



**Dear Reviewer,**

This site is located at 2417 Silvernail Road Waukesha WI. The existing office building and parking & drive areas are to be demolished and disposed off offsite. The redevelopment consists of a mixed use commercial and residential apartment building with three levels of underground parking. To handle the stormwater a detention chamber is provided to the south of the proposed building. The basin was designed to have after redevelopment the same or less runoff rates than the current conditions for the 1,2,10, & 100 year storms, please see the existing and proposed runoff rates below. Water discharges from the basin through a 12" diameter storm sewer to the existing wetland area on the south half of the property

Storm Event (yr)	Existing Conditions (cfs)	Proposed Conditions (cfs)
1	1.66	1.23
2	1.93	1.48
10	2.92	2.40
100	5.02	3.79

Just upstream of the proposed detention basin is a raingarden running the width of the proposed building plus some. The raingarden is there to provide water quality treatment to stormwater runoff prior draining into the detention basin and off the property to the existing wetland on the south end of the property. The raingarden also provides over 900 cubic feet of sediment trap. While also acting as an infiltration basin.

If you have any questions or require more information, please contact me.

Sincerely,

**Robert A Krause PE**

Project Manager

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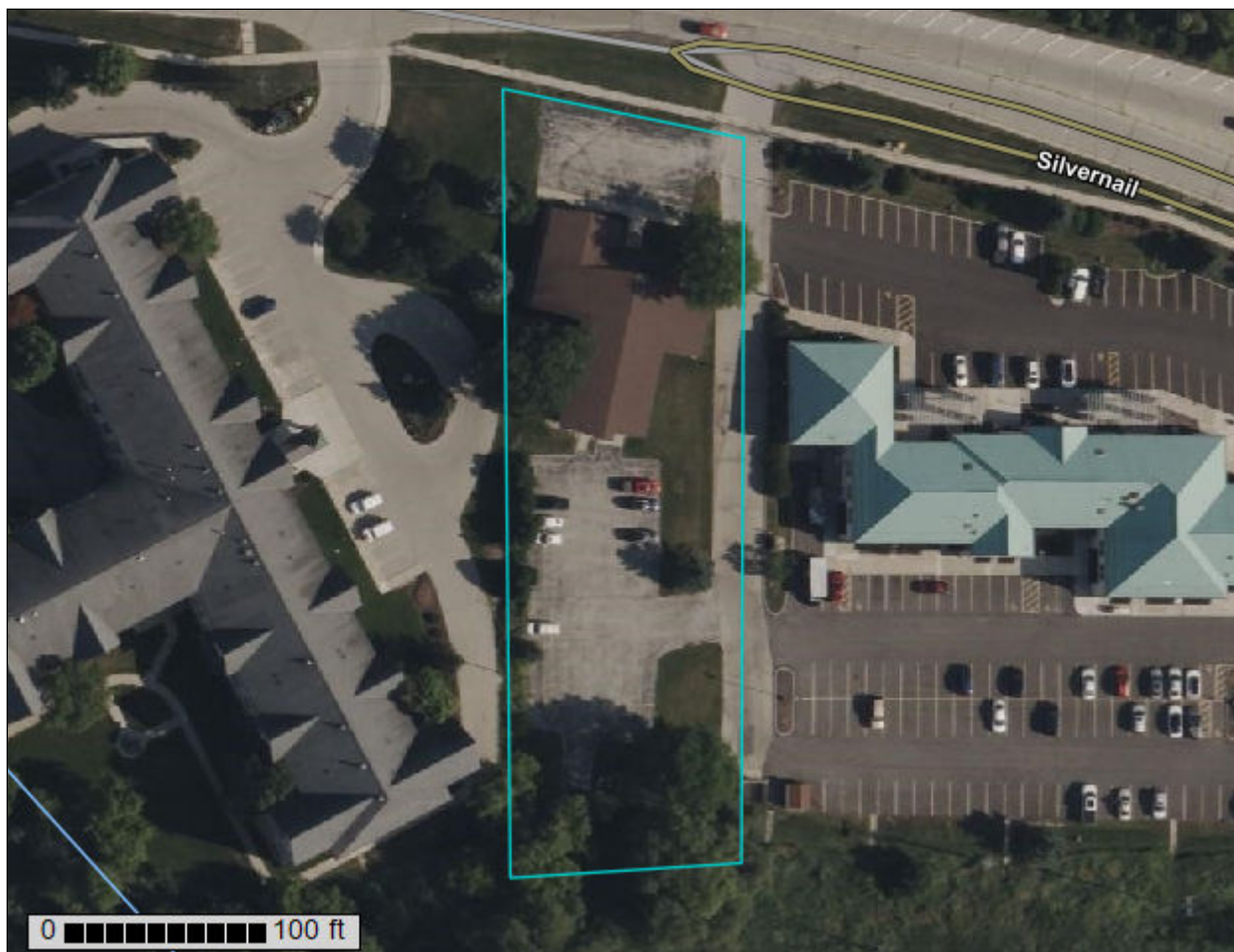
United States  
Department of  
Agriculture

NRCS

Natural  
Resources  
Conservation  
Service

A product of the National  
Cooperative Soil Survey,  
a joint effort of the United  
States Department of  
Agriculture and other  
Federal agencies, State  
agencies including the  
Agricultural Experiment  
Stations, and local  
participants

# Custom Soil Resource Report for Waukesha County, Wisconsin



# Preface

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Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (<http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/>) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (<https://offices.sc.egov.usda.gov/locator/app?agency=nrcs>) or your NRCS State Soil Scientist ([http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2\\_053951](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951)).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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# How Soil Surveys Are Made

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Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

## Custom Soil Resource Report

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

# Soil Map

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The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

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Soil Map (SilverNail Apartments)





## Map Unit Legend (SilverNail Apartments)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
7009A	Houghton muck, 0 to 2 percent slopes	0.0	0.2%
7021A	Palms muck, 0 to 2 percent slopes	0.3	34.0%
7744C2	Hochheim loam, 6 to 12 percent slopes, eroded	0.7	64.7%
7744D3	Hochheim soils, 12 to 20 percent slopes, severely eroded	0.0	1.0%
<b>Totals for Area of Interest</b>		<b>1.0</b>	<b>100.0%</b>

## Map Unit Descriptions (SilverNail Apartments)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

## Waukesha County, Wisconsin

### 7009A—Houghton muck, 0 to 2 percent slopes

#### Map Unit Setting

*National map unit symbol:* 2szff

*Elevation:* 600 to 1,090 feet

*Mean annual precipitation:* 31 to 35 inches

*Mean annual air temperature:* 43 to 48 degrees F

*Frost-free period:* 124 to 192 days

*Farmland classification:* Farmland of statewide importance

#### Map Unit Composition

*Houghton, muck, and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

#### Description of Houghton, Muck

##### Setting

*Landform:* Depressions

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Herbaceous organic material

##### Typical profile

*Oap - 0 to 6 inches:* muck

*Oa - 6 to 79 inches:* muck

##### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Runoff class:* Negligible

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.14 to 5.95 in/hr)

*Depth to water table:* About 0 to 4 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Very high (about 23.9 inches)

##### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* A/D

*Ecological site:* F095XB001WI - Mucky Swamp

*Forage suitability group:* Not suited, flooded or organics (G095BY010WI)

*Other vegetative classification:* Not suited, flooded or organics (G095BY010WI)

*Hydric soil rating:* Yes

#### Minor Components

##### Houghton, ponded

*Percent of map unit:* 4 percent

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*Landform:* Depressions

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* F095XB001WI - Mucky Swamp

*Other vegetative classification:* Not suited, flooded or organics (G095BY010WI)

*Hydric soil rating:* Yes

### **Palms**

*Percent of map unit:* 2 percent

*Landform:* Lakebeds (relict)

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* F095XB001WI - Mucky Swamp

*Other vegetative classification:* Not suited, flooded or organics (G095AY010WI)

*Hydric soil rating:* Yes

### **Adrian**

*Percent of map unit:* 2 percent

*Landform:* Lakebeds (relict)

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* F095XB001WI - Mucky Swamp

*Hydric soil rating:* Yes

### **Edwards**

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* F095XB001WI - Mucky Swamp

*Hydric soil rating:* Yes

### **Willette, muck**

*Percent of map unit:* 1 percent

*Landform:* Depressions

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Linear

*Ecological site:* F095XA001WI - Mucky Swamp

*Hydric soil rating:* Yes

## 7021A—Palms muck, 0 to 2 percent slopes

### Map Unit Setting

*National map unit symbol:* 2szdc

*Elevation:* 780 to 1,240 feet

*Mean annual precipitation:* 31 to 35 inches

*Mean annual air temperature:* 43 to 49 degrees F

*Frost-free period:* 124 to 178 days

*Farmland classification:* Farmland of statewide importance

### Map Unit Composition

*Palms, muck, and similar soils:* 87 percent

*Minor components:* 13 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

### Description of Palms, Muck

#### Setting

*Landform:* Interdrumlins

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Parent material:* Herbaceous organic material over loamy drift

#### Typical profile

*Oap - 0 to 13 inches:* muck

*Oa - 13 to 30 inches:* muck

*2Cg - 30 to 79 inches:* silty clay loam

#### Properties and qualities

*Slope:* 0 to 2 percent

*Depth to restrictive feature:* More than 80 inches

*Drainage class:* Very poorly drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to high  
(0.14 to 1.98 in/hr)

*Depth to water table:* About 0 to 4 inches

*Frequency of flooding:* None

*Frequency of ponding:* Frequent

*Calcium carbonate, maximum content:* 20 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Very high (about 15.8 inches)

#### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 3w

*Hydrologic Soil Group:* B/D

*Ecological site:* F095XB001WI - Mucky Swamp

*Forage suitability group:* Not suited, flooded or organics (G095BY010WI)

*Other vegetative classification:* Not suited, flooded or organics (G095BY010WI)

*Hydric soil rating:* Yes

**Minor Components**

**Houghton, muck**

*Percent of map unit:* 8 percent

*Landform:* Depressions

*Landform position (three-dimensional):* Dip

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* F095XB001WI - Mucky Swamp

*Other vegetative classification:* Not suited, flooded or organics (G095BY010WI)

*Hydric soil rating:* Yes

**Adrian**

*Percent of map unit:* 5 percent

*Landform:* Interdrumlins

*Landform position (two-dimensional):* Toeslope

*Landform position (three-dimensional):* Base slope

*Down-slope shape:* Concave

*Across-slope shape:* Concave

*Ecological site:* F095XB001WI - Mucky Swamp

*Hydric soil rating:* Yes

**7744C2—Hochheim loam, 6 to 12 percent slopes, eroded**

**Map Unit Setting**

*National map unit symbol:* 2t03r

*Elevation:* 900 to 1,340 feet

*Mean annual precipitation:* 31 to 33 inches

*Mean annual air temperature:* 43 to 46 degrees F

*Frost-free period:* 135 to 175 days

*Farmland classification:* Farmland of statewide importance

**Map Unit Composition**

*Hochheim, eroded, and similar soils:* 90 percent

*Minor components:* 10 percent

*Estimates are based on observations, descriptions, and transects of the mapunit.*

**Description of Hochheim, Eroded**

**Setting**

*Landform:* Drumlins

*Landform position (two-dimensional):* Shoulder, summit

*Landform position (three-dimensional):* Side slope, crest

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Parent material:* Loamy till and/or calcareous, dense loamy till

**Typical profile**

*Ap - 0 to 7 inches:* loam



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*Bt - 7 to 16 inches:* clay loam

*C - 16 to 33 inches:* gravelly sandy loam

*Cd - 33 to 79 inches:* gravelly sandy loam

### Properties and qualities

*Slope:* 6 to 12 percent

*Depth to restrictive feature:* 20 to 40 inches to densic material

*Drainage class:* Well drained

*Capacity of the most limiting layer to transmit water (Ksat):* Moderately low to moderately high (0.06 to 0.20 in/hr)

*Depth to water table:* More than 80 inches

*Frequency of flooding:* None

*Frequency of ponding:* None

*Calcium carbonate, maximum content:* 60 percent

*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

*Available water supply, 0 to 60 inches:* Low (about 4.4 inches)

### Interpretive groups

*Land capability classification (irrigated):* None specified

*Land capability classification (nonirrigated):* 4e

*Hydrologic Soil Group:* D

*Ecological site:* F095XB007WI - Loamy Upland with Carbonates

*Forage suitability group:* Mod AWC, adequately drained (G095BY005WI)

*Other vegetative classification:* Mod AWC, adequately drained (G095BY005WI)

*Hydric soil rating:* No

### Minor Components

#### Theresa

*Percent of map unit:* 5 percent

*Landform:* Drumlins

*Landform position (two-dimensional):* Summit

*Landform position (three-dimensional):* Crest

*Down-slope shape:* Convex

*Across-slope shape:* Convex

*Ecological site:* F095XB007WI - Loamy Upland with Carbonates

*Hydric soil rating:* No

#### Hochheim

*Percent of map unit:* 5 percent

*Landform:* Drumlins

*Landform position (two-dimensional):* Backslope, shoulder

*Landform position (three-dimensional):* Head slope, side slope

*Down-slope shape:* Convex

*Across-slope shape:* Linear

*Ecological site:* F095XB006WI - Shallow Upland

*Hydric soil rating:* No

## **7744D3—Hochheim soils, 12 to 20 percent slopes, severely eroded**

### **Map Unit Setting**

*National map unit symbol:* g949  
*Elevation:* 670 to 1,100 feet  
*Mean annual precipitation:* 28 to 36 inches  
*Mean annual air temperature:* 37 to 55 degrees F  
*Frost-free period:* 135 to 170 days  
*Farmland classification:* Not prime farmland

### **Map Unit Composition**

*Hochheim and similar soils:* 100 percent  
*Estimates are based on observations, descriptions, and transects of the mapunit.*

### **Description of Hochheim**

#### **Setting**

*Landform:* Ground moraines, drumlins  
*Landform position (two-dimensional):* Backslope  
*Landform position (three-dimensional):* Side slope  
*Down-slope shape:* Convex  
*Across-slope shape:* Convex  
*Parent material:* Calcareous, dense loamy till

#### **Typical profile**

*A,E - 0 to 6 inches:* clay loam  
*Bt1,Bt2,BC - 6 to 17 inches:* clay loam  
*C - 17 to 60 inches:* gravelly loam

#### **Properties and qualities**

*Slope:* 12 to 20 percent  
*Depth to restrictive feature:* More than 80 inches  
*Drainage class:* Well drained  
*Capacity of the most limiting layer to transmit water (Ksat):* Moderately high to high (0.57 to 1.98 in/hr)  
*Depth to water table:* More than 80 inches  
*Frequency of flooding:* None  
*Frequency of ponding:* None  
*Calcium carbonate, maximum content:* 60 percent  
*Maximum salinity:* Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)  
*Available water supply, 0 to 60 inches:* Moderate (about 7.7 inches)

#### **Interpretive groups**

*Land capability classification (irrigated):* None specified  
*Land capability classification (nonirrigated):* 6e  
*Hydrologic Soil Group:* B  
*Ecological site:* F095XB007WI - Loamy Upland with Carbonates  
*Forage suitability group:* Mod AWC, adequately drained with limitations (G095BY006WI)

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*Other vegetative classification:* Mod AWC, adequately drained with limitations  
(G095BY006WI)

*Hydric soil rating:* No

# **Soil Information for All Uses**

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## **Soil Properties and Qualities**

The Soil Properties and Qualities section includes various soil properties and qualities displayed as thematic maps with a summary table for the soil map units in the selected area of interest. A single value or rating for each map unit is generated by aggregating the interpretive ratings of individual map unit components. This aggregation process is defined for each property or quality.

## **Soil Qualities and Features**

Soil qualities are behavior and performance attributes that are not directly measured, but are inferred from observations of dynamic conditions and from soil properties. Example soil qualities include natural drainage, and frost action. Soil features are attributes that are not directly part of the soil. Example soil features include slope and depth to restrictive layer. These features can greatly impact the use and management of the soil.

## **Hydrologic Soil Group (SilverNail Apartments)**

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

## Custom Soil Resource Report

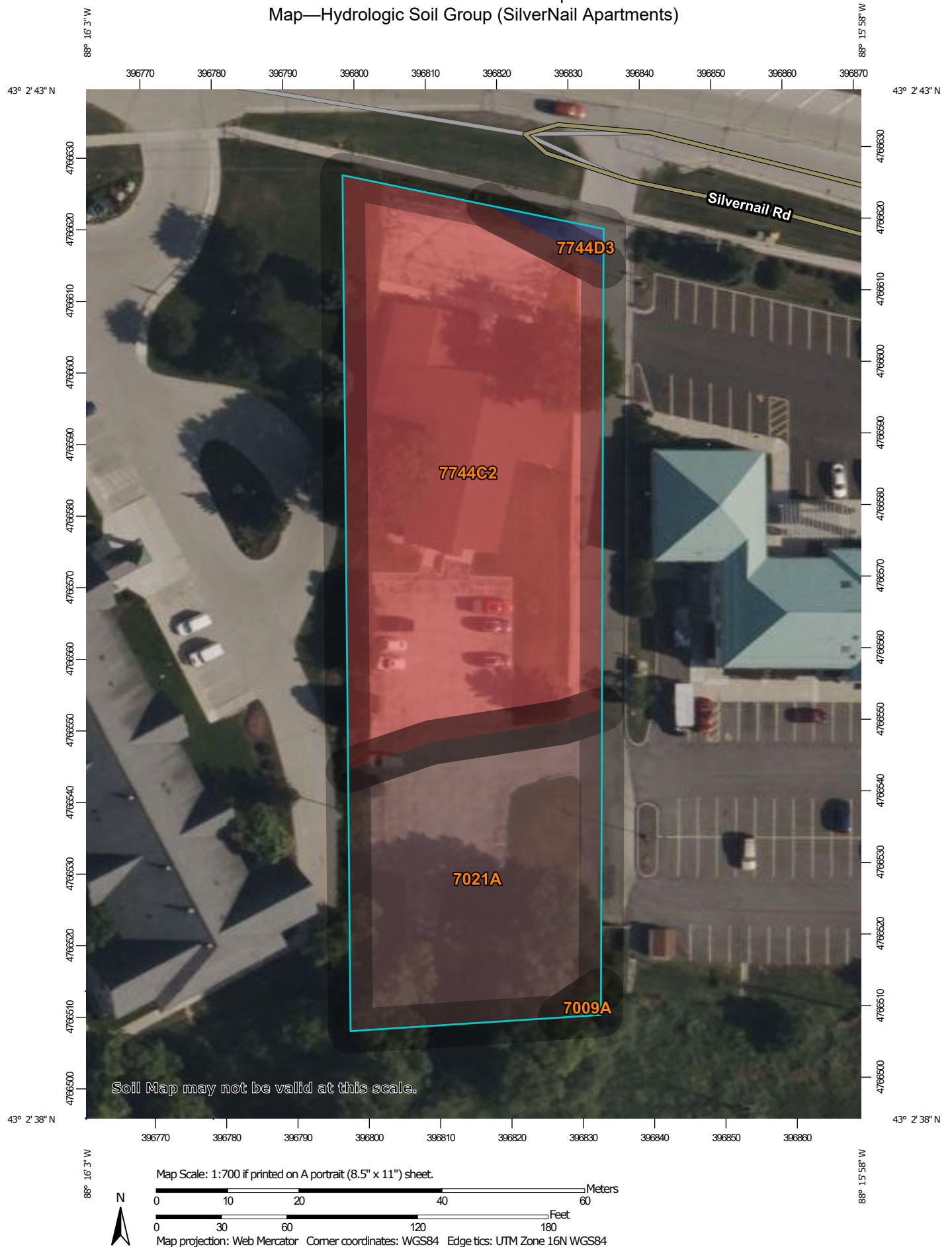
Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

# Custom Soil Resource Report

## Map—Hydrologic Soil Group (SilverNail Apartments)





## MAP LEGEND

### Area of Interest (AOI)









 Area of Interest (AOI)

### Soils

#### Soil Rating Polygons





 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Lines


 A  
 A/D  
 B  
 B/D  
 C  
 C/D  
 D  
 Not rated or not available

#### Soil Rating Points






 A  
 A/D  
 B  
 B/D

 C  
 C/D  
 D  
 Not rated or not available


### Water Features

 Streams and Canals

### Transportation

 Rails  
 Interstate Highways  
 US Routes  
 Major Roads  
 Local Roads

### Background

 Aerial Photography

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service  
 Web Soil Survey URL:  
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Waukesha County, Wisconsin  
 Survey Area Data: Version 4, Sep 10, 2025

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Aug 4, 2022—Sep 13, 2022

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

**Table—Hydrologic Soil Group (SilverNail Apartments)**

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
7009A	Houghton muck, 0 to 2 percent slopes	A/D	0.0	0.2%
7021A	Palms muck, 0 to 2 percent slopes	B/D	0.3	34.0%
7744C2	Hochheim loam, 6 to 12 percent slopes, eroded	D	0.7	64.7%
7744D3	Hochheim soils, 12 to 20 percent slopes, severely eroded	B	0.0	1.0%
<b>Totals for Area of Interest</b>			<b>1.0</b>	<b>100.0%</b>

**Rating Options—Hydrologic Soil Group (SilverNail Apartments)***Aggregation Method:* Dominant Component*Component Percent Cutoff:* None Specified*Tie-break Rule:* Higher

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## Custom Soil Resource Report

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United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. [http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2\\_053624](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624)

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# NOAA ATLAS 14 POINT PRECIPITATION FREQUENCY ESTIMATES: WI

## Data description

Data type: Precipitation depth Units: English Time series type: Partial duration


## Select location

### 1) Manually:

- a) By location (decimal degrees, use "-" for S and W): Latitude:  Longitude:  Submit
- b) By station (list of WI stations): Select station
- c) By address  Search

### 2) Use map:

Labels



**a) Select location**  
Move crosshair or double click

**b) Click on station icon**  
☐ Show stations on map

**Location information:**  
**Name:** Pewaukee, Wisconsin, USA\*  
**Latitude:** 43.0450°  
**Longitude:** -88.2669°  
**Elevation:** 891 ft \*\*

\* Source: ESRI Maps  
\*\* Source: USGS



**NOAA Atlas 14, Volume 8, Version 2**  
**Location name: Pewaukee, Wisconsin, USA\***  
**Latitude: 43.045°, Longitude: -88.2669°**  
**Elevation: 891 ft\*\***

\* source: ESRI Maps

\*\* source: USGS



**POINT PRECIPITATION FREQUENCY ESTIMATES**

Sanja Perica, Deborah Martin, Sandra Pavlovic, Ishani Roy, Michael St. Laurent, Carl Trypaluk, Dale Unruh, Michael Yekta, Geoffery Bonnin

NOAA, National Weather Service, Silver Spring, Maryland

[PF tabular](#) | [PF graphical](#) | [Maps & aerals](#)

**PF tabular**

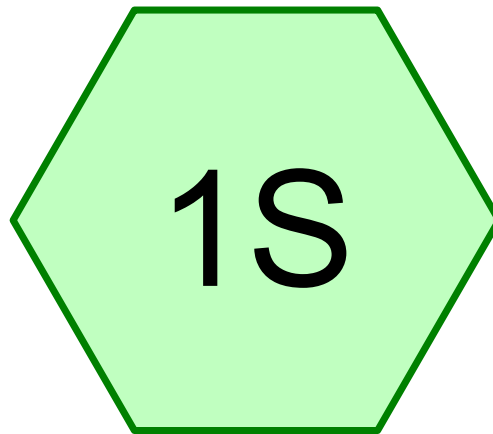
<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
<b>Duration</b>	<b>Average recurrence interval (years)</b>									
	<b>1</b>	<b>2</b>	<b>5</b>	<b>10</b>	<b>25</b>	<b>50</b>	<b>100</b>	<b>200</b>	<b>500</b>	<b>1000</b>
<b>5-min</b>	<b>0.338</b> (0.273-0.418)	<b>0.405</b> (0.326-0.501)	<b>0.512</b> (0.411-0.634)	<b>0.599</b> (0.479-0.744)	<b>0.717</b> (0.556-0.901)	<b>0.805</b> (0.614-1.02)	<b>0.892</b> (0.662-1.14)	<b>0.978</b> (0.702-1.27)	<b>1.09</b> (0.757-1.44)	<b>1.17</b> (0.799-1.56)
<b>10-min</b>	<b>0.495</b> (0.399-0.612)	<b>0.592</b> (0.477-0.733)	<b>0.749</b> (0.602-0.929)	<b>0.877</b> (0.702-1.09)	<b>1.05</b> (0.814-1.32)	<b>1.18</b> (0.898-1.49)	<b>1.31</b> (0.969-1.68)	<b>1.43</b> (1.03-1.86)	<b>1.60</b> (1.11-2.11)	<b>1.72</b> (1.17-2.29)
<b>15-min</b>	<b>0.603</b> (0.487-0.747)	<b>0.722</b> (0.582-0.894)	<b>0.914</b> (0.735-1.13)	<b>1.07</b> (0.856-1.33)	<b>1.28</b> (0.992-1.61)	<b>1.44</b> (1.10-1.82)	<b>1.59</b> (1.18-2.04)	<b>1.75</b> (1.25-2.27)	<b>1.95</b> (1.35-2.57)	<b>2.09</b> (1.43-2.79)
<b>30-min</b>	<b>0.828</b> (0.668-1.02)	<b>0.996</b> (0.803-1.23)	<b>1.27</b> (1.02-1.57)	<b>1.48</b> (1.19-1.84)	<b>1.78</b> (1.38-2.24)	<b>2.00</b> (1.53-2.54)	<b>2.22</b> (1.65-2.85)	<b>2.44</b> (1.75-3.17)	<b>2.72</b> (1.89-3.59)	<b>2.92</b> (2.00-3.90)
<b>60-min</b>	<b>1.06</b> (0.858-1.32)	<b>1.28</b> (1.03-1.58)	<b>1.63</b> (1.31-2.02)	<b>1.93</b> (1.54-2.40)	<b>2.35</b> (1.83-2.97)	<b>2.68</b> (2.05-3.41)	<b>3.01</b> (2.24-3.88)	<b>3.36</b> (2.42-4.39)	<b>3.82</b> (2.66-5.07)	<b>4.18</b> (2.85-5.58)
<b>2-hr</b>	<b>1.30</b> (1.06-1.59)	<b>1.56</b> (1.27-1.90)	<b>2.00</b> (1.62-2.44)	<b>2.37</b> (1.92-2.91)	<b>2.92</b> (2.31-3.67)	<b>3.35</b> (2.60-4.24)	<b>3.80</b> (2.87-4.87)	<b>4.28</b> (3.12-5.55)	<b>4.93</b> (3.48-6.49)	<b>5.44</b> (3.75-7.20)
<b>3-hr</b>	<b>1.46</b> (1.20-1.77)	<b>1.73</b> (1.42-2.10)	<b>2.21</b> (1.81-2.69)	<b>2.64</b> (2.15-3.22)	<b>3.27</b> (2.62-4.11)	<b>3.79</b> (2.97-4.78)	<b>4.35</b> (3.31-5.55)	<b>4.94</b> (3.63-6.39)	<b>5.77</b> (4.11-7.58)	<b>6.43</b> (4.46-8.47)
<b>6-hr</b>	<b>1.76</b> (1.46-2.11)	<b>2.04</b> (1.70-2.44)	<b>2.55</b> (2.12-3.07)	<b>3.03</b> (2.51-3.66)	<b>3.78</b> (3.08-4.72)	<b>4.41</b> (3.51-5.53)	<b>5.10</b> (3.94-6.48)	<b>5.85</b> (4.37-7.54)	<b>6.94</b> (5.01-9.06)	<b>7.82</b> (5.49-10.2)
<b>12-hr</b>	<b>2.09</b> (1.76-2.48)	<b>2.36</b> (1.99-2.80)	<b>2.87</b> (2.41-3.41)	<b>3.36</b> (2.81-4.01)	<b>4.14</b> (3.43-5.14)	<b>4.82</b> (3.89-6.00)	<b>5.58</b> (4.37-7.02)	<b>6.41</b> (4.85-8.19)	<b>7.63</b> (5.57-9.88)	<b>8.63</b> (6.12-11.2)
<b>24-hr</b>	<b>2.39</b> (2.04-2.80)	<b>2.69</b> (2.30-3.16)	<b>3.27</b> (2.78-3.84)	<b>3.81</b> (3.23-4.49)	<b>4.66</b> (3.90-5.70)	<b>5.40</b> (4.40-6.62)	<b>6.20</b> (4.91-7.72)	<b>7.09</b> (5.42-8.96)	<b>8.37</b> (6.18-10.7)	<b>9.43</b> (6.76-12.1)
<b>2-day</b>	<b>2.66</b> (2.30-3.08)	<b>3.08</b> (2.66-3.56)	<b>3.81</b> (3.29-4.42)	<b>4.48</b> (3.85-5.21)	<b>5.48</b> (4.62-6.59)	<b>6.32</b> (5.20-7.63)	<b>7.21</b> (5.76-8.84)	<b>8.17</b> (6.30-10.2)	<b>9.53</b> (7.10-12.1)	<b>10.6</b> (7.71-13.5)
<b>3-day</b>	<b>2.92</b> (2.55-3.36)	<b>3.36</b> (2.93-3.86)	<b>4.13</b> (3.59-4.76)	<b>4.83</b> (4.18-5.57)	<b>5.87</b> (4.98-7.00)	<b>6.74</b> (5.59-8.08)	<b>7.66</b> (6.17-9.33)	<b>8.66</b> (6.72-10.7)	<b>10.1</b> (7.55-12.7)	<b>11.2</b> (8.18-14.1)
<b>4-day</b>	<b>3.15</b> (2.77-3.61)	<b>3.60</b> (3.16-4.12)	<b>4.39</b> (3.84-5.03)	<b>5.10</b> (4.44-5.86)	<b>6.16</b> (5.26-7.31)	<b>7.04</b> (5.87-8.41)	<b>7.99</b> (6.46-9.68)	<b>9.00</b> (7.03-11.1)	<b>10.4</b> (7.87-13.1)	<b>11.6</b> (8.51-14.6)
<b>7-day</b>	<b>3.72</b> (3.30-4.21)	<b>4.22</b> (3.75-4.78)	<b>5.10</b> (4.51-5.78)	<b>5.87</b> (5.16-6.68)	<b>7.00</b> (6.03-8.21)	<b>7.94</b> (6.68-9.37)	<b>8.92</b> (7.29-10.7)	<b>9.97</b> (7.85-12.2)	<b>11.4</b> (8.70-14.2)	<b>12.6</b> (9.35-15.8)
<b>10-day</b>	<b>4.24</b> (3.79-4.76)	<b>4.79</b> (4.28-5.39)	<b>5.74</b> (5.11-6.47)	<b>6.57</b> (5.82-7.43)	<b>7.77</b> (6.72-9.02)	<b>8.74</b> (7.39-10.2)	<b>9.75</b> (8.00-11.6)	<b>10.8</b> (8.56-13.1)	<b>12.3</b> (9.39-15.2)	<b>13.4</b> (10.0-16.7)
<b>20-day</b>	<b>5.80</b> (5.25-6.43)	<b>6.49</b> (5.88-7.21)	<b>7.64</b> (6.90-8.50)	<b>8.60</b> (7.72-9.60)	<b>9.93</b> (8.66-11.3)	<b>11.0</b> (9.37-12.6)	<b>12.0</b> (9.95-14.1)	<b>13.1</b> (10.4-15.6)	<b>14.5</b> (11.2-17.6)	<b>15.6</b> (11.7-19.2)
<b>30-day</b>	<b>7.17</b> (6.56-7.90)	<b>8.00</b> (7.30-8.82)	<b>9.32</b> (8.49-10.3)	<b>10.4</b> (9.42-11.5)	<b>11.8</b> (10.4-13.3)	<b>12.9</b> (11.1-14.7)	<b>14.0</b> (11.7-16.2)	<b>15.0</b> (12.1-17.8)	<b>16.4</b> (12.7-19.8)	<b>17.4</b> (13.2-21.3)
<b>45-day</b>	<b>8.98</b> (8.28-9.83)	<b>10.0</b> (9.20-10.9)	<b>11.6</b> (10.6-12.7)	<b>12.8</b> (11.7-14.1)	<b>14.4</b> (12.7-16.1)	<b>15.6</b> (13.5-17.6)	<b>16.7</b> (14.0-19.1)	<b>17.7</b> (14.3-20.7)	<b>18.9</b> (14.8-22.7)	<b>19.8</b> (15.2-24.1)
<b>60-day</b>	<b>10.6</b> (9.80-11.5)	<b>11.8</b> (10.9-12.8)	<b>13.6</b> (12.5-14.8)	<b>15.0</b> (13.8-16.4)	<b>16.7</b> (14.8-18.5)	<b>18.0</b> (15.6-20.1)	<b>19.1</b> (16.1-21.8)	<b>20.1</b> (16.3-23.4)	<b>21.3</b> (16.7-25.3)	<b>22.0</b> (16.9-26.8)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).  
 Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.  
 Please refer to NOAA Atlas 14 document for more information.

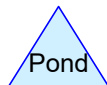
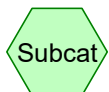
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**PF graphical**





# Drainage Area



## Routing Diagram for Existing Cond SilerNail

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**Existing Cond SilerNail**

Prepared by Jahnke &amp; Jahnke Associates Inc

Printed 10/2/2025

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**Area Listing (all nodes)**

Area (acres)	CN	Description (subcatchment-numbers)
0.286	84	50-75% Grass cover, Fair, HSG D (1S)
0.536	98	Hard Surface (1S)
<b>0.822</b>	<b>93</b>	<b>TOTAL AREA</b>

**Existing Cond SilerNail**

Prepared by Jahnke &amp; Jahnke Associates Inc

Printed 10/2/2025

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**Soil Listing (all nodes)**

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
0.286	HSG D	1S
0.536	Other	1S
<b>0.822</b>		<b>TOTAL AREA</b>

Existing Cond SilerNail

Prepared by Jahnke & Jahnke Associates Inc  
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Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.286	0.000	0.286	50-75% Grass cover, Fair	1S
0.000	0.000	0.000	0.000	0.536	0.536	Hard Surface	1S
<b>0.000</b>	<b>0.000</b>	<b>0.000</b>	<b>0.286</b>	<b>0.536</b>	<b>0.822</b>	<b>TOTAL AREA</b>	

## Existing Cond SilerNail

Prepared by Jahnke & Jahnke Associates Inc

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SilverNail Existing Conditions  
Type II 24-hr 1 yr Rainfall=2.39"

Printed 10/2/2025

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Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

### Subcatchment 1S: Drainage Area

Runoff Area=0.822 ac 65.21% Impervious Runoff Depth>1.67"  
Flow Length=329' Tc=16.5 min CN=93 Runoff=1.66 cfs 0.114 af

**Total Runoff Area = 0.822 ac Runoff Volume = 0.114 af Average Runoff Depth = 1.67"**  
**34.79% Pervious = 0.286 ac 65.21% Impervious = 0.536 ac**

## Existing Cond SilerNail

Prepared by Jahnke & Jahnke Associates Inc

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SilverNail Existing Conditions  
Type II 24-hr 1 yr Rainfall=2.39"

Printed 10/2/2025

Page 7

### Summary for Subcatchment 1S: Drainage Area

Runoff = 1.66 cfs @ 12.08 hrs, Volume= 0.114 af, Depth> 1.67"

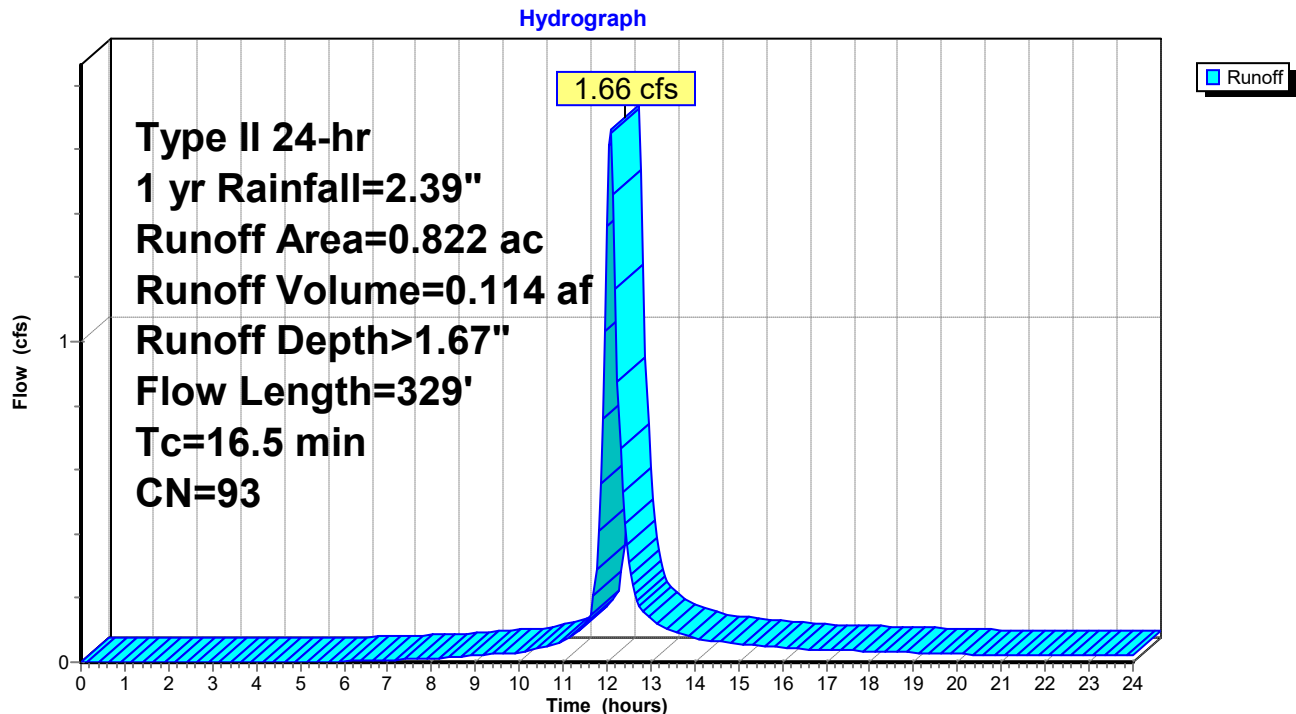
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type II 24-hr 1 yr Rainfall=2.39"

Area (ac)	CN	Description
* 0.536	98	Hard Surface
0.286	84	50-75% Grass cover, Fair, HSG D
0.822	93	Weighted Average
0.286		34.79% Pervious Area
0.536		65.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	185	0.0702	0.20		<b>Sheet Flow, Sheet Flow grass</b> Grass: Dense n= 0.240 P2= 2.69"
0.3	26	0.0673	1.57		<b>Sheet Flow, Drive Crossing</b> Smooth surfaces n= 0.011 P2= 2.69"
0.8	118	0.0254	2.39		<b>Shallow Concentrated Flow, North Side Of Wetland</b> Grassed Waterway Kv= 15.0 fps
16.5	329	Total			

### Subcatchment 1S: Drainage Area



## Existing Cond SilerNail

Prepared by Jahnke & Jahnke Associates Inc

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SilverNail Existing Conditions  
*Type II 24-hr 2 yr Rainfall=2.69"*

Printed 10/2/2025

Page 8

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

### Subcatchment 1S: Drainage Area

Runoff Area=0.822 ac 65.21% Impervious Runoff Depth>1.95"  
Flow Length=329' Tc=16.5 min CN=93 Runoff=1.93 cfs 0.134 af

**Total Runoff Area = 0.822 ac Runoff Volume = 0.134 af Average Runoff Depth = 1.95"**  
**34.79% Pervious = 0.286 ac 65.21% Impervious = 0.536 ac**

## Existing Cond SilerNail

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SilverNail Existing Conditions  
Type II 24-hr 2 yr Rainfall=2.69"

Printed 10/2/2025

Page 9

### Summary for Subcatchment 1S: Drainage Area

Runoff = 1.93 cfs @ 12.08 hrs, Volume= 0.134 af, Depth> 1.95"

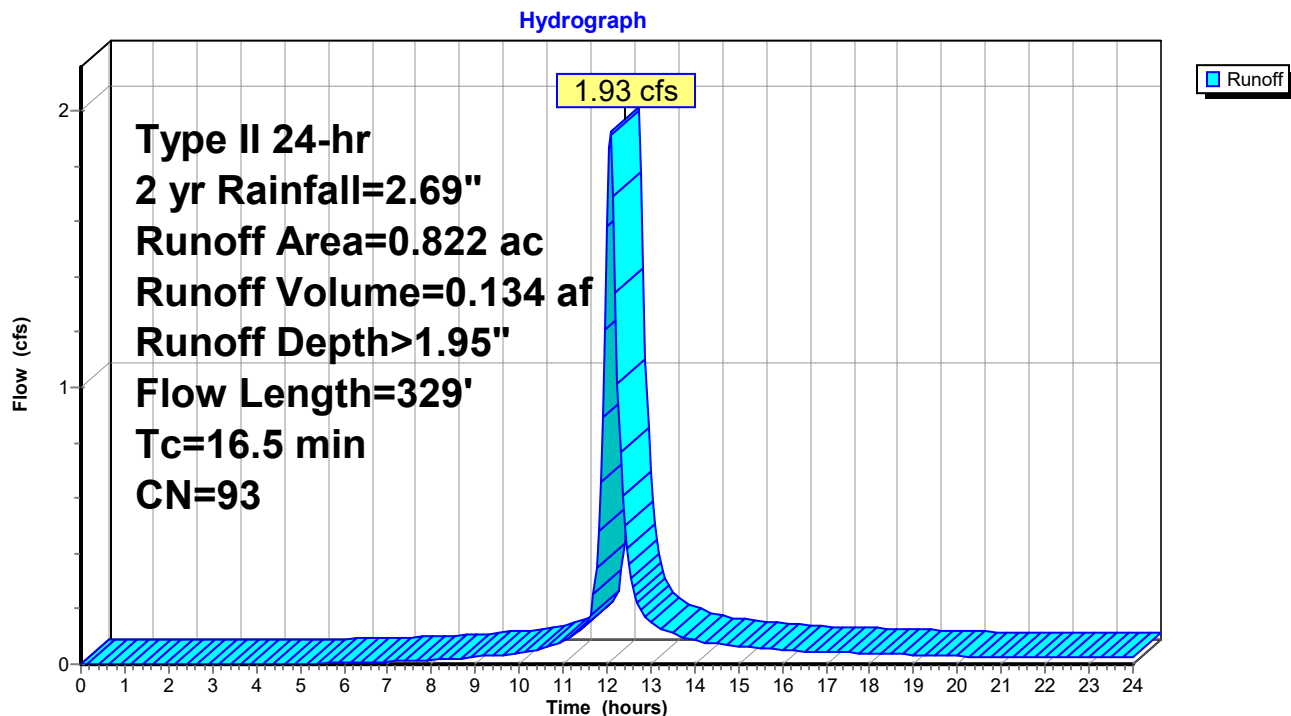
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type II 24-hr 2 yr Rainfall=2.69"

Area (ac)	CN	Description
* 0.536	98	Hard Surface
0.286	84	50-75% Grass cover, Fair, HSG D
0.822	93	Weighted Average
0.286		34.79% Pervious Area
0.536		65.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	185	0.0702	0.20		<b>Sheet Flow, Sheet Flow grass</b> Grass: Dense n= 0.240 P2= 2.69"
0.3	26	0.0673	1.57		<b>Sheet Flow, Drive Crossing</b> Smooth surfaces n= 0.011 P2= 2.69"
0.8	118	0.0254	2.39		<b>Shallow Concentrated Flow, North Side Of Wetland</b> Grassed Waterway Kv= 15.0 fps
16.5	329	Total			

### Subcatchment 1S: Drainage Area





## Existing Cond SilerNail

Prepared by Jahnke & Jahnke Associates Inc

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SilverNail Existing Conditions  
Type II 24-hr 10 yr Rainfall=3.81"

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Page 10

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

### Subcatchment 1S: Drainage Area

Runoff Area=0.822 ac 65.21% Impervious Runoff Depth>3.03"  
Flow Length=329' Tc=16.5 min CN=93 Runoff=2.92 cfs 0.207 af

**Total Runoff Area = 0.822 ac Runoff Volume = 0.207 af Average Runoff Depth = 3.03"**  
**34.79% Pervious = 0.286 ac 65.21% Impervious = 0.536 ac**

## Existing Cond SilerNail

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SilverNail Existing Conditions  
Type II 24-hr 10 yr Rainfall=3.81"

Printed 10/2/2025

Page 11

### Summary for Subcatchment 1S: Drainage Area

Runoff = 2.92 cfs @ 12.08 hrs, Volume= 0.207 af, Depth> 3.03"

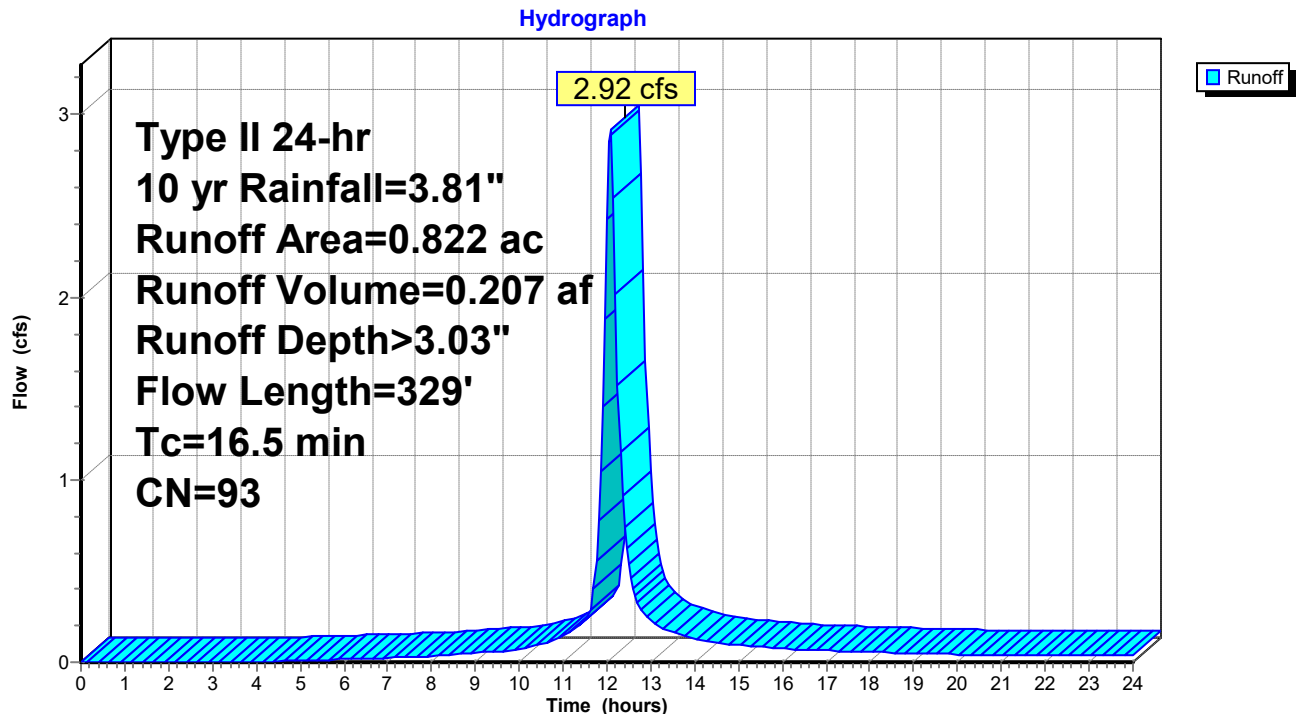
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type II 24-hr 10 yr Rainfall=3.81"

Area (ac)	CN	Description
* 0.536	98	Hard Surface
0.286	84	50-75% Grass cover, Fair, HSG D
0.822	93	Weighted Average
0.286		34.79% Pervious Area
0.536		65.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	185	0.0702	0.20		<b>Sheet Flow, Sheet Flow grass</b> Grass: Dense n= 0.240 P2= 2.69"
0.3	26	0.0673	1.57		<b>Sheet Flow, Drive Crossing</b> Smooth surfaces n= 0.011 P2= 2.69"
0.8	118	0.0254	2.39		<b>Shallow Concentrated Flow, North Side Of Wetland</b> Grassed Waterway Kv= 15.0 fps
16.5	329	Total			

### Subcatchment 1S: Drainage Area



## Existing Cond SilerNail

Prepared by Jahnke & Jahnke Associates Inc

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SilverNail Existing Conditions  
Type II 24-hr 100 yr Rainfall=6.20"

Printed 10/2/2025

Page 12

Time span=0.00-24.00 hrs, dt=0.05 hrs, 481 points

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN

Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

### Subcatchment 1S: Drainage Area

Runoff Area=0.822 ac 65.21% Impervious Runoff Depth>5.36"  
Flow Length=329' Tc=16.5 min CN=93 Runoff=5.02 cfs 0.367 af

**Total Runoff Area = 0.822 ac Runoff Volume = 0.367 af Average Runoff Depth = 5.36"**  
**34.79% Pervious = 0.286 ac 65.21% Impervious = 0.536 ac**

## Existing Cond SilerNail

Prepared by Jahnke & Jahnke Associates Inc

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SilverNail Existing Conditions  
Type II 24-hr 100 yr Rainfall=6.20"

Printed 10/2/2025

Page 13

### Summary for Subcatchment 1S: Drainage Area

Runoff = 5.02 cfs @ 12.08 hrs, Volume= 0.367 af, Depth> 5.36"

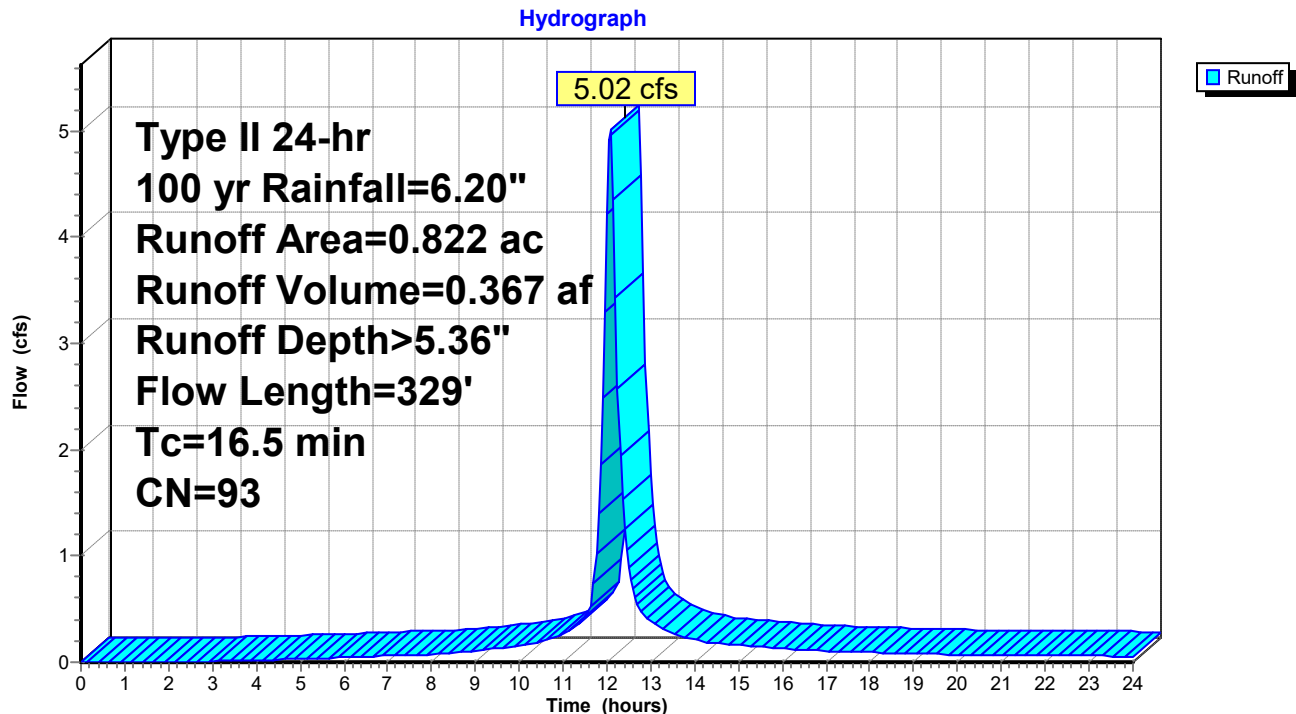
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs  
Type II 24-hr 100 yr Rainfall=6.20"

Area (ac)	CN	Description
* 0.536	98	Hard Surface
0.286	84	50-75% Grass cover, Fair, HSG D
0.822	93	Weighted Average
0.286		34.79% Pervious Area
0.536		65.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
15.4	185	0.0702	0.20		<b>Sheet Flow, Sheet Flow grass</b> Grass: Dense n= 0.240 P2= 2.69"
0.3	26	0.0673	1.57		<b>Sheet Flow, Drive Crossing</b> Smooth surfaces n= 0.011 P2= 2.69"
0.8	118	0.0254	2.39		<b>Shallow Concentrated Flow, North Side Of Wetland</b> Grassed Waterway Kv= 15.0 fps
16.5	329	Total			

### Subcatchment 1S: Drainage Area



ROOF & GRASS WEST

PARKING & DRIVE EAST



Strip Commercial



Shopping Center

Junction 1

FS

DS Filter Strips #1

Junction 2

Outfall

TO EXISTING WETLAND

DETENTION BASIN  
NOT REQ FOR TREATMENT

WINSLAM MODEL

NOT TO SCALE

# WinSLAMM

File Name:

S:\projects\24-10012 Black Silvermail\WinSLAMM V10.3\24-10012 WinSLAMM 2025-10-23 BK.mdb

## Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	75509		0.63	100.8	475.3	
Outfall Total with Controls	0	100.00 %	0.00	0	0	100.00 %
Current File Output: Annualized Total After Outfall Controls	0	Years in Model Run:	1.00		0	

Print Output  
Summary to Text  
File

Print Output  
Summary to .csv  
File

Total Area Modeled (ac)

1.024

## Total Control Practice Costs

Capital Cost	N/A
Land Cost	N/A
Annual Maintenance Cost	N/A
Present Value of All Costs	N/A
Annualized Value of All Costs	N/A

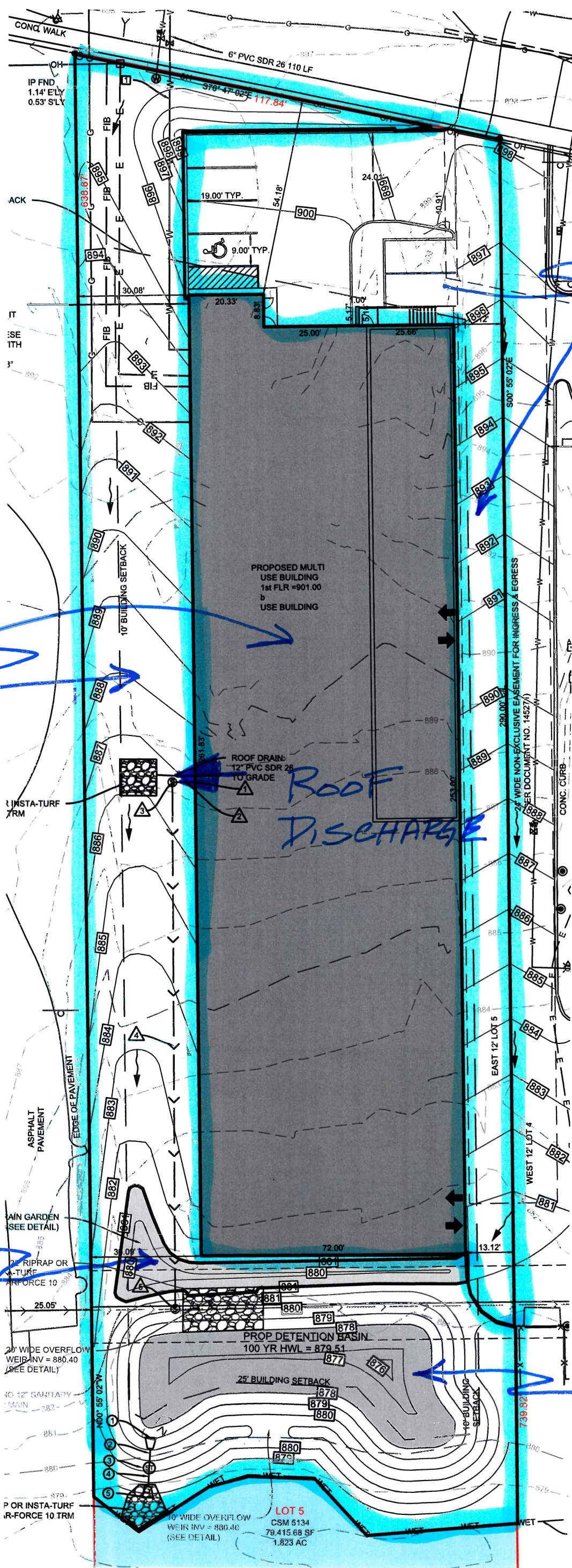
Perform Outfall  
Flow Duration  
Curve Calculations

## Receiving Water Impacts Due To Stormwater Runoff

(ICWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.63	Poor
With Controls	0.00	Good





SHOPPING CENTER

STRIP COMMERCIAL

ROOF DISCHARGE

RAIN GARDEN FILTER STRIP

DET BASIN NOT REQ IN WINSLAM MODEL

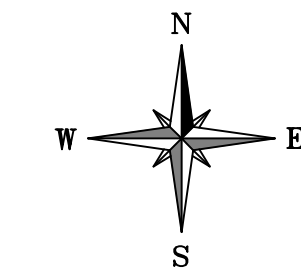
WINSLAM MODEL NOT TO SCALE



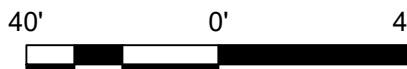
PLAT OF SURVEY

OF

LOT 5, CERTIFIED SURVEY MAP NO. 5134, RECORDED ON JANUARY 22, 1987 IN VOLUME 42 OF CERTIFIED SURVEY MAPS ON PAGES 65-67, AS DOCUMENT NO. 1399130, BEING A PART OF THE NORTHEAST 1/4 OF SECTION 29, TOWN 7 NORTH, RANGE 19 EAST, CITY OF WAUKESHA, COUNTY OF WAUKESHA, STATE OF WISCONSIN, TOGETHER WITH A NON-EXCLUSIVE EASEMENT LOCATED ON THE EAST 12 FEET OF THE NORTH 290 FEET OF LOT 5 AND THE WEST 12 FEET OF THE NORTH 290 FEET OF LOT 4, IN CERTIFIED SURVEY MAP NO. 5134, FOR INGRESS AND EGRESS AS PROVIDED FOR THEREIN.



GRAPHIC SCALE



( IN FEET )

SITE BENCHMARK # 1789  
ELEV = 896.89 (DATUM: NAD 88)  
CROSS CUT IN THE NORTHERN MOST BOLT OF A FIRE  
HYDRANT 1.99 FEET NORTH FROM THE CONCRETE  
SIDEWALK 14.92 FEET SOUTH OF THE EDGE OF  
PAVEMENT OF SILVERNAIL ROAD, AND 20.89 FEET  
NORTHWEST OF A POWERPOLE

CONCRETE MONUMENT  
WITH A BRASS CAP FOUND  
NE CORNER OF THE  
NE QUARTER OF  
SECTION 29-7-19

LEGEND:

- SECTION CORNER MONUMENT
- EX. CHISELED CROSS FOUND
- IRON ROD FOUND
- 1" IRON PIPE FOUND
- 1" IRON PIPE SET
- EX. STORM MANHOLE
- EX. CATCH BASIN ROUND
- EX. CATCH BASIN SQUARE
- EX. BOLLARD
- EX. GAS VALVE
- EX. AIR CONDITIONER
- EX. ELECTRIC METER
- EX. GAS METER
- EX. ELECTRIC PEDESTAL
- EX. TELEPHONE PEDESTAL
- EX. CLEANOUT
- EX. POWER POLE
- EX. MAILBOX
- EX. SANITARY MANHOLE
- EX. UNKNOWN MANHOLE
- EX. WATER MANHOLE
- EX. ELECTRIC MANHOLE
- EX. ELECTRIC TRANSFORMER
- EX. TELEPHONE MANHOLE
- EX. GUY WIRE
- EX. LIGHT POLE
- EX. SIGN
- EX. WATER VALVE
- EX. OVERHEAD WIRES
- EX. ELECTRIC LINE
- EX. FENCE LINE
- EX. COMMUNICATIONS
- EX. TELEPHONE LINE
- EX. GAS LINE
- EX. FIBER OPTICS
- EX. SANITARY SEWER (SAN)
- EX. STORM SEWER (STO)
- EX. WATER MAIN
- WETLANDS DELINEATED BY OTHERS

ABBREVIATIONS:

- MEASURED DISTANCE
- RECORDED DISTANCE
- ARC OF CURVE
- ACRES
- ASPHALT
- BENCHMARK
- CALCULATED DISTANCE
- CHORD LENGTH
- CONCRETE
- CORNER
- CERTIFIED SURVEY MAP
- COUNTY TRUNK HIGHWAY
- DELTA
- DEGREE OF CURVE
- EAST
- EASTERLY
- ELEVATION
- EXISTING
- EXCEPTION
- FINISH FLOOR ELEVATION
- FOUND
- GARAGE FLOOR ELEVATION
- GROUND
- INVERT
- IRON PIPE
- IRON ROD
- MEASURED/SURVEYED DISTANCE
- NORTH
- NORTH AMERICAN DATUM
- NORTHEAST
- NORTHERLY
- NORTHEASTERLY
- NUMBER
- NORTHWEST
- NORTHWESTERLY
- PAGE
- QUARTER
- RECORDED
- RM OR TOP POINT
- RIGHT OF WAY
- SOUTH
- SOUTHERLY
- SOUTHEAST
- SOUTHEASTERLY
- STATE TRUNK HIGHWAY
- SURVEYED
- SOUTHWEST
- SOUTHWESTERLY
- UNITED STATES HIGHWAY
- UNITED STATES GEOLOGICAL SURVEY
- VARIABLES
- VERTICAL POINT OF INTERSECTION
- WEST
- WESTERLY

- SURVEY NOTES:
- Date of the Survey field work: 11/01/2024
  - Building lines, easements and other restrictions not shown herein, should refer to deed, title policy and local zoning ordinances.
  - All dimensions shown are in decimal feet, US survey units.
  - Legal description was obtained from the client which may not be current, accurate or complete. Review legal description and record measurements on this plat and at once report any apparent difference to the surveyor.
  - Utilities have not been certified, therefore the location and size of the underground structures and utilities shown hereon have been located to a reasonable degree of accuracy, but Jahnke & Jahnke Associates LLC does not guarantee their exact location or the location of others not shown. Contact Diggers Hotline, Inc., Etc.
  - Reference bearing is assumed unless noted. Bearing shown here are based on the North American Datum of 1983/2011 (NAD 83/2011). Wisconsin State Plane Coordinate System South Zone. Elevations (if any) shown are in relation to the North American Vertical Datum of 1988 (NAVD 88).
  - No measurements are to be assumed by scaling.
  - Any comments, modifications, alterations and revisions to this Survey must be brought to our attention within 30 days from date of completion on this sheet.
  - To insure legitimacy of this Plat of Survey, it must carry the Embossed Corporate Seal of Jahnke & Jahnke Associates LLC.
  - Per scope of this survey, not all improvements are shown.
  - This property is subject to a Easement granted to The Milwaukee Electric Railway and Light Company, for utility purposes, recorded as Document No. 172828.

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CALL DIGGERS HOTLINE  
811 OR 1-800-242-8511 TOLL FREE  
WIS STATUTE 182.0175(1974) REQUIRES MIN. 3  
WORK DAYS NOTICE BEFORE YOU EXCAVATE  
MILW. AREA 1-414-259-1181

NOTE: The location and size of the underground structures and utilities shown hereon have been located to a reasonable degree of accuracy, but the Engineer and/or Surveyor does not guarantee their exact location or the location of others not shown. Contact Diggers Hotline, Inc., Etc.

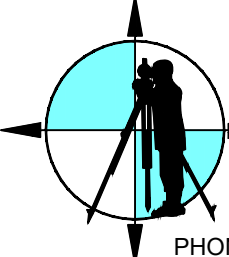
STATE OF WISCONSIN  
COUNTY OF WAUKESHA } ss.

I CERTIFY, THAT THIS SURVEY WAS PREPARED UNDER MY SUPERVISION AND TO THE BEST OF MY PROFESSIONAL KNOWLEDGE AND BELIEF, PLAT HEREON DRAWN IS A REPRESENTATION OF SAME.

DATED AT WAUKESHA, WISCONSIN THIS 12th DAY OF NOVEMBER, 2024.

BY: MOHAMMAD I. RANJHA - WISCONSIN PROFESSIONAL LAND SURVEYOR NO. S-2126

SHEET: 1 of 8



JAHNKE & JAHNKE  
ASSOCIATES, LLC.  
ENGINEERS • PLANNERS • SURVEYORS  
CONNECT • EMPOWER • DESIGN  
WWW.JAHNKEANDJAHNKE.COM  
524 BLUEMOUND ROAD, WAUKESHA, WI 53188  
PHONE: (262) 542-5797, EMAIL: SURVEY@JAHNKEANDJAHNKE.COM

PROJECT

2417 SILVERNAIL ROAD,  
WAUKESHA, WI 53186

DRAWN BY: JB

CHECKED BY: MR

JOB NO.: 24-10012

CLIENT

BLECK & BLECK ARCHITECTS, LLC  
200 E. CHRUCH STREET,  
LIBERTYVILLE, IL 60048

REVISIONS

DATE	DESCRIPTION	BY

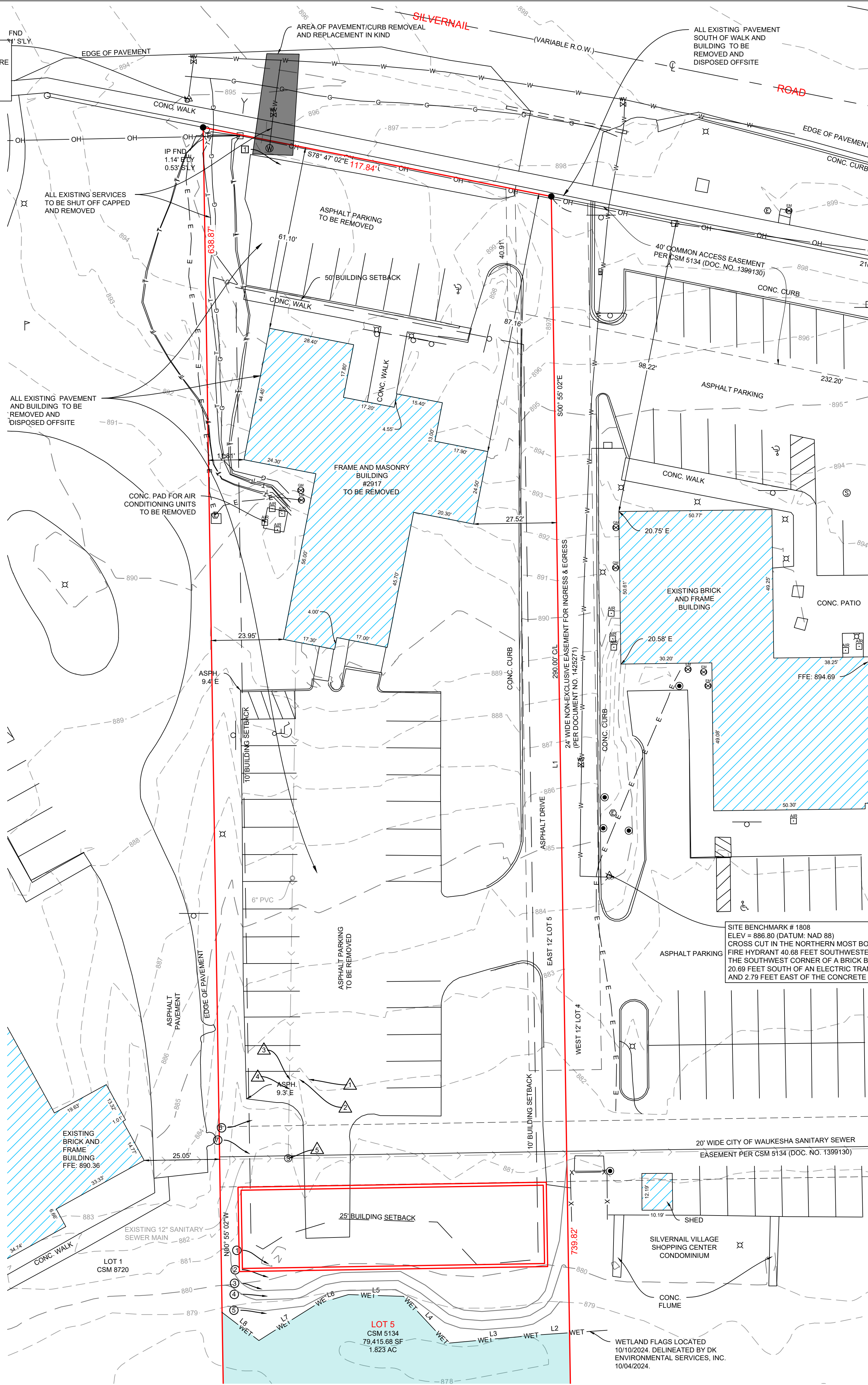
FILE NAME: S:\projects\24-10012 Bleck Silvernail\DWG\24-10012 R3 CIVIL.dwg







SITE BENCHMARK # 1789  
ELEV = 896.89 (DATUM: NAD 88)  
CROSS CUT IN THE NORTHERN MOST BOLT OF A FIRE  
HYDRANT 1.99 FEET NORTH FROM THE CONCRETE  
SIDEWALK, 14.92 FEET SOUTH OF THE EDGE OF  
PAVEMENT OF SILVERNAIL ROAD, AND 20.89 FEET  
NORTHWEST OF A POWERPOLE



- NOTE:
- THE PROPERTY IS ZONED B-5 PER CITY OF WAUKESHA ZONING MAP.
  - BUILDING SETBACKS OBTAINED FROM THE CITY OF WAUKESHA MUNICIPAL CODE.

LEGEND:

- SECTION CORNER MONUMENT
- EX. CHISELED CROSS FOUND
- IRON ROD FOUND
- 1" IRON PIPE FOUND
- 1" IRON PIPE SET
- EX. STORM MANHOLE
- EX. CATCH BASIN ROUND
- EX. CATCH BASIN SQUARE
- EX. BOLLARD
- EX. GAS VALVE
- EX. AIR CONDITIONER
- EX. ELECTRIC METER
- EX. GAS METER
- EX. ELECTRIC PEDESTAL
- EX. TELEPHONE PEDESTAL
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- EX. POWER POLE
- EX. MAILBOX
- EX. SANITARY MANHOLE
- EX. UNKNOWN MANHOLE
- EX. WATER MANHOLE
- EX. ELECTRIC MANHOLE
- EX. ELECTRIC TRANSFORMER
- EX. TELEPHONE MANHOLE
- EX. GUY WIRE
- EX. LIGHT POLE
- EX. SIGN
- EX. WATER VALVE
- EX. OVERHEAD WIRES
- EX. ELECTRIC LINE
- EX. FENCE LINE
- EX. COMMUNICATIONS
- EX. TELEPHONE LINE
- EX. GAS LINE
- EX. FIBER OPTICS
- EX. SANITARY SEWER (SAN)
- EX. STORM SEWER (STO)
- EX. WATER MAIN

WETLANDS DELINEATED BY OTHERS

ABBREVIATIONS:

- MEASURED DISTANCE
- RECORDED DISTANCE
- ARC OF CURVE
- ACRES
- ASPHALT
- BENCHMARK
- CALCULATED DISTANCE
- CHORD LENGTH
- CONCRETE
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- SOUTHEAST
- SOUTHEASTERLY
- STATE TRUNK HIGHWAY
- SOUTHWEST
- SOUTHWESTERLY
- SURVEYED
- UNITED STATES HIGHWAY
- UNITED STATES GEOLOGICAL SURVEY
- VARIABLES
- VERTICAL POINT OF INTERSECTION
- WEST
- WESTERLY

WETLAND LINE TABLE

Line #	Direction	Length
L1	S00° 55' 02"E	377.18'
L2	S86° 03' 33"W	9.60'
L3	S84° 48' 15"W	31.19'
L4	N42° 52' 49"W	21.26'
L5	N88° 10' 33"W	18.30'
L6	S73° 05' 39"W	11.06'
L7	S57° 51' 40"W	22.61'
L8	N52° 34' 44"W	15.37'

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811 OR 1-800-242-6511 TOLL FREE  
WIS STATUTE 182.0175(1974) REQUIRES MIN. 3 WORK DAYS NOTICE BEFORE YOU EXCAVATE MILW. AREA 1-414-259-1181

NOTE: The location and size of the underground structures and utilities shown hereon have been located to a reasonable degree of accuracy, but the Engineer and/or Surveyor does not guarantee their exact location or the location of others not shown. Contact Diggers Hotline, Inc., Etc.

REVISIONS

BY	DESCRIPTION	DATE
		11/26/2025

CHECKED BY: RK

DATE: 10/29/2025

CLIENT

2417 SILVERNAIL ROAD,  
WAUKESHA, WI 53186

PROJECT

2417 SILVERNAIL ROAD,  
WAUKESHA, WI 53186

JAHNKE & JAHNKE ASSOCIATES, LLC  
ENGINEERS • PLANNERS • SURVEYORS  
CONNECT ► EMPOWER ► DESIGN  
WWW.JAHNKEANDJAHNKE.COM  
524 BLUEMOUND ROAD, WAUKESHA, WI 53188  
PHONE: (262) 542-5797, EMAIL: SURVEY@JAHNKEANDJAHNKE.COM

ROBERT A. KRAUSE  
25766  
WAUKESHA, WI  
PROFESSIONAL ENGINEER

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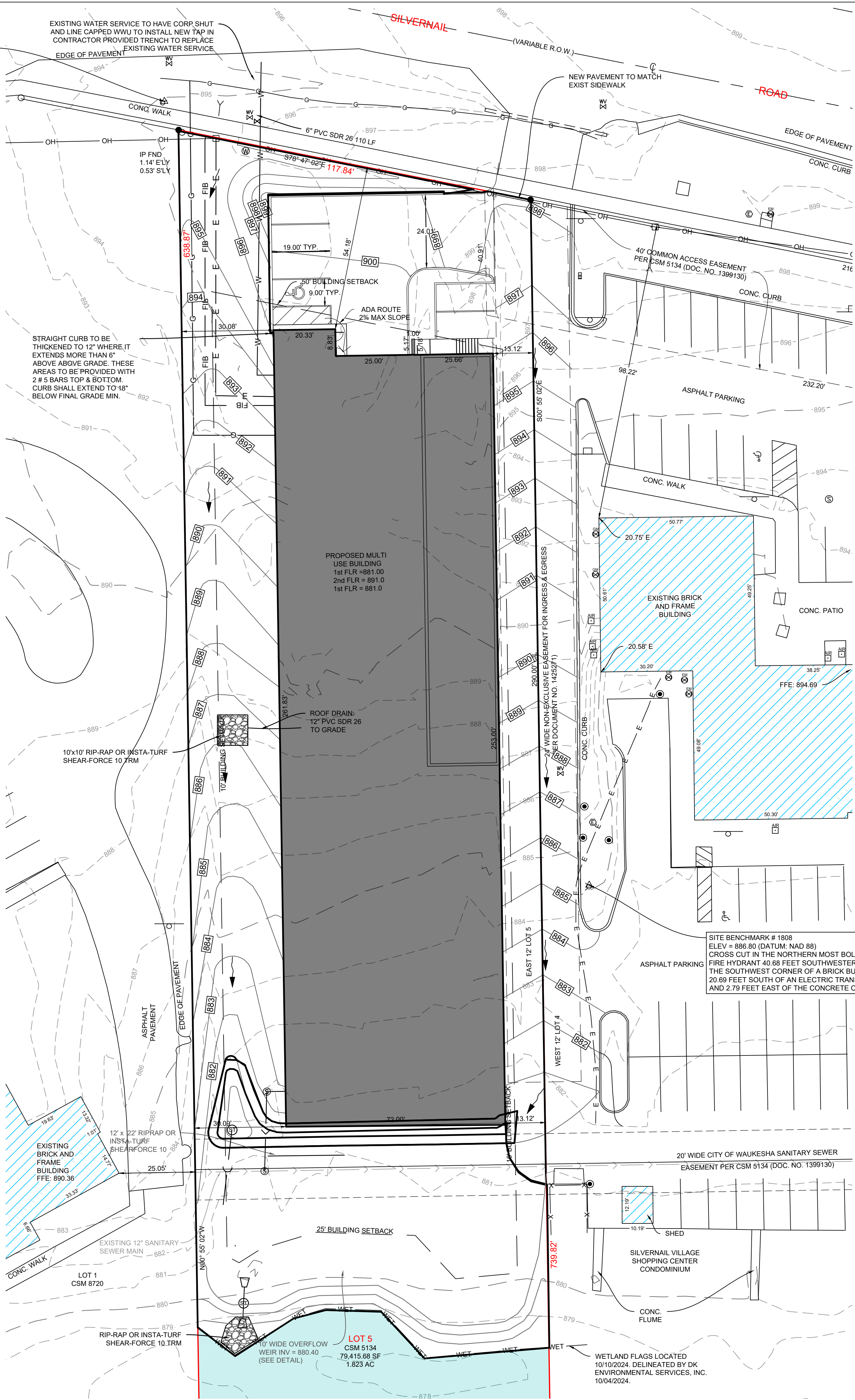
EXISTING CONDITIONS

3 OF 9

FILE NAME: S:\projects\24-10012 Black Silvernaill\DWG\24-10012 R3 CIVIL.dwg



SITE BENCHMARK # 1789  
ELEV = 896.89 (DATUM: NAD 88)  
CROSS CUT IN THE NORTHERN MOST BOLT OF A FIRE  
HYDRANT 1.99 FEET NORTH FROM THE CONCRETE  
SIDEWALK, 14.92 FEET SOUTH OF THE EDGE OF  
PAVEMENT OF SILVERNAIL ROAD, AND 20.89 FEET  
NORTHWEST OF A POWERPOLE



**SITE INFORMATION**  
DISTURBED AREA = 0.822 AC  
EXIST IMPERVIOUS = 0.536 AC  
PROPOSED IMPERVIOUS = 0.599 AC  
EXIST 100 YR STORM WATER DISCHARGE = 5.02 CFS  
PROP 100 YR STORM WATER DISCHARGE = 3.81 CFS



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MILW. AREA 1-414-259-1181

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  - 1" IRON PIPE FOUND
  - 1" IRON PIPE SET
  - EX. STORM MANHOLE
  - EX. CATCH BASIN ROUND
  - EX. CATCH BASIN SQUARE
  - EX. BOLLARD
  - EX. GAS VALVE
  - EX. AIR CONDITIONER
  - EX. ELECTRIC METER
  - EX. GAS METER
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  - EX. CLEANOUT
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  - EX. MAILBOX
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  - EX. ELECTRIC TRANSFORMER
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  - EX. TELEPHONE LINE
  - EX. GAS LINE
  - EX. FIBER OPTICS
  - EX. SANITARY SEWER (SAN)
  - EX. STORM SEWER (STO)
  - EX. WATER MAIN
  - WETLANDS DELINEATED BY OTHERS
  - FLOW DIRECTION
  - PROPOSED ELECTRIC LINE
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  - PROP. SPOT GRADE
  - PROP. GRADE AND DIRECTION

**ABBREVIATIONS:**  
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SWLY = SOUTHWESTERLY  
SUR = SURVEYED  
U.S.H. = UNITED STATES HIGHWAY  
U.S.G.S. = UNITED STATES GEOLOGICAL SURVEY  
VAR = VARIES  
VPI = VERTICAL POINT OF INTERSECTION  
W = WEST  
WLY = WESTERLY

W

N

E

S

SCALE IN FEET  
0 20'

BY	DESCRIPTION	DATE	CHECKED BY: RK	DATE: 10/29/2025	CLIENT
	CITY REVIEW COMMENTS	11/26/2025			BLECK & BLECK ARCHITECTS, LLC 200 E. CHURCH STREET. LIBERTYVILLE, IL 60048

PROJECT

2417 SILVERNAIL ROAD,  
WAUKESHA, WI 53186

JAHNKE & JAHNKE  
ASSOCIATES, LLC  
ENGINEERS • PLANNERS • SURVEYORS  
CONNECT • EMPOWER • DESIGN  
WWW.JAHNKEANDJAHNKE.COM  
524 BLUEMOUND ROAD, WAUKESHA, WI 53188  
PHONE: (262) 542-5797, EMAIL: SURVEY@JAHNKEANDJAHNKE.COM

FILE NAME: S:\projects\24-10012 Black Silvernail\DWG\24-10012 R3 CIVIL.dwg

4 OF 9

**SITE PLAN**



[illegible]

Diagram illustrating the cross-section of a rain garden. The diagram shows a central basin with a flat bottom and sloped sides. The layers and components are labeled as follows:

- TOP OF BERM
- RESEEDED SIDE SLOPE
- UNDISTURBED SOIL
- 9" MAX SURFACE PONDING LEVEL
- RESEEDED SIDE SLOPE
- 2" MULCH LAYER
- 10" ENGINEERED SOIL
- 50% TOPSOIL 50% SAND
- WIDTH VARIES

**RAIN GARDEN SECTION**  
(NOT TO SCALE)

## GRADING PLAN

5 OF 9

FILE NAME: S:\projects\24-10012 Bleck Silvernail\DWG\24-10012 R3 CIVIL.dwg





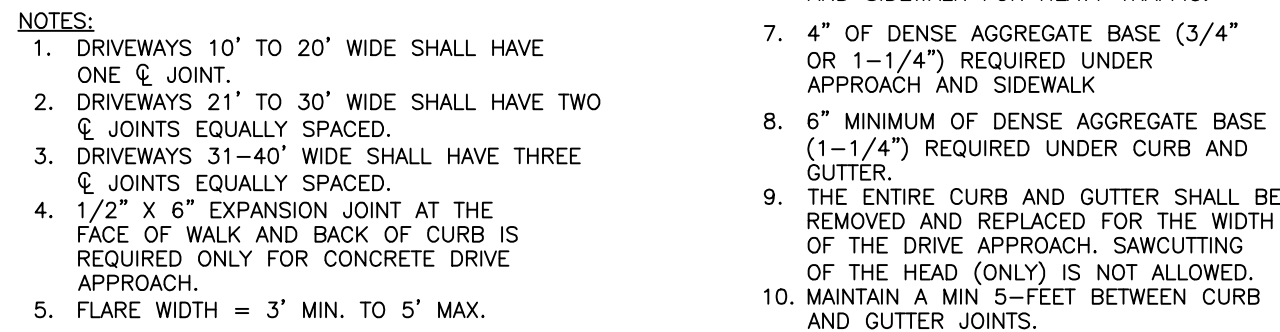












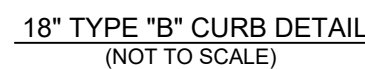
SECTION B - B

## NOTES

- |   |   |
|---|---|
| 1. DRIVEWAYS 10' TO 20' WIDE SHALL HAVE ONE (1) JOINT.  | 4. 1/2" DENSE AGGREGATE BASE (3/4" BR 1-1/4") REQUIRED UNDER APPROACH AND SIDEWALK  |
| 2. DRIVEWAYS 21' TO 30' WIDE SHALL HAVE TWO (2) JOINTS EQUALLY SPACED.                              | 5. 6" MINIMUM OF DENSE AGGREGATE BASE (1-1/4") REQUIRED UNDER CURB AND DRIVEWAY   |
| 3. DRIVEWAYS 31'-40' WIDE SHALL HAVE THREE (3) JOINTS EQUALLY SPACED.                               | 9. THE ENTIRE CURB AND GUTTER SHALL BE REMOVED AND REPLACED FOR THE WIDTH OF THE DRIVE AND 10' SAMPLING OF THE HEAD (JOINT) IS NOT ALLOWED. |
| 4. 4' EXPANSION JOINT AT FACE OF WALK AND BACK OF CURB IS REQUIRED ONLY FOR CONCRETE DRIVE APPROACH | 10. MAINTAIN A MIN. 2" GUTTER BETWEEN CURB AND DRIVE JOINTS.  |
| 5. FLARE WIDTH = 3' MIN. TO 5' MAX.   |   |



NOTE: WHEN TYPE "B" CURB AND GUTTERS USED WITH CONCRETE PAVEMENT, THE CURB AND GUTTER SHALL BE TIED TO THE PAVEMENT WITH NO. 4, 2'-0" DEFORMED EPOXY-COATED TIE BARS SPACED AT 3'-0" C. TO C.

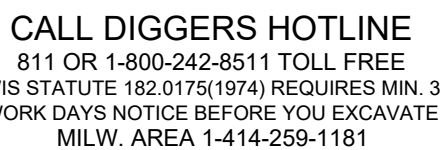


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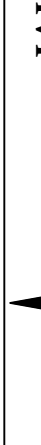

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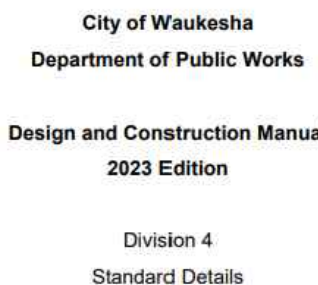
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<div><p><b>9 OF 9</b></p></div>	<div><p><b>JAHNKE &amp; JAHNKE</b> ASSOCIATES, LLC ENGINEERS, PLANNERS, SURVEYORS CONNECT ► EMPOWER ► DESIGN WWW.JAHNKEANDJAHNKE.COM 524 BLUEMOUND ROAD, WAUKESHA, WI 53188 PHONE: (262) 542-5797, EMAIL: SURVEY@JAHNKEANDJAHNKE.COM</p></div>	<div><p><b>PROJECT</b></p><p>2417 SILVERNAIL ROAD, WAUKESHA, WI 53186</p></div>	<div><p>DRAWN BY: JB JOB NO. 25-10012</p></div>	<div><p>CHECKED BY: RK DATE: 10/20/2025</p></div>	<div><table><tr><th colspan="3">REVISIONS</th></tr><tr><th>DATE</th><th>DESCRIPTION</th><th>BY</th></tr><tr><td>11/26/2025</td><td>CITY REVIEW COMMENTS</td><td></td></tr><tr><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td></tr></table></div>			REVISIONS			DATE	DESCRIPTION	BY	11/26/2025	CITY REVIEW COMMENTS								<div><p>SCALE IN FEET</p><p>0 20'</p></div>
			REVISIONS																				
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**NOTE:**  
ALL SITE IMPROVEMENTS AND CONSTRUCTION SHOWN ON THE PLANS SHALL CONFORM TO THE CITY OF WAUKESHA DEVELOPMENT HANDBOOK & INFRASTRUCTURE SPECIFICATIONS. WHERE THE PLANS DO NOT COMPLY, IT SHALL BE THE SOLE RESPONSIBILITY AND EXPENSE OF THE DEVELOPER TO MAKE REVISIONS TO THE PLANS AND/OR CONSTRUCTED INFRASTRUCTURE TO COMPLY.

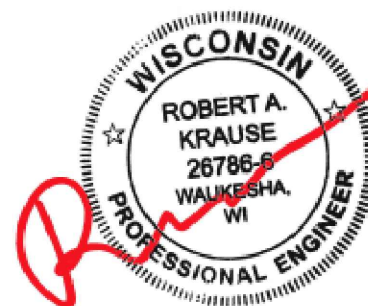


STANDARD CONSTRUCTION SPECIFICATIONS OF THE CITY OF WAUKESHA SHALL GOVERN THE SITE CONSTRUCTION AT THIS SITE.

[https://webfile.waukesha-wi.gov/waukeshawi25/Document Center/Government/Public%20Works/Construction%20Projects/2024/2024%20Standard%20Construction%20Specifications.pdf?t=202506170915360&t=202506170915360](https://webfile.waukesha-wi.gov/waukeshawi25/Document%20Center/Government/Public%20Works/Construction%20Projects/2024/2024%20Standard%20Construction%20Specifications.pdf?t=202506170915360&t=202506170915360)

STANDARD DETAILS OF THE CITY OF WAUKESHA DESIGN MANUAL STANDARD  
DETAILS SHALL GOVERN THE SITE CONSTRUCTION AT THIS SITE.

[https://webfile.waukesha-wi.gov/waukeshawi25/Document Center/Government/Public%20Works/Bidding%20Information/2023%20Standard%20Detail%20Drawings%20-%2020All.pdf?t=202506170915410&t=202506170915410](https://webfile.waukesha-wi.gov/waukeshawi25/Document%20Center/Government/Public%20Works/Bidding%20Information/2023%20Standard%20Detail%20Drawings%20-%2020All.pdf?t=202506170915410&t=202506170915410)



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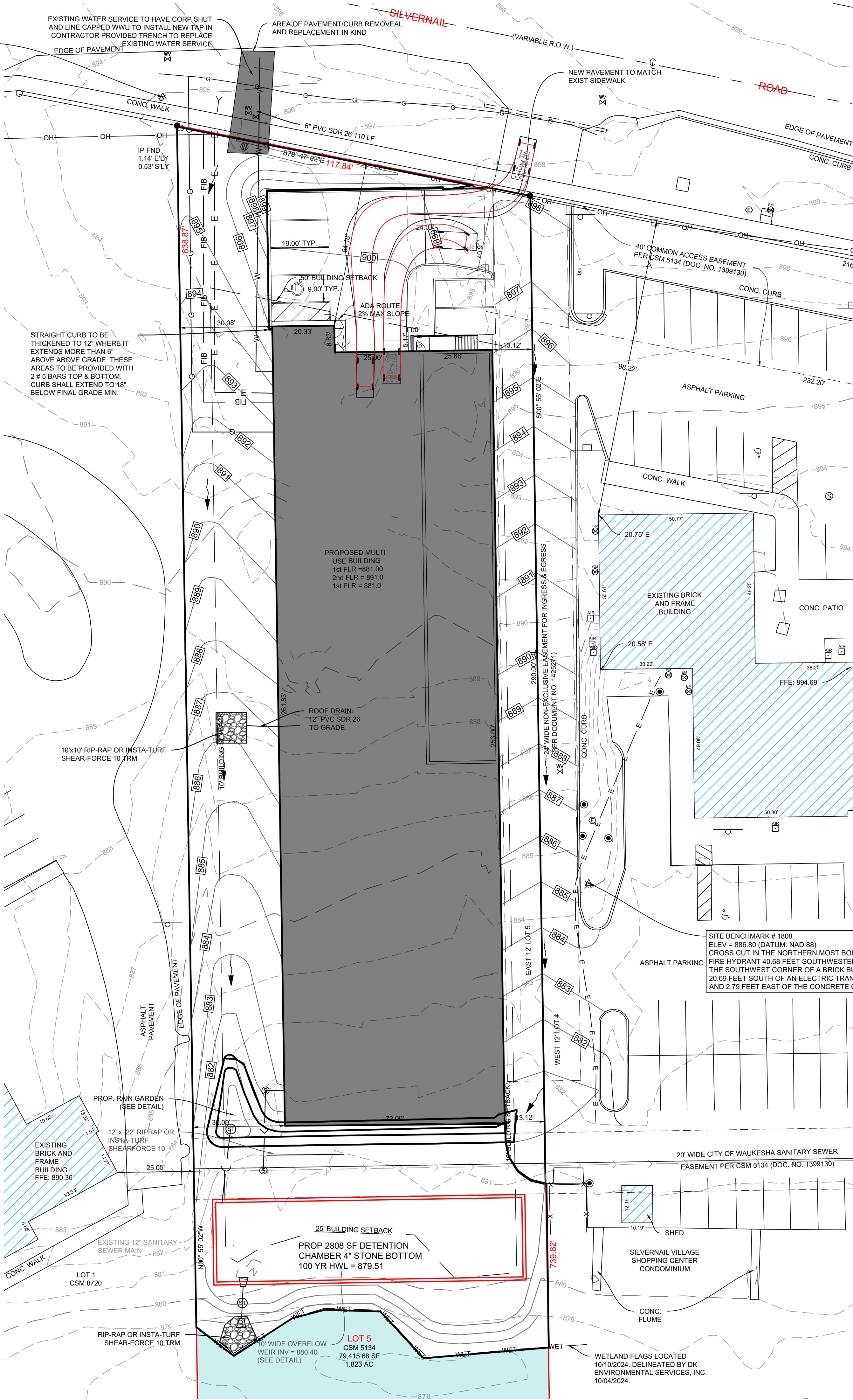
## DETAILS

9 OF 9

FILE NAME: S:\projects\24-10012 Bleck Silvernail\DWG\24-10012 R3 CIVIL.dwg



SITE BENCHMARK # 1789  
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CROSS CUT IN THE NORTHERN MOST BOLT OF A FIRE  
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SIDEWALK, 14.92 FEET SOUTH OF THE EDGE OF  
PAVEMENT OF SILVERNAIL ROAD, AND 20.89 FEET  
NORTHWEST OF A POWERPOLE



SITE BENCHMARK # 1808  
ELEV = 886.80 (DATUM: NAD 88)  
CROSS CUT IN THE NORTHERN MOST BOLT OF A  
FIRE HYDRANT 40.68 FEET SOUTHWESTERLY FROM  
THE SOUTHWEST CORNER OF A BRICK BUILDING,  
20.69 FEET SOUTH OF AN ELECTRIC TRANSFORMER,  
AND 2.79 FEET EAST OF THE CONCRETE CURB.

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  - PROP. SPOT GRADE
  - PROP. GRADE AND DIRECTION



NOTE:  
• THE PROPERTY IS ZONED B-5 PER CITY OF  
WAUKESHA ZONING MAP.  
• BUILDING SETBACKS OBTAINED FROM THE  
CITY OF WAUKESHA MUNICIPAL CODE.

**SITE PLAN**

BY

DATE

DESCRIPTION

11/26/2025

REVISIONS

CHECKED BY: RK

DATE: 10/29/2025

CLIENT

DRAWN BY: JB

JOB NO.: 25-10012

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4 OF 9

## Prop Roof Silvernail

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Page 1

### Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	25 yr	Type II 24-hr		Default	24.00	1	4.66	2

## Prop Roof Silvernail

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Page 2

### Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)	Node Name
1	4R	99.80	39.80	60.0	1.0000	0.010	0.0	6.0	0.0	



## Prop Roof Silvernail

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Type II 24-hr 25 yr Rainfall=4.66"

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Page 3

### Summary for Reach 4R: (new Reach)

[52] Hint: Inlet/Outlet conditions not evaluated

[61] Hint: Exceeded Reach 3R outlet invert by 0.22' @ 11.95 hrs

Inflow Area = 0.422 ac, 100.00% Impervious, Inflow Depth > 4.42" for 25 yr event  
Inflow = 2.81 cfs @ 11.95 hrs, Volume= 0.155 af  
Outflow = 2.81 cfs @ 11.95 hrs, Volume= 0.155 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Max. Velocity= 34.74 fps, Min. Travel Time= 0.0 min

Avg. Velocity = 10.34 fps, Avg. Travel Time= 0.1 min

Peak Storage= 5 cf @ 11.95 hrs

Average Depth at Peak Storage= 0.22', Surface Width= 0.50'

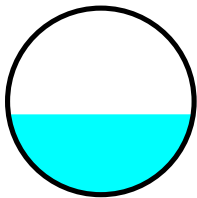
Bank-Full Depth= 0.50' Flow Area= 0.2 sf, Capacity= 7.29 cfs

6.0" Round Pipe

n= 0.010 PVC, smooth interior

Length= 60.0' Slope= 1.0000 '/'

Inlet Invert= 99.80', Outlet Invert= 39.80'



## Prop Roof Silvernail

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Type II 24-hr 25 yr Rainfall=4.66"

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### Reach 4R: (new Reach)

