
**Staff Analysis of Proposed Amendment to the
Dane County Water Quality Plan,
Revising the Sewer Service Area Boundary and Environmental Corridors
in the Cottage Grove Urban Service Area**

History of the Cottage Grove Urban Service Area

The Cottage Grove Urban Service Area was first delineated in 1977 when the Dane County Regional Planning Commission originally adopted its first Land Use Plan. The first amendment to the Cottage Grove Urban Service Area occurred in 1985 when the Urban Service Area boundary was refined, and Environmental Corridors were designated. There has been a total of 16 amendments to this urban service area since its creation, totaling 1,714 acres of developable land and close to 520 acres of Environmental Corridor. The most recent amendment of the service area by the Village of Cottage Grove was recommended by the Commission and approved by the WDNR in 2017.

Existing Conditions

Land Use

The Village of Cottage Grove is requesting amendment to the Cottage Grove USA in two locations. The first, hereafter known as the “North Grove” amendment area, is located north of County Highway TT and west of County Highway N at the northern extreme of the Village. The second, hereafter known as the “Westlawn” amendment area, is located south of Gaston Road connected to Nightingale Lane and Meadowlark Street. The amendment area consists of a half-acre area northeast of the Homburg-Jenson amendment (1603 V. Cottage Grove). This area was overlooked at the time of that request. It is comprised of the backyards of four single-family residential parcels already within the Cottage Grove USA. The request consists of no developable area.

Surrounding Planned Land Uses Include:

- North: Industrial/Business
- West: Industrial/Business
- South: Commercial, Industrial/Business
- East: Industrial/Business, Commercial, Park/Conservancy

**Table 1
Existing and Planned Land Use**

Land Use Category	Existing Land Use Acres (see Map 3)	Proposed Land Use Acres (see Map 4)
Agriculture	131.3	
Commercial	1.0	9.8
Industrial/Business		124.1
Open Land	8.5	
Residential	4.3	2.6
Right-of-Way	9.1	17.7
Total	154.2	154.2

Cultural and Historic Sites

The Wisconsin Historical Society (WHS) has been contacted regarding the presence of any known archaeological sites or cemeteries within the North Grove amendment area. They have identified no previously recorded sites within the amendment area (see Attachment 1). In addition, there are no landscape features that are typical indicators of American Indian settlements present in the amendment areas. WHS was contacted in 2016 to assess the area encompassing the Westlawn amendment area. They indicated similar results at that time and did not recommend a survey.

Natural Resources

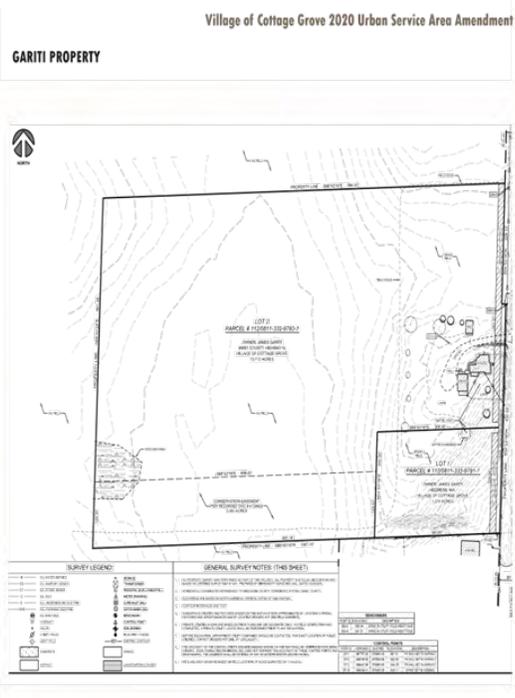
The proposed North Grove amendment area is in the Koshkonong Creek watershed (headwaters subwatershed HUC 070900020401; Map 5). Several delineated wetlands exist within the amendment area, but no other surface water resources are present. The area drains to the east through a culvert under County Highway N, into a swale along the northern edge of wetlands on the Dushack property, and into the drainage ditches of Drainage District 8. Runoff from the site ultimately drains to a straightened and channelized section of Koshkonong Creek, approximately one mile downstream. The Westlawn amendment area is in the Door Creek watershed (HUC 070900020901). No floodplains occur in either the amendment areas.

Wastewater from the amendment areas will be treated at the Madison Metropolitan Sewerage District Wastewater (MMSD) Treatment Facility. The treated effluent is discharged to Badfish Creek and Badger Mill Creek, bypassing the Yahara chain of lakes.

Wetlands

DNR's Wisconsin Wetland Inventory does not show wetlands within the amendment areas. The two property owners (Greywolf and Gariti) for the North Grove amendment area conducted wetland delineations on their respective properties. The wetland delineation on the Greywolf property was conducted by Heartland Ecological Group, Inc., a DNR-qualified assured delineator, in August 2019. The site investigation and field delineation determined there were two wetlands totaling 2.2 acres (see maps below). Wetland 1 (W-1) is best described as a mesic woodland/farmed wetland and covers approximately 0.3 acres. The dominant vegetation observed in W-1 was clearweed (*Pilea pumila*), reed canary grass (*Phalaris arundinacea*), Canada wild rye grass (*Elymus canadensis*), boxelder (*Acer negundo*) and elderberry (*Sambucus nigra*). Wetland 2 (W-2) is best described as mesic woodland/shallow marsh and covers approximately 1.9 acres. The dominant vegetation observed in W-2 was reed canary grass, calico aster (*Symphotrichum lateriflorum*), woodland violet (*Viola sororia*), boxelder and narrow-leaved cattail (*Typha angustifolia*). W-2 connects to a wetland complex to the east. The wetlands are currently proposed to be an environmental corridor with a 75' buffer. Pinnacle Engineering Group has applied for an artificial wetland exemption (WP-WER-SC-2020-13-X04-09T11-05-19) for W-1 with the plan to fill the wetland. Pinnacle Engineering Group received a non-jurisdictional determination (MVP-2019-01955-SJW) for W-1. W-2 connects to a wetland complex to the east.

The wetland delineation on the Gariti property was conducted by Breese & Associates in September 2018. The site investigation and field delineation determined there was one wetland in a lower portion of the southwest corner of the property. The wetland is best described as wet meadow. The dominant vegetation observed were asters and reed canary grass. This wetland is connected to W-1 and is currently proposed to be an environmental corridor with a 75' buffer. DNR wetlands staff has reviewed the wetland delineation report and has issued an approval (WIC-SC-2018-13-03980) for the wetland on the Gariti property. Pinnacle Engineering Group received a non-jurisdictional determination (MVP-2019-02395-SJW) for this wetland.



GARITI PROPERTY WETLAND DELINEATION MAP
 Partial property map for Jim and Marianne Gariti property showing the one isolated wetlands delineated by Breese and Associates in 2018. Not to scale.

As mentioned above, runoff from wetland W-2 in the amendment area flows east through a culvert under County Highway N and into a swale on the Dushack property. The swale flows through the northwest corner of the property and then along the northern edge of DNR mapped wetlands on that property into the District 8 drainage ditches, along the western edge of McCarthy Youth & Conservation Park, before reaching Koshkonong Creek. According to the Wisconsin Wetland Inventory, this wetland is classified as grazed persistent and narrow leaved persistent emergent / wet meadow, with some broad-leaved deciduous forested wetland along the southern edge. Little is known about the quality of the wetland on the Dushack property at this time, but Dane County Parks staff and Friends of McCarthy Park have indicated that it may be a higher quality wetland. An evaluation of the quality of this wetland by DNR staff is recommended.

According to the Wisconsin Wetland Inventory, the wetlands along the western part of McCarthy Park are classified as abandoned cropland with palustrine persistent emergent / wet meadow. There is a restored wetland site at McCarthy Youth & Conservation Park, a joint effort between The Partners for Fish and Wildlife and Dane County Parks. The wetland restoration project was conducted at the park with the goal to enhance and restore degraded wetlands in the Koshkonong Watershed, increase habitat for migratory and resident bird species and restore hydrology by disabling drainage tiles. The current dominant vegetation at the wetland restoration site is cattail (*Typha spp.*), with some reed canary grass and phragmites (*Phragmites australis*). Following the Minnesota Recommended Wetland Management standards, the wetland restoration site can be best classified as Manage 2 on the basis of 'less diversity and up to 50 percent cover of non-native or invasive species. This classification type does not warrant higher stormwater management control than is typically required. In addition, the drainage ditch along the western edge of McCarthy Park is approximately 30 feet wide and 6 to 8 feet deep with steep side slopes that separates this flow from the adjacent wetlands in McCarthy Park.

No wetland delineation was conducted for the Westlawn addition due to the absence of wetland indicating features.

Koshkonong Creek

Koshkonong Creek (WBIC 80880) drains a large portion of eastern Dane County, including the communities of Sun Prairie, Cottage Grove, and Deerfield. The creek flows from Sun Prairie 55 miles downstream to Lake Koshkonong. It is an effluent dominated system beginning at the Sun Prairie wastewater treatment plant on the southern border of the city (mile 48.4). Upstream of the discharge point, streamflow is very low (currently 0.2 cfs or less). The Koshkonong headwaters subwatershed (30.6 square miles) has extensive agricultural (47%) and open, recreational, and wooded lands (19%). The next largest land use is residential (13%). Much of the wetlands in the watershed have been drained to increase agricultural use. The loss of wetlands, stream ditching, and use of field tiles has contributed to significant nutrient and sediment loads reaching the creek. Upstream of McCarthy Youth & Conservation Park, most of Koshkonong Creek is part of Dane County drainage districts. Koshkonong Creek is identified as a Resource Protection Corridor in the Dane County Parks and Open Space Plan.

Downstream of the Sun Prairie effluent discharge, the creek is on the 303(d) impaired waters list for degraded biological community and high phosphorus concentrations. In 2016, the creek was also listed for high temperatures. When reevaluated, however, the temperatures were deemed acceptable, and the listing was recommended for removal in 2020. The creek is designated as a warmwater sport fishery. Koshkonong Creek is covered by the Rock River Total Maximum Daily Load (TMDL) for phosphorus and suspended solids.

Results from baseflow sampling conducted by the USGS in the summer of 2019 as part of the annual Cooperative Monitoring Program, indicated average chloride levels of about 54 mg/L in Koshkonong Creek at Bailey Road near Sun Prairie and about 217 mg/L downstream near Rockdale. In comparison, the Chronic Aquatic Toxicity level is 395 mg/L.

Door Creek

Door Creek (WBIC 802800) is a tributary to Lake Kegonsa. It begins as a small stream in the southeast corner of the Town of Burke and flows generally south to the Lake. Door Creek and its tributaries drain 29.5 square miles of land in the drumlin-marsh area of eastern Dane County. Much of Door Creek has been straightened and ditched to facilitate agricultural drainage. It is a relatively sluggish stream subject to low flows and high temperatures.

From its mouth at Lake Kegonsa (mile 0) upstream to its headwaters north of Interstate Highway 94 (mile 14.02), the DNR's current designated biological use of Door Creek is as a Limited Forage Fishery (the classification used to determine water quality criteria and effluent limits under NR 102 and NR 104). The current biological use of Door Creek is as warmwater forage fishery and the attainable use is as a warmwater sport fishery.

Since April 2012, all of Door Creek has been included on the state 303(d) list of impaired waters for total phosphorus from unknown sources of urban or rural nonpoint source pollution. The DNR's 2018 assessments showed continued impairment by phosphorus however, available biological data do not indicate impairment. A Total Maximum Daily Load (TMDL) for phosphorus has been established for this segment of Door Creek associated with the greater Rock River TMDL project. Door Creek will have legacy sediment removed through a Dane County initiative beginning in 2020.

Springs

Springs represent groundwater discharge visible to the casual observer. The Wisconsin Geological and Natural History Survey (WGNHS) maintains an inventory of springs in Dane County, and throughout the state, based on field surveys conducted between 2014 and 2017. For the purposes of the inventory, a spring is defined as a discrete point of groundwater discharge flowing at approximately 0.25 cubic feet per second or more at the time of the survey. There are no inventoried springs in the proposed amendment area or in the Koshkonong or Door Creek watersheds.

Groundwater

Groundwater modeling, using the 2016 Groundwater Flow Model for Dane County developed by the WGNHS ([link to website](#)), shows that baseflow in Koshkonong Creek downstream of the North Grove amendment area (see location on Map 5) has increased compared to pre-development conditions (no well pumping) because of the Sun Prairie effluent discharge. Without any pumping and wastewater discharges, Koshkonong Creek was modeled to have a flow of 4.6 cfs. Under current conditions, the flow is approximately 8.0 cfs (Table 4). By 2040, flow is modeled to decrease slightly compared to current conditions to 7.4 cfs. This decrease is due to increased pumping to serve a growing population.

In 2012, the WGNHS published a report, *Groundwater Recharge in Dane County, Wisconsin, Estimated by a GIS-Based Water-Balance Model*, ([link to report](#)) estimating the existing groundwater recharge rates in Dane County based on the soil water balance method. The study estimates that the existing groundwater recharge rate in the proposed North Grove and Westlawn amendment areas ranges from 9 to 10 inches per year.

Endangered Resources

The WDNR Bureau of Endangered Resources maintains a database representing the known occurrences of rare plants, animals, and natural communities that have been recorded in the Wisconsin Natural Heritage Inventory ([link to website](#)). A screening review of this database conducted by Regional Planning Commission staff for species designated as endangered, threatened, or of special concern identified one threatened mammal species within a one-mile radius of the North Grove amendment area. No species designated as endangered, threatened, or of special concern were identified within a one-mile radius of the West Lawn amendment area. A 1-mile buffer was considered for terrestrial and wetland species and a 2-mile buffer for aquatic species. The West Lawn amendment area is within 1-mile of the High Potential Zone (species likely present) for the federally endangered Rusty Patched Bumble Bee. The two amendment areas themselves are located in the Low Potential Zone (species not likely present) for the species and do not require Section 7 consultation or an Incidental Take Permit. Section 7 of the Endangered Species Act requires consultation with the U.S. Fish and Wildlife Service or the National Marine Fisheries Service when any action that is carried out, funded, or permitted by a federal agency may affect a federally listed endangered or threatened species. It is recommended that the Village request a complete Endangered Resources Review by the WDNR for potential impacts to endangered resources like rare plants, animals and natural communities in the amendment areas.

Soils and Geology

The amendment areas are located within the Dane-Jefferson Drumlins and Lakes Land Type Associations of Wisconsin. The Association classifies the surficial geology of this area as undulating complex of till plains with drumlins, outwash plains, lake plains and muck deposits common.

Surface elevations range from around 920 feet to 980 feet within the North Grove amendment area, and around 970 to 980 feet within the West Law amendment area. There are no areas of steep (> 12%) and very steep (>20%) slopes within the amendment areas.

According to the Natural Resource Conservation Service (NRCS) Soil Survey of Dane County, the soils in amendment areas are predominantly in Dodge – St. Charles - McHenry association. These soils are moderately well drained and well drained, deep silt loams. Table 2 shows detailed classification for soils in the amendment areas (see Maps 7 and 7a) while Table 3 shows important soil characteristics for the amendment areas.

Hydric soils are good indicators of existing and former (drained) wetlands. There is one hydric soil within the North Grove amendment area, the Sable soil (the SaA map unit).

According to the Soil Survey Geographic data for Dane County developed by the USDA Natural Resources Conservation Service ([link to web soil survey](#)), the Batavia, Plano, St. Charles and Troxel soils (the BaA, PnA, ScB and TrB map units) are not hydric, but they can have a seasonal (April to June) zone of water saturation within 5 feet of the ground surface. All of these soils are classified as well drained. Soils with seasonal high-water tables that are also classified as well drained or moderately well drained generally do not pose limitations for buildings with basements.

**Table 2
Soils Classification**

Soil	% of Area	General Characteristics
<i>North Grove Addition</i>		
<i>St. Charles Silt Loam; ScB</i>	41.8	Deep, well drained, sloping soils to moderately steep soils on glaciated uplands. Soils have high fertility, moderate permeability, and a moderate to severe hazard of erosion. Poses moderate limitations for development due to slope, shrink/swell potential and low bearing capacity.
<i>Dodge Silt Loam; DnB</i>	21.7	Deep, well drained, gently sloping and sloping soils on glaciated uplands. Soils have high fertility, moderate permeability, and a moderate to severe hazard of erosion. Poses moderate limitations for development due to slope and shrink/swell potential.
<i>Kidder Silt Loam; KdC2</i>	11.7	Deep, well drained, gently sloping to very steep soils on glaciated uplands. Soils have medium fertility, moderate permeability, and severe hazard of erosion. Poses moderate limitations for development due to steep slopes.
<i>Dodge Silt Loam; DnC2</i>	9.1	Deep, well drained, gently sloping and sloping soils on glaciated uplands. Soils have high fertility, moderate permeability, and a severe hazard of erosion. Poses moderate limitations for development due to slope, shrink/swell potential, and low bearing capacity.
<i>Batavia Silt Loam, BbB</i>	6.5	Deep, well drained, nearly level to sloping soils on high benches. Soils have high fertility, moderate permeability, and a moderate hazard of erosion. Poses moderate limitations for development due to shrink/swell potential.
<i>Troxel Silt Loam; TrB</i>	4.7	Deep, well drained and moderately well drained, gently sloping soils in draws, on fans, and in drainageways. Soils have high fertility, moderate permeability, and a moderate hazard of erosion. Poses moderate limitations for development due to shrink/swell potential and depth to saturated zone.
<i>Kidder Silt Loam; KdB</i>	1.6	Deep, well drained, gently sloping to very steep soils on glaciated uplands. Soils have medium fertility, moderate permeability, and moderate hazard of erosion. Poses slight to moderate limitations for development due to shrink/swell potential.
<i>Kegonsa Silt Loam, KeB</i>	1.4	Well drained, nearly level and gently sloping, moderately deep soils on benches on outwash plains. Soils have medium fertility, moderate to rapid permeability, and moderate hazard of erosion. Poses no limitations for development.
<i>Sable Silty Clay Loam; SaA</i>	1.4	Deep, nearly level and gently sloping, poorly drained soils on low benches in stream valleys. Soils have high fertility, moderate permeability, and low hazard of erosion. Poses very severe limitations for development due to low bearing capacity, moderate shear strength and compressibility, flooding, depth to saturated zone, and shrink/swell potential.
<i>McHenry Silt Loam; MdC2</i>	0.1	Deep, well drained, gently sloping to moderately steep soils on glaciated uplands. Soils have medium fertility, moderate permeability, and a moderate to severe hazard of erosion. Poses slight to moderate limitations for development due to slope, shrink/swell potential and low bearing capacity.
<i>West Lawn Addition</i>		
<i>Plano Silt Loam; PnA</i>	60.6	Deep, well drained and moderately well drained, nearly level to sloping soils on glaciated uplands. Soils have high fertility, moderate permeability, and a moderate to severe hazard of erosion. Poses moderate limitations for development due to low bearing capacity.
<i>Ringwood Silt Loam; RnB</i>	39.4	Deep, well drained, gently sloping and sloping soils on glaciated uplands. Soils have high fertility, moderate permeability, and a moderate hazard of erosion. Poses moderate limitations for development due to low bearing capacity and erodibility.

Source: Soil Survey Geographic data for Dane County developed by the USDA Natural Resources Conservation Service

**Table 3
Soils Characteristics**

Characteristic	Soil Map Symbols (see Maps 7 and 7a)	% of Area
Prime Agricultural Soils	North Grove: BbB, DnB, KdB, KeB, ScB, TrB West Lawn: PnA, RnB	77.7 100
Hydric Soils (Indicates Potential / Restorable Wetlands)	North Grove: SaA	1.4
Poorly Drained Soils with Seasonal High-Water Table (< 5')	North Grove: SaA	1.4
Soils Associated with Steep Slopes (> 12%)	None	0
Soils Associated with Shallow Bedrock (< 5')	None	0
Best Potential for Infiltration in Subsoils	North Grove: BbB, DnB, KdB, KdC2, KeB, MdC2, ScB, TrB West Lawn: PnA, RnB	89.5 100

Source: Soil Survey Geographic data for Dane County developed by the USDA Natural Resources Conservation Service

According to WGNHS data, bedrock within the northwestern corner of the North Grove amendment area is in the Prairie du Chien Group, bedrock within the southwestern corner of this amendment area is the Sinnipee Group, and the bedrock within the remaining North Grove amendment area and the West Lawn amendment area are in the Ancell Group. Bedrock in the Prairie du Chien Group is dolomite, minor sandstone, cherty dolomite, vuggy, sandy, and oolitic, and consists of two formations including the Shakopee and Oneota Formations. Thickness is up to 145 feet in eastern Dane County. Bedrock in the Sinnipee Group is dolomite with some limestone and shale, and consists of three formations including the Galena, Decorah, and Platteville Formations. Thickness is less than 100 feet. Bedrock in the Ancell Group is medium-grained, mature quartz sandstone, and consists of two formations including the Glenwood and St. Peter Formations. Thickness is about 100 feet. According to WGNHS data, the depth to bedrock in the North Grove amendment area ranges from less than 5 feet to greater than 100 feet, with the shallowest depths being in the southwest, and deepest depths being in the northeast of this amendment area (see Map 8). According to WGNHS data, the depth to bedrock in the West Lawn amendment area ranges from 10 to 50 feet (see Map 8a).

As is common throughout much of the upper Midwest, karst features such as enlarged bedrock fractures are prevalent in the local dolomite uplands. Karst features such as vertical fractures and conduits provide primary pathways for groundwater movement and can dramatically increase groundwater susceptibility when present. The location of karst features is difficult to predict, and the thickness and type of the overlying soil greatly affects how much water drains into them. Where clay soils are thick, infiltration rates are likely to be very low. However, where bedrock fractures are near the surface infiltration rates can be very high. Based on the WGNHS karst potential data, karst features may be encountered in the northwest and southwest parts of the North Grove amendment area at depths ranging from 2 to 100 feet (see Map 8). There are no potential karst features near the planned stormwater infiltration areas. The potential for encountering karst features in the West Lawn amendment area is low. The Wisconsin Department of Natural Resources Conservation Practice Standard 1002 - Site Evaluation for Stormwater Infiltration requires field verification for areas of the development site considered suitable for infiltration. This includes a site assessment for karst features in this area. If shallow karst features are found, adequate protection measures are required to address any potential for groundwater contamination.

There is no minimum separation distance for roofs draining to surface infiltration practices. However, the Dane County ordinance requires infiltration practices to be located so that the separation distance between the bottom of the infiltration system and the elevation of seasonal high groundwater or the top of bedrock is at least 5 feet for residential arterial roads and 3 feet for other impervious surfaces. Soil test pits are required as part of the stormwater management plan to assure that infiltration practices are sited in locations that will not adversely affect groundwater quality.

Proposed Urban Services

Parks and Open Space

There is a total of approximately 7 acres of open space and stormwater management areas proposed in the North Grove amendment area (See Map 4). A stormwater management basin is planned at the east-central portion adjacent to developable land (west and south) and existing wetlands on the site (east). No parks, recreation, open space, or stormwater management areas are proposed in the West Lawn amendment area. The Village of Cottage Grove does not require park land dedication for non-residential uses. Therefore, no park land is included in the proposed North Grove amendment area.

Water System

The North Grove amendment area will be served by 12-inch water main extensions along County Highway N and County Highway TT (Map 9A). Within the amendment area, 8-inch looping mains will be constructed under proposed right of ways. Daily water use for the North Grove development is estimated to be 250,775 gallons per day, based on 143.3 commercial acres developed with an estimated water use of 1,750 gallons per acre per day.

The Westlawn amendment area will also be served by 8-inch mains under the proposed right of ways. Water use and system capacity were considered prior to approval of CARPC Resolution No. 2016-05-A.

The Village of Cottage Grove Water Utility provides municipal water through three high capacity wells. Well #2 (750 gpm) is 550 feet deep, well #3 (1,100 gpm) is 530 feet deep, and well #4 (1,500 gpm) is 675 feet deep (Map 10). Well #4 currently pumps 1,000 gpm. The Village's total daily pumping capacity is 4.1 million gallons, and it can store 950,000 gallons. In 2019, the Village's average daily water use was 480,000 gallons, with a maximum daily use of 712,000 gallons.

The Village water utility has two reservoir facilities. A 400,000-gallon capacity tower near the County Highway N and I-94 interchange, completed in 2014, improved water pressure on the Village's north side. This tower provides the necessary pressure for serving the North Grove amendment area. The Village has a second tower with a 550,000-gallon storage capacity centrally located in the Village.

In January 2012, MSA published the 'Water System Evaluation Report' to "evaluate the adequacy of the Cottage Grove municipal water system source (well) capacity and storage capacity, and the ability of the water system to serve additional (new) development at higher elevations to the north and west." According to MSA, "the report concludes that the current well capacity is adequate for the existing and projected future (20-year) peak day demands." The report recommended water system improvements to accommodate existing and future water demands including a new 400,000-gallon elevated storage reservoir, which is was completed in 2014. Other improvements include modifications to Well #4 so that the well can pump to the higher reservoir elevation; a pressure reducing valve station adjacent to Well #4 to allow water from the upper zone to be utilized in the lower zone; refurbishment of the existing 479,000-gallon water storage reservoir (standpipe); and demolition of the existing 40,000-gallon storage reservoir. The Capital Utility Plan prepared by the Village Department of Public Works and MSA Professional Services also proposes a number of potential improvements to the water distribution system over the next 25 years.

Water losses in the Village's distribution system are very low, with only 89 gallons (< 1%) loss in 2019. In 2018, losses were higher (3%) but still at an acceptable volume. The Wisconsin Administrative Code PSC 185.85(4)(b) requires a utility with more than 1,000 customers to submit a water loss control plan to the Public Service Commission if the utility reports its percentage of water losses exceed 15%.

Wastewater

Sanitary sewer service will be provided to the proposed amendment areas by connection to the Village's existing sanitary sewer collection system. Wastewater from the North Grove amendment area will be conveyed through a network of 10-inch and 12-inch interceptor sewers to the Vilas Road Pump Station, where it will be pumped to the MMSD Far East Interceptor – Cottage Grove Extension. The amendment area will be served by an extension from a 12-inch gravity sewer along County Highway TT (Map 9). Within the amendment area, 10-in gravity sanitary sewers will be placed under proposed right of ways, and a new pump station will be built along County Highway N (Map 9B).

The Village estimates that the North Grove amendment area will generate an average of 268,700 gallons of wastewater per day (75 gpm), based on 143.3 commercial acres developed and 750 gallons of wastewater per acre per day. Utilizing a peaking factor of 2.5, it is estimated that the amendment area would generate a peak flow of 188 gpm. The Village has determined that there is available capacity in their existing sanitary sewer collection system for the proposed amendment area.

Wastewater generation and system capacity for the Westlawn amendment area were considered prior to approval of CARPC Resolution No. 2016-05-A.

In 2014, the Village Department of Public Works, in collaboration with MSA Professional Services, prepared a Capital Utility Plan which outlined specific utility projects that are expected to be needed within the next 25 years. A recent study of the Village wastewater system has determined the existing peak wastewater flow rates in the various interceptor sewers. The addition of the proposed service areas will not result in any of the interceptors or the lift station being over capacity.

Wastewater Treatment Facility

Madison Metropolitan Sanitary District (MMSD) will provide wastewater treatment for the amendment area. The Nine Springs Treatment Facility has a design capacity of 56 mgd and received an average influent hydraulic loading of 44.8 mgd (80% of design capacity) in 2018, including infiltration and inflow. It is expected to reach 90 percent of current hydraulic design capacity around 2026 based on current projected growth rate assumptions. This already occasionally occurs, with flows exceeding 90 percent design capacity in August – October of 2018. MMSD has completed a long-range plan that evaluated various options for expanded treatment capacity to serve its current and future service area. For the 20-year planning period, service to this area is expected to remain at the existing wastewater treatment facility location with expanded capacity of the system as the need is foreseen.

Wastewater treatment at the district's Nine Springs Treatment Facility does not remove chloride and the concentration of chloride that arrives at the plant can exceed the water quality standard. In 2015, AECOM completed a study for MMSD which determined that while possible, treatment would be cost-prohibitive, energy intensive, and involve other environmental impacts ([link to report](#)). MMSD's Wisconsin Pollutant Discharge Elimination System (WPDES) permit requires pollution prevention and source reduction initiatives for chlorides, such as the Wisconsin Salt Wise Partnership ([link to website](#)).

MMSD has not had issues meeting its other WPDES permit limits for the quality of effluent discharged to Badfish Creek and Badger Mill Creek, according to their 2018 Annual Report ([link to report](#)). Effluent quality summarized here refer to Badfish Creek, where most of the discharge is released. The effluent biological oxygen demand quality for 2018 was excellent averaging 5.7 mg/L (30% of the limit) with maximums of 9.0 mg/L (47% of the limit) for the

month of January. The effluent total suspended solids quality for 2018 was also excellent, averaging 4.8 mg/L (24% of the limit) with a maximum of 6.0 mg/L (30% of the limit). The effluent ammonia quality for 2018 was excellent, averaging 0.31 mg/L (17% of the limit) with a maximum of 0.42 mg/L (23% of the limit) for the month of January. The effluent phosphorus quality for 2018 was good averaging 0.3 mg/L (20% of the limit) with a maximum of .37 mg/L (25% of the limit). This was below the current 1.5 mg/L permit limit but not low enough to meet future water quality based effluent limits (WQBEL) for phosphorus. MMSD has implemented a Watershed Adaptive Management approach, leading a diverse group of partners called Yahara Watershed Improvement Network (Yahara WINs) in implementing phosphorus reducing practices in the watershed ([link to website](#)). This adaptive management approach is currently limited to the Yahara Watershed.

Stormwater Management System

The Village of Cottage Grove follows Dane County Code of Ordinance Chapter 14 for all stormwater performance standards within the Village and contracts with MSA Professional Services, Inc. for stormwater management plan review.

The conceptual stormwater management plan for the Greywolf part of the North Grove amendment area is a single stormwater basin near wetlands in the east-central portion of the development (Map 9C). A system for stormwater conveyance will run along all proposed roadways and drain to the stormwater management facility. The basin will have two cells – a wet pond and an infiltration basin. The first stage of the basin, the wet pond, will provide water quality treatment (80% TSS reduction), while the infiltration basin will provide for 90% of the predevelopment annual stay on. Excess run-off from the basin will drain through a culvert under County Highway N to the east into the District 8 drainage ditches along the western edge of McCarthy Youth & Conservation Park and then into a straightened and channelized section of Koshkonong Creek. The current plan is for the former Gariti property (currently owned by Spaces Secure Self Storage LLC) to have its own separate stormwater management plan and system.

The stormwater management system for the Westlawn amendment area was considered prior to approval of CARPC Resolution No. 2016-05-A.

The WDNR Conservation Practice Standard 1002 - Site Evaluation for Stormwater Infiltration requires field verification for areas of the development site considered suitable for infiltration. This includes a site assessment for karst features on the site to locate infiltration facilities appropriately so that performance can be maximized while protecting groundwater resources. A detailed stormwater management plan will need to be prepared for review and approval prior to beginning any development construction. The plan will be required to meet all stormwater management ordinance performance standards of the Village of Cottage Grove, as well as those of Dane County and the WDNR.

Performance Standards

The Village of Cottage Grove proposes stormwater management performance measures to meet or exceed standards required by the State of Wisconsin (NR 151), Dane County (Chapter 14), Village of Cottage Grove (Chapter 163) stormwater regulations, as follows:

- 1) Require post-construction sediment control (reduce total suspended solids leaving the site by at least 80%, with a minimum of 60% of that control occurring in a retention pond prior to infiltration) for the 1-year, 24-hour design storm. This is consistent with the standards currently required by Dane County.
- 2) Require post-construction peak runoff rate control for the 1-, 2-, 10-, and 100-year, 24-hour design storms to predevelopment peak runoff rates. This is consistent with the range of design storms currently required by Dane County.

- 3) Require post-development stay-on volume of at least 90% of pre-development stay-on volume. This is consistent with the stay-on standard for new development currently required by Dane County regulations.
- 4) Maintain predevelopment groundwater annual recharge rate of 9 to 10 inches per year as estimated by the Wisconsin Geological and Natural History Survey in a 2012 report titled “Groundwater Recharge in Dane County, Wisconsin Estimated by a GIS-Based Water Balance Model.” This is consistent with the standards currently required by Dane County.
- 5) Treat the first 0.5 inches of run-off using best management practices to provide oil and grease control at commercial and industrial sites. This is consistent with the standards currently required by Dane County.

Environmental Corridors

The North Grove amendment area includes 15.3 acres of environmental corridor (See Map 2). This includes the delineated wetlands and associated buffers in accordance with the Environmental Corridor Policies and Criteria ([link to document](#)) adopted in the *Dane County Water Quality Plan*. Planned stormwater management areas and the Town of Sun Prairie conservation easement within the amendment area have also been designated as environmental corridors. The Village of Cottage Grove does not require park land dedication for non-residential uses. Therefore, no park land is included in the proposed North Grove amendment area. The West Lawn Amendment Area does not include any acres of environmental corridor.

Impacts and Effects of Proposal

Meeting Projected Demand

All developable land in the proposed amendment area is planned for of non-residential uses. Projections from 2014 indicated that approximately 117 acres of commercial/industrial land would be required by 2040 at Cottage Grove’s historical development trajectory. The most recent addition of commercial land to the Cottage Grove USA was in 2011 when 10 acres including the site of the park-and-ride adjacent the current request area was added. Less than 15 acres has been added since 2010. The applicant indicated in their application that remaining land in the business park is rapidly developing. Roughly 32 acres have developed since 2015, leaving 20 acres of developable land in segments 6 acres or less.

Phasing

The requested amendment exceeds 100 acres and requires a phasing plan Phase One of development will consist of all parcels south of the designated Environmental Corridor. While market factors and cost of infrastructure will ultimately determine build-out, Phase One is anticipated to be completed within 10 years. The remaining parcels are anticipated to fill in another 10 years.

Surface Water Impacts

Development creates impervious surfaces (i.e., streets, parking areas, and roofs) and typically alters the natural drainage system (e.g., natural swales are replaced by storm sewers). Without structural best management practices (i.e., detention basins and infiltration basins) this would result in increased stormwater runoff rates and volumes, as well as reduced infiltration. Without structural best management practices for erosion control, development would also cause substantial short-term soil erosion and off-site siltation from construction activities. Scientific research has well documented that without effective mitigation measures, the potential impacts of development on receiving water bodies can include the following:

- Flashier stream flows (i.e., sudden higher peaks)
- Increased frequency and duration of bankfull flows
- Reduced groundwater recharge and stream base flow
- Greater fluctuations in water levels in wetlands
- Increased frequency, level (i.e., elevation), and duration of flooding

- Additional nutrients and urban contaminants entering the receiving water bodies
- Geomorphic changes in receiving streams and wetlands

Natural drainage systems attempt to adapt to the dominant flow conditions. In the absence of mitigation measures, the frequency of bank-full events often increases with urbanization, and the stream attempts to enlarge its cross section to reach a new equilibrium with the increased channel forming flows. Higher flow velocities and volumes increase the erosive force in a channel, which alters streambed and bank stability. This can result in channel incision, bank undercutting, increased bank erosion, and increased sediment transport. The results are often wider, straighter, sediment laden streams, greater water level fluctuations, loss of riparian cover, and degradation of shoreland and aquatic habitat.

Since 2002, there have been stormwater management standards in effect at the state, county, and local level to require stormwater management and erosion control plans and structural best management practices designed to address the impacts of development on water quality, runoff volumes, peak flows, water temperature, and groundwater recharge. In 2011, county and local standards for runoff volume control were increased beyond state standards to further address the potential stormwater impacts of development. Since 2010 many communities adopted even higher standards for volume control through their own ordinances or as part of USA amendment agreements. In 2017, State statute 281.33(6)(a)(1) was changed to limit the ability of local governments to adopted higher standards for runoff volume through local ordinances.

The Village of Cottage Grove proposes to mitigate the urban nonpoint source impacts of the proposed development by requiring the implementation of various stormwater best management practices that are designed and constructed to meet current Dane County standards for pollutant reduction, runoff volumes, peak flows, water temperature, and groundwater recharge to address the potential water quality impacts of stormwater runoff from the proposed development on the receiving waters.

Regional partners including the City of Madison, MMSD, Madison Water Utility, and others, are actively working to address chlorides through the Wisconsin Salt Wise Partnership. The Village of Cottage Grove has participated in chloride reduction trainings provided by WI Salt Wise.

Groundwater Impacts

Without effective mitigation practices, as natural areas are converted to urban development, the ground/surface water balance in streams and wetlands shifts from a groundwater-dominated system to one dominated more and more by surface water runoff. This can result in subsequent reductions in stream quality and transitions to more tolerant biological communities.

Groundwater modeling indicates that baseflow in Koshkonong Creek has increased because of the effluent discharge from the Sun Prairie wastewater treatment plant. Downstream of the North Grove amendment area (see location Map 5) modeled flow in Koshkonong Creek was 4.6 cfs under predevelopment (no effluent discharge) conditions (Table 4). Under 2010 conditions, baseflow was modeled to have increased to 8 cfs. By 2040, the cumulative effect of well withdrawals is modeled to decrease baseflow in Koshkonong Creek to 7.4 cfs.

Table 4
Modeled Baseflow Results
Due to Current and Anticipated Future Municipal Well Water
Withdrawals (All Municipal Wells)

Stream	No Pumping	2010	2040
<i>Koshkonong Creek</i>	<i>4.6 cfs</i>	<i>8.0 cfs</i>	<i>7.4 cfs</i>

According to the 2014 WDNR report *Ecological Limits of Hydrologic Alteration in Dane County Streams* ([link to report](#)), Koshkonong Creek has fish species sensitive to flow changes. Low flow conditions were predicted to alter presence of freshwater drum and northern pike. Increased effluent discharges to Koshkonong Creek, however, may help offset these reductions in baseflow so that the creek continues to provide suitable fish habitat.

The loss of baseflow from the cumulative effects of well water pumping is a regional issue, beyond the boundaries of a single USA Amendment or even a single municipality. This issue is discussed along with potential management options in the updated *Dane County Groundwater Protection Planning Framework* ([link to report](#)). Maintaining pre-development groundwater recharge by infiltrating stormwater runoff helps to replenish groundwater, maintain baseflow, and mitigate this impact.

Comments at the Public Hearing

A public hearing was held on the proposed amendment at the May 14, 2020 meeting of the Capital Area Regional Planning Commission. Representatives of the Village of Cottage Grove and the development team spoke in favor of the amendment. There was one registrant for the public hearing, Lyle Updike, Chair of the Town of Sun Prairie. Mr. Updike talked about the lack of a boundary agreement with the Village, the Town's conservation easement in the amendment area, the desire for no connections to Town roads in the amendment area, the need for a buffer between Village and Town land uses, stormwater issues, and the Town island. Commissioner discussion included: the creation of a Town island as a result from the annexation, which the Wisconsin Department of Administration has declared "against the public interest" in its advisory letter; the Town conservation easement that is included in the urban service area amendment area; the need for discussions with the Town of Sun Prairie regarding a boundary agreement; plans for road layout including access to County Highways TT and N, and improvements needed for County Highway AB; and the path stormwater discharge would take leaving the Village and into the Town. The Town of Sun Prairie also submitted a comment letter prior to the public hearing, to which the Village of Cottage Grove responded (see Attachment 2).

Conclusions and Staff Water Quality Recommendations

There is sufficient existing treatment plant system capacity at MMSD to serve the proposed amendment area. There is also sufficient existing wastewater collection system capacity to serve the proposed amendment area.

Since 2002, there have been stormwater management standards in effect at the state, county, and local level to require stormwater management and erosion control plans and structural best management practices designed to address the impacts of development on water quality, runoff volumes, peak flows, water temperature, and groundwater recharge. In 2011, county and local standards for runoff volume control were increased beyond state standards to further address the potential stormwater impacts of development. Since 2010 many communities adopted even higher standards for volume control through their own ordinances or as part of urban service area amendment agreements. In 2017, State statute 281.33(6)(a)(1) was changed to limit the ability of local governments to adopted higher standards for runoff volume through local ordinances.

The Village of Cottage Grove proposes to mitigate the urban nonpoint source impacts of the proposed development by requiring the implementation of stormwater best management practices that are designed and constructed to meet current Dane County standards for pollutant reduction, runoff volumes, peak flows, water temperature, and groundwater recharge to address the potential urban nonpoint source impacts of the proposed development on the receiving waters.

The Village of Cottage Grove has been participating in trainings offered by regional partners actively working to achieve source reduction of chlorides by encouraging the responsible use of deicers and water softeners through the Wisconsin Salt Wise Partnership.

It is the Regional Planning Commission staff's opinion that the proposed amendment is consistent with water quality standards under Wis. Stat. § 281.15, and the adopted Policies and Criteria for the Review of Sewer Service Area Amendments to the *Dane County Water Quality Plan*, with the conditions of approval identified below. Additional actions have also been recommended below to further improve water quality and environmental resource management.

Conditions

Regional Planning Commission staff recommends approval of this amendment, based on the land uses and services proposed, and conditioned on the continued commitment of the Village of Cottage Grove to pursue the following:

1. Submit a detailed stormwater management plan for Regional Planning Commission staff review and approval (in conjunction with DCL&WCD staff) as part of the sewer extension review process for the amendment area. The stormwater management plan shall include the following:
 - a. Install stormwater and erosion control practices prior to other land disturbing activities. Protect infiltration practices from compaction and sedimentation during land disturbing activities.
 - b. Control peak rates of runoff for the 1-, 2-, 10-, and 100-year 24-hour design storms to “pre-development” levels, in accordance with the Village of Cottage Grove and Dane County Stormwater Ordinances.
 - c. Provide at least 80% sediment control for the amendment area based on the average annual rainfall, with a minimum of 60% of that control occurring prior to infiltration, in accordance with the Village of Cottage Grove and Dane County Stormwater Ordinances.
 - d. Maintain the post development stay-on volume to at least 90% of the pre-development stay-on volume for the average annual rainfall period, in accordance with the Village of Cottage Grove and Dane County Stormwater Ordinances.
 - e. Treat the first 0.5 inches of run-off using best management practices to provide oil and grease control at commercial and industrial sites, in accordance with the Village of Cottage Grove and Dane County Stormwater Ordinances.
 - f. Maintain pre-development groundwater recharge rates from the Wisconsin Geological and Natural History Survey's 2012 report, *Groundwater Recharge in Dane County, Wisconsin, Estimated by a GIS-Based Water-Balance Model* (a range of 9 to 10 inches/year for the amendment area), or by a site specific analysis, when required by the Village of Cottage Grove and Dane County Stormwater Ordinances.
 - g. Maintain suitable hydrology for sustaining wetland W-2 on the site.
 - h. Obtain the right (via ownership, easement or agreement), or provide documentation that significant efforts were made to obtain the right, to discharge stormwater onto property that is neither under the applicant's control nor publicly owned. If no right can be obtained, the applicant shall be required to mitigate the increased volume of discharge on their property prior to making this discharge. Mitigation shall consist of implementation of a stormwater practice that match the existing volumetric discharges from the applicant's property to other lands not under their control in storm events including the 1, 2, 5 & 10-year storm events.
 - i. Coordinate the management of stormwater discharging into the Town, with the Town Engineer (stormwater management plan comment by Town engineer).

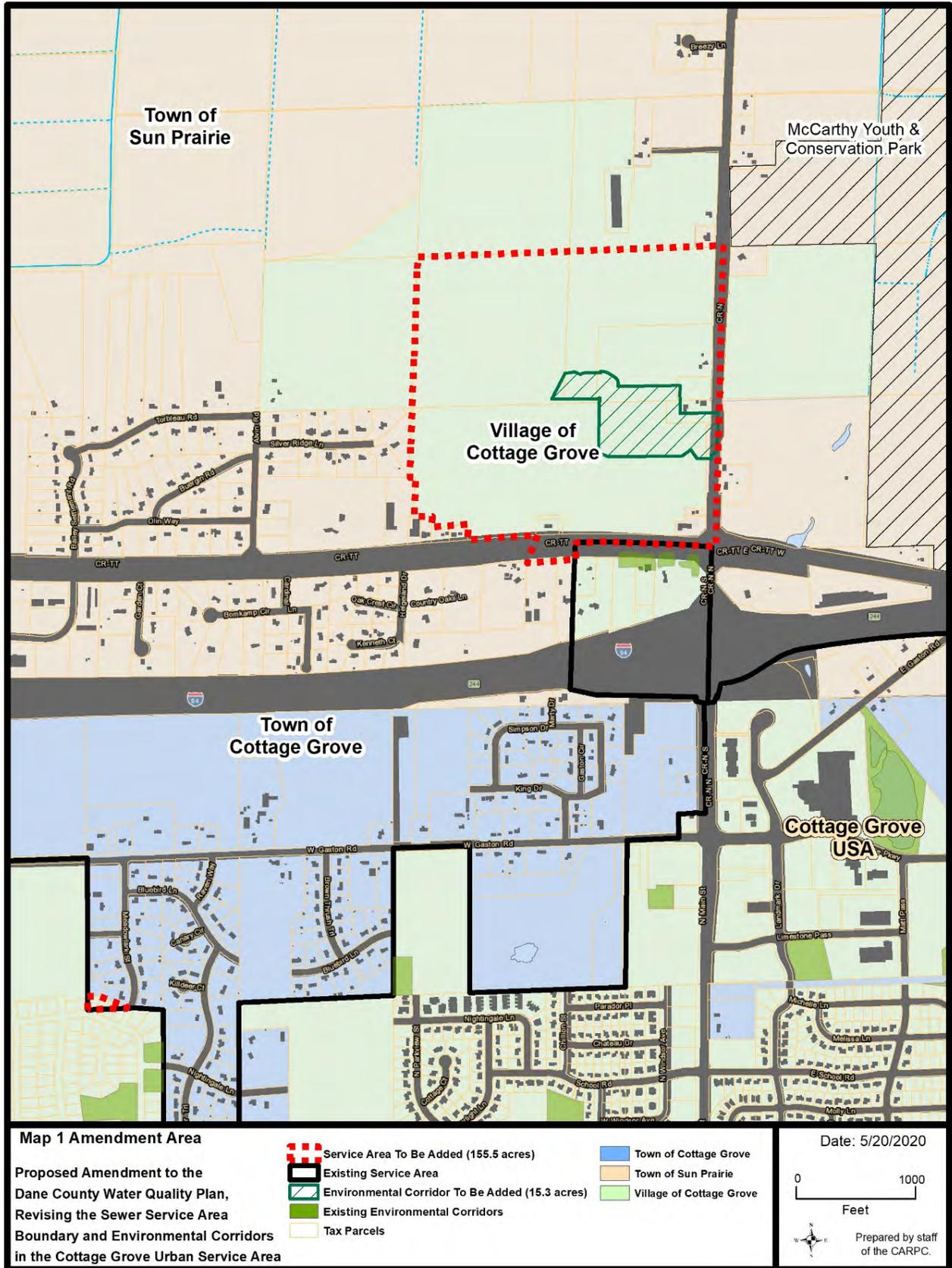
2. Stormwater management facilities shall be placed in public outlots whenever feasible and designated as environmental corridor. Easements and perpetual legal maintenance agreements with the Village, to allow the Village to maintain stormwater management facilities if owners fail to do so, shall be provided for any facilities located on private property.
3. Delineate environmental corridors to include the wetlands and required buffers, conservation easement, landscaped bufferyard per Village Ordinance, and stormwater management areas to meet the Environmental Corridor Policies and Criteria adopted in the *Dane County Water Quality Plan*.
4. Continue to encourage the responsible use of deicers and water softeners by participating in the trainings and outreach activities of the Wisconsin Salt Wise Partnership.

Recommendations

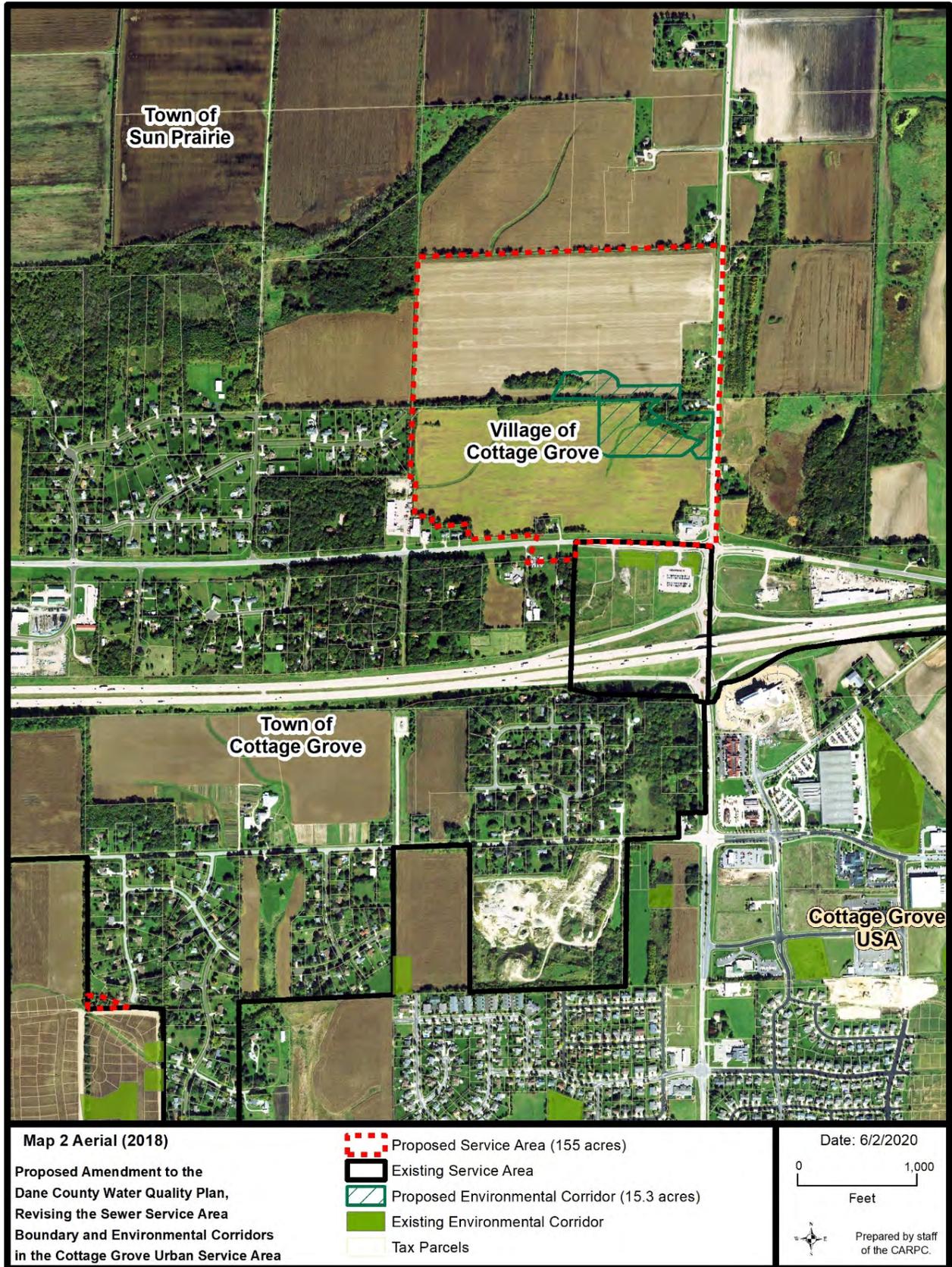
It is also recommended that the Village of Cottage Grove pursue the following:

1. Request a formal Endangered Resources Review by the WDNR or one of their certified reviewers for potential impacts to endangered resources like rare plants, animals and natural communities and take necessary habitat protection measures if species are found.
2. Encourage the winter maintenance employees and/or contractors of the business park to participate in available SaltWise trainings.
3. Work with the Town of Sun Prairie on a joint stormwater management plan for the whole drainage area (existing Town development and proposed Village development) west of the culvert under County Highway N.
4. Work with Drainage District 8 to evaluate options for coordinating stormwater drainage in this area.

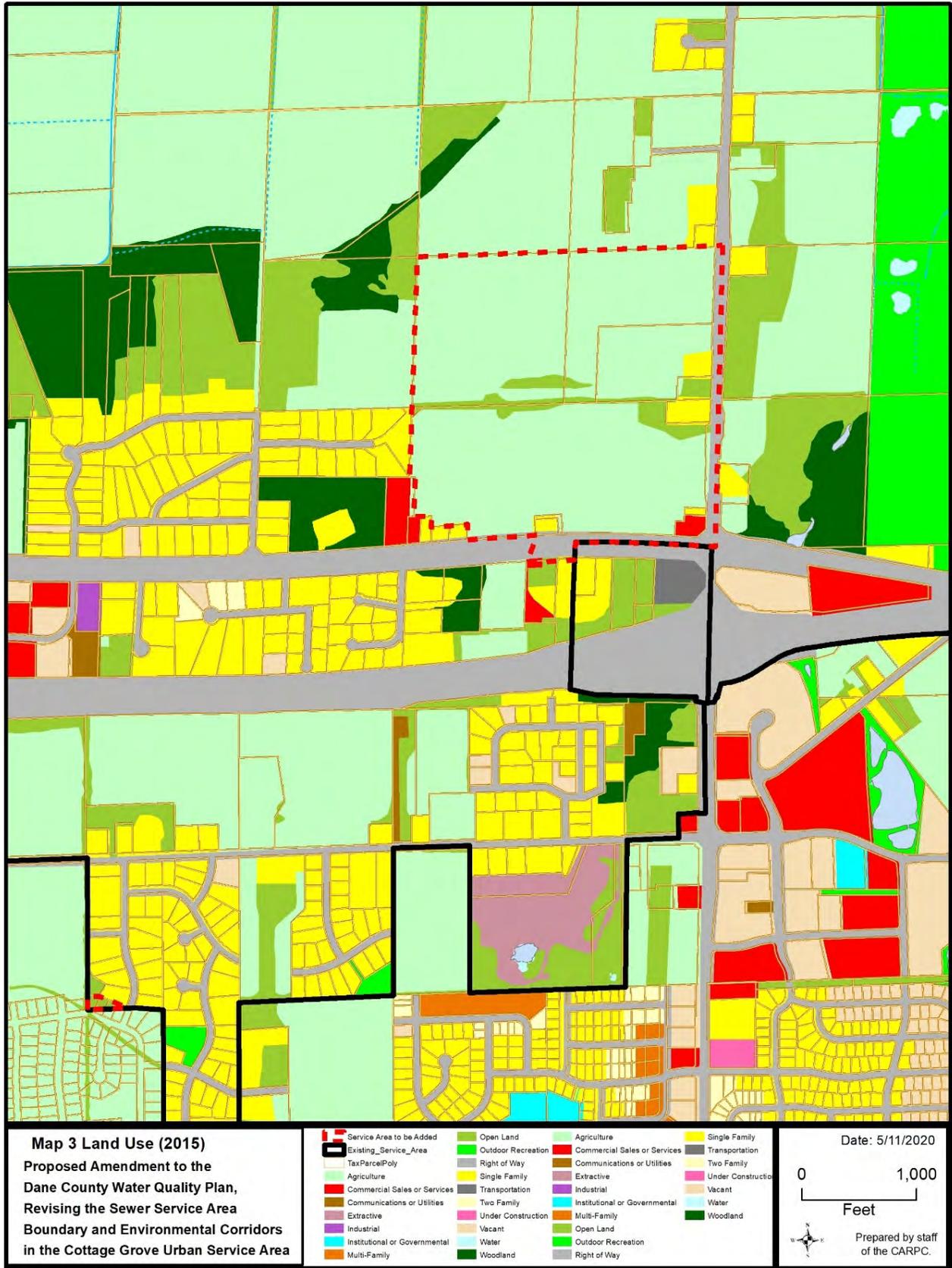
Map 1 - Amendment Area



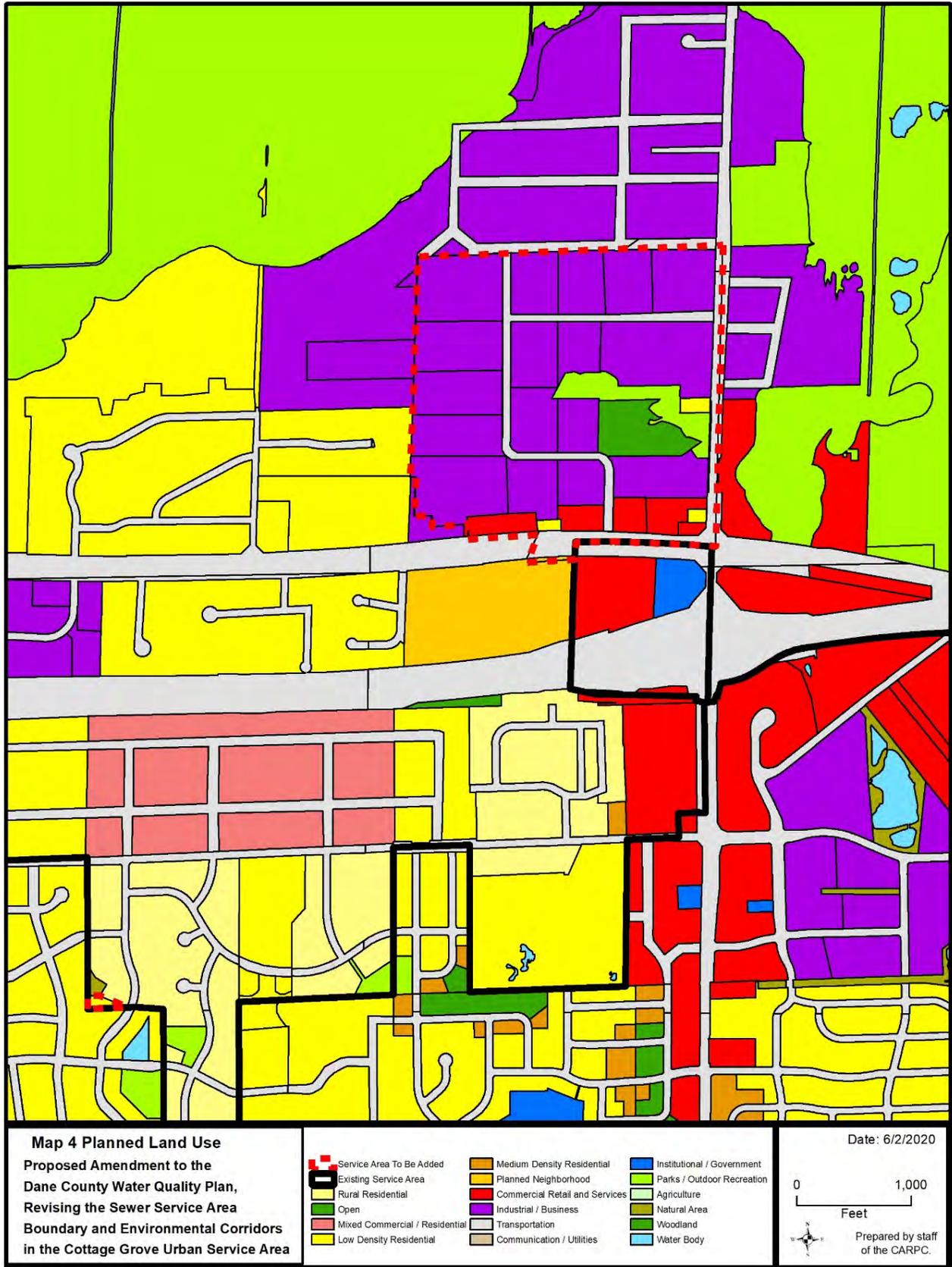
Map 2 – Aerial



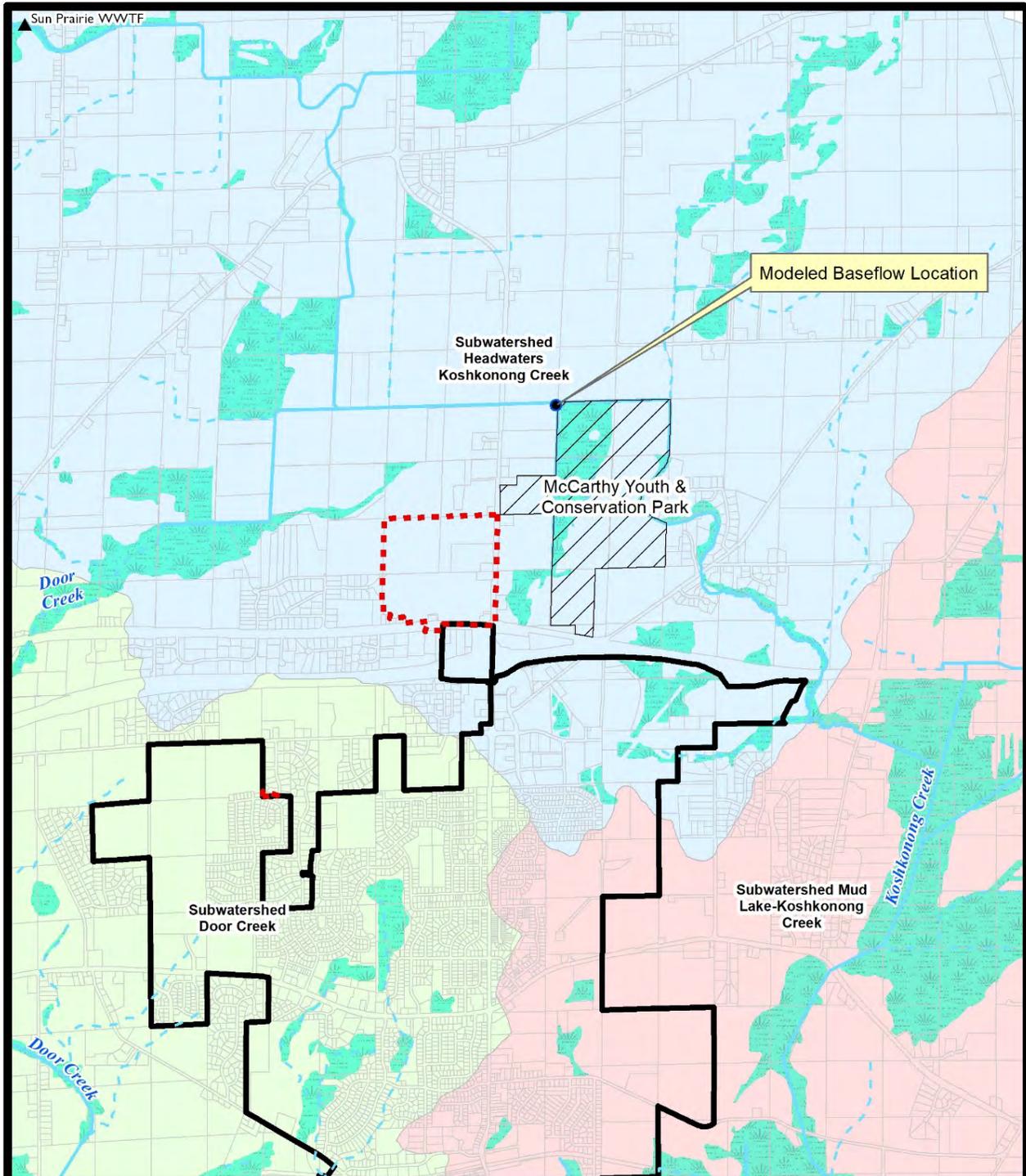
Map 3 – 2015 Land Use



Map 4 – Planned Land Use



Map 5 – Subwatersheds



Map 5 Subwatersheds
 Proposed Amendment to the
 Dane County Water Quality Plan,
 Revising the Sewer Service Area
 Boundary and Environmental Corridors
 in the Cottage Grove Urban Service Area

-  Service Area To Be Added
-  Existing Service Area
-  Wetland polygons
-  Intermittent
-  Perennial

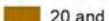
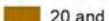
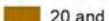
Date: 6/2/2020

0 0.5
Miles

 Prepared by staff
of the CARPC.

Map 6 - Elevations - North Grove



<p>Map 6 Elevation Proposed Amendment to the Dane County Water Quality Plan, Revising the Sewer Service Area Boundary and Environmental Corridors in the Cottage Grove Urban Service Area</p>	<table border="0"> <tr> <td></td> <td>Service Area To Be Added</td> <td>Percent Slope</td> </tr> <tr> <td></td> <td>Existing Service Area</td> <td> 12 - 20</td> </tr> <tr> <td></td> <td>Lakes and Ponds</td> <td> 20 and greater</td> </tr> <tr> <td></td> <td>Dane Buildings 2018</td> <td></td> </tr> </table>		Service Area To Be Added	Percent Slope		Existing Service Area	 12 - 20		Lakes and Ponds	 20 and greater		Dane Buildings 2018		<p>Date: 5/19/2020</p> <p>0 500 Feet</p> <p> Prepared by staff of the CARPC.</p>
	Service Area To Be Added	Percent Slope												
	Existing Service Area	 12 - 20												
	Lakes and Ponds	 20 and greater												
	Dane Buildings 2018													

Map 6A – Elevations - Westlawn



Map 6a Elevation
Proposed Amendment to the
Dane County Water Quality Plan,
Revising the Sewer Service Area
Boundary and Environmental Corridors
in the Cottage Grove Urban Service Area

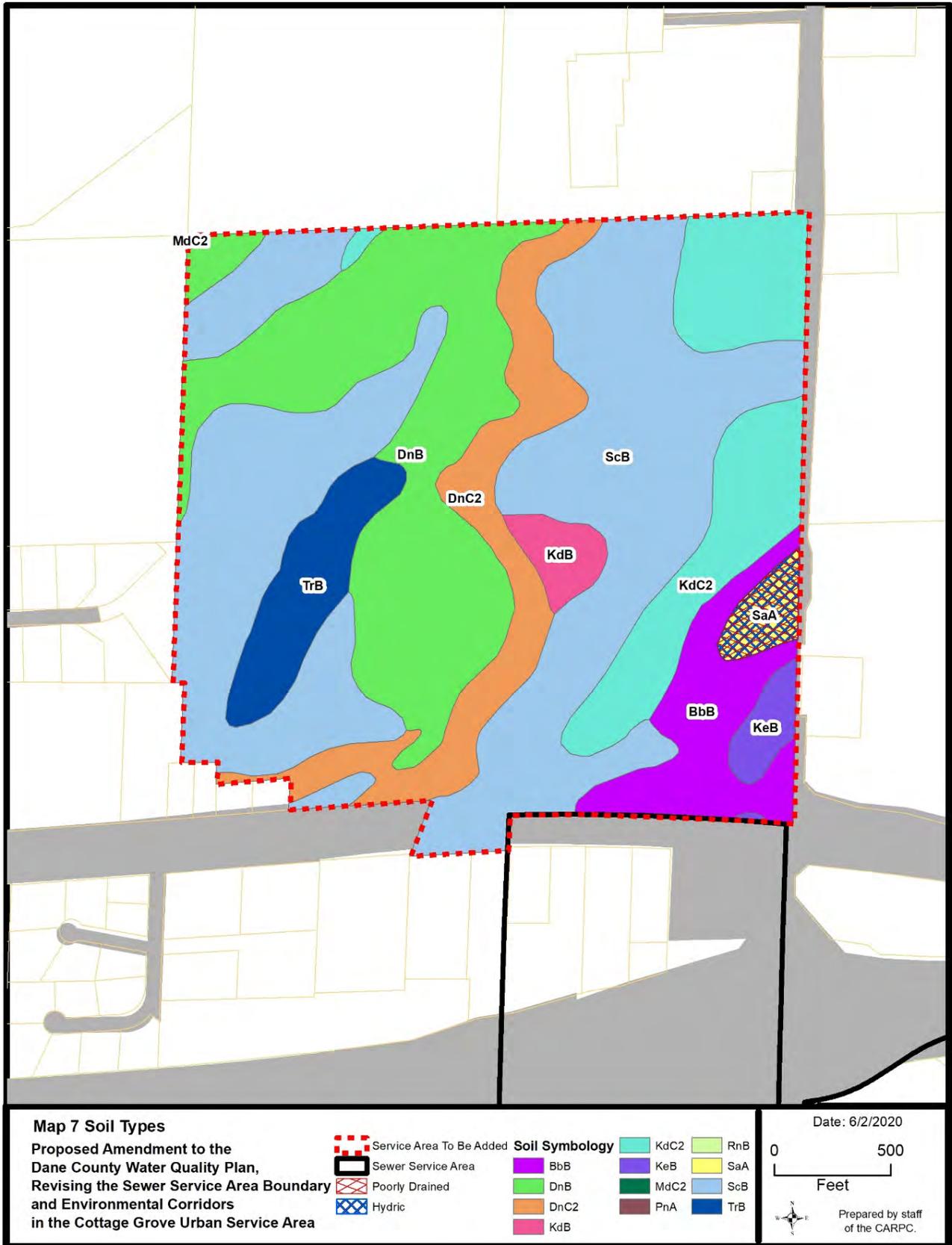
- | | | |
|---|--------------------------|---|
|  | Service Area To Be Added | Percent Slope |
|  | Existing Service Area |  12 - 20 |
|  | Lakes and Ponds |  20 and greater |
|  | Dane Buildings 2018 | |

Date: 5/18/2020

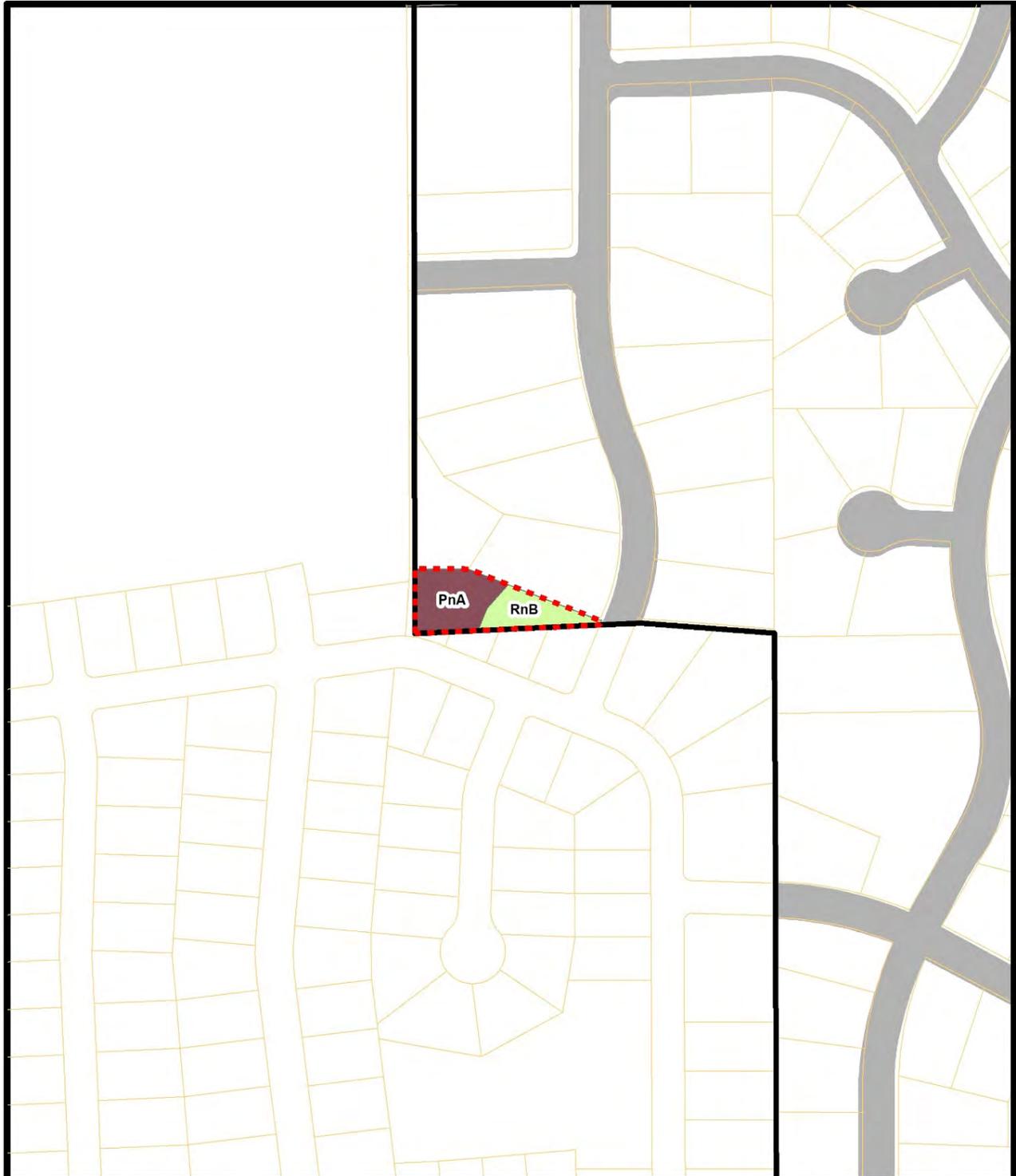
0 100
 Feet

 Prepared by staff
 of the CARPC.

Map 7 - Soil Type - North Grove



Map 7A - Soil Type - Westlawn



Map 7a Soil Types
Proposed Amendment to the
Dane County Water Quality Plan,
Revising the Sewer Service Area Boundary
and Environmental Corridors
in the Cottage Grove Urban Service Area

-  Service Area To Be Added
-  Sewer Service Area
-  Poorly Drained
-  Hydric

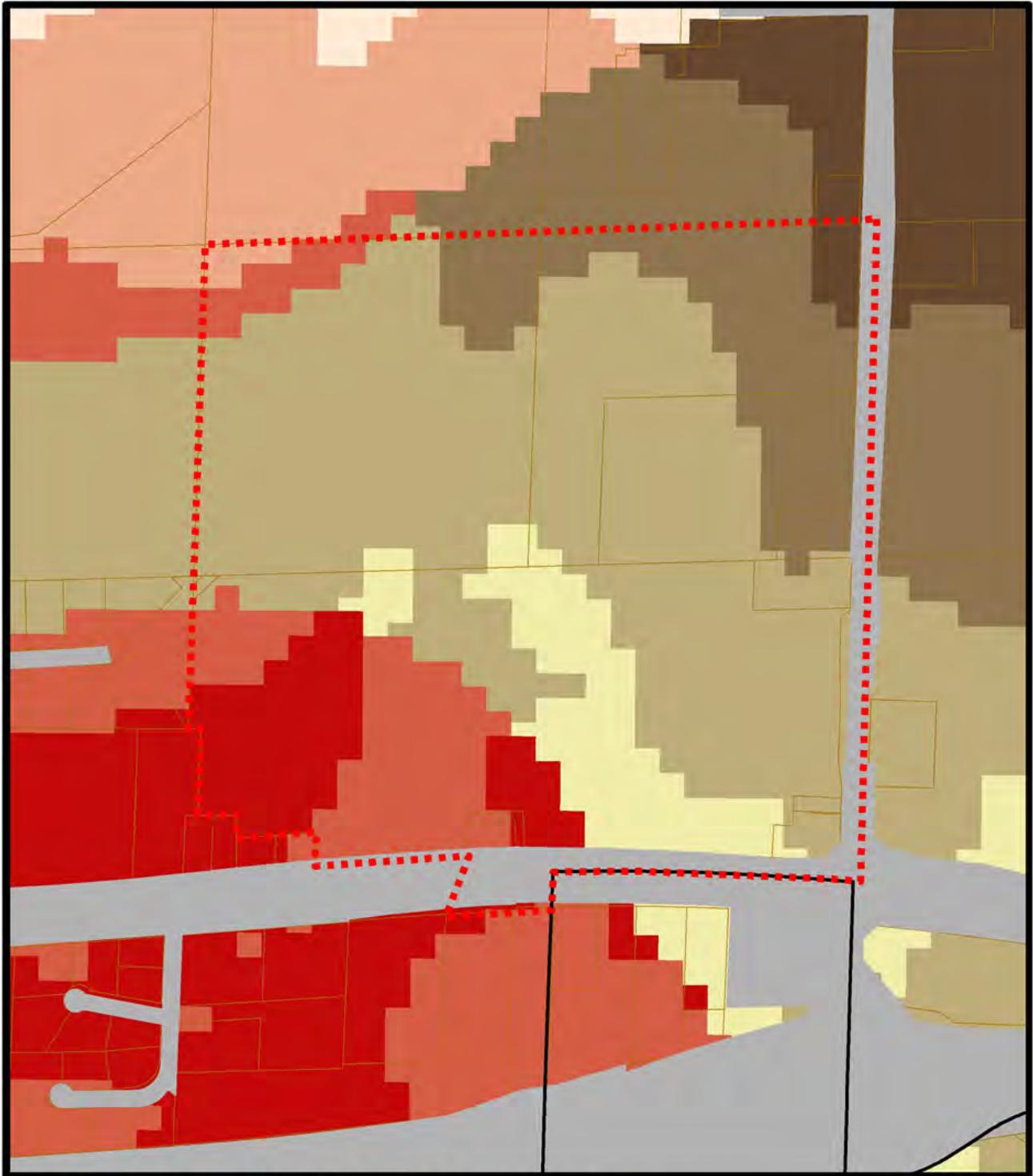
- Soil Symbology**
-  PnA
 -  RnB

Date: 6/2/2020
 0 200
 Feet



Prepared by staff
 of the CARPC.

Map 8 – WGNHS Bedrock Depth and Potential Karst Features - North Grove

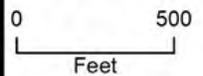


Map 8 WGNHS Bedrock Depth and Potential Karst Features

Proposed Amendment to the
Dane County Water Quality Plan,
Revising the Sewer Service Area Boundary
and Environmental Corridors
in the Cottage Grove Urban Service Area

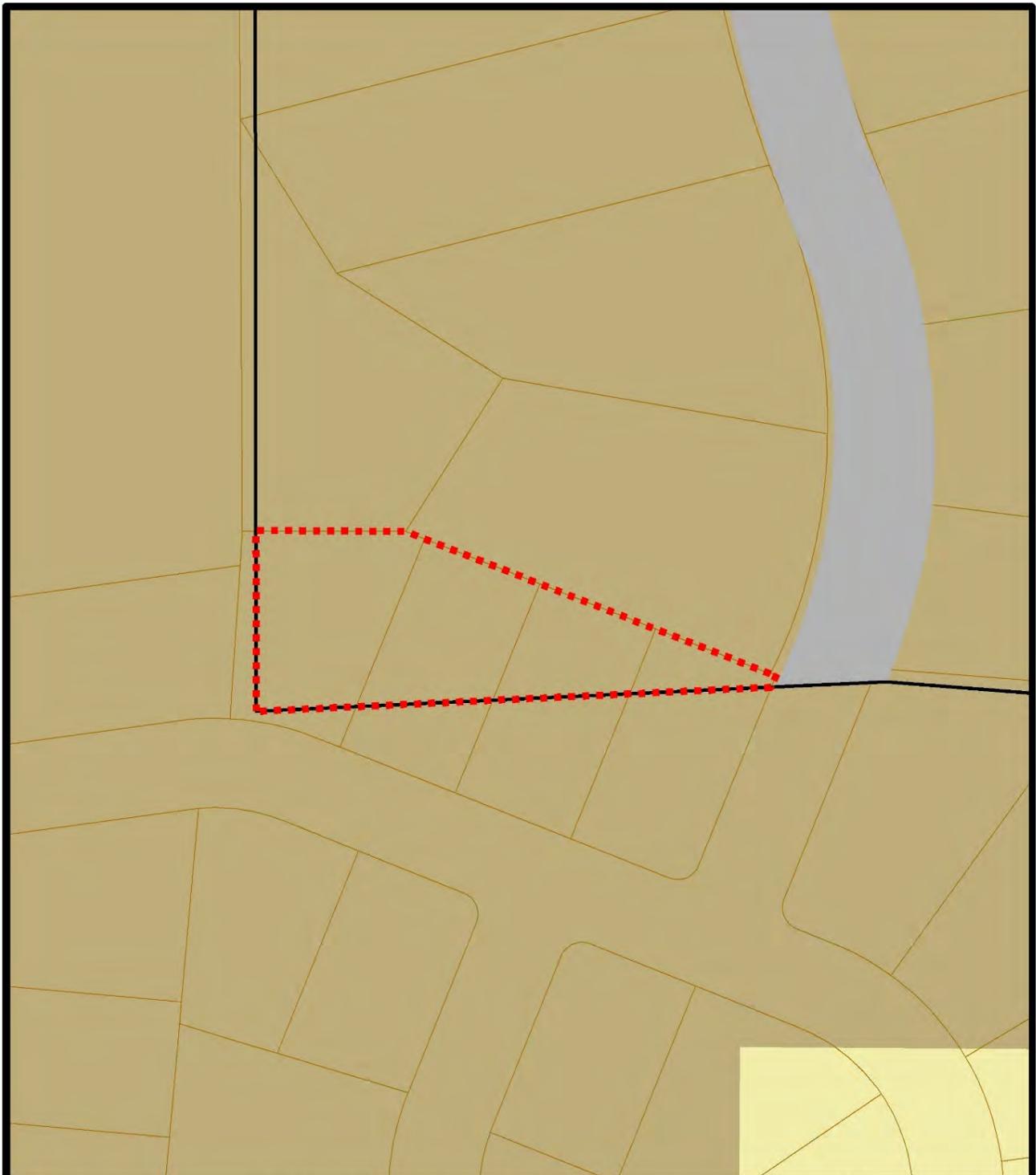
Potential Karst Units (ft)		Depth to Bedrock (ft)	
	0 - 10		0 - 10
	10 - 50		10 - 50
	50 - 100		50 - 100
	100 - 400		100 - 400

Date: 5/19/2020



Prepared by staff
of the CARPC.

Map 8A – WGNHS Bedrock Depth and Potential Karst Features - Westlawn

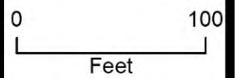


Map 8a WGNHS Bedrock Depth and Potential Karst Features

Proposed Amendment to the
 Dane County Water Quality Plan,
 Revising the Sewer Service Area Boundary
 and Environmental Corridors
 in the Cottage Grove Urban Service Area

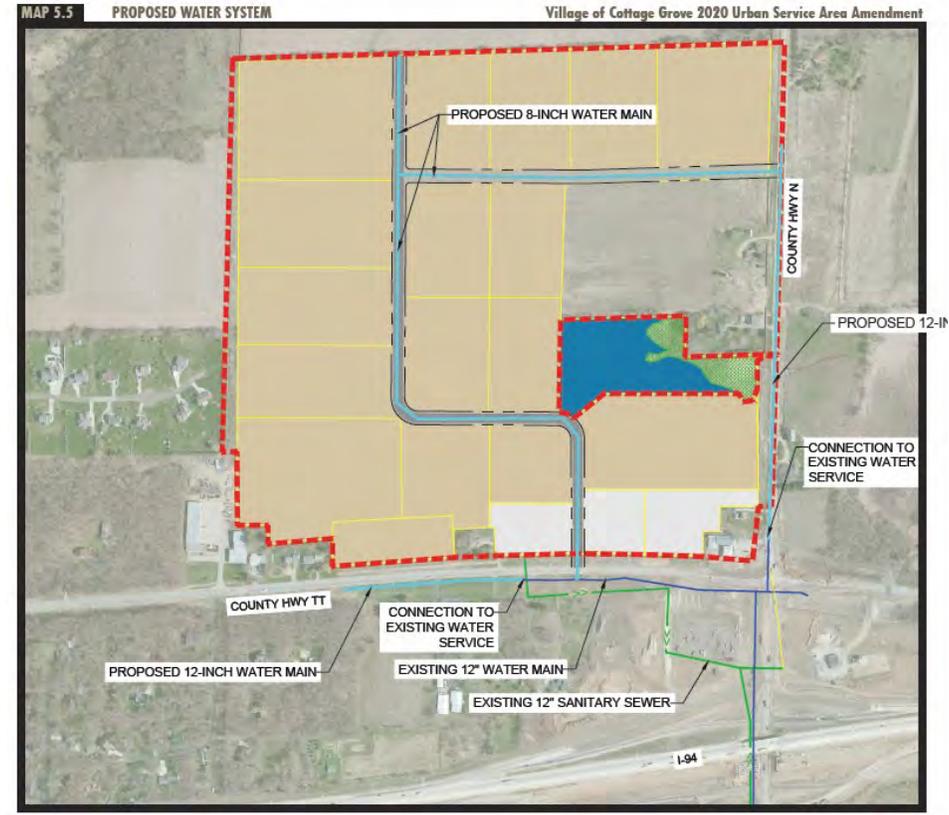
Potential Karst Units (ft)		Depth to Bedrock (ft)	
■	0 - 10	■	0 - 10
■	10 - 50	■	10 - 50
■	50 - 100	■	50 - 100
■	100 - 400	■	100 - 400

Date: 5/19/2020

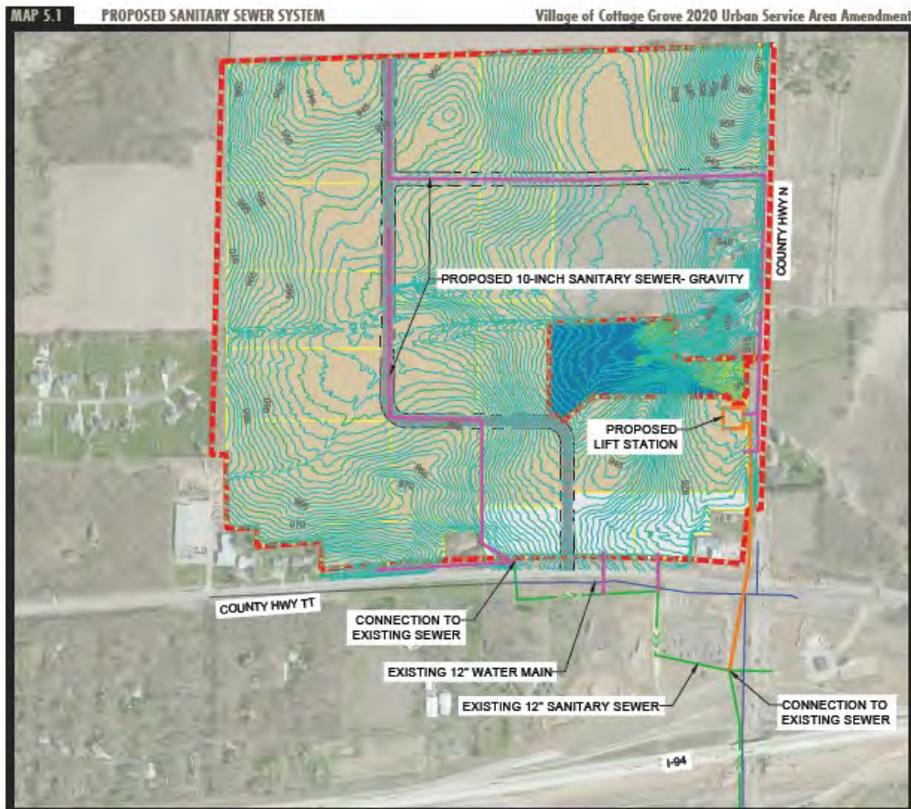


Prepared by staff
 of the CARPC.

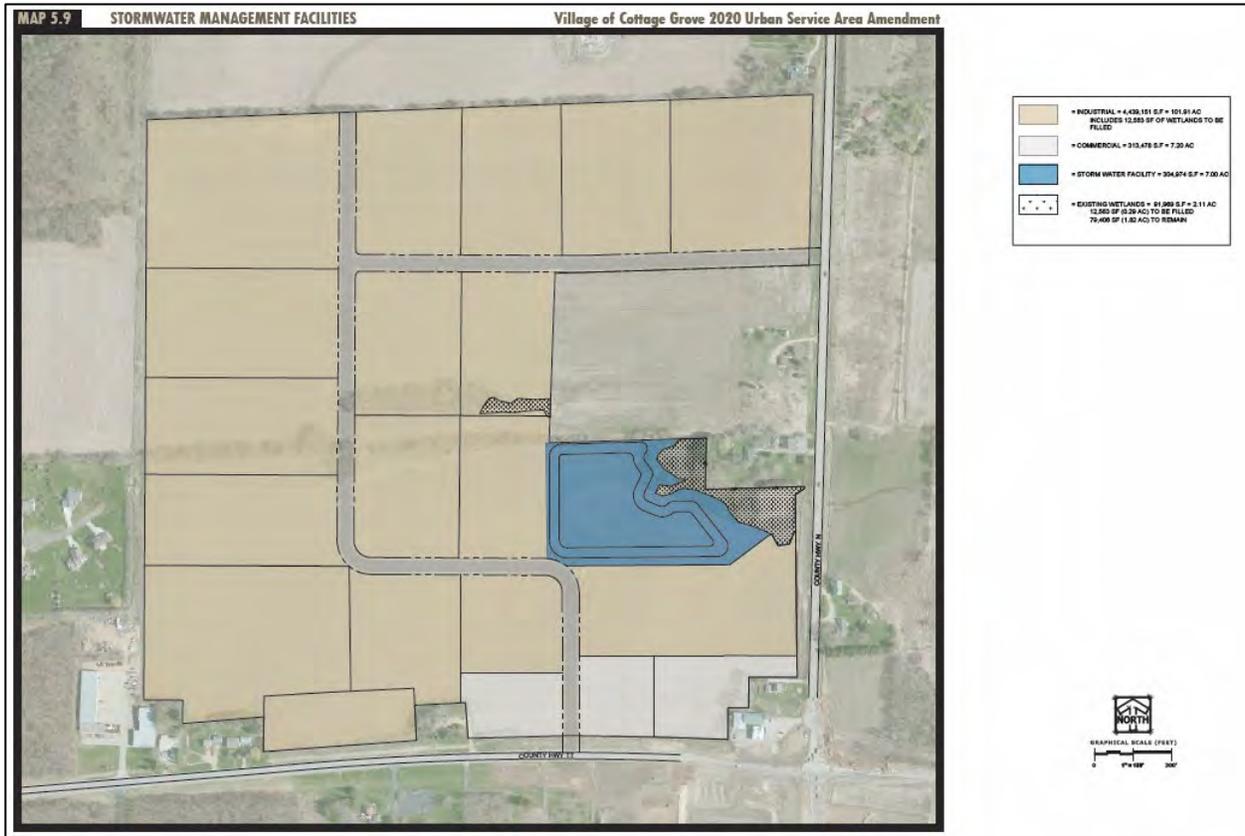
Map 9A – Proposed Water System



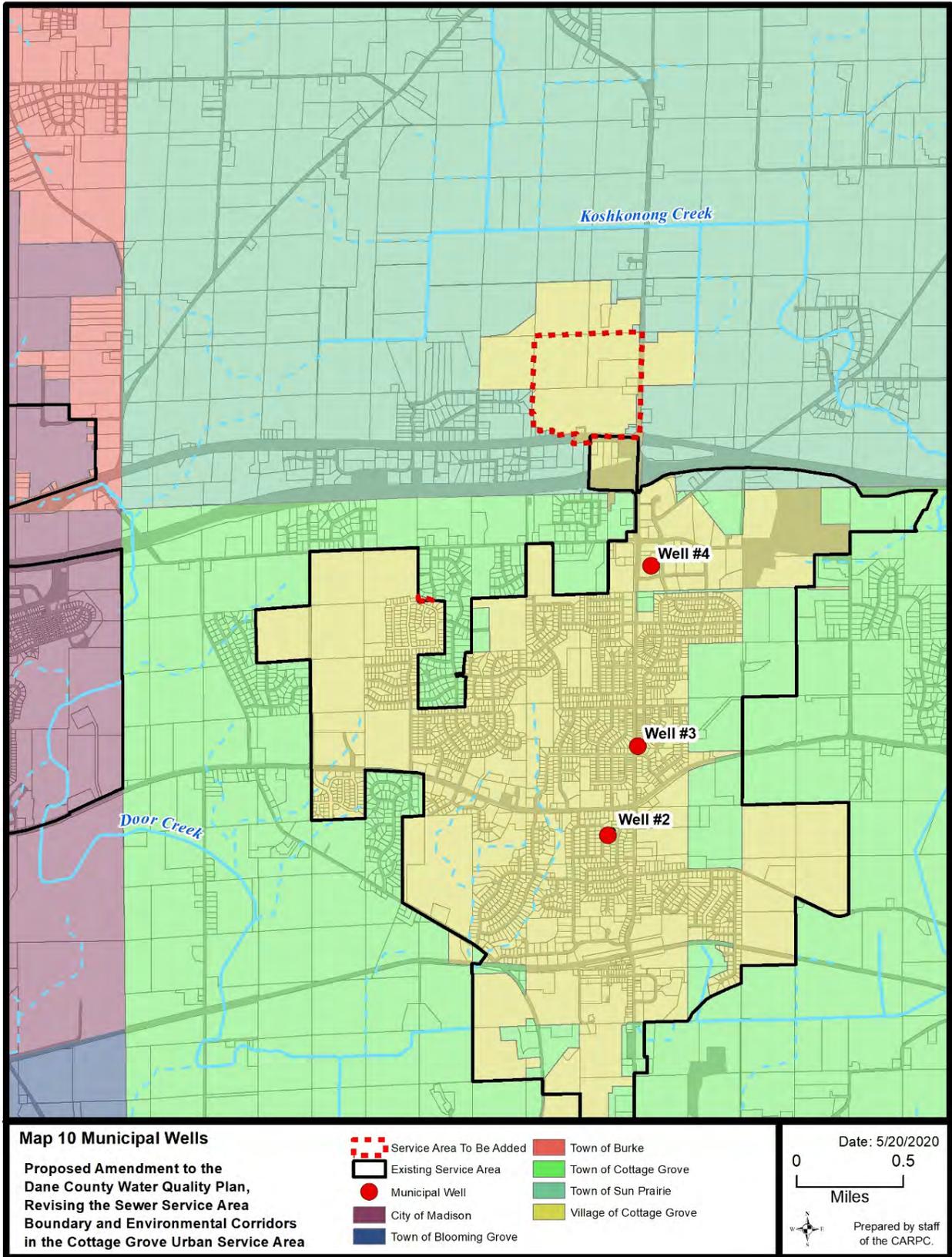
Map 9B – Proposed Sanitary Sewer Service



Map 9C – Proposed Stormwater Management



Map 10 – Municipal Wells





5 May 2020

Mr. Sean Higgins
Capital Area Regional Planning Commission
City-County Building, Room 362
210 Martin Luther King Jr. Boulevard
Madison, WI 53703-2558

RE: The Proposed Amendment to the Dane County Water Quality Plan, Revising the Urban Service Area Boundary in the Cottage Grove Urban Service Area, Dane County, Wisconsin

Dear Mr. Higgins:

No previously recorded archaeological sites have been recorded in, or adjacent to the parcel delineated in the amendment. However, the area has never been examined for the presence of archaeological resources. A review of available information indicates that wetlands and the head waters of Door Creek are present in the proposed amendment area. As a result, we recommend that an on-the-ground archaeological survey of the area be completed by a qualified archaeologist and that two paper copies of the report and one digital copy be submitted to our office.

Under Wisconsin law, Native American burial mounds, unmarked burials, and all marked and unmarked cemeteries are protected from intentional disturbance. If anyone suspects that a Native American burial mound or an unmarked or marked burial is present in an area, the Wisconsin Historical Society should be notified.

If human bone is unearthed during any phase of a project, **all work must cease, and the local authorities must be contacted**. The police or sheriff will determine if the burial is a criminal matter or if it should be referred to the Wisconsin Historical Society at 1-800-342-7834 to be in compliance with Wis. Stat. § 157.70 which provides for the protection of all human burial sites. If we are contacted, **work cannot resume until the Wisconsin Historical Society gives permission**. If you have any questions concerning the law, please contact the Wisconsin Historical Society at 1-800-342-7834.

This letter does not constitute a Wisconsin Historical Society review for any project that may be governed by Federal or State Compliance laws, e.g. Section 106, Wis Stat. §44.40, Wis Stat. §66.1111, or Wis Stat. §157.70

If you have any questions, or if you need additional information, please feel free to contact me.

Sincerely,

John H. Broihahn
State Archaeologist
State Archaeology and Maritime Preservation
608-219-6240, john.broihahn@wisconsinhistory.org

Collecting, Preserving and Sharing Stories Since 1846

816 State Street Madison, Wisconsin 53706

wisconsinhistory.org

Attachment 2 – Public Comment Letter Received and Village Response

Dane County Regional Planning Commission

May 11, 2020

From: Lyle Updike, Town Chairperson, Town of Sun Prairie

Attention: Sean Higgins

Re: Village of Cottage Grove, Urban Service Expansion into the Town of Sun Prairie

Via Email

The Town and the Village have a strained relationship. Twice the Town and Village engaged in discussions for a Boundary Agreement. Each time the village unilaterally withdrew from the discussion. Recently the Village annexed most of the parcel proposed for this expansion. The Town objected because the annexation created a Town Island. The State review concurred that the annexation was not in the public interest. Undeterred the Village considered the State determination advisory and annexed the parcel.

The Village Director of Planning and Development, Erin Ruth, provided a copy of the expansion proposal and asked for our comments. On April 28, 2020 There was a conference call with Erin, Matt Giese, the Village Administrator, Lyle Updike, Chairperson Town of Sun Prairie and Doug Yelk, Chair of the Town Planning Commission. On that call the Town identified the following concerns and conditions regarding the expansion.

No connections with Town Roads. Of special concern is the Village parcel adjacent to the to the Town that is not included in the current proposal. The proposed road network has no provision to provide road access to that parcel.

The current Town road is designed to serve a small rural subdivision with light traffic and drained with shallow grassy swales. It could not withstand the high volume of heavy traffic from this development or the excess volume of stormwater that would be discharged into existing town road.

The Town requests that the Village identify how their road system would serve future development of this parcel, including easements that would preclude any future connection with the existing Town roads.

Maintain a 75-foot buffer, between the current Town residential parcels and the new intensive Village development. This would provide visual, stormwater and acoustic separation for the existing residential properties. The Village responded that they have a complex buffering ordinance and they would provide examples of how their standards would apply. To date we have not received these examples, so we remain concerned about the proximity of the development.

Maintain compliance with NR151 for a 90% stay-on. The stated Infiltration performance standard in section 5.9 (4) states "Requirement for both residential and nonresidential developments to infiltrate sufficient runoff volume so that post development infiltration volume shall be at least 90% of the predevelopment infiltration volume based on the average annual rainfall."

We agree with this minimum standard and noted that it does not include the exemptions and exception that are available in Dane County Chapter 14.

Even with a true 90% stay-on, additional stormwater with its attendant TSS and nutrients will be discharged into the Town in many average weather events and certainly in the increasingly common extreme weather events.

If the above conditions are addressed, the Town will not have any further objection to this amendment.

However, absent a boundary agreement we will object to all future amendments that affect the Town of Sun Prairie. During our April 28th conference call Mr. Yelk inquired if the Village would consider resuming discussions for a boundary agreement. Mr. Giese declined the invitation.

CC: Erin Ruth, Village of Cottage Grove



MEMO

MEMO DATE: May 12, 2020

TO: Sean Higgins – Senior Planner, CARPC
Lyle Updike – Chair, Town of Sun Prairie

CC: Matt Giese – Village Administrator
Kevin Lord – Village Engineer
Town of Sun Prairie Clerk

FROM: [Erin Ruth, AICP – Village Planning Director](#)

RE: **Village of Cottage Grove Urban Service Area Amendment – Intergovernmental Cooperation w/ Town of Sun Prairie**

The following is in response to Chairman Updike's correspondence dated May 11, 2020 regarding the Village of Cottage Grove's Urban Service Area Amendment application.

No connections to Town Roads.

The Village has expressed a desire for connections to Town roads in cases where two residential subdivisions are adjacent to facilitate emergency access to create a more complete and logical street network.

In this case, the Town subdivision would be adjacent to property designated for office/light industrial uses. Due to the potential incompatibility of those uses the Village understands the Town's desire to keep the office/light industrial traffic out of the existing subdivisions.

The Village agrees that platting of the office/light industrial area will create access to adjoining Village parcels that do not rely on access from Town roads.

Maintain a 75' buffer.

The Village shares the Town's desire to buffer potentially incompatible land uses. In fact, the Village's Zoning Ordinance requires landscaping bufferyards where different uses abut. The Village considers that buffer requirement to remain in effect when differing uses occur along a Village/Town boundary.

The Village's Landscaping Ordinance is [Article V](#) of the Zoning Ordinance and bufferyard requirements are covered under 325-62.



Landscaped bufferyards are required by Village Ordinance along boundaries where different zoning districts meet, per [Table 325-62\(D\)\(1\)](#). The adjacency that the Town is concerned about would be the abutting of new office/light industrial land uses to an existing Town single-family residential subdivision. The most likely zoning district for the office/light industrial area is PI, Planned Industrial. The most similar Village zoning district to the Town land use would be SR-4, Single-Family Residential.

Where a PI district is adjacent to an SR-4 district a 0.4 opacity bufferyard is required per Table 325-62(D)(1). There are a variety of ways to meet the 0.4 opacity requirement based on the various formulas in [Table 325-62\(D\)\(2\)](#). The formulas reflect a combination of bufferyard width, amount of landscaping (measured in points per 100' of length), and the inclusion of features such as fencing or earthen berms. Generally speaking, the narrower the bufferyard, the more landscaping and/or features are required.

Various categories of vegetation are assigned points in Table 325-58, ranging from 75 points for a climax tree to 1 point for a low deciduous shrub.

Attached are six examples of buffers that would achieve the required 0.4 opacity bufferyard requirement between PI and SR-4 districts. Numerous other combinations could also achieve the necessary requirement.

While the Town requested a 75' wide buffer, the Village feels that a landscaped buffer meeting the ordinance would likely provide a more effective buffer than a simple 75' width with no landscaping.

Maintain compliance with NR151 for a 90% stay-on.

The Village consulted its engineering consultant, MSA Professional Services, regarding the Town's comments on this issue. We received a reply from Village Engineer Kevin Lord and stormwater specialist Eric Thompson.

According to MSA, the Village's stormwater ordinance is the same as Dane County's with respect to any exemptions. In their opinion, the Village/Dane County ordinance is "slightly more restrictive" than NR 151 in some regards and that by meeting the Village Ordinance the development would also meet NR 151.

MSA referenced the following excerpts:

NR 151

- 1.) NR151 requires different levels of post-construction infiltration practices depending on the proposed level of impervious area on the site.
 - a. Up to 40% impervious -> target = 90% predevelopment infiltration
 - b. >40% impervious to 80% impervious -> target = 75% predevelopment infiltration



- c. >80% impervious -> target = 60% predevelopment infiltration
- 2.) NR151 allows various exemptions and prohibitions from infiltration:
 - a. Prohibitions. Runoff from the following areas is not to be infiltrated:
 - i. Areas associated with a tier 1 industrial facility
 - ii. Storage and loading areas of a tier 2 industrial facility
 - iii. Fueling and vehicle maintenance areas.
 - b. Exemptions. Infiltration is not required (but may still be done) from the following areas. From an accounting standpoint, these areas are ignored in the computation – the site still has to achieve X% of the infiltration from the remainder of the site.
 - i. Parking areas and access roads less than 5,000 square feet for commercial & industrial development
 - ii. New development sites with less than 10% connected imperviousness and <1 acre total impervious (these sites are exempt from all post-construction stormwater management)
 - iii. Redevelopment sites.
 - iv. In-fill development areas less than 5 acres.
 - v. Roads in commercial, industrial, and institutional land uses, and arterial residential roads.
 - c. Locations of practices: Infiltration devices are not to be installed in the following areas due to concerns for device failure. Exemption of a particular location on a site does not reduce the requirement to achieve x% infiltration across the site – although it does open the door for a ‘maximum extent practicable’ argument. Only if the entire site is found to be exempt can the site truly be allowed to have no post-development infiltration.
 - i. Areas of Karst bedrock (direct conduits to groundwater)
 - ii. Areas within a certain distance of a well
 - iii. Areas where there is soil contamination
 - iv. Areas where there is inadequate separation distance (depth) to groundwater or bedrock
 - v. Areas where the measured infiltration rate is less than 0.6 in/hr
 - vi. Areas of clayey soil.

Dane County/Village of Cottage Grove

- 1.) All developments, regardless of impervious -> target = 90% predevelopment infiltration
- 2.) Exemptions (infiltration not required):
 - a. Parking areas and access roads less than 5,000 square feet for commercial & industrial development
 - b. New development sites with less than 10% connected imperviousness and <1 acre total impervious
 - c. Redevelopment sites.
 - d. Areas where the measured infiltration rate is less than 0.6 in/hr
 - e. Roads in commercial, industrial, and institutional land uses, and arterial residential roads.
- 3.) Prohibitions (infiltration not allowed):

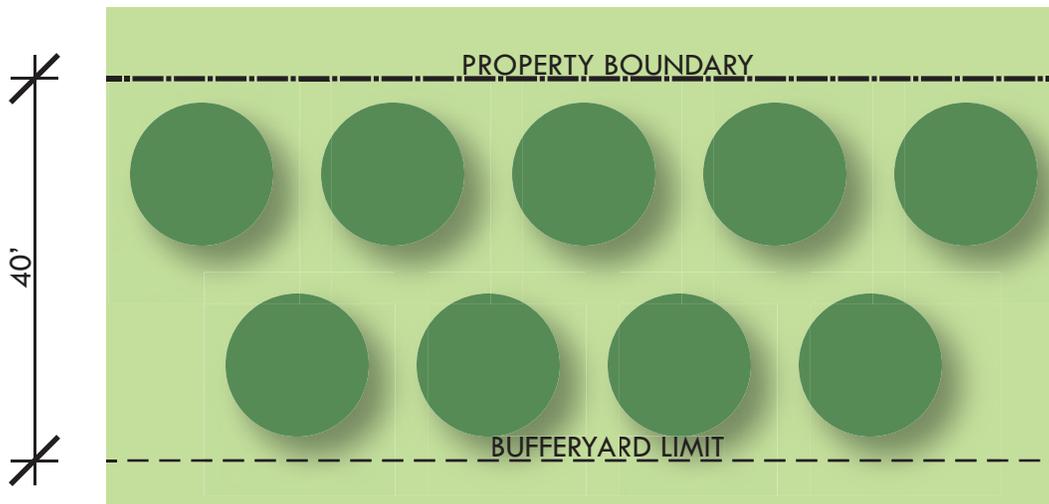


- a. Areas associated with a tier 1 industrial facility
- b. Storage and loading areas of a tier 2 industrial facility
- c. Fueling and vehicle maintenance areas.
- d. Areas of Karst bedrock (direct conduits to groundwater)
- e. Areas where there is inadequate separation distance (depth) to groundwater or bedrock
- f. Areas within a certain distance of a well
- g. Areas where there is soil contamination

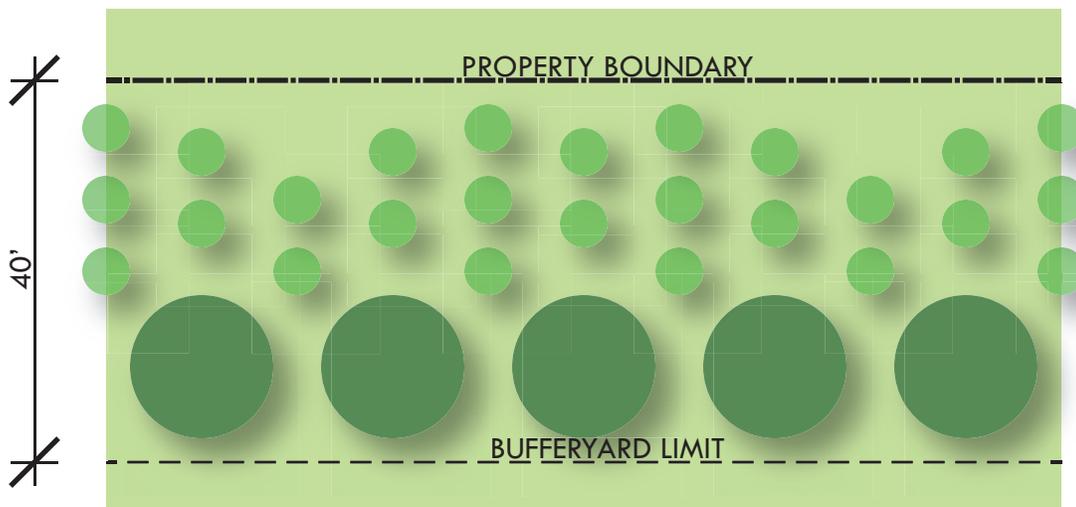
Based on our engineer's review it appears that the Dane County and Village ordinances offer fewer exceptions for infiltration than NR 151, not more.

If we are misunderstanding the Town's comment, we are certainly open to further discussion.

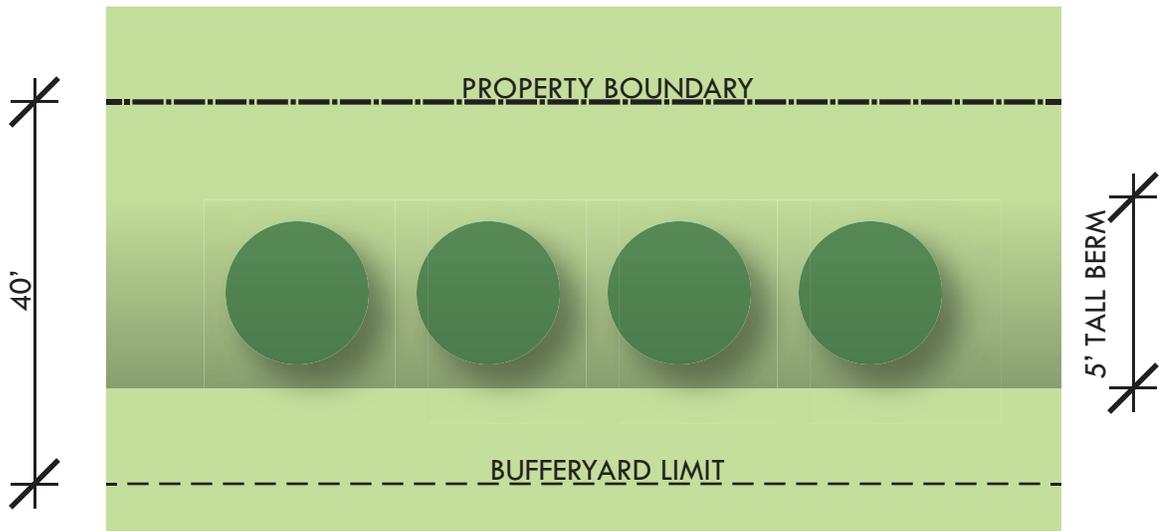
The Village's urban service area requests that have been approved in the past few years have included a condition that the during platting the Village must coordinate with the adjacent Town on stormwater entering the Town. We are open to such a condition for this amendment as well as this may lead to discussion of specific issues of concern as more details are developed as opposed to a broad pre-emptive solution.



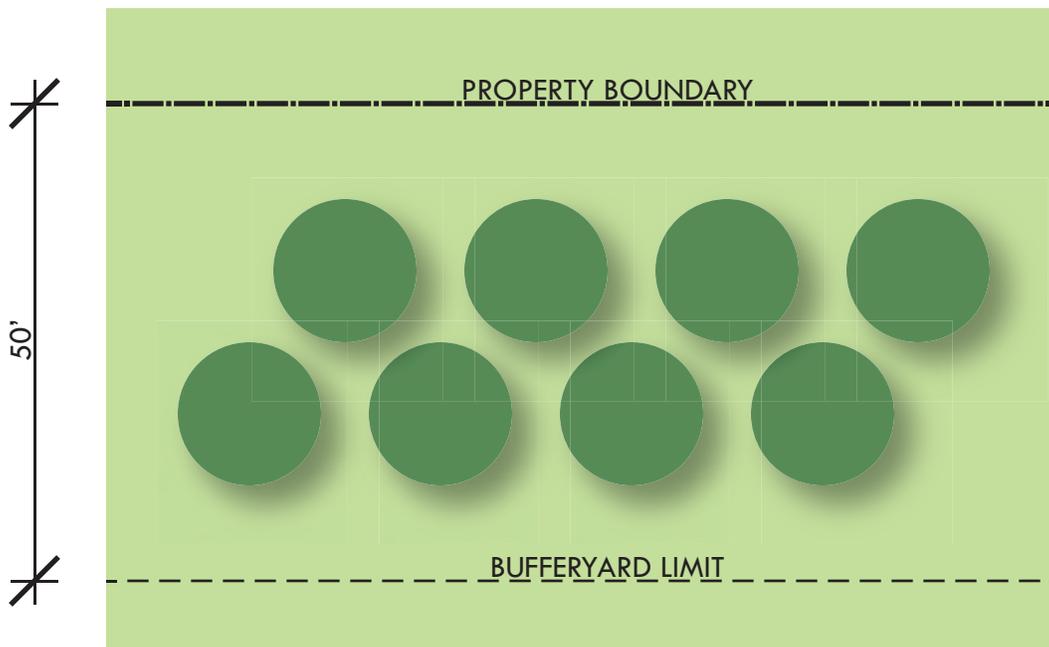
0.4 OPACITY - 40' WIDTH W/ 327 PTS. PER 100'
 9 TALL EVERGREEN TREES X 40 PTS EA. = 400 PTS.



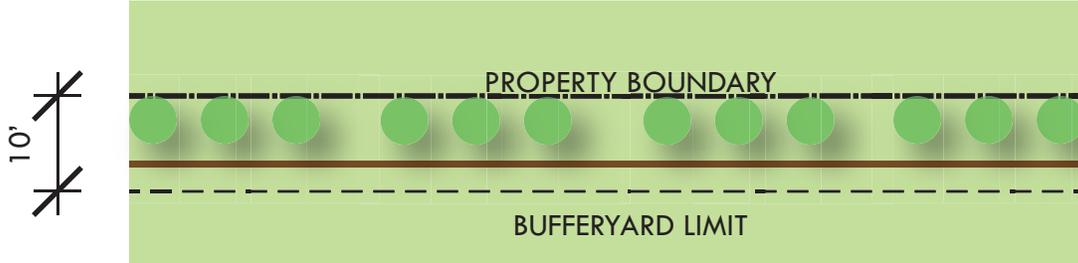
0.4 OPACITY - 40' WIDTH W/ 327 PTS. PER 100'
 5 TALL EVERGREEN TREES X 40 PTS EA. = 200 PTS., 26 TALL DECIDUOUS
 SHRUBS X 5 PTS. EA. = 130 PTS.; TOTAL = 330 PTS.



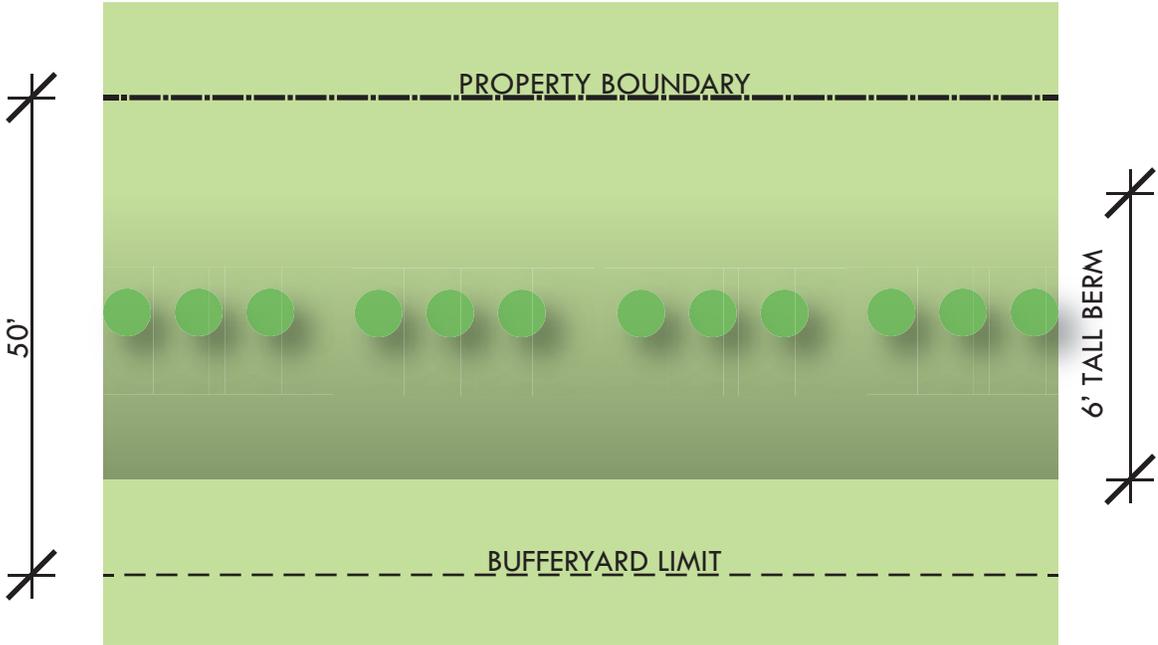
0.4 OPACITY - 40' WIDTH W/ 5' TALL BERM & 148 PTS. PER 100'
4 TALL EVERGREEN TREES X 40 PTS EA. = 160 PTS.



0.4 OPACITY - 50' WIDTH W/ 299 PTS. PER 100'
8 TALL EVERGREEN TREES X 40 PTS EA. = 320 PTS.



0.4 OPACITY - 10' WIDTH W/ 6' PRIVACY FENCE & 53 PTS. PER 100'
12 TALL DECIDUOUS SHRUBS X 5 PTS EA. = 60 PTS.



0.4 OPACITY - 50' WIDTH W/ 6' TALL BERM & 56 PTS. PER 100'
12 TALL DECIDUOUS SHRUBS X 5 PTS EA. = 60 PTS.