along with associated support materials, when requested by the Contractor. Hazen anticipates receiving and responding to up to 30 Requests for Information (RFIs) during the construction phase of the project.

HAZEN will perform quarterly field inspections by the Engineer of Record of the construction work to confirm compliance with contract documents. It is estimated to perform one (1) per quarter over the 18 month construction period, up to six (6) site visits at 8 hours each visit. A written report will document each visit.

In order to issue the required certification of completion at the conclusion of the project, HAZEN must have direct and regular contact with the CITY's third-party inspector to provide the required standard of care during the construction of the project. This will require weekly check-ins with the CITY's third-party inspector for HAZEN to make decisions about the project, be able to answer questions about the installation, and be able to justify decisions/actions. These weekly check-ins are anticipated to occur over an 18-month construction period. HAZEN will also require the daily reports from the CITY's third-party inspector to be submitted to HAZEN on a weekly basis.

HAZEN shall prepare and submit the required documentation to certify and close out the Florida Department of Health (DOH) Water Main Extension permit. HAZEN shall review Contractor-prepared record drawings upon completion of the project to determine if drawings are consistent with the contract document requirements and observations by HAZEN's field personnel.

HAZEN's Engineering Services During Construction does not include:

- Project controls and document management beyond HAZEN's internal needs including generating and maintain shop drawing and RFI logs for use by others
- Attendance of progress meetings, permitting meetings (including MOT agencies), public meetings, or project closeout meetings, including generation of meeting minutes.
- Evaluation of contractor pay requests and baseline schedules and updates.
- Review of change orders.
- Permitting agency coordination or engagement including MOT agencies (except the Florida Department of Health (DOH) Water Main Extension permit being certified by HAZEN)

ASSUMPTIONS

This scope of services is based on the following assumptions:

1. The CITY will provide available information and record drawings for the existing water, sewer and storm drainage along the project corridor, as well as any other pertinent data requested by HAZEN.
2. The CITY acknowledges that HAZEN's analysis is based on information made available at the time of this Service Order and data gathered during site visits and meetings.
3. Site visits in this task may require the presence of CITY personnel. Additionally, the CITY agrees to work with HAZEN to ensure compliance with the proposed schedule.
4. The CITY will provide all requested information within a reasonable timeframe. It is assumed that all information provided by the CITY is complete and accurate.
5. The hydraulic analysis will require various data components to be provided by the CITY including but not limited to:
 - a. Perform field investigations to confirm or identify changes to the pipe network (including existing interconnections) along the MacArthur corridor and confirm location and position of valves.
 - b. Extended period pressure data from key locations along MacArthur Causeway. Hazen will provide the locations for pressure recorders to be installed.

- c. Provide corresponding operational data for the duration of the pressure recorder installation in CSV or Excel format including but not limited to pump on-off times, pump speed, pump suction and discharge pressure, storage tank levels, flow and pressure data through all WASD inter-connections.
6. Performance durations provided assume timely permit processing by regulatory agencies having jurisdiction over the project. Delays in obtaining permits, beyond the control of HAZEN and our subcontractors, may result in delays to the performance schedule for which we cannot be held liable.
7. Proposed regulators and permits have been identified to the best of HAZEN's knowledge.
8. Additional permitting, along with benthic and hydrographic surveys, may be required depending on the selected pipeline alignment, or based on regulatory requirements of authorities having jurisdiction of the waterway once the permit process has commenced. If these surveys are required, HAZEN shall obtain a quote for these additional surveys and submit to the CITY for approval. Environmental resource permitting is assumed not to be required nor within this scope of services. If the selected construction method and pipe alignment are located waterward of the Causeway, the following environmental permitting may be required: Miami-Dade County Department of Environmental Resources Management (DERM), Florida Department of Environmental Protection (FDEP), United States Army Corps of Engineers (ACOE), United States Coast Guard (USCG), and Sovereign Submerged Land (SSL) determination and easement research. If these permits are required, HAZEN shall submit additional scope of services to the CITY for approval.
9. The planned approach for the pipeline replacement includes horizontal directional drilling via multiple segments utilizing staging areas located within the causeway median. It is assumed that FDOT will allow, at a minimum, single lane closures in each direction. If FDOT is not amenable to lane closures along the causeway, it may merit the need for a more difficult and costly approach to the pipeline replacement. In this case, additional design/coordination scope may be required. It is also assumed that subaqueous pipe installation, and the resulting resource permitting, will not be required based on HAZEN's best estimate at the time of service order development.
10. Geotechnical data, survey data and current project drawings for the "Miami Dade County Rapid Mass Transit Solution for the Beach Corridor Trunk Line" project will be made available to HAZEN. Miami Dade County has provided limited geotechnical and survey data for the corridor. HAZEN's scope of services includes only supplemental topographic survey data; HAZEN is not liable for deficiencies existing in the survey data or geotechnical data provided to the CITY by the County.
11. The drawings showing proposed abandonment of the existing branch pipelines to Palm and Star islands will utilize aerial imagery in lieu of field survey.
12. The final alignment of the proposed pipeline is achievable within the surveyed area. If a fatal conflict exists that HAZEN was not aware of at the time of scope development, then additional survey may be required.
13. The Anticipated Drawing List has been prepared based on HAZEN's best estimate at the time of service order development, though is subject to change during design.
14. Record drawings for the MacArthur Causeway seawalls, bridges, roadways, etc. will be made available to HAZEN.
15. The CITY will assist with coordination of parking on Terminal Island in order to provide staging area for construction, as feasible.
16. A cursory search was completed for contaminated sites within the vicinity of the project area on the FDEP Contamination Locator Map. Several contaminated sites were identified on Terminal Island within the project area. At this time, HAZEN is not able to know the impact of these contaminated sites on the MacArthur water main design. If feasible, HAZEN will utilize environmental assessment data from a separate task (Service Order 4 Terminal Island Force Main Repair) to address any contamination issues in this design. Level 1 and Level 2 environmental assessments are not included in this scope of work.
17. A detailed fire flow hydraulic analysis and technical memorandum deliverable are not included in this scope of work.
18. The drawings and specifications shall be prepared assuming that the CITY will competitively bid this project in a single bid package and enter into a construction contract with one general contractor to complete the work.

19. Maintenance of Traffic (MOT) plan shall be the responsibility of the Contractor during construction and is not required for FDOT permitting.
20. The Notice of Intent to Use NPDES Generic Permit for Stormwater Discharge from Large and Small Construction Activities (RULE 62-621.300(4), F.A.C.) shall be submitted by the Contractor, and the Stormwater Pollution Prevention Plan shall be the responsibility of the Contractor.
21. The MDC Class V Dewatering Permit will be the responsibility of the Contractor.

PERFORMANCE SCHEDULE

The Notice to Proceed (NTP) defines the official commencement of the HAZEN's contract. The schedule presented in **Table 1** assumes receipt of NTP in October 2024.

Table 1: Schedule

Task Description	Calendar Days after NTP
1. Site Investigation and Data Collection	90
2. Pipeline Alignment Analysis	90
3. Contract Document Development and Cost Estimates	270
60% Design Submittal	210
100% Design Submittal	270
4. Permitting Services	270
5. Bid and Award Services	330
6. Limited Construction Oversight (TBD)	TBD

METHOD OF COMPENSATION

HAZEN shall perform the services defined in this scope of services for a lump sum fee of \$921,078 and permit and reimbursable expenses of \$5,000 for a total fee of \$926,078. Reimbursable expenses for travel are an allowance set aside by the CITY and shall only include actual travel related expenditures made by HAZEN's project team members in the interest of the project. Justification for travel would include necessary in person meetings by subject matter experts that will come from outside the Miami Dade County limits. Travel reimbursement will be in accordance with the City's travel policy OD.20.01 "Travel on City Business." The breakdown of fees per task is detailed in Appendix B – Fee Estimate.

Authorization



Jayson Page, PE
Vice President

Appendix A
Anticipated Drawing List

Drawing No.	Drawing Title
General	
G-1	City Standard Cover Sheet and Location Map
G-2	List of Drawings
G-3	Abbreviations, Symbols, Legend
G-4	General Notes
Civil	
C-1	Overall Key Plan
C-2	HDD Key Plan - Drill 1
C-3	HDD Key Plan - Drill 2
C-4	HDD Key Plan - Drill 3
C-5	Plan and Profile - Sheet 1
C-6	Plan and Profile - Sheet 2
C-7	Plan and Profile - Sheet 3
C-8	Plan and Profile - Sheet 4
C-9	Plan and Profile - Sheet 5
C-10	Plan and Profile - Sheet 6
C-11	Plan and Profile - Sheet 7
C-12	Plan and Profile - Sheet 8
C-13	Plan and Profile - Sheet 9
C-14	Plan and Profile - Sheet 10
C-15	Plan and Profile - Sheet 11
C-16	Plan and Profile - Sheet 12
C-17	Plan and Profile - Sheet 13
C-18	Plan and Profile - Sheet 14
C-19	Plan and Profile - Sheet 15
C-20	Plan and Profile - Sheet 16
C-21	Plan and Profile - Sheet 17
C-22	Plan and Profile - Sheet 18
C-23	Plan and Profile - Sheet 19
C-24	Plan and Profile - Sheet 20
C-25	Plan and Profile - Sheet 21
C-26	Palm Island Abandonment
C-27	Star Island Abandonment
C-28	Paving and Restoration Plan - Watson Island
C-29	Paving and Restoration Plan - Palm Island
C-30	Paving and Restoration Plan - Star Island
C-31	Paving and Restoration Plan - Terminal Island

Drawing No.	Drawing Title
Details	
D-1	Miami Beach Details - Sheet 1
D-2	Miami Beach Details - Sheet 2
D-3	Miami Beach Details - Sheet 3
D-4	Miami Beach Details - Sheet 4
D-5	Civil Details - Sheet 1
D-6	Civil Details - Sheet 2
D-7	Civil Details - Sheet 3
D-8	MDC or FDOT Details - Sheet 1
D-9	MDC or FDOT Details - Sheet 1
D-10	Enlarged Plans - Sheet 1
D-11	Enlarged Plans - Sheet 2
D-12	Enlarged Plans - Sheet 3
D-13	Enlarged Plans - Sheet 4
D-14	Enlarged Plans - Sheet 5
D-15	Enlarged Plans - Sheet 6
D-16	Enlarged Plans - Sheet 7
D-17	Enlarged Plans - Sheet 8

Appendix B

Fee Estimate

City of Miami Beach
MacArthur Causeway Water Main Replacement
Fee Estimate

Task No.	Task Description	Vice President	Senior Associate	Associate	Sr. Principal Engineer	Principal Engineer	Engineer	Assistant Engineer	Sr. Field Coordinator	Sr. Principal Designer	Principal Designer	Project Geotech Engineer	Surveyor & Mapper	Survey VAC Crew Member	Administrator	Total Hours	Total Cost
LABOR																	
1	Site Investigation and Data Collection																
1.1	Topographic Survey and Underground Utility Locatse		8	61			21									63 \$	
S	Topographic Survey - KEITH Associates												116.7			117 \$	15,609
S	Utility Locates and Test Holes - KEITH Associates													4.596		074 \$	04,947
.21	sisyla nAlacnihcteoGe		8	61			21									63 \$	60,777
S	G NANA- nLotviangts iellacinhcteoGe											.2961				961 \$	00,042
1.3	Data Gathering and Site Visits	2	12	84	40	60		60								258 \$	49,423
1.4	Hydraulic Analysis Technical Memorandum	32	24	40	80			24							8	802 \$	63,844
1.5	Preliminary Coordination Meetings	4	42	85	40			20								191 \$	42,665
Subtotal Task 1		38	94	241	160	60	24	104	0	0	0	169	117	470	8	1484 \$	2657,86
2	Pipeline Alignment Analysis																
	sisylta nnAemngi lAenilepiP	8	42	08	06			04							8	022 \$	47,054
uSb lto2k tasTa		8	42	08	06	0	0	04	0	0	0	0	0	0	8	022 \$	47,054
3	Contract Document Development and Cost Estimates																
	WM Replacement Documents	40	230	215		300	160	200		100	590				24	18\$ \$5	00,6843
Subtotal Task 3		40	230	215	0	300	160	200	0	100	590	0	0	0	24	1859 \$	3400,68
4	Permitting Services																
	W/O/OFHDDSATD	4	02	04	08	42		04								802 \$	29,414
uSb lto4k tasTa		4	02	04	08	42	0	04	0	0	0	0	0	0	0	802 \$	29,414
5	Bid and Award Services																
	rv seSrdecai wAdn adiB	8	04	61			04	8			61					821 \$	99,072
uSb lto5k tasTa		8	04	61	0	0	04	8	0	0	61	0	0	0	0	821 \$	99,072
6	Limited Construction Oversight																
.16	t nemeganatc eMjroP		04												69	631 \$	34,802
6.2	Shop Drawing Review and Approval	10	40	80		120										250 \$	53,881
.36	gnitee MnotctsirunocreP		2	4												6 \$	94,41
.46	s F tdlRonopseR	51	03	06		06										561 \$	73,663
.56	snotciepsn ldl eFginrieenignE	8	61	84												27 \$	48,871
6.6	Weekly Check-in with CEI Field Inspector			156												156 \$	95,6
6.7	Certification and Record Drawing Review	2	8	60		40				24						143 \$	87,772
uSb lto6k tasTa		53	631	804	0	022	0	0	0	42	0	0	0	0	69	\$ 919	73,9191
bL oauSrbl-tota																	
REIMBURSABLES																	
	T sTd(Ntesn inave)E rapxElrmeep															\$	00,05
b laubSiesbumel-torRta																\$	00,05
TOTALS																	
Labor Rates Used		125	520	920	240	604	224	352	0	124	606	169	117	470	136	4,818\$	87,0629
		\$280.00	\$280.00	\$222.17	\$203.26	\$178.45	\$159.24	\$133.54	\$170.17	\$187.90	\$166.63	\$141.81	\$134.49	\$159.60	\$100.45		

Appendix C

Subconsultant Proposals

AGREEMENT FOR PROFESSIONAL SERVICES

October 12, 2023

Taylor J. Bomarito, P.E., Associate
Hazen and Sawyer
7751 Belfort Pkwy #110
Jacksonville, FL 32256
Phone: 904-296-1503
Email: tbomarito@hazenandsawyer.com

Project Name: Miami Beach MacArthur
Causeway Survey
Project Location: MacArthur Causeway,
Miami Beach, FL
KEITH Project Number: 13936.M0

Dear Taylor J. Bomarito:

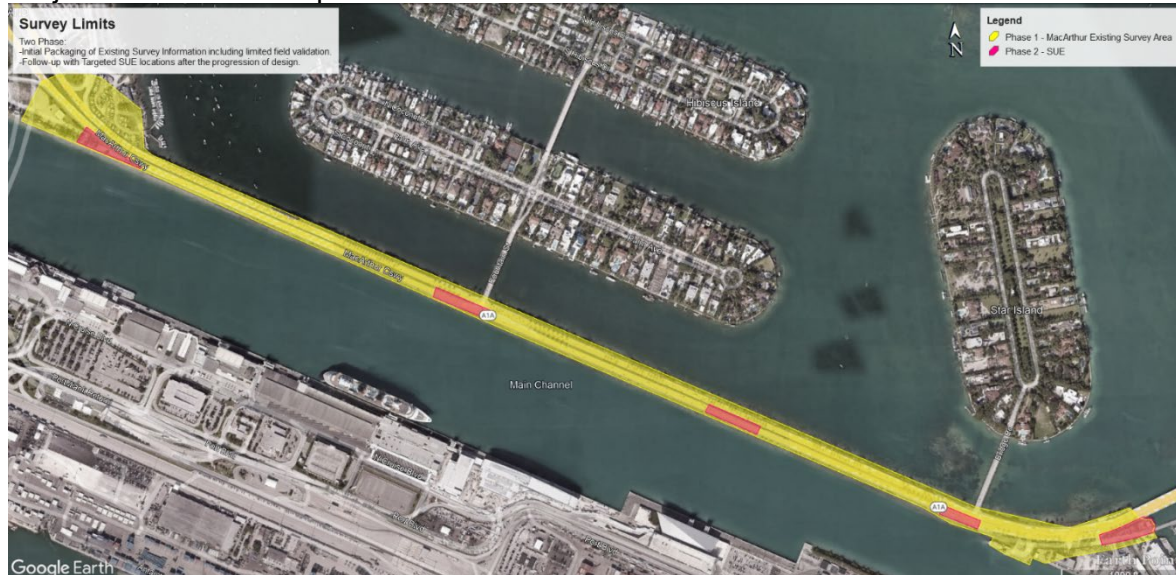
In accordance with your request and subsequent discussions between members of our association and yourself, this agreement between Keith and Associates, Inc. dba KEITH (CONSULTANT) and Hazen and Sawyer ("CLIENT") for professional services is submitted for your consideration and approval. The purpose of this Agreement is to outline the scope of services recommended by KEITH and accepted by CLIENT, and to establish the contractual conditions between KEITH and CLIENT with respect to the proposed services. KEITH will begin work within ten (10) days after receipt of a fully executed copy of this Agreement. Such receipt will constitute written notice to proceed. This proposal will remain valid for thirty (30) days.

PROJECT UNDERSTANDING

The CLIENT has requested that KEITH assist in the development of a water main replacement project. The PROJECT SITE is located at MacArthur Causeway.

KEITH will be responsible for the following disciplines: Survey and Subsurface Utility Locates & Designates. The scope of work is specifically described on the following pages and does not include work by other necessary disciplines unless specifically noted in the contract. The CLIENT/OWNER is responsible for all other disciplines to complete the project. If additional agency coordination is required, this will be included as a contract addendum.

Project Areas – Site Map



www.KEITHteam.com

APPROACH

KEITH believes in a context-based approach that considers multiple facets of the development process resulting in solutions that are curated for each authentic scenario. In addition to the traditional design approach, we believe careful consideration should be given to economic, ecological, and social factors. This cohesive approach to each project is engineered to enhance the opportunity for a resilient solution.

Our approach is categorized into the following three general phases:

Exploration Phase – The process of becoming familiar with an area through extensive analysis.

Inspiration Phase – The process of developing ideas emanating from the exploration process.

Implementation Phase – The process of activating a decision or plan

PROJECT SCOPE

KEITH will provide the below services to assist the CLIENT and Project Team.

☒ Survey

- ☐ ALTA/NSPS
- ☒ Topography
- ☐ Boundary
- ☐ Tree
- ☐ Sketch and Description
- ☐ Construction Layout
- ☐ Construction As-Built
- ☐ Other_____

☒ SUE

- ☒ Horizontal Designation
- ☒ Location Services
- ☒ Utility Mapping
- ☐ Records Research
- ☐ Other_____

☐ Planning Services

- ☐ Due Diligence
- ☐ Platting
- ☐ Rezoning
- ☐ Conditional Use Permit
- ☐ Right of Way Vacation
- ☐ Site Plan Processing and Coordination
- ☐ Site Plan / Project Coordination
- ☐ Other_____

☐ Civil Engineering Services

- ☐ Paving, Grading and Drainage
- ☐ Water Distribution and Sanitary Sewer
- ☐ Erosion Control Plan
- ☐ Other_____

☐ Transportation Engineering Services

- ☐ Major Roadway
- ☐ Minor Roadway
- ☐ Drainage
- ☐ Maintenance of Traffic Plans
- ☐ Quality Control
- ☐ Other_____

☐ Traffic Engineering Services

- ☐ Traffic Impact Study
- ☐ Traffic Impact Statement
- ☐ Parking Study
- ☐ Pavement Marking and Signage
- ☐ Signalization
- ☐ Roadway Lighting
- ☐ Other_____

☐ Landscape Architecture Services

- ☐ Hardscape and Paving
- ☐ Fine Grading
- ☐ Landscape
- ☐ Irrigation
- ☐ Site Lighting
- ☐ Pools or Water Features
- ☐ Specialty Features
- ☐ Tree Inventory & Analysis
- ☐ Other_____

☐ Construction/Program Management Services

- ☐ Permitting
- ☐ Bidding Assistance
- ☐ Building Permit Coordination
- ☐ Construction Observation
- ☐ Construction Certification



DESCRIPTION OF SERVICES AND DELIVERABLES

“PHASE I”

SURVEY SERVICES

Task 101 Topographic Survey

Package up the existing survey data throughout the corridor (approx. desired limits shown in yellow in the attached Figure and KMZ data), convert to DWG, perform a few days of field verification to confirm survey elements have not changed, utilize new title block and issue survey to the City with updated date.

KEITH will review and update the existing Topographic Survey of the site. Review includes a site visit by a survey crew, locating additions or noting changes in the existing survey. The survey will show the right of way lines together with surface improvements such as buildings, roadways, pavement, sidewalks, traffic striping, walls, fences, surface utilities, etc. Trees will be noted by common name and trunk diameter. Storm and Sanitary structures will be noted with the pipe invert elevation, diameter, material, and direction. Survey will be referenced to the Florida State Plane Coordinate System (NAD83/11) and the North American Vertical Datum of 1988 (NAVD88). The updated survey will be delivered in a DWG format, with an updated title block and current date of survey.

“PHASE II”

SUBSURFACE UTILITY ENGINEERING (SUE) SERVICES

KEITH will follow ASCE Standard 38-02 – “Standard Guidelines for the Collection and Depiction of Existing Subsurface Utility Data” during the field and office operations for this project. The quality levels discussed below are defined within the standard. KEITH will provide professional services associated with designation, location (Test Holes), and mapping (Survey) of designations & Test Holes, as depicted within the exhibit above (magenta areas only). Gravity systems, service laterals, irrigation or overhead facilities are not included in this investigation.

Task 201 Horizontal Designation Services

KEITH will horizontally mark any known tone able and non-tone able underground utilities that are represented on as-built plans, above ground appurtenances, and other miscellaneous utility records (to be provided by CLIENT). Conductive utilities will be marked on the surface utilizing active geophysical prospecting techniques in conjunction with electromagnetic equipment utilizing passive radio and audio frequencies. Known non-conductive utilities and/or structures will be marked on the surface utilizing Ground Penetrating Radar (GPR), above ground features, professional judgment, utility plats and/or as-builts. This task does not include identifying gravity systems, service laterals, irrigation, or overhead facilities unless specifically requested by the CLIENT and included in the scope of services.

Task 202 Utility Mapping

KEITH will perform surveying services to collect the surface markings completed in Task 201 that mark the underground utilities. Survey of said markings will be based on Real-Time Kinematic (RTK) GPS observations and referenced to the Florida State Plane Coordinate System (NAD83/11) and the North American Vertical Datum of 1988 (NAVD88). Survey of Horizontal Designations will be delivered in a geo-referenced (NAD83/11) AutoCAD file.



Task 203 Location Services

KEITH will perform up to Thirty (30) Test Holes, (20) Impervious & Ten (10) Pervious at specific sites requested by the design engineer. Test holes will be utilized to expose utilities to minimize any potential for damage. Test holes performed will be of minimum size (usually 1' by 1'). Backfill of test holes will be performed utilizing the removed material, if suitable. Areas will be restored back as close as possible to their original condition. Installation of an identifiable above ground marker will be performed at each test hole location. Field markers will consist of a nail and disk in asphalt, or an iron rod and cap with survey stake in grassed areas. Test holes performed in the street will be patched using cold patch. The test hole number and utility will be identified on the ground or on the stake, as appropriate. A test hole summary report will be created providing coordinates, depth of cover, type, size, and material if applicable. There is a four (4) test hole minimum for location services. Survey of Test Hole reference points will be based on Real-Time Kinematic (RTK) GPS observations and referenced to the Florida State Plane Coordinate System (NAD83/11) and the North American Vertical Datum of 1988 (NAVD88).

Subsurface Utility Engineering Conditions and Understandings

CLIENT is required by law to contract Sunshine State One Call of Florida forty-eight (48) hours in advance of any CLIENT excavation. KEITH will not access confined spaces. If confined spaces need to be accessed for locating purposes, then the client will be notified, and further arrangements will be made for said access. Additional fees may be applicable. If additional MOT is required beyond the capability of KEITHS standard MOT operations, KEITH will notify the client. Additional requests outside the scope of services, when requested by client and/or client's representative, will be invoiced on an hourly basis. This proposal assumes site access is available and work can be performed between the hours of 7:30 AM and 5:00 PM Monday through Friday.



"PHASE I"
SCHEDULE

SURVEY SERVICES

Task 101 Topographic Survey

4 Weeks

COMPENSATION

SURVEY SERVICES

Task 101 Boundary and Topographic Survey

\$15,690 (NTE)

Total Fee

\$15,690 + any reimbursables

"PHASE II"
SCHEDULE

SUE SERVICES

Task 201 Horizontal Designation Services

4 Weeks

Task 202 Utility Mapping (covers Task 201 only)

4 Weeks

Task 203 Location Services (Perform up to 30 Test Holes & Map)

4 Weeks

Task 204 Permitting and Lane Closures

Duration

COMPENSATION

SUE SERVICES

Task 201 Horizontal Designation Services

\$22,500 (NTE)

Task 202 Utility Mapping (covers Task 201 only)

\$6,000 (NTE)

Task 203 Location Services (includes setup, mapping, and office support) \$775ea.

\$23,250 (NTE)

Task 204 Permitting and MOT Lane Closures

\$7,500 (Lump Sum)

Total Fee

\$74,940.00 + any reimbursables

If you concur with the foregoing as well as the attached General Terms and Conditions dated August 30, 2022 and wish to direct us to proceed with the aforementioned work, please execute the agreement in the space provided and return same to the undersigned with the required retainer.

IN WITNESS WHEREOF, CONSULTANT and CLIENT have executed this agreement the day and year indicated below.

As to CONSULTANT
KEITH

As to CLIENT
Hazen & Sawyer

Mark Mitchell

Director of Subsurface Utility Engineering

DATED: _____

Signature: _____

Print Name: _____

Title: _____

DATED: _____





BILLING INFORMATION FORM

Project Name: _____

Project Location: _____

Client Job/P.O Number: _____

CLIENT BILLING INFORMATION

Company: _____

Attention: _____ **Title:** _____

Address: _____

City, State, Zip: _____

Phone: _____

Email (for invoicing):_____

SPECIAL BILLING INSTRUCTIONS:

--

PROPERTY OWNER IDENTIFICATION: (If other than above)

Name: _____

Address: _____

Phone: _____ **Email:** _____

GENERAL TERMS AND CONDITIONS

I. COMPENSATION

A) Payments and Invoicing:

Invoices will be submitted by CONSULTANT to CLIENT monthly for services performed and expenses incurred pursuant to this Agreement during the prior month. Payment of such invoice will be due upon presentation. CONSULTANT'S standard invoice format shall apply, and such format shall be acceptable to CLIENT for payment, unless otherwise agreed to in writing hereunder. Invoices shall be submitted monthly based on a percentage completed for lump sum contracts. On a Time and Material contract, invoices shall be submitted in accordance with our current professional service fee schedule as seen on "Exhibit A" attached.

In the event of any dispute concerning the accuracy of content of any invoice, CLIENT shall within seven (7) days from the date of said invoice, notify CONSULTANT in writing stating the exact nature and amount of the dispute. Any invoice that is not questioned within seven (7) days shall be deemed due and payable. In the event an invoice or portion of an invoice is disputed within seven (7) days, CLIENT shall be obligated to pay the undisputed portion of the invoice as set forth in below.

If CLIENT fails to make any payment due to CONSULTANT for services and expenses within thirty (30) days from the date of invoice, CONSULTANT may, apply the retainer to the unpaid balance of the account and/or suspend services under this Agreement until the account has been paid in full. There will be a fee charged for suspended work, which will be negotiated when work is resumed.

In the event any invoice or any portion thereof remains unpaid for more than forty-five (45) days following the invoice date, CONSULTANT may, initiate legal proceedings to collect the same and recover, in addition to all amounts due and payable, including accrued interest at the highest rate allowable by law, its reasonable attorneys' fees and costs.

The invoices referenced above, will be sent in accordance to the information as reflected on the "Billing Information Form" attached hereto.

PAYMENT DELAY: If the CONTRACTOR has received payment from the OWNER and if for any reason not the fault of KEITH (the SUBCONTRACTOR) does not receive a progress payment from the CONTRACTOR within seven (7) days after the date such payment is due; the SUBCONTRACTOR, upon giving an additional seven (7) days written notice to the CONTRACTOR, and without prejudice to and in addition to any other legal remedies, may stop work until payment of the full amount owing to the SUBCONTRACTOR has been received. The Subconsultant Amount and Time shall be adjusted by the amount of the SUBCONTRACTOR'S reasonable and verified cost of shutdown, delay and startup, which shall be affected by an appropriate Subcontractor Change Order.

B) Reimbursable Expenses:

CONSULTANT shall be reimbursed at actual cost incurred, plus a 10% carrying charge. Reimbursable expenses shall include but not be limited to the following items.

- A. Cost of black and white or color copies for drawings, specifications, reports, cost estimates, xerography and photographic reproduction of drawings and other documents furnished or prepared in connection with the work of this contract.
- B. Travel associated with the project, including, but not limited to, mileage (standard IRS rate), business or first-class airfare, automobile rental, hotel and meals.
- C. Cost of postage and shipping expenses, including courier services.
- D. Cost for advertising, special models, renderings or other promotional materials not outlined in the scope of services

C) Additional Services:

The undertaking by CONSULTANT to perform professional services defined within this Agreement extends only to those services specifically described herein. No other services, whether they may be interpreted as related, incidental or implied, shall be considered to be included in the scope of work of this proposal. If upon request of CLIENT, CONSULTANT agrees to perform additional services hereunder, CLIENT shall be obligated to pay CONSULTANT for the performance of such additional services an amount (in addition to all other amounts payable under this Agreement) based on an hourly fee in accordance with CONSULTANT'S current professional fee schedule, plus reimbursable expenses as incurred by CONSULTANT, unless a lump sum addendum to Agreement is executed by the parties to this Agreement which addresses the additional services.

Additional services shall include revisions to work previously performed that are required due to a change in the data or criteria furnished to CONSULTANT, a change in the scope or concept of the project initiated by CLIENT, or services that are required by changes in the requirements of public agencies after work under this Agreement has commenced.

If the preceding scope of services includes public agency permitting, our quoted fees/hours include services to respond to the agency's first RAI (Request for Additional Information). Additional agency requests or requirements shall be considered an increase to our scope of services.



II. PROVISIONS RELATIVE TO THE SERVICES RENDERED

A) Re-use of Documents:

All original documents, including, but not limited to, drawings, sketches, specifications, maps, as-built drawings, reports, test reports, etc., that result from CONSULTANT'S services pursuant or under this Agreement remain the sole property of CONSULTANT and are not intended or represented to be suitable for re-use by CLIENT or others.

CLIENT may, at their expense, obtain a set of reproducible copies of any maps and/or drawings prepared for them by CONSULTANT, in consideration of which CLIENT agrees that no additions, deletions, changes or revisions shall be made to same without the express written consent of CONSULTANT. Any re-use without written verification of adaptation by CONSULTANT mandates that CLIENT indemnify and hold CONSULTANT harmless from all claims, damages, losses and expenses, including, but not limited to, attorney's fees, arising out of or resulting there from.

Photographs of any completed project embodying the services of CONSULTANT provided hereunder may be made by CONSULTANT and shall be considered as its property and may be used for publication.

B) Performance:

CONSULTANT shall not be considered in default in performance of its obligations hereunder if performance of such obligations is prevented or delayed by acts of God or government, labor disputes, failure or delay of transportation or by subcontractors, or any other similar cause or causes beyond the reasonable control of CONSULTANT. Time of performance of CONSULTANT'S obligations hereunder shall be extended by time period reasonably necessary to overcome the effects of such force majeure occurrences.

C) Professional Standards:

All work performed by CONSULTANT will be in accordance with its professional standards and in accordance with all applicable government regulations. CONSULTANT will exercise its best efforts to obtain all governmental approvals contemplated under this Agreement. However, CONSULTANT does not warrant or represent that any government approval will be obtained.

Unless the Scope of Services of this Agreement includes an investigation into the applicable land use, zoning and platting requirements for the Project, CONSULTANT shall proceed on the assumption that the Project as presented by CLIENT, is in accordance with all applicable governmental regulations.

Technical Limitations for all Sub Surface Utility Coordination

Services will be provided with due diligence and in a manner consistent with standards of the subsurface utility locating industry. Every reasonable effort will be made to locate all utility systems of interest whether indicated on record plans available to us or not. However, no guarantee can be made that all existing utility systems can be detected, located or exposed. It may not be possible to detect utilities without prior knowledge, such as systems that are not depicted on record prints available to us. Typically, the horizontal location effort will include electromagnetic induction, power source detection, and ground penetrating radar (GPR). Electromagnetic induction is a method in which a transmitted signal is applied to a metallic target. If the target is metallic and unbroken, the target can be traced and a receiver at the surface is used to detect the transmitted signal. If the signal cannot be applied directly to the target, induction may be produced from the surface. In this scenario bleed-off of the transmitted signal to an adjacent facility is possible, sometimes resulting in erroneous information. PVC, HDPE, concrete pipe and other non-metallic facilities cannot be located by electromagnetic methods. Power source detection is a technique used to locate naturally occurring magnetic fields that exist around cables while generating a signal (electric, telephone, CATV for example). Ground penetrating radar (GPR) is available to assist in locating non-metallic utilities and other facilities that are unidentifiable using traditional electromagnetic techniques. The accuracy of these techniques is subject to the limitation of the available technology and certain factors and field conditions beyond our control, such as the size, depth and conductivity of the target, the site conditions and access, soil conditions, depth to water table and the existence of adjacent buried materials and debris. The targeting of subsurface utilities, although highly reliable, is expressly understood to represent an approximate location of the facility marked on the ground surface. Facilities located from the surface are usually found within two feet of the surface mark. Once a possible facility has been located from the surface, vacuum excavation services should be used to visually verify and to provide the accurate horizontal location and vertical measurements (a test hole). Vacuum excavation techniques are used to provide a cost-effective service that causes minimal disturbance to the site, the utility, vehicle traffic, and is acceptable to the permitting agencies. The size of the test hole excavation is kept to a minimum, in most cases the nominal size of a test hole is 8" x 8". This service represents the best available data on subsurface utilities given a cost-effective investigation using air/vacuum excavation. Visual verification in the test hole below the water table is not possible. An air lance probe can be used in these instances to a reasonable depth of approximately 6 feet, although results to greater depths may be possible. The bottom of the utility pipe and conduit is sometimes not directly available and, in most cases, can be derived from the crown of the pipe and the pipe diameter. Pipes with a diameter of 16" or less can usually be determined by exposing a portion or the entire pipe as needed. If pipe diameter is critical on pipe facilities greater than 16", additional test holes may be required to obtain both edges. The bottom depth of multiple conduit and encased duct banks is determined by excavating down one edge of the utility. Additional test holes are needed to accurately document edges, configuration and top and bottom depths. Conditions under multiple or encased duct bank facilities cannot be excavated and therefore the existence of another facility cannot be confirmed. It is important to remember that the bottom edge of the facility may not represent its lowest point, and the shape or configuration of the facility may not be the same on both sides. Locating underground utilities is not an exact science. The reporting of a negative result (no facility found) should not be used as a positive determination that the subject area is clear of all facilities or that the facility does not exist. CLIENT shall hold harmless and indemnify KEITH against any losses because of limitations within the equipment, but not against negligence on the part of KEITH. Use of this service does not relieve interested parties from their responsibility to make required notification prior to excavation, nor does it relieve utility owners of their responsibility to mark the location of their facilities. KEITH will not be responsible for damage caused by others. KEITH will not be responsible for utilities that cannot be located with the equipment and techniques provided, or those located underneath



other utilities. If records research is not part of the scope of services, the utility owner's marks will be used to identify the utility. KEITH will not be responsible for correcting mistakes made by other locators. Where vacuum excavation services are used, and no utility is found at the mark provided by the utility at a depth of 5 feet, the excavation will be backfilled, referenced and invoiced as one test hole.

D) Opinions of Cost:

Since CONSULTANT does not have control over the cost of labor, materials, equipment or services furnished by others, or over methods of determining prices, or over competitive bidding, or market conditions, any and all opinions as to costs rendered hereunder, including, but not limited to, opinions as to the costs of construction and materials, shall be made on the basis of its experience and qualifications and represent its best judgment as an experienced and qualified CONSULTANT, familiar with the construction industry. CONSULTANT cannot and does not guarantee that proposals, bids or actual costs will not vary from opinions of probable cost. If, at any time, CLIENT wishes greater assurance as to the amount of any cost, CLIENT shall employ an independent cost estimator to make such determination. Engineering services required to bring costs within any limitation established by CLIENT will be paid for as additional services hereunder by CLIENT.

If the services under this Agreement continue for a period of more than one (1) year from the notice to proceed, CONSULTANT shall be entitled to renegotiate the terms of this Agreement. CONSULTANT shall not be bound under this Agreement if modifications to the terms contained herein are made without the written consent of CONSULTANT (such consent to be signified by CONSULTANT'S initials next to each modification, and if a fully executed copy hereof is not received from CLIENT by CONSULTANT on or before sixty (60) calendar days from the date of execution by CONSULTANT.

E) Termination:

This Agreement may be terminated by either party upon seven (7) days written notice in event of the substantial failure by the other party to perform in accordance with the terms of this Agreement through no fault of the terminating party. For the purpose of this Agreement, the failure to pay any invoice submitted by CONSULTANT within sixty (60) days of the date of said invoice, shall be considered a substantial failure on behalf of CLIENT. In the event of any termination, CONSULTANT shall be paid for all services rendered to the date of termination including all reimbursable expenses.

F) Liability:

CONSULTANT is protected by Workmen's Compensation Insurance, Professional Liability Insurance and by Public Liability Insurance for bodily injury and property damage and will furnish certificates of insurance upon request. CONSULTANT agrees to hold CLIENT harmless from loss, damage, injury or liability arising solely from the negligent acts or omission of CONSULTANT, its employees, agents, subcontractors and their employees and agents, but only to the extent that the same is actually covered and paid under the foregoing policies of insurance. If CLIENT requires increased insurance coverage, CONSULTANT will, if specifically directed by CLIENT, secure additional insurance obtained at CLIENT'S expense.

CLIENT agrees that CONSULTANT'S aggregate liability to CLIENT and all construction and professional contractors and subcontractors employed directly or indirectly by CLIENT on the Project, due to or arising from CONSULTANT'S services under this Agreement or because of the relation hereby of CONSULTANT, its agents, employees or subcontractors, or otherwise, is and shall be limited to CONSULTANT'S total fees under this Agreement or \$50,000.00 whichever is greater. In no event shall CONSULTANT be liable for any indirect, special or consequential loss or damage arising out of the services hereunder including, but not limited to, loss of use, loss of profit, or business interruption whether caused by the negligence of CONSULTANT or otherwise.

CLIENT agrees that CONSULTANT shall have no liability to CLIENT, or to any person or entity employed directly or indirectly by CLIENT in the project for damages of any kind from services rendered by CONSULTANT relating to the testing for, monitoring, cleaning up, removing, containing, treating, detoxifying or neutralizing of pollutants, whether or not, caused by the negligence of CONSULTANT.

NO INDIVIDUAL LIABILITY. IN ACCORDANCE WITH FLORIDA STATUTE SECTION 558.0035, ANY CLAIMS ARISING OUT OF THIS AGREEMENT OR ANY ACTS, OMISSIONS OR NEGLIGENCE OF ANY OFFICER, DIRECTOR, EMPLOYEE, AGENT OR ANY OTHER DESIGN PROFESSIONAL EMPLOYED BY CONSULTANT, INCLUDING BUT NOT LIMITED TO DESIGN PROFESSIONALS WHO MAY SIGN AND SEAL DOCUMENTS RELATED TO THE SERVICES, SHALL ONLY BE ASSERTED AGAINST CONSULTANT AND NOT AGAINST ANY OFFICER, DIRECTOR, EMPLOYEE, AGENT OR INDIVIDUAL DESIGN PROFESSIONAL. AS REQUIRED BY FLORIDA STATUTE SECTION 558.0035, NO INDIVIDUAL DESIGN PROFESSIONAL IS A PARTY TO THIS AGREEMENT.



G) Litigation:

In the event litigation in any way related to the services performed hereunder is initiated between CONSULTANT and CLIENT, the non-prevailing party shall reimburse the prevailing party for all of its reasonable attorney's fees and costs related to said litigation.

III. CLIENT'S OBLIGATIONS:

CLIENT shall provide CONSULTANT with all data, studies, surveys, plats and all other pertinent information concerning the Project. CLIENT shall designate a person to act with authority on CLIENT'S behalf with respect to all aspects of the Project. CLIENT shall be responsible for all processing fees or assessments required for the completion of the Project. CLIENT shall provide CONSULTANT access to the Project site at reasonable times upon reasonable notice.

IV. GENERAL PROVISIONS:

A) Persons Bound by Agreement:

The persons bound by this Agreement are CONSULTANT and CLIENT and their respective partners, successors, heirs, executors, administrators, assigns and other legal representatives. This Agreement and any interest associated with this Agreement may not be assigned, sublet or transferred by either party without the prior written consent of the other party, such consent not to be unreasonably withheld. Nothing contained herein shall be construed to prevent CONSULTANT from employing such independent consultants, associates and sub-consultants as CONSULTANT may deem appropriate to assist in the performance of the services hereunder. Nothing herein shall be construed to give any rights or benefits arising from this Agreement to anyone other than CONSULTANT and CLIENT.

B) No Waiver or Modifications:

No waiver by CONSULTANT of any default shall operate as a waiver for any other default or be construed to be a waiver of the same default on a future occasion. No delay, course of dealing or omission on the part of CONSULTANT in exercising any right or remedy shall operate as a waiver thereof, and no single or partial exercise by CONSULTANT of any right or remedy shall preclude any other or further exercise of any right or remedy.

This Agreement, including all requests for additional services placed hereunder, express the entire understanding and agreement of the parties with reference to the subject matter hereof, and is a complete and exclusive statement of the terms of this Agreement, and no representations or agreements modifying or supplementing the terms of this Agreement shall be valid unless in writing, signed by persons authorized to sign agreements on behalf of both parties.

C) Governing Laws or Venue:

This Agreement shall be governed, construed and enforced in accordance with the laws of the State of Florida. Venue for any litigation shall be Broward County, F



EXHIBIT A PROFESSIONAL SERVICE FEE SCHEDULE

	<u>Hourly Rate</u>
Senior Project Executive.....	\$400.00
Project Executive	\$350.00
Expert Witness	\$500.00
Government Liaison.....	\$400.00
Senior Project Manager	\$275.00
Project Manager III.....	\$225.00
Project Manager II.....	\$175.00
Project Manager I.....	\$150.00
Assistant Project Manager	\$100.00
Administrative Assistant	\$80.00
Engineer VI.....	\$250.00
Engineer V.....	\$225.00
Engineer IV.....	\$195.00
Engineer III.....	\$165.00
Engineer II.....	\$135.00
Engineer I.....	\$110.00
Senior Construction Manager	\$190.00
Construction Manager.....	\$160.00
Inspector III.....	\$125.00
Inspector II.....	\$100.00
Inspector I.....	\$90.00
Chief Surveyor	\$190.00
Sr. Surveyor & Mapper	\$180.00
Project Surveyor II	\$165.00
Project Surveyor I	\$150.00
Technician IV.....	\$140.00
Technician III.....	\$125.00
Technician II.....	\$110.00
Technician I.....	\$90.00
Chief Planner	\$190.00
Senior Planner.....	\$160.00
Planner IV.....	\$140.00
Planner III.....	\$125.00
Planner II.....	\$110.00
Planner I.....	\$90.00
Senior Landscape Architect.....	\$200.00
Landscape Architect II	\$165.00
Landscape Architect I	\$135.00
Arborist.....	\$140.00
Designer III.....	\$145.00
Designer II.....	\$135.00
Designer I.....	\$125.00
Chief Utility Coordinator	\$190.00
Senior Utility Coordinator	\$150.00
Utility Coordinator	\$110.00
Subsurface Utility Location Manager	\$140.00
Field Supervisor.....	\$90.00
Utility Designating/GPR	\$200.00
Survey Crew IV	\$250.00
Survey Crew III	\$200.00
Survey Crew II	\$150.00
Survey Crew I	\$100.00
Survey Static Laser Scanning.....	\$250.00
Survey Drone Crew.....	\$200.00
Impervious Coring >8"	\$150.00/Each
Vacuum Excavation Test Hole (Pervious Surface).....	\$350.00/Each
Vacuum Excavation Test Hole (Impervious Surface).....	\$450.00/Each
Effective 03/07/2022	



EXHIBIT BDirect ExpensesCost per Unit

Photographic Copies

Color Copies

a) 8.5" x 11"	\$ 1.00
b) 8.5" x 14 or 11"x 17"	\$ 2.00
c) 24"x 36"	\$18.00

Black & White Copies

a) Any Size up to 11"x17"	\$ 0.15
b) 24"x 36" Blackline	\$ 2.00
c) 30" x 42" Blackline	\$ 2.00
d) 24"x 36" Mylar	\$15.00

Laminating/Transparency Film Covers	\$ 2.00
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Display Boards

Mounted (Foam) 30"x 40"	\$42.00
Mounted (Foam) 40"x 60" and larger	\$70.00

3 Ring Binders 1"	\$ 1.00
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Dividers (Tabs) Set of 10	\$ 0.80
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Acco/GBC Binding	\$ 1.50
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Facsimiles	\$ 2.00
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Overnight Packages	per service
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Courier & Delivery Services	per service
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Postage: 1st Class	Current US Postal rate
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Mileage:	Current IRS Standard Mileage rates
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Any other expenses will be billed at cost plus 10% carrying charge.

****NOTE:** Typical other reimbursable expenses include travel, lodging, and meals when traveling on CLIENT'S behalf, identifiable communication expenses, all reproduction costs, and special accounting expenses not applicable to general overhead.

Effective 01/01/2022



Revised 24 April 2023

7 April 2023

Taylor J. Bomarito, P.E.
Hazen and Sawyer
7751 Belfort Pkwy #110
Jacksonville, Florida 32256

**Re: Proposal for Geotechnical Engineering Services
City of Miami Beach – MacArthur Causeway Water Main Replacement
Miami Beach, Florida
Langan Project No.: TBD**

Dear Bomarito:

Langan Engineering & Environmental Services, Inc. (Langan) is pleased to submit this proposal to Hazen and Sawyer ("the client") to provide geotechnical engineering services for the proposed City of Miami Beach MacArthur Causeway Water Main Replacement ("the project"), in Miami Beach, Florida. This proposal is based on the request for geotechnical engineering services outlined in your email of 30 March 2023, and our discussions with you during our telephone conference on 3 April 2023.

PROJECT DESCRIPTION

We understand that the project will consist of a proposed new water main to be constructed along MacArthur Causeway (State Road A1A). The proposed water main alignment extends for approximately 1.7 miles along MacArthur Causeway, from Terminal Island on the east to the east end of Watson Island in the west. We understand that the water main could be constructed via open-cut methods or trenchless methods, such as Horizontal Directional Drilling (HDD), Horizontal Auger Boring (i.e. Jack and Bore), or microtunneling.

AVAILABLE GEOTECHNICAL INFORMATION

The email dated 30 March 2023 outlined a proposed scope for the geotechnical investigation consisting of nineteen (19) Standard Penetration Test (SPT) borings per ASTM D-1586) spaced at approximately 500-foot intervals along MacArthur Causeway, with two (2) borings to be performed to a depth of 30 feet with the other seventeen (17) borings performed to a depth of 100 feet. Typical geotechnical laboratory testing such as organic content, moisture content and grain size analysis was also indicated in the requested scope of services.

As we explained during our telephone conversation on 3 April 2023, extensive geotechnical investigations were recently conducted along the above project alignment for the Miami-Dade County Rapid Mass Transit Solution for the Beach Corridor Trunk Line project (i.e., Miami-Dade Transit Metromover extension) and for the private-venture Miami Beach Monorail project. These geotechnical investigations included 31 SPT borings to depths of 100 to 150 feet along the water main project alignment. The geotechnical investigations including typical laboratory testing on recovered soil samples (organic content, grain size analysis, moisture content, etc.). The results of these geotechnical investigations are presented in the following reports:

1. "Geotechnical Services Report – Preliminary Evaluation RWM Master Plan and Transit Study", by GMEC, Inc., dated 31 October 2018;
2. "Geotechnical Data Report for Proposed Beach Corridor Rail Bridges", by Geosol, Inc., dated 22 November 2019; and,
3. "Geotechnical Data Report – Miami Beach Monorail – Terminal and Watson Islands"; dated 18 February 2021 by Langan.

These reports should be available from the Miami-Dade County Department of Transportation and Public Works via public information requests. In addition, Langan was the geotechnical engineer of record for the PortMiami Tunnel project, and have extensive geotechnical information in our files for Watson Island.

GEOTECHNICAL ENGINEERING SERVICES

As discussed during our conference call, the available geotechnical information along the project alignment exceeds the requested scope for a field geotechnical investigation, and is more than sufficient to prepare an initial geotechnical engineering study per the requirements of the scope of service outlined in the 30 March 2023 email, without having to perform additional field geotechnical investigations or laboratory testing. As the project develops, supplemental field geotechnical investigations could be performed, if necessary, to address specific project needs, changes in alignment, etc.

We proposed the following scope of services.

Task 1 – Initial Geotechnical Engineering Study

This task includes performing an extensive file review of the available geotechnical information from the reports listed in previous sections, other geotechnical information available in our files from nearby projects or from public records research. We will evaluate the geotechnical data and prepare a geotechnical engineering study report including the following:

1. A description of the proposed project and anticipated construction.
2. A description of the site's surface conditions and a description of previous site history based on historic aerial photographs, Sanborn Maps or other available information.
3. A description of the general geology of the area.
4. A summary of the available geotechnical information, including a plan showing the boring locations. Boring logs with description of the recovered soils, standard penetration values, groundwater levels, etc. will be included in an Appendix.
5. A summary of the various subsurface strata along the project alignment based on our interpretation of the information in the boring logs, soil classification for the various layers.
6. A discussion on expected groundwater levels and expected fluctuations.
7. Prepare a geotechnical/subsurface conditions profile based on the available boring logs.

8. Recommendations for utility trench excavations (i.e., excavation slopes, shoring, and potential re-use of excavated materials as backfill) and groundwater control during utility installations.
9. Recommendations for pipe utility bedding and trench backfilling.

The geotechnical engineering study will be performed under the supervision of an experienced, Florida Licensed Professional Engineer. The report will be signed and sealed, suitable for submission to the reviewing or permitting agencies.

Task 2 – Project Meetings and Interaction with the Design Team

We will attend coordination, design, and construction meetings as necessary with the project team to discuss project geotechnical issues and help expedite and/or coordinate the design and construction process. We will also interact with members of the project team as necessary to address any geotechnical issues. Meetings and Interaction would be invoiced on an hourly basis in accordance with the approved consultant hourly rates included in the “Agreement Between City of Miami Beach and Hazen and Sawyer, P.C. for Engineering Services for Water and Wastewater System Projects Pursuant to Request for Qualifications No. 2022-122-ND (Resolution No. 2022-32175)” with a valid date of 18 January 2023. However, for billing and budgeting purposes, a suggested allowance for meetings and additional interaction is presented herein. We will only invoice against this task for the actual time spent.

FEES

Our fees for the scope of work described above are as follows:

Task 1 – Initial Geotechnical Engineering Study Report	\$18,500
Task 2 – Project Meetings and Interaction with Design Team	\$ 5,500 (allowance)

Exclusions

This proposal excludes geotechnical engineering services typically provided prior to and during construction, including but not limited to: preparing geotechnical-related technical specifications, reviewing and responding to contractor’s submittals or request for information (construction administration), geotechnical observation and documentation during construction, and construction materials testing (CMT) and inspection services typically provided by a laboratory testing firm or CMT consultant (compaction testing, concrete, grout, or masonry sampling and testing, etc.).

CLOSING

Thank you for the opportunity to work with you on this project. If this proposal is acceptable, please send us a sub-consultant agreement for our review. Please call us with any questions.

Sincerely,

Langan Engineering & Environmental Services, Inc.



Rafael M. Pina, P.E.
Senior Project Manager



Matthew E. Meyer, P.E., D.GE
Principal/Vice President

Cc: Vince Yarina / Langan