# **CONCEPTUAL DESIGN REPORT**

#### **FOR**

# TOWN PARCEL RETROFITS FOR STORMWATER QUALITY IMPROVEMENTS

# FOR THE TOWN OF PEMBROKE, NEW HAMPSHIRE

PREPARED BY

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**JUNE 2023** 

The work contained in this report is conceptual in nature and not intended as a recommendation for construction. No survey, subsurface investigation of other detailed design work was completed as part of this effort. Concepts presented are based only on visual observations and intended to present possible opportunities for future improvements to enhance water quality.

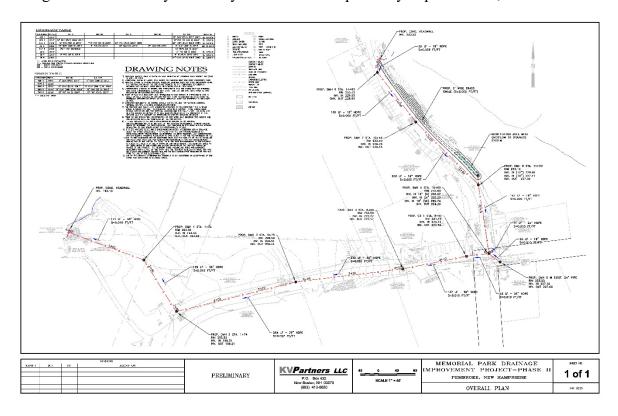
# **Memorial Field Drainage Improvements (PRIORITY #1)**

# **Existing Conditions**

The project is currently in the planning phase (SRF Funded) and extends from the outfall at the Merrimack River, across Memorial Field, along the park driveway to Exchange Street, and then west along an apartment complex driveway (Exchange Street) to an existing stream. The existing pipe is a 24" clay pipe that has failed in several locations and is undersized based on current stormwater design flows. The existing pipe runs overland (private property) and is not located on/near a driveway or roadway making access and repairs difficult. The apartment complex driveway (Exchange Street) is in very poor condition, has no defined drainage system and as a result sediment laden stormwater flows directly into the wetlands.

#### **Proposed Conditions**

Proposed improvements include a new 36" HDPE pipe from Exchange Street to the outfall and a new 18" HDPE pipe along the apartment driveway (Exchange Street). The proposed pipelines will be located in or near the park and apartment driveway (Exchange Street) allowing access for maintenance and repairs. A grassed swale will collect stormwater from the apartment driveway and parking area and direct that flow to a bio-retention area effectively removing this impervious area from the drainage system thereby enhancing water quality. The proposed outfall at the river will permanently correct the outfall stabilization that was temporarily repaired a few years ago. Design work is currently underway and will be completed by September 30, 2023.



# **Town Hall and Library (PRIORITY #2)**

# **Existing Conditions**

The two buildings share a common parking area that has two discharge points. The Library parking lot primarily flows into an infiltration basin that has an overflow connected to the State drainage system on Pembroke Street (Route 3). The southern portion of the parking lot (near Town Hall) drains directly to Pembroke Street (Route 3). The infiltration basin appears to be functioning properly.

# **Proposed Conditions**

The library parking area should continue to drain to the infiltration basin and no improvements are recommended. The parking lot associated with the Town Hall is scheduled to be reconstructed in the next few years and there is some available space to install water quality BMP. It is recommended that a bio-retention area (rain garden) or some tree box filters be considered as part of the parking lot reconstruction (see figure below).



# **Fire Station (PRIORITY #3)**

# **Existing Conditions**

The parking lot in the front of the building flows into a grass swale and then into the State drainage system on Pembroke Street (Route 3). Drainage from the back parking lot flows through a pipe to the front of the building, into the site drainage system, and then into the State drainage system. A few years ago, a stone infiltration system to collect roof runoff was installed on the south end of the building as a safety measure to prevent snow/ice falling from the roof onto pedestrians (not shown on the figure).

#### **Proposed Conditions**

The lawn areas between the fire station parking area and Pembroke Street (Route 3) could be reconstructed to collect parking lot runoff and treat it prior to release into the drainage system. It is recommended that infiltration basins, bio-retention areas (rain gardens), or some tree box filters be considered at this location (see figure below).



# **Central Stret Parking Lot (PRIORITY #4)**

# **Existing Conditions**

The parking lot is located adjacent to Crescent Street and extends from Central Street to Glass Street. Drainage runoff from the site flows towards Glass Street and is collected by catch basins that tie into the Glass Street drainage system.

# **Proposed Conditions**

There is a possibility of constructing a water quality BMP beneath the pavement but subsurface geotechnical data would be required to determine this feasibility. Future efforts could include investigation into possible subsurface system construction; however, system installation will be very costly.



#### Mills Falls Parking Lot (PRIORITY #5)

# **Existing Conditions**

The parking lot (5 spaces) is located on the edge of the roadway (backout parking) and there is limited space available for treatment within the Town right-of-way.

#### **Proposed Conditions**

If space is available within the public right-of-way, a tree box filter could be considered at this location.

# **Union Street Parking Lot (PRIORITY #6)**

#### **Existing Conditions**

The parking lot is located on the edge of the roadway (back out angle parking) and there is no space available for treatment within the Town right-of-way.

#### **Proposed Conditions**

No work is recommended at this location.

# **Evergreen Cemetery (PRIORITY #7)**

#### **Existing Conditions**

The cemetery is located off Buck Street. There is a narrow roadway system associated with this cemetery that has open drainage except for a catch basin at the bottom of the hill on Buck Street.

#### **Proposed Conditions**

Considering the highly constrained area, no work is recommended at this location.

#### Daughters of the American Revolution Park (PRIORITY #8)

# **Existing Conditions**

The park is located near the intersection of Broadway and Main Street. The only impervious area is a sidewalk with low runoff potential to the drainage system

#### **Proposed Conditions**

No work is recommended at this location.

# **Robert Frost Bench (PRIORITY #9)**

# **Existing Conditions**

The park is off Buck Street and adjacent to the Suncook River. There is no impervious area associated with this park.

# **Proposed Conditions**

No work is recommended at this location.

# **Langmaid Monument (PRIORITY #10)**

#### **Existing Conditions**

The park is off Academy Road and adjacent to the Suncook River. There is no impervious area associated with this park.

#### **Proposed Conditions**

No work is recommended at this location.

# **DPW Facility (PRIORITY #11)**

# **Existing Conditions**

The existing conditions are outlined in detail in the Town's SWPPP.

#### **Proposed Conditions**

See SWPPP for any recommendations at this location.