Charles River Watershed Association

March 2, 2021

Via Email

Alex Strysky
Environmental Analyst, MEPA Office
Executive Office of Energy and Environmental Affairs
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Re: Comments on North Allston Storm Drain Extension Project (EEA No. 16319) Environmental Notification Form

Dear Mr. Strysky:

Charles River Watershed Association ("CRWA") submits the following comments on the Environmental Notification Form ("ENF") for the North Allston Storm Drain Extension Project ("NASDEP") located in Boston, Massachusetts filed with the MEPA Office on February 1, 2020. Based on our review of the ENF, we understand that the Boston Water and Sewer Commission ("BWSC") proposes to construct a new 84" drain line that terminates in a proposed 14.5-foot wide by 6.7-foot high dual-chamber box culvert in the vicinity of Soldiers Field Road that serves as a new outfall that will discharge directly to the Charles River between 500 Soldiers Field Road and Cambridge Street. The proposed drainage system will redirect runoff from the catchment area located on the south side of Western Avenue that currently discharges to the Charles River north of Western Avenue via two outfalls.

Secretary Should Require an Environmental Impact Report

As proposed, this project does not currently meet or exceed a mandatory Environmental Impact Report ("EIR") threshold per 301 CMR 11.03, however, an EIR should be required to fully evaluate the environmental impacts of and alternatives to a project of this scope and magnitude. An EIR is also necessary to fill critical information gaps that are not addressed in the ENF. As further discussed in the comments provided below, an EIR should be prepared to provide more information on:

- Compliance with water quality requirements, including how the project will comply with the Charles River nutrient TMDL and Charles River pathogen TMDL, and the BWSC NPDES permit for stormwater discharges;
- The environmental impacts of increased flows on the Charles River;
- Construction period impacts, including staging and dewatering;
- Impacts to wetlands resources areas and habitat;
- The relationship of the project to proposed development and redevelopment in the catchment areas;
- The current flooding issues the project is anticipated to remedy;

- How the project will mitigate impacts due to climate change;
- Operation and maintenance of the proposed drainage system; and
- Public education and engagement.

In the absence of an EIR, we would ask that BWSC address these items in subsequent permit applications. Alternatively, the Certificate could require BWSC to work directly with CRWA to address concerns through a collaborative approach.

Water Quality Protection is not Adequately Addressed in EIR

The proposed new outfall will discharge to segment MA72-36[1] of the Charles River,[2] which is an impaired waterbody requiring a TMDL according to the Massachusetts Year 2016 Integrated List of Waters for the following pollutants:[3]

Impairment	EPA TMDL No.
(Fish Passage Barrier*)	
(Flow Regime Modification*)	
(Non-Native Aquatic Plants*)	
Chlorophyll-a	33826
DDT in Fish Tissue	
Dissolved Oxygen	
Escherichia Coli (E. Coli)	32371
Fish Bioassessments	
Harmful Algal Blooms	33826
Nutrient/Eutrophication Biological Indicators	33826
Oil and Grease	
PCBs In Fish Tissue	
pH, High	
Phosphorus, Total	33826
Sediment Bioassay (Acute Toxicity Freshwater)	
Transparency / Clarity	33826
Unspecified Metals in Sediment	

Two Total Maximum Daily Loads (TMDLs) apply to this segment of the river:

- Total Maximum Daily Load for Nutrients In the Lower Charles River Basin, Massachusetts, June 2007 (EPA TMDL No. 33826); and
- Final Pathogen TMDL for the Charles River Watershed January 2007 (EPA TMDL No. 32371).

The United States Environmental Protection Agency ("EPA") issued BWSC a National Pollutant Discharge Elimination System ("NPDES") Permit (Number MAS010001), which became effective on October 29, 1999, authorizing stormwater and allowable non-stormwater discharges from its municipal separate storm sewer system ("MS4"). The permit expired five years later on October 30, 2004 and has been administratively continued as allowed by regulation. The permit contains several provisions directly applicable to the NASDEP project; however, the ENF does not explain how the project will comply with these permit provisions. Specifically, Part

[1] Note that the Water Resources section of the ENF incorrectly cites the discharge to segment MA72-38 of the Charles River.
[2] 6.1 miles from Watertown Dam (NATID: MA00456), Watertown, to the Boston University Bridge, Boston/Cambridge.
[3] Note that impairments with a * do not require development of a TMDL.

I.B.2.a of the NPDES permit requires that BWSC's Storm Water Management Program ("SWMP") "shall include controls necessary to reduce the discharge of pollutants from the Municipal Separate Storm Sewer System to the Maximum Extent Practicable ("MEP") . . . The permittee shall select measures or controls to satisfy the following water quality prohibitions: No discharge of pollutants in quantities that would cause a violation of State water quality standards." (emphasis in original).

Page 7 of the ENF states that the "the NASDEP was designed in accordance with all BWSC design standards including sediment and phosphorus removal and requisite design storm modeling to serve a future catchment area of 164 acres (this future catchment area excludes HBS which will remain connected to the existing outfall)." The footnote to the sentence states that "BWSC design standards are in full compliance with the requirements of the BWSC Stormwater BMP Recommendations Report approved by the EPA on October 24, 2018 in accordance with the Consent Decree settlement in Conservation Law Foundation, Inc., et al. v. Boston Water and Sewer Commission, et al., C.A. No. 10-10250-RGS. The standards pursuant to that plan are designed to reduce phosphorus in stormwater runoff, with the goal of meeting the Total Maximum Daily Loads for the Charles River for phosphorus."

Pages 16 and 17 of the ENF provide a description of the two hydrodynamic separators that will be installed in the new drainage system as well as the existing drainage system as follows:

"A sediment removal BMP will be situated well outside of the Project Area, upstream of ALN and the new trunk drain, at the location from which the existing BWSC trunk drain will be extended. Consistent with the MA Stormwater Standards and in compliance with the more stringent BWSC/BPDA requirements, a Water Quality Rainfall Depth of 1.25 inches was adopted to calculate the "first flush" Water Quality Volume to be treated by the BMP.

A single 10-foot Downstream Defender ("DD"), or hydrodynamic separator, ("HDS") unit will be installed upstream near the NASDEP's connection to the existing drainage system in Science Drive. This unit is expected to remove 79.8% of the average annual post-construction TSS load, independent of any additional BMPs in the upstream catchment. Accounting for the upstream deep sump and hooded catch basins maintained by BWSC, it is expected that upon commissioning of the recommended sediment removal BMP, and the proposed trunk drain and outfall, the treatment train of the North Allston drainage system will achieve 84.8% TSS removal.

Additionally, as part of the mitigation for the Article 97 easement, a second HDS will be installed in the existing DCR SFR drainage system prior to discharge to an existing DCR outfall south of the NASDEP project. This HDS will add sediment and pollutant removal to the current SFR drainage system and allow for any proposed future drainage improvements by DCR."

Complete documentation of how the project is designed to reduce phosphorus in the discharge, including calculations, should be provided in an EIR. Documentation of how the project plans to address the Final Pathogen TMDL for the Charles River Watershed should also be provided. Finally, the EIR should explain how the project complies with Part I.B.2.a of BWSC's NPDES permit, which prohibits discharge of pollutants in quantities that would cause a violation of state water quality standards.

Increased Discharges to the Charles River Pose Significant Environmental Impacts

Sections titled "NASDEP Design" and "NASDEP Design Performance" on pages 7 and 8 of the ENF provide information on the sizing of the proposed new drainage infrastructure. Based on the information provided in these sections, as well as information missing from these sections, CRWA is concerned that the design is increasing the peak flows to the Charles River.

A table is provided on page 8 that shows three statistics related to the existing and proposed systems: peak aggregate discharge rate (cfs); peak aggregate flood rate (cfs); total flood volume (ac-ft). These values are presumably only for the 10-year ARI. The ENF is clear that "the peak rate at which flow can be discharged to the river will increase." (Page 8). While the design will increase the capacity of the drainage system and reduce flood volumes in the catchment area, an increased peak flow to the Charles River is concerning. Increased peak flows have the potential to impact habitat and species in the River, as well, both chronically and during brief periods.

There are going to be environmental impacts from peak flows and those impacts have not been documented in the ENF. More information and additional calculations should be provided in an EIR that describe and quantify the impacts from additional ARIs under both present and anticipated climate change conditions. In addition, an EIR should document impacts of the increased discharge rate on the Charles River, as well as alternative methods BWSC intends to employ to store and infiltrate stormwater runoff throughout the catchments.

Concerns about Construction Staging

An EIR should provide more documentation on potential impacts to river uses during construction and provide figures showing construction staging extent. Currently, the ENF provides the following construction information and schedule at pages 9 and 10:

"To enable installation of the new culvert and outfall in the dry, a temporary coffer dam will be installed in the Charles River via a crane placed landside on top of the existing bike path and bank area. The crane will require a pile supported platform (40-feet by 40-feet) located to the north of the coffer dam sheeting. Eight of these steel piles will be installed in LUW. Additional LUW will be impacted from the crane platform and pipe-pile installation for a total of 1,934 s.f. of impact to Land Under Water. The remaining eight piles will be installed within RFA/Buffer Zone. Prior to the start of construction, a turbidity curtain will be installed within the river to contain silt and sediment that may be created by the pile and coffer dam installation enclosing an area of approximately 25,000 s.f." Based on our reading of the ENF, the Charles River is approximately 340 feet wide at the location of the proposed outfall (Page 6).

The proposed construction plan will require significant intrusion into the Charles River which must be further evaluated in an EIR. The interests of river users and navigation must be considered. The ENF provides information on vehicle traffic management. What has not been accounted for is the significant boating and rowing traffic on the river itself. On a typical day, there are estimated to be more than 5,000 rowers, 500 sailors, and 500 paddlers somewhere on the water

sheet. We refer you to the comments being submitted by the boating and rowing community for further detail.

Construction Period Dewatering Could pose a Significant Potential Source of Pollution to the Charles River

Given that dewatering may discharge to the Charles River, we are concerned about the significant dewatering needs this project will encounter during the two years of construction. Few details are currently provided—page 16 of the ENF discusses construction period "Best Management Practices," including the project's need to obtain coverage under the EPA NPDES Construction General Permit; Pages 9 and 10 mention construction dewatering ("A dewatering system (type to be determined in consultation with selected site contractor, based on the requirement set by the project Geotechnical Engineer) will also be staged on the Service Road to Soldiers Field Road."); and a number of locations discuss 24/7 dewatering needs and in-river dewatering needs. Further detail on construction period dewatering, including volumes, flow rates, anticipated water quality concerns, and potential impacts on the drainage system and river should be provided in an EIR.

Concerns about Impacts to Wetlands Resources Areas and Habitat

More analysis is needed to fully evaluate impacts to wetlands resource areas and habitat within and along the Charles River. As described in the ENF, the project is anticipated to temporarily impact 77 linear feet of Inland Bank and 1,936 square feet of Riverfront Area and permanently impact 1,934 square feet of Land Under Water (from structures including the stabilization mat and the 14.5-foot wide by 6.7-foot high dual-chamber box culvert).

These are potentially significant impacts. More information about the effects on the river's natural ecology, as well as the affected resource areas, should be provided in an EIR. This information will also be necessary for the wetlands permitting process and evaluating mitigation options.

More information is needed about the Relationship of the Project to Proposed Development and Redevelopment in the Catchment Area

The ENF does not discuss specifically how this project relates to proposed development in the area—including, but not limited to, the Harvard Enterprise Research Campus ("ERC"), which was simultaneously filed with MEPA (EEA Number 16320)—despite a number of statements in the ENF that allude to future development in the catchment area, such as:

- Page 6: "Any future development actions in the catchment area will be required to go through the BWSC Site Plan Application process, undergo BPDA and any other applicable city and state review, and obtain additional permits as necessary."
- Page 7: "Also, note that no allowances were made for the local attenuation of runoff within the ALN development area or the BWSC requirement of infiltration of 1.25 inches of total local rainfall depth. Therefore, the modelled inflows were conservative (i.e. greater) in comparison to the inflows that will likely occur."

- Page 8: "The proposed system established by the NASDEP does not represent a final condition for the North Allston catchment, as BWSC intends to pursue localized drainage system improvements in the upstream neighborhood to further reduce the residual flooding shown for the proposed system in the future. The NASDEP will provide BWSC this opportunity to further alleviate upstream neighborhood flooding with future stormwater infrastructure improvements where no such opportunity existed before due to downstream capacity restrictions."
- Page 10: "The scope and timing of future development in the ALN area outside this limited Project Area that will be served by this trunk drain has not yet been determined. As a result, BWSC has not yet evaluated what other utilities (such as water or sewer pipes) may be required in the ALN area. BWSC will undertake that evaluation in the future, in response to specific development proposals for the ALN area."

An EIR should be required that explains how the NASDEP project is connected to currently-proposed and future development projects, including the Harvard ERC. Some of the concerns raised herein about flooding and increased flow and water quality are directly related to future development in the catchment area and therefore, we need more information about how BWSC plans to regulate new and redevelopment projects in the catchments. The EIR should also provide additional information on BWSC's authority to review and regulate properties where there may be a downstream drainage capacity limitation or a specific water quality concern.

Documentation about Current Flooding Should be Provided

The ENF states that "the NASDEP is intended to address longstanding deficiencies in the existing BWSC North Allston drainage system that currently result in substantial surface ponding and flooding throughout the catchment area including insufficient trunk drain capacity downstream of Rena Park." (Page 5) However, the existing flooding areas and drainage system deficiencies are not documented in the ENF. In an EIR, BWSC should include information (description of extent, duration, frequency, etc.) in both written and visual format on the historical flooding areas, drainage infrastructure with identified deficiencies and a description of those deficiencies, and work completed in recent years to improve the drainage system in the associated catchment areas. This will help facilitate understanding about needed upgrades to manage existing conditions.

Documentation of Climate Change Mitigation is Needed

Sections titled "NASDEP Design" and "NASDEP Design Performance" on pages 7 and 8 of the ENF provide information on the sizing of the proposed new drainage infrastructure. Based on the information provided in these sections, as well as information missing from these sections, CRWA is concerned that the project has not adequately detailed impacts from climate change in this filing.

The ENF states that "BWSC has adopted as its design storm a 10-year Average Return Interval (ARI) 24-hour Natural Resources Conservation Service ("NRCS") Type III rainfall pattern, a significant increase above the previous standard in response to the trend in increasing rainfall depth and intensity. This design storm equated to a 5.2-inch rainfall depth, based on the Atlas 14 Point Precipitation Frequency Estimates released by the National Oceanic and

Atmospheric Administration ("NOAA")." The ENF notes that "no allowances were made for the local attenuation of runoff within the ALN development area or the BWSC requirement of infiltration of 1.25 inches of total local rainfall depth. Therefore, the modelled inflows were conservative (i.e. greater) in comparison to the inflows that will likely occur."

According to the National Climate Assessment, the amount of precipitation falling in very heavy events increased by 71% in New England from 1958 to 2012. The Climate Ready Boston Map Explorer shows that areas of the catchments to be managed by this proposed project have predicted stormwater flooding in the near-, medium-, and long-term.[4] The BWSC City of Boston Inundation Model shows extensive areas of flooding, many of which are predicted to be over one foot, in a 100-year storm event with 2030 sea level rise and a 100-year storm surge, in these catchments.[5]

The 2018 Massachusetts State Hazard Mitigation and Climate Adaptation Plan[6] or "SHMCAP" outlines the following climate projections:

- Precipitation. Total annual precipitation is projected to increase by 1 to 6 inches by mid-century, and by 1.2 to 7.3 inches by the end of this century. This will result in up to 54.3 inches of rain per year, compared to the 1971-2001 average annual precipitation rate of 47 inches per year. Precipitation during winter and spring is expected to increase, with the number of days with rainfall accumulation over 1 inch reaching 11 days by the end of this century, representing an increase of 4 days from the observed average between 1971 and 2000. At the same time, precipitation during summer and fall is expected to decrease, with number of continuous dry days projected to increase to nearly 20 days per year at the end of this century compared to the observed average of 16.64 days per year from 1971 to 2001.

- Flooding. More intense and frequent downpours will result in more stormwater runoff, higher surface water levels, more frequent flooding in areas that lie within the floodplain, and inundation of land not typically affected by flooding. Projected increases in extreme precipitation events will also increase the risk of flash flooding and damage to drainage systems not designed to accommodate the higher flows. Flooding caused an average of over $9.1 million in damages per year between 2007 and 2014, with highly developed areas being most vulnerable.

- Storms. Severe winter storms and nor'easters are currently the most frequently occurring natural hazard in the state. Massachusetts also experiences 20–30 thunderstorm days per year, with high winds occurring even more frequently. Tropical storms and hurricanes also impact the state, with an average occurrence of one event every two years. All of these severe weather events are expected to increase in intensity and frequency, including higher precipitation amounts.

We agree that, in the context of BWSC design guidelines, the sizing has been conservative for a 10-year ARI. In addition, we acknowledge that a larger pipe designed to alleviate existing

[4] https://boston.maps.arcgis.com/apps/View/index.html?appid=7a599ab2ebad43d68adabc9a9ebea0e6&extent=-71.1583,42.2897,-70.9309,42.4060
[5] https://www.bwscstormviewer.com/index.html
[6] https://www.mass.gov/files/documents/2018/10/26/SHMCAP-September2018-Full-Plan-web.pdf

system constrictions and flooding could be considered a climate adaptation project. However, given the increases in precipitation documented over recent years, and predictions about future conditions, and given this is a new drainage pipe, we encourage BWSC to document the possible flooding impacts to the catchments under additional ARIs (25, 50, 100, etc.) and future climate conditions using best available science, existing models, and already established predictions in an EIR.

In addition, the ENF provides limited information related to "backflow inundation": "In the context of sea level rise and storm surge, having an even bigger drain may not be beneficial because it can worsen the potential for backflow inundation, as it would be easier for water from the river to flow back up the drain and out of manholes into the catchment area. Backflow prevention devices can sometimes be used to mitigate this effect, but in this case the NASDEP is a low-head system, which makes backflow preventers impractical during business-as-usual operation. These conservative design allowances provide for climate change resiliency and adaptation in the BWSC infrastructure to larger and/or more frequent storm events." More detail should be provided in an EIR on what will happen during operation outside of "business-as-usual." More information should be provided in an EIR about the potential for backflow inundation.

Concerns about Operation & Maintenance of the Drainage System

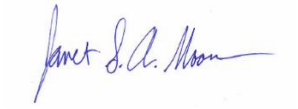
Users of the Charles River have observed increases of sedimentation in areas of the river to which stormwater outfalls discharge. The ENF does not provide any information on current or proposed operation and maintenance of the drainage system. Such documentation should be provided in an EIR. In addition, further detail on how the proposed 14.5-foot wide by 6.7-foot high dual-chamber box culvert design specifically accommodates operation and maintenance should be provided in an EIR.

Lack of Adequate Public Engagement

We share the concerns raised by other stakeholders that there has been a lack of public education and engagement around this project, the potential construction period impacts, and long-term flood management in the catchment area. In particular, BWSC should undertake an extensive program to provide information to local residents and businesses, as well as the public and entities who will be impacted by the construction period (e.g., commuters, boaters, etc.), about the perceived necessity for the project, its benefits, and its impacts. This outreach should be conducted in conjunction with the provision of more details and specifics about the project in an EIR.

Thank you for considering these comments, and please do not hesitate to reach out with any questions.

Sincerely,



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