
**Staff Analysis of a Proposed Amendment to the
Dane County Water Quality Plan, Revising the Environmental Corridors
of the Waunakee Urban Service Area
in the Village of Waunakee**

1. Background and Existing Conditions

The proposed project is a new public library building at the former Waunakee Alloy Casting Corporation site located at 201 N. Madison Street in the Village of Waunakee (see Maps 1 and 2). The project site is approximately 9 acres in size and is bounded by Six Mile Creek to the south, a residential alley and residential homes to the north, Madison Street to the west and Pleasant Drive and residential homes to the east. The Amendment Area is included within the original Urban Service Area delineated for Waunakee in 1977, by Res. DCRPC No. 174. Environmental corridors were first delineated and adopted for the Waunakee Urban Service Area in 1984. At that time, the environmental corridors in this area were delineated based on Six Mile Creek, the associated floodplain, and the park (see Map 3). Buffer widths were limited in some instances due to existing development. No wetlands were identified in the original environmental corridor delineation.

After more than 60 years in operation as a metal foundry and casting company the company closed in 2009. It left a legacy of soil contamination and vacant buildings. With financial assistance from the USEPA to remove mercury and PCB contaminants, it is being redeveloped to become the new Waunakee Public Library. Six Mile Creek, located approximately 125 feet south of the proposed facility, is designated an Exceptional Resource Water in this area by DNR. In 2016 it was also added to DNR's 303(d) Impaired Waters list for total phosphorus; although, the available biologic data did not indicate impairment.

On April 19th and June 9th of 2017, Scott Taylor of Taylor Conservation, LLC performed wetland delineations within a 10-acre area of land encompassing the site and a stretch of Six Mile Creek (see Map 4). Four wetlands were identified: the low-lying margins of the stream banks (Wetland 1); an existing stormwater basin on the south side of the creek (Wetland 2); and two depressions in the industrial site (Wetlands 3 and 4). A total of approximately 1.75 acres of wetlands were delineated (1.3 acres of riparian wetlands; 0.2 acre stormwater basin, and 0.25 acres in the industrial site depressions). Only the stream bank wetlands (Wetland 1) are included in the existing mapped Environmental Corridors. The Army Corps of Engineers and the Wisconsin Department of Natural Resources hold legal jurisdiction over wetlands and regulate

development activities associated with these resources. The stormwater basin (Wetland 2), which was constructed, is considered to be an artificial wetland and is not similarly regulated.

The Wisconsin Wetlands Inventory (WWI) identifies tree-dominated wetlands (T3K) along Six Mile Creek. The industrial site wetlands were not identified in the WWI data. Differences between the WWI and field-identified wetland boundaries reflect the greater accuracy of field methods over the interpretation of wetland boundaries from aerial photographs, which is the method used in the WWI, as well as the tendency for wetland vegetation to establish itself over time in drainage ditches and low lying areas. The mapped wetland boundaries closely match the field-identified wetland boundaries along the river.

The riverside wetlands (Wetland 1) are the bottoms of steep stream banks and flat benches just above the ordinary high water mark of the river. The industrial site wetlands (Wetland 3 and Wetland 4) occupy small depressions. The stormwater basin wetland (Wetland 2) is a deep, steep-sided basin with inlet and outlet pipes. The wetlands are dominated by broad-leaved cattails, and reed canary grass in the ground layer; by red osier dogwood, silver maple, green ash and box elder in the sapling/shrub layer; and by silver maple, box elder and black willow in the tree layer. The stormwater basin contains open water and cattails.

The industrial site wetlands and stormwater basin wetlands chief water source is surface runoff from surrounding developed areas. The streamside wetlands' chief water source is overspill from Six Mile Creek. All of the wetlands probably saturate in the spring and throughout the year following rainy periods. Wetlands 1, 3, and 4 exhibit medium wetland quality and susceptibility to stormwater runoff, whereas Wetland 2 exhibits poor wetland quality and low susceptibility to stormwater runoff.

The un-mowed industrial site uplands are dominated by garlic mustard, Kentucky bluegrass, tall fescue, and Canada goldenrod in the ground layer; and by box elder and cottonwood in the sapling and tree layers. The mowed turf uplands are dominated by Kentucky blue grass and tall fescue. The upper stream bank uplands are dominated by garlic mustard and white avens in the ground layer; by box elder and honeysuckle in the sapling/shrub layer; and by box elder and in the tree layer.

Soils borings taken at the site indicate a depth to water table ranging from 2.5 to 8 feet. Seasonal fluctuations in the water table of up to several feet should be expected.

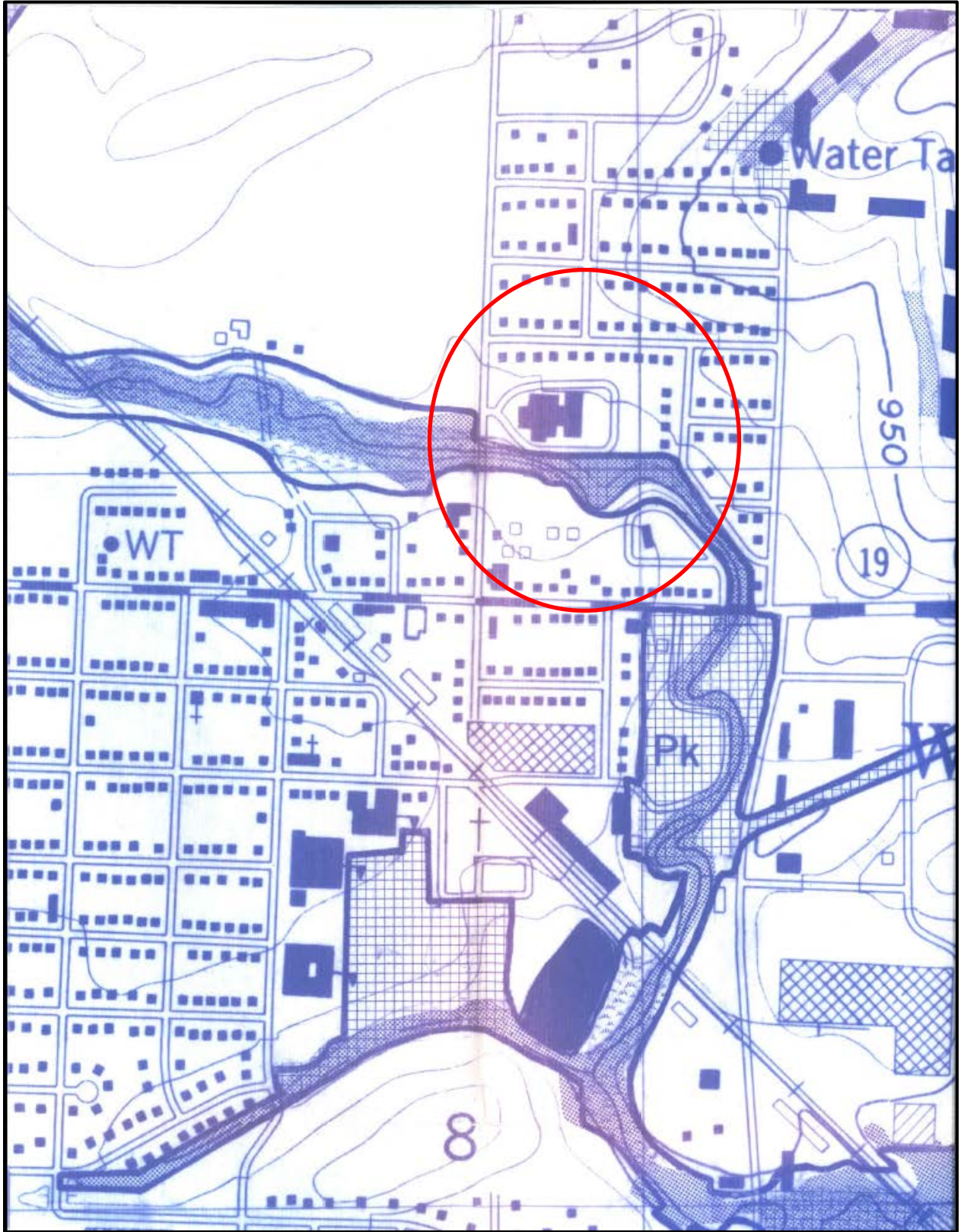
Map 1 – Amendment Area



Map 2 – Aerial



Map 3 – Waunakee Environmental Corridor Map (1993)



Map 4 – Delineated Wetlands



2. Description of the Proposal

The Village of Waunakee has been working for the past eight years to remediate and redevelop the 6.34-acre former industrial site. The site for the new library is located contiguous with McWatty Park, a 2.1-acre neighborhood park adjoining Six Mile Creek, at the east end of the Village's historic downtown business district one block north of Main Street. The Village proposes to integrate and improve both sites to achieve the following benefits:

- Redevelopment of a previously contaminated brownfield site
- A natural and civic amenity to enhance the Village's Central Business District, which includes new residential units in its downtown area
- Walking, biking and vehicle access to the library from both N. Madison St. and Pleasant Dr., to optimize access and user safety from both directions
- Completing a segment of a planned off-street trail along Six Mile Creek through the Village, connecting more neighborhoods with a safe walking/biking route
- Restoring shoreland buffer strips near the Creek by replacing mowed turf grass with native prairie and wetland species (see Map 5)
- Removing an underutilized basketball court and replacing an aging playground
- Decreasing the imperviousness of the site from 46 to 36 percent

In order to complete the necessary improvements, the Village is requesting a variance to the adopted policies and criteria for Environmental Corridors in order to perform the following actions:

- Grading within 30' of wetlands in some areas
- Reducing wetland buffers below a 75' width in some areas

According to the Village, access to Pleasant Dr. on the east side of the proposed development requires a driveway through McWatty Park on land currently occupied by a basketball court and playground, both of which are within the currently mapped Environmental Corridor. The Village requests an amendment to the Water Quality Management Plan to allow grading and reduced wetland buffers in the Environmental Corridor as shown in Map 6.

The grading will direct all runoff from the impervious surfaces to be conveyed to stormwater facilities prior to release to Six Mile Creek. This includes the multi-use path that is within the environmental corridor.

The Village has proposed a restoration plan (see Map 5) for the vegetation in the environmental corridor including prairie buffer between the creek bank and the multi-use trail. The width of the buffer will be a minimum of 20 feet wide and up to 80 feet wide along some of the creek. The landscape objectives for the buffer zone include the removal of existing poor quality or invasive trees and the addition of appropriate new plants as follows:

- Trees to create an upper canopy to provide habitat for birds and other wildlife and shade for wetlands
- Shrubs to create a mid-story of vegetation to provide food and cover for wildlife and help prevent erosion
- Herbaceous plants to create an understory and include ferns, wildflowers, and various groundcover plants

The previous industrial site was built prior to the requirements for stormwater management. Redevelopment of the property will require that stormwater management facilities be incorporated into the site. The proposed site is currently split by Six Mile Creek. The north side of the creek will be required to meet redevelopment stormwater standards while the south side will be required to meet new development standards.

A partial green roof along with two wet ponds will meet the required 40% total suspended solids (TSS) removal needed for the redevelopment site. According to the conceptual stormwater modeling the ponds will provide 63 to 80% TSS removal. Oil and grease control is required and may be provided by an oil-water separator. Although not required by the redevelopment standards, some currently undetermined amount of peak rate control and volume control will also occur within these facilities. This will be an improvement over existing conditions, where stormwater runoff enters into the wetlands or creek without treatment. On the south side of the creek, the proposed parking lot will be designed with stormwater facilities that will fulfill the requirements for new development including peak rate control, 90% volume control, and water quality (80% total suspended solids removal and oil & grease control).

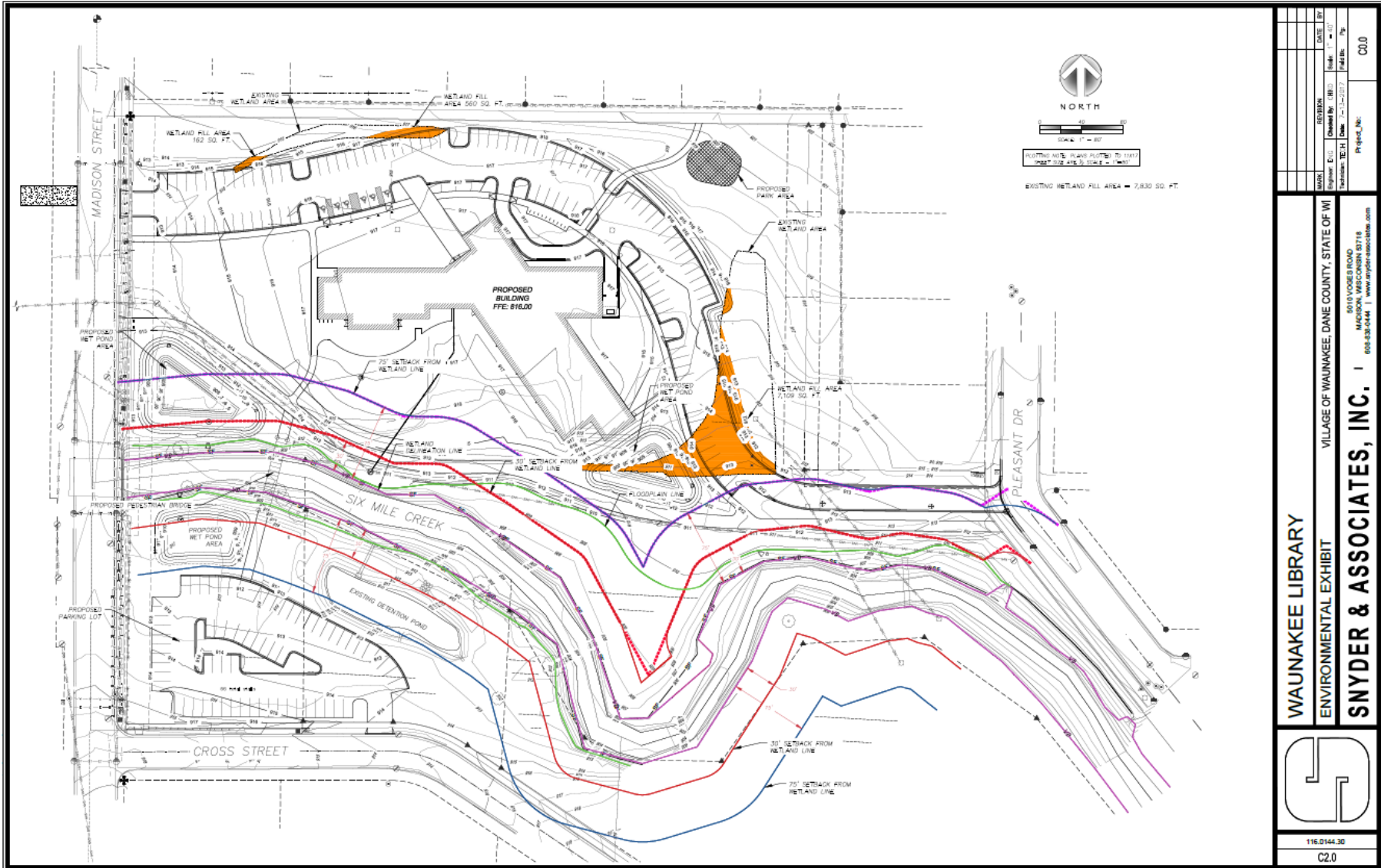
Map 5 –Conceptual Restoration Plan



Site Plan : 1" = 40'
 WAUNAKEE PUBLIC LIBRARY

OPIN
 2017 June 26

Map 6 –Conceptual Stormwater and Erosion Control Plan



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Project No:	
116.0144.30	
WAUNAKEE LIBRARY ENVIRONMENTAL EXHIBIT SNYDER & ASSOCIATES, INC. 5015 VOSES ROAD MADISON, WISCONSIN 53718 608.838.0444 www.snyder-associates.com	
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3. Consistency and Conflict with Adopted Plans and Policies

On July 17, 2017 the Waunakee Village Administer, acting on behalf of the Village, formally requested a “major change” amendment to the environmental corridors for the site. On September 7th, the Village applied for a general permit from DNR to fill 7,320 sq. ft. (0.17 ac.) of wetland area associated with the industrial site wetlands (Wetland 3 and Wetland 4) to accommodate the access drive. According to a preliminary review by DNR staff, the project will likely receive general permit coverage.

Environmental Corridors

The *Dane County Water Quality Plan* outlines policies regarding the delineation and designation of environmental corridors. The *Environmental Corridors* report, adopted by the Dane County Regional Planning Commission in 1996, and approved by the WDNR in 1997 established the need for a minimum 75-foot vegetative shoreland and wetland buffer. The need for buffer strips is based on the role they play in filtering pollutants from stormwater runoff; protecting stream banks and wetlands from erosion; providing space for the natural meander, shifting, and expansion of streams and wetlands; and protecting the habitat functions of these resource areas. Because of the natural resource functions provided by vegetative buffer strips, any encroachment into the minimum buffer width of 75 feet requires an evaluation of the impacts of the encroachment. This evaluation is performed through the Water Quality Plan amendment process and the requirement for WDNR review and approval.

The Capital Area Regional Planning Commission subsequently adopted Environmental Corridor Policies in February 2008. These policies include:

- Vegetative buffers for wetlands and shorelands (75-feet minimum and excluding impervious surfaces).
- Grading in a wetland vegetative buffer and within 30 feet of the wetland edge, where the buffer has been delineated in environmental corridors, unless the grading is intended to re-establish natural grades or to restore wetland habitat.
- Grading or the installation of stormwater management measures and practices in an environmental corridor should not appreciably reduce or harm the ecological functions of the environmental corridor.

Stormwater Management

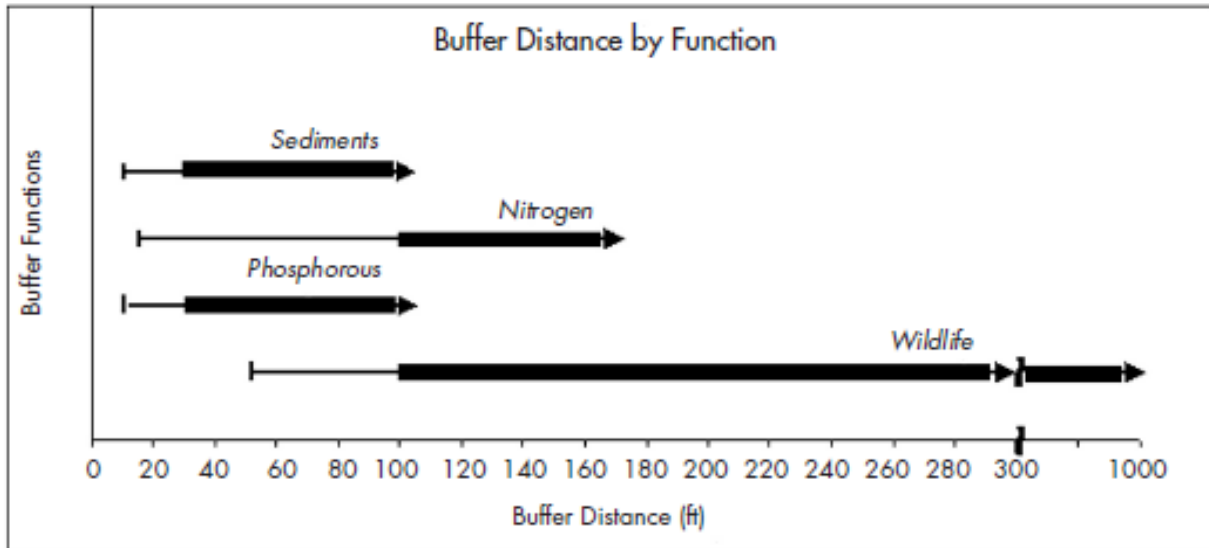
The concept stormwater management plan meets or exceeds the stormwater management requirements in Village of Waunakee (Chapter 109) and Dane County (Chapter 14) ordinances.

4. Impacts or Effects of the Proposal

The proposed development includes a restoration plan for the buffer between the creek bank and the multi-use trail. The proposed mix of trees, shrubs, and herbaceous plants will provide better habitat and water quality compared to the current poor quality or invasive trees and low mowed turf grass.

The stormwater management plan will be required to meet or exceed total suspended solid reduction, peak runoff rates, oil and grease control, and infiltration/stay-on requirements in the Village of Waunakee and Dane County ordinances. This will provide better water quality compared to the current industrial site that was constructed prior to any stormwater management requirements.

The purpose of a vegetated buffer is to provide water quality and wildlife protection functions. The proposed minimum vegetated buffer width of 20 feet is insufficient to provide effective sediment and phosphorus removal. But the proposed stormwater management facilities will provide this stormwater management function. Therefore the proposed buffer width reduction should not have a negative effect on water quality. The proposed buffer width will provide little to no wildlife protection benefits, as is the case with the standard 75 foot buffer. The proposed buffer vegetation, however, will provide a significantly better habitat compared to the current condition of poor quality or invasive trees and low mowed turf grass.



Effective buffer distance for water quality and wildlife protection functions. The thin arrow represents the range of potentially effective buffer distances for each function as suggested in the science literature. The thick bar represents the buffer distances that may most effectively accomplish each function (30 - > 100 feet for sediment and phosphorous removal; 100 - > 160 feet for nitrogen removal; and 100 - > 300 feet for wildlife protection. Depending on the species and the habitat characteristics, effective buffer distances for wildlife protection may be either small or large.

Source: *Planner's Guide to Wetland Buffers for Local Governments*, Environmental Law Institute 2008.

The purpose of the 30 foot no grading setback is to protect the wetland from sedimentation during construction. Effectively implemented erosion control practices can provide the same or a higher level of protection.

5. Alternatives

The Village was required to conduct and submit an alternatives analysis as part of their wetland fill permit application. Their alternatives analysis looked at the feasibility of alternative locations for the library as well as alternative site designs. They determined that the other alternatives were undesirable due to significant additional project costs (at least \$400,000) and other considerations.

6. Controversies, Comments Received, Unresolved Issues

A public hearing has been scheduled for October 12, 2017 to receive testimony on this proposed amendment to the *Dane County Water Quality Plan*. Staff has not received any comments on the proposed amendment as of this writing.

The Village's application for a wetland general permit from the DNR and the U.S. Army Corps of Engineers is still pending as of this writing.

7. Summary and Conclusions

The "major change" to the environmental corridors is located in part of the original urban service area delineation for the Village of Waunakee in 1977. Environmental corridors were first delineated and adopted for the Waunakee Urban Service Area in 1984. At that time, no wetlands were identified.

The following conclusions can be made in support of the proposed amendment:

- The proposed riparian buffer restoration will improve water quality and provide better habitat compared to the current condition.
- The proposed stormwater management plan for the site meets or exceeds the requirements in the Village of Waunakee and Dane County Ordinance.
- The proposed stormwater management plan will improve water quality compared to the industrial site which was constructed prior to any stormwater management requirements.
- The reduced buffer widths and reduced no grading zone will be mitigated by the proposed stormwater management and erosion control plan.

In summary, it is the opinion of CARPC staff that overall the proposed changes on the site will have positive impacts to water quality.

CARPC staff suggests that the Commission recommend this amendment to the *Dane County Water Quality Plan* to WDNR for approval, based on the Village's submitted proposal and conditioned on the Village of Waunakee's commitment to pursuing the following:

1. Obtain a wetland general permit from the Wisconsin Department of Natural Resources and, if necessary, the U.S. Army Corps of Engineers for the proposed 7,320 square feet of wetland fill.
2. Submit a detailed stormwater management plan for CARPC staff review and approval (in conjunction with DCL&WCD staff) for the amendment area. The stormwater management plans shall meet the requirements of the Village of Waunakee (Chapter 109) and Dane County (Chapter 14) stormwater ordinances.

3. Develop and implement a riparian buffer restoration and vegetation management plan for the site.
4. The restored riparian buffer, wetlands, and stormwater management facilities shall be designated as environmental corridors.
5. Stormwater runoff from all impervious surfaces shall be directed to one of the proposed stormwater management facilities prior to discharging to the wetlands or Six Mile Creek, to the extent feasible.

It is also recommended that the Village of Waunakee pursue the following measures:

1. Consider expanding the riparian buffer restoration plan for the site to include the south side of Six Mile Creek.
2. Consider using permeable pavement for the shared use path, access drive, and/or parking spaces, where appropriate based on groundwater depths.
3. Encourage the responsible use of deicers at the site as part of the [WI Salt Wise Partnership](#).