French Broad Interceptor Carrier Bridge Preliminary Engineering Report

~ REQUEST FOR QUALIFICATIONS ~

The Metropolitan Sewerage District of Buncombe County, North Carolina (MSD) is soliciting Statements of Qualifications for Professional Engineering Services associated with the French Broad Interceptor Carrier Bridge Preliminary Engineering Report. This report shall include an evaluation and a flow model of interceptors running along the French Broad and Swannanoa Rivers, and the Carrier Bridge Pump Station (Carrier Bridge), MSD's largest pump station. Flow monitoring data will be provided by MSD. A general (planning level) evaluation of Carrier Bridge shall be performed in order to evaluate its continued performance within this interceptor system.

The Engineer shall evaluate the performance of the existing systems under current conditions and future projected flows, and will provide prioritized recommendations for capital improvements related to these sections.

General Background of MSD

MSD is a regional wastewater utility serving the greater Asheville, NC area, and serves a population of approximately 125,000 customers. The collection system is comprised of approximately 1,018 miles of pipe which convey raw wastewater to MSD's treatment plant on the French Broad River. The plant currently treats an average daily flow of 19 million gallons per day (mgd) and has a permitted maximum month capacity of 40 mgd. Peak hourly flows of 80 mgd can occur during intense rain events.

Project Background

The primary interceptors serving Buncombe County are located along the French Broad River, the Swannanoa River, and Hominy Creek. The French Broad Interceptor serves significant areas of eastern, western, and southern Buncombe County, as well as the Cane Creek Water and Sewer District (CCWSD) in Northern Henderson County. Flow conveyed through this line from all

southern and western areas enters Carrier Bridge, a 22mgd pump station constructed in 1966, and is pumped from the west side of the French Broad River to the east side via a 24-inch DIP force main. At the discharge manhole, flow from Carrier Bridge converges with flow from the Swannanoa Interceptor. This line runs along the Swannanoa River and serves the entire Swannanoa Valley, up to and including Ridgecrest, MSD's easternmost collection point.

Figure 1 identifies the general scope of the project (in red), major tributary areas, interceptor line sizes, and flow direction.

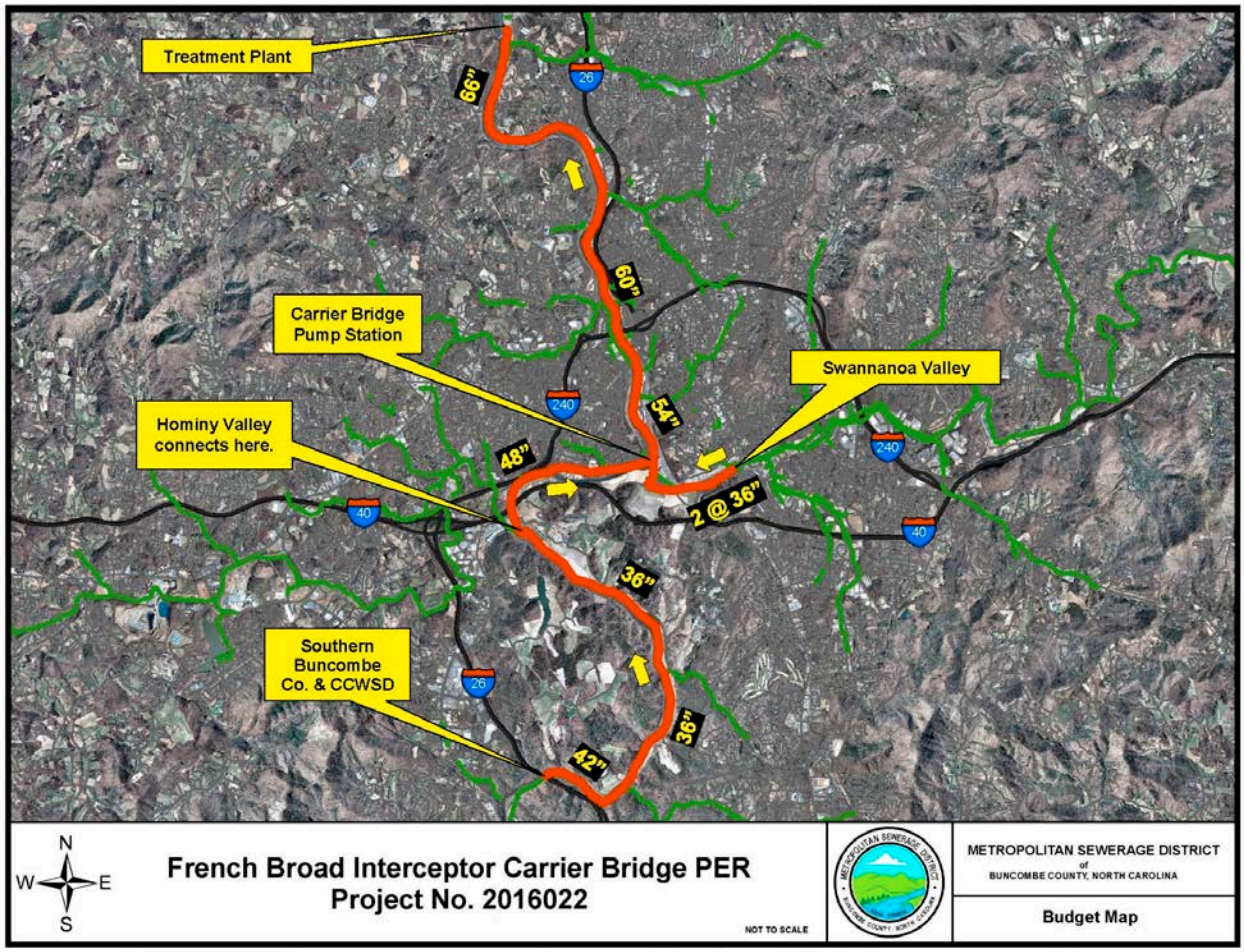

Figure 1: General Scope of Study Area

A significant portion of the south French Broad Interceptor runs through the Biltmore Estate. Where this line crosses I-26 (shown lower center in Figure 1), parallel 24-inch and 36-inch lines converge into a single 42-inch line which further restricts to a single 36-inch line. This line runs approximately 22,000 linear feet through the Estate before crossing the French Broad River and

acquiring flow from Hominy Valley. The 36-inch interceptor is frequently observed flowing ½ to ¾ full under peak dry weather conditions, and experiences sanitary sewer overflows (SSOs) during intense wet weather, most commonly on its uppermost stretches when the river rises over its banks and floods the area.

The 36-inch line is Reinforced Concrete Pipe (RCP) and is generally in good structural condition given its age (installed in 1966). The exception to this is concrete degradation due to Hydrogen Sulfide, and MSD staff is currently taking steps to line this interceptor with an inert liner in order that it can remain in service indefinitely. At this time, an increase in capacity to this section of line through the Biltmore Estate is expected to be accomplished by the addition of a parallel interceptor.

A second major objective of this PER is the evaluation of a bottleneck which exists on the Swannanoa Interceptor, east of Carrier Bridge. Here, parallel 60-inch and 36-inch lines reduce to dual 36-inch lines in a junction box located underneath the McDowell Street (US 25) bridge in Asheville. The twin 36-inch lines run adjacent to the Norfolk Southern train yard for approximately 1.25 miles prior to entering a second junction box where the two lines then reduce to a single 48-inch line. Just downstream, this line and the Carrier Bridge force main discharge into a common manhole.

Upstream of the McDowell Street junction box, SSOs have occurred on the 60-inch and 36-inch lines during heavy storm events. Multiple SSOs have also occurred on a smaller 8-inch line that discharges into the parallel 36-inch interceptor lines, suggesting surcharged conditions.

Both of the areas discussed above were identified as “major problem areas” in the 2001 Wastewater System Master Plan, completed by CDM. At the time of the study, recommendations included the installation of a new 36-inch parallel relief sewer line through the Biltmore Estate, and the continuation of the 60-inch Swannanoa interceptor to replace one of the parallel 36-inch lines through the Norfolk Southern property.

Figure 1 shows the study area continuing north for approximately 6.7 miles downstream of Carrier Bridge, to the Treatment Plant. Previous surveys and studies have indicated that natural topography will allow for the installation of a new interceptor on the west side of the river to carry flow currently conveyed through the pump station. This two mile interceptor, if determined to be the most viable alternative, would potentially eliminate Carrier Bridge and then cross the French Broad at Smith Mill Creek with multiple parallel lines. In addition to this proposed

interceptor, the PER shall evaluate the existing downstream French Broad Interceptor (between Carrier Bridge and the Treatment Plant) and its ability to accommodate future growth in the system.

The primary concern for these lines, including the Carrier Bridge Pump Station, is capacity. This system serves large areas as noted above. Growth is expected to continue well into to the future - *particularly in the southern areas of Buncombe County, including CCWSD.*

General Scope of Work

The selected firm shall review all available data and documents for the existing interceptors and Carrier Bridge, including existing flow monitoring data. Flow monitoring data will be provided for key locations in the area in order to establish accurate baselines for current average and peak flows. The firm shall generate a preliminary engineering report recommending the most appropriate steps to maintain future viability and capacity of these lines. The report shall evaluate existing Master Plan recommendations and identify other needs and alternatives to accommodate future dry and wet weather flows. These include the possible rehabilitation or elimination of Carrier Bridge, the addition of parallel lines and/or the upsizing of existing lines, and the addition of storm surge control in the system.

The firm's evaluation and subsequent recommendations shall specifically consider future growth, line capacity, constructability (including discussion of necessary permitting), capital costs, and long-term O&M costs. Given the relatively flat grades within this area and the associated generation of hydrogen sulfide - only corrosion resistant materials shall be proposed.

The firm shall determine future capacity needs for all southern and western areas draining into the French Broad Interceptor system. Interceptors shall be sized for a minimum of 50-years of growth. Growth rates shall be determined from actual recent trends within tributary areas.

The firm shall prioritize projects and provide a planning level budget for each one. A project schedule shall be provided - particularly with regard to future capacity needs for the system.

All work shall be completed by June 30, 2018 and the firm shall present their final report to the MSD Board at a regularly scheduled meeting. The final signed/sealed report shall be provided in pdf as well as paper format.

The selected firm shall take the following items into consideration:

- MSD staff will work closely with the firm to provide data. This includes as-builts, reports, studies, etc.
- Costs and benefits of any given route must be carefully weighed. The firm will work closely with MSD staff in evaluating options and line locations.
- MSD will provide existing flow monitoring data for model input (from 7/01/15 to present day), and currently plans to supplement this data with additional flow monitoring at key locations during Spring/Summer of 2017.
- If additional flow monitoring data is required, MSD staff will provide this using MSD flow monitoring equipment.

Additional Resources Provided:

- Wastewater System Master Plan (CDM, 2001) – Applicable sections only
- As-built Information for Carrier Bridge Pump Station (Hendon, 1966 and 1987)
- Feasibility Study to Eliminate the Carrier Bridge Pump Station (McGill, 2012)
- Pump and Motor Information for Carrier Bridge Pump Station (upgraded Nov. 2016)
- As-built Information for Interceptor Lines (Various Sources and Dates)
- Existing Flow Monitoring data - from July 2015 to present (Excel format).

Submittal Requirements

NOTE: **Qualifications shall not exceed ten (10) pages in length.** Brevity, clarity, and conciseness are strongly encouraged.

1. Transmittal cover letter. The cover letter will designate the firm's contact person with phone number, mailing address, fax number and email address.

2. Project Manager. Identify the project manager and describe their experience related to this project. Provide references of other clients (including contact name, phone number and address) for other projects similar in scope. Discuss the experience of the project manager with the other members of the project team.

3. Project team and sub-consultants. Identify other project team members and sub-consultants and their relative experience. Discuss the role of key team members. Specify the location of the offices and the percentage and type of work that will be performed at each location.

4. Firm Qualifications. Discuss the firm's work on projects/studies similar in size and scope. Firm must have extensive knowledge of large interceptor and pump station planning, design, prioritization of significant and interrelated capital projects. Indicate firm's history of meeting established schedules and budgets for all referenced projects.

Evaluation of Statement of Qualifications

The selection committee will develop a short list of firms for the project. Short listed firms will be asked to participate in a presentation/interview process.

The selection committee will choose a firm for the proposed project based in part on the following criteria:

1. Experience on projects of similar type and magnitude, and the firm's ability to adequately address the items in the General Scope of Work above, within the specified timeframe.

2. Qualifications and experience of the proposed team and location of team members.

3. Completeness of the submittal.

4. Any other experience or criteria deemed applicable to the project.

To Respond

If your firm is interested in this project and qualified based on the requirements above, please submit FIVE (5) copies of the Statement of Qualifications to Hunter Carson, P.E. before 2:00 P.M on Friday, April 7, 2017 to:

MSD of Buncombe County, N.C.
Mull Building
2028 Riverside Drive
Asheville, N.C. 28804

For questions regarding the process or to review information, please contact Hunter Carson directly at (828) 225-8241, or e-mail hcarson@msdbc.org.

The Metropolitan Sewerage District reserves the right to reject any and all Statements of Qualifications.