ENVIRONMENTAL PARTNERS
— An Apex Company —

MEMORANDUM

Date: March 14, 2022

To Anthony Furnari, Director, Department of Public Services

From Eric Kelley, PE

CC Tom Cusick, DPS Water Treatment Superintendent
Jon Carey, DPS Water Distribution Superintendent
Jon-Eric White, PE, City Engineer
Ryan Allgrove, PE

Subject Newburyport – Amesbury Interconnection Memorandum of Support

Environmental Partners (EP) was contacted by the City of Newburyport (City) on August 15, 2020, in an emergency on-call capacity. An algae bloom within the Upper Artichoke Reservoir had developed, and in the event of bloom spread, the City's drinking water supply may have become inadequate. EP was tasked with evaluating an emergency interconnection with the City of Amesbury, MA, via the John Greenleaf Whitter Bridge (Interstate 95). EP prepared a technical memorandum dated August 21, 2020, summarizing the basis of design findings and recommendations for the interconnection.

As shown in Figure 1, the proposed interconnection includes 2,900 linear feet of above ground high-density polyethylene pipe (HDPE) SDR 11 pipe connected to the Amesbury 12-inch ductile iron main near the intersection of Main Street and Evans Place. The proposed alignment continues south on Evans Place, crossing under Interstate 95. The alignment then utilizes the John Greenleaf Whitter Bridge to cross the Merrimac River and connect to the Newburyport 16-inch ductile iron main located approximately 500 feet beyond the bridge abutment.

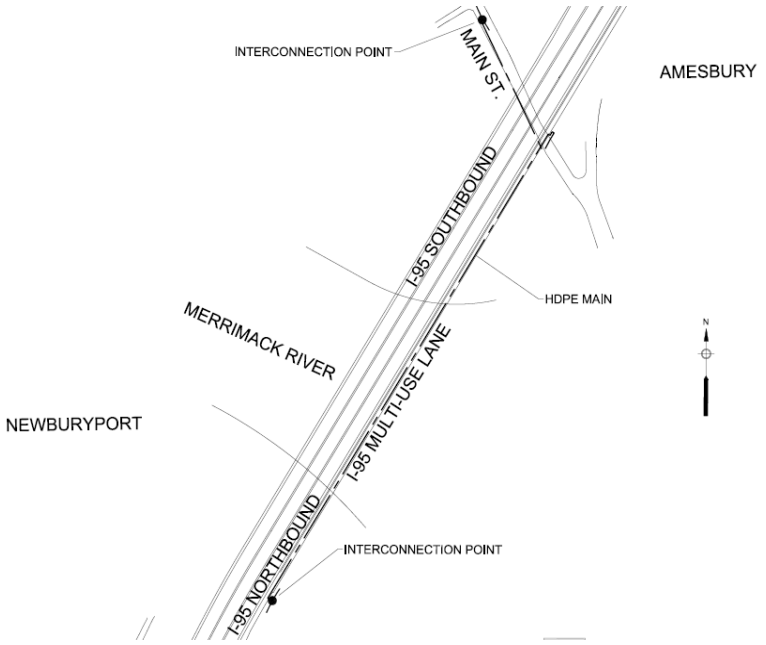

Figure 1: Proposed Newburyport to Amesbury Interconnection

Permanent connection points to the Amesbury and Newburyport

distribution systems will be established under a Phase I plan. The above ground HDPE pipe installation would be completed under a Phase II plan in a future emergency scenario.

The design intent of Phase I is to install the infrastructure required for an above ground 12-inch interconnection without the need for excavation in an emergency. The proposed subsurface infrastructure includes restrained 12-inch DI pipe and fittings, isolation valves, and a manhole structure at each water system's connection points, as shown in Figure 2.

Phase II is the above ground element of the interconnection. It includes 2,900 linear feet of HDPE SDR 11 pipe and appurtenances, including a pressure reducing and flow control valve that will control the pressure and flow of water from the Amesbury water system to Newburyport.

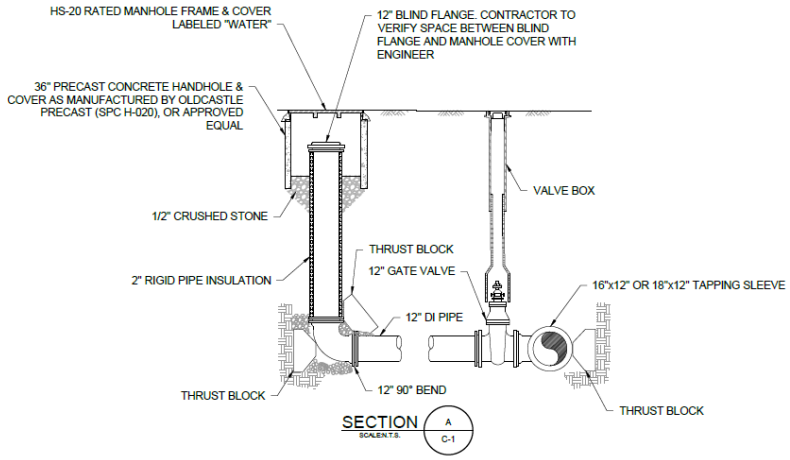

Figure 2: Proposed Subsurface Interconnection Point

Since the emergency has dissipated and time is no longer a driving factor, the City now has an expanded list of available options that were previously unattainable in emergency planning. In order to provide a high level of emergency preparedness, with minimal long-term storage impacts and at a low cost, EP recommends installing the Phase I interconnections and furnishing only essential, long lead-time equipment required for Phase II that will save the City valuable time in an emergency scenario. This option relieves the City of the burden of furnishing and storing 2,900 linear feet of HDPE pipe for a future emergency and provides the City with a high level of emergency preparedness while it investigates other potential permanent interconnection options.

EP completed an Opinion of Probable Construction Cost (OPCC) to provide the City with a funding allocation for the Phase I work and to furnish long-lead equipment for Phase II. The OPCC includes a mobilization cost and a contingency of 30% due to pandemic-related supply chain constraints. The long-lead Phase II equipment includes a pressure relief/flow control valve, a battery-powered magnetic flow meter, a check valve, and a hydrant relief valve. The OPCC does not include any additional engineering costs.

Table 1: Phase I Interconnection OPCC

Phase I	OPCC
Newburyport Interconnection	$75,150
Amesbury Interconnection	$69,675
Phase II long-lead equipment	$28,425
Contingency (30%)	$51,975
TOTAL	**$225,225**