Village of Mukwonago

Notice of Meeting and Agenda

PLAN COMMISSION MEETING
Tuesday, March 10, 2020

Time: **6:30 pm**
Place: **Mukwonago Municipal Building, Board Room, 440 River Crest Ct**

1. Call to Order

2. Roll Call

3. Approval of Minutes

3.1 Approval of Minutes from February 11, 2020 regular meeting
20200211 PlanCommissionMinutesdraft

4. New Business

Discussion and Possible Action on the Following Items

4.1 Recommendation to the Village Board to approve **Resolution 2020-03** of a Planned Unit Development (PUD) Request and associated Site Plan and Architectural Review as a Conditional Use for a proposed 20 unit Residential Care Assisted Living Facility at 210 McDivitt Ln (Birchrock Properties LLC, Owner/Applicant); Parcel MUKV 2012-215-002. Updated Architectural Plans were to be reviewed by Plan Commission, per Direction from Village Board.
Staff Report
Arch Plans Elev 20200220
(2020-02-06) Civil
2020-02-06 Applicant SWMP submittal approved by Village ENGR
RESOLUTION 2020-03 Birchrock Properties 210 McDivitt - SPAR

4.2 Recommendation to the Village Board to approve **Resolution 2020-13** on Certified Survey Map for creation of two roadways, two commercial lots and one lot for multi-family residential development as part of approved Planned Unit Development project known as Maple Centre. (Family Ventures of Mukwonago, LLC, Owner/Applicant); Parcel MUKV 2013-999-008.
Staff Summary CSM Maple Centre PUD EX C Roadways
EX C CSM FINAL 2-22-2020
Aerial Map CSM Roadways
Zoning Map CSM Roadways.pdf
RESOLUTION 2020-13 VOM E Wolf Run CSM Resolution

4.3 Recommendation to the Village Board to approve **Resolution 2020-12** on Certified Survey Map for creation of one lot to be utilized as stormwater management detention basin for benefit multi-family residential development and given to adjacent property as part of approved Planned Unit Development project known as Maple Centre. (Village of Mukwonago, Owner/Applicant); Parcel MUKV 2013-995-002.

Staff Summary CSM Maple Centre PUD EX D Village Land swap
CSM EX D 20200304 stamped FINAL
Village CSM one lot EX D Aerial
Village CSM one lot EX D Zoning
RESOLUTION 2020-12 VOM E Wolf Run CSM Resolution

4.4 Announcement regarding Plan Commission Workshop offered by UW-Madison Extension Waukesha County on Thursday, April 30, 2020 at 6:30pm on plan commission and public engagement.
Plan Commission Workshop 2020

5. Adjournment

It is possible that a quorum of, members of other governmental bodies of the municipality may be in attendance at the above stated meeting to gather information. No action will be taken by any governmental body at the above stated meeting other than the governmental body specifically referred to above in this notice. Please note, upon reasonable notice, efforts will be made to accommodate the needs of individuals with disabilities through appropriate aids and services. For additional information or to request this service, contact the Municipal Clerk's Office, (262) 363-6420.

MINUTES OF THE PLAN COMMISSION MEETING
Tuesday, February 11, 2020

Call to Order
Chairman Winchowky called the meeting to order at 5:30 p.m. located in the Board Room of the Mukwonago Municipal Building, 440 River Crest Ct.

Roll Call
Commissioners present: Fred Winchowky, Chairman
Jim Decker
Robert Harley
John Meiners
Jason Wamser

Commissioners excused: Joe Abruzzo

Also present: Ben Kohout, Planner/Zoning Administrator
Mark Blum, Village Attorney
Linda Gourdoux, Deputy Clerk/Treasurer

Minutes
Motion made by Decker/Meiners to approve the minutes of the January 14, 2020 regular meeting, carried.

New Business

Recommendation to Village Board fon Ordinance Amendment to provide 5G Small Cell Wireless provisions to accommodate future applications of equipment within right of way and on public and private properties.

Kohout gave background of project
Blum gave overview of project
Motion by Decker/Wamser for Approval of Ordinance Amendment to provide 5G Small Cell Wireless provisions to accommodate future applications of equipment within right of way and on public and private properties, carried.

Recommend to the Village Board of a Planned Unit Development (PUD) request and associated Site Plan and Architectural Review as a Conditional Use for a Proposed 20-unit Residential Care Assisted Living Facility at 210 McDivitt Ln (Birchrock Properties LLC, Owner/Applicant); Parcel MUKV 2012-215-002.

Kohout gave overview of project
Keifer, Owner, gave overview of project
Roberts, JSD Professional Services, Engineer, gave overview of project
Golden, Plunkett Raysich Architect, gave overview of project
Motion by Meiners/Decker Recommend to the Village Board of a Planned Unit Development (PUD) request and associated Site Plan and Architectural Review as a Conditional Use for a Proposed 20-unit Residential Care Assisted Living Facility at 210 McDivitt Ln (Birchrock Properties LLC, Owner/Applicant); Parcel MUKV 2012-215-002, with the following conditions, carried

1. Entry gable ends will be accented with brick or brick veneer matching the existing building.
2. For the R-10 Zoning standards, the rear yard building setback shall be permitted to be amended from the required 40 feet to the shown 24.4 feet, on the provided plan set from the applicant and on file with the Zoning Administrator at Village Hall.
3. For the Parking lot standards, the setback of the edge of parking surface area shall be permitted to be amended from the required 20 feet to the shown 15 feet with landscaping between the surface area shall be permitted to be amended from the required 20 feet to the shown 15 feet with landscaping between the surface and the roadway, as shown on the provided plan set from the applicant and on file with the Zoning Administrator at Village Hall.
4. For the impervious coverage standards, the total amount of impervious coverage shall be permitted to be amended from the required 40% to the proposed percentage of 51%, as calculated and shown on the plans submitted by the applicants dated December 12, 2019 to accommodate the desire for parking on the site.
5. Site Plan and Architectural Review approval for the new single story 20-unit RCAC structure and associated parking lot, building additions, storm water pond, shall be subject to all plans and information submitted for the application by the applicant, Castle Senior Living, and dated December 12, 2019, with all plans and information on file in the office of the Zoning Administrator. The plans may be further modified to conform to other conditions of approval; the building and floor plans may be modified with the approval of the Zoning Administrator and Supervisor of Inspections to conform to Building and Fire Safety Codes and all plans may be further modified to conform to village design standards. However, the basic layout and design of the site shall remain unchanged.
6. Approval shall be valid for one (1) year from date of approval by the Village Board and will be unique to the applicant and this proposal only.
7. Prior to the start of any site construction or issuance of a building permit, whichever occurs first, the following shall occur:
    a. All final site development plans shall be consistent with the plans noted in Condition No 6 and all calculations verified or as modified.
    b. Approval of the site construction and building plans by the Fire Chief, which may include, but are not limited to, Knox box and notification requirements, internal fire suppression, external fire department connection location and hydrant locations.
    c. Approval of building plans by the Building inspector after receipt of approval of building plans by the State of Wisconsin.
    d. The Village Engineer, the Utilities Director and the Public Works Director shall approve all updated and revised site engineering and utility plans and documents, including a complete Erosion Control Plan, and Stormwater Management Plan. Items specified in the letter from the Village Engineer dated January 6, 2020 shall be satisfied with the consent of the Village Engineer prior to permit issuance.
    e. The Village Board shall approve a Stormwater Maintenance Agreement.
    f. Approval of building plans shall include appropriate locations of the external mechanical equipment (if applicable) to be placed hidden from view from neighboring properties, as approved by the Zoning Administrator.

g. Approval of dumpster construction plan specifications showing block construction and shielded metal gates to ensure the Zoning standards are met, as approved by the Zoning Administrator.
h. A pre-construction meeting shall occur with Village Staff to ensure all applicable items mentioned above have been remedied.

8. Prior to temporary occupancy issuance, and if needed prior to final occupancy permit, the following shall occur:
   a. Completion of all site grading in accordance with submitted and approved plans.
   b. Completion of the storm water management basin for the overall development.
   c. Completion of the building and additions in accordance with approved plans and all applicable codes.
   d. Completion of paving of driveways and parking lots, including parking signage, space pavement markings and all other pavement markings.
9. Prior to final occupancy permit, which shall be issued no later than 120 days after any temporary occupancy permit, the following shall occur:
   a. Completion of all items required in Condition No 8.
   b. Installation of all Zoning Administrator approved site landscaping as shown on approved plans.

Recommend to the Village Board on Site Plan Amendment for ProHealth Care Hospital and new Propane Tank located on East side of facility at 240 Maple Ave. (Waukesha Memorial Hospital Inc. Owner/Applicant); Parcel MUKV 2016-993-002.

Kohout gave overview of project

Fisco, GRAEF Civil Engineer, gave overview of project

Motion by Decker/Wamser Recommend to the Village Board on Site Plan Amendment for ProHealth Care Hospital and new Propane Tank located on East side of facility at 240 Maple Ave. (Waukesha Memorial Hospital Inc. Owner/Applicant); Parcel MUKV 2016-993-002, with the following conditions, carried

1. Prior to the start of any site construction or issuance of a building permit, whichever occurs first, the following shall occur:
   a. Approval of landscaping plan by Village Planner addressing concerns over providing landscaping and plantings sufficient enough to satisfy Code Section 100-156.j.5.c (B-5 zoning standards).
   b. Approval of building plans by the Building Inspector addressing a need for installation of bollards and/or fencing, deemed sufficient enough by the Building Inspector to prevent a vehicle from crashing into the above ground tank, after receipt of approval of building plans by the State of Wisconsin.
   c. The Village Engineer, the Utilities Director and the Public Works Director shall approve all updated and revised site engineering and utility plans and documents, including a complete Erosion Control Plan, and Stormwater Management Plan. Items specified in the letter from the Village Engineer dated January 21, 2020 shall be satisfied with the consent of the Village Engineer prior to permit issuance.

Recommend to the Village Board on an Ordinance amending Section 100-14 regarding accepting of electronic applications in lieu of paper applications.

Kohout gave background of project

Motion by Harley/Decker for Approval on an Ordinance amending Section 100-14 regarding accepting of electronic applications in lieu of paper applications, carried

Adjournment
Meeting adjourned at 6:48 p.m.

Respectfully Submitted,
Linda Gourdoux
Deputy Clerk/Treasurer

Village of Mukwonago
Office of the Village Planner

440 River Crest Court, Mukwonago, Wisconsin 53149 -Tel. (262) 363-6420x2111-Fax (262) 363-6425 -planner@villageofmukwonago.com

March 3, 2020

Fred Winchowky, Plan Commission Chair,
Plan Commission

Re: Birchrock Retirement Home Planned Unit Development Amendment as Conditional Use and associated Site Plan and Architectural Review and final consideration of architectural elevation
210 McDivitt Lane; MUKV2012215002

This item remanded back to the March 10, 2020 Plan Commission meeting following being tabled by the Village Board on February 19, so as to see an elevation rendering showing the brick style and placement. The applicant is submitting for review and recommendation a brick placement that is similar to the existing condition and is a tan/beige color and be placed on the gable ends of the structure and on small bands on the lower extremities in other select locations as shown on the plans. The white smart siding look and white aluminum siding will also be proposed to mimic the existing structure so the addition will match.

This item was before the Plan Commission at the December 17, 2020, Plan Commission meeting and the Plan Commission decided to continue the public hearing to the February 11, 2020 Plan Commission meeting so the issue of the proposed structure addition, dumpster enclosure and parking surface area proposed to be within 20 feet of the wetland setback could be heard by the Board of Zoning Appeals (BZA) at the January 30, 2020 meeting. During the January 30, 2020 meeting, the BZA approved the setback requests to the distances shown on the December 12, 2019 Plan Set. A subsequent revised plan set was delivered on February 7 in electronic form to Village Hall and shared and reviewed by Village Staff. This plan set reflects changes requested by Staff on the December 12 plans. The review and comments below are based on the plan set delivered on February 7 to Village Staff for review, and was not submitted in time for formal review by the Plan Commission on February 11.

The exact layout of the structure, the footprint, setbacks, and parking lot surface area and lighting will not change. What may change are the below ground details through Public Services, regarding water/sewer connections and anything else that may come up during final review of plan set dated February 6, 2020. The Plan Commission reviewed the plan set dated December 12, 2019 and recommended approval with the conditions included in the resolution of approval. These conditions have been modified to reflect the February 6, 2020 plan set. On February 13, the Village Attorney has suggested language included and reflected in the proposed resolution of approval, in the form of conditions.

Kristofer Kiefer, of Castle Senior Living, has applied for a Planned Unit Development (PUD) Amendment as a Conditional Use and associated Site Plan and Architectural Review to place a single story 20 unit Community Based Residence Facility (CBRF) addition onto the existing 20 unit residential care facility designed to house those which require an assisted living environment. The proposed location is to the East of the existing structure and existing parking lot. The structure is designed to be connected via a walkway to the existing structure, which would meet Fire Department and Building Code standards.

The property is 2.3 acres in size. The site is zoned R-10, Multiple Family Residence District, with current Planned Unit Development (PUD) Overlay. This district allows applicants to propose some minor modifications with

respect to the bulk requirements of zoning standards, including, but not limited to yard setbacks, lot coverage, etc. through a PUD amendment process and application. However, the PUD standards do not permit for deviation from Wetland setback standards.

Proposal

This item was considered at the September 10 Plan Commission meeting as a Concept Review process and the item was recommended to be approved.

The site plan, being presented by the applicant, shows the existing parking surface area being removed, and a new parking lot being situated along the southern portion of the property. The new single story structure is being positioned to the East of the existing structure and being connected with a walkway. There is also a proposed new walkway at the terminus and north end of the existing structure, to connect the hallways with a corridor. The property is to be serviced via available water main and sanitary sewer service from the South, in McDivitt Lane. There is also a proposed pervious driveway to provide for fire truck pulling in and capability to be serviced from the East, along with a dumpster enclosure proposed immediately adjacent to said driveway.

Architectural Review

The Zoning standards for R-10 call for brick or other hardy construction materials. Following discussion at the Plan Commission meeting on February 11, the applicant was directed to match in the addition proposed, the placement, color and materials of the existing structure. This is reflected in the conditions of approval in the proposed resolution.

Zoning Review

Zoning review considered Sections 100-110, R-10 standards; 100-601, Site Plan; 100-402, Parking Lot Requirements; 100-53, Planned Unit Development Requirements; and other applicable Code sections.

Wetland Setback: Staff reviewed the proposed connector on the existing structure, on the West side of the development. This proposed new corridor encroaches within the Village required 20 foot setback requirement of a delineated wetland, as well as the proposed pervious paving surface and dumpster enclosure along the northeast side of the property. Per Village Ordinance, all new structures and/or additions within this area are to be considered by the Village Board of Zoning Appeals. The BZA heard the case during the January 30, 2020 meeting and approved the requests for setback variances. Therefore, the matter is considered completed and staff is recommending approval of setbacks with relation to the wetlands.

Trees: Per Section 34, a tree removal policy must be observed for site clearing and the Village calls out a need to retain up to 60 percent of all trees identified as at least 8 inches in diameter. Staff has reviewed the February 6, 2020 plans and have determined all trees required to meet this criteria have been met.

Impervious Coverage: The amount of area covered by this request, inclusive of additional proposed paving and additional roof area brings the impervious area to the proposed 41,790 s.f., as stated on the plans, which is 41% of the site. However, this number includes the wetlands area and Staff has requested the applicant demonstrate that this number takes into account the Village required inclusion of wetland areas of a rate of 50%. The applicant is requesting the impervious coverage be allowed to be increased to the proposed 51% of the coverage, to provide for the necessary parking lot and building footprints for the facility. The Code permits the request may be called out as a PUD amendment and the applicant is seeking from the Plan Commission an allowance up to 51% of the

site to be impervious, to accommodate the parking requirements and proposed building footprint. This is reflected in item number four (4.) below.

Stormwater Management: The proposed stormwater management plan is satisfactory, pending final comments documents requested by the Village Engineer in a letter dated January 6, 2020 and resubmitted for final review and approval. These comments are minor and as of the writing of this staff summary, should be easily corrected by the applicant's engineer prior to any Village permit issuance and possibly prior to the February 11, 2020 Plan Commission meeting. The site is able to meet the Village's Ordinance, and Should the Planning Commission and Village Board choose to approve the documents, staff recommends that approvals be made subject to addressing items from the Village Engineer comment letter Dated January 6, 2020. Staff understands the applicants were waiting on the final decision of the Board of Appeals determination on January 30, prior to making any corrections.

Lighting: Applicant has supplied light fixture proposal which are capable of meeting all requirements pertaining to shielding from adjacent property owners and onto the Village streets. Staff finds the fixtures acceptable.

Landscaping: The resulting 27 parking stalls requires 15 s.f. per stall, or 405 s.f. of landscaping to be proposed within the parking surface area. There is 180 s.f. plus an additional 550 s.f. of landscaping proposed between the structure and the parking surface area. Pursuant to the guidelines in section 100-402(f)6., the proposed landscaping is acceptable.

Parking Lot: Staff finds the proposed parking is compliant with standards requiring one space for every three beds plus one space for each employee. There are 40 beds and 27 spaces provided. This equates to 14 spaces required for the occupants and 11 spaces for employees. Staff finds the stalls provided meet the code requirements. Staff also has confirmed the applicant has provided for a cross hatch area by the front entrance that would permit for a three point turn for a typical Village ambulance response call. There is a pervious paving along the northern edge of the property, in the form of an additional curb cut, which shall provide for a fire truck to pull in to provide for full response to the sides of the structures. This area is recommended by staff to be snow plowed in the winter months and manicured to the point of being usable year round.

The proposed new dumpster enclosure will need to meet Zoning design standards, which shall include utilizing block walls as this would match the proposed building façade (Village Code requirement). The current plans show a dumpster fenced in area, but lacks any detail. Staff will require this to be submitted and approved prior to building permit issuance.

There is a need to supply more detailed utility and stormwater and erosion control plans, to be reviewed and approved by the Village Engineer and Utilities offices prior to start of construction.

Recommendation for PUD Amendment as Conditional Use and Associated Site Plan and Architectural Review

Staff is recommending approval with the conditions listed below. The site plan conforms to R-10 setbacks and parking requirements with the following specified modifications to the R-10 zoning district and parking lot setback standards:

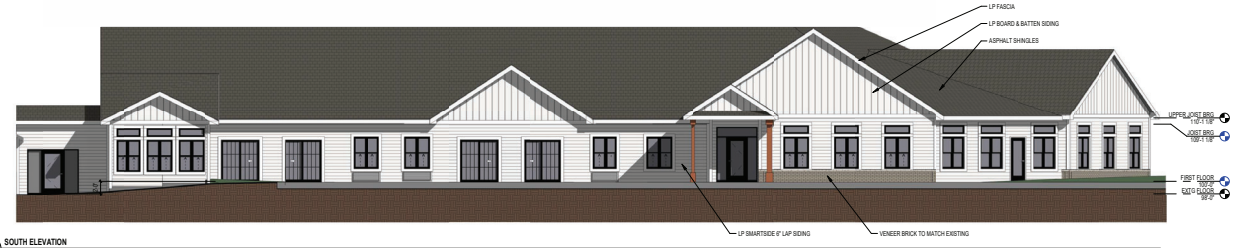
1. Entry gable ends will be accented with brick or brick veneer matching the existing building.
2. For the R-10 Zoning standards, the rear yard building setback shall be permitted to be amended from the required 40 feet to the shown 24.4 feet, on the provided plan set from the applicant and on file with the Zoning Administrator at Village Hall.

3. For the Parking Lot standards, the setback of the edge of parking surface area shall be permitted to be amended from the required 20 feet to the shown 15 feet with landscaping between the surface and the roadway, as shown on the provided plan set from the applicant and on file with the Zoning Administrator at Village Hall.
4. For the impervious coverage standards, the total amount of impervious coverage shall be permitted to be amended from the required 40% to the proposed percentage of 51%, as calculated and shown on the plans submitted by the applicants dated February 6, 2020 to accommodate the desire for parking on the site.
5. Site Plan and Architectural Review approval for the new single story 20 unit CBRF structure and associated parking lot, building additions, storm water pond, shall be subject to all plans and information submitted for the application by the applicant, Castle Senior Living, and dated February 6, 2020, with all plans and information on file in the office of the Zoning Administrator. The plans may be further modified to conform to other conditions of approval; the building and floor plans may be modified with the approval of the Zoning Administrator and Supervisor of Inspections to conform to Building and Fire Safety Codes and all plans may be further modified to conform to Village design standards. However, the basic layout and design of the site shall remain unchanged.
6. Approval shall be valid for one (1) year from date of approval by the Village Board and will be unique to the applicant and this proposal only.
7. Prior to the start of any site construction or issuance of a building permit, whichever occurs first, the following shall occur:
    a. All final site development plans shall be consistent with the plans noted in Condition No. 5 and all calculations verified or as modified.
    b. Approval of the site construction and building plans by the Fire Chief, which may include, but are not limited to, Knox box and notification requirements, internal fire suppression, external fire department connection location and hydrant locations.
    c. Approval of building plans by the Building Inspector after receipt of approval of building plans by the State of Wisconsin.
    d. The Village Engineer, the Utilities Director and the Public Works Director have reviewed and approved plans relating to stormwater management plan and associated infrastructure on plan set dated February 6, 2020. Items specified in the letter from the Village Engineer dated February 12, 2020 shall be satisfied with the consent of the Village Engineer prior to permit issuance.
    e. The Village Board shall approve a Stormwater Maintenance Agreement.
    f. Approval of building plans shall include appropriate locations of the external mechanical equipment (if applicable) to be placed hidden from view from neighboring properties, as approved by the Zoning Administrator.
    g. Approval of dumpster construction plan specifications showing block construction and shielded metal gates to ensure the Zoning standards are met, as approved by the Zoning Administrator.
    h. A pre-construction meeting shall occur with Village Staff to ensure all applicable items mentioned above have been remedied.
8. Prior to temporary occupancy issuance, and if needed prior to final occupancy permit, the following shall occur:
    a. Completion of all site grading in accordance with submitted and approved plans.
    b. Completion of the storm water management basin for the overall development.
    c. Completion of the building and additions in accordance with approved plans and all applicable codes.

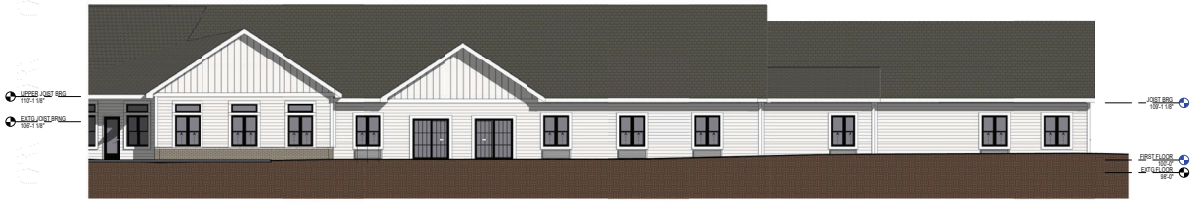
d. Completion of paving of driveways and parking lots, including parking signage, space pavement markings and all other pavement markings.

9. Prior to final occupancy permit, which shall be issued no later than 120 days after any temporary occupancy permit, the following shall occur:
   a. Completion of all items required in Condition No. 8.
   b. Installation of all Zoning Administrator approved site landscaping as shown on approved plans.

A2 EAST ENTRANCE ELEVATION
1/8" = 1'-0"

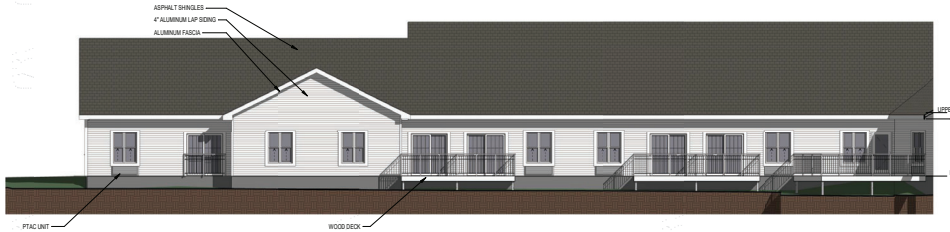


A3 SOUTH ELEVATION
1/8" = 1'-0"

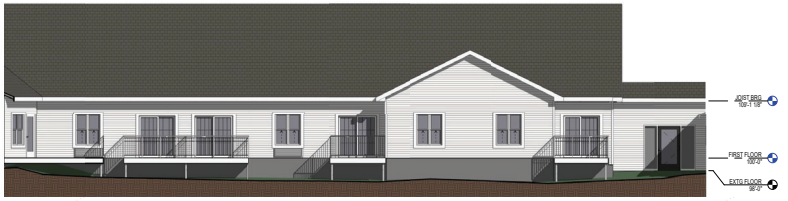


B2 SOUTHEAST ELEVATION
1/8" = 1'-0"

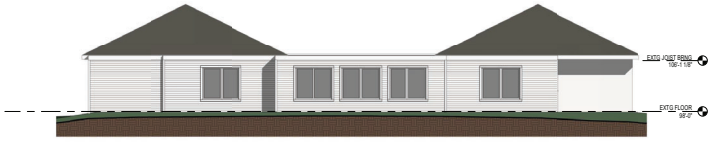
B6 NORTHEAST ELEVATION
1/8" = 1'-0"



C1 NORTHWEST ELEVATION
1/8" = 1'-0"



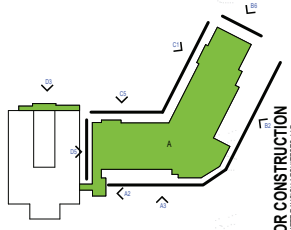
C5 NORTH ELEVATION
1/8" = 1'-0"



D3 NORTH ELEVATION - CONNECTOR
1/8" = 1'-0"

D5 WEST ELEVATION
1/8" = 1'-0"

EXISTING BUILDING



KEY PLAN

PLUNKETT RAYSICH ARCHITECTS, LLP
399 south mulder street suite 200 milwaukee, wisconsin 53204 414 539 3900
2122 main street suite 399 sarasota, florida 34237 941 444 8845
1900 main street
Intelligent designs. Inspired results. | www.prarch.com

CASTLE SENIOR LIVING
BIRCHROCK COMMUNITY - CBRF ADDITION
210 McDIVITT LANE, MUKWONAGO, WI 53149

REVISIONS:

EXTERIOR ELEVATIONS

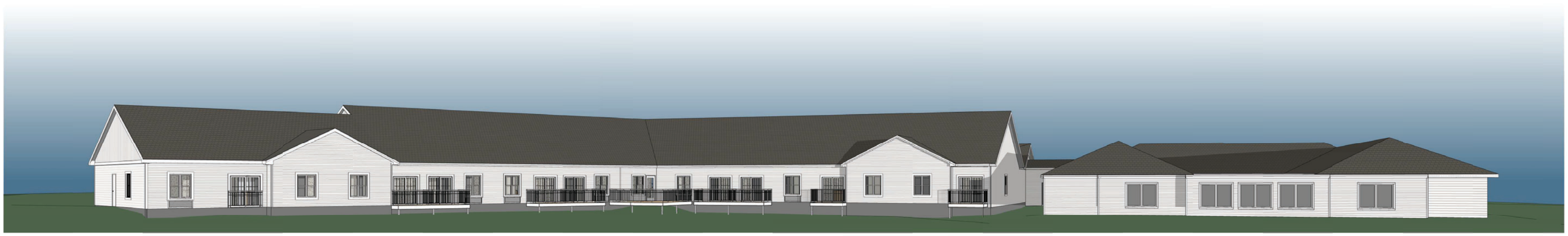
BID PACKAGE 1
DATE: 02-20-20
JOB NO: 190161-01
SHEET NO: A-400

NOT FOR CONSTRUCTION

DRAWN BY: JLS 2/20/2020 9:53:37 AM

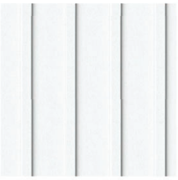
1 EAST VIEW LOOKING WEST

2 SOUTH VIEW LOOKING NORTH



3 NORTH VIEW LOOKING SOUTH EAST

DIMENSIONAL ASPHALT SHINGLES
LANDMARK PRO - MAX DEF PEWTER



LP SMARTSIDE - BOARD & BATTEN- WHITE

LP SMARTSIDE - TRIM
DIAMOND KOTE - WHITE

ALUMINUM LAP SIDING
WHITE

CHAMPION BRICK
GENERAL SHALE-CORTEZ
MATCH EXISTING

pra PLUNKETT RAYSICH ARCHITECTS, LLP
209 south water street milwaukee, wisconsin 53204 t 414 359 3060
2310 crossroads drive suite 2000 madison, wisconsin 53718 t 608 240 9900
1900 main street suite 309 sarasota, florida 34236 t 941 444 8845
intelligent designs. inspired results. | www.prarch.com

CASTLE SENIOR LIVING
BIRCHROCK COMMUNITY - CBRF ADDITION
210 McDIVITT LANE, MUKWONAGO, WI 53149

REVISIONS:

EXTERIOR PERSPECTIVES

BID PACKAGE 1

DATE: 02-20-20
JOB NO: 190161-01
SHEET NO: A-401

NOT FOR CONSTRUCTION

DRAWN BY: JLS 2/20/2020 9:56:30 AM

BIRCHROCK CASTLE ADDITION
VILLAGE OF MUKWONAGO, WISCONSIN
NW 1/4, SE 1/4, SECTION 35, TOWNSHIP 05 NORTH, RANGE 18 EAST

DRAWING INDEX

PROJECT AREA
NOT TO SCALE
north

PROJECT INFORMATION

OWNER
CONTACT: Kristopher Kiefer
Castle Senior Living
13050 West Cleveland Avenue
New Berlin, WI 53151
P: 414-427-1655

ARCHITECT / INTERIOR DESIGN
CONTACT: Gregg Golden
Plunkett Raysich Architects, LLP
209 South Water Street
Milwaukee, WI 53204
P: 414-410-2931

CIVIL CONSULTANT
CONTACT: David S. Roberts, P.E.
JSD Professional Services, Inc
W238 N1610 Busse Road, Suite 100
Waukesha, WI 53188
P: 262-513-0666
C: 413-519-9301
david.roberts@jsdinc.com

MUNICIPAL CONTACTS

VILLAGE OF MUKWONAGO
DEPARTMENT OF UTILITIES
CONTACT:Dave Brown
Utility Director
1200 Holz Parkway
Mukwonago, WI 53149
P: 414-550-2509
dbrown@villageofmukwonago.com

VILLAGE OF MUKWONAGO
PUBLIC WORKS
CONTACT:Ron Bittner
Public Works Director
630 East Veterans Way
Mukwonago, WI 53149
P: 262-780-4609
rbittner@villageofmukwonago.com

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WI

DAVID S. ROBERTS E-43294 MUKWONAGO, WISCONSIN PROFESSIONAL ENGINEER
02/07/20

JSD Professional Services, Inc.
Engineers • Surveyors • Planners
CREATE THE VISION TELL THE STORY
MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE
MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living
CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

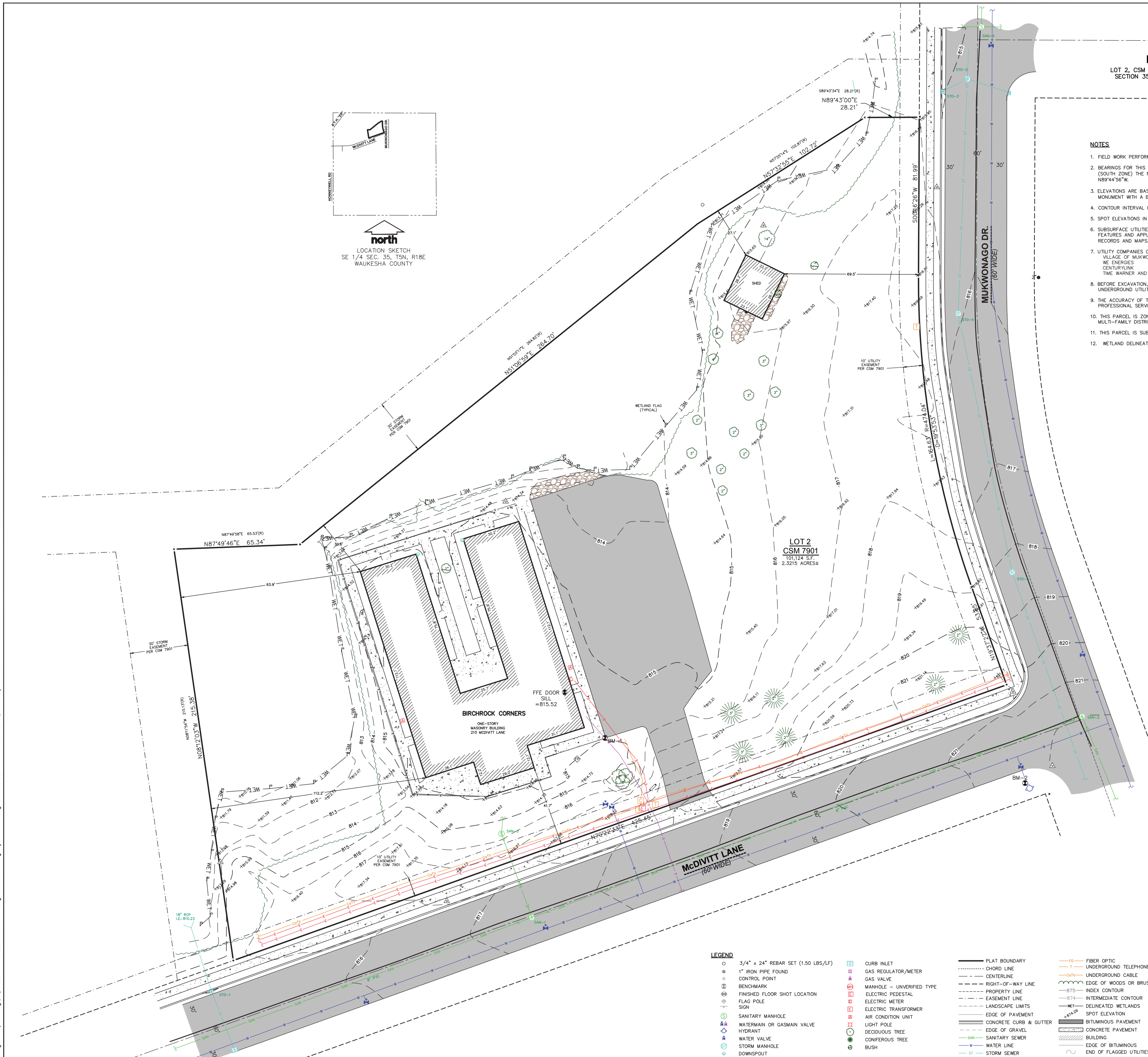
#	Date:	Description:
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019
SHEET TITLE:
TITLE SHEET
SHEET NUMBER:
C0.0
JSD PROJECT NO: 19-9231

File: R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\DWG\Civil\Civil Sheets\19-9231 C0 - Cover.dwg Layout: C0.0 Details User: cpeterson Plotted: Feb 07, 2020 - 11:45am Xrefs:

EXISTING CONDITIONS SURVEY

LOT 2, CSM 7901 BEING A PART OF THE NORTHWEST 1/4 OF THE SOUTHEAST 1/4 OF SECTION 35, TOWN 5 NORTH, RANGE 18 EAST, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN.



NOTES

1. FIELD WORK PERFORMED BY JSD PROFESSIONAL SERVICES, INC. ON JUNE 24, 25 & 27, 2019.
2. BEARINGS FOR THIS SURVEY AND MAP ARE REFERENCED TO THE WISCONSIN STATE PLANE COORDINATE SYSTEM 1927, (SOUTH ZONE) THE NORTHERLY LINE OF THE SOUTHEAST QUARTER SECTION 35, T5N, R18E, RECORDED AS N89°44'56"W.
3. ELEVATIONS ARE BASED ON THE NATIONAL GEODETIC VERTICAL DATUM (NGVD29). BENCHMARK IS CONCRETE MONUMENT WITH A BRASS CAP MARKING THE EAST 1/4 CORNER OF SECTION 35, T5N, R18E, ELEVATION = 826.61'
4. CONTOUR INTERVAL IS ONE FOOT.
5. SPOT ELEVATIONS IN CURBED AREAS REFERENCE THE PAVEMENT EDGE ELEVATIONS.
6. SUBSURFACE UTILITIES AND FEATURES SHOWN ON THIS MAP HAVE BEEN APPROXIMATED BY LOCATING SURFICIAL FEATURES AND APPURTENANCES, LOCATING DIGGERS HOTLINE FIELD MARKINGS AND BY REFERENCE TO UTILITY RECORDS AND MAPS. DIGGER'S HOTLINE TICKET NO. 20192518651, WITH A CLEAR DATE OF 06/25/2019.
7. UTILITY COMPANIES CONTACTED THRU DIGGERS HOTLINE:
   VILLAGE OF MUKWONAGO
   WE ENERGIES
   CENTURYLINK
   TIME WARNER AND CABLE
8. BEFORE EXCAVATION, APPROPRIATE UTILITY COMPANIES SHOULD BE CONTACTED. FOR EXACT LOCATION OF UNDERGROUND UTILITIES, CONTACT DIGGERS HOTLINE, AT 1.800.242.8511.
9. THE ACCURACY OF THE BENCHMARKS SHOWN ON THIS MAP SHALL BE VERIFIED BEFORE BEING UTILIZED. JSD PROFESSIONAL SERVICES, INC. DOES NOT WARRANT THE ACCURACY OF THESE BENCHMARKS.
10. THIS PARCEL IS ZONED R-4 PLANNED RESIDENTIAL DEVELOPMENT DISTRICT R-10 MULTI-FAMILY DISTRICT R-10 MULTI-FAMILY DISTRICT PER THE VILLAGE OF MUKWONAGO GIS ZONING MAP.
11. THIS PARCEL IS SUBJECT TO ALL EASEMENTS AND AGREEMENTS, BOTH RECORDED AND UNRECORDED.
12. WETLAND DELINEATION BY HELIANTHUS ON JUNE 25, 2019 AND LOCATED BY JSD ,INC ON JUNE 25, 2019.

SANITARY SEWER MANHOLES

STRUCT. ID	RIM ELEVATION	INVERT	ELEVATION	PIPE SIZE	PIPE TYPE
SAN-1	817.61	N	807.10	6"	PVC
		W	806.72	8"	PVC
		E	807.11	8"	PVC
SAN-2	822.04	W	811.65	8"	PVC
		S	811.74	8"	PVC
SAN-3	815.64	NE & S	807.44	6"	PVC
SAN-4	815.18	E&W	799.41	8"	PVC
		N	801.41	8"	PVC

STORM SEWER STRUCTURES

INLET ID	RIM ELEVATION	INVERT	ELEVATION	PIPE SIZE	PIPE TYPE
STO-1	814.92	S	810.0	18"	–
		N	809.8	18"	RCP
STO-2	815.16	NOT ACCESSIBLE		–	–
STO-3	815.16	E&W	808.4	–	–
STO-4	815.94	N&S	809.5	–	–
STO-5	818.27	N&S	812.1	–	–

BENCHMARKS

BENCH MARK	ELEVATION	DESCRIPTION
BM-1	815.17	CHISELED SQUARE IN CORNER OF CONCRETE SIDEWALK
BM-2	823.58	SW BOLT ON HYDRANT AT SW CORNER OF INTERSECTION

*JSD DOES NOT GUARANTEE THE BENCHMARK ELEVATIONS LISTED ON THIS MAP ARE ACCURATE AND SHOULD BE VERIFIED PRIOR TO CONSTRUCTION ACTIVITIES.

LEGEND

- 3/4" x 24" REBAR SET (1.50 LBS/LF)
- 1" IRON PIPE FOUND
- CONTROL POINT
- BENCHMARK
- FINISHED FLOOR SHOT LOCATION
- FLAG POLE
- SIGN
- SANITARY MANHOLE
- WATERMAIN OR GASMAIN VALVE
- HYDRANT
- WATER VALVE
- STORM MANHOLE
- DOWNSPOUT
- CURB INLET
- GAS REGULATOR/METER
- GAS VALVE
- MANHOLE – UNVERIFIED TYPE
- ELECTRIC PEDESTAL
- ELECTRIC METER
- ELECTRIC TRANSFORMER
- AIR CONDITION UNIT
- LIGHT POLE
- DECIDUOUS TREE
- CONIFEROUS TREE
- BUSH
- PLAT BOUNDARY
- CHORD LINE
- CENTERLINE
- RIGHT-OF-WAY LINE
- PROPERTY LINE
- EASEMENT LINE
- LANDSCAPE LIMITS
- EDGE OF PAVEMENT
- CONCRETE CURB & GUTTER
- EDGE OF GRAVEL
- SAN — SANITARY SEWER
- W — WATER LINE
- ST — STORM SEWER
- G — NATURAL GAS
- E — UNDERGROUND ELECTRIC
- FO — FIBER OPTIC
- T — UNDERGROUND TELEPHONE
- CaTV — UNDERGROUND CABLE
- EDGE OF WOODS OR BRUSH
- 875 — INDEX CONTOUR
- 874 — INTERMEDIATE CONTOUR
- WET — DELINEATED WETLANDS
- ×874.29 SPOT ELEVATION
- BITUMINOUS PAVEMENT
- CONCRETE PAVEMENT
- BUILDING
- EDGE OF BITUMINOUS
- END OF FLAGGED UTILITIES
- ( ) DENOTES RECORD DATA DEPICTING THE SAME LINE ON THE GROUND AS RETRACED BY THIS SURVEY

north

SCALE IN FEET
20' 0 20'

LEGAL DESCRIPTION

LOT 2, CERTIFIED SURVEY MAP NO. 7901, RECORDED IN VOLUME 68 OF WAUKESHA COUNTY CERTIFIED SURVEY MAPS ON PAGES 140-146 AS DOCUMENT NUMBER 2089198, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN.

TAX KEY NO. MUKV2012215002

DIGGERS HOTLINE
Toll Free (800) 242-8511

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	12/12/2019	Revised per City Comments
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

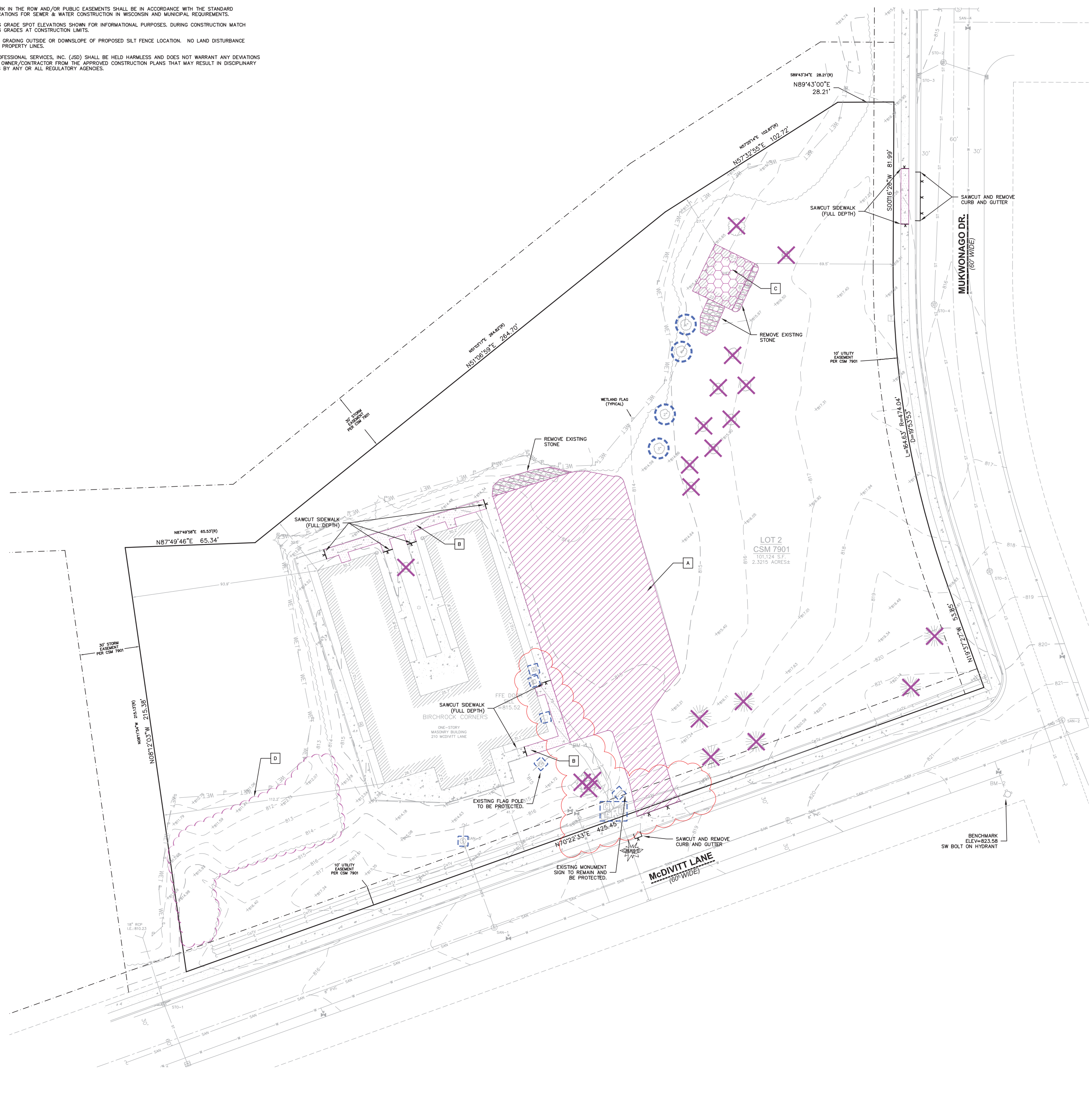
SHEET TITLE:
EXISTING CONDITIONS SURVEY

SHEET NUMBER:
C1.0

JSD PROJECT NO: 19-9231

GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY FOR EXISTING CONDITIONS NOTES AND LEGENDS.
2. ALL WORK IN THE ROW AND/OR PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN AND MUNICIPAL REQUIREMENTS.
3. EXISTING GRADE SPOT ELEVATIONS SHOWN FOR INFORMATIONAL PURPOSES. DURING CONSTRUCTION MATCH EXISTING GRADES AT CONSTRUCTION LIMITS.
4. NO SITE GRADING OUTSIDE OR DOWNSLOPE OF PROPOSED SILT FENCE LOCATION. NO LAND DISTURBANCE BEYOND PROPERTY LINES.
5. JSD PROFESSIONAL SERVICES, INC. (JSD) SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES.



DEMOLITION NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION, REMOVAL, AND DISPOSAL (IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES) OF ALL STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE STRUCTURES, UTILITIES, ETC., IN A LAWFUL MANNER, SUCH THAT THE IMPROVEMENTS SHOWN ON THE REMAINING PLANS CAN BE CONSTRUCTED. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE SPECIFICATIONS. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.
2. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY'S FORCES AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING FOR ALL FEES AND CHARGES. COORDINATION REQUIRED PRIOR TO CONSTRUCTION.
3. THIS PLAN INDICATES ITEMS ON THE PROPERTY INTENDED FOR DEMOLITION BASED ON THE CURRENT SITE DESIGN THAT HAVE BEEN IDENTIFIED BY A REASONABLE OBSERVATION OF THE EXISTING CONDITIONS THROUGH FIELD SURVEY RECONNAISSANCE, "DIGGER'S HOTLINE" LOCATION, AND GENERAL "STANDARD OF CARE". THERE MAY BE ADDITIONAL ITEMS THAT CAN NOT BE IDENTIFIED BY A REASONABLE ABOVE GROUND OBSERVATION, OF WHICH THE ENGINEER WOULD HAVE NO KNOWLEDGE OR MAY BE A PART OF ANOTHER DESIGN DISCIPLINE. IT IS THE CONTRACTOR'S/BIDDER'S RESPONSIBILITY TO REVIEW THE PLANS, INSPECT THE SITE AND PROVIDE THEIR OWN DUE DILIGENCE TO INCLUDE IN THEIR BID WHAT ADDITIONAL ITEMS, IN THEIR OPINION, MAY BE NECESSARY FOR DEMOLITION. ANY ADDITIONAL ITEMS IDENTIFIED BY THE CONTRACTOR/BIDDER SHALL BE IDENTIFIED IN THE BID AND REPORTED TO THE ENGINEER OF RECORD. JSD PROFESSIONAL SERVICES, INC. (JSD) TAKES NO RESPONSIBILITY FOR ITEMS ON THE PROPERTY THAT COULD NOT BE LOCATED BY A REASONABLE OBSERVATION OF THE PROPERTY OR OF WHICH THEY WOULD HAVE NO KNOWLEDGE.
4. ALL PERIMETER EROSION CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF DEMOLITION ACTIVITIES. CONTRACTOR SHALL KEEP ALL STREETS, PRIVATE DRIVES AND PAVEMENT FREE AND CLEAR OF ALL CONSTRUCTION RELATED DIRT, DUST AND DEBRIS.
5. CONTRACTOR TO MAINTAIN CONTINUOUS ACCESS TO SURROUNDING PROPERTIES AND REMAINING PARTS OF THE EXISTING BUILDING AT ALL TIMES DURING THE DEMOLITION PHASE OF THE PROJECT.
6. ALL TREES WITHIN THE CONSTRUCTION LIMITS SHALL BE REMOVED UNLESS SPECIFICALLY CALLED OUT FOR PROTECTION. ALL TREES TO BE REMOVED SHALL BE REMOVED IN THEIR ENTIRETY AND STUMPS SHALL BE GROUND TO PROPOSED SUBGRADE.
7. PERFORM TREE PRUNING IN ALL LOCATIONS WHERE PROPOSED PAVEMENT AND/OR UTILITY INSTALLATION ENCROACH WITHIN THE EXISTING DRIP LINE OF THE TREES TO REMAIN. ALL TRENCHING WITHIN THE EXISTING DRIP LINE OF THE TREES TO REMAIN SHALL BE DONE RADIALLY AWAY FROM THE TRUNK IF ROOTS IN EXCESS OF 1" DIAMETER ARE EXPOSED. ROOTS MUST BE CUT BY REPUTABLE TREE PRUNING SERVICE PRIOR TO ANY TRANSVERSE TRENCHING.
8. ABANDONED/REMOVED ITEMS SHALL BE DISPOSED OF OFF SITE UNLESS OTHERWISE NOTED.
9. CONTRACTOR TO REPLACE ALL SIDEWALK AND CURB AND GUTTER ABUTTING THE PROPERTIES, WHICH IS DAMAGED BY THE CONSTRUCTION, OR ANY SIDEWALK AND CURB AND GUTTER THAT THE VILLAGE ENGINEER DETERMINES NEEDS TO BE REPLACED BECAUSE IT IS NOT AT A DESIRABLE GRADE REGARDLESS OF WHETHER THE CONDITION EXISTED PRIOR TO BEGINNING CONSTRUCTION.
10. VOIDS LEFT BY ANY ITEM REMOVED UNDER ANY PROPOSED PAVEMENT, WALK, ETC. OR WITHIN 24" THEREOF SHALL BE FILLED AND BACKFILLED WITH GRANULAR MATERIALS AND COMPACTED PER SPECIFICATIONS.
11. PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR:
    - 11.1. EXAMINE ALL SITE CONDITIONS RELATIVE TO THE CONDITIONS INDICATED ON THE ENGINEERING DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED IMMEDIATELY TO THE DESIGN ENGINEER AND RESOLVED PRIOR TO THE START OF CONSTRUCTION.
    - 11.2. VERIFYING UTILITY ELEVATIONS AND NOTIFYING THE DESIGN ENGINEER OF ANY DISCREPANCIES. NO WORK SHALL BE PERFORMED UNTIL THE DISCREPANCIES ARE RESOLVED.
    - 11.3. NOTIFYING ALL UTILITIES PRIOR TO THE REMOVAL OF ANY UNDERGROUND UTILITIES.
    - 11.4. NOTIFYING THE DESIGN ENGINEER AND LOCAL CONTROLLING MUNICIPALITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE FOR APPROPRIATE CONSTRUCTION INSPECTION.
    - 11.5. PERFORMING UTILITY LOCATE OBSERVATIONS (ULO) ON ALL UTILITY CROSSINGS. CONTRACTOR TO REPORT ANY PLAN DISCREPANCIES OR CONFLICTS PRIOR TO THE START OF UTILITY CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE APPROPRIATE UTILITY COMPANIES TO CONDUCT ULO'S.
12. ALL EXISTING UTILITIES TO BE FIELD LOCATED AND FLAGGED BY CONTRACTOR.
13. ANY SANITARY SEWER, SANITARY SEWER SERVICES, WATER MAIN, WATER SERVICES, STORM SEWER, OR OTHER UTILITIES, WHICH ARE TO REMAIN, THAT ARE DAMAGED BY THE CONTRACTORS, SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
14. CONTRACTOR SHALL NOTIFY JSD OF ANY ROOF LEADERS AND/OR STORM DRAIN LINES ENCOUNTERED DURING DEMOLITION WHICH ARE NOT SHOWN ON THE PLANS PRIOR TO ABANDONMENT OR REMOVAL.
15. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY DURING THE CONSTRUCTION OF THESE IMPROVEMENTS.
16. ALL DEMOLITION SHALL BE IN ACCORDANCE WITH THE APPROVED MUNICIPALITY RECYCLING PLAN.
17. ANY CONTAMINATED SOILS SHALL BE REMOVED IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS TO AN APPROVED LANDFILL.
18. EXISTING FIBER OPTIC LINE(S) TO BE CLEARLY MARKED PRIOR TO ANY EXCAVATION. CONTRACTOR TO NOTIFY THE DESIGN ENGINEER IMMEDIATELY IF ANY DISCREPANCIES OCCUR IN THE LOCATION SHOWN OR PROPOSED IMPROVEMENTS IMPACTING EXISTING FIBER OPTIC LINE(S) LOCATION(S).
19. BUILDING REMOVALS SHALL BE BY A QUALIFIED CONTRACTOR. CONTRACTOR TO FOLLOW ALL DEMOLITION REGULATIONS, DISCONNECT ALL UTILITIES, OBTAIN ALL APPLICABLE PERMITS AND DISPOSE OF ALL BUILDING MATERIALS IN APPROPRIATE LANDFILLS. DEMOLISHED MATERIALS SHALL NOT BE BURIED ON SITE. IF ENCOUNTERED, ANY CONTAMINATED BUILDING MATERIAL AND/OR SOILS SHALL BE REMOVED AND DISPOSED OF OFF-SITE BY THE CONTRACTOR IN ACCORDANCE WITH APPROPRIATE STATE AND FEDERAL REGULATIONS.
20. CONTRACTOR TO REMOVE EXISTING UTILITY PIPE/CONDUITS WITHIN BUILDING FOOTPRINT AND BACKFILL WITH MATERIALS PER GEOTECHNICAL REPORT.
21. CONTRACTOR MAY LIMIT SAW-CUT AND PAVEMENT REMOVAL TO ONLY THOSE AREAS WHERE IT IS REQUIRED AS SHOWN ON THESE CONSTRUCTION PLANS BUT IF ANY DAMAGE IS INCURRED ON ANY OF THE SURROUNDING PAVEMENT, CURB, SIDEWALK, ETC. THE CONTRACTOR SHALL BE RESPONSIBLE FOR IT'S REMOVAL AND REPAIR. DAMAGE TO ALL EXISTING CONDITIONS TO REMAIN WILL BE REPLACED AT CONTRACTOR'S EXPENSE.
22. RESTORATION OF THE EXISTING ROADWAY RIGHT-OF-WAYS ARE CONSIDERED INCIDENTAL AND SHOULD BE PART OF THE COST OF THE UNDERGROUND IMPROVEMENTS, DEMOLITION AND REMOVAL. THIS INCLUDES CURB & GUTTER, SIDEWALK, TOPSOIL, SEEDING AND MULCHING.

DEMOLITION LEGEND/KEY

- A — EXISTING ASPHALT PAVEMENT AND BASE TO BE REMOVED
- B — EXISTING CONCRETE AND BASE TO BE REMOVED
- C — EXISTING BUILDING TO BE REMOVED
- D — TREES AND VEGETATION TO BE REMOVED
- PROTECT UTILITY STRUCTURE
- PROTECT EXISTING TREES
- REMOVE TREE
- SAWCUT PAVEMENT FULL DEPTH
- CAUTION EXISTING UNDERGROUND UTILITIES (GAS, ELECTRIC, CABLE, TELEPHONE, ETC)

LEGEND

GOVERNMENT CORNER	PLAT BOUNDARY
1" IRON PIPE FOUND	SECTION LINE
2" IRON PIPE FOUND	EASEMENT LINE
IRON PIPE FOUND (SIZE NOTED)	EDGE OF PAVEMENT
PK/MAG NAIL FOUND	EXISTING CONCRETE CURB & GUTTER
1¼" REBAR FOUND	EDGE OF GRAVEL
¾" REBAR FOUND	EXISTING SANITARY SEWER
CONTROL POINT	EXISTING WATER LINE
BENCHMARK	EXISTING STORM SEWER
FINISHED FLOOR SHOT LOCATION	NATURAL GAS
SIGN	OVERHEAD LINE
EXISTING SANITARY MANHOLE	UNDERGROUND ELECTRIC
EXISTING WATERMAIN OR GASMAIN VALVE	FIBER OPTIC
EXISTING WATER MANHOLE	UNDERGROUND TELEPHONE
EXISTING HYDRANT	EDGE OF WOODS OR BRUSH
CURB STOP/SERVICE VALVE	BUILDING
EXISTING STORM MANHOLE	INDEX CONTOUR
EXISTING CURB INLET	INTERMEDIATE CONTOUR
GAS REGULATOR/METER	DELINEATED WETLANDS
GAS VALVE	EXISTING BITUMINOUS PAVEMENT
MANHOLE - UNVERIFIED TYPE	EXISTING ROCK/ GRAVEL AREAS
ELECTRIC TRANSFORMER	CONCRETE PAVEMENT/ SIDEWALKS
EXISTING LIGHT POLE	END OF FLAGGED UTILITIES
POWER POLE W/GUY	
YARD LIGHT	
TELEPHONE MANHOLE	
TELEPHONE PEDESTAL	
CABLE MANHOLE	
CABLE PEDESTAL	

north

SCALE IN FEET: 20' 0 20'

DIGGERS HOTLINE
Toll Free (800) 242-8511

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	12/12/2019	Revised Per Village Comments
2	02/06/2020	Rev. per Vill. & WDNR Comments
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

SHEET TITLE:
DEMOLITION PLAN

SHEET NUMBER:
C2.0

JSD PROJECT NO: 19-9231

PAVING NOTES

1. GENERAL

1.1. ALL PAVING SHALL CONFORM TO "STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY & STRUCTURE CONSTRUCTION, LATEST EDITION, APPLICABLE VILLAGE OF MUKWONAGO ORDINANCES AND THE GEOTECH REPORT.

1.2. FINAL PAVEMENT DESIGN TO BE DETERMINED BY OWNER BASED ON GEOTECHNICAL ENGINEER OF RECORD RECOMMENDATIONS. ALL PAVING SHALL BE PERFORMED IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER OF RECORD RECOMMENDATIONS AS SPECIFIED IN THE SAID GEOTECHNICAL REPORT.

1.3. THE VILLAGE OF MUKWONAGO AND JSD PROFESSIONAL SERVICES (JSD) SHALL BE NOTIFIED 48 HOURS IN ADVANCE OF PERFORMING ANY CONSTRUCTION.

1.4. SIGN CONSTRUCTION SHALL CONFORM TO THE REQUIREMENTS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, CURRENT EDITION.

1.5. ALL PAVING DIMENSIONS AND RADII ARE DIMENSIONED TO FACE OF CURB UNLESS SPECIFIED OTHERWISE.

1.6. ALL COORDINATES AND DIMENSIONS ARE REFERENCED TO THE EDGE OF PAVEMENT, UNLESS NOTED OTHERWISE.

1.7. FOR LANDSCAPING SEE SEPARATE PLAN.

1.8. REFER TO ARCHITECTURAL PLANS FOR ALL BUILDING DIMENSIONS AND DETAILS.

1.9. ALL CURB AND GUTTER IS WSDOT TYPE D, 18", UNLESS NOTED OTHERWISE. USE HIGH SIDE CURB AS NECESSARY TO DRAIN WATER PROPERLY.

1.10. SOME FIELD ADJUSTMENTS MAY BE NECESSARY AT POINTS WHERE PROPOSED PAVEMENT, CURB AND SIDEWALKS MEET EXISTING PAVEMENT, CURB AND SIDEWALKS. REVIEW ANY REQUIRED CHANGES WITH THE ENGINEER PRIOR TO CONSTRUCTION OF WORK.

1.11. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RELOCATIONS FOR ALL UTILITIES, STORM DRAINAGE, SIGNS, TRAFFIC SIGNALS & POLES, ETC. AS REQUIRED TO COMPLETE PROPOSED ITEMS IN PLACE. ALL WORK SHALL BE IN ACCORDANCE WITH AUTHORITY HAVING JURISDICTION'S SPECIFICATIONS AND SHALL BE APPROVED AS SUCH.

1.12. ALL COSTS SHALL BE INCLUDED IN THE BID.

1.13. ALL PAVEMENT TO BE STANDARD DUTY PAVEMENT, UNLESS NOTED OTHERWISE.

1.14. ANY REQUIRED REPLACEMENT OF PUBLIC CURB AND GUTTER SHALL MATCH EXISTING AND MEET MUNICIPALITY REQUIREMENTS.

2. ASPHALTIC CONCRETE PAVING SPECIFICATIONS

2.1. CODES AND STANDARDS – THE PLACING, CONSTRUCTION AND COMPOSITION OF THE ASPHALTIC BASE COURSE AND ASPHALTIC CONCRETE SURFACE COURSE SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS 450, 455, 460 AND 465 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, EDITION OF 2019, HEREAFTER, THIS PUBLICATION WILL BE REFERRED TO AS STATE HIGHWAY SPECIFICATIONS.

2.2. WEATHER LIMITATIONS – APPLY TACK COATS WHEN AMBIENT TEMPERATURE IS ABOVE 50° F (10° C) AND WHEN TEMPERATURE HAS NOT BEEN BELOW 35° F (1° C) FOR 12 HOURS IMMEDIATELY PRIOR TO APPLICATION. DO NOT APPLY WHEN BASE IS WET OR CONTAINS EXCESS OF MOISTURE. CONSTRUCT ASPHALTIC CONCRETE SURFACE COURSE WHEN ATMOSPHERIC TEMPERATURE IS ABOVE 40° F (4° C) AND WHEN BASE IS DRY AND WHEN WEATHER IS NOT RAINY. BASE COURSE MAY BE PLACED WHEN AIR TEMPERATURE IS ABOVE 30° F (-1° C).

2.3. GRADE CONTROL – ESTABLISH AND MAINTAIN REQUIRED LINES AND ELEVATIONS FOR EACH COURSE DURING CONSTRUCTION.

2.4. CRUSHED AGGREGATE BASE COURSE – THE TOP LAYER OF BASE COURSE SHALL CONFORM TO SECTIONS 301 AND 305, STATE HIGHWAY SPECIFICATIONS. CLEAN RECYCLED CRUSHED CONCRETE MAY BE USED IF APPROVED BY GEOTECH ENGINEER OF RECORD.

2.5. BINDER COURSE AGGREGATE – THE AGGREGATE FOR THE BINDER COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 315, STATE HIGHWAY SPECIFICATIONS.

2.6. SURFACE COURSE AGGREGATE – THE AGGREGATE FOR THE SURFACE COURSE SHALL CONFORM TO SECTIONS 460.2.7 AND 465, STATE HIGHWAY SPECIFICATIONS.

2.7. ASPHALTIC MATERIALS – THE ASPHALTIC MATERIALS SHALL CONFORM TO SECTION 455 AND 460, STATE HIGHWAY SPECIFICATIONS.

2.8. SURFACE PREPARATION – NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.

3. CONCRETE PAVING SPECIFICATIONS

3.1. CODES AND STANDARDS – THE PLACING, CONSTRUCTION AND COMPOSITION OF THE CONCRETE PAVEMENT SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SECTIONS 415 AND 416 OF THE STATE OF WISCONSIN STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, CURRENT EDITION. HEREAFTER, THIS PUBLICATION WILL BE REFERRED TO AS STATE HIGHWAY SPECIFICATIONS.

3.2. REINFORCEMENT – CONCRETE PAVEMENT SHALL BE REINFORCED WITH NOVOMESH 950 (OR EQUAL) FIBER REINFORCEMENT AT A RATE OF 5 LBS/CUBIC YARD.

3.3. CURING COMPOUNDS – CURING COMPOUNDS SHALL CONFORM TO SECTION 415 OF THE STATE HIGHWAY SPECIFICATIONS.

3.4. FINISHING –

3.4.1. CONTRACTOR SHALL PROVIDE CONTROL JOINTS AND CONSTRUCTION JOINTS OF ONE-QUARTER CONCRETE THICKNESS AT AN EQUAL RATIO OF LENGTH TO WIDTH WHEREVER POSSIBLE WITH A MAXIMUM LENGTH BETWEEN JOINTS OF 8' ON CENTER.

3.4.2. EXTERIOR CONCRETE SURFACES SHALL BE BROOM FINISHED.

3.4.3. ALL CONCRETE SURFACES TO BE SEALED WITH TYPE TK-26UV CONCRETE SEALANT.

3.5. CRUSHED AGGREGATE BASE COURSE – THE BASE COURSE SHALL CONFORM TO SECTIONS 301 AND 305, STATE HIGHWAY SPECIFICATIONS. CLEAN RECYCLED CRUSHED CONCRETE MAY BE USED IF APPROVED BY GEOTECH ENGINEER OF RECORD.

3.6. SURFACE PREPARATION – NOTIFY CONTRACTOR OF UNSATISFACTORY CONDITIONS. DO NOT BEGIN PAVING WORK UNTIL DEFICIENT SUBBASE AREAS HAVE BEEN CORRECTED AND ARE READY TO RECEIVE PAVING.

4. PAVEMENT MARKING SPECIFICATIONS

4.1. CONTRACTOR SHALL CONSULT STRIPING COLOR WITH OWNER PRIOR TO CONSTRUCTION.

4.2. PROVIDE CONTRACTOR GRADE LATEX, STRIPING PAINT. ALL STRIPING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.

4.3. THOROUGHLY CLEAN SURFACES FREE OF DIRT, SAND, GRAVEL, OIL AND OTHER FOREIGN MATTER. CONTRACTOR RESPONSIBLE TO INSPECT PAVEMENT SURFACES FOR CONDITIONS AND DEFECTS THAT WILL ADVERSELY AFFECT QUALITY OF WORK, AND WHICH CANNOT BE PUT INTO AN ACCEPTABLE CONDITION THROUGH NORMAL PREPARATORY WORK AS SPECIFIED.

4.4. DO NOT PLACE MARKING OVER UNSOUND PAVEMENTS. IF THESE CONDITIONS EXIST, NOTIFY OWNER. STARTING INSTALLATION CONSTITUTES CONTRACTOR'S ACCEPTANCE OF SURFACE AS SUITABLE FOR INSTALLATION.

4.5. LAYOUT MARKINGS USING GUIDE LINES, TEMPLATES AND FORMS. STENCILS AND TEMPLATES SHALL BE PROFESSIONALLY MADE TO INDUSTRY STANDARDS. "FREE HAND" PAINTING OF ARROWS, SYMBOLS, OR WORDING SHALL NOT BE ALLOWED. APPLY STRIPES STRAIGHT AND EVEN.

4.6. PROTECT ADJACENT WALKS, FENCES, AND OTHER ITEMS FROM RECEIVING PAINT.

4.7. APPLY MARKING PAINT AT A RATE OF ONE (1) GALLON PER THREE TO FOUR HUNDRED (300–400) LINEAL FEET OF FOUR (4) INCH WIDE STRIPES. (OR TO MFG. SPECIFICATIONS)

4.8. BARRICADE MARKED AREAS DURING INSTALLATION AND UNTIL THE MARKING PAINT IS DRIED AND READY FOR TRAFFIC.

4.9. MARK AND STRIPE ADA PARKING SPACES APPROPRIATELY PER LOCAL CODES.

4.10. 2' x 4' TRUNCATED DOME WARNING DETECTION FIELD SHALL BE PLACED AT ALL ADA RAMPS.

SITE LEGEND

- (A) DIAGONAL HATCH – SWSL/4" AT 45° @ 2'-0" O.C.
- (B) PARKING STALLS – 18'-0" SWSL/4" @ 10'-0" O.C.
- (C) 5' CONCRETE SIDEWALK WITH RAILING (SEE DETAIL)
- (D) CONCRETE PATIOS, REFER TO ARCHITECTURAL PLANS FOR DETAILS
- (E) ACCESSIBLE PARKING SPACE. SEE DETAILS FOR ACCESSIBLE PARKING SPACE SIZE, SIGN AND SYMBOL ("VAN" – INDICATES VAN ACCESSIBLE SPACE)
- (F) SIDEWALK RAMP W/ DETECTABLE WARNING FIELD (SEE DETAIL)
- (G) 18" STANDARD CURB AND GUTTER (SEE DETAIL)
- (H) 18" REJECT CURB AND GUTTER (SEE DETAIL)
- (I) CONCRETE SIDEWALK (SEE DETAIL)
- (J) THICKENED EDGE SIDEWALK (SEE DETAIL)
- (K) 18" VALLEY CURB AND GUTTER (SEE DETAIL)
- (L) GRASSPAVE 2 (SEE DETAIL)
- (M) STANDARD DUTY HMA PAVEMENT (SEE DETAILS)
- (N) HEAVY DUTY CONCRETE PAVEMENT (SEE DETAILS)
- (O) ADA PARKING SIGN (SEE DETAIL)
- (P) TRASH ENCLOSURE, REFER TO ARCHITECTURAL PLANS FOR DETAILS
- (Q) LIGHTPOLE
- (R) RAISED WOODEN DECK, REFER TO ARCH PLANS FOR DETAILS
- (S) 2' CURB TAPER (SEE DETAIL)
- (T) CURB WIDE (SEE DETAIL)
- (U) EXISTING MONUMENT SIGN TO BE RELOCATED

SITE INFORMATION BLOCK

SITE ADDRESS	210 McDIVITT LN MUKWONAGO, WI 53149
PROPERTY ACREAGE	2.34 ACRES
NUMBER OF BUILDING STORIES	1
BUILDING SQUARE FOOTAGE	
EXISTING	8,055
PROPOSED	16,260
TOTAL	24,315
NUMBER OF PARKING STALLS	
STANDARD	25
ACCESSIBLE	2
TOTAL	27
REQUIRED PARKING STALLS	
40 BED – (1 PARKING PER 3 BEDS)	14
EMPLOYEE PARKING	11
TOTAL	25
EXISTING VS. PROPOSED SITE COVERAGE *	
EXISTING IMPERVIOUS SURFACE AREA	32,291 SF (31.7%)
EXISTING PERVIOUS SURFACE AREA	69,612 SF (68.3%)
EXISTING IMPERVIOUS SURFACE AREA RATIO	0.32
PROPOSED IMPERVIOUS SURFACE AREA	52,435 SF (51.4%)
PROPOSED PERVIOUS SURFACE AREA	49,488 SF (48.6%)
PROPOSED IMPERVIOUS SURFACE AREA RATIO	0.51

R-10 ZONING REQUIREMENTS	REQUIRED	PROVIDED
BUILDING SETBACK (STREET)	35 FEET	35 FEET
BUILDING SETBACK (SIDE)	15 FEET	93.9 FEET
BUILDING SETBACK (REAR)	40 FEET	24.4 FEET
PARKING LOT SETBACK	20 FEET	15 FEET
MINIMUM GREEN SPACE	40%	59%
MAX BUILDING COVERAGE	40%	24%

* THE WETLAND AREAS ARE SPLIT SO THAT 50% OF THE AREA IS IMPERVIOUS AND 50% IS PERVIOUS FOR EXISTING AND PROPOSED AREA CALCULATIONS.

LEGEND

- PROPERTY LINE
- EASEMENT LINE
- WETLAND BOUNDARY
- BUILDING OUTLINE
- PAVEMENT SETBACK LINE
- EDGE OF PAVEMENT
- STANDARD CURB AND GUTTER
- REJECT CURB AND GUTTER
- STANDARD DUTY ASPHALT PAVEMENT
- HEAVY DUTY ASPHALT PAVEMENT
- HEAVY DUTY CONCRETE PAVEMENT
- CONCRETE
- LIGHT POLE
- ADA PARKING SIGN
- PROPOSED STORM CATCH BASIN
- PROPOSED FLARED END SECTION
- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED SANITARY CLEANOUT
- PROPOSED WATER VALVE
- PROPOSED FIRE HYDRANT

GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY FOR EXISTING CONDITIONS NOTES AND LEGENDS.
2. ALL WORK IN THE ROW AND/OR PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN AND MUNICIPAL REQUIREMENTS.
3. JSD PROFESSIONAL SERVICES, INC. (JSD) SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES.

north
SCALE IN FEET
20' 0 20'

DIGGERS HOTLINE
Toll Free (800) 242-8511

JSD Professional Services, Inc.
Engineers • Surveyors • Planners
CREATE THE VISION TELL THE STORY
MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE
MILWAUKEE REGIONAL OFFICE
W239 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P: 262.513.0666

CLIENT:
Castle Senior Living
CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	12/12/2019	Revised per Village Comments
2	01/24/2020	Rev. Building Connector
3	02/06/2020	Rev. per WDL & WDNR Comments
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

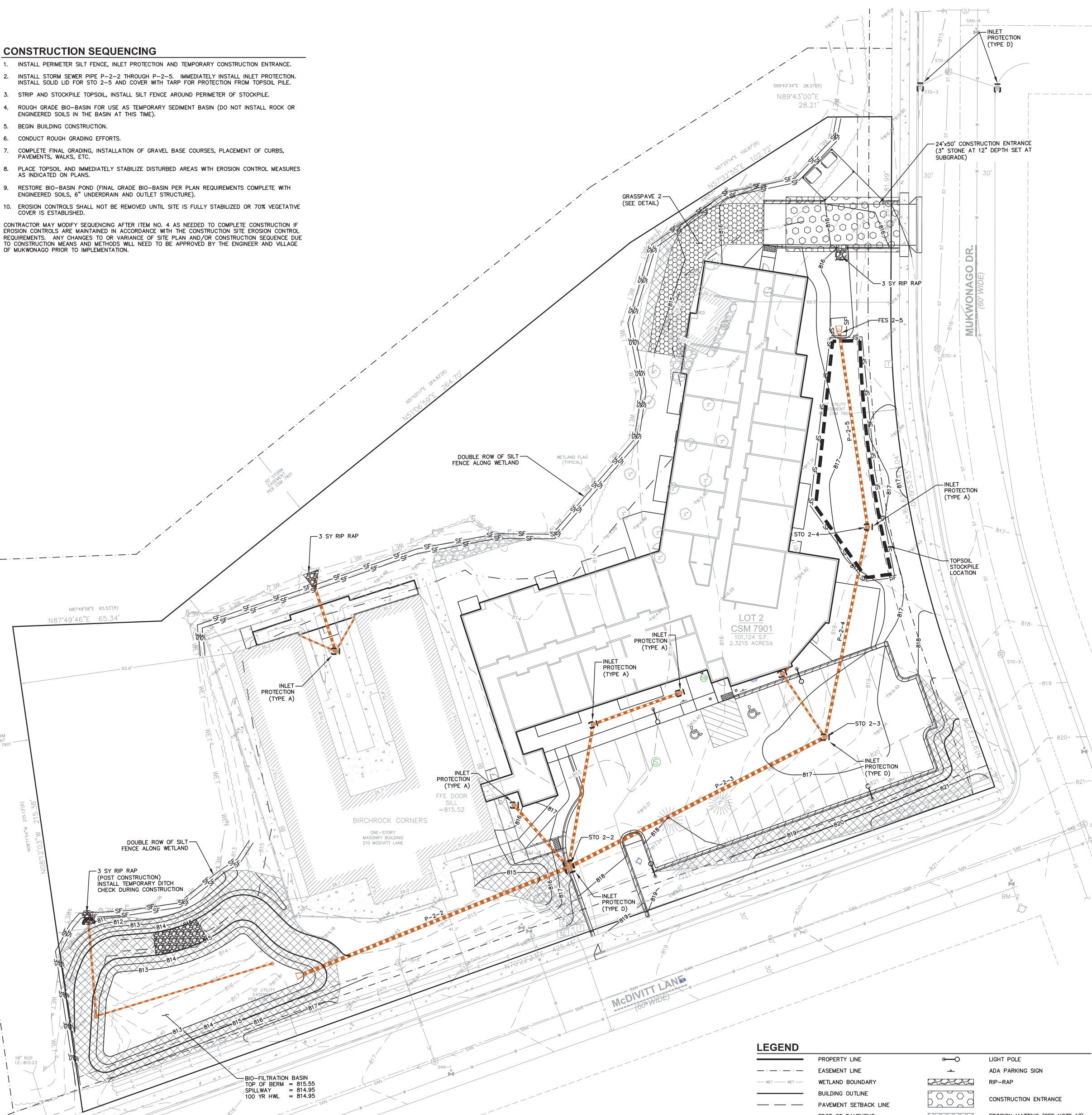
Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019
SHEET TITLE:
SITE PLAN

SHEET NUMBER:
C3.0
JSD PROJECT NO: 19-8231

CONSTRUCTION SEQUENCING

1. INSTALL PERIMETER SILT FENCE, INLET PROTECTION AND TEMPORARY CONSTRUCTION ENTRANCE.
2. INSTALL STORM SEWER PIPE P-2-2 THROUGH P-2-5. IMMEDIATELY INSTALL INLET PROTECTION. INSTALL SOLID LID FOR STO 2-5 AND COVER WITH TARP FOR PROTECTION FROM TOPSOIL PILE.
3. STRIP AND STOCKPILE TOPSOIL, INSTALL SILT FENCE AROUND PERIMETER OF STOCKPILE.
4. ROUGH GRADE BIO-BASIN FOR USE AS TEMPORARY SEDIMENT BASIN (DO NOT INSTALL ROCK OR ENGINEERED SOILS IN THE BASIN AT THIS TIME).
5. BEGIN BUILDING CONSTRUCTION.
6. CONDUCT ROUGH GRADING EFFORTS.
7. COMPLETE FINAL GRADING, INSTALLATION OF GRAVEL BASE COURSES, PLACEMENT OF CURBS, PAVEMENTS, WALKS, ETC.
8. PLACE TOPSOIL AND IMMEDIATELY STABILIZE DISTURBED AREAS WITH EROSION CONTROL MEASURES AS INDICATED ON PLANS.
9. RESTORE BIO-BASIN POND (FINAL GRADE BIO-BASIN PER PLAN REQUIREMENTS COMPLETE WITH ENGINEERED SOILS, 6" UNDERDRAIN AND OUTLET STRUCTURE).
10. EROSION CONTROLS SHALL NOT BE REMOVED UNTIL SITE IS FULLY STABILIZED OR 70% VEGETATIVE COVER IS ESTABLISHED.

CONTRACTOR MAY MODIFY SEQUENCING AFTER ITEM NO. 4 AS NEEDED TO COMPLETE CONSTRUCTION IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS. ANY CHANGES TO OR VARIANCE OF SITE PLAN AND/OR CONSTRUCTION SEQUENCE DUE TO CONSTRUCTION MEANS AND METHODS WILL NEED TO BE APPROVED BY THE ENGINEER AND VILLAGE OF MUKWONAGO PRIOR TO IMPLEMENTATION.



LEGEND

- PROPERTY LINE
- EASEMENT LINE
- WETLAND BOUNDARY
- BUILDING OUTLINE
- PAVEMENT SETBACK LINE
- EDGE OF PAVEMENT
- STANDARD CURB AND GUTTER
- REJECT CURB AND GUTTER
- PROPOSED 1 FOOT CONTOUR (959)
- PROPOSED 5 FOOT CONTOUR (960)
- EXISTING 1 FOOT CONTOUR (959)
- EXISTING 5 FOOT CONTOUR (960)
- SILT FENCE (SF)
- LIGHT POLE
- ADA PARKING SIGN
- RIP-RAP
- CONSTRUCTION ENTRANCE
- EROSION MATTING (SEE NOTE 17)
- SPOT ELEVATION (XXX.XX)
- DITCH CHECK
- INLET PROTECTION

north
SCALE IN FEET
20' 0 20'

EROSION CONTROL NOTES

1. ALL CONSTRUCTION SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN WISCONSIN'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER GENERAL PERMIT FOR CONSTRUCTION SITE LAND DISTURBANCE ACTIVITIES. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR) TECHNICAL STANDARDS AND VILLAGE OF MUKWONAGO ORDINANCES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS ASSOCIATED WITH THE PROJECT TO OBTAIN A COPY OF, AND UNDERSTAND, THESE STANDARDS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
2. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL CONTROL MEASURES AS DIRECTED BY JSD PROFESSIONAL SERVICES, INC. (JSD) OR AUTHORITY HAVING JURISDICTION SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
3. MODIFICATIONS TO THE APPROVED EROSION CONTROL PLAN IN ORDER TO MEET UNFORESEEN FIELD CONDITIONS ARE ALLOWED IF MODIFICATIONS CONFORM TO WDNR TECHNICAL STANDARDS. CONTRACTOR IS RESPONSIBLE TO NOTIFY JSD AND AUTHORITY HAVING JURISDICTION OF ANY CHANGES TO THE EROSION CONTROL AND STORMWATER MANAGEMENT PLANS. ALL MODIFICATIONS MUST BE APPROVED BY JSD/AUTHORITY HAVING JURISDICTION PRIOR TO DEVIATION FROM THE APPROVED PLAN.
4. INSTALL PERIMETER EROSION CONTROL MEASURES (SUCH AS CONSTRUCTION ENTRANCE(S), SILT FENCE AND EXISTING INLET PROTECTION) PRIOR TO ANY SITE WORK, INCLUDING GRADING OR DISTURBANCE OF EXISTING SURFACE COVER, AS SHOWN ON PLAN IN ORDER TO PROTECT ADJACENT PROPERTIES/STORM SEWER SYSTEMS FROM SEDIMENT TRANSPORT.
5. CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED AT THE LOCATION OF VEHICLE INGRESS/EGRESS POINT(S) AS SHOWN ON THE PLAN. CONTRACTOR IS RESPONSIBLE TO COORDINATE LOCATION(S) WITH THE PROPER AUTHORITY HAVING JURISDICTION, PROVIDE NECESSARY FEES AND OBTAIN ALL REQUIRED APPROVALS OR PERMITS. ADDITIONAL CONSTRUCTION ENTRANCES OTHER THAN AS SHOWN ON THE PLANS MUST BE PRIOR APPROVED BY THE APPLICABLE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION. CONSTRUCTION ENTRANCES SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO ADJACENT PUBLIC STREETS AFTER EACH WORKING DAY OR MORE FREQUENTLY AS REQUIRED.
6. PAVED SURFACES ADJACENT TO CONSTRUCTION ENTRANCES SHALL BE SWEPT AND/OR SCRAPED TO REMOVE ACCUMULATED SOIL, DIRT AND/OR DUST AFTER THE END OF EACH WORK DAY AND AS REQUESTED BY THE AUTHORITY HAVING JURISDICTION.
7. THE ADJACENT INLETS THAT WILL COLLECT RUNOFF FROM DISTURBED AREAS SHALL BE PROTECTED TO PREVENT SEDIMENT DEPOSITION. INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER. ALL INLETS, STRUCTURES, PIPES, AND SWALES SHALL BE KEPT CLEAN AND FREE OF SEDIMENTATION AND DEBRIS.
8. AT A MINIMUM, SEDIMENT TRAPS AND NECESSARY TEMPORARY DRAINAGE PROVISIONS SHALL BE CONSTRUCTED AND OPERATIONAL BEFORE BEGINNING OF SIGNIFICANT MASS GRADING OPERATIONS TO PREVENT OFFSITE DISCHARGE OF UNTREATED RUNOFF.
9. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR INSPECTION AND REPAIR DURING CONSTRUCTION. THE OWNER WILL BE RESPONSIBLE IF EROSION CONTROL IS REQUIRED AFTER THE CONTRACTOR HAS COMPLETED THE PROJECT.
10. DITCH CHECKS AND APPLICABLE EROSION NETTING/MATTING SHALL BE INSTALLED IMMEDIATELY AFTER COMPLETION OF GRADING EFFORTS WITHIN DITCHES/SWALES TO PREVENT SOIL TRANSPORTATION.
11. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.) OUTSIDE OF THE PERIMETER CONTROLS SHALL INCORPORATE THE FOLLOWING:
    - PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
    - BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
    - DISCHARGE TRENCH WATER INTO A SEDIMENTATION BASIN OR FILTERING TANK IN ACCORDANCE WITH THE DEWATERING TECHNICAL STANDARD NO. 1061 PRIOR TO RELEASE INTO THE STORM SEWER, RECEIVING STREAM, OR DRAINAGE DITCH.
12. INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER AND DITCH CHECKS SHALL BE IMMEDIATELY FITTED AT ALL INSTALLED CULVERT INLETS TO PREVENT SEDIMENT DEPOSITION WITHIN STORM SEWER SYSTEMS.
13. TOPSOIL STOCKPILE SHALL BE LOCATED GENERALLY AS SHOWN. CONTRACTOR MAY SUBMIT AN ALTERNATE PLAN FOR LOCATION OF TEMPORARY TOPSOIL STOCKPILE TO ENGINEER FOR APPROVAL. INSTALL EROSION CONTROLS ON THE DOWNSTREAM SIDE OF STOCKPILES. IF STOCKPILE REMAINS UNDISTURBED FOR MORE THAN SEVEN (7) DAYS, TEMPORARY SEEDING AND STABILIZATION IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS IS REQUIRED. IF DISTURBANCE OCCURS BETWEEN NOVEMBER 15TH AND MAY 15TH, THE MULCHING SHALL BE PERFORMED BY HYDRO-MULCHING WITH A "TACKIFIER."
14. EROSION CONTROL MEASURES TEMPORARILY REMOVED FOR UNAVOIDABLE CONSTRUCTION ACTIVITIES SHALL BE IN WORKING ORDER PRIOR TO THE COMPLETION OF EACH WORK DAY.
15. PUMPS MAY BE USED AS BYPASS DEVICES. IN NO CASE SHALL PUMPED WATER BE DIVERTED OUTSIDE THE PROJECT LIMITS.
16. GRADING EFFORTS SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. EROSION AND SEDIMENT CONTROL MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS, AND THE USE OF TEMPORARY OR PERMANENT MEASURES. ALL DISTURBED AREAS THAT WILL NOT BE WORKED FOR A PERIOD OF FOURTEEN (14) DAYS REQUIRE TEMPORARY SEEDING FOR EROSION CONTROL. SEEDING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS.
17. ALL DISTURBED SLOPES EXCEEDING 4:1 YET LESS THAN 3:1, SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75BN EROSION MATTING (OR APPROVED EQUAL) AND DISTURBED SLOPES EXCEEDING 3:1 YET LESS THAN 2:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN C125BN (OR APPROVED EQUAL) OR APPLICATION OF AN APPROVED POLYMER SOIL STABILIZATION TREATMENT OR A COMBINATION THEREOF, AS REQUIRED WITHIN 7 DAYS OF REACHING FINAL GRADE AND/OR AS SOON AS CONDITIONS ALLOW. DRAINAGE SWALES SHALL BE STABILIZED WITH CLASS II, TYPE B EROSION MATTING. EROSION MATTING AND/OR NETTING USED ONSITE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES AND WDNR TECHNICAL STANDARDS 1052 AND 1053.
18. STABILIZATION PRACTICES:
    - 18.1. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. NO MORE THAN SEVEN (7) DAYS SHALL PASS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS CEASED UNLESS:
    - 18.2. THE INITIATION STABILIZATION MEASURES BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS CEASED IS PRECLUDED BY SNOW COVER. IN THAT EVENT, STABILIZATION SHALL BE INITIATED AS SOON AS PRACTICABLE.
    - 18.3. CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN FOURTEEN (14) DAYS FROM WHEN ACTIVITY CEASED, (I.E. THE TOTAL TIME PERIOD THAT THE CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN FOURTEEN (14) DAYS. IN THAT EVENT, STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED.
    - 18.4. STABILIZATION MEASURES SHALL BE DETERMINED BASED ON SITE CONDITIONS AT THE TIME OF CONSTRUCTION ACTIVITY HAS CEASED, INCLUDING BUT NOT LIMITED TO WEATHER CONDITIONS AND LENGTH OF TIME MEASURE MUST BE EFFECTIVE. THE FOLLOWING ARE ACCEPTABLE STABILIZATION MEASURES:
        - PERMANENT SEEDING; IN ACCORDANCE WITH APPROVED CONSTRUCTION SPECIFICATION
        - TEMPORARY SEEDING; MAY CONSIST OF SPRING OATS(100LBS/ACRE) AND/OR WHEAT OR CEREAL RYE (150LB/ACRE)
        - HYDRO-MULCHING WITH A TACKIFIER
        - GEOTEXTILE EROSION MATTING
        - SODDING
19. DURING PERIODS OF EXTENDED DRY WEATHER, THE CONTRACTOR SHALL KEEP A WATER TRUCK ON SITE FOR THE PURPOSE OF WATERING DOWN SOILS WHICH MAY OTHERWISE BECOME AIRBORNE. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING WIND EROSION (DUST) DURING CONSTRUCTION AT THEIR EXPENSE. REFER TO WDNR TECHNICAL STANDARD 1068.
20. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE VISUALLY INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM ON A DAILY BASIS.
21. MAINTAIN SOIL EROSION CONTROL DEVICES THROUGH THE DURATION OF THIS PROJECT. EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL LAND DISTURBING CONSTRUCTION ACTIVITY AT THE SITE HAS BEEN COMPLETED AND THAT A UNIFORM PERENNIAL VEGETATIVE COVER HAS BEEN ESTABLISHED WITH A DENSITY OF AT LEAST 70% FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES OR THAT EMPLOY EQUIVALENT PERMANENT STABILIZATION MEASURES. DISTURBANCE ASSOCIATED WITH EROSION CONTROL REMOVAL SHALL BE IMMEDIATELY STABILIZED.
22. QUALIFIED PERSONNEL (PROVIDED BY THE GENERAL/PRIME CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED AND EROSION AND SEDIMENT CONTROLS WITHIN 24 HOURS OF ALL 0.5-INCH, OR MORE, PRECIPITATION EVENTS WITH A MINIMUM INSPECTION INTERVAL OF ONCE EVERY SEVEN (7) CALENDAR DAYS IN THE ABSENCE OF A QUALIFYING RAIN OR SNOWFALL EVENT. REPORTING SHALL BE IN ACCORDANCE WITH PART IV D.4. (a-f). OF THE NPDES GENERAL PERMIT. CONTRACTOR SHALL IMMEDIATELY ARRANGE TO HAVE ANY DEFICIENT ITEMS REVEALED DURING INSPECTIONS REPAIRED/REPLACED.
23. THE FOLLOWING MAINTENANCE PRACTICES SHALL BE USED TO MAINTAIN, IN GOOD AND EFFECTIVE OPERATING CONDITIONS, VEGETATION, EROSION AND SEDIMENT CONTROL MEASURES, AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THIS PLAN. UPON IDENTIFICATION, DEFICIENCIES IN STORMWATER CONTROLS SHALL BE ADDRESSED IMMEDIATELY. THE MAINTENANCE PROCEDURES FOR THIS DEVELOPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO THOSE LISTED BELOW:
    - SILT FENCE – REPAIR OR REPLACE ANY DAMAGED FILTER FABRIC AND/OR STAKES. REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED ONE-HALF THE ABOVE GROUND HEIGHT OF THE FENCE.
    - CONSTRUCTION ENTRANCE – AS NEEDED, ADD STONE TO MAINTAIN CONSTRUCTION ENTRANCE DIMENSIONS AND EFFECTIVENESS.
    - EROSION CONTROL MATTING – REPAIR MATTING IMMEDIATELY IF INSPECTION REVEALS BREACHED OR FAILED CONDITIONS. REPAIR AND RE-GRADE SOIL WHERE CHANNELIZATION HAS OCCURRED.
    - DIVERSION BERM/SWALE – REPLACE OR RE-COMPACT THE CONSTRUCTION MATERIALS AS NECESSARY.
    - INLET PROTECTION – CLEAN, REPAIR OR REPLACE FILTER FABRIC AND/OR STONE WHEN CONTROL MEASURE IS CLOGGED. INLET FILTER BAGS SHALL BE REPLACED ONCE BAG BECOMES ONE-HALF FULL OF SEDIMENT.

ADDITIONAL POLLUTANT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- CONSTRUCTION WASTE SHALL BE PROPERLY DISPOSED OF. THIS INCLUDES ALL CONSTRUCTION SITE WASTE MATERIAL, SANITARY WASTE, AND WASTE FROM VEHICLE TRACKING OF SEDIMENTS. THE CONTRACTOR SHALL ENSURE THAT NO MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, BURNED, OR DISCHARGED TO THE WATERS OF THE STATE. VEHICLES HAULING MATERIAL AWAY FROM THE SITE SHALL BE COVERED WITH A TARPAULIN TO PREVENT BLOWING DEBRIS.
- DUST CONTROL SHALL BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:
- COVERING 30% OR MORE OF THE SOIL SURFACE WITH A NON-ERODIBLE MATERIAL.
- ROUGHENING THE SOIL TO PRODUCE RIDGES PERPENDICULAR TO THE PREVAILING WIND. RIDGES SHALL BE AT LEAST SIX (6) INCHES IN HEIGHT.
- FREQUENT WATERING OF EXCAVATION AND FILL AREAS.
- PROVIDING GRAVEL OR PAVING AT ENTRANCE/EXIT DRIVES, PARKING AREAS AND TRANSIT PATHS.
- STREET SWEEPING SHALL BE PERFORMED TO IMMEDIATELY REMOVE ANY SEDIMENT TRACKED ON PAVEMENTS.

24. CONTRACTOR/OWNER SHALL FILE A NOTICE OF TERMINATION UPON COMPLETION OF THE PROJECT IN ACCORDANCE WITH WDNR REQUIREMENTS AND/OR PROPERTY SALE IN ACCORDANCE WITH WDNR REQUIREMENTS.

DIGGERS HOTLINE
Toll Free (800) 242-8511

JSD Professional Services, Inc.
Engineers • Surveyors • Planners
CREATE THE VISION TELL THE STORY
MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE
MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	12/12/2019	Revised per City Comments
2	01/29/2020	PER WDNR COMMENTS
3	02/06/2020	Rev. per Vill. & WDNR Comments
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

SHEET TITLE:
EROSION CONTROL PLAN

SHEET NUMBER:
C4.0

JSD PROJECT NO: 19-9231

UTILITY NOTES

1. ALL EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATIONS OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTRACTOR/OWNER SHALL CALL "DIGGER'S HOTLINE" PRIOR TO ANY CONSTRUCTION.
2. PRIOR TO CONSTRUCTION, THE PRIME CONTRACTOR IS RESPONSIBLE FOR:
   * EXAMINING ALL SITE CONDITIONS RELATIVE TO THE CONDITIONS INDICATED ON THE ENGINEERING DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER AND RESOLVED PRIOR TO THE START OF CONSTRUCTION.
   * OBTAINING ALL PERMITS INCLUDING PERMIT COSTS, TAP FEES, METER DEPOSITS, BONDS, AND ALL OTHER FEES REQUIRED FOR PROPOSED WORK TO OBTAIN OCCUPANCY.
   * VERIFYING ALL ELEVATIONS, LOCATIONS AND SIZES OF SANITARY, WATER AND STORM LATERALS AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS. NOTIFY ENGINEER OF ANY DISCREPANCY. NO WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS RESOLVED.
   * NOTIFYING ALL UTILITIES PRIOR TO INSTALLATION OF ANY UNDERGROUND IMPROVEMENTS.
   * NOTIFYING THE DESIGN ENGINEER AND MUNICIPALITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE FOR APPROPRIATE CONSTRUCTION OBSERVATION.
   * COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.
3. ALL UTILITY WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN HEREIN REFERRED TO AS THE "STANDARD SPECIFICATIONS" AND ALL STATE AND LOCAL CODES AND SPECIFICATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE WHICH SPECIFICATIONS AND CODES APPLY, AND TO COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE LOCAL AND STATE AUTHORITIES.
4. SPECIFICATIONS SHALL COMPLY WITH THE VILLAGE OF MUKWONAGO SPECIFICATIONS AND WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES DSPS 382.
5. TRACER WIRES SHALL BE INSTALLED AS NECESSARY IN ACCORD WITH 182.0715(2R) OF THE STATE STATUTES AND THE VILLAGE OF MUKWONAGO REQUIREMENTS.
6. LENGTHS OF ALL UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLAN. LENGTHS ARE SHOWN FOR CONTRACTOR CONVENIENCE ONLY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPUTATIONS OF MATERIALS REQUIRED TO COMPLETE WORK. LENGTHS SHALL BE FIELD VERIFIED DURING CONSTRUCTION.
7. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, ELEVATIONS, AND SIZES OF PROPOSED UTILITIES AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS PRIOR TO ATTEMPTING CONNECTIONS AND BEGINNING UTILITY CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY DURING THE CONSTRUCTION OF IMPROVEMENTS.
9. CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT ALL UTILITY COVERS (SUCH AS MANHOLE COVERS, VALVE BOX COVERS, ETC.) TO MATCH THE FINISHED GRADES OF THE AREAS EFFECTED BY THE CONSTRUCTION.
10. THE PRIME CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.
11. ANY SANITARY SEWER, SANITARY SEWER SERVICES, WATER MAIN, WATER SERVICES, STORM SEWER, OR OTHER UTILITIES, WHICH ARE TO REMAIN, THAT ARE DAMAGED BY THE CONTRACTORS, SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
12. WATER SERVICE FOR THE PROPOSED ADDITION TO BE INTERNALLY FED FROM EXISTING BUILDING. SEE ARCHITECTURAL PLANS FOR DETAILS.
13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING UTILITY AS-BUILT PLANS. DRAWINGS PREPARED TO MUNICIPALITY STANDARDS ARE REQUIRED PRIOR TO OCCUPANCY PERMIT ISSUANCE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING AND REPORTING ANY CHANGES TO THE DRAWINGS OR ADDITIONAL ITEMS TO THE ENGINEER AS WORK PROGRESSES.
14. SEE TABLE FOR STORM SEWER STRUCTURE INFORMATION.
15. STORM SEWER SPECIFICATIONS –

    PIPE – ALL STORM SEWER USED ON THIS PROJECT SHALL BE HIGH DENSITY POLYETHYLENE UNLESS OTHERWISE NOTED.

    HIGH DENSITY POLYETHYLENE SMOOTH-WALLED INTERIOR CORRUGATED PIPE SHALL BE AS MANUFACTURED BY ADS OR EQUAL, WITH WATER TIGHT JOINTS, MANNING "N" VALUE OF 0.010 AND SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-294 TYPE S. MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D3350, D2412, AND D2321 WITH ELASTOMERIC GASKETS CONFORMING TO ASTM F477.

    INLETS AND FRAMES

    INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 382.36(9)b.3.

    FRAMES AND GRATES SHALL BE GRAY IRON MATERIAL (PER ASTM A-48) OF STYLES / NEENAH CATALOG NUMBERS AS INDICATED ON THESE CONSTRUCTION DRAWINGS.

    MANHOLES AND FRAMES
    MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF SPS 382.35(8)a,b.

    FRAMES AND LIDS SHALL BE GRAY IRON MATERIAL (PER ASTM A-48) OF STYLES/NEENAH CATALOG NUMBERS AS INDICATED ON THESE CONSTRUCTION DRAWINGS. INTERNAL CHIMNEY SEALS SHALL BE CRETEX SPECIALTY PRODUCTS, OR EQUAL.

    CLEANOUTS – CLEANOUTS SHALL BE EQUIPPED WITH FROST SLEEVES IN ACCORDANCE WITH SPS 382.35(5)(A)2. (REFER TO DETAIL)

    BACKFILL AND BEDDING – STORM SEWER SHALL BE CONSTRUCTED WITH GRAVEL BACKFILL AND CLASS "B" BEDDING IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS".

    ROOF LEADER/STORM DRAIN LINES – ALL EXISTING ROOF LEADERS/STORM DRAIN LINES ENCOUNTERED WHICH ARE NOT SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF JSD PRIOR TO ABANDONMENT, REMOVAL, OR CONNECTION TO THE PROPOSED STORM SEWER SYSTEM. PROPOSED ROOF LEADERS FOR NORTHERLY SIDE OF ADDITION TO DRAIN TO SPLASH BLOCKS AND THEN OVERLAND TO THE NORTH. THE REMAINDER OF THE PROPOSED ROOF LEADERS TO EITHER DRAIN TO SPLASH BLOCKS THEN OVERLAND INTO PROPOSED STORM SEWER SYSTEM OR BE DIRECTLY TIED INTO PROPOSED STORM SEWER SYSTEM.
16. WATER MAIN SPECIFICATIONS –

    PIPE – ALL WATERMAIN PIPE USED ON THIS PROJECT SHALL BE POLYVINYL CHLORIDE UNLESS OTHERWISE NOTED.

    POLYVINYL CHLORIDE (PVC) PIPE SHALL MEET THE REQUIREMENTS OF AWWA STANDARD C-900, CLASS 150, DR-18, WITH CAST IRON O.D. AND INTEGRAL ELASTOMERIC BELL AND SPIGOT JOINTS. NON-METALLIC WATER MAINS SHALL BE INSTALLED WITH BLUE INSULATION TRACER WIRE AND CONFORM WITH SPS 382.30(11)(h).

    VALVES AND VALVE BOXES – GATE VALVES SHALL BE AWWA GATE VALVES MEETING THE REQUIREMENTS OF AWWA C-500 AND CHAPTER 8.27.0 OF THE "STANDARD SPECIFICATIONS". GATE VALVES AND VALVE BOXES SHALL CONFORM TO LOCAL PLUMBING ORDINANCES.

    HYDRANTS – HYDRANTS SHALL CONFORM TO THE SPECIFICATIONS OF THE VILLAGE OF MUKWONAGO. THE DISTANCE FROM THE GROUND LINE TO THE CENTERLINE OF THE LOWEST NOZZLE AND THE LOWEST CONNECTION OF THE FIRE DEPARTMENT SHALL BE NO LESS THAN 18-INCHES AND NO GREATER THAN 23-INCHES (SEE DETAIL).

    10-GAUGE TRACER WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF ALL PRIVATE WATER MAINS, HYDRANT LEADS, FIRE DEPARTMENT CONNECTION LEADS AND LATERALS. THE TRACER WIRE SHALL BE EXTENDED TO THE SURFACE AT THE BUILDING WALL AND ALL OTHER SYSTEM LIMITS AND ENCLOSED IN RISER BOX WITH "WATER" ON THE COVER.

    BEDDING AND COVER MATERIAL – PIPE BEDDING AND COVER MATERIAL SHALL BE SAND, CRUSHED STONE CHIPS OR CRUSHED STONE SCREENINGS CONFORMING TO CHAPTER 8.43.2 OF THE "STANDARD SPECIFICATIONS".

    THRUST BLOCKS SHOULD BE USED WHEREVER NECESSARY TO PREVENT SEPARATION OF JOINTS AND PIPE MOVEMENT. JOINT RESTRAINTS MAY ALSO BE USED AS APPLICABLE.

    BACKFILL – BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS". GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS".
17. WATERMAIN SHALL BE INSULATED WHEREVER THE DEPTH OF COVER IS LESS THAN 6 FEET. INSULATION AND INSTALLATION OF INSULATION SHALL BE CONFORMING WITH CHAPTER 4.17.0 "INSULATION" OF THE "STANDARD SPECIFICATIONS".
18. ALL NEW ON-SITE STORM AND WATER UTILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.
19. THE CONTRACTOR SHALL CONTACT THE VILLAGE OF MUKWONAGO 48-HOURS IN ADVANCE TO COORDINATE CONNECTION TO THE MUNICIPAL SYSTEM.
20. SANITARY SEWER SPECIFICATIONS –

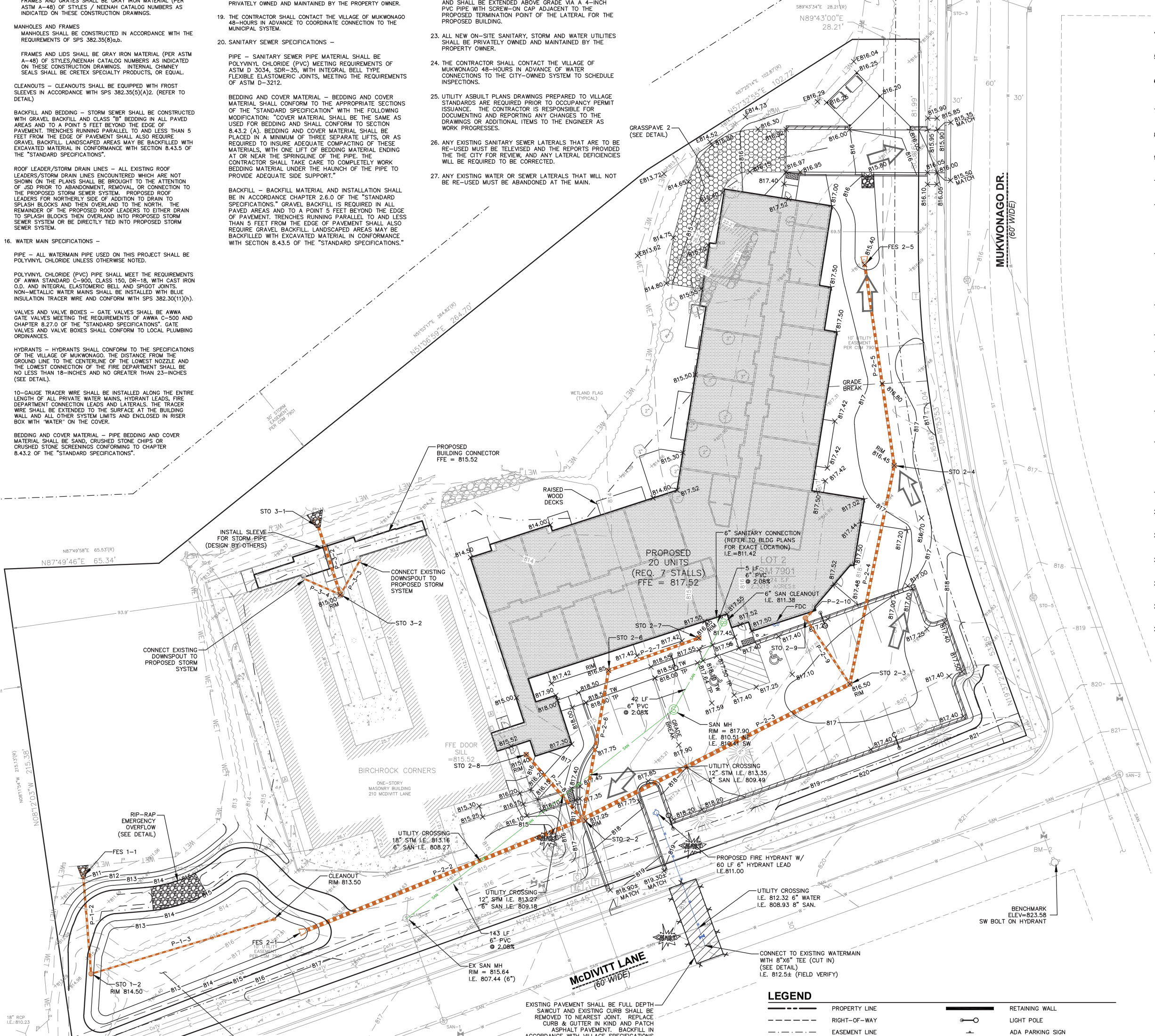
    PIPE – SANITARY SEWER PIPE MATERIAL SHALL BE POLYVINYL CHLORIDE (PVC) MEETING REQUIREMENTS OF ASTM D 3034, SDR-35, WITH INTEGRAL BELL TYPE FLEXIBLE ELASTOMERIC JOINTS, MEETING THE REQUIREMENTS OF ASTM D-3212.

    BEDDING AND COVER MATERIAL – BEDDING AND COVER MATERIAL SHALL CONFORM TO THE APPROPRIATE SECTIONS OF THE "STANDARD SPECIFICATION" WITH THE FOLLOWING MODIFICATION: "COVER MATERIAL SHALL BE THE SAME AS USED FOR BEDDING AND SHALL CONFORM TO SECTION 8.43.2 (A). BEDDING AND COVER MATERIAL SHALL BE PLACED IN A MINIMUM OF THREE SEPARATE LIFTS, OR AS REQUIRED TO INSURE ADEQUATE COMPACTING OF THESE MATERIALS, WITH ONE LIFT OF BEDDING MATERIAL ENDING AT OR NEAR THE SPRINGLINE OF THE PIPE. THE CONTRACTOR SHALL TAKE CARE TO COMPLETELY WORK BEDDING MATERIAL UNDER THE HAUNCH OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT."

    BACKFILL – BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS." GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS."

    MANHOLES – MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH FILE NOS. 12, 13 AND 15 OF THE "STANDARD SPECIFICATIONS" AND ALL SPECIAL PROVISIONS OF THE VILLAGE OF MUKWONAGO.

    MANHOLE FRAMES AND COVERS – MANHOLE FRAMES AND COVERS SHALL BE NEENAH R-1642 WITH TYPE "B" SELF SEALING LIDS, NON-ROCKING OR EQUAL.
21. WATER MAIN AND SANITARY SEWER SHALL BE INSULATED WHEREVER THE DEPTH OF COVER IS LESS THAN 6 FEET. INSULATION AND PLACING OF INSULATION SHALL CONFORM TO CHAPTER 4.17.0 "INSULATION" OF THE "STANDARD SPECIFICATIONS".
22. TRACER WIRE SHALL BE INSTALLED ALONG THE SANITARY SEWER SERVICE. THE TRACER WIRE SHALL BE CONTINUOUS AND SHALL BE EXTENDED ABOVE GRADE VIA A 4-INCH PVC PIPE WITH SCREW-ON CAP ADJACENT TO THE PROPOSED TERMINATION POINT OF THE LATERAL FOR THE PROPOSED BUILDING.
23. ALL NEW ON-SITE SANITARY, STORM AND WATER UTILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.
24. THE CONTRACTOR SHALL CONTACT THE VILLAGE OF MUKWONAGO 48-HOURS IN ADVANCE OF WATER CONNECTIONS TO THE CITY-OWNED SYSTEM TO SCHEDULE INSPECTIONS.
25. UTILITY ASBUILT PLANS DRAWINGS PREPARED TO VILLAGE STANDARDS ARE REQUIRED PRIOR TO OCCUPANCY PERMIT ISSUANCE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING AND REPORTING ANY CHANGES TO THE DRAWINGS OR ADDITIONAL ITEMS TO THE ENGINEER AS WORK PROGRESSES.
26. ANY EXISTING SANITARY SEWER LATERALS THAT ARE TO BE RE-USED MUST BE TELEVISED AND THE REPORTS PROVIDED THE THE CITY FOR REVIEW, AND ANY LATERAL DEFICIENCIES WILL BE REQUIRED TO BE CORRECTED.
27. ANY EXISTING WATER OR SEWER LATERALS THAT WILL NOT BE RE-USED MUST BE ABANDONED AT THE MAIN.



GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY FOR EXISTING CONDITIONS NOTES AND LEGENDS.
2. ALL WORK IN THE ROW AND/OR PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN AND MUNICIPAL REQUIREMENTS.
3. EXISTING GRADE SPOT ELEVATIONS SHOWN FOR INFORMATIONAL PURPOSES. DURING CONSTRUCTION MATCH EXISTING GRADES AT CONSTRUCTION LIMITS.
4. NO SITE GRADING OUTSIDE OR DOWNSLOPE OF PROPOSED SILT FENCE LOCATION. NO LAND DISTURBANCE BEYOND PROPERTY LINES.
5. JSD PROFESSIONAL SERVICES, INC. (JSD) SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES.

LEGEND

PROPERTY LINE
RIGHT-OF-WAY
EASEMENT LINE
EASEMENT CENTER LINE
WETLAND BOUNDARY
BUILDING OUTLINE
EDGE OF PAVEMENT
STANDARD CURB AND GUTTER
REJECT CURB AND GUTTER
959 PROPOSED 1 FOOT CONTOUR
960 PROPOSED 5 FOOT CONTOUR
959 EXISTING 1 FOOT CONTOUR
960 EXISTING 5 FOOT CONTOUR
PROPOSED BREAKLINE
OVERFLOW ROUTE
RIP-RAP
RETAINING WALL
LIGHT POLE
ADA PARKING SIGN
XXX.XX SPOT ELEVATION
TP – TOP OF PAVEMENT
TW – TOP OF WALK
PROPOSED CATCH BASIN
PROPOSED STORM CURB INLET
PROPOSED STORM MANHOLE
PROPOSED STORM SEWER
W PROPOSED WATERMAIN
SAN PROPOSED SANITARY
PROPOSED SANITARY MANHOLE
PROPOSED SANITARY CLEANOUT
PROPOSED WATER VALVE
PROPOSED FIRE HYDRANT

GRADING AND SEEDING NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY THE FOLLOWING:
   A. ELEVATIONS OF THE BENCHMARKS PRIOR TO COMMENCING WORK.
   B. LOCATION AND ELEVATION OF:
      1. EXISTING PIPE INVERTS
2. FLOOR ELEVATIONS
      3. CURB OR PAVEMENT WHERE MATCHING INTO EXISTING WORK
4. HORIZONTAL CONTROL BY REFERENCING SHOWN COORDINATES TO KNOWN PROPERTY LINES.

NOTIFY ENGINEER OF DISCREPANCIES IN EITHER VERTICAL OR HORIZONTAL CONTROL PRIOR TO PROCEEDING WITH WORK.

2. ALL PROPOSED GRADES SHOWN ARE FINISHED GRADES. CONTRACTOR SHALL VERIFY ALL GRADES, MAKE SURE ALL AREAS DRAIN PROPERLY AND SHALL REPORT ANY DISCREPANCIES TO THE JSD PROFESSIONAL SERVICES, INC. (JSD) PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.
3. CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR COMPUTATIONS OF ALL GRADING QUANTITIES. WHILE JSD ATTEMPTS TO PROVIDE A COST- EFFECTIVE APPROACH TO BALANCE EARTHWORK, GRADING DESIGN IS BASED ON MANY FACTORS, INCLUDING SAFETY, AESTHETICS, AND COMMON ENGINEERING STANDARDS OF CARE. THEREFORE, NO GUARANTEE CAN BE MADE FOR A BALANCED SITE.
4. THE CONTRACTOR MAY SOLICIT APPROVAL FROM JSD/OWNER TO ADJUST FINAL GRADES FROM DESIGN GRADES TO PROVIDE AN OVERALL SITE BALANCE AS A RESULT OF FIELD CONDITIONS.
5. ALL UNSURFACED AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL AND BE SEEDED, MULCHED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
6. THIS GRADING PLAN IS BASED ON A TOPOGRAPHIC SURVEY. SOME FIELD ADJUSTMENTS MAY BE NECESSARY AT POINTS WHERE PROPOSED GRADES MEET EXISTING. REVIEW ANY REQUIRED CHANGES WITH JSD PRIOR TO CONSTRUCTION OF WORK.
7. PROPERTY CORNER MARKERS SHALL BE CAREFULLY PROTECTED. MONUMENTS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
8. PROPOSED CONTOURS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. ALL CONSTRUCTION SHALL BE BASED UPON PROPOSED SPOT ELEVATIONS WHERE PROVIDED.
9. PARKING LOT AND DRIVEWAY ELEVATIONS ARE PAVEMENT GRADES LOCATED ALONG THE FLANGE LINE, NOT TOP OF CURB GRADES, UNLESS OTHERWISE NOTED.
10. ALL EXCAVATIONS AND MATERIAL PLACEMENT SHALL BE COMPLETED TO DESIGN ELEVATIONS AS DEPICTED IN THE PLANS.
11. GRADING ACTIVITIES SHALL BE IN A MANNER TO ALLOW POSITIVE DRAINAGE ACROSS DISTURBED SOILS, WHICH MAY INCLUDE EXCAVATION OF TEMPORARY DITCHES TO PREVENT PONDING, AND IF NECESSARY, PUMPING TO ALLEVIATE PONDING. CONTRACTOR SHALL PREVENT SURFACE WATER FROM ENTERING INTO EXCAVATIONS. IN NO WAY SHALL OWNER BE RESPONSIBLE FOR REMEDIATION OF UNSUITABLE SOILS CREATED/ORIGINATED AS A RESULT OF IMPROPER SITE GRADING OR SEQUENCING. CONTRACTOR SHALL SEQUENCE GRADING ACTIVITIES TO LIMIT EXPOSURE OF DISTURBED SOILS DUE TO WEATHER.
12. THE CONTRACTOR IS RESPONSIBLE FOR MEETING MINIMUM COMPACTION STANDARDS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR SITE COMPACTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY ENGINEER/OWNER IF PROPER COMPACTION CANNOT BE OBTAINED. THE PROJECT'S GEOTECHNICAL CONSULTANT SHALL DETERMINE WHICH IN-SITU SOILS ARE TO BE CONSIDERED UNSUITABLE SOILS. THE ENGINEER/OWNER AND GEOTECHNICAL TESTING CONSULTANT WILL DETERMINE IF REMEDIAL MEASURES WILL BE NECESSARY.
13. IN THE EVENT THAT ANY MOISTURE-DENSITY TEST(S) FAIL TO MEET SPECIFICATION REQUIREMENTS, THE CONTRACTOR SHALL PERFORM CORRECTIVE WORK AS NECESSARY TO BRING THE MATERIAL INTO COMPLIANCE AND RETEST THE FAILED AREA AT NO COST TO THE OWNER.
14. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY JSD/OWNER IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION.
15. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ADEQUATE AND SAFE TEMPORARY SHORING, BRACING, RETENTION STRUCTURES, AND EXCAVATIONS.
16. THE SITE SHALL BE COMPLETED TO WITHIN 0.10-FT (+/-) OF THE PROPOSED GRADES AS INDICATED WITHIN THE PLANS PRIOR TO PLACEMENT OF TOPSOIL OR STONE. CONTRACTOR IS ENCOURAGED TO SEQUENCE CONSTRUCTION SUCH THAT THE SITE IS DIVIDED INTO SMALLER AREAS TO ALLOW STABILIZATION OF DISTURBED SOILS IMMEDIATELY UPON COMPLETION OF INDIVIDUAL SMALLER AREAS.
17. CONTRACTOR SHALL CONTACT "DIGGER'S HOTLINE" FOR LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES AND SHALL BE RESPONSIBLE FOR PROTECTING SAID UTILITIES FROM ANY DAMAGE DURING CONSTRUCTION.
18. WORK WITHIN ANY ROADWAY RIGHT-OF-WAY SHALL BE COORDINATED WITH THE APPROPRIATE AUTHORITY HAVING JURISDICTION PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FEES. GRADING WITHIN RIGHT-OF-WAY IS SUBJECT TO APPROVAL BY SAID AUTHORITY. RESTORATION OF RIGHT-OF-WAY IS CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF GRADING. RESTORATION SHALL INCLUDE ALL ITEMS NECESSARY TO RESTORE RIGHT-OF-WAY IN-KIND INCLUDING LANDSCAPING.
19. CONTRACTOR SHALL COMPLY WITH ALL CITY AND/OR STATE CONSTRUCTION STANDARDS/ORDINANCES.
20. CONTRACTOR SHALL PROVIDE NOTICE TO THE MUNICIPALITY IN ADVANCE OF ANY SOIL DISTURBING ACTIVITIES, IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.
21. ALL DISTURBED AREAS SHALL BE SODDED AND/OR SEEDED AND MULCHED IMMEDIATELY FOLLOWING GRADING ACTIVITIES. SOD/SEED MIX TO BE IN ACCORDANCE WITH LANDSCAPE PLAN.
22. CONTRACTOR SHALL WATER ALL NEWLY SODDED/SEEDED AREAS DURING THE SUMMER MONTHS WHENEVER THERE IS A 7 DAY LAPSE WITH NO SIGNIFICANT RAINFALL.
23. CONTRACTOR TO DEEP TILL ALL COMPACTED PERVIOUS SURFACES PRIOR TO SODDING AND/OR SEEDING AND MULCHING.
24. ALL SLOPES 20% OR GREATER SHALL BE TEMPORARY SEEDED, MULCHED, OR OTHER MEANS OF COVER PLACED ON THEM WITHIN 2 WEEKS OF DISTURBANCE.
25. ALL EXPOSED SOIL AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE OR ON WHICH LAND DISTURBING ACTIVITIES WILL NOT BE PERFORMED FOR A PERIOD GREATER THAN 30 DAYS AND REQUIRE VEGETATIVE COVER FOR LESS THAN 1 YEAR, REQUIRE TEMPORARY SEEDING FOR EROSION CONTROL. SEEDING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH WDNR TECHNICAL STANDARD 1059 AND VILLAGE OF MUKWONAGO ORDINANCES.

PROPOSED STRUCTURES TABLE

LABEL	RIM EL. (FT)	INVERT EL. (FT)	DEPTH (FT)	STRUCTURE DESC.	FRAME & GRATE
FES 1-1		S INV: 810.83 (8")		8 IN HDPE FES	
FES 2-1		E INV: 813.00 (18")		18 IN HDPE FES	
FES 2-5		S INV: 815.40 (12")		12 IN HDPE FES	
STO 1-2	814.50	N INV: 811.00 (8") E INV: 811.00 (6")	3.0	36 IN CB (FLAT)	R-2565-G
STO 2-2	817.25	W INV: 813.25 (18") NE INV: 813.25 (18") NW INV: 813.25 (12") N INV: 813.25 (12")	4.0	72 IN MH (FLAT)	R-3067 TYPE R
STO 2-3	816.50	SW INV: 813.50 (18") N INV: 813.50 (12") NW INV: 813.50 (8")	3.0	60 IN MH (FLAT)	R-2501 TYPE D
STO 2-4	816.45	S INV: 813.88 (12") N INV: 813.88 (12")	2.6	12 IN DB	12 IN DOME GRATE
STO 2-6	816.85	S INV: 813.60 (12") E INV: 813.60 (12")	3.2	24 IN DB	24 IN DOME GRATE
STO 2-7	816.85	W INV: 813.85 (12")	3.0	12 IN DB	12 IN DOME GRATE
STO 2-8	815.40	SE INV: 813.32 (12")	2.1	24 IN DB	24 IN DOME GRATE
STO 2-9	817.35	SE INV: 813.85 (8") NE INV: 813.85 (8")	3.5	12 IN DB	12 IN DOME GRATE
STO 3-1		S INV: 812.50 (12")		12 IN HDPE FES	
STO 3-2	815.00	N INV: 812.65 (12") NE INV: 812.65 (6") NW INV: 812.65 (6")	2.4	24 IN DB	24 IN DOME GRATE

PROPOSED PIPES TABLE

LABEL	FROM	TO	LENGTH	INVERT EL. (FT)	DISCHARGE EL. (FT)	SLOPE	SIZE & MATERIAL
P-1-2	STO 1-2	FES 1-1	41'	811.00	810.83	0.41%	8 IN HDPE
P-1-3		STO 1-2	81'	811.40	811.00	0.50%	6 IN HDPE
P-2-2	STO 2-2	FES 2-1	125'	813.25	813.00	0.20%	18 IN HDPE
P-2-3	STO 2-3	STO 2-2	126'	813.50	813.25	0.20%	18 IN HDPE
P-2-4	STO 2-4	STO 2-3	94'	813.88	813.50	0.40%	12 IN HDPE
P-2-5	FES 2-5	STO 2-4	86'	815.40	813.88	1.77%	12 IN HDPE
P-2-6	STO 2-6	STO 2-2	64'	813.60	813.25	0.55%	12 IN HDPE
P-2-7	STO 2-7	STO 2-6	41'	813.85	813.60	0.62%	12 IN HDPE
P-2-8	STO 2-8	STO 2-2	36'	813.32	813.25	0.20%	12 IN HDPE
P-2-9	STO 2-9	STO 2-3	34'	813.85	813.50	1.04%	8 IN HDPE
P-2-10	Downspout	STO 2-9	4'	813.90	813.85	1.25%	8 IN HDPE
P-3-2	STO 3-2	STO 3-1	30'	812.65	812.50	0.50%	12 IN HDPE
P-3-3	Downspout	STO 3-2	17'	812.83	812.65	1.08%	6 IN HDPE
P-3-4	Downspout	STO 3-2	17'	812.83	812.65	1.07%	6 IN HDPE

north
SCALE IN FEET
20' 0 20'

DIGGERS HOTLINE
Toll Free (800) 242-8511

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

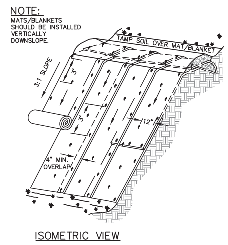
#	Date:	Description:
1	12/12/2019	Revised per Village Comments
2	02/06/2020	Rev. per Vill. & WDNR Comments
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

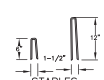
SHEET TITLE:
GRADING AND UTILITY PLAN

SHEET NUMBER:
C5.0

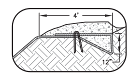
JSD PROJECT NO: 19-9231



TYPICAL SLOPE SOIL STABILIZATION



STAPLES



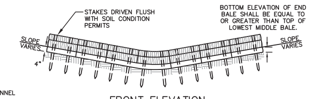
BERM

GENERAL NOTES:

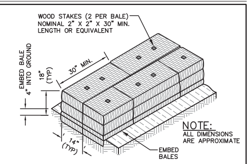
1. EROSION MAT CONSTRUCTION SHALL BE IN ACCORDANCE WITH WISCONSIN DNR TECHNICAL STANDARD 1052 "NON-CHANNEL EROSION MAT".
2. ONLY WisDOT EROSION CONTROL PRODUCT ACCEPTABILITY LIST (PAL) APPROVED MATS SHALL BE ALLOWED. REFER TO EROSION CONTROL PLAN FOR EXACT MAT CLASSIFICATION.
3. APPLY PERMANENT SEEDING BEFORE PLACING BLANKETS.
4. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL. DO NOT STRETCH.
5. ONLY WisDOT EROSION CONTROL PRODUCT ACCEPTABILITY LIST (PAL) APPROVED MATS SHALL BE ALLOWED. REFER TO EROSION CONTROL PLAN FOR EXACT MAT CLASSIFICATION.

REV. 11-19-2018

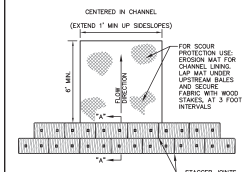
EROSION MATTING



FRONT ELEVATION



SECTION "A–A"



PLAN VIEW

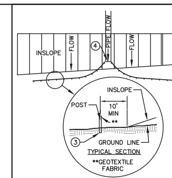
GENERAL NOTES:

1. INSTALLED, THE MINIMUM HEIGHT OF DITCH CHECKS SHALL BE 10-INCHES AND SHALL NOT EXCEED A MAXIMUM HEIGHT OF 16-INCHES FOR MANUFACTURED OR BIODEGRADABLE MATERIALS.
2. DITCH CHECKS MUST BE INSTALLED WITH THE CENTER LOWER THAN THE SIDES FORMING A WEIR.
3. AT A MINIMUM, INSTALL ONE DITCH CHECK FOR EVERY TWO-FEET OF DROP IN THE CHANNEL.
4. DITCH CHECK SHALL, AT A MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24- HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5-INCHES OF RAIN OR MORE DURING A 24-HOUR PERIOD.
5. SEDIMENT DEPOSITS SHALL BE REMOVED WHEN DEPOSITS REACH HALF OF THE HEIGHT OF THE LOWEST BALE.
6. DITCH CHECKS SHALL BE UTILIZED DURING ROUGH GRADING AND SHALL BE REMOVED ONCE FINAL GRADING AND CHANNEL STABILIZATION IS APPLIED.
7. DITCH CHECK CONSTRUCTION AND MAINTENANCE SHALL BE IN ACCORDANCE WITH WDNR TECHNICAL STANDARD (1062). EROSION MATTING SCOUR PROTECTION SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH WDNR TECHNICAL STANDARD (1053).

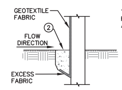
REV. 11-19-2018

DITCH CHECK (STRAW BALES)

N.T.S.

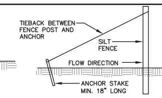


SILT FENCE ALONG SLOPES & OUTFALLS

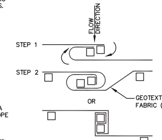


NOTE:
ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS.

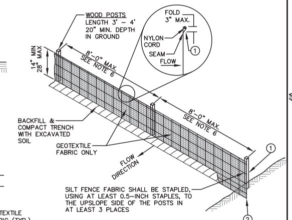
TRENCH DETAIL

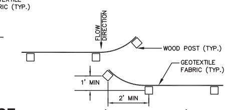


SILT FENCE TIE BACK
(WHEN ADDITIONAL SUPPORT REQUIRED)



JOINT
(TWIST METHOD)





JOINT (HOOK METHOD)

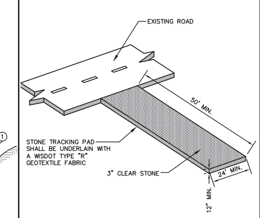
GENERAL NOTES:

1. SILT FENCE SHALL BE ANCHORED BY SPREADING AT LEAST 8-INCHES OF FABRIC IN A 4-INCH WIDE AND 6-INCH DEEP TRENCH OR 6-INCH DEEP V-TRENCH ON THE UPSLOPE SIDE OF THE FENCE. TRENCHES SHALL NOT BE EXCAVATED WIDER OR DEEPER THAN NECESSARY FOR PROPER INSTALLATION.
2. FOLD MATERIAL TO FIT TRENCH AND BACKFILL AND COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1.125-INCHES x 1.125-INCHES OF DRIED OAK OR HICKORY.
4. SILT FENCE TO EXTEND ABOVE THE TOP OF PIPE.
5. SILT FENCE CONSTRUCTION AND GEOTEXTILE FABRIC SHALL CONFORM TO WDNR TECHNICAL STANDARD 1056.
6. POST SPACING SHALL BE SELECTED BASED ON GEOTEXTILE FABRIC (8-FEET FOR WOVEN & 3-FEET FOR NON-WOVEN)

SILT FENCE

N.T.S.

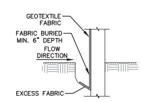
REV. 7-30-2018



NOTE:
CONTRACTOR TO VERIFY LOCATION WITH OWNER.

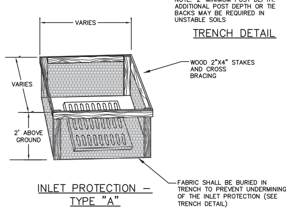
CONSTRUCTION ENTRANCE

N.T.S.



NOTE: 2' MINIMUM POST DEPTH. ADDITIONAL POST DEPTH OR TIE BACKS MAY BE REQUIRED IN UNSTABLE SOILS

TRENCH DETAIL



INLET PROTECTION – TYPE "A"

GENERAL NOTES:

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

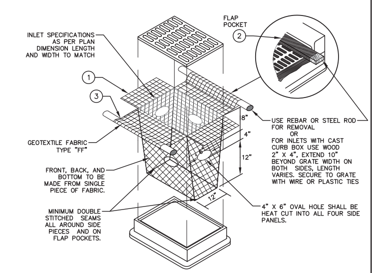
INSTALLATION NOTES:

TYPE "D"

DO NOT INSTALL INLET PROTECTION TYPE "D" IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3 INCHES OF THE GRATE.

THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3 INCHES. WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCHES CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4 INCHES FROM THE BOTTOM OF THE BAG.



INLET PROTECTION – TYPE "D"

INLET PROTECTION

N.T.S.

Table 1 – Prescriptive Compliance Area Soil Stabilization

Prescriptive Compliance Areas	Bare Soil	Slope & Channel Management	Periods of Inactivity	Final Grade
Soil stockpiles that will exist for more than 7 days **Utility trench backfills** **Temporary ditches/swales that will exist for more than 7 days** **Permanent ditches/swales** **Small areas – Less than 1 acre and less than 1% of site** **Discrete areas – Less than 1 acre** **Storm water practice side slopes** **Slopes steeper than 20%**	Areas that Do Not Drain to Sediment Basins or Traps Limit the duration of soil exposure to no more than 30 days. Areas that Drain to Sediment Basins or Traps Limit the duration of soil exposure to no more than 90 days. However, use the duration from the soil loss and sediment discharge calculations for the other areas of the site if less than 90 days.	General Design and implement approved soil stabilization practices per DNR technical standards. Refer to WisDOT Slope & Channel Matrices for appropriate slope and slope length conditions. Slopes Steeper than 20% Provide stable diversion of off-site runoff around the slope. Provide slope interruption devices in accordance with Manufactured Perimeter Control & Slope Interruption Products Technical Standard 1071 or equivalent methods to reduce uninterrupted slope length.	Planned Inactivity Stabilize immediately if area will be left inactive for more than 14 days. Unplanned Inactivity Stabilize area immediately if period of inactivity reaches 14 days.	Permanent Features Stabilize area immediately after reaching final grade. Temporary Features Stabilize area immediately after establishment of temporary feature or reaching specified temporary grade.

5

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:

Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

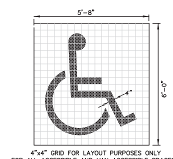
#	Date:	Description:
1	12/12/2019	Revised per City Comments
2	01/29/2020	PER WDNR COMMENTS
3	02/06/2020	Rev. per VIL & WDNR Comments
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

SHEET TITLE:
DETAILS

SHEET NUMBER:
C6.0

JSD PROJECT NO: 19-9231



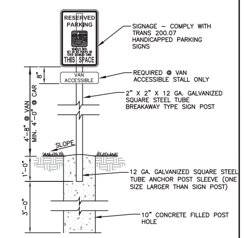
4"x4" GRID FOR LAYOUT PURPOSES ONLY FOR ALL ACCESSIBLE AND VAN ACCESSIBLE SPACES

NOTE:
SYMBOL DETAILS ARE SHOWN FOR INTENT ONLY. CONTRACTOR SHALL VERIFY EXACT REQUIREMENTS PRIOR TO CONSTRUCTION.

PAINTED SYMBOL

N.T.S.

REV. 11-26-2018

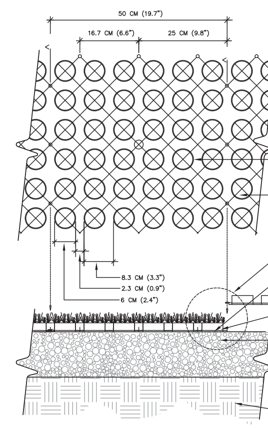


NOTE:
OPTION: DRIVEN POST MAY BE UTILIZED IN LIEU OF CONCRETE BASE. PROVIDE MIN. 3'-0" LONG ANCHOR POST SLEEVE.

ADA SIGN

N.T.S.

REV. 11-26-2018



SPECIFICATIONS

UNIT SIZE - 50 CM X 50 CM X 2.5 CM OR 1 M X 1 M X 2.5 CM (20" X 20" X 1" OR 40 'X 40 'X 1 ')

AVAILABLE IN 9 STANDARD ROLL SIZES

UNIT WEIGHT - 510 GRAMS (18 OZ.) OR 2.0 KG (4.5 POUNDS)

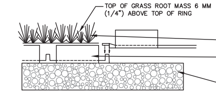
STRENGTH - 1121 KG/CM (15,940 PSI)

COLOR - BLACK

RESIN - 100% RECYCLED HDPE

PLAN

- GRASSPAVE2 SQUARES
- ADJACENT GRASSPAVE2 UNITS
- SEE ENLARGEMENT BELOW
- HYDROGROW MIX BELOW RING SUPPLIED FREE BY MANUFACTURER
- RINGS FILLED WITH CONCRETE SAND (CLEAN, SHARP SAND)
- COMPACTED SANDY GRAVEL ROAD BASE 95% MODIFIED PROCTOR DENSITY - 12 INCHES
- -SEE MANUFACTORS SPECIFICATIONS FOR COMPOSITION
- COMPACTED SUBGRADE



SECTION

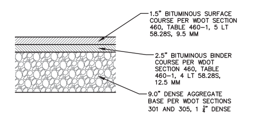
- TOP OF GRASS ROOT MASS 6 MM (1/4") ABOVE TOP OF RING
- TOP OF GRASS ROOT MASS 6 MM (1/4") ABOVE TOP OF RING
- GRASSPAVE2 ATTACH WITH SNAP-FIT FASTENERS
- RINGS FILLED WITH CONCRETE SAND (CLEAN, SHARP SAND)
- COMPACTED SANDY GRAVEL BASE COURSE -SEE MANUFACTORS SPECIFICATIONS FOR COMPOSITION

NOTE: GRASS/PLANT TYPES SHALL BE SPECIFIED BY A LANDSCAPE ARCHITECT OR LANDSCAPE DESIGNER.

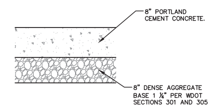
16265 E. 33RD DR., SUITE 20
AURORA, COLORADO 80011
800-233-1510 OR 303-233-8383
FAX: 800-233-1522 OR 303-233-8282
www.invisiblestructures.com
rev. 1/18

GRASSPAVE2

N.T.S.



STANDARD ASPHALT PAVEMENT SECTION



CONCRETE PAVEMENT SECTION

GENERAL NOTES:

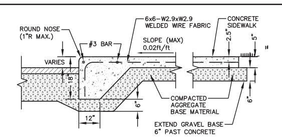
1. REFER TO PAVEMENT RECOMMENDATIONS IN THE GEOTECHNICAL INVESTIGATION REPORT. IF THERE ARE ANY DISCREPANCIES BETWEEN THIS DETAIL AND THE PAVEMENT RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL INVESTIGATION REPORT, THE GEOTECHNICAL REPORT SHALL GOVERN.
2. WISDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, INCLUDING SUPPLEMENTAL SPECIFICATIONS, COMPACTION REQUIREMENTS:
   - BITUMINOUS CONCRETE: REFER TO SECTION 460-3.
   - BASE COURSE: REFER TO SECTION 301.3.4.2, STANDARD COMPACTION.
3. CONCRETE EQUIPMENT PADS SHALL HAVE A MINIMUM 6" THICK PORTLAND CEMENTER CONCRETE OVER COMPACTED 6" THICK DENSE GRADED BASE WITH REINFORCEMENT FOR CRACK CONTROL.

PAVEMENT SECTIONS

N.T.S.

GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE CONTRACTION JOINTS IN SIDEWALKS AT 5' ON CENTER.
2. CONTRACTOR SHALL PROVIDE 1/4" EXPANSION JOINTS IN SIDEWALKS AT A MAXIMUM 35' ON CENTER. EXTEND JOINT FILLER FULL DEPTH OF SIDEWALK.
3. CONTRACTOR SHALL PROVIDE 1/2" EXPANSION JOINT BETWEEN SIDEWALK AND ALL FIXED OBJECTS.

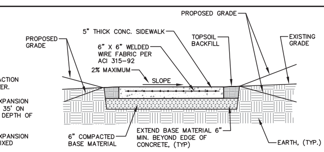


THICKENED EDGE SIDEWALK

N.T.S.

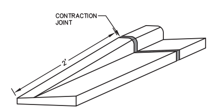
GENERAL NOTES:

1. CONTRACTOR SHALL PROVIDE CONTRACTION JOINTS IN SIDEWALKS AT 5' ON CENTER.
2. CONTRACTOR SHALL PROVIDE 1/4" EXPANSION JOINTS IN SIDEWALKS AT A MAXIMUM 35' ON CENTER. EXTEND JOINT FILLER FULL DEPTH OF SIDEWALK.
3. CONTRACTOR SHALL PROVIDE 1/2" EXPANSION JOINT BETWEEN SIDEWALK AND ALL FIXED OBJECTS.



CONCRETE SIDEWALK

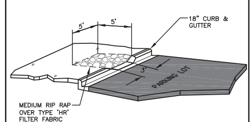
N.T.S.



TAPER CURB HEAD

N.T.S.

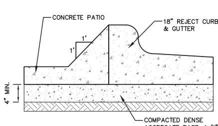
REV. 5-19-2017



CURB WEIR

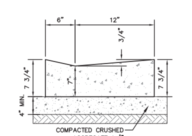
N.T.S.

REV. 5-19-2017



THICKENED EDGE PATIO & CURB

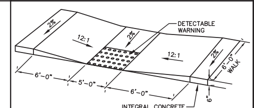
N.T.S.



18" VALLEY CURB & GUTTER

N.T.S.

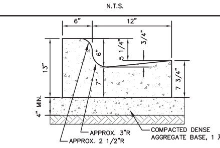
REV. 11-19-2018



ADA ACCESSIBLE RAMP

N.T.S.

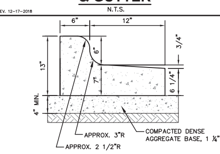
REV. 11-20-2018



18" STANDARD CURB & GUTTER

N.T.S.

REV. 12-17-2018

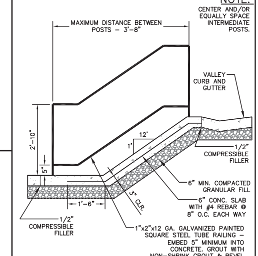


18" REJECT CURB & GUTTER

N.T.S.

REV. 12-17-2018

NOTE:
CENTER AND/OR EQUALLY SPACE INTERMEDIATE POSTS.



5' CONCRETE SIDEWALK W/ HANDRAIL

N.T.S.

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	12/12/2019	Revised per City Comments
2	02/06/2020	Rev. per VB, & WDNR Comments
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

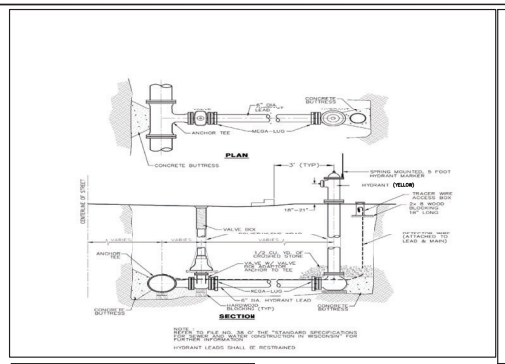
Design/Drawn:	CAP
Approved:	DSR
Date:	11/06/2019

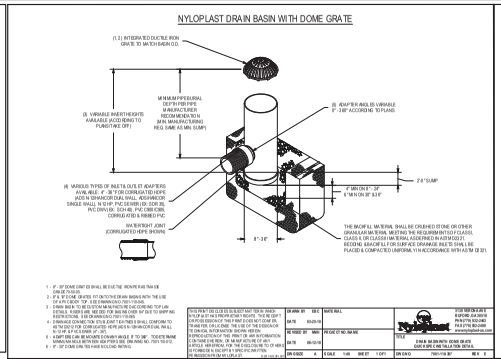
SHEET TITLE:
DETAILS

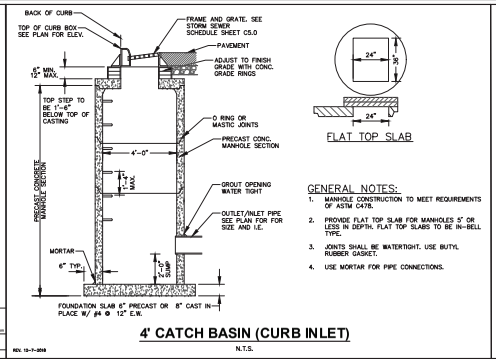
SHEET NUMBER:
C6.1

JSD PROJECT NO: 19-9231

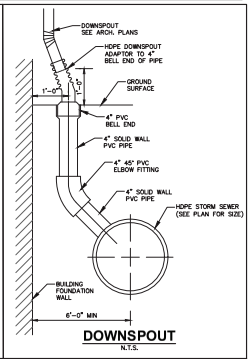
File: R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\DWG\Civil\Civil Sheets\19-9231 C6 - Details.dwg Layout: C6.1 Details User: cpeterson Plotted: Feb 06, 2020 - 9:26am Xref's:



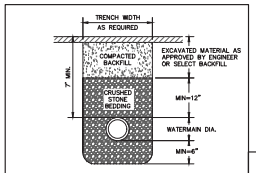




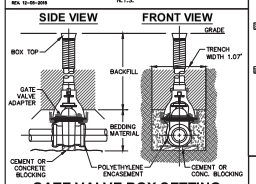
4' CATCH BASIN (CURB INLET)
N.T.S.



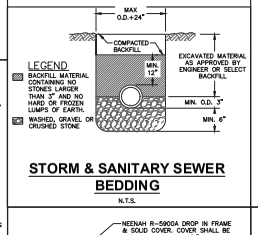
DOWNSPOUT
N.T.S.



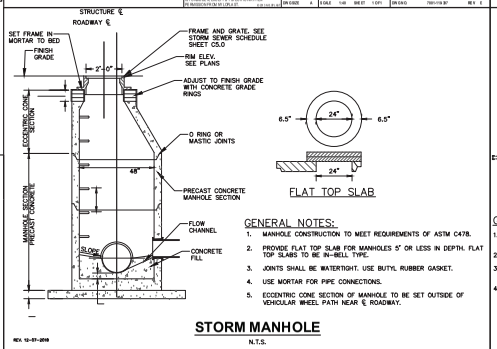
WATERMAIN BEDDING
N.T.S.



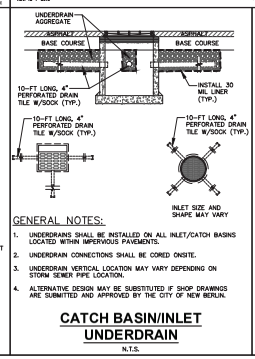
GATE VALVE BOX SETTING
N.T.S.



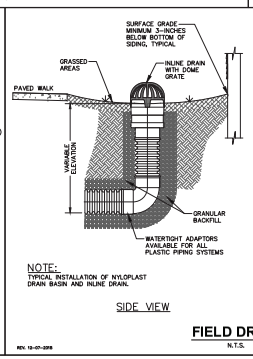
STORM & SANITARY SEWER BEDDING
N.T.S.



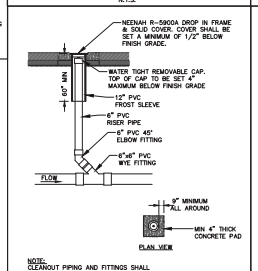
STORM MANHOLE
N.T.S.



CATCH BASIN/INLET UNDERDRAIN
N.T.S.



FIELD DRAIN
N.T.S.

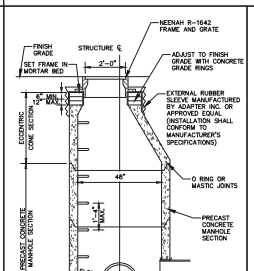


Comm Table 82.35

Dia of Lateral	Min Dia of Cleanout Riser	Min Dia of Riser Cap
1.5	1.5	1.5
2	1.5	1.5
3	3	2.5
4	4	3.5
5	5	4
6	6	5
8+	6	6

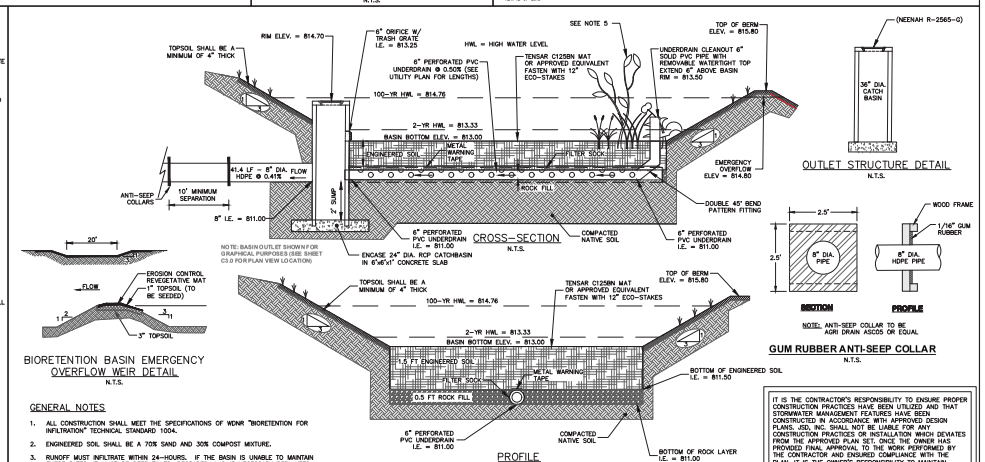
Neenah Grates R-5900A 12-Inch Pipe

SANITARY SEWER CLEANOUT
N.T.S.



GENERAL NOTES:
1. MANHOLE CONSTRUCTION TO MEET REQUIREMENTS OF ASTM C478.
2. JOINTS SHALL BE WATERTIGHT. USE BUTYL RUBBER GASKET.
3. USE MORTAR FOR PIPE CONNECTIONS.
4. ALL MANHOLES SHALL HAVE RUBBER CHIMNEY BOOT SEALS.

SANITARY SEWER MANHOLE
N.T.S.



GENERAL NOTES
1. ALL CONSTRUCTION SHALL MEET THE SPECIFICATIONS OF WDNR "BIORETENTION FOR INFILTRATION" TECHNICAL STANDARD 1004.
2. ENGINEERED SOIL SHALL BE A 70% SAND AND 30% COMPOST MIXTURE.
3. RUNOFF MUST INFILTRATE WITHIN 24-HOURS. IF THE BASIN IS UNABLE TO MAINTAIN THESE RATES, IT MUST BE DEEP TILLED, REGRADED, AND IF NECESSARY REPLANTED BY OWNER TO RESTORE ORIGINAL INFILTRATION RATES.
4. ALL WORK TO BE CONDUCTED IN CONFORMANCE WITH THE STORMWATER MANAGEMENT PLAN FOR THE PROJECT SITE AS APPROVED BY THE REGULATORY ENGINEER OF RECORD.
5. SEE LANDSCAPING PLANS FOR PLANTING SCHEDULE AND CONFIGURATION.

STORMWATER BIO BASIN DETAIL
N.T.S.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER CONSTRUCTION PRACTICES HAVE BEEN UTILIZED AND THAT STORMWATER MANAGEMENT FEATURES HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH APPROVED DESIGN PLANS. JSD, INC. SHALL NOT BE LIABLE FOR ANY CONSTRUCTION PRACTICES OR INSTALLATION WHICH DEVIATES FROM THE APPROVED PLAN SET, ONCE THE OWNER HAS PROVIDED FINAL APPROVAL TO THE WORK PERFORMED BY THE CONTRACTOR AND ENSURED COMPLIANCE WITH THE PLAN, IT IS THE OWNER'S RESPONSIBILITY TO MAINTAIN STORMWATER MANAGEMENT FEATURES IN ACCORDANCE WITH THE RECORDED MAINTENANCE AGREEMENT. PROPER OPERATION IS DEPENDENT ON A MULTITUDE OF VARIABLES INCLUDING WEATHER. THESE COMPONENTS REQUIRE ONGOING MAINTENANCE FOR WHICH THE OWNER IS RESPONSIBLE. JSD TAKES NO RESPONSIBILITY FOR PROPER OPERATION OF THE WATER QUALITY COMPONENTS.

RATIONAL METHOD STORM SEWER CALCULATIONS

Project Name: BIRCHROCK CASTLE ADDITION
Project Location: Mukwonago, WI
JSD Project Number: 19-0231
Performed by: RN
Date: 2/5/2020

MILWAUKEE REGIONAL OFFICE
W239 N1610 Busse Road, Suite 100
Waukesha, Wisconsin 53186
Ph (262) 513-0666 Fax (262) 513-1232

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Structure abbreviations are as follows: ES - End Section, MH - Manhole, FI - Field Inlet, TD - Trench Drain, BC - Building Connection, RD - Roof Drain, STB - Stub

PIPE LOCATION		STRUCTURE CONTRIBUTING AREA					PIPE FLOW				PIPE DATA			PIPE CAPACITY INFORMATION						DROP	ELEVATIONS			COVER
		ROOF	PAVED	GRASS	IND/VID	RDV COM	STORM	INTENSITY	INDIV	TOTAL	TOTAL				ACTUAL FLOW			FULL	TIME TO	TIME IN	THRU			TO
UP STRUCT	DOWN STRUCT	C = 0.95 (SQ FT)	C = 0.95 (SQ FT)	C = 0.2 (SQ FT)	AREA (ACRES)	C VALUE IN/LITLESS	EVENT (10,25,50,100)	I (IN/HR)	RUNOFF (CFS)	FLOW (CFS)	FLOW (GPM)	LENGTH (FT)	DIA. (IN)	SLOPE %	REQD DROP	ACTUAL DROP	PARTS FULL	VEL (FPS)	FLOW (CFS)	STRUCT (MIN)	SEWER (MIN)	STRUCT (FT)	UP	DOWN	CROWN (FT)
FES 2-5	STO 2-4	1290	0	2910	0.10	0.43	100	7.29	0.30	0.30	136	85.94	12.00	1.77%	0.01	1.52	0.18	4.47	5.13	10.00	10.32	0.00	N/A	815.40	813.88	0.00
STO 2-4	STO 2-3	1910	665	1370	0.09	0.69	100	7.21	0.45	0.75	338	94.16	12.00	0.40%	0.04	0.38	0.37	2.80	2.44	10.32	10.88	0.00	816.45	813.88	813.50	1.47
STO 2-3	STO 2-2	0	7495	2815	0.24	0.75	100	7.08	1.25	2.49	1117	126.46	18.00	0.20%	0.06	0.25	0.54	2.96	5.09	10.88	11.59	0.00	816.50	813.50	813.25	1.35
STO 2-2	FES 2-1	0	3045	545	0.08	0.84	100	6.92	0.48	3.54	1591	125.26	18.00	0.20%	0.12	0.25	0.72	3.20	5.09	11.59	12.24	0.00	817.25	813.25	813.00	2.35
STO 2-7	STO 2-6	3120	100	290	0.08	0.89	100	7.29	0.52	0.52	234	41.00	12.00	0.62%	0.01	0.25	0.86	4.41	3.04	10.00	10.15	0.00	816.85	813.86	813.60	1.89
STO 2-6	STO 2-2	0	100	490	0.01	0.33	100	7.25	0.03	0.55	249	64.00	12.00	0.55%	0.01	0.35	0.32	3.12	2.86	10.15	10.50	0.00	816.85	813.60	813.25	2.15
STO 2-8	STO 2-2	0	100	260	0.01	0.41	100	7.29	0.02	0.02	11	36.30	12.00	0.20%	0.01	0.07	0.10	1.18	1.73	10.00	10.51	0.00	815.40	813.32	813.25	0.98
STO 2-9	STO 2-3	2910	100	260	0.08	0.89	100	7.29	0.49	0.49	219	34.00	8.00	1.04%	0.012	0.05	0.35	0.55	3.95	1.33	10.00	10.14	0.00	817.35	813.86	813.50	2.76

JSD Professional Services, Inc.
CREATE THE VISION TELL THE STORY
MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE
MILWAUKEE REGIONAL OFFICE
W239 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	02/06/2020	Rev. per V.E. & WDNR Comments
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

SHEET TITLE:
DETAILS

SHEET NUMBER:
C6.2

JSD PROJECT NO. 19-0231

February 12, 2020

Mr. Fred Winchowky
Village President
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Re: 210 McDivitt Lane – Birchrock Castle Addition
Recommendation of Approval of Development Documents

Dear President Winchowky:

We have reviewed the Storm Water Management Plan, Storm Water Maintenance Agreement, Storm Water Exemption Request and Construction Drawings for the addition to the Castle Senior Living Development at 210 McDivitt Lane, in the Village. The Storm Water Management Plan, and Civil Plan Set are dated February 6, 2020 and were received in our office, along with the other documents, on February 7, 2020. We believe the current submittal generally meets the intent of the Village Storm Water Ordinance, is in accordance with the Village of Mukwonago's Standard Specifications, and follows standard engineering practice.

We have reviewed the storm water exemption request that was included with the latest submittal documents. The request is for an exemption to Village Ordinance Section 34-110(d)(1) "Peak Discharge Requirements". Existing site conditions inhibit the ability for the applicant to easily direct flows from the north side of the proposed building, to the proposed on-site biofilter. In order to do this, the applicant would need to install a mechanical system including a series of pipes and a pump and crock. This poses a burden on the development and would require complex long-term maintenance efforts in order to maintain the system. As is true with any mechanical system, there is the possibility of mechanical failure and, in our environment, failure due to freezing. The north side of the new building is proposed to drain, undetained to the adjacent wetland complex through a filter strip. The improvements to the site are directing the vast majority of the storm water runoff to the proposed biofilter – including a large area of parking lot that previously drained, undetained and untreated to the wetland complex. As part of the improvements, the applicant is significantly improving the storm water drainage on the site and the treatment of the storm water runoff, prior to it reaching the wetlands. Peak flows are being reduced from existing conditions which will aid in reducing the concern of flooding downstream. Water quality treatment is being improved immensely and the adjacent wetlands will be receiving much cleaner storm water runoff. The storm water exemption request is attached to this letter for reference.

We, therefore, recommend the following actions of the documents to you and the Village Board:

1. Approval of the Storm Water Exemption Request dated February 6, 2020, in accordance with Village Ordinance Section 34-110(e)(1)(c).

2. Approval of the Storm Water Management Plan dated February 6, 2020.

3. Approval and execution of the Storm Water Maintenance Agreement.

    a. The Storm Water Maintenance Agreement is attached to the email in which this letter is being transmitted such that, if it is approved, it can receive the appropriate signatures and be transferred to a form suitable for recording.

We recommend the above actions also be made subject to the following conditions:

1. A breakdown of the construction costs for all storm water management devices should be provided to Ruekert & Mielke once the applicant receives construction bids. Ruekert & Mielke will review the breakdown and provide a recommendation to the Village Board for a surety amount. A surety should then be established in the form of a Letter of Credit prior to the start of construction.

2. All necessary storm water and erosion control permits be obtained, and copies of the approvals be sent to the Village of Mukwonago and Ruekert & Mielke.

3. Prior to any land disturbing activity, hold a preconstruction conference with representatives of the design team, the construction team, Village and Utility Staff and Ruekert & Mielke to ensure all members of the design and construction team understand the installation of utilities and the storm water management and erosion control plan requirements.

4. During construction, the following conditions shall be followed:

    b. Contractor shall have extreme care when conducting grading or any land disturbing activities in near proximity to the adjacent wetlands. This includes ensuring that any work does not remove or destroy any erosion and sediment control measures without additional measures being first placed downstream of the affected devices.

    c. All dewatering shall be done in accordance with the approved plans. At no time, shall dewatering practices be located outside of any approved locations without being adequately protected downstream.

    d. Owner shall maintain approved plans on-site and readily available to the Village Erosion Control Inspector.

    e. On-site approved plans must reflect current construction conditions and compliance with the Village ordinance.

    f. On-site plans must reflect the current sequence of construction and all erosion and sediment control measures shall meet the Wisconsin Department of Natural Resources Technical Standards.

    g. Village ordinance requires inspection of the erosion control measures once every 7 days and within 24 hours of a rainfall of 0.5 inches or greater. Given the proximity of this development to sensitive natural resources, it is recommended that erosion and sediment control measures be inspected at the end of each working day to ensure compliance. All inspection reports must be available on-site and available to the Village at any time. Reports must contain the information required by the WDNR.

    h. Any construction within the public right-of-way, will conform to the Village Standard Specifications and Village standard details.

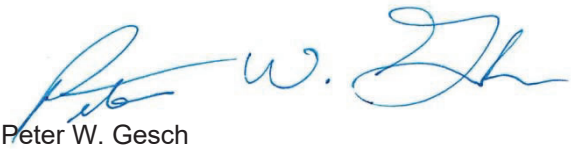
    i. Owner will provide erosion control measures and restore any private utility company land disturbance resulting from providing utilities to this site regardless of location.

Our review did not include a detailed check of all engineering and survey data indicated on the drawings. The accuracy of this data is the responsibility of JSD Professional Services, Inc.

If you or any staff or board member should have any questions regarding this, please feel free to contact me at (262) 542-5733.

Respectfully,

RUEKERT & MIELKE, INC.



Peter W. Gesch
Project Engineer
pgesch@ruekertmielke.com

PWG:pwg

Enclosure(s)

cc: Diana Dykstra, Village of Mukwonago
John Weidl, Village of Mukwonago
Bob Harley, Village of Mukwonago
Mark G. Blum, Village of Mukwonago
Dave Brown, Village of Mukwonago
Ron Bittner, Village of Mukwonago
Ben Kohout, Village of Mukwonago
Dave Roberts, P.E., JSD Professional Services, Inc.
Kris Kiefer, RN, Castle Senior Living
Jerad J. Wegner, P.E., Ruekert & Mielke, Inc.

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Milwaukee Regional Office
W238 N1610 Busse Road, Suite 100
Waukesha, WI 53188
262.513.0666

February 6, 2020

Mr. Ben Kohout
Village Planner
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Re: Birchrock Castle Addition
210 McDivitt Lane

Dear Mr. Kohout:

On behalf of our client, Castle Senior Living, we are respectfully requesting an exemption to the Sec. 34-110 Stormwater Management Plan Requirements per subsection (e) to allow the northerly side of the proposed addition to drain to splash blocks then overland into the existing wetland complex to the north and thus not meet Sec. 34-110(d)(1) Peak discharge requirements. In order to capture this area and route it through the proposed biofiltration basin located in the southwest corner of the site, a mechanical system, a series of pipes and a pump and crock, will need to be employed since the existing grade, which was purposely maintained to protect the existing wetland complex, will not allow for the north side of the roof system to tie into the proposed drainage system via gravity. Some concerns with this type of system are the level of maintenance effort required to ensure the system is functioning as designed, the possibility of failure if not maintained, the potential for the system to freeze and lead to failure and of course cost not only in installation but in long term maintenance. In order to offset this the site has been designed to correct and improve other features currently lacking onsite. As you know, the current parking lot drains unimpeded into the existing wetland complex to the north and no stormwater management practices are utilized on-site. As part of our proposed site plan all parking lot water will be captured and treated in accordance with Sec 34-110 of the Village code in the proposed biofiltration basin. In addition, we have improved the site by proposing a Village compliant erosion control plan and stormwater management plan which further protects the existing wetland complex and reduces the existing stormwater flows offsite.

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

Sincerely,
JSD Professional Services, Inc.

David S. Roberts, P.E.
Senior Project Engineer

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Milwaukee Regional Office
W238 N1610 Busse Road, Suite 100
Waukesha, WI 53188
262.513.0666

Memorandum

To:	Peter W. Gesch, P.E.
From:	David S. Roberts, P.E.
Re:	210 McDivitt Lane CBRF Addition
JSD Project #:	19-9231
Date:	02/06/2020
cc:	Mr. Ben Kohout, Village Planner John Weidl, Village of Mukwonago Diana Dkystra, Village of Mukwonago Bob Harley, Village of Mukwonago Mark G. Blum, Village of Mukwonago Dave Brown, Village of Mukwonago Ron Bittner, Village of Mukwonago Chief Jeff Stien, Village of Mukwonago Chief Kevin Schmidt, Village of Mukwonago Jerad J. Wegner, P.E., Ruekert & Mielke, Inc. Kris Kiefer, RN, Castle Senior Living

---

We have reviewed your comments dated January 6, 2020, our subsequent conversations and have revised the attached Improvement Plans and Storm Water Management Report for 210 McDivitt Lane Birchrock Addition within the Village of Mukwonago. The original text of the memo is shown in regular text and our responses are shown in blue:

General Comments

1. In Section 6.0 “Conclusion” of the SWMP, please correct the second to last sentence to be “Village of Mukwonago” and not “City of Pewaukee”.
   Section 6.0 has been revised as requested.

2. Please submit a SWMP that is sealed and signed by a Professional Engineer licensed to practice in the State of Wisconsin. This will be needed prior to the SWMP going before the Village Board for approval.
   A copy of the SWMP signed and sealed by a Professional Engineer licensed to practice in the State of Wisconsin has been included with this submittal.

3. Please extract the Storm Water Maintenance Agreement (SWMA) from Appendix 7 of the SWMP. The document can remain in the SWMP, but a separate file will be needed to go before the Village Board for approval.
   As requested, the Storm Water Maintenance Agreement (SWMA) has been extracted as a separate file and included as part of this submittal.

4. Please fill in the blank in paragraph 3 of the SWMA.
   The SWMA has been revised to follow the Village’s standard format

5. On the signature page of the SWMA, the “This document was drafted by:” section should be updated. While Attorney Blum drafted the template, he did not draft the SWMA for this development.
   The document drafted by section of the SWMA has been updated with my contact information.

6. Please correct the paragraph in Exhibit D of the SWMA to read, “Village of Mukwonago” instead of “City of Mukwonago”. The paragraph also seems to reference the wrong Exhibit. Please review and revisit this paragraph for revisions.
   The paragraph in Exhibit D has been revised as requested.

7. The design summary is lacking pertinent design details. Attached to this letter is an example of a typical design summary section that is acceptable to the Village. The design summary should include things like drainage basin characteristics, pond data, rainfall intensities and design storms, storm sewer sizing, and other pertinent data/results that went into designing the storm water features on-site. The design summary also needs to include a water quality summary that includes both TSS and Phosphorus reduction results.
   The design summary section of the SWMA has been revised as requested.

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Milwaukee Regional Office
W238 N1610 Busse Road, Suite 100
Waukesha, WI 53188
262.513.0666

February 6, 2020

Mr. Ben Kohout
Village Planner
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Re: Birchrock Castle Addition
210 McDivitt Lane

Dear Mr. Kohout:

On behalf of our client, Castle Senior Living, we are respectfully requesting an exemption to the Sec. 34-110 Stormwater Management Plan Requirements per subsection (e) to allow the northerly side of the proposed addition to drain to splash blocks then overland into the existing wetland complex to the north and thus not meet Sec. 34-110(d)(1) Peak discharge requirements. In order to capture this area and route it through the proposed biofiltration basin located in the southwest corner of the site, a mechanical system, a series of pipes and a pump and crock, will need to be employed since the existing grade, which was purposely maintained to protect the existing wetland complex, will not allow for the north side of the roof system to tie into the proposed drainage system via gravity. Some concerns with this type of system are the level of maintenance effort required to ensure the system is functioning as designed, the possibility of failure if not maintained, the potential for the system to freeze and lead to failure and of course cost not only in installation but in long term maintenance. In order to offset this the site has been designed to correct and improve other features currently lacking onsite. As you know, the current parking lot drains unimpeded into the existing wetland complex to the north and no stormwater management practices are utilized on-site. As part of our proposed site plan all parking lot water will be captured and treated in accordance with Sec 34-110 of the Village code in the proposed biofiltration basin. In addition, we have improved the site by proposing a Village compliant erosion control plan and stormwater management plan which further protects the existing wetland complex and reduces the existing stormwater flows offsite.

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

Sincerely,
JSD Professional Services, Inc.

David S. Roberts, P.E.
Senior Project Engineer

STORM WATER MANAGEMENT PLAN

Project:
Castle Senior Living
Birchrock Castle Addition
Village of Mukwonago, Wisconsin
JSD Project No: 19-9231

www.JSDinc.com



Planning & Development
Site/Civil Engineering
Transportation Engineering
Water Resources
Landscape Architecture
Surveying & Mapping
Construction Management

NOVEMBER 6, 2019
REVISED December 12, 2019
REVISED February 6, 2020

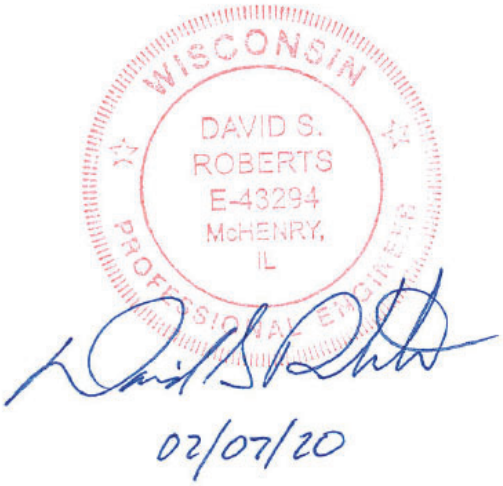
Prepared for:

Castle Senior Living

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Building relationships with a commitment to client satisfaction through trust, quality and experience

TABLE OF CONTENTS



Questions and comments may be directed to:

Isaac Newman, E.I.T.
Staff Engineer
isaac.newman@jsdinc.com

David Roberts, P.E.
Senior Project Engineer
Davic.Roberts@jsdinc.com

Phone: 262.513.0666
Fax: 262.513.1232

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Milwaukee Regional Office
W238 N1610 Busse Rd, Suite 100
Waukesha, WI 53188
www.jsdinc.com

APPENDICES

APPENDIX 1 - LOCATION MAP

APPENDIX 2 - SOIL DATA

- USDA SOIL MAP
- WDNR SURFACE WATER DATA VIEWER MAP
- GEOTECHNICAL ENGINEERING EXPLORATION AND ANALYSIS

APPENDIX 3 - EXISTING SITE HYDROLOGY

- EXISTING CONDITIONS HYDROLOGY EXHIBIT
- EXISTING HYDROCAD OUTPUT

APPENDIX 4 - PROPOSED SITE HYDROLOGY

- PROPOSED CONDITIONS HYDROLOGY EXHIBIT
- PROPOSED HYDROCAD OUTPUT

APPENDIX 5 - WATER QUALITY CALCULATIONS

- POST-DEVELOPMENT INPUT SUMMARY
- POST-DEVELOPMENT OUTPUT SUMMARY

APPENDIX 6 - DESIGN DETAILS

- PROPOSED EROSION CONTROL PLAN
- PROPOSED GRADING & UTILITY PLAN
- PROPOSED BIORETENTION BASIN DETAILS
- STORM SEWER SIZING CALCULATIONS
- ANTI-SEEP COLLAR DESIGN

APPENDIX 7 - OPERATION AND MAINENANCE PLAN

1.0 INTRODUCTION

The proposed CBRF addition will be located along the north side of McDivitt Lane and the west side of Mukwonago Drive in the Village of Mukwonago, Waukesha County, Wisconsin. The site is positioned in the Northwest 1/4 of the Southeast 1/4 of Section 35, Township 5 North, Range 18 East. The site is generally bounded by wetlands to the north and west and roads to the south and east. A location map illustrating the project site has been included in **Appendix 1**.

This Stormwater Management Plan has been created to address runoff rate control, water quality treatment, and infiltration requirements for the proposed CBRF Property.

This stormwater management system has been designed in accordance with Village of Mukwonago Code (Section 34-110 and Section 34-111). The stormwater for the project was designed as a "new development" site with an increase of 19,400 square feet of impervious area. A bio-retention basin will be built in the southwest corner of the site with the outlet being discharged into the wetlands. 430 linear feet of storm sewer will be installed to route the stormwater into the bio-basin

The proposed expansion consists of demolishing the existing parking lot east of the existing building. A 15,770 sq.ft. building addition will be constructed with new surface lots and driveways.

The proposed storm water management system has been designed to maintain or reduce the peak 1-yr, 2-yr, 10-year and 100-year runoff rates discharging from the existing stormwater pond at the southeast corner of the site. Please refer to **Section 3.0** and **Section 5.0** for design criteria and additional details of the stormwater facilities.

2.0 EXISTING CONDITIONS

The site consists of the existing Castle Senior Living building, associated parking lot and sidewalk, a shed, and mowed and maintained open land. The existing topography flows from the south to the north of the site into the existing wetland. See **Appendix 3** for an Existing Conditions Hydrology Exhibit.

In addition, multiple soil types have been identified on-site using soils data obtained from the United States Department of Agriculture – Natural Resources Conservation Service Web Soil Survey. A soil location map illustrating the various soils has been included in **Appendix 2**. A listing of the soil map units and descriptions is shown in Table 1 below.

Table 1 – Soil Types

Map Symbol	Map Unit Name	Hydrologic Soil Group
Sm	Sebewa silt loam, 1-2% slopes	B/D
Ph	Pella silt loam, 0-2% slopes	B/D

3.0 DESIGN CRITERIA

3.1 Village of Mukwonago

Village of Mukwonago Municipal Code Divison 4 – Stormwater Management and Erosion Control (Sec. 34-110 and Sec. 34-111)

3.2 Wisconsin Department of Natural Resources

WDNR – Technical Standards (NR151 and NR216)

Water Quantity: Village of Mukwonago ordinance requires that the Stormwater management practices reduce the peak post-development 100-year discharge rate to the peak pre-development 10-year discharge rate and also the peak post-development 10-year discharge rate to the peak pre-development 2-year discharge rate. As part of this project we are seeking an exemption to allow the northerly side of the proposed addition to drain to splash blocks then overland into the existing wetland complex to the north. Refer to **Section 5.1** for a description of the on-site water quantity measures.

Water Quality: Village of Mukwonago and the WDNR requires for a redevelopment, storm water discharges shall be treated to remove a minimum of 40% of the total suspended solids load, based on an average annual rainfall for a redevelopment and 80% for new developments. Please refer to **Section 5.2** for a description of the on-site water quality measures.

Infiltration: Village of Mukwonago states according to Sec. 34-110(d)(3)(f)2, sites are exempt "The village determines that it would impracticable to modify existing soil conditions based on soil profile evaluations extending five feet below the proposed bottom of the infiltration system. Note: USDA soil textures of sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay or clay are generally considerable unsuitable for infiltration and would require replacement or modification. "

NR 151.124(4)(c)2: Infiltration practices located in the following areas may be credited toward meeting the requirement under the following conditions, but the decision to infiltrate under these conditions is optional:

> Where the least permeable soil horizon to 5 feet below the proposed bottom of the infiltration system using the U.S. department of agriculture method of soils analysis is one of the following: sandy clay loam, clay loam, silty clay loam, sandy clay, silty clay, or clay.

Please refer to **Section 5.3** for a description of the on-site infiltration measures.

4.0 ANALYSIS

HydroCAD® Stormwater Modeling System (Version 10.00) software has been used to analyze stormwater characteristics for the CBRF project. HydroCAD® uses the accepted TR-55 methodology for determining peak runoff rates and runoff discharge volumes. Curve numbers

for proposed ground cover have been selected using the standard values specified in TR-55 for a type "B" soil. Rainfall depths utilized in the HydroCAD® model were based on the rainfall depths specified in NOAA Atlas 14 with the MSE 3 rainfall intensity curve. Results of the modeling have been included in **Appendix 3** and **Appendix 4**. The corresponding rainfall depths are shown below in Table 2.

Table 2 – Rainfall Depths

Storm Event	Rainfall Depth
1-year	2.40"
2-year	2.70"
10-year	3.81"
100-year	6.18"

The sediment reduction and infiltration volume characteristics of the proposed stormwater management facilities have been analyzed using WinSLAMM® (Version 10.3.3) Source Loading and Management Model. Peak release rates from the proposed stormwater devices were based on the results of the HydroCAD® modeling. WinSLAMM® input and output data have been included in **Appendix 5**.

5.0 DESIGN

The proposed building expansion will encompass approximately 1.3 acres. The proposed expansion will be located within the 50 foot protective area of the wetland as defined by Village Ordinance Section 34-110(d)(4)a.4. The development will include installation of private utilities, construction of the building expansion with associated parking, and construction of a bio-filtration basin. The storm water runoff from the new impervious areas will be conveyed to the bio-filtration basin via proposed storm sewers. The bio-filtration basin has been designed to reduce the peak discharge and to also meet the standard for TSS removal. Therefore the site meets the protective area exemption defined in Village Ordinance Section 34-110(d)(4)c.3

Drainage Area 1S represents 0.91acres encompassing the building roof, parking lot, and landscape areas that will drain to the bio-filtration basin (1P).

Bio-filtration basin 1P will control peak runoff release and total suspended solids, and outlet to the existing wetlands on site. In the event the outlet structure becomes clogged or otherwise inoperable, storm water will discharge by an overflow weir into the wetlands.

The remaining sub-catchments, Drainage Areas 2S, 3S & 4S, represents 0.39 acres. Runoff from these areas will discharge from the site undetained but has still been included in the total runoff calculations.

A Proposed Conditions Hydrology Exhibit illustrating the drainage areas has been included in **Appendix 4.** Please refer to **Appendix 6** for additional details of the storm water wet pond and outlet structures.

5.1 Runoff Rate and Volume Control

The proposed stormwater biofiltration basin has been designed to meet the peak runoff release rates in accordance with the Village of Mukwonago ordinance for the 1-year 2-year, 10-year, and 100-year storm events to the maximum extent practicable.

Village of Mukwonago ordinance requires that the Stormwater management practices reduce the peak post-development 100-year discharge rate to the peak pre-development 10-year discharge rate and also the peak post-development 10-year discharge rate to the peak pre-development 2-year discharge rate. As part of this project, we are seeking an exemption to allow the northerly side of the proposed addition to drain to splash blocks then overland into the existing wetland complex to the north undetained. In order to capture this area and route it through the proposed biofiltration basin located in the southwest corner of the site, a mechanical system, a series of pipes and a pump and crock, would need to be employed since the existing grade, which was purposely maintained to protect the existing wetland complex, will not allow for the north side of the roof system to tie into the proposed drainage system via gravity. Table 3 summarizes the existing release rates for the developed compared to the proposed peak release rates determined using HydroCAD®. Please refer to **Appendix 3** and **Appendix 4** for additional details of the existing and proposed peak runoff rate calculations.

Table 3 – Peak Release Rates

	Existing Release Rate (cfs)	Proposed Release Rate (cfs)
1-year	0.63	0.61
2-year	0.96	0.77
10-year	2.46	1.42
100-year	6.44	3.57

Table 5 and Table 6 present the proposed drainage area and storm water management facility characteristics, respectively.

Table 5 – Proposed Drainage Area Hydrologic Characteristics

Drainage Area (HydroCAD® Node)	Area (Acres)	Curve Number	Peak Runoff Rate (cfs)			
			1-year	2-year	10-year	100-year
1S	0.91	82	1.51	1.87	3.32	6.58
2S	0.33	79	0.47	0.60	1.11	2.28
3S	0.04	73	0.03	0.04	0.09	0.21
4S	0.02	93	0.05	0.06	0.08	0.14

Table 6 – Proposed Storm Water Management Facility Characteristics

Stormwater Management Facility		1-year	2-year	10-year	100-year
1P	Peak Inflow (cfs)	1.51	1.87	3.32	6.58
	Peak Outflow (cfs)	0.11	0.13	0.60	1.52
	Peak Water Surface Elevation	813.13	813.33	813.75	814.76
	Spillway Elevation	814.80			
	Top of Berm Elevation	815.80			

5.2 Water Quality – Total Suspended Solids Treatment

Water quality for the Mukwonago CBRF Expansion will be achieved through the settling of suspended solids in the proposed bio-filtration basin. The bio-filtration basin has been designed in accordance with the parameters set forth in WDNR Technical Standard 1004. Because the site has both redevelopment and new development areas a composite reduction rate of 72.8% was determined by weighing the reduction rates by area.

Type of Area	Area (sqft)	Removal rate
Redevelopment	10,203	40%
New development	46,417	80%
Total	56,620	72.8%

Calculation of overall TSS reduction for the site has been determined based on the difference between the total mass of solids generated under the "without controls" and "after controls" conditions using WinSLAMM® software. Table 7 summarizes the TSS reduction as calculated using WinSLAMM®. Refer to **Appendix 5** for input and output data used in the water quality and infiltration models.

Table 7 – Total Suspended Solids Loading

Without Controls (lbs)	After Controls (lbs)	Percent Reduction
296.3	70.75	**76.12%**

5.3 Infiltration

As shown in the test boring logs in the Geotechnical Engineering Exploration and Analysis in **Appendix 2**, the presence of silty clay or clay in all of the soil borings makes the site exempt from infiltration requirements.

5.4 Storm Sewer

Storm sewer will be constructed within the proposed site to convey storm water to the basin. The storm sewers have been sized to collect runoff from building roofs and pavement. All private storm sewers have been designed in accordance with the rational method and have been sized to accommodate runoff from the 100-year storm event. Complete storm sewer design computations have been included in **Appendix 6**.

6.0 CONCLUSION

The stormwater management facilities for the Mukwonago CBRF Expansion have been designed to meet or exceed Village of Mukwonago ordinance and WDNR Technical Standards NR151 and NR216. The post-development stormwater peak runoff release rates have been reduced below the Village of Mukwonago's allowable peak release rates to the maximum extent practicable. The stormwater facilities will provide an overall TSS reduction of 76.12%.

(Appendices Follow)

APPENDIX 1

Location Map

SITE LOCATION

APPENDIX 2

Soil Data

- USDA Soil Map
- WDRN Surface Water Data Viewer Map
- Geotechnical Engineering Exploration and Analysis

Map Scale: 1:1,350 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 16N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

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: Milwaukee and Waukesha Counties, Wisconsin
Survey Area Data: Version 14, Sep 12, 2018

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

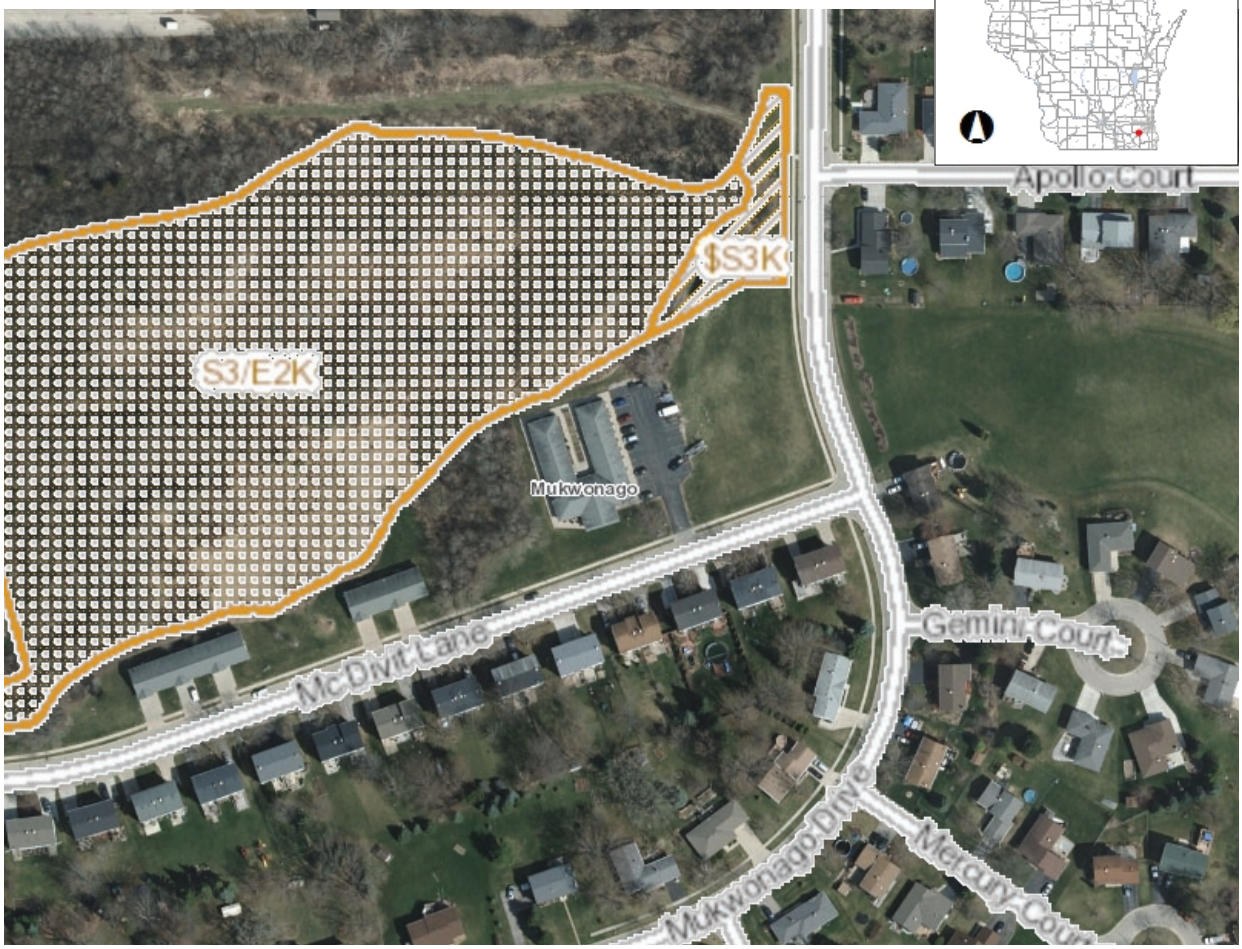
Date(s) aerial images were photographed: Apr 29, 2011—Mar 28, 2012

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.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MgA	Martinton silt loam, 1 to 3 percent slopes	0.0	0.0%
Ph	Pella silt loam, 0 to 2 percent slopes	3.3	95.4%
Sm	Sebewa silt loam, 0 to 2 percent slopes	0.2	4.6%
Totals for Area of Interest		**3.4**	**100.0%**

Surface Water Data Viewer Map



Legend

- Wetland Identifications and Confirmations
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
  - Wetland
  - Upland
- Filled Areas
- Wetland Class Points
  - Dammed pond
  - Excavated pond
  - Filled excavated pond
  - Filled/drained wetland
  - Wetland too small to delineate
- Filled Points
- Wetland Class Areas
  - Wetland
  - Upland
- Filled Areas
- Intermittent Streams
- 24K Hydrography Streams and Rivers
- 24K Hydrography Lakes and Open Water
- Municipality
- State Boundaries
- County Boundaries
- Major Roads
  - Interstate Highway
  - State Highway

Notes

0.1 0 0.03 0.1 Miles

NAD_1983_HARN_Wisconsin_TM

1: 1,980

Geotechnical Engineering Exploration and Analysis

Proposed CBRF Addition
210 McDivitt Lane
Mukwonago, Wisconsin

Prepared for:

Castle Senior Living
New Berlin, Wisconsin

December 3, 2019
Project No. 1G-1911002

GILES ENGINEERING ASSOCIATES, INC.

GILES
ENGINEERING ASSOCIATES, INC.
GEOTECHNICAL, ENVIRONMENTAL & CONSTRUCTION MATERIALS CONSULTANTS

• Atlanta, GA
• Dallas, TX
• Los Angeles, CA
• Manassas, VA
• Milwaukee, WI

December 3, 2019

Castle Senior Living
13050 W. Cleveland Avenue
New Berlin, WI 53151

Attention: Mr. Kristopher Kiefer, RN
Owner/ Vice President

Subject: Geotechnical Engineering Exploration and Analysis
Proposed CBRF Addition
210 McDivitt Lane
Mukwonago, Wisconsin
Project No. 1G-1911002

Dear Mr. Kiefer:

As requested, Giles Engineering Associates, Inc. conducted a *Geotechnical Engineering Exploration and Analysis* for the proposed project. The accompanying report describes the services that were performed, and it provides geotechnical-related findings, conclusions, and recommendations that were derived from those services.

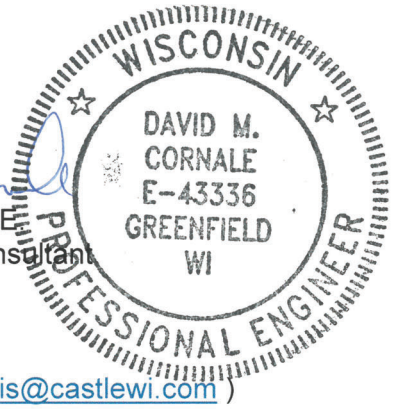
We sincerely appreciate the opportunity to provide geotechnical consulting services for the proposed project. Please contact the undersigned if there are questions concerning the report, or if we may be of further service.

Very truly yours,

GILES ENGINEERING ASSOCIATES, INC.

Andrew J. Globig, E.I.T.
Staff Professional I

David M. Cornale, P.E.
Sr. Geotechnical Consultant



Distribution: Castle Senior Living
Attn: Mr. Kristopher Kiefer (2 via USPS, 1 via email: kris@castlewi.com)

TABLE OF CONTENTS

GEOTECHNICAL ENGINEERING EXPLORATION AND ANALYSIS

PROPOSED CBRF ADDITION
210 MCDIVITT LANE
MUKWONAGO, WISCONSIN
GILES PROJECT NO. 1G-1911002

GEOTECHNICAL ENGINEERING EXPLORATION AND ANALYSIS

PROPOSED CBRF ADDITION
210 MCDIVITT LANE
MUKWONAGO, WISCONSIN
GILES PROJECT NO. 1G-1911002

1.0 SCOPE OF SERVICES

This report provides the results of the *Geotechnical Engineering Exploration and Analysis* that Giles Engineering Associates, Inc. ("Giles") conducted for the proposed addition. The *Geotechnical Engineering Exploration and Analysis* included a Geotechnical Subsurface Exploration Program, Geotechnical Laboratory Services, and Geotechnical Engineering Services. The scope of each service area was narrow and limited, as directed by our client, and based on our understanding and assumptions about the proposed project. Service areas are briefly described later.

Geotechnical-related recommendations are provided in this report for design and construction of the foundations and ground-bearing floors of the proposed addition. Recommendations are also provided for the proposed pavement areas. Site preparation recommendations are given, but are only preliminary, as the means and methods of site preparation will depend on factors that were unknown when this report was prepared. Those factors include, but are not limited to, the weather before and during construction, subsurface conditions that are exposed during construction, and final details of the proposed project. Environmental-related consulting services were beyond Giles' scope for this project.

2.0 SITE DESCRIPTION

The subject site located on the northwest corner of Mukwonago Drive and McDivitt Lane in Mukwonago, Wisconsin. The site location is shown on the *Test Boring Location* Plan, enclosed as Figure 1 in Appendix A. When the recent *Geotechnical Subsurface Exploration Program* (discussed later) was performed, the site consisted of an asphalt parking lot in the west portion and landscaped grass areas on the remaining portions of the site. A shed was also located in the northern area of the site. The addition will abut to the existing building west of the site. It is understood that the previous building does not contain basements or other below-grade areas. Topographically, the site generally sloped downward to the north and west of the site. Elevations were between approximately El. 814 and El. 821; those elevations are referenced to the topographic contours on the *Work – 01- Arch Site Plan* (Sheet A075), Dated September 25, 2019, prepared by Plunkett Raysich Architects, LLP.

3.0 PROJECT DESCRIPTION

Proposed Addition

A single-story addition is planned to be constructed at the site, as shown on the *Test Boring Location Plan*. Pavement areas and parking lots are planned to be south of the addition building. It is understood that the building is planned to be a wood-framed structure that will be

supported by interior columns and perimeter bearing walls. Maximum foundation loads were not provided, but are assumed to be 3,000 pounds per lineal foot (plf) from bearing walls and 60,000 pounds from columns. The at-grade floors are planned to be ground-bearing concrete slabs. The maximum floor load was not provided, but is assumed to be 100 pounds per square foot for each building.

Based on the floor elevations on the *Work – 01- Arch Site Plan*, it is understood that the first floor of the proposed addition will be at El. 817.52 and will match the existing finish floor elevation of the door sill at the adjoining building. Proposed ground grades at the perimeter of the building are near the first-floor elevation. Based on the existing and proposed topography, the building areas will need to be raised (filled) a maximum of about 3½ feet, exclusive of any additional cutting necessary for proper site preparation.

Proposed Pavement Area

Pavement areas will be south of the addition, as shown on the *Test Boring Location Plan*. It is assumed that the pavement areas will be paved with asphalt-concrete, except that Portland cement pavement will be in high stress areas. Since Giles was not provided with traffic information, the pavement recommendations provided later are based on arbitrarily assumed traffic conditions. The *Work – 01- Arch Site Plan* shows that pavement (surface) grades within the pavement areas will be between about El. 815 and El. 821. Based on the existing topography and the proposed pavement elevations, it is expected that the pavement areas will be raised a maximum of 3 feet and cut a maximum of 3½ feet.

4.0 GEOTECHNICAL SUBSURFACE EXPLORATION PROGRAM

The purpose of the *Geotechnical Subsurface Exploration Program* was to explore subsurface conditions by conducting eight geotechnical test borings at the site. Test Boring 1 through 6 were performed within the approximate footprint of the addition area and were drilled to the planned ±16-foot exploration depth. Test Boring 7 and 8 were performed in the proposed parking lot and were drilled to the planned ±6-foot exploration depth. Auger Refusal was encountered at Test Boring 2 at 2-feet below grade due to concrete rubble. Test Boring 2A was drilled 3-feet south of Test Boring 2 to continue subsurface exploration within the area. Test boring locations were positioned on-site from the apparent property lines and other site features, and by estimating right angles. Approximate locations of the test borings are shown on the *Test Boring Location Plan.*

Samples were collected from each test boring, at certain depths, using the Standard Penetration Test (SPT), conducted with the drill rig. A brief description of the SPT is given in Appendix B, along with descriptions of other field procedures. Immediately after sampling, select portions of the SPT samples were placed in containers that were labeled at the site for identification. Retained samples were transported to Giles' geotechnical laboratory. A Standard Penetration

Resistance value (N-value) was determined from each SPT. N-values are reported on the *Test Boring Logs* (in Appendix A), which are records of the test borings.

Ground elevations at the test boring locations were estimated using topographic contours on the *Work – 01- Arch Site Plan*. Test boring elevations are considered accurate within approximately one contour interval (about 1 foot).

The boreholes were backfilled upon completion; however, settlement and/or expansion of backfill material will likely occur, possibly creating a hazard that can lead to a threat of injury to people and animals. Borehole areas should, therefore, be carefully and routinely monitored by the property owner or others; settlement and/or expansion of backfill materials should be repaired immediately. Giles will not monitor or repair boreholes.

5.0 GEOTECHNICAL LABORATORY SERVICES

The retained samples were classified using the descriptive terms and particle-size criteria shown on the *General Notes* in Appendix D, and by using the Unified Soil Classification System (ASTM D 2488) as a general guide. The classifications are shown on the *Test Boring Logs*, along with horizontal lines that show estimated depths of material change. Field-related information pertaining to the test borings is also shown on the *Test Boring Logs*. For simplicity and abbreviation, terms and symbols are used on the *Test Boring Logs;* the terms and symbols are defined on the *General Notes*.

Unconfined compression (without controlled strain), calibrated penetrometer resistance and moisture content tests were performed on select cohesive soil samples to evaluate their general engineering properties. Because SPT samples were used, results of the unconfined compression and calibrated penetrometer tests are considered to be approximate and were used as supplemental information. A Loss-on-Ignition (LOI) test was performed on a sample of cohesive (clayey) soil from Test Boring 2 to evaluate its organic content. Test results are on the *Test Boring Logs*. Laboratory procedures are briefly described in Appendix C.

6.0 MATERIAL CONDITIONS

Because material sampling at the test borings was discontinuous, it was necessary for Giles to estimate conditions between sample intervals. Estimated conditions at the test borings are briefly discussed in this section and are described in more detail on the *Test Boring Logs*. The conclusions and recommendations in this report are based on the estimated conditions.

6.1. Surface Material

Topsoil, classified as fill, was at the ground surface of the test borings, except at Test Borings 1 and 5, where asphalt-concrete pavement with an aggregate base-course was present. The topsoil generally consisted of silty clay with estimated trace to little amounts organic matter,

between ±12 and ±15 inches thick. Asphalt-concrete pavement was about 4 inches thick, and the aggregate base-course material beneath the asphalt pavement was about 7 inches thick at Test Borings 1 and 5.

6.2. Fill and Possible Fill Material

Material classified as fill was below the surface material at the test borings, and was identified to about 4 to 6½ feet below-grade. Possible fill was below the fill material at Test Borings 2, 5, 6, and 8 to approximately 6½ to 9 feet below grade, except Test Boring 8 was terminated within the possible fill material at 6 feet. The fill and possible fill materials generally consisted lean clay, clayey sand, and silty sand. Concrete rubble was below the surface material at Test Boring 2 and extended to about 4½ feet below grade. Additionally, gravel with cobbles, boulders and/or concrete rubble was encountered between ±2 and ±4 feet at Test Boring 5. The fill materials strength characteristics ranged between low to moderate. Lean clay that was between about 6½ and 9½ feet below-ground at the test borings included an estimated trace amount of organic matter, based on LOI testing and visual-manual classification.

6.3. Native Soil

Native soil was below the materials described above. In general, native soil consisted of lean clay with an estimated little amount of sand. The native soil typically exhibited a very stiff to hard comparative consistency, based on laboratory testing.

7.0 GROUNDWATER CONDITIONS

Water was encountered at about 9½ feet at Test Boring 2 during drilling. Water was not encountered at the other test borings during drilling. Additionally, mottled soil colorations were typically observed within the soils encountered in the test borings at depths ranging between ±6½ and ±9 feet.

Based on the colorations and moisture conditions of the retained soil samples and the water encountered at Test Boring 2, it is estimated that, at the time of our field services, the groundwater table within the test borings were at about 6½ to 9½ feet below ground surface. Furthermore, the site appears to be subject to shallower perched-groundwater conditions, where groundwater perches above the water table. Groundwater conditions will likely fluctuate and could be shallower at certain times.

Giles' estimate of the groundwater conditions at the site is only an approximation based on the free water encountered within the test borings, and the colors and moisture conditions of the retained soil samples. Groundwater conditions could differ from the conditions described above and the water table could be higher or lower than estimated. A more precise estimate of the groundwater conditions could be determined by installing (and monitoring) observation wells at

the site. Giles could install and monitor observation wells after receiving authorization to conduct those additional services.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1. Seismic Design Considerations

A soil Site Class C is recommended for seismic design. By definition, Site Class is based on the average properties of subsurface materials to 100 feet below-ground. Since 100-foot test borings were not requested or authorized, it was necessary to estimate the Site Class based on the test borings, presumed area geology, and the International Building Code.

8.2. Building Foundation Recommendations

A spread-footing foundation is recommended for the proposed addition; however, existing fill is unsuitable for direct or indirect support of foundations. All footings must be directly supported by suitable-bearing native soil, and/or by new engineered fill or lean-concrete backfill (both discussed below) placed on suitable-bearing native soil. The foundations are recommended to be designed using a 4,000 pound per square foot (psf) maximum, net, allowable soil bearing capacity. For geotechnical considerations, strip footing pads are recommended to be at least 16 inches wide and isolated column pads are recommended to be at least 24 inches wide, regardless of the calculated foundation-bearing stress. Also, from a geotechnical perspective, foundation walls could be built of cast-in-place concrete or concrete masonry units. It is recommended and assumed that a structural engineer will provide specific foundation details, including footing dimensions, reinforcing, etc.

It is understood that the local building code requires a minimum 48-inch foundation depth for frost protection. Footings for perimeter walls are, therefore, recommended to be at least 48 inches below the adjacent exterior grade, or to a depth required by the governing building code. From a geotechnical perspective, interior footings could be directly below the ground-bearing floor slabs, since it is assumed that the apartment buildings will be heated, and soil beneath the buildings will not freeze. Estimated foundation-bearing elevations for perimeter and interior footings are assumed to be at ±El. 813 and ±El. 815.5, respectively.

The following table shows the estimated depths of suitable bearing native soil at the test borings within the addition area. The actual depth/elevation of suitable native soil must be determined by a geotechnical engineer at the time of construction through careful monitoring and on-site testing at both the foundation bearing grade and an adequate depth below. Between the test borings, suitable native soil might be at variable and deeper depths/elevations than shown on the following table.

TABLE 1
ESTIMATED DEPTH/ELEVATION OF SUITABLE NATIVE SOIL (a)

Test Boring	Depth Below Current Surface (b)	Elevation (c)
1	±6½ feet	±El. 807.5
2	±9½ feet	±El. 805.8
3	±6½ feet	±El. 809.8
4	±9 feet	±El.808.3
5	±6½ to ±9 feet	±El.805.8 to ±El. 808.3
6	±6½ feet	±El. 810.3

(a) For direct foundation support and/or for placement of engineered fill or lean-concrete backfill; based on a 4,000 psf maximum, net, allowable soil bearing capacity.
(b) Referenced to the existing site grades during drilling.
(c) Referenced to topographic contours on the *Work – 01- Arch Site Plan.*

Based on the estimated foundation-bearing elevations, and the estimated depths/elevations of suitable native soil shown on the table above, over-excavation of unsuitable soil should be expected to develop suitable foundation support, especially for interior footings. Because of the expected over-excavation, evaluation and approval of foundation support soil by a geotechnical engineer on a full-time basis during construction is critical. If foundation support soil is not approved by a geotechnical engineer during construction, unsuitable materials (beneath foundation areas) might not be identified and the buildings could settle excessively, possibly resulting in structural damage.

Foundation excavations are recommended to be excavated with a smooth-edge backhoe bucket to develop a relatively undisturbed bearing grade. A toothed bucket will likely disturb foundation-bearing soil more than a smooth-edge bucket, thereby making soil at the excavation base more susceptible to saturation and instability, especially during adverse weather. It is critical that contractors protect foundation support soil and foundation construction materials (concrete, reinforcing, etc.). In addition, engineered fill is recommended to be placed and compacted in benched excavations along foundation walls immediately after the foundation walls are capable of supporting lateral pressures from backfill, compaction, and compaction equipment.

Foundation Support Soil Requirements

As described above, existing fill is unsuitable for direct or indirect support of foundations. All footings must be directly supported by suitable-bearing native soil, and/or by new engineered fill or lean-concrete backfill (both discussed below) placed on suitable-bearing native soil. For the recommended 4,000 psf bearing capacity, the unconfined compressive strength of native cohesive (clayey) foundation support-soil is recommended to be at least 2.0 tons per square foot (tsf). For native non-cohesive (granular) soil, a minimum N-value (determined by the SPT and correlated from other tests) of 14 is recommended. It is further recommended that the strength characteristics of native soil within the foundation influence zones (determined by a

geotechnical engineer during construction) meet or exceed the recommended values, unless Giles approves lesser values. Engineered fill within foundation influence zones is recommended to be placed and compacted in accordance with this report, including the enclosed *Guide Specifications.*

Due to the existing fill, evaluation of foundation-support soil by a geotechnical engineer during construction is critical. The purpose of the recommended evaluation is: (1) to confirm that the foundations will be properly supported by suitable native soil, (2) to determine over-excavation depths and locations, and (3) to confirm that the subsurface conditions are similar to those described on the *Test Boring Logs*. If another firm performs the recommended support-soil evaluation, Giles must be notified if the composition or strength characteristics of support soil differs from those shown on the *Test Boring Logs*, thereby allowing us the opportunity to revise this report, if needed. Without evaluation and approval of foundation-support soil by a geotechnical engineer, the proposed building could be improperly supported.

Unsuitable materials beneath foundation areas could be replaced with engineered fill consisting of properly compacted well-graded aggregate. Aggregate fill is recommended to consist of dense-graded crushed stone that meets the gradation requirements of *dense-graded base* (1¼-inch) in Section 305 of the Wisconsin Department of Transportation Standard Specifications (2019). Aggregate with other gradation characteristics could possibly be used, but should be approved by a geotechnical engineer before the material is placed. If engineered fill is used as backfill, lateral over-excavation of unsuitable materials will also be required, in addition to the required vertical over-excavation. The overall width of lateral over-excavation will depend on the vertical over-excavation depth. For estimating purposes, the minimum lateral over-excavation could be determined by extending an imaginary line outward and downward at a ratio of 1(horizontal):2(vertical) from the bottom edges of a footing pad, but the actual lateral extents of over-excavation are recommended to be approved by a geotechnical engineer during construction.

Lean Portland cement concrete (minimum 28-day compressive strength of 500 psi) could also be used to replace unsuitable materials beneath foundation areas. Where lean concrete is used as backfill, footing construction must not begin until the lean concrete has gained sufficient strength. Also, over-excavations that are filled with lean concrete are recommended to be at least as wide (on all sides) as the footing pad that will be supported by the concrete, and excavation sidewalls are recommended to be plumb and parallel. To help control sloughing and caving, lean-concrete backfill is recommended to be placed immediately after excavation. This trench-and-pour method requires close communication and scheduling between the general contractor, foundation contractor, concrete supply company, and geotechnical engineer. With a trench-and-pour method, a geotechnical engineer must observe excavations as they are made. Full-time observation by a geotechnical engineer is, therefore, recommended.

Existing Building Considerations

Precautions must be taken to protect the existing building during construction and to ensure that excavations do not undermine or otherwise compromise the existing building, or other existing site improvements. If a void develops below existing footings or floor slabs, a geotechnical engineer should immediately observe the conditions and provide repair recommendations. In general, voids should be immediately filled with a concrete dry-pack, or a non-shrink, expansive sand-and-cement slurry should be injected into the void, under appropriate pressure, to redevelop contact between the foundation and supporting soils.

Near the existing building, it is recommended that foundations for the addition bear at the same elevation as the adjacent (existing) foundations, assuming that the required 48-inch embedment depth will be met, where required. If the new and existing footings will bear at different elevations, a structural engineer should evaluate the stresses to be imposed on the lower foundation, and confirm that the structural integrity of the existing building and addition will be maintained. Control joints should separate the existing building and the addition, since some differential movement is expected to occur at these junctures. Excavations must not be performed within the zone of influence (determined by a geotechnical engineer) of an existing footing; otherwise, existing footings could be undermined, possibly causing significant (and catastrophic) damage.

Where new foundations are perpendicular to the existing foundation, it may be necessary to cantilever new foundations a certain distance away from the outside face of the existing building to help reduce potential settlement of the existing building due to overlapping stress from the new construction. When the existing and proposed foundation systems and depths can be confirmed, Giles should be contacted to evaluate whether our recommendations need to be updated. Care must be taken to protect the existing building during construction of the addition. The existing building should be underpinned and braced, where needed. Extra care should be exercised not to undermine existing footings during removal of unsuitable materials and during construction of the new footings.

It is assumed that the proposed addition will be a self-supporting structure, and that no structural load will be imposed on the existing building due to the addition. If load is added to the existing building, it will likely undergo some settlement. The amount and location of settlement will partly depend on the magnitude and location of the load increase. Differential settlement should be expected between the existing building and the addition, even if additional load is not imposed on the existing building.

Estimated Foundation Settlement

The post-construction total and differential settlements of a spread-footing foundation designed and constructed based on this report are estimated to be less than about 1 inch and ½ inch, respectively. The post-construction angular distortion is estimated to be less than about 0.002

inch per inch across a distance of 20 feet or more. Estimated settlements assume that the site will be prepared in accordance with this report and that foundation support materials will be thoroughly tested and approved by a qualified geotechnical engineer during construction.

8.3. At-Grade Floor Slab Recommendations

With proper subgrade preparation, existing soil (including existing fill) is expected to be suitable to support at-grade floor slabs for the building addition; new engineered fill that is placed on suitable-bearing existing soil is also expected to be suitable. However, subgrade improvement (such as over-excavation and/or mechanical modification) might be necessary to develop proper slab support in some areas, considering the existing fill. Additionally, removal of nested rubble may also be necessary for proper floor slab subgrade preparation. Consequently, all at-grade floor areas are recommended to be thoroughly evaluated (and approved) by a geotechnical engineer immediately before fill placement (if any) and before floor construction. Without a thorough evaluation of floor slab support materials, at-grade floor slabs might be improperly supported, which could lead to excessive settlement.

From a geotechnical perspective, at-grade floor slabs area recommended to be at least 4 inches thick; that thickness assumes that the 28-day compressive strength of concrete will be at least 3,500 pounds per square inch (psi). Assuming proper site preparation, at-grade floor slabs may be designed using a *Modulus of Subgrade Reaction* (K_{v1}) value of 90 pounds per square inch per inch (psi/in). It is recommended and assumed that a structural engineer will design/specify the floor slab thicknesses, reinforcing, joint details, and other parameters.

A minimum 4-inch-thick base course is recommended to be below the at-grade floor slabs to serve as a capillary break and for support considerations. It is recommended that the base course consist of free-draining aggregate that has been tested and approved by a geotechnical engineer. Depending on aggregate gradation, geotextile might need to be below the base course to serve as a separator. The need for geotextile should be determined during construction with the assistance of a geotechnical engineer.

A minimum 10-mil vapor retarder is recommended to be directly above or below the base course throughout all at-grade floor areas. The location (above or below the base course) of the vapor retarder should be specified by the project structural engineer or architect. Abutting vapor retarder sheets are recommended to be overlapped and taped, and must extend to all foundation walls. Vapor retarders are recommended to be in accordance with ASTM E 1745, entitled *Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs*, or other relevant documents. If the base course has sharp, angular aggregate, protecting the retarder with geotextile (or by other means) is recommended.

Due to the frost-susceptible site soil, areas of the at-grade floor slabs (such as near exterior doors and entrance/exit vestibules) will be susceptible to freeze-thaw related movement. Installation of insulation (or other protective measures against freeze-thaw movement) should

be considered for these areas. Ground grades are recommended to be sloped away from the hotel building and sidewalks to reduce water infiltration and potential freeze-thaw problems.

Estimated Floor Slab Settlement

The post-construction total and differential settlements of an isolated floor slab constructed in accordance with this report are estimated to be less than about ½ inch and ⅓ inch, respectively, over a distance of about 20 feet. Settlement estimates are based on the assumption that floor slab support materials will be evaluated and approved by a geotechnical engineer during and immediately before floor slab construction.

8.4. Pavement Recommendations

Giles was not given traffic information for pavement design; therefore, recommendations for light-duty pavement are provided below and are based on an arbitrarily assumed traffic condition consisting of five 18-kip Equivalent Single Axle Loads (ESALs) per day. The recommended pavement sections are only intended for use in light-duty areas subject to passenger vehicles with infrequent traffic from heavier vehicles due to occasional deliveries and due to weekly removal of refuse and recyclables. The recommended pavement sections assume no increase in traffic volume and no changes in vehicle type or traffic pattern. Also, it is assumed that the ESALs noted above will be in one direction for each lane.

It is critical that the project owner, developer, civil engineer, and other design professionals involved with the project confirm that the ESALs noted above are appropriate for the expected traffic conditions, vehicle types, and axle loadings. If requested, Giles can provide supplemental pavement recommendations based upon other traffic conditions, vehicle types, and axle loads. The recommended pavement sections could underperform or fail prematurely if the design ESALs are exceeded.

It is expected that pavement support materials will consist of various materials including existing fill, native soil, and newly placed engineered fill (used to raise grades). Generally, site soil at the expected pavement subgrade consists of sand and gravel with silty clay, clayey sand and gravel, sandy gravel, and lean clay. Because lean clay has lower support characteristics (when compared with the other soil), the recommended pavement sections were developed based on a lean clay subgrade with an assumed field CBR value of 4 and a *subgrade modulus (K)* value of 90 psi/in. Engineered fill that is placed in proposed pavement areas is recommended to have a field CBR value and a *subgrade modulus* (K) value at least equivalent to the design values. Fill is recommended to be placed and compacted per this report.

Asphalt-Concrete Pavement

The following table shows the recommended thicknesses for asphalt-concrete pavement with an aggregate base-course. State specifications are also included in the table. The recommended pavement section is based on the traffic condition described above.

TABLE 3 RECOMMENDED HMA PAVEMENT SECTION		
Materials	**Pavement Thickness**	**Wisconsin DOT Standard Specifications**
Hot-Mix Asphalt Surface Course	1.5 inches	Section 460
Hot-Mix Asphalt Binder Course	2.5 inches	Section 460
Dense-Graded Aggregate Base Course	9.0 inches	Section 305, 1¼-inch Crushed Stone

Portland Cement Concrete

Portland cement concrete pavement is recommended in high-stress areas, such as the lot entrance/exit aprons, at the refuse/recyclables enclosure, and in areas where trucks will turn or will be parked. Concrete pavement is recommended to be at least 6 inches thick, and is recommended to be underlain by a minimum 4-inch-thick aggregate base-course. It is recommended that concrete pavement have load-transfer reinforcement, where appropriate. Control-joint spacing should be determined in accordance with the current ACI code. Expansion joints should be provided where pavement abuts fixed objects, such as the buildings and light poles. It is recommended and assumed that a civil engineer will provide specific recommendations for concrete pavement, including reinforcing details and control-joint spacing. The 28-day compressive strength of concrete is recommended to be at least 4,000 psi and the concrete should be properly air-entrained. Materials and construction procedures for concrete pavement and the aggregate base are recommended to be in accordance with Wisconsin DOT specifications.

General Pavement Considerations

The pavement recommendations assume that the pavement subgrade will be prepared according to this report, the base course will be properly drained, and a geotechnical engineer will observe and test pavement construction. Pavement was designed based on AASHTO design parameters for a twenty-year design period, but the actual service life may be much less, especially considering that the pavement subgrade is expected to consist of silty clay and lean clay, which are relatively poor subgrade materials. Also, because of the existing fill, additional pavement maintenance should be expected. Local codes may require specific testing to determine soil support characteristics and/or minimum pavement section thickness might be required.

8.5. Site Preparation Recommendations

This section deals with site preparation, including preparation including preparation of the floor slab, pavement, and engineered fill areas. The means and methods of site preparation will greatly depend on the weather conditions before and during construction, the subsurface conditions that are exposed during earthwork operations, and the final details of the proposed development. Therefore, only generalized site preparation recommendations are given.

In addition to being general, the following site preparation recommendations are abbreviated; the *Guide Specifications* in Appendix D gives further recommendations. The *Guide Specifications* should be read along with this section. Also, the *Guide Specifications* are recommended to be used as an aid to develop the project specifications.

Clearing and Removal

Existing pavement, surface vegetation, trees and bushes (including root-balls), topsoil with adverse organic content, and otherwise unsuitable bearing materials are recommended to be removed from the proposed building areas, pavement areas, and other structural areas. Clearing, grubbing and stripping should extend at least several feet beyond proposed development areas, where feasible.

As described earlier, concrete rubble was within Test Boring 2 and 2A, in the planned building addition area. Cobbles, boulders and/or concrete rubble were also between ±2 and ±4 feet at Test Boring 5. Due to the rubble encountered in the test borings, which could be nested, removal of rubble may be necessary. Any nested rubble from former filling is recommended to be removed to at least several feet beyond the proposed building areas.

Proof-Rolling and Fill Placement

After the recommended clearing and removal, and once the site is cut (lowered) as needed, the exposed subgrade is recommended to be proof-rolled with a fully-loaded, tandem-axle dump truck (or other suitable construction equipment) to locate unstable soil based on subgrade deflection caused by the wheel loads of the proof-roll equipment. All development areas are recommended to be proof-rolled. And, where feasible, proof-rolling should extend at least several feet beyond the development areas. It is recommended that a geotechnical engineer observe proof-roll operations and evaluate subgrade stability based on those observations. Areas that are not accessible to proof-roll equipment are recommended to be evaluated (and approved) by a geotechnical engineer using appropriate means and methods.

Soil that yields excessively or ruts during proof-rolling, or shows other signs of instability, is recommended to be replaced with engineered fill. As an option to replacement, unsuitable soil could be scarified to a sufficient depth (likely 6 to 12 inches, or more), moisture-conditioned (uniformly moistened or dried), and compacted to the required in-place density. Unsuitable soil

could also be mechanically modified with coarse aggregate and/or geosynthetics (geogrids, geotextiles, etc.). It is recommended that soil improvement recommendations be provided by a geotechnical engineer based on the conditions during construction. Due to the existing fill, subgrade improvements are expected to be necessary.

The site is recommended to be raised, where necessary, to the planned finished grade with engineered fill immediately after the subgrade is confirmed to be stable and suitable to support the proposed site improvements. Engineered fill is recommended to be placed in uniform, relatively thin layers (lifts). And each layer of engineered fill is recommended to be compacted to at least 95 percent of the fill material's maximum dry density determined from the Standard Proctor compaction test (ASTM D698). As an exception, the in-place dry density of engineered fill within one foot of the pavement subgrade is recommended to be compacted to at least 100 percent of the fill's maximum dry density. The water content of fill material is recommended to be uniform and within a narrow range of the optimum moisture content, also determined by the Standard Proctor compaction test. Item Nos. 4 and 5 of the *Guide Specifications* give move information pertaining to selection and compaction of engineered fill.

Engineered fill that does not meet the density and water content requirements is recommended to be scarified to a sufficient depth (likely 8 to 12 inches, or more), moisture-conditioned, and compacted to the required density. A subsequent lift of fill should only be placed after a geotechnical engineer confirms that the previous lift was properly placed and compacted. Subgrade soil might need to be recompacted immediately before construction, since equipment traffic and adverse weather may reduce soil stability.

Use of Site Soil as Engineered Fill

Site soil that does not contain adverse organic content or other deleterious materials, as noted in the *Guide Specifications,* could be used as engineered fill. However, site soil that is used as engineered fill will likely need to be moisture conditioned (uniformly moistened or dried). If construction is during adverse weather (discussed in the following section), drying site soil will likely not be feasible. In that case, aggregate fill (or other fill material with a low water-sensitivity) will likely need to be imported to the site. Additional recommendations regarding fill selection, placement, and compaction are given in the *Guide Specifications*.

8.6. Generalized Construction Considerations

Adverse Weather

Site soil is moisture sensitive and will become unstable when exposed to adverse weather such as rain, snow, and freezing temperatures. It might be necessary to remove or stabilize the upper 6 to 12 inches (or more) of soil that becomes unstable due to adverse weather, which commonly occurs during late fall, winter, and early spring. At least some over-excavation and/or stabilization of unstable soil should be expected if construction is during or after adverse weather. Because site preparation depends on weather, bids for site preparation, and other earthwork activities, should consider the time of year that construction will be conducted.

In an effort to protect soil from adverse weather, the site surface is recommended to be smoothly graded and contoured during construction to divert surface water away from construction areas. Contoured subgrades are recommended to be rolled with a smooth-drum compactor, before precipitation, to "seal" the surface. Furthermore, construction traffic should be restricted to certain aggregate-covered areas in an effort to reduce traffic-related soil disturbance. Foundation, floor slab, and pavement construction should begin immediately after suitable support is confirmed.

Construction Dewatering

Excavations are expected to be at or above the water table; however, some dewatering might be necessary due to perched groundwater or precipitation. Water that accumulates in construction areas is recommended to be removed along with unstable soil as soon as possible. Filtered sump pumps, drawing water from sump pits excavated in the bottom of construction trenches, will likely be adequate to remove water that collects in shallow excavations. Excavated sump pits should be fully-lined with geotextile and filled with open-graded, free-draining aggregate.

Excavation Stability

Excavations are recommended to be made in accordance with current OSHA excavation and trench safety standards, and other applicable requirements. Sides of excavations might need to be sloped, benched, and/or braced to develop and maintain a safe work environment. Temporary shoring must be designed according to applicable regulatory requirements. Contractors are responsible for excavation safety.

Existing Utilities

All existing utilities should be identified and located, and any planned to be reused should be relocated outside the building areas. Utilities that are not reused should be capped-off and removed in accordance with pertinent regulations. Excavations for utilities that are also in the influence zone of new construction are recommended to be backfilled with engineered fill placed under engineering controlled conditions. Underground utilities that are to be reused or abandoned in-place should be evaluated by a qualified plumbing contractor and utility backfill should be evaluated by a qualified geotechnical engineer. Grading operations must be done carefully so that existing utilities are not damaged or disturbed. Utility invert elevations, depths and sizes should be checked relative to the proposed construction.

Questionable Materials

Questionable materials, where encountered, are recommended to be evaluated by a geotechnical engineer to determine if removal and replacement with engineered fill is necessary. Disposal of materials should be in accordance with local, state and federal

regulations for the material type. This report might need to be revised if subsurface conditions differ from those shown on the *Test Boring Logs*.

8.7. Recommended Construction Materials Testing Services

This report was prepared assuming that a geotechnical engineer will perform Construction Materials Testing ("CMT") services during construction of the proposed development. It might be necessary for Giles to provide supplemental geotechnical recommendations based on the results of CMT services and specific details of the project not known at this time.

9.0 BASIS OF REPORT

This report is strictly based on the project description given earlier in this report. Giles must be notified if any parts of the project description or our assumptions about the proposed project are not accurate so that this report can be amended, if needed. This report is based on the assumption that the facility will be designed and constructed according to the codes that govern construction at the site.

The conclusions and recommendations in this report are based on estimated subsurface conditions as shown on the *Test Boring Logs* and the *Records of Subsurface Exploration*. Giles must be notified if the subsurface conditions that are encountered during construction of the proposed development differ from those shown on the *Test Boring Logs* and *Records of Subsurface Exploration* because this report will likely need to be revised. General comments and limitations of this report are given in the appendix.

The conclusions and recommendations presented in this report have been promulgated in accordance with generally accepted professional engineering practices in the field of geotechnical engineering. No other warranty is either expressed or implied.

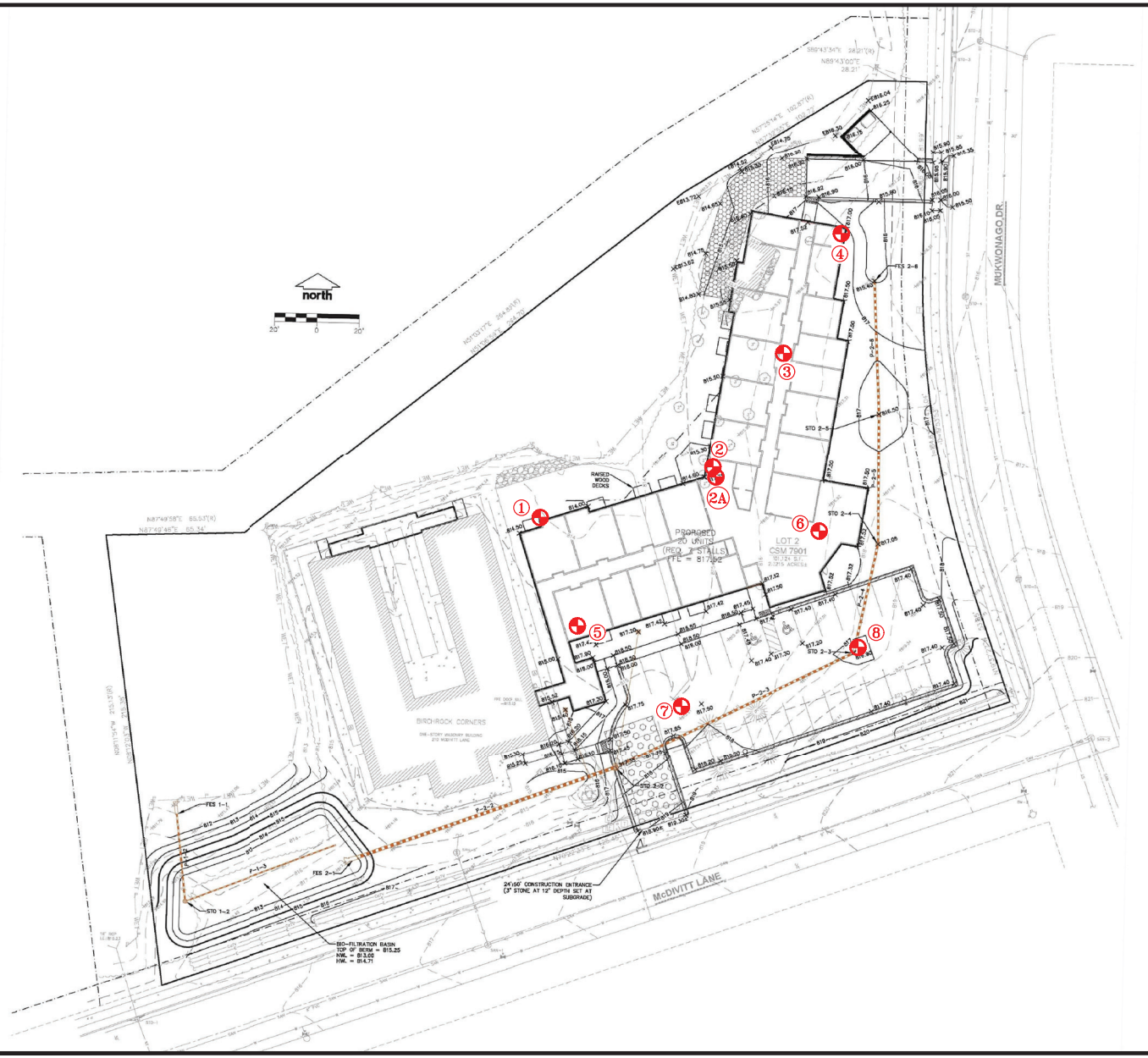
1G-1911002/19Proj04/Geo/ajg

APPENDIX A

FIGURES AND TEST BORING LOGS

The Test Boring Location Plan contained herein was prepared based upon information supplied by *Giles'* client, or others, along with *Giles'* field measurements and observations. The diagram is presented for conceptual purposes only and is intended to assist the reader in report interpretation.

The Test Boring Logs and related information enclosed herein depict the subsurface (soil and water) conditions encountered at the specific boring locations on the date that the exploration was performed. Subsurface conditions may differ between boring locations and within areas of the site that were not explored with test borings. The subsurface conditions may also change at the boring locations over the passage of time.



NOTES:

1.) TEST BORING LOCATIONS ARE APPROXIMATE.

2.) PROPOSED FEATURES ARE APPROXIMATE BASED ON THE "WORK - 01- ARCH SITE PLAN" (SHEET A075), DATED 9-25-19, PREPARED BY PLUNKETT RAYSICH ARCHITECTS, LLP.

LEGEND:

① GEOTECHNICAL TEST BORING

GILES ENGINEERING ASSOCIATES, INC.
N8 W22350 JOHNSON DRIVE, SUITE A1
WAUKESHA, WI 53186 (262)544-0118
www.gilesengr.com

FIGURE 1
TEST BORING LOCATION PLAN
PROPOSED CBRF ADDITION
CASTLE SENIOR LIVING
210 McDIVITT LANE
MUKWONAGO, WISCONSIN

DESIGNED	DRAWN	SCALE	DATE	REVISED
PDR/AJG	JDH	approx. 1"=50'	12-02-19	--
PROJECT NO.: 1G-1911002			CAD No. 1g1911002-blp	

BORING NO. & LOCATION: 1	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 814 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±4" Asphalt Concrete										
±7" Base Course										
Fill: Dark Gray lean Clay, little Sand, trace Gravel-Moist			1-SS	5						
			2-SS	5		1.7		15		
		810								
	5		3-SS	6	1.3	1.4		27		
Brown and Gray mottled lean Clay, little Sand-Moist			4-SS	13	2.9	2.6		17		
		805								
	10		5-SS	13	3.4	2.9		18		
Brown lean Clay, little Sand-Moist		800								
	15		6-SS	29	4.1	3.5		15		
Boring Terminated at about 16 feet (EL. 798')										

	Water Observation Data	Remarks:
▽	Water Encountered During Drilling:	
▼	Water Level At End of Drilling:	
	Cave Depth At End of Drilling: 14 ft.	
▼	Water Level After Drilling:	
	Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 2/2A	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 815.3 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±12" Topsoil Fill: Dark Brown Silty Clay, little Sand and Organic Matter-Moist		815								
Fill: Gray Gravel (Includes Concrete Rubble)-Damp			1-SS	6	2.9	3.0		22		
			2-SS	50/2"				15		(a)
Fill: Brown lean Clay, little Sand, trace Gravel-Moist	5	810	3-SS	5						
Possible Fill: Very Dark Gray and Gray lean Clay, little Sand, trace Organic Matter-Moist			4-SS	5	1.7	1.9		31		LOI=5.3%
Brown and Gray mottled lean Clay, little Sand-Wet	10	805	5-SS	11	1.9	2.1		19		
Brown lean Clay, little Sand-Moist	15	800	6-SS	11	2.4	2.3		18		
Boring Terminated at about 16 feet (EL. 799.3')										

Water Observation Data	Remarks:
Water Encountered During Drilling: 9.5 ft.	(a) Poor Recovery, Due to Concrete Rubble
Water Level At End of Drilling: 10 ft.	Auger Refusal Occured at Test Boring 2 at 4 feet
Cave Depth At End of Drilling: 13.5 ft.	Test Boring 2A relocated approximately 3 feet south of Test Boring 2, advanced to 4½ feet without sampling and continued with sampling to 16 feet
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 3	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 816.3 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±15" Topsoil Fill: Very Dark Gray and Brown Silty Clay, little Sand, trace Organic Matter-Moist										
Fill: Dark Brown and Brown lean Clay, little Sand, trace Gravel-Very Moist		815	1-SS	8		3.5		20		
			2-SS	5		0.8		20		
	5		3-SS	3				24		(a)
		810								
Gray and light Brown lean Clay, little Sand-Moist			4-SS	11	2.1	2.0		17		
Brown lean Clay, little Sand-Moist	10		5-SS	13	3.1	3.4		17		
		805								
	15		6-SS	19		3.5		15		
Boring Terminated at about 16 feet (EL. 800.3')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	(a) No recovery - Auger Sample Obtained at 3-SS
Water Level At End of Drilling:	
Cave Depth At End of Drilling:	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 4	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 817.2 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±12" Topsoil Fill: Dark Brown Silty Clay, fine to medium Sand and Gravel-Moist										
Fill: Light Brown Silty fine to medium Sand, trace Gravel-Moist to Very Moist		815	1-SS	6				13		
			2-SS	5				10		
	5		3-SS	6				20		
Possible Fill: Gray Silty fine to medium sand, trace Gravel and Clay-Moist		810	4-SS	7				11		
Dark Gray and Gray Silty fine to medium Sand, trace Gravel-Moist	10		5-SS	13				15		
Brown lean Clay, little Sand-Moist		805								
	15		6-SS	12	2.9	2.6		17		
Boring Terminated at about 16 feet (EL. 801.2')										

	Water Observation Data	Remarks:
▽	Water Encountered During Drilling:	
▼	Water Level At End of Drilling:	
	Cave Depth At End of Drilling: 14 ft.	
▼	Water Level After Drilling:	
	Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 5	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 814.8 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±4" Asphalt Concrete										
±7" Base Course										
Fill: Dark Brown and Brown Silty Clay, trace Sand and Gravel-Moist			1-SS	9						
Fill: Gray Gravel (Possibly includes Cobbles, Boulders and/or Concrete Rubble)-Damp			2-SS	24						(a)
Fill: Very Dark Gray lean Clay, little Sand-Moist	5	810	3-SS	12		2.4		31		LOI=9%
Possbile Fill: Brown lean Clay, little Sand-Moist			4-SS	12						(a)
Brown and Gray mottled lean Clay, little Sand-Moist	10	805	5-SS	16	4.5	4.3		21		
	15	800	6-SS	29		4.5+		15		
Boring Terminated at about 16 feet (EL. 798.8')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	(a) Poor Recovery - Auger Samples at 2-SS and 4-SS
Water Level At End of Drilling:	
Cave Depth At End of Drilling: 13 ft.	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 6	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 816.8 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±14" Topsoil Fill: Very Dark Gray and Brown Silty Clay, little Sand, trace Gravel and Organic Matter-Moist			1-SS	12						
Fill: Brown Silty fine to medium Sand, trace Gravel-Moist		815								
Fill: Brown Clayey Sand, trace Silt-Moist			2-SS	4				15		
Possible Fill: Very Dark Gray lean Clay, little Sand-Moist	5		3-SS	5		1.5		26		
Brown and Gray mottled lean Clay, little Sand-Moist		810	4-SS	11		2.3		17		
	10		5-SS	9	3.0	3.2		18		
		805								
	15		6-SS	20	6.0	4.5+		15		

Boring Terminated at about 16 feet (EL. 800.8')

Water Observation Data	Remarks:
Water Encountered During Drilling:	
Water Level At End of Drilling:	
Cave Depth At End of Drilling: 13 ft.	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 7	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 815.2 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±14" Topsoil Fill: Dark Brown Silty Clay, little Sand, trace Gravel-Moist		815	1-SS	6						
Fill: Very Dark Gray lean Clay, little Sand-Moist			2-SS	6		3.1		32		
Brown and Gray lean Clay, little Sand	5	810	3-SS	13		2.4		24		
Boring Terminated at about 6 feet (EL. 809.2')										

	Water Observation Data	Remarks:
▽	Water Encountered During Drilling:	
▼	Water Level At End of Drilling:	
	Cave Depth At End of Drilling:	
▼	Water Level After Drilling:	
	Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

BORING NO. & LOCATION: 8	TEST BORING LOG	GILES ENGINEERING ASSOCIATES, INC.
SURFACE ELEVATION: 818.5 feet	CBRF ADDITION	
COMPLETION DATE: 11/06/19	210 MCDIVITT LANE MUKWONAGO, WISCONSIN	
FIELD REP: KEITH FLOWERS	PROJECT NO: 1G-1911002	

MATERIAL DESCRIPTION	Depth (ft)	Elevation	Sample No. & Type	N	Q_u (tsf)	Q_p (tsf)	Q_s (tsf)	W (%)	PID	NOTES
±13" Topsoil Fill: Dark Brown and Brown Silty Clay, little Sand, trace Gravel-Moist			1-SS	6						
Fill: Dark Brown and Brown lean Clay, little Sand, trace Gravel-Moist		815	2-SS	4		1.0		28		
Possible Fill: Very Dark Gray lean Clay, little Sand-Moist	5		3-SS	5		1.5		37		
Boring Terminated at about 6 feet (EL. 812.5')										

Water Observation Data	Remarks:
Water Encountered During Drilling:	
Water Level At End of Drilling:	
Cave Depth At End of Drilling: 4 ft.	
Water Level After Drilling:	
Cave Depth After Drilling:	

GILES LOG REPORT 1G1911002.GPJ GILES.GDT 12/3/19

Changes in strata indicated by the lines are approximate boundary between soil types. The actual transition may be gradual and may vary considerably between test borings. Location of test boring is shown on the Boring Location Plan.

APPENDIX B

FIELD PROCEDURES

The field operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) designation D

420 entitled “Standard Guide for Sampling Rock and Rock” and/or other relevant specifications. Soil samples were preserved and transported to *Giles'* laboratory in general accordance with the procedures recommended by ASTM designation D 4220 entitled “Standard Practice for Preserving and Transporting Soil Samples.” Brief descriptions of the sampling, testing and field procedures commonly performed by *Giles* are provided herein.

GENERAL FIELD PROCEDURES

Test Boring Elevations

The ground surface elevations reported on the Test Boring Logs are referenced to the assumed benchmark shown on the Boring Location Plan (Figure 1). Unless otherwise noted, the elevations were determined with a conventional hand-level and are accurate to within about 1 foot.

Test Boring Locations

The test borings were located on-site based on the existing site features and/or apparent property lines. Dimensions illustrating the approximate boring locations are reported on the Boring Location Plan (Figure 1).

Water Level Measurement

The water levels reported on the Test Boring Logs represent the depth of “free” water encountered during drilling and/or after the drilling tools were removed from the borehole. Water levels measured within a granular (sand and gravel) soil profile are typically indicative of the water table elevation. It is usually not possible to accurately identify the water table elevation with cohesive (clayey) soils, since the rate of seepage is slow. The water table elevation within cohesive soils must therefore be determined over a period of time with groundwater observation wells.

It must be recognized that the water table may fluctuate seasonally and during periods of heavy precipitation. Depending on the subsurface conditions, water may also become perched above the water table, especially during wet periods.

Borehole Backfilling Procedures

Each borehole was backfilled upon completion of the field operations. If potential contamination was encountered, and/or if required by state or local regulations, boreholes were backfilled with an “impervious” material (such as bentonite slurry). Borings that penetrated pavements, sidewalks, etc. were “capped” with Portland Cement concrete, asphaltic concrete, or a similar surface material. It must, however, be recognized that the backfill material may settle, and the surface cap may subside, over a period of time. Further backfilling and/or re-surfacing by *Giles’* client or the property owner may be required.

FIELD SAMPLING AND TESTING PROCEDURES

Auger Sampling (AU)

Soil samples are removed from the auger flights as an auger is withdrawn above the ground surface. Such samples are used to determine general soil types and identify approximate soil stratifications. Auger samples are highly disturbed and are therefore not typically used for geotechnical strength testing.

Split-Barrel Sampling (SS) – (ASTM D-1586)

A split-barrel sampler with a 2-inch outside diameter is driven into the subsoil with a 140-pound hammer free-falling a vertical distance of 30 inches. The summation of hammer-blows required to drive the sampler the final 12-inches of an 18-inch sample interval is defined as the "Standard Penetration Resistance" or N-value is an index of the relative density of granular soils and the comparative consistency of cohesive soils. A soil sample is collected from each SPT interval.

Shelby Tube Sampling (ST) – (ASTM D-1587)

A relatively undisturbed soil sample is collected by hydraulically advancing a thin-walled Shelby Tube sampler into a soil mass. Shelby Tubes have a sharp cutting edge and are commonly 2 to 5 inches in diameter.

Bulk Sample (BS)

A relatively large volume of soils is collected with a shovel or other manually-operated tool. The sample is typically transported to *Giles'* materials laboratory in a sealed bag or bucket.

Dynamic Cone Penetration Test (DC) – (ASTM STP 399)

This test is conducted by driving a 1.5-inch-diameter cone into the subsoil using a 15-pound steel ring (hammer), free-falling a vertical distance of 20 inches. The number of hammer-blows required to drive the cone 1¾ inches is an indication of the soil strength and density, and is defined as "N". The Dynamic Cone Penetration test is commonly conducted in hand auger borings, test pits and within excavated trenches.

- Continued -

Ring-Lined Barrel Sampling – (ASTM D 3550)

In this procedure, a ring-lined barrel sampler is used to collect soil samples for classification and laboratory testing. This method provides samples that fit directly into laboratory test instruments without additional handling/disturbance.

Sampling and Testing Procedures

The field testing and sampling operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Results of the field testing (i.e. N-values) are reported on the Test Boring Logs. Explanations of the terms and symbols shown on the logs are provided on the appendix enclosure entitled “General Notes”.

APPENDIX C

LABORATORY TESTING AND CLASSIFICATION

The laboratory testing was conducted under the supervision of a geotechnical engineer in accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Brief descriptions of laboratory tests commonly performed by *Giles* are provided herein.

LABORATORY TESTING AND CLASSIFICATION

Photoionization Detector (PID)

In this procedure, soil samples are "scanned" in *Giles'* analytical laboratory using a Photoionization Detector (PID). The instrument is equipped with an 11.7 eV lamp calibrated to a Benzene Standard and is capable of detecting a minute concentration of **certain** Volatile Organic Compound (VOC) vapors, such as those commonly associated with petroleum products and some solvents. Results of the PID analysis are expressed in HNu (manufacturer's) units rather than actual concentration.

Moisture Content (w) (ASTM D 2216)

Moisture content is defined as the ratio of the weight of water contained within a soil sample to the weight of the dry solids within the sample. Moisture content is expressed as a percentage.

Unconfined Compressive Strength (qu) (ASTM D 2166)

An axial load is applied at a uniform rate to a cylindrical soil sample. The unconfined compressive strength is the maximum stress obtained or the stress when 15% axial strain is reached, whichever occurs first.

Calibrated Penetrometer Resistance (qp)

The small, cylindrical tip of a hand-held penetrometer is pressed into a soil sample to a prescribed depth to measure the soils capacity to resist penetration. This test is used to evaluate unconfined compressive strength.

Vane-Shear Strength (qs)

The blades of a vane are inserted into the flat surface of a soil sample and the vane is rotated until failure occurs. The maximum shear resistance measured immediately prior to failure is taken as the vane-shear strength.

Loss-on-Ignition (ASTM D 2974; Method C)

The Loss-on-Ignition (L.O.I.) test is used to determine the organic content of a soil sample. The procedure is conducted by heating a dry soil sample to 440°C in order to burn-off or "ash" organic matter present within the sample. The L.O.I. value is the ratio of the weight loss due to ignition compared to the initial weight of the dry sample. L.O.I. is expressed as a percentage.

Particle Size Distribution (ASTB D 421, D 422, and D 1140)

This test is performed to determine the distribution of specific particle sizes (diameters) within a soil sample. The distribution of coarse-grained soil particles (sand and gravel) is determined from a “sieve analysis,” which is conducted by passing the sample through a series of nested sieves. The distribution of fine-grained soil particles (silt and clay) is determined from a “hydrometer analysis” which is based on the sedimentation of particles suspended in water.

Consolidation Test (ASTM D 2435)

In this procedure, a series of cumulative vertical loads are applied to a small, laterally confined soil sample. During each load increment, vertical compression (consolidation) of the sample is measured over a period of time. Results of this test are used to estimate settlement and time rate of settlement.

Classification of Samples

Each soil sample was visually-manually classified, based on texture and plasticity, in general accordance with the Unified Soil Classification System (ASTM D-2488-75). The classifications are reported on the Test Boring Logs.

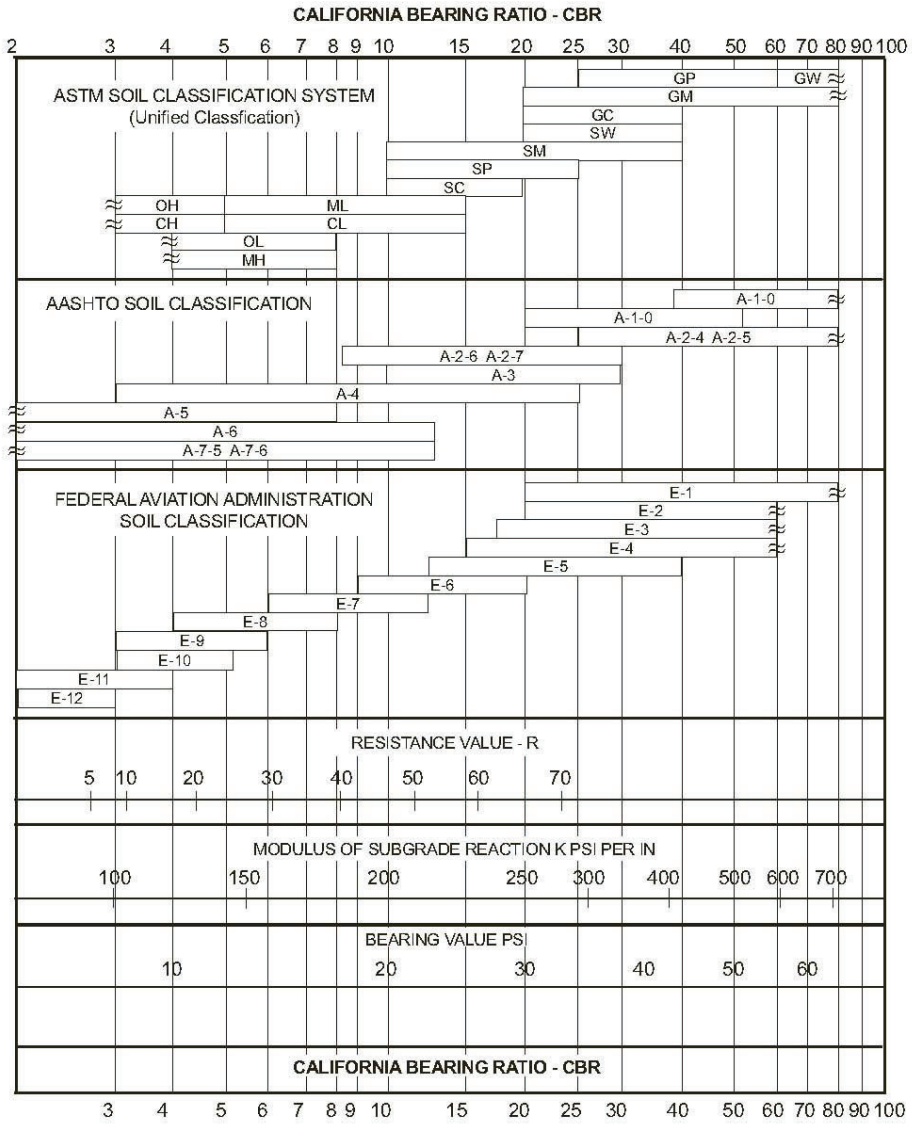
Laboratory Testing

The laboratory testing operations were conducted in general accordance with the procedures recommended by the American Society for Testing and Materials (ASTM) and/or other relevant specifications. Results of the laboratory tests are provided on the Test Boring Logs or other appendix enclosures. Explanation of the terms and symbols used on the logs is provided on the appendix enclosure entitled “General Notes.”

California Bearing Ratio (CBR) Test ASTM D-1833

The CBR test is used for evaluation of a soil subgrade for pavement design. The test consists of measuring the force required for a 3-square-inch cylindrical piston to penetrate 0.1 or 0.2 inch into a compacted soil sample. The result is expressed as a percent of force required to penetrate a standard compacted crushed stone.

Unless a CBR test has been specifically requested by the client, the CBR is estimated from published charts, based on soil classification and strength characteristics. A typical correlation chart is below.



APPENDIX D

GENERAL INFORMATION

AND
IMPORTANT INFORMATION ABOUT
YOUR GEOTECHNICAL REPORT

GENERAL COMMENTS

The soil samples obtained during the subsurface exploration will be retained for a period of thirty days. If no instructions are received, they will be disposed of at that time.

This report has been prepared exclusively for the client in order to aid in the evaluation of this property and to assist the architects and engineers in the design and preparation of the project plans and specifications. Copies of this report may be provided to contractor(s), with contract documents, to disclose information relative to this project. The report, however, has not been prepared to serve as the plans and specifications for actual construction without the appropriate interpretation by the project architect, structural engineer, and/or civil engineer. Reproduction and distribution of this report must be authorized by the client and *Giles*.

This report has been based on assumed conditions/characteristics of the proposed development where specific information was not available. It is recommended that the architect, civil engineer and structural engineer along with any other design professionals involved in this project carefully review these assumptions to ensure they are consistent with the actual planned development. When discrepancies exist, they should be brought to our attention to ensure they do not affect the conclusions and recommendations provided herein. The project plans and specifications may also be submitted to *Giles* for review to ensure that the geotechnical related conclusions and recommendations provided herein have been correctly interpreted.

The analysis of this site was based on a subsoil profile interpolated from a limited subsurface exploration. If the actual conditions encountered during construction vary from those indicated by the borings, *Giles* must be contacted immediately to determine if the conditions alter the recommendations contained herein.

The conclusions and recommendations presented in this report have been promulgated in accordance with generally accepted professional engineering practices in the field of geotechnical engineering. No other warranty is either expressed or implied.

GUIDE SPECIFICATIONS FOR SUBGRADE AND GRADE PREPARATION FOR FILL, FOUNDATION, FLOOR SLAB AND PAVEMENT SUPPORT; AND SELECTION, PLACEMENT AND COMPACTION OF FILL SOILS USING STANDARD PROCTOR PROCEDURES

1. Construction monitoring and testing of subgrades and grades for fill, foundation, floor slab and pavement; and fill selection, placement and compaction shall be performed by an experienced soils engineer and/or his representatives.

2. All compaction fill, subgrades and grades shall be (a) underlain by suitable bearing material; (b) free of all organic, frozen, or other deleterious material, and (c) observed, tested and approved by qualified engineering personnel representing an experienced soils engineer. Preparation of subgrades after stripping vegetation, organic or other unsuitable materials shall consist of (a) proof-rolling to detect soil, wet yielding soils or other unstable materials that must be undercut, (b) scarifying top 6 to 8 inches, (c) moisture conditioning the soils as required, and (d) recompaction to same minimum in-situ density required for similar materials indicated under Item 5. Note: compaction requirements for pavement subgrade are higher than other areas. Weather and construction equipment may damage compacted fill surface and reworking and retesting may be necessary to assure proper performance.

3. In overexcavation and fill areas, the compacted fill must extend (a) a minimum 1 foot lateral distance beyond the exterior edge of the foundation at bearing grade or pavement subgrade and down to compacted fill subgrade on a maximum 0.5(H):1(V) slope, (b) 1 foot above footing grade outside the building, and (c) to floor subgrade inside the building. Fill shall be placed and compacted on a 5(H):1(V) slope or must be stepped or benched as required to flatten if not specifically approved by qualified personnel under the direction of an experienced soil engineer.

4. The compacted fill materials shall be free of deleterious, organic, or frozen matter, shall contain no chemicals that may result in the material being classified as "contaminated", and shall be low-expansive with a maximum Liquid Limit (ASTM D-423) and Plasticity Index (ASTM D-424) of 30 and 15, respectively, unless specifically tested and found to have low expansive properties and approved by an experienced soils engineer. The top 12 inches of compacted fill should have a maximum 3-inch-particle diameter and all underlying compacted fill a maximum 6-inch-diameter unless specifically approved by an experienced soils engineer. All fill materials must be tested and approved under the direction of an experienced soils engineer prior to placement. If the fill is to provide non-frost susceptible characteristics, it must be classified as a clean GW, GP, SW or SP per the Unified Soil Classification System (ASTM D-2487).

5. For structural fill depths less than 20 feet, the density of the structural compacted fill and scarified subgrade and grades shall not be less than 95 percent of the maximum dry density as determined by Standard Proctor (ASTM-698) with the exception of the top 12 inches of pavement subgrade which shall have a minimum in-situ density of 100 percent of maximum dry density, or 5 percent higher than underlying fill materials. Where the structural fill depth is greater than 20 feet, the portions below 20 feet should have a minimum in-place density of 100 percent of its maximum dry density of 5 percent greater than the top 20 feet. The moisture content of cohesive soil shall not vary by more than -1 to +3 percent and granular soil ±3 percent of the optimum when placed and compacted or recompacted, unless specifically recommended/approved by the soils engineer monitoring the placement and compaction. Cohesive soils with moderate to high expansion potentials (PI>15) should, however, be placed, compacted and maintained prior to construction at a moisture content 3±1 percent above optimum moisture content to limit further heave. The fill shall be placed in layers with a maximum loose thickness of 8 inches for foundations and 10 inches for floor slabs and pavement, unless specifically approved by the soils engineer taking into consideration the type of materials and compaction equipment being used. The compaction equipment should consist of suitable mechanical equipment specifically designed for soil compaction. Bulldozers or similar tracked vehicles are typically not suitable for compaction.

6. Excavation, filling, subgrade and grade preparation shall be performed in a manner and sequence that will provide drainage at all times and proper control of erosion. Precipitation, springs and seepage water encountered shall be pumped or drained to provide a suitable working platform. Springs or water seepage encountered during grading/foundation construction must be called to the soil engineer's attention immediately for possible construction procedure revision or inclusion of an underdrain system.

7. Non-structural fill adjacent to structural fill should typically be placed in unison to provide lateral support. Backfill along walls must be placed and compacted with care to ensure excessive unbalanced lateral pressures do not develop. The type of fill material placed adjacent to below-grade walls (i.e. basement walls and retaining walls) must be properly tested and approved by an experienced soils engineer with consideration for the lateral pressure used in the wall design.

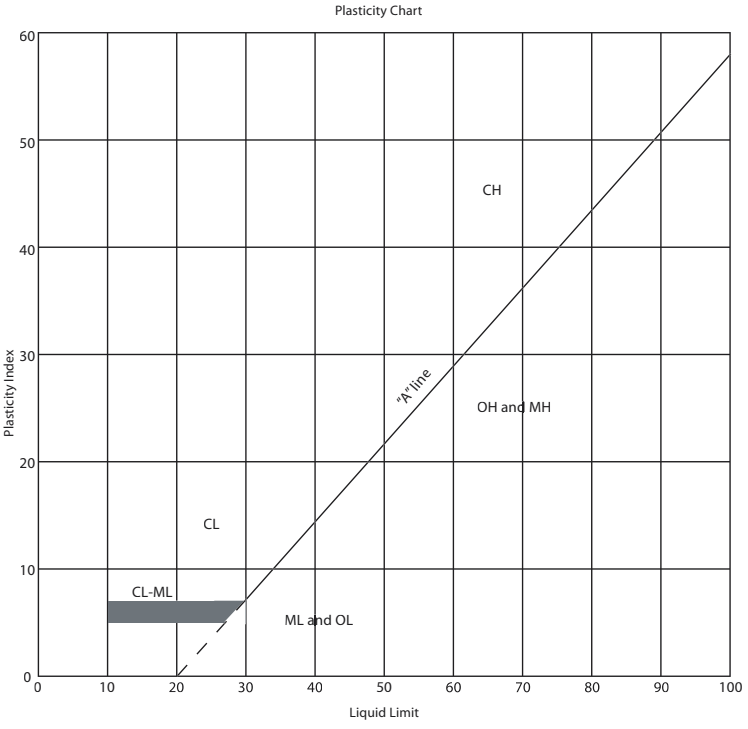
8. Whenever, in the opinion of the soils engineer or the Owner's Representatives, an unstable condition is being created either by cutting or filling, the work shall not proceed into that area until an appropriate geotechnical exploration and analysis has been performed and the grading plan revised, if found necessary.

CHARACTERISTICS AND RATINGS OF UNIFIED SOIL SYSTEM CLASSES FOR SOIL CONSTRUCTION *									
Class	**Compaction Characteristics**	**Max. Dry Density Standard Proctor (pcf)**	**Compressibility and Expansion**	**Drainage and Permeability**	**Value as an Embankment Material**	**Value as Subgrade When Not Subject to Frost**	**Value as Base Course**	**Value as Temporary Pavement**	
								With Dust Palliative	**With Bituminous Treatment**
GW	Good: tractor, rubber-tired, steel wheel or vibratory roller	125-135	Almost none	Good drainage, pervious	Very stable	Excellent	Good	Fair to poor	Excellent
GP	Good: tractor, rubber-tired, steel wheel or vibratory roller	115-125	Almost none	Good drainage, pervious	Reasonably stable	Excellent to good	Poor to fair	Poor	
GM	Good: rubber-tired or light sheepsfoot roller	120-135	Slight	Poor drainage, semipervious	Reasonably stable	Excellent to good	Fair to poor	Poor	Poor to fair
GC	Good to fair: rubber-tired or sheepsfoot roller	115-130	Slight	Poor drainage, impervious	Reasonably stable	Good	Good to fair **	Excellent	Excellent
SW	Good: tractor, rubber-tired or vibratory roller	110-130	Almost none	Good drainage, pervious	Very stable	Good	Fair to poor	Fair to poor	Good
SP	Good: tractor, rubber-tired or vibratory roller	100-120	Almost none	Good drainage, pervious	Reasonably stable when dense	Good to fair	Poor	Poor	Poor to fair
SM	Good: rubber-tired or sheepsfoot roller	110-125	Slight	Poor drainage, impervious	Reasonably stable when dense	Good to fair	Poor	Poor	Poor to fair
SC	Good to fair: rubber-tired or sheepsfoot roller	105-125	Slight to medium	Poor drainage, impervious	Reasonably stable	Good to fair	Fair to poor	Excellent	Excellent
ML	Good to poor: rubber-tired or sheepsfoot roller	95-120	Slight to medium	Poor drainage, impervious	Poor stability, high density required	Fair to poor	Not suitable	Poor	Poor
CL	Good to fair: sheepsfoot or rubber-tired roller	95-120	Medium	No drainage, impervious	Good stability	Fair to poor	Not suitable	Poor	Poor
OL	Fair to poor: sheepsfoot or rubber-tired roller	80-100	Medium to high	Poor drainage, impervious	Unstable, should not be used	Poor	Not suitable	Not suitable	Not suitable
MH	Fair to poor: sheepsfoot or rubber-tired roller	70-95	High	Poor drainage, impervious	Poor stability, should not be used	Poor	Not suitable	Very poor	Not suitable
CH	Fair to poor: sheepsfoot roller	80-105	Very high	No drainage, impervious	Fair stability, may soften on expansion	Poor to very poor	Not suitable	Very poor	Not suitable
OH	Fair to poor: sheepsfoot roller	65-100	High	No drainage, impervious	Unstable, should not be used	Very poor	Not suitable	Not suitable	Not suitable
Pt	Not suitable		Very high	Fair to poor drainage	Should not be used	Not suitable	Not suitable	Not suitable	Not suitable

* "The Unified Classification: Appendix A - Characteristics of Soil, Groups Pertaining to Roads and Airfields, and Appendix B - Characteristics of Soil Groups Pertaining to Embankments and Foundations," Technical Memorandum 357, U.S. Waterways Ixperiment Station, Vicksburg, 1953.

** Not suitable if subject to frost.

UNIFIED SOIL CLASSIFICATION SYSTEM (ASTM D-2487)

Major Divisions			Group Symbols		Typical Names	Laboratory Classification Criteria	
Coarse-grained soils (more than half of material is larger than No. 200 sieve size)	Gravels (More than half of coarse fraction is larger than No. 4 sieve size)	Clean gravels (little or no fines)	GW		Well-graded gravels, gravel-sand mixtures, little or no fines	Determine percentages of sand and gravel from grain-size curve. Depending on percentage of fines (fraction smaller than No. 200 sieve size), coarse-grained soils are classified as follows: Less than 5 percent: GW, GP, SW, SP. More than 12 percent: GM, GC, SM, SC. 5 to 12 percent: *Borderline* cases requiring dual symbols[b]	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3
			GP		Poorly graded gravels, gravel-sand mixtrues, little or no fines		Not meeting all gradation requirements for GW
		Gravels with fines (appreciable amount of fines)	GM[a]	d	Silty gravels, gravel-sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Limits plotting within shaded area, above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
				u			
			GC		Clayey gravels, gravel-sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7	
	Sands (More than half of coarse fraction is smaller than No. 4 sieve size)	Clean sands (Little or no fines)	SW		Well-graded sands, gravelly sands, little or no fines	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{(D_{30})^2}{D_{10} \times D_{60}}$ between 1 and 3	
			SP		Poorly graded sands, gravelly sands, little or no fines		Not meeting all gradation requirements for SW
		Sands with fines (Appreciable amount of fines)	SM[a]	d	Silty sands, sand-silt mixtures	Atterberg limits below "A" line or P.I. less than 4	Limits plotting within shaded area, above "A" line with P.I. between 4 and 7 are *borderline* cases requiring use of dual symbols
				u			
			SC		Clayey sands, sand-clay mixtures	Atterberg limits above "A" line or P.I. greater than 7	
Fine-grained soils (More than half material is smaller than No. 200 sieve size)	Silts and clays (Liquid limit less than 50)		ML		Inorganic silts and very fine sands, rock flour, silty or clayey fine sands, or clayey silts with slight plasticity		
			CL		Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays		
			OL		Organic silts and organic silty clays of low plasticity		
	Silts and clays (Liquid limit greater than 50)		MH		Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts		
			CH		Inorganic clays of high plasticity, fat clays		
			OH		Organic clays of medium to high plasticity, organic silts		
	Highly organic soils		Pt		Peat and other highly organic soils		

[a] Division of GM and SM groups into subdivisions of d and u are for roads and airfields only. Subdivision is based on Atterberg limits, suffix d used when L.L. is 28 or less and the P.I. is 6 or less; the suffix u is used when L.L. is greater than 28.

[b] Borderline classifications, used for soils possessing characteristics of two groups, are designated by combinations of group sympols. For example GW-GC, well-graded gravel-sand mixture with clay binder.

GENERAL NOTES

SAMPLE IDENTIFICATION

All samples are visually classified in general accordance with the Unified Soil Classification System (ASTM D-2487-75 or D-2488-75)

DESCRIPTIVE TERM (% BY DRY WEIGHT)

Trace:	1-10%
Little:	11-20%
Some:	21-35%
And/Adjective	36-50%

PARTICLE SIZE (DIAMETER)

Boulders:	8 inch and larger
Cobbles:	3 inch to 8 inch
Gravel:	coarse - ¾ to 3 inch
	fine – No. 4 (4.76 mm) to ¾ inch
Sand:	coarse – No. 4 (4.76 mm) to No. 10 (2.0 mm)
	medium – No. 10 (2.0 mm) to No. 40 (0.42 mm)
	fine – No. 40 (0.42 mm) to No. 200 (0.074 mm)
Silt:	No. 200 (0.074 mm) and smaller (non-plastic)
Clay:	No 200 (0.074 mm) and smaller (plastic)

SOIL PROPERTY SYMBOLS

Dd:	Dry Density (pcf)
LL:	Liquid Limit, percent
PL:	Plastic Limit, percent
PI:	Plasticity Index (LL-PL)
LOI:	Loss on Ignition, percent
Gs:	Specific Gravity
K:	Coefficient of Permeability
w:	Moisture content, percent
qp:	Calibrated Penetrometer Resistance, tsf
qs:	Vane-Shear Strength, tsf
qu:	Unconfined Compressive Strength, tsf
qc:	Static Cone Penetrometer Resistance (correlated to Unconfined Compressive Strength, tsf)
PID:	Results of vapor analysis conducted on representative samples utilizing a Photoionization Detector calibrated to a benzene standard. Results expressed in HNU-Units. (BDL=Below Detection Limit)

DRILLING AND SAMPLING SYMBOLS

SS:	Split-Spoon
ST:	Shelby Tube – 3 inch O.D. (except where noted)
CS:	3 inch O.D. California Ring Sampler
DC:	Dynamic Cone Penetrometer per ASTM Special Technical Publication No. 399
AU:	Auger Sample
DB:	Diamond Bit
CB:	Carbide Bit
WS:	Wash Sample
RB:	Rock-Roller Bit
BS:	Bulk Sample
Note:	Depth intervals for sampling shown on Record of Subsurface Exploration are not indicative of sample recovery, but position where sampling initiated

N: Penetration Resistance per 12 inch interval, or fraction thereof, for a standard 2 inch O.D. (1⅜ inch I.D.) split spoon sampler driven with a 140 pound weight free-falling 30 inches. Performed in general accordance with Standard Penetration Test Specifications (ASTM D-1586). N in blows per foot equals sum of N-Values where plus sign (+) is shown.

Nc: Penetration Resistance per 1¾ inches of Dynamic Cone Penetrometer. Approximately equivalent to Standard Penetration Test N-Value in blows per foot.

Nr: Penetration Resistance per 12 inch interval, or fraction thereof, for California Ring Sampler driven with a 140 pound weight free-falling 30 inches per ASTM D-3550. Not equivalent to Standard Penetration Test N-Value.

SOIL STRENGTH CHARACTERISTICS

COHESIVE (CLAYEY) SOILS

COMPARATIVE CONSISTENCY	BLOWS PER FOOT (N)	UNCONFINED COMPRESSIVE STRENGTH (TSF)
Very Soft	0 - 2	0 - 0.25
Soft	3 - 4	0.25 - 0.50
Medium Stiff	5 – 8	0.50 - 1.00
Stiff	9 – 15	1.00 - 2.00
Very Stiff	16 – 30	2.00 - 4.00
Hard	31+	4.00+

NON-COHESIVE (GRANULAR) SOILS

RELATIVE DENSITY	BLOWS PER FOOT (N)
Very Loose	0 - 4
Loose	5 - 10
Firm	11 - 30
Dense	31 - 50
Very Dense	51+

DEGREE OF PLASTICITY	PI	DEGREE OF EXPANSIVE POTENTIAL	PI
None to Slight	0 - 4	Low	0 - 15
Slight	5 - 10	Medium	15 - 25
Medium	11 - 30	High	25+
High to Very High	31+		

Important Information About Your Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
The Best People on Earth

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

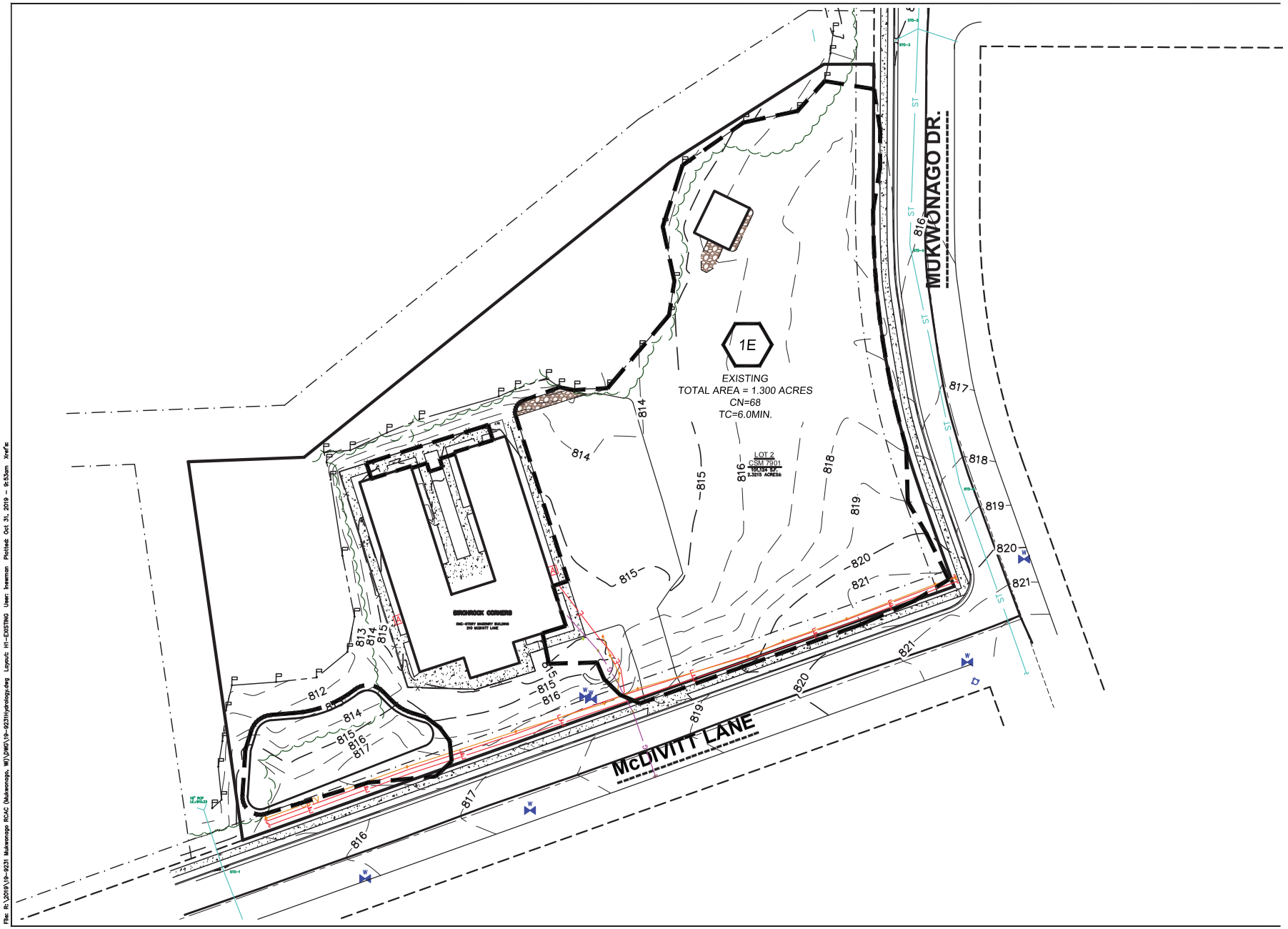
IIGER06045.0M


GILES
ENGINEERING ASSOCIATES, INC.
www.gilesengr.com

APPENDIX 3

EXISTING SITE HYDROLOGY

- Existing Conditions Hydrology Exhibit
- Existing Conditions HydroCAD Output



JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE
KENOSHA | APPLETON | WAUSAU

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
13050 WEST CLEVELAND AVE.
NEW BERLIN, WI 53151

PROJECT:
MUKWONAGO
CBRF BUILDING

PROJECT LOCATION:
CITY OF MUKWONAGO
WAUKESHA COUNTY, WI

PLAN MODIFICATIONS:

#	Date:	Description:

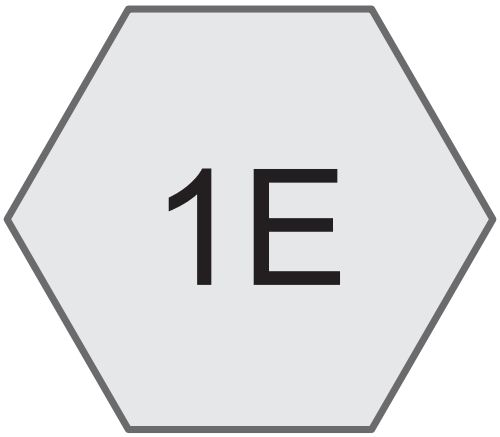
Design/Drawn: IRN
Approved: DSR

SHEET TITLE:
EXISTING HYDROLOGY

SHEET NUMBER:
H1.0

JSD PROJECT NO: 19-9231

File: R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\DWG\19-9231Hydrology.dwg Layout: H1-EXISTING User: hverman Plotted: Oct 31, 2019 - 9:53am XrefS:



EXISTING

Subcat Reach Pond Link

Routing Diagram for 19-9231 Mukwonago RCAC revised
Prepared by Microsoft, Printed 10/31/2019

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
1.055	61	>75% Grass cover, Good, HSG B (1E)
0.010	96	Gravel surface, HSG B (1E)
0.235	98	IMPERVIOUS (1E)

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=0.34"
Tc=6.0 min CN=68 Runoff=0.63 cfs 0.037 af

Summary for Subcatchment 1E: EXISTING

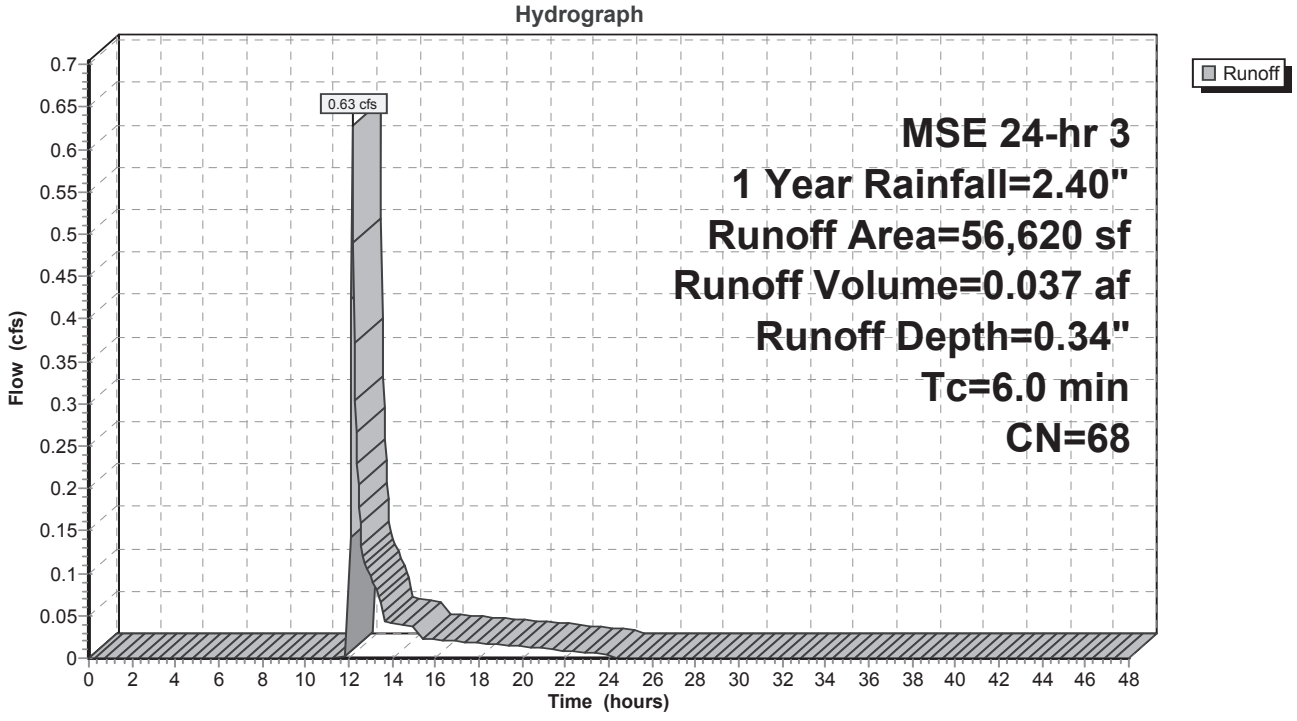
Runoff = 0.63 cfs @ 12.15 hrs, Volume= 0.037 af, Depth= 0.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

	Area (sf)	CN	Description
	45,945	61	>75% Grass cover, Good, HSG B
*	10,240	98	IMPERVIOUS
	435	96	Gravel surface, HSG B
	56,620	68	Weighted Average
	46,380		81.91% Pervious Area
	10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1E: EXISTING



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=0.48"
Tc=6.0 min CN=68 Runoff=0.96 cfs 0.052 af

Summary for Subcatchment 1E: EXISTING

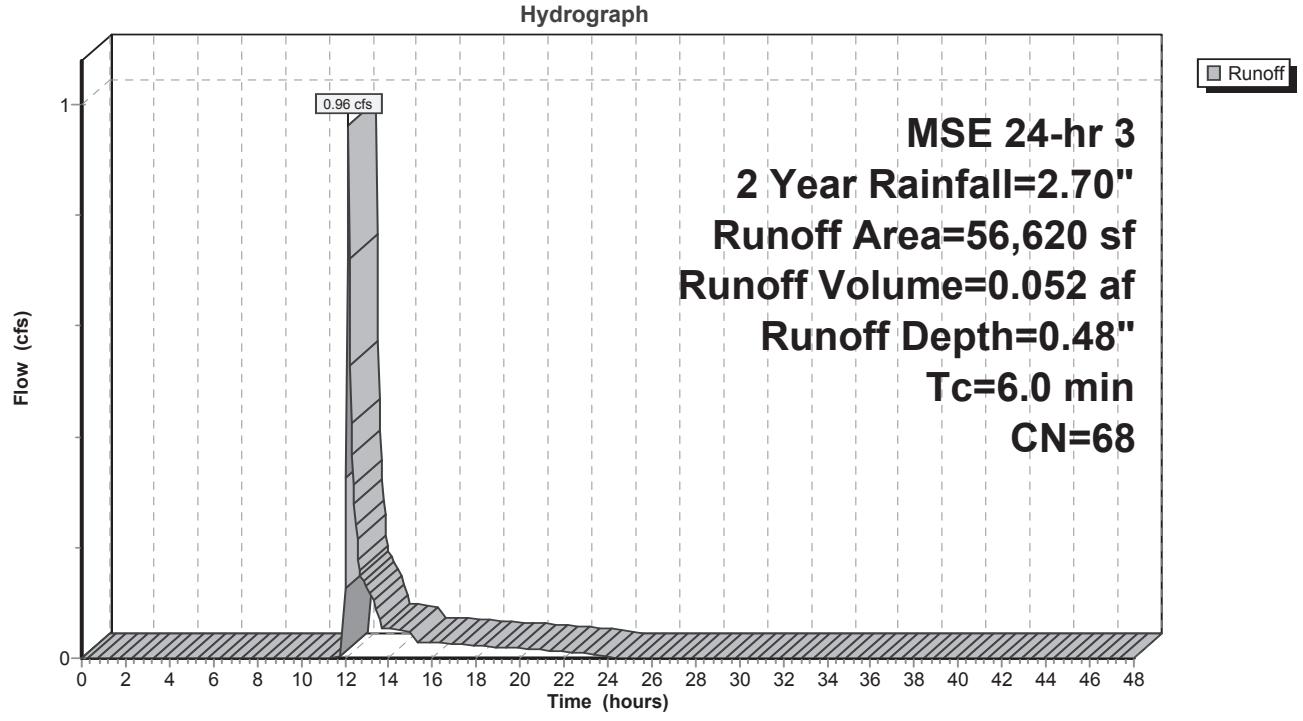
Runoff = 0.96 cfs @ 12.15 hrs, Volume= 0.052 af, Depth= 0.48"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

	Area (sf)	CN	Description
	45,945	61	>75% Grass cover, Good, HSG B
*	10,240	98	IMPERVIOUS
	435	96	Gravel surface, HSG B
	56,620	68	Weighted Average
	46,380		81.91% Pervious Area
	10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1E: EXISTING



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=1.08"
Tc=6.0 min CN=68 Runoff=2.46 cfs 0.117 af

Summary for Subcatchment 1E: EXISTING

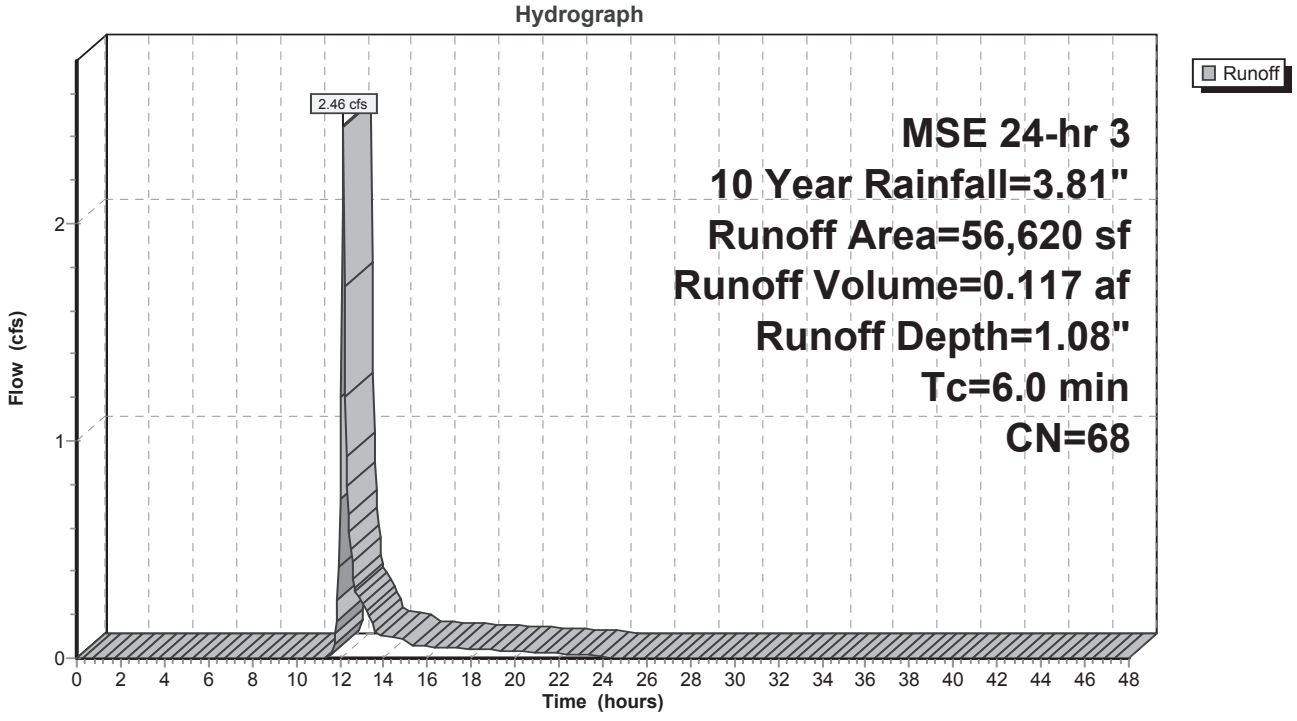
Runoff = 2.46 cfs @ 12.14 hrs, Volume= 0.117 af, Depth= 1.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

	Area (sf)	CN	Description
	45,945	61	>75% Grass cover, Good, HSG B
*	10,240	98	IMPERVIOUS
	435	96	Gravel surface, HSG B
	56,620	68	Weighted Average
	46,380		81.91% Pervious Area
	10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1E: EXISTING



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1E: EXISTING Runoff Area=56,620 sf 18.09% Impervious Runoff Depth=2.76"
Tc=6.0 min CN=68 Runoff=6.44 cfs 0.299 af

Summary for Subcatchment 1E: EXISTING

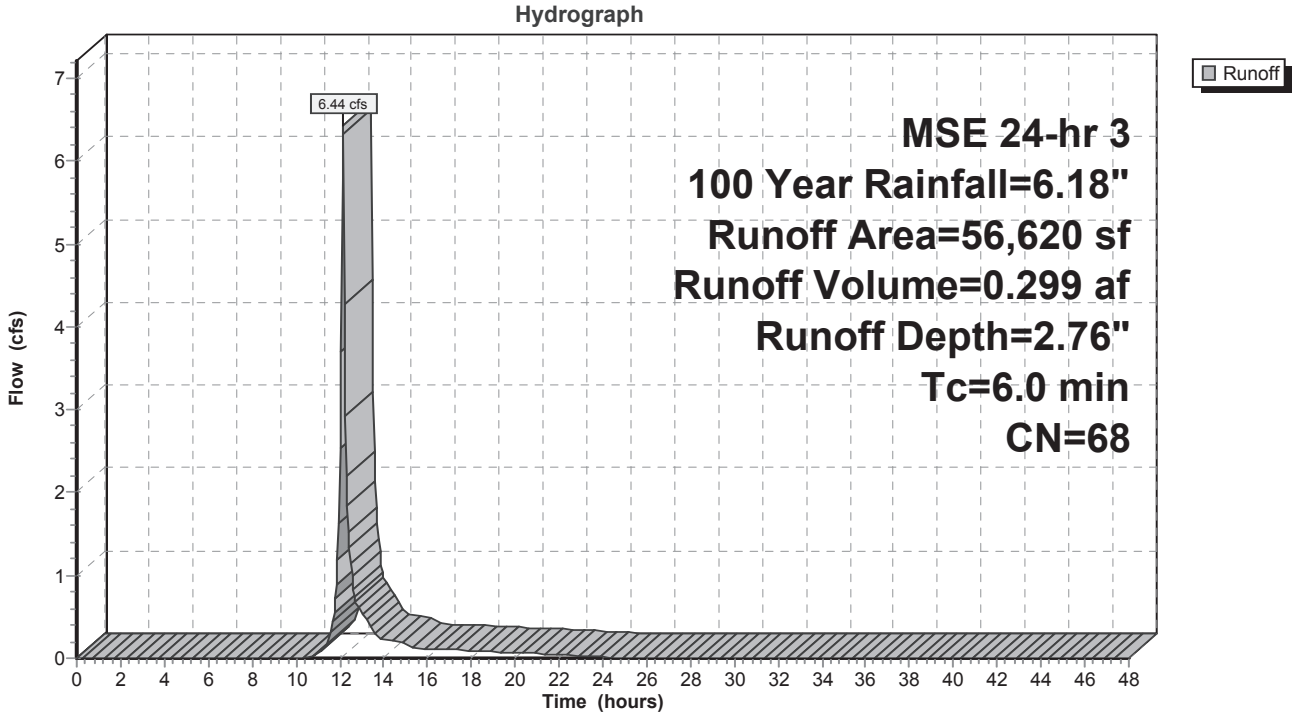
Runoff = 6.44 cfs @ 12.14 hrs, Volume= 0.299 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

	Area (sf)	CN	Description
	45,945	61	>75% Grass cover, Good, HSG B
*	10,240	98	IMPERVIOUS
	435	96	Gravel surface, HSG B
	56,620	68	Weighted Average
	46,380		81.91% Pervious Area
	10,240		18.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

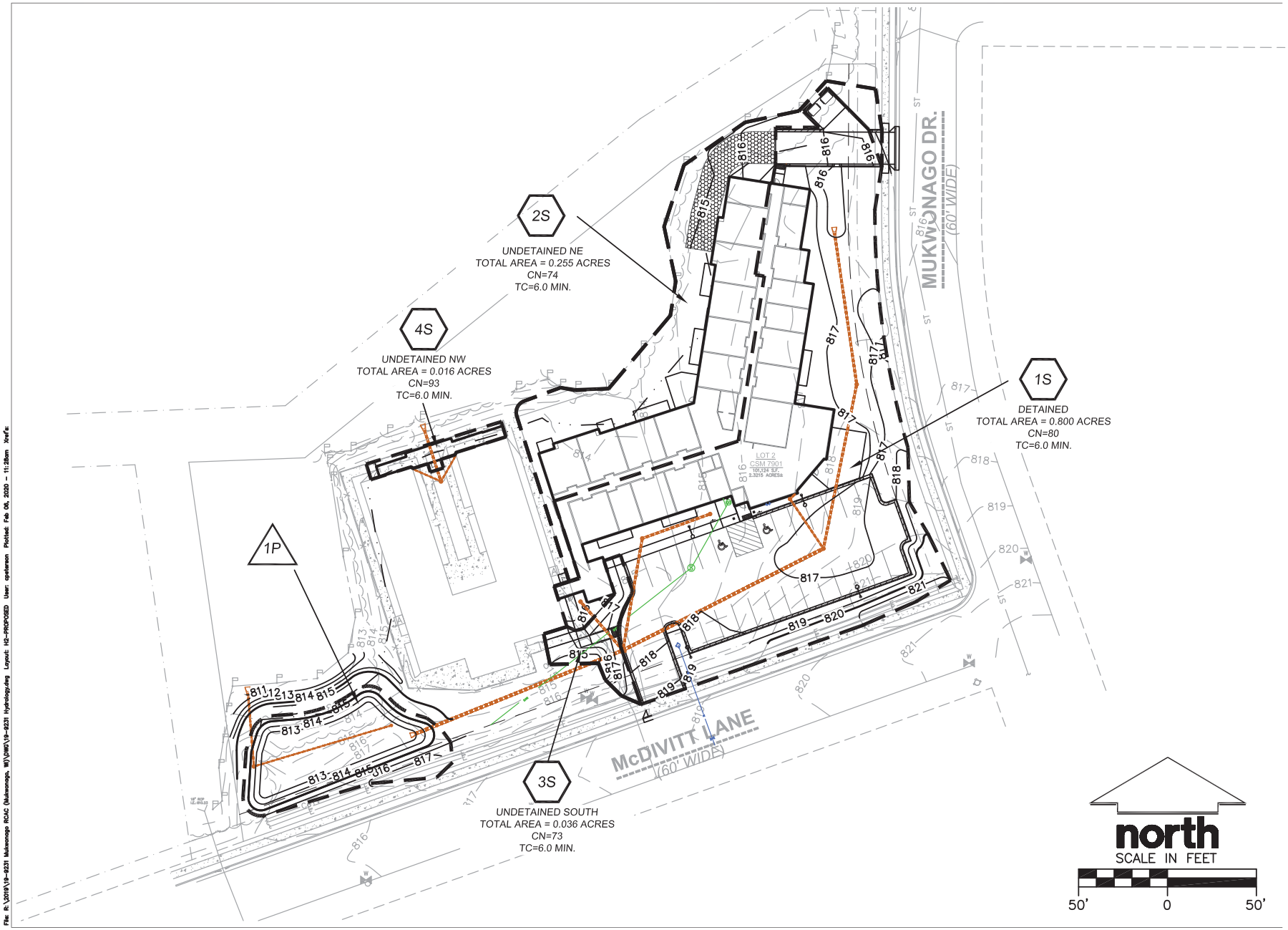
Subcatchment 1E: EXISTING



APPENDIX 4

PROPOSED SITE HYDROLOGY

- Proposed Conditions Hydrology Exhibit
- Proposed Conditions HydroCAD Output



File: R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\DWG\19-9231 Hydrology.dwg Layout: H2-PROPOSED User: cpeterson Plotted: Feb 06, 2020 - 11:28am Xref's:

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE
KENOSHA | APPLETON | WAUSAU

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LN
MUKWONAGO, WI 53149

PROJECT:
MUKWONAGO
CBRF BUILDING

PROJECT LOCATION:
CITY OF MUKWONAGO
WAUKESHA COUNTY, WI

PLAN MODIFICATIONS:

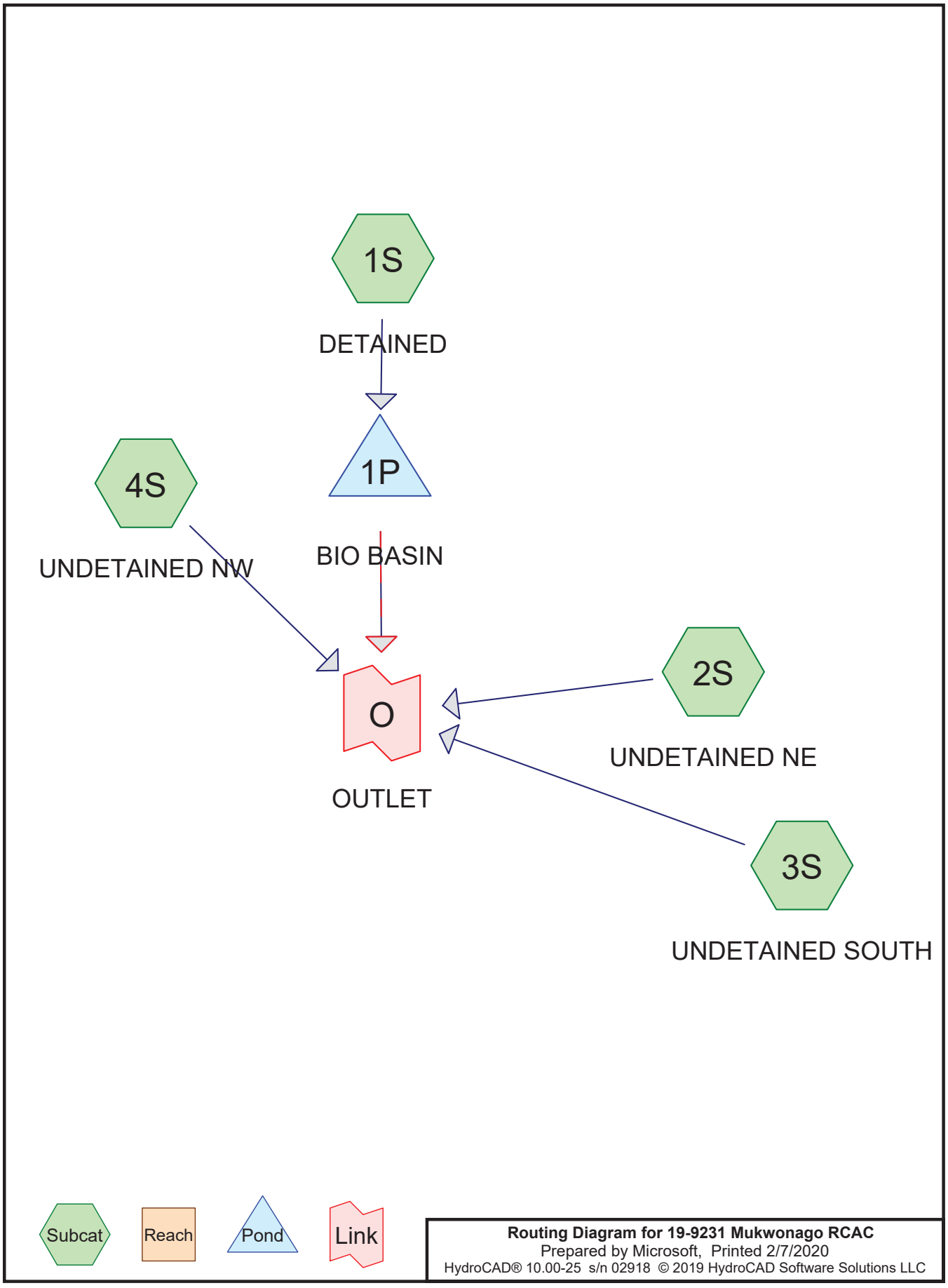
#	Date:	Description:
1	02/06/2020	Rev. per Village Comments

Design/Drawn: IRN
Approved: DSR

SHEET TITLE:
PROPOSED HYDROLOGY

SHEET NUMBER:
H2.0

JSD PROJECT NO: 19-9231


1S
DETAINED
1P
BIO BASIN
4S
UNDETAINED NW
O
OUTLET
2S
UNDETAINED NE
3S
UNDETAINED SOUTH
Subcat
Reach
Pond
Link
Routing Diagram for 19-9231 Mukwonago RCAC
Prepared by Microsoft, Printed 2/7/2020
HydroCAD® 10.00-25 s/n 02918 © 2019 HydroCAD Software Solutions LLC

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.592	61	>75% Grass cover, Good, HSG B (1S, 2S, 3S, 4S)
0.041	98	DRIVEWAY (1S, 2S)
0.260	98	PARKING (1S)
0.011	98	ROOF (4S)
0.151	98	Roof (2S)
0.034	98	SIDEWALK (1S, 2S, 3S, 4S)
0.211	98	Unconnected roofs, HSG C (1S)
1.300	**81**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.592	HSG B	1S, 2S, 3S, 4S
0.211	HSG C	1S
0.000	HSG D	
0.497	Other	1S, 2S, 3S, 4S
1.300		**TOTAL AREA**

Ground Covers (selected nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.592	0.000	0.000	0.000	0.592	>75% Grass cover, Good	1S, 2S, 3S, 4S
0.000	0.000	0.000	0.000	0.041	0.041	DRIVEWAY	1S, 2S
0.000	0.000	0.000	0.000	0.260	0.260	PARKING	1S
0.000	0.000	0.000	0.000	0.011	0.011	ROOF	4S
0.000	0.000	0.000	0.000	0.151	0.151	Roof	2S
0.000	0.000	0.000	0.000	0.034	0.034	SIDEWALK	1S, 2S, 3S, 4S
0.000	0.000	0.211	0.000	0.000	0.211	Unconnected roofs	1S
0.000	**0.592**	**0.211**	**0.000**	**0.497**	**1.300**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Diam/Width (inches)	Height (inches)	Inside-Fill (inches)
1	1P	811.00	810.83	41.4	0.0041	0.010	8.0	0.0	0.0
2	1P	811.43	811.00	86.0	0.0050	0.100	6.0	0.0	0.0

Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: DETAINED Runoff Area=39,775 sf 56.49% Impervious Runoff Depth=0.92"
Tc=6.0 min CN=82 Runoff=1.51 cfs 0.070 af

Subcatchment 2S: UNDETAINED NE Runoff Area=14,560 sf 49.79% Impervious Runoff Depth=0.79"
Tc=6.0 min CN=79 Runoff=0.47 cfs 0.022 af

Subcatchment 3S: UNDETAINED SOUTH Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=0.51"
Tc=6.0 min CN=73 Runoff=0.03 cfs 0.002 af

Subcatchment 4S: UNDETAINED NW Runoff Area=715 sf 86.71% Impervious Runoff Depth=1.69"
Tc=6.0 min CN=93 Runoff=0.05 cfs 0.002 af

Pond 1P: BIO BASIN Peak Elev=813.13' Storage=1,619 cf Inflow=1.51 cfs 0.070 af
Discarded=0.01 cfs 0.017 af Primary=0.10 cfs 0.053 af Secondary=0.00 cfs 0.000 af Outflow=0.11 cfs 0.070 af

Link O: OUTLET Inflow=0.61 cfs 0.079 af
Primary=0.61 cfs 0.079 af

Total Runoff Area = 1.300 ac Runoff Volume = 0.096 af Average Runoff Depth = 0.89"
45.52% Pervious = 0.592 ac 54.48% Impervious = 0.708 ac

Summary for Subcatchment 1S: DETAINED

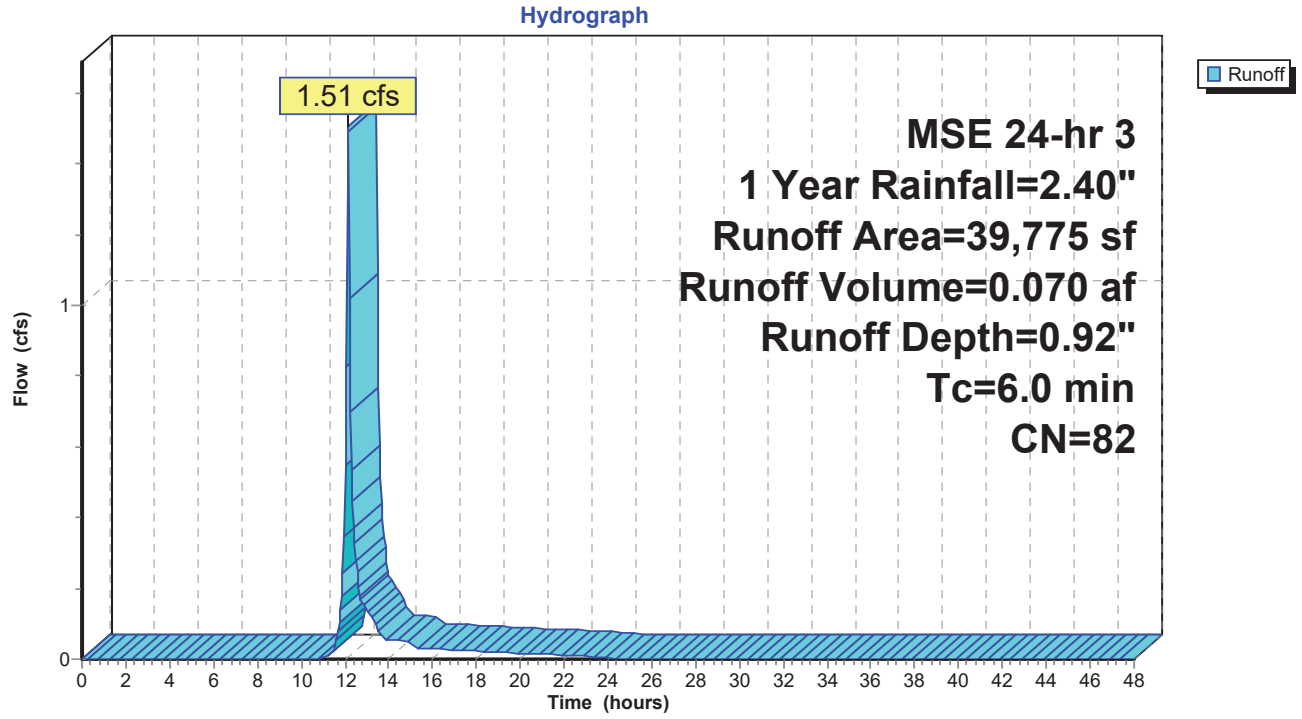
Runoff = 1.51 cfs @ 12.14 hrs, Volume= 0.070 af, Depth= 0.92"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	9,210	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	39,775	82	Weighted Average
	17,305		43.51% Pervious Area
	22,470		56.49% Impervious Area
	9,210		40.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: DETAINED



Summary for Subcatchment 2S: UNDETAINED NE

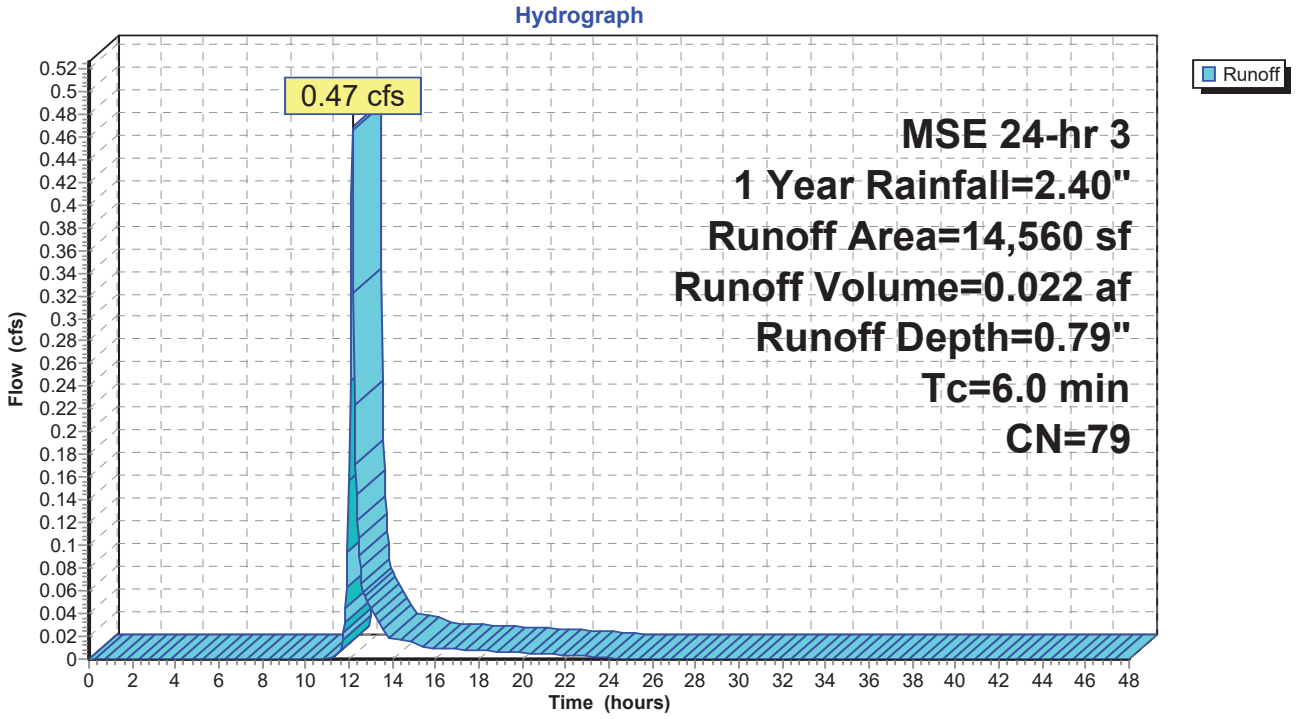
Runoff = 0.47 cfs @ 12.14 hrs, Volume= 0.022 af, Depth= 0.79"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

	Area (sf)	CN	Description
	5,975	61	>75% Grass cover, Good, HSG B
*	80	98	DRIVEWAY
*	610	98	SIDEWALK
	1,335	61	>75% Grass cover, Good, HSG B
*	6,560	98	Roof
	14,560	79	Weighted Average
	7,310		50.21% Pervious Area
	7,250		49.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: UNDETAINED NE



Summary for Subcatchment 3S: UNDETAINED SOUTH

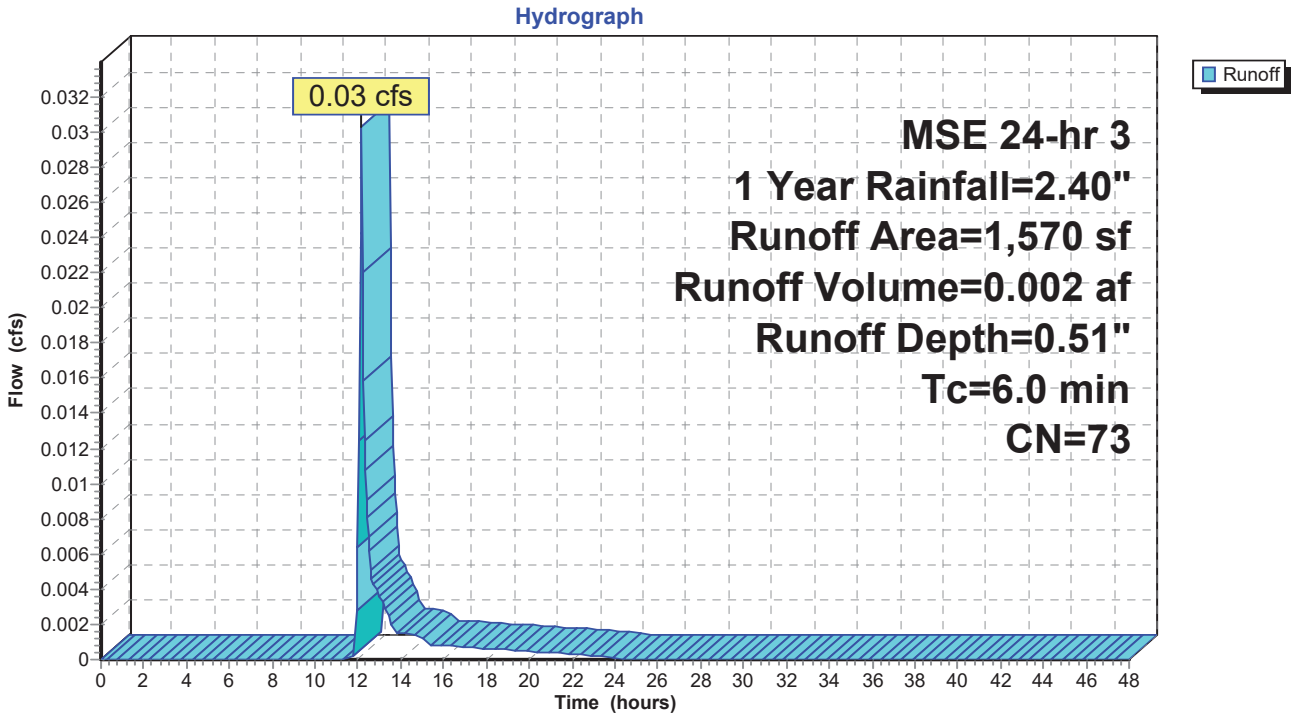
Runoff = 0.03 cfs @ 12.15 hrs, Volume= 0.002 af, Depth= 0.51"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

	Area (sf)	CN	Description
	1,065	61	>75% Grass cover, Good, HSG B
*	505	98	SIDEWALK
	1,570	73	Weighted Average
	1,065		67.83% Pervious Area
	505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: UNDETAINED SOUTH



Summary for Subcatchment 4S: UNDETAINED NW

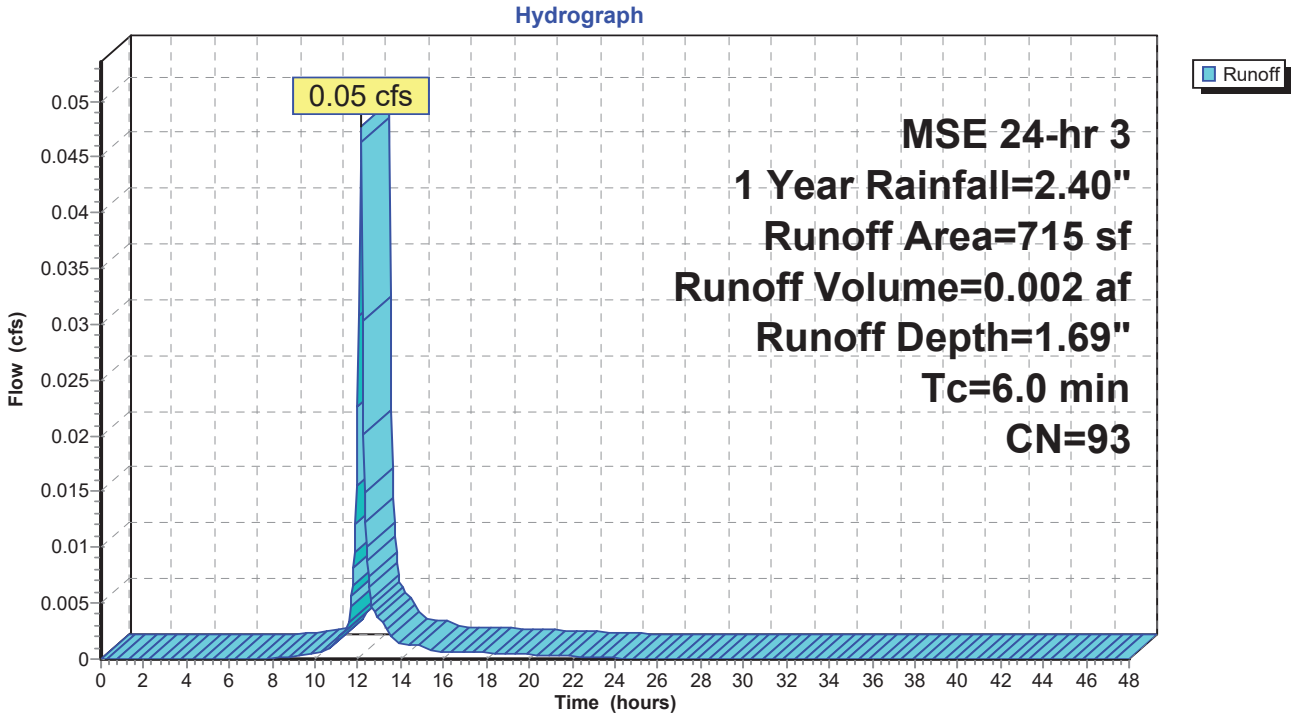
Runoff = 0.05 cfs @ 12.13 hrs, Volume= 0.002 af, Depth= 1.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1 Year Rainfall=2.40"

	Area (sf)	CN	Description
	95	61	>75% Grass cover, Good, HSG B
*	490	98	ROOF
*	130	98	SIDEWALK
	715	93	Weighted Average
	95		13.29% Pervious Area
	620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: UNDETAINED NW



Summary for Pond 1P: BIO BASIN

Inflow Area = 0.913 ac, 56.49% Impervious, Inflow Depth = 0.92" for 1 Year event
Inflow = 1.51 cfs @ 12.14 hrs, Volume= 0.070 af
Outflow = 0.11 cfs @ 13.31 hrs, Volume= 0.070 af, Atten= 93%, Lag= 70.3 min
Discarded = 0.01 cfs @ 13.31 hrs, Volume= 0.017 af
Primary = 0.10 cfs @ 13.31 hrs, Volume= 0.053 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 813.13' @ 13.31 hrs Surf.Area= 2,381 sf Storage= 1,619 cf

Plug-Flow detention time= 257.7 min calculated for 0.070 af (100% of inflow)
Center-of-Mass det. time= 257.6 min (1,078.2 - 820.7)

Volume	Invert	Avail.Storage	Storage Description
#1	811.00'	9,377 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
811.00	2,289	225.0	0.0	0	0	2,289
811.50	2,289	225.0	33.0	378	378	2,402
812.00	2,289	225.0	27.0	309	687	2,514
813.00	2,289	225.0	27.0	618	1,305	2,739
814.00	3,017	248.0	100.0	2,645	3,949	3,636
815.00	3,824	272.0	100.0	3,413	7,362	4,663
815.50	4,239	281.0	100.0	2,015	9,377	5,083

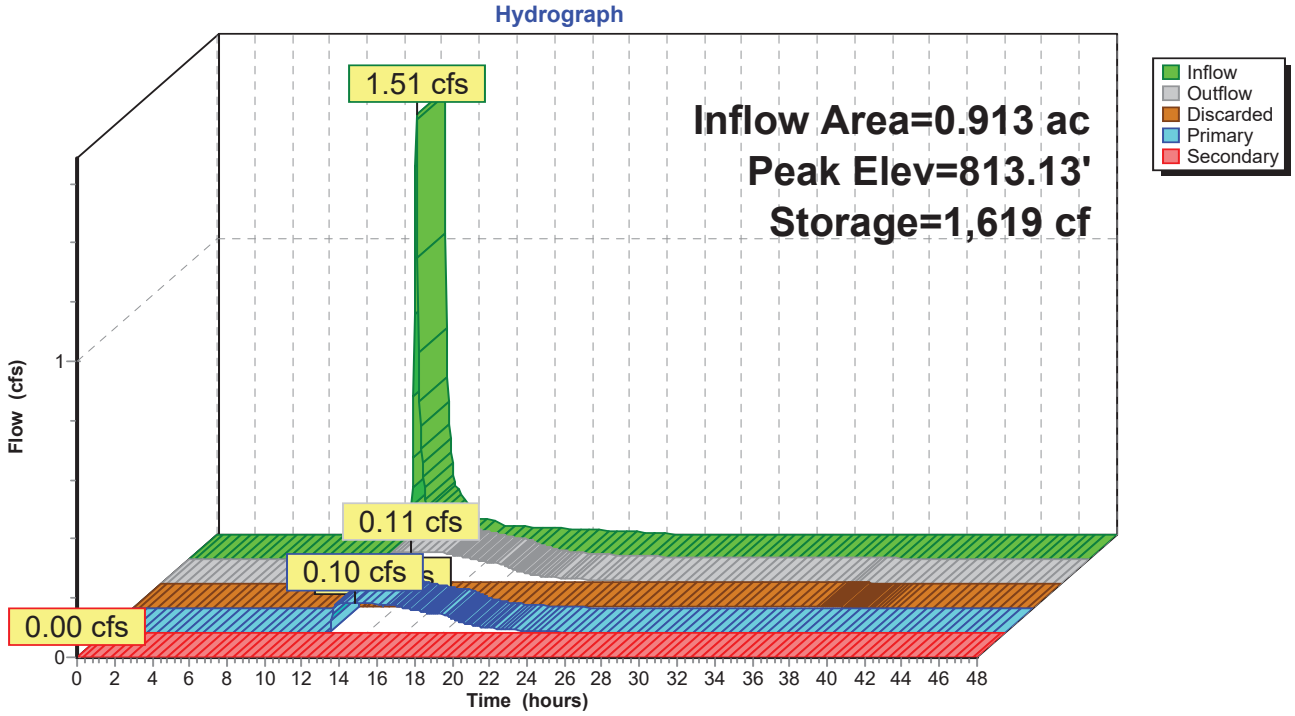
Device	Routing	Invert	Outlet Devices
#1	Discarded	811.00'	**0.150 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.00'	**8.0" Round Culvert** L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.00' / 810.83' S= 0.0041 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.43'	**6.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.43' / 811.00' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.00'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 800.00'
#5	Device 2	813.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#6	Device 2	814.70'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.80'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 13.31 hrs HW=813.13' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.10 cfs @ 13.31 hrs HW=813.13' (Free Discharge)
└**2=Culvert** (Passes 0.10 cfs of 1.78 cfs potential flow)
  └**3=Culvert** (Barrel Controls 0.10 cfs @ 0.51 fps)
    └**4=Exfiltration** (Passes 0.10 cfs of 0.24 cfs potential flow)
  └**5=Orifice/Grate** (Controls 0.00 cfs)
  └**6=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=811.00' (Free Discharge)
└**7=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: BIO BASIN

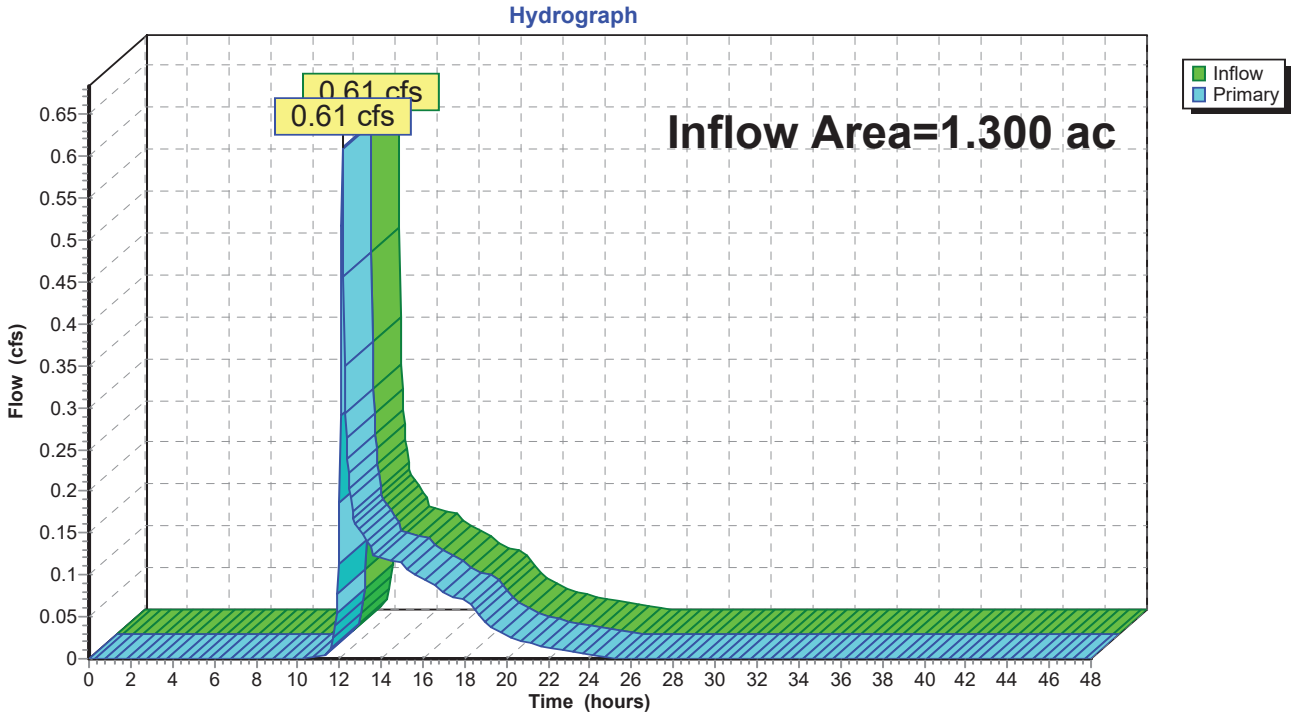


Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 0.72" for 1 Year event
Inflow = 0.61 cfs @ 12.14 hrs, Volume= 0.079 af
Primary = 0.61 cfs @ 12.14 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: DETAINED Runoff Area=39,775 sf 56.49% Impervious Runoff Depth=1.14"
Tc=6.0 min CN=82 Runoff=1.87 cfs 0.087 af

Subcatchment 2S: UNDETAINED NE Runoff Area=14,560 sf 49.79% Impervious Runoff Depth=1.00"
Tc=6.0 min CN=79 Runoff=0.60 cfs 0.028 af

Subcatchment 3S: UNDETAINED SOUTH Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=0.67"
Tc=6.0 min CN=73 Runoff=0.04 cfs 0.002 af

Subcatchment 4S: UNDETAINED NW Runoff Area=715 sf 86.71% Impervious Runoff Depth=1.98"
Tc=6.0 min CN=93 Runoff=0.06 cfs 0.003 af

Pond 1P: BIO BASIN Peak Elev=813.33' Storage=2,089 cf Inflow=1.87 cfs 0.087 af
Discarded=0.01 cfs 0.018 af Primary=0.13 cfs 0.069 af Secondary=0.00 cfs 0.000 af Outflow=0.13 cfs 0.087 af

Link O: OUTLET Inflow=0.77 cfs 0.101 af
Primary=0.77 cfs 0.101 af

Total Runoff Area = 1.300 ac Runoff Volume = 0.119 af Average Runoff Depth = 1.10"
45.52% Pervious = 0.592 ac 54.48% Impervious = 0.708 ac

Summary for Subcatchment 1S: DETAINED

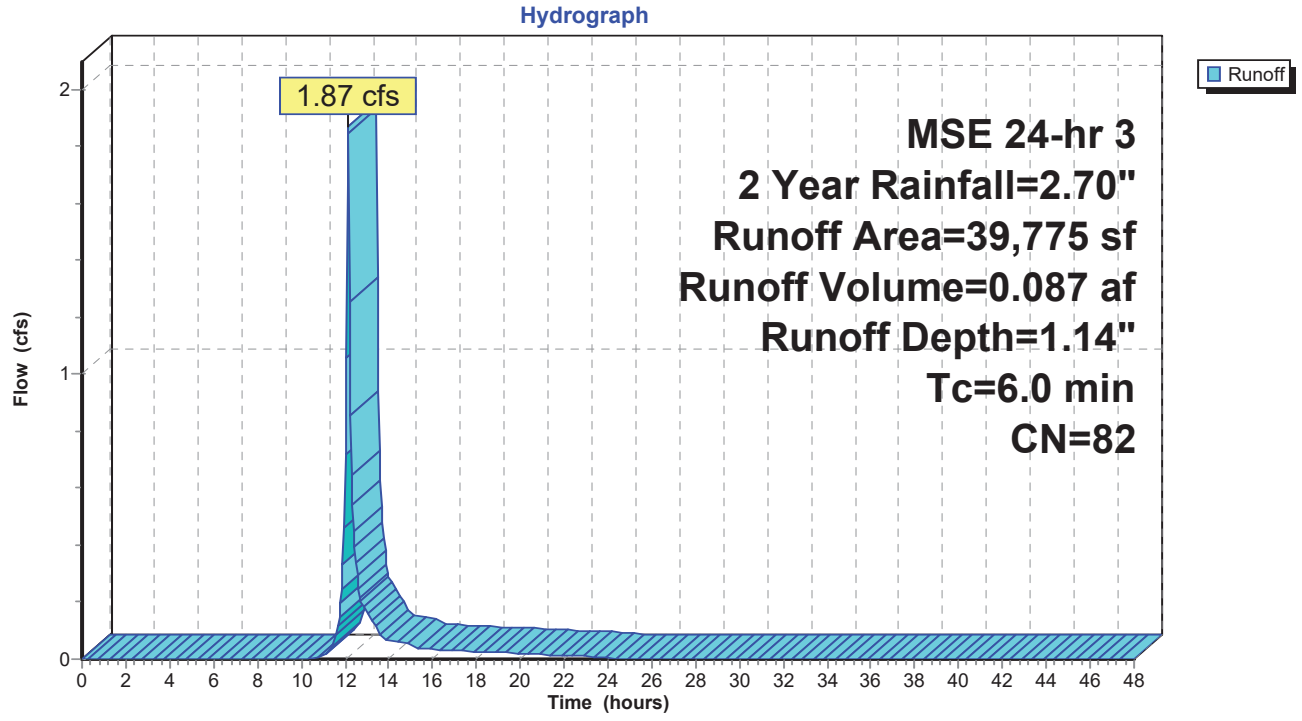
Runoff = 1.87 cfs @ 12.14 hrs, Volume= 0.087 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	9,210	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	39,775	82	Weighted Average
	17,305		43.51% Pervious Area
	22,470		56.49% Impervious Area
	9,210		40.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: DETAINED



Summary for Subcatchment 2S: UNDETAINED NE

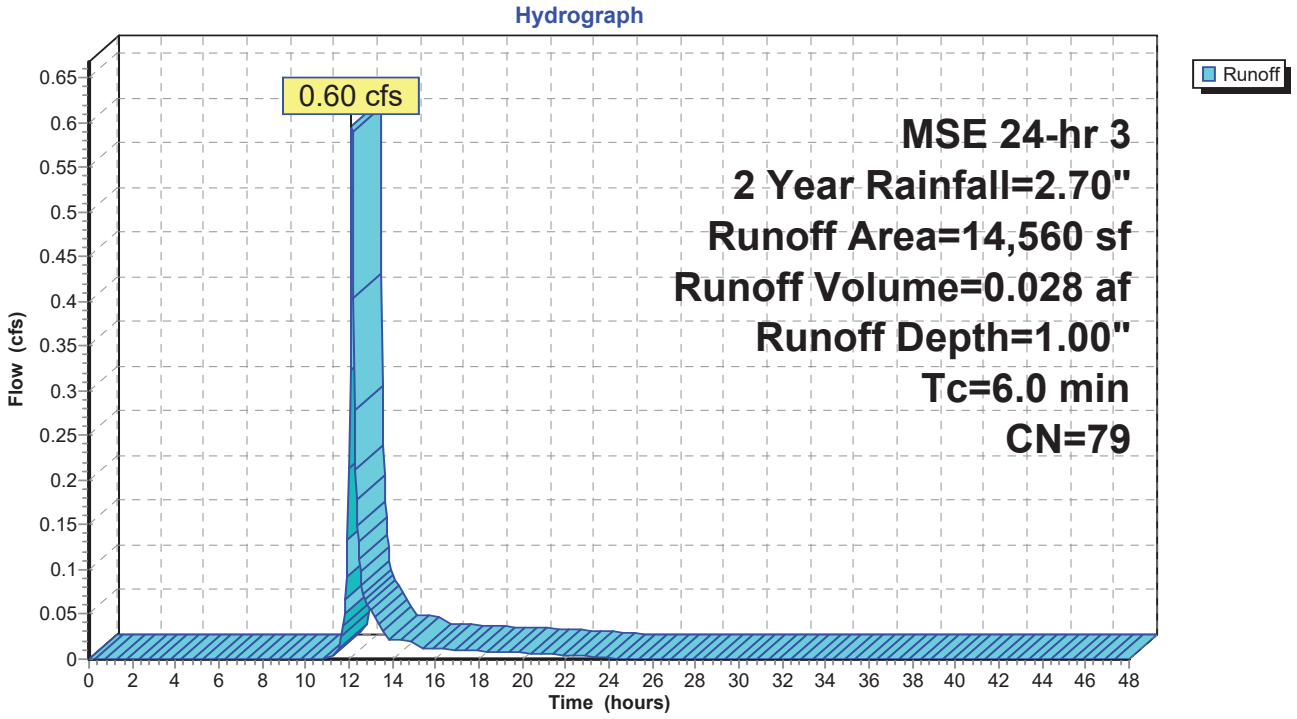
Runoff = 0.60 cfs @ 12.14 hrs, Volume= 0.028 af, Depth= 1.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

	Area (sf)	CN	Description
	5,975	61	>75% Grass cover, Good, HSG B
*	80	98	DRIVEWAY
*	610	98	SIDEWALK
	1,335	61	>75% Grass cover, Good, HSG B
*	6,560	98	Roof
	14,560	79	Weighted Average
	7,310		50.21% Pervious Area
	7,250		49.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: UNDETAINED NE



Summary for Subcatchment 3S: UNDETAINED SOUTH

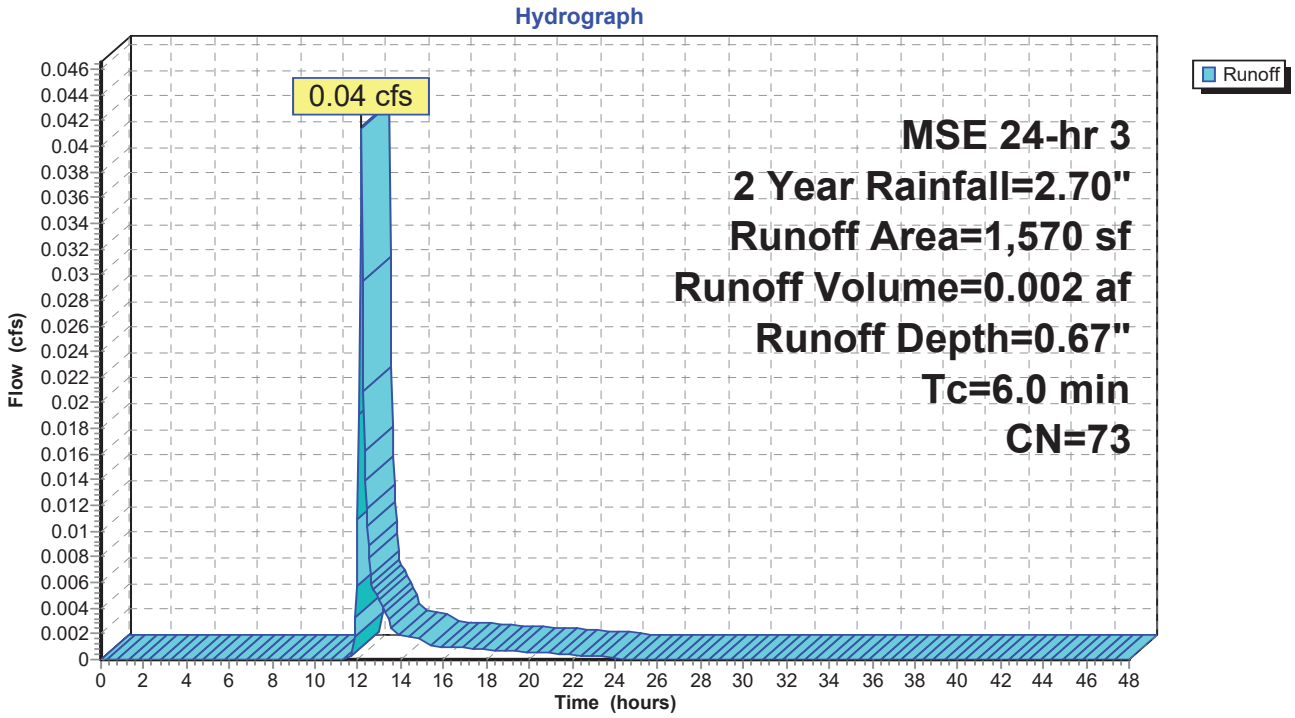
Runoff = 0.04 cfs @ 12.14 hrs, Volume= 0.002 af, Depth= 0.67"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

	Area (sf)	CN	Description
	1,065	61	>75% Grass cover, Good, HSG B
*	505	98	SIDEWALK
	1,570	73	Weighted Average
	1,065		67.83% Pervious Area
	505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: UNDETAINED SOUTH



Summary for Subcatchment 4S: UNDETAINED NW

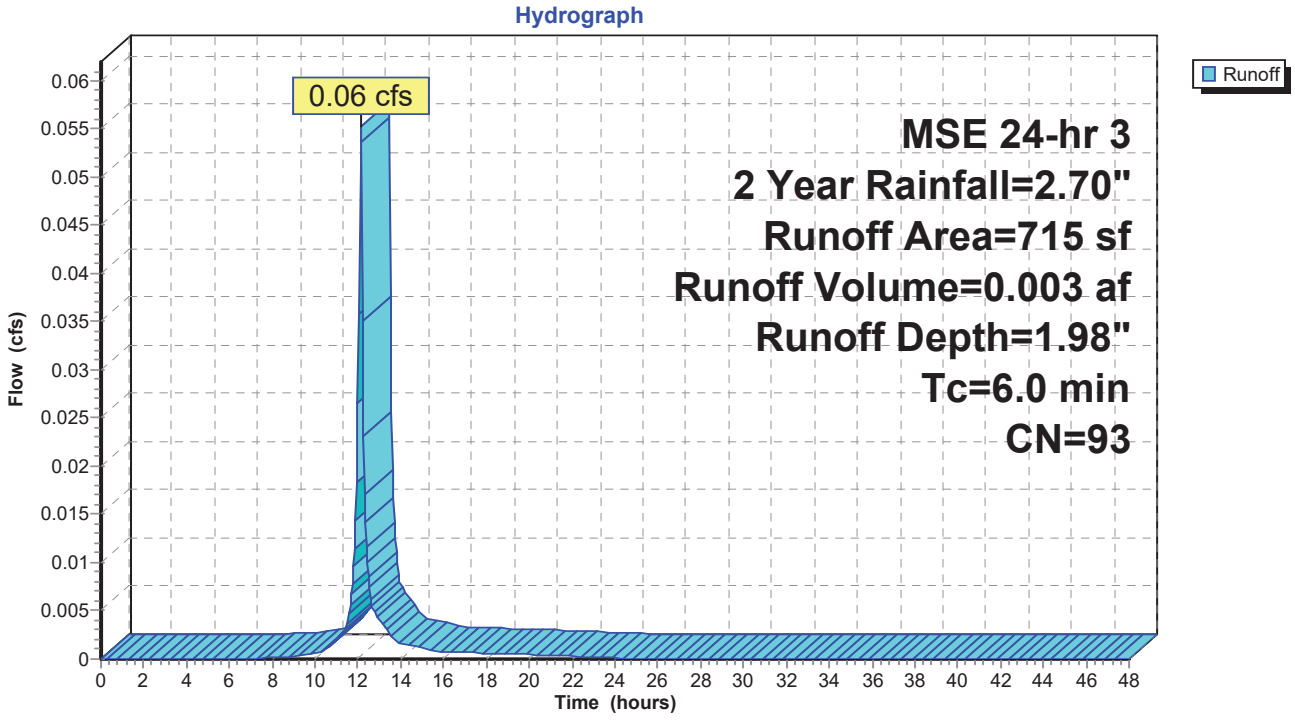
Runoff = 0.06 cfs @ 12.13 hrs, Volume= 0.003 af, Depth= 1.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2 Year Rainfall=2.70"

	Area (sf)	CN	Description
	95	61	>75% Grass cover, Good, HSG B
*	490	98	ROOF
*	130	98	SIDEWALK
	715	93	Weighted Average
	95		13.29% Pervious Area
	620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: UNDETAINED NW



Summary for Pond 1P: BIO BASIN

Inflow Area = 0.913 ac, 56.49% Impervious, Inflow Depth = 1.14" for 2 Year event
Inflow = 1.87 cfs @ 12.14 hrs, Volume= 0.087 af
Outflow = 0.13 cfs @ 13.28 hrs, Volume= 0.087 af, Atten= 93%, Lag= 68.5 min
Discarded = 0.01 cfs @ 13.28 hrs, Volume= 0.018 af
Primary = 0.13 cfs @ 13.28 hrs, Volume= 0.069 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 813.33' @ 13.28 hrs Surf.Area= 2,516 sf Storage= 2,089 cf

Plug-Flow detention time= 263.2 min calculated for 0.087 af (100% of inflow)
Center-of-Mass det. time= 263.0 min (1,079.0 - 816.0)

Volume	Invert	Avail.Storage	Storage Description
#1	811.00'	9,377 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
811.00	2,289	225.0	0.0	0	0	2,289
811.50	2,289	225.0	33.0	378	378	2,402
812.00	2,289	225.0	27.0	309	687	2,514
813.00	2,289	225.0	27.0	618	1,305	2,739
814.00	3,017	248.0	100.0	2,645	3,949	3,636
815.00	3,824	272.0	100.0	3,413	7,362	4,663
815.50	4,239	281.0	100.0	2,015	9,377	5,083

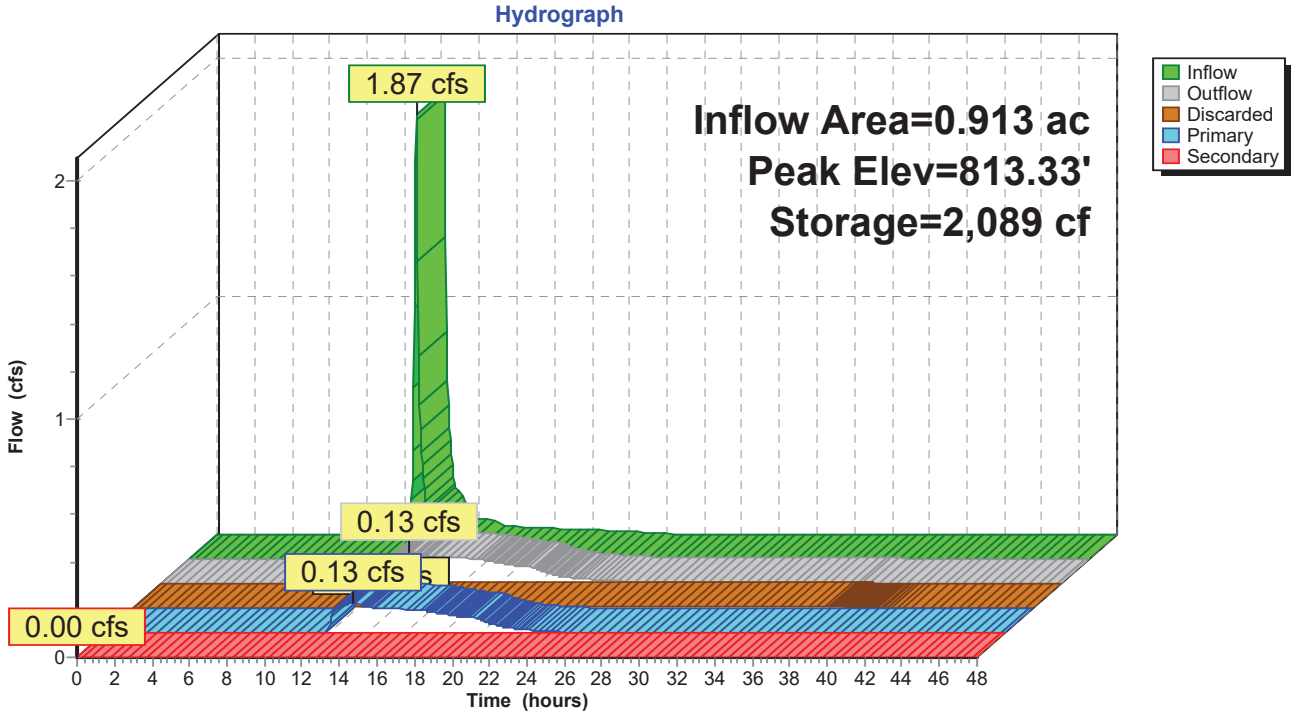
Device	Routing	Invert	Outlet Devices
#1	Discarded	811.00'	**0.150 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.00'	**8.0" Round Culvert** L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.00' / 810.83' S= 0.0041 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.43'	**6.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.43' / 811.00' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.00'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 800.00'
#5	Device 2	813.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#6	Device 2	814.70'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.80'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 13.28 hrs HW=813.33' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.12 cfs @ 13.28 hrs HW=813.33' (Free Discharge)
└**2=Culvert** (Passes 0.12 cfs of 1.87 cfs potential flow)
  └**3=Culvert** (Barrel Controls 0.11 cfs @ 0.54 fps)
    └**4=Exfiltration** (Passes 0.11 cfs of 0.25 cfs potential flow)
  └**5=Orifice/Grate** (Orifice Controls 0.02 cfs @ 0.94 fps)
  └**6=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=811.00' (Free Discharge)
└**7=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: BIO BASIN

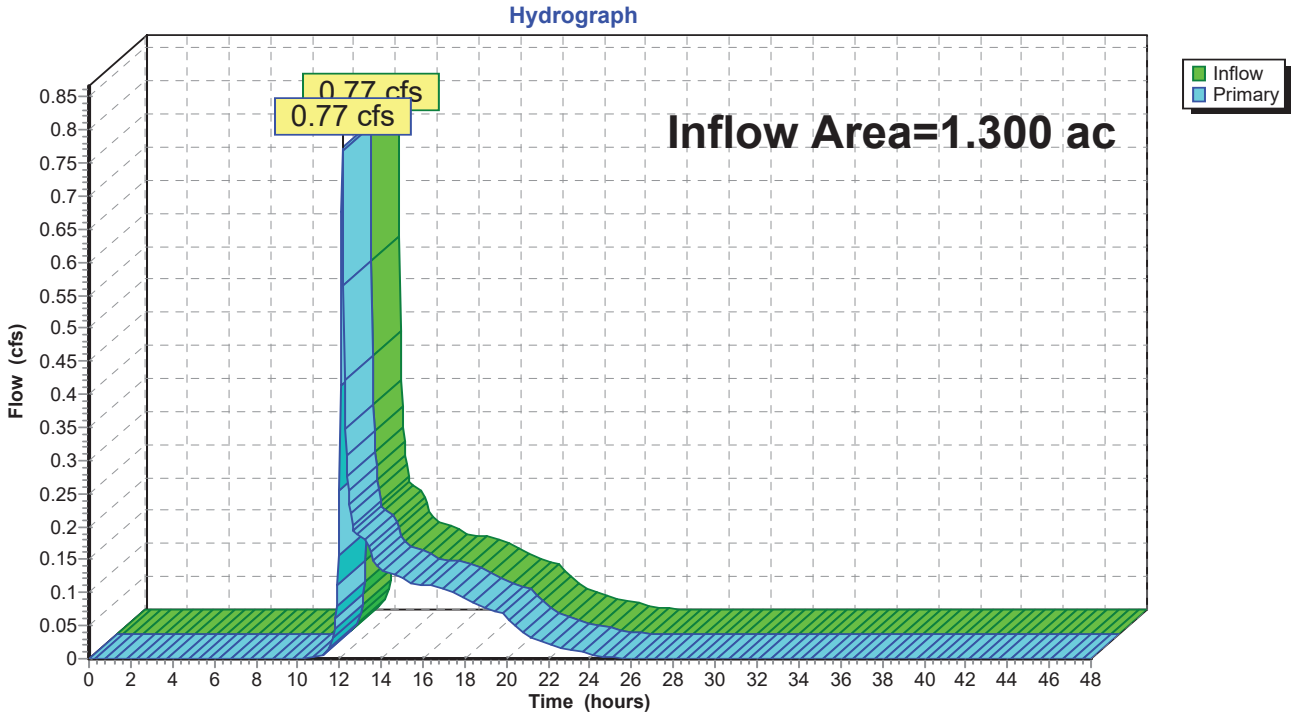


Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 0.94" for 2 Year event
Inflow = 0.77 cfs @ 12.14 hrs, Volume= 0.101 af
Primary = 0.77 cfs @ 12.14 hrs, Volume= 0.101 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: DETAINED Runoff Area=39,775 sf 56.49% Impervious Runoff Depth=2.03"
Tc=6.0 min CN=82 Runoff=3.32 cfs 0.155 af

Subcatchment 2S: UNDETAINED NE Runoff Area=14,560 sf 49.79% Impervious Runoff Depth=1.84"
Tc=6.0 min CN=79 Runoff=1.11 cfs 0.051 af

Subcatchment 3S: UNDETAINED SOUTH Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=1.39"
Tc=6.0 min CN=73 Runoff=0.09 cfs 0.004 af

Subcatchment 4S: UNDETAINED NW Runoff Area=715 sf 86.71% Impervious Runoff Depth=3.04"
Tc=6.0 min CN=93 Runoff=0.08 cfs 0.004 af

Pond 1P: BIO BASIN Peak Elev=813.75' Storage=3,230 cf Inflow=3.32 cfs 0.155 af
Discarded=0.01 cfs 0.019 af Primary=0.59 cfs 0.135 af Secondary=0.00 cfs 0.000 af Outflow=0.60 cfs 0.155 af

Link O: OUTLET Inflow=1.42 cfs 0.195 af
Primary=1.42 cfs 0.195 af

Total Runoff Area = 1.300 ac Runoff Volume = 0.214 af Average Runoff Depth = 1.98"
45.52% Pervious = 0.592 ac 54.48% Impervious = 0.708 ac

Summary for Subcatchment 1S: DETAINED

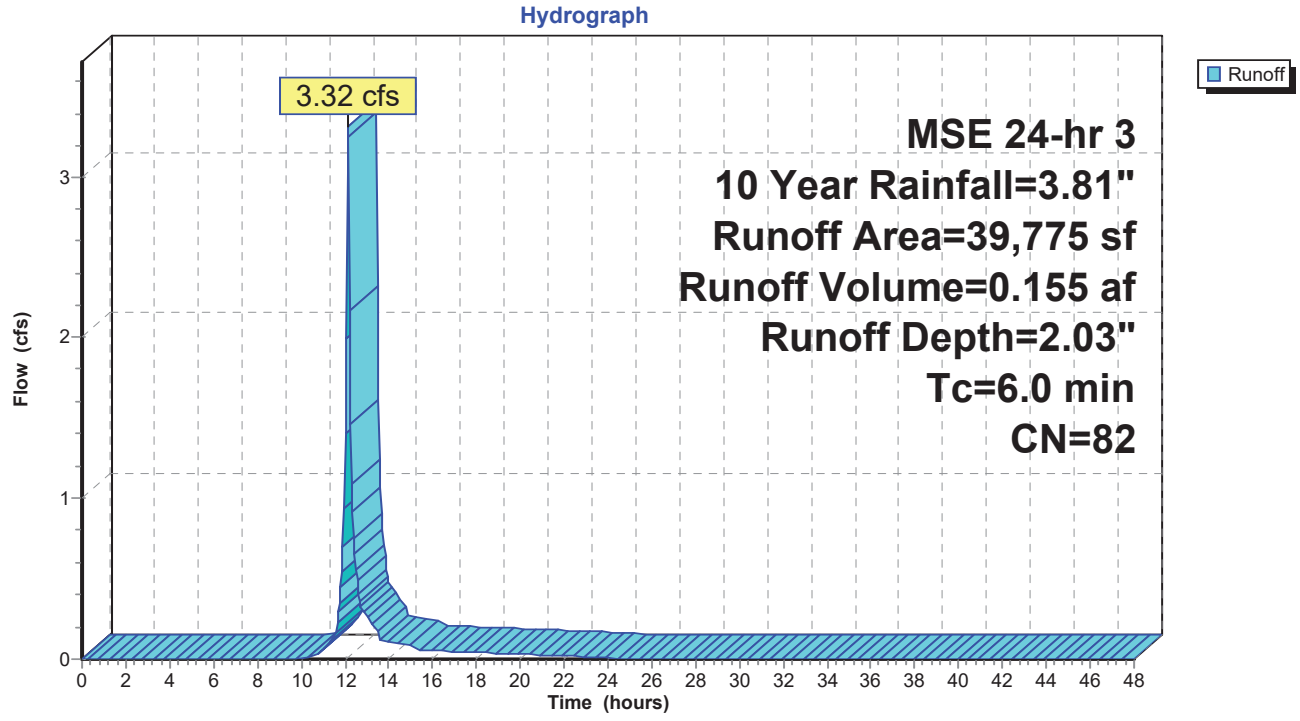
Runoff = 3.32 cfs @ 12.13 hrs, Volume= 0.155 af, Depth= 2.03"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	9,210	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	39,775	82	Weighted Average
	17,305		43.51% Pervious Area
	22,470		56.49% Impervious Area
	9,210		40.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: DETAINED



Summary for Subcatchment 2S: UNDETAINED NE

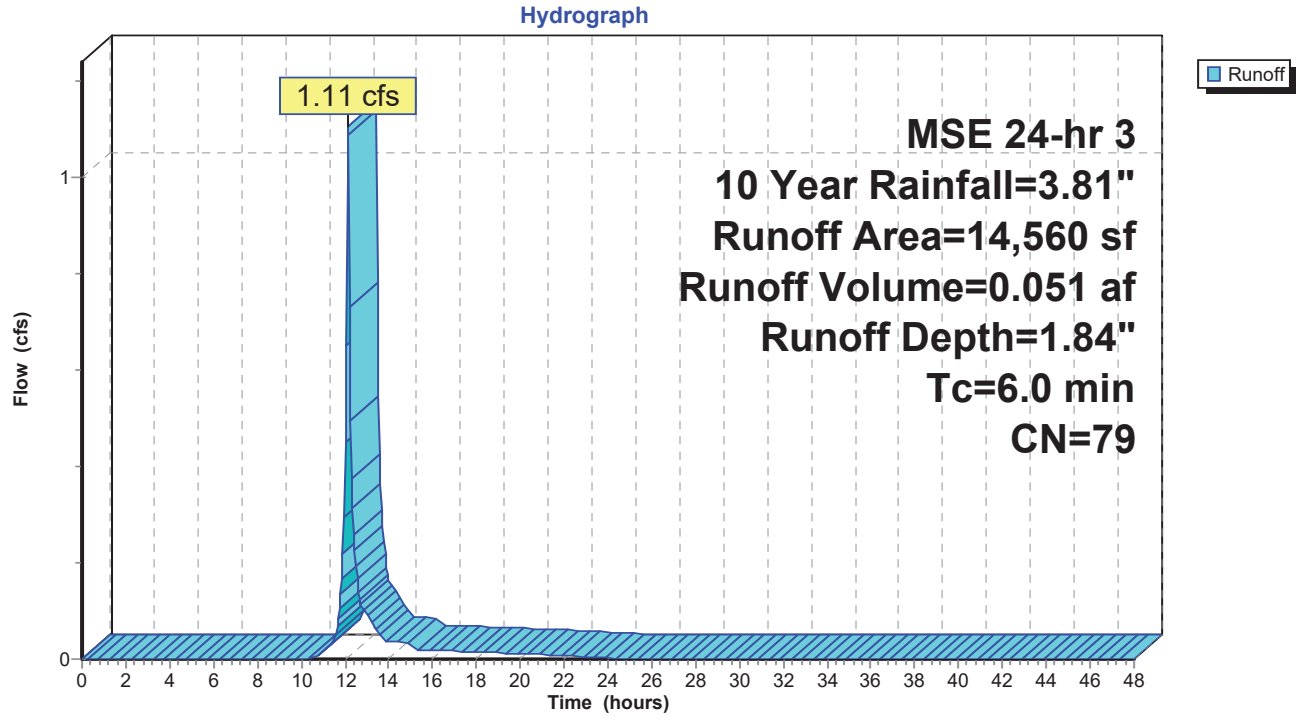
Runoff = 1.11 cfs @ 12.13 hrs, Volume= 0.051 af, Depth= 1.84"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

	Area (sf)	CN	Description
	5,975	61	>75% Grass cover, Good, HSG B
*	80	98	DRIVEWAY
*	610	98	SIDEWALK
	1,335	61	>75% Grass cover, Good, HSG B
*	6,560	98	Roof
	14,560	79	Weighted Average
	7,310		50.21% Pervious Area
	7,250		49.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: UNDETAINED NE



Summary for Subcatchment 3S: UNDETAINED SOUTH

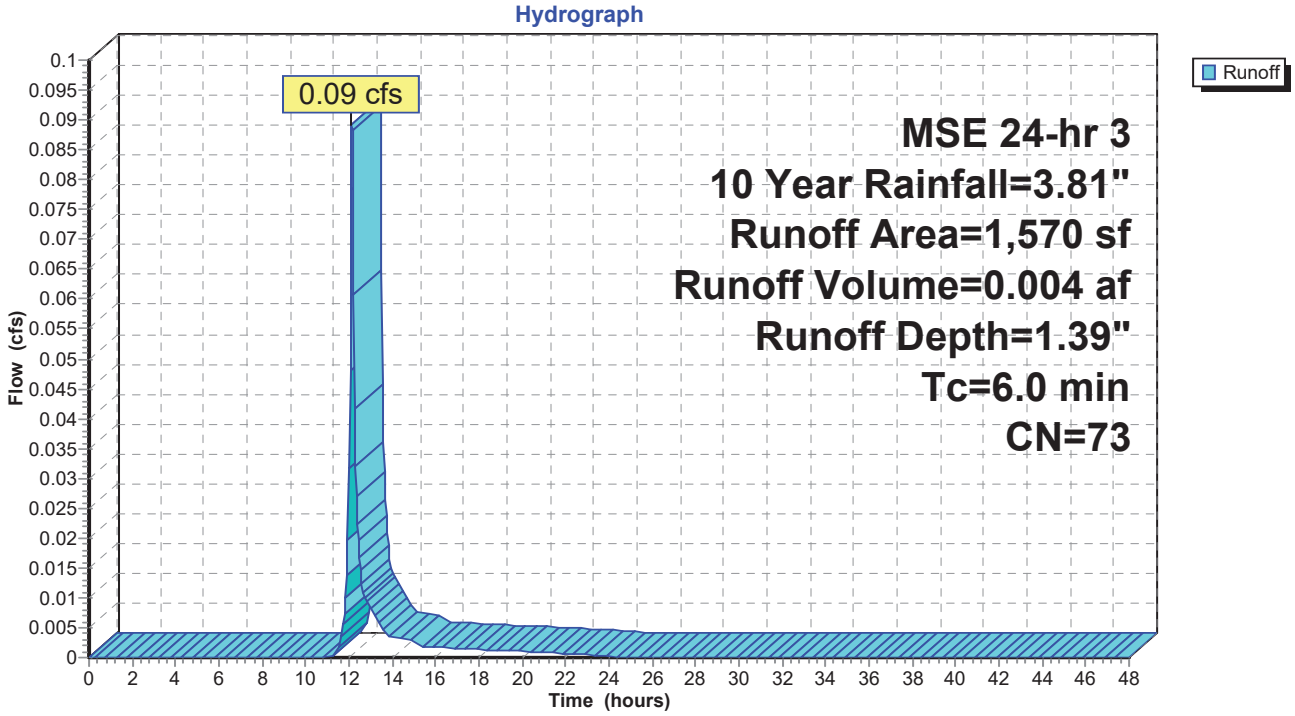
Runoff = 0.09 cfs @ 12.14 hrs, Volume= 0.004 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

	Area (sf)	CN	Description
	1,065	61	>75% Grass cover, Good, HSG B
*	505	98	SIDEWALK
	1,570	73	Weighted Average
	1,065		67.83% Pervious Area
	505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: UNDETAINED SOUTH



Summary for Subcatchment 4S: UNDETAINED NW

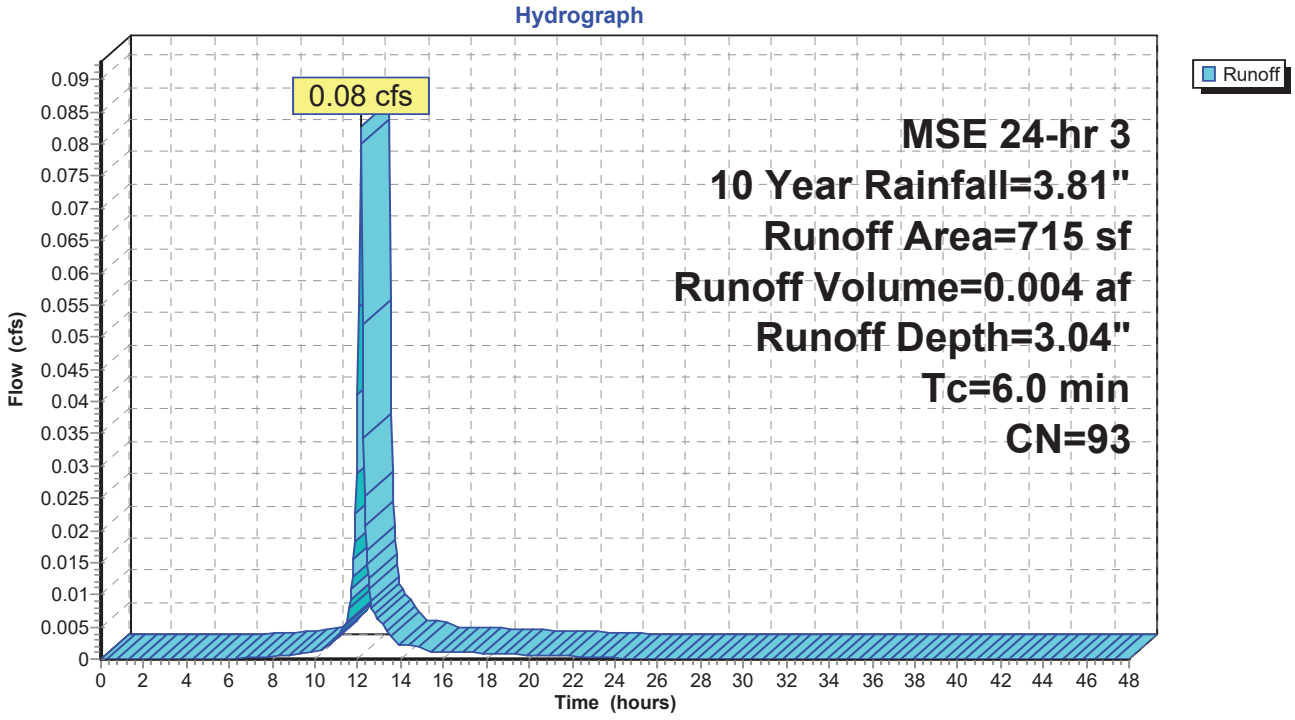
Runoff = 0.08 cfs @ 12.13 hrs, Volume= 0.004 af, Depth= 3.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10 Year Rainfall=3.81"

	Area (sf)	CN	Description
	95	61	>75% Grass cover, Good, HSG B
*	490	98	ROOF
*	130	98	SIDEWALK
	715	93	Weighted Average
	95		13.29% Pervious Area
	620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: UNDETAINED NW



Summary for Pond 1P: BIO BASIN

Inflow Area = 0.913 ac, 56.49% Impervious, Inflow Depth = 2.03" for 10 Year event
Inflow = 3.32 cfs @ 12.13 hrs, Volume= 0.155 af
Outflow = 0.60 cfs @ 12.48 hrs, Volume= 0.155 af, Atten= 82%, Lag= 20.6 min
Discarded = 0.01 cfs @ 12.48 hrs, Volume= 0.019 af
Primary = 0.59 cfs @ 12.48 hrs, Volume= 0.135 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 813.75' @ 12.48 hrs Surf.Area= 2,828 sf Storage= 3,230 cf

Plug-Flow detention time= 194.4 min calculated for 0.155 af (100% of inflow)
Center-of-Mass det. time= 194.2 min (998.3 - 804.1)

Volume	Invert	Avail.Storage	Storage Description
#1	811.00'	9,377 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
811.00	2,289	225.0	0.0	0	0	2,289
811.50	2,289	225.0	33.0	378	378	2,402
812.00	2,289	225.0	27.0	309	687	2,514
813.00	2,289	225.0	27.0	618	1,305	2,739
814.00	3,017	248.0	100.0	2,645	3,949	3,636
815.00	3,824	272.0	100.0	3,413	7,362	4,663
815.50	4,239	281.0	100.0	2,015	9,377	5,083

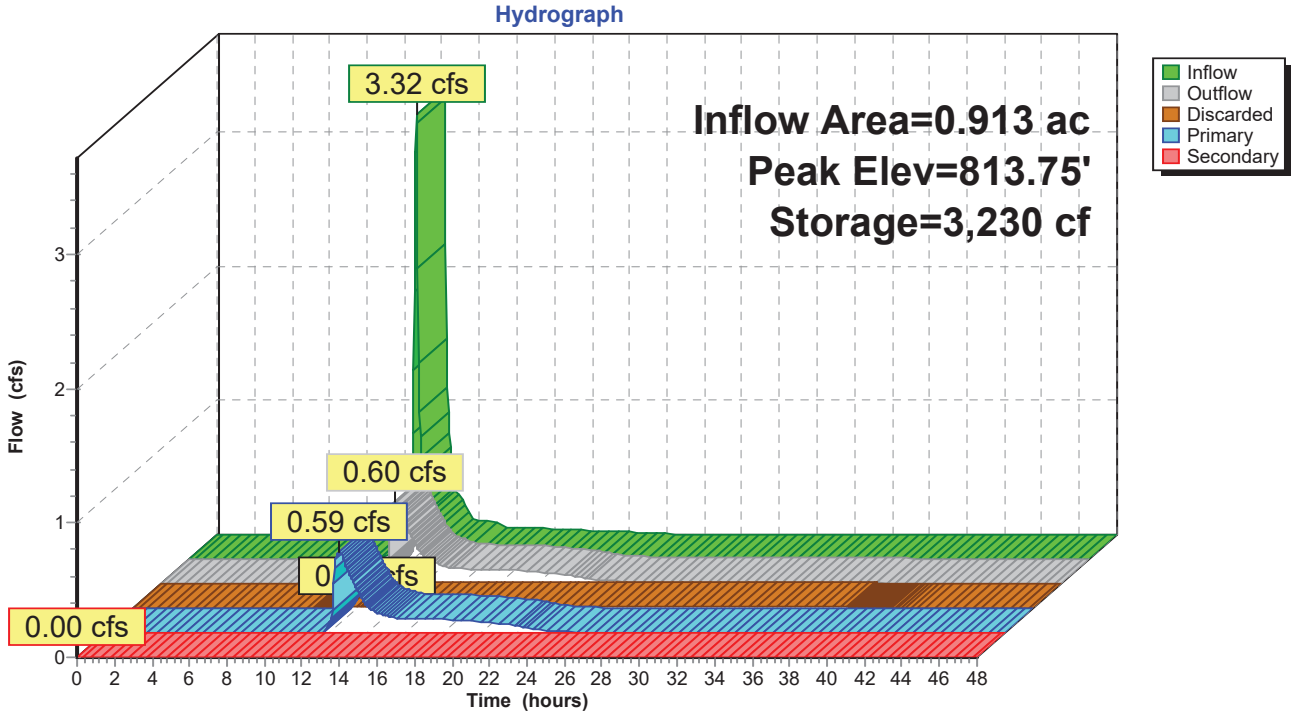
Device	Routing	Invert	Outlet Devices
#1	Discarded	811.00'	**0.150 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.00'	**8.0" Round Culvert** L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.00' / 810.83' S= 0.0041 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.43'	**6.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.43' / 811.00' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.00'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 800.00'
#5	Device 2	813.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#6	Device 2	814.70'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.80'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 12.48 hrs HW=813.75' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=0.59 cfs @ 12.48 hrs HW=813.75' (Free Discharge)
└**2=Culvert** (Passes 0.59 cfs of 2.06 cfs potential flow)
  └**3=Culvert** (Barrel Controls 0.12 cfs @ 0.60 fps)
    └**4=Exfiltration** (Passes 0.12 cfs of 0.28 cfs potential flow)
  └**5=Orifice/Grate** (Orifice Controls 0.48 cfs @ 2.42 fps)
  └**6=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=811.00' (Free Discharge)
└**7=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: BIO BASIN

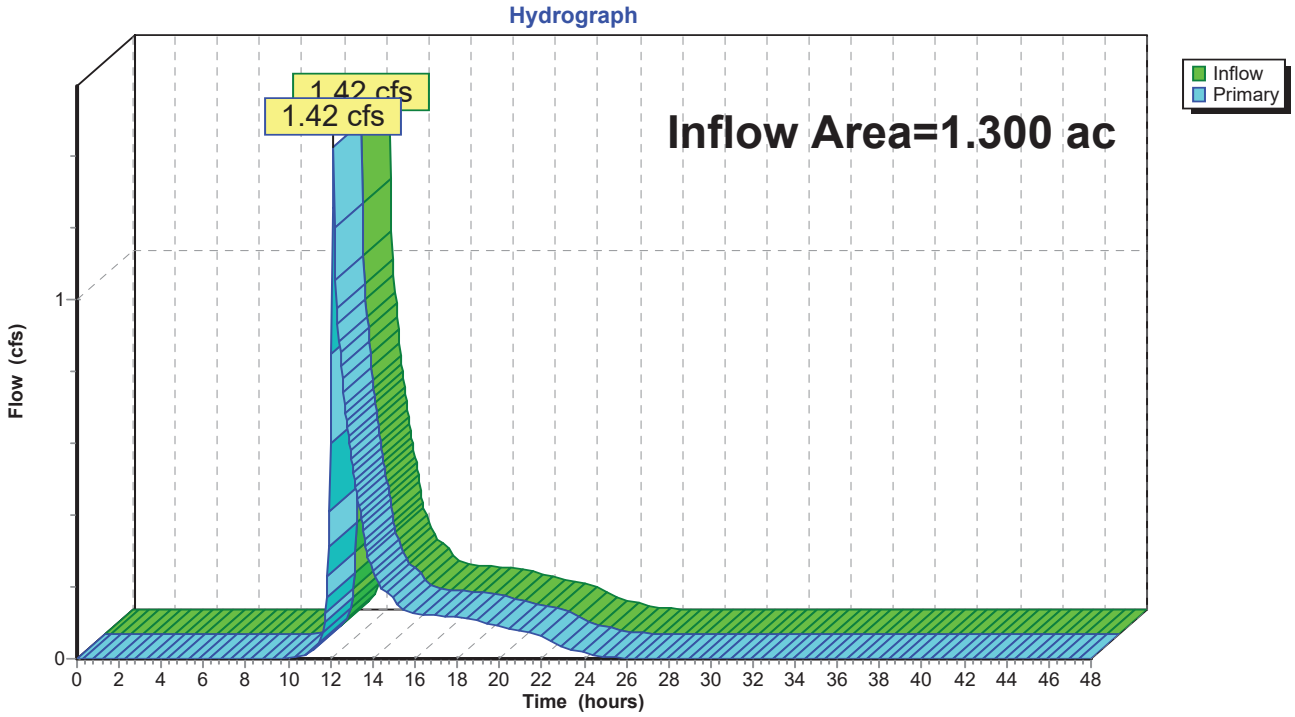


Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 1.80" for 10 Year event
Inflow = 1.42 cfs @ 12.15 hrs, Volume= 0.195 af
Primary = 1.42 cfs @ 12.15 hrs, Volume= 0.195 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET



Time span=0.00-48.00 hrs, dt=0.05 hrs, 961 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: DETAINED Runoff Area=39,775 sf 56.49% Impervious Runoff Depth=4.14"
Tc=6.0 min CN=82 Runoff=6.58 cfs 0.315 af

Subcatchment 2S: UNDETAINED NE Runoff Area=14,560 sf 49.79% Impervious Runoff Depth=3.88"
Tc=6.0 min CN=79 Runoff=2.28 cfs 0.108 af

Subcatchment 3S: UNDETAINED SOUTH Runoff Area=1,570 sf 32.17% Impervious Runoff Depth=3.23"
Tc=6.0 min CN=73 Runoff=0.21 cfs 0.010 af

Subcatchment 4S: UNDETAINED NW Runoff Area=715 sf 86.71% Impervious Runoff Depth=5.37"
Tc=6.0 min CN=93 Runoff=0.14 cfs 0.007 af

Pond 1P: BIO BASIN Peak Elev=814.76' Storage=6,462 cf Inflow=6.58 cfs 0.315 af
Discarded=0.01 cfs 0.022 af Primary=1.51 cfs 0.293 af Secondary=0.00 cfs 0.000 af Outflow=1.52 cfs 0.315 af

Link O: OUTLET Inflow=3.57 cfs 0.418 af
Primary=3.57 cfs 0.418 af

Total Runoff Area = 1.300 ac Runoff Volume = 0.440 af Average Runoff Depth = 4.07"
45.52% Pervious = 0.592 ac 54.48% Impervious = 0.708 ac

Summary for Subcatchment 1S: DETAINED

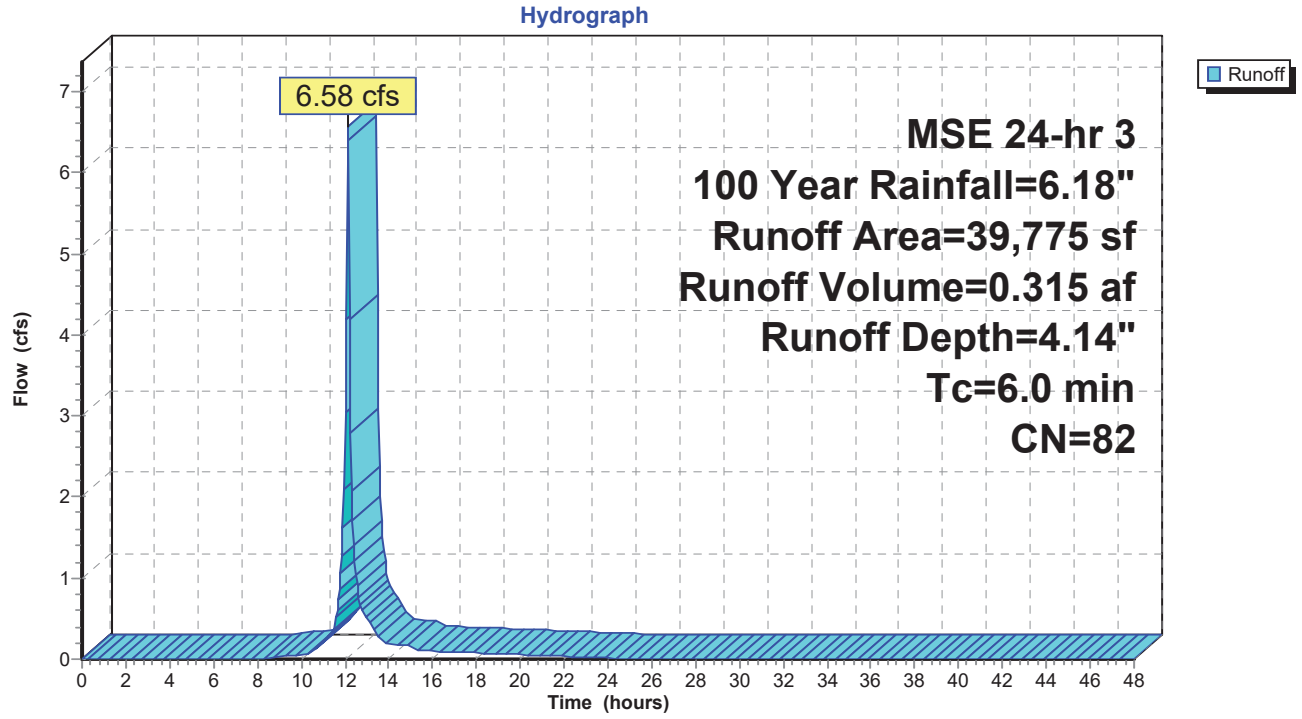
Runoff = 6.58 cfs @ 12.13 hrs, Volume= 0.315 af, Depth= 4.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

	Area (sf)	CN	Description
*	1,710	98	DRIVEWAY
	14,750	61	>75% Grass cover, Good, HSG B
	9,210	98	Unconnected roofs, HSG C
*	11,310	98	PARKING
*	240	98	SIDEWALK
	2,555	61	>75% Grass cover, Good, HSG B
	39,775	82	Weighted Average
	17,305		43.51% Pervious Area
	22,470		56.49% Impervious Area
	9,210		40.99% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: DETAINED



Summary for Subcatchment 2S: UNDETAINED NE

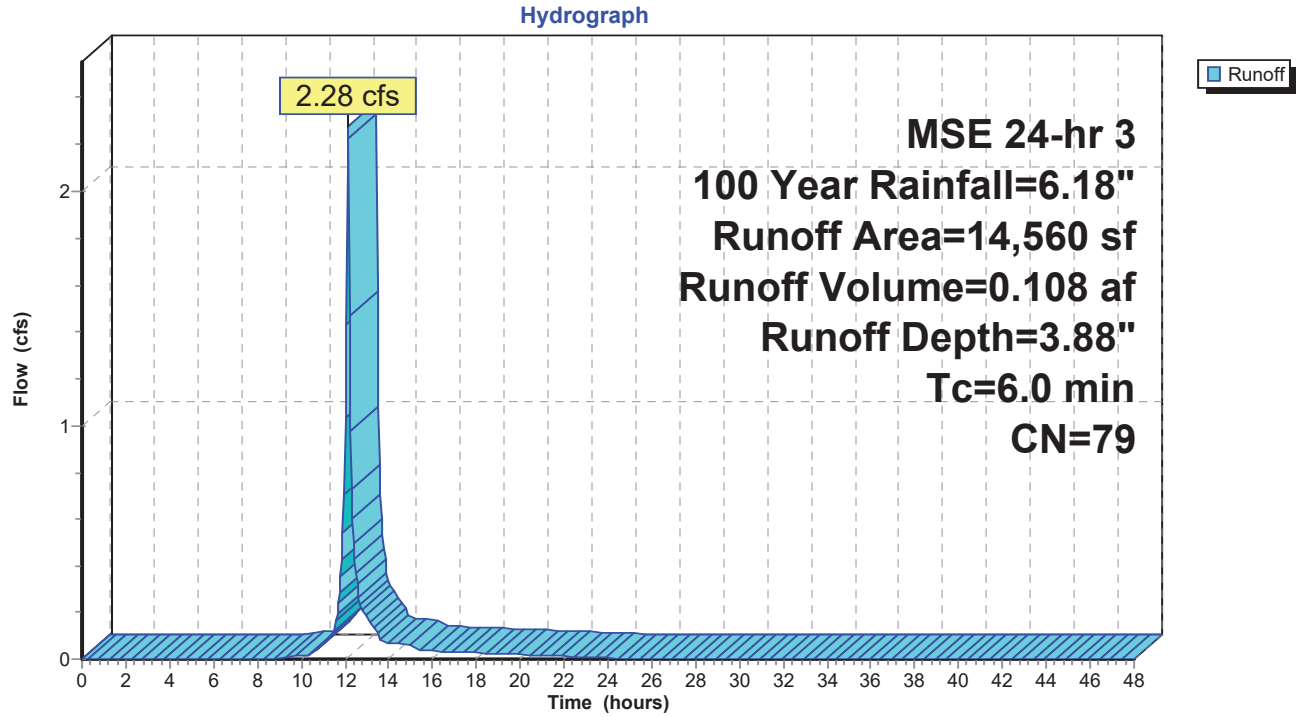
Runoff = 2.28 cfs @ 12.13 hrs, Volume= 0.108 af, Depth= 3.88"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

	Area (sf)	CN	Description
	5,975	61	>75% Grass cover, Good, HSG B
*	80	98	DRIVEWAY
*	610	98	SIDEWALK
	1,335	61	>75% Grass cover, Good, HSG B
*	6,560	98	Roof
	14,560	79	Weighted Average
	7,310		50.21% Pervious Area
	7,250		49.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: UNDETAINED NE



Summary for Subcatchment 3S: UNDETAINED SOUTH

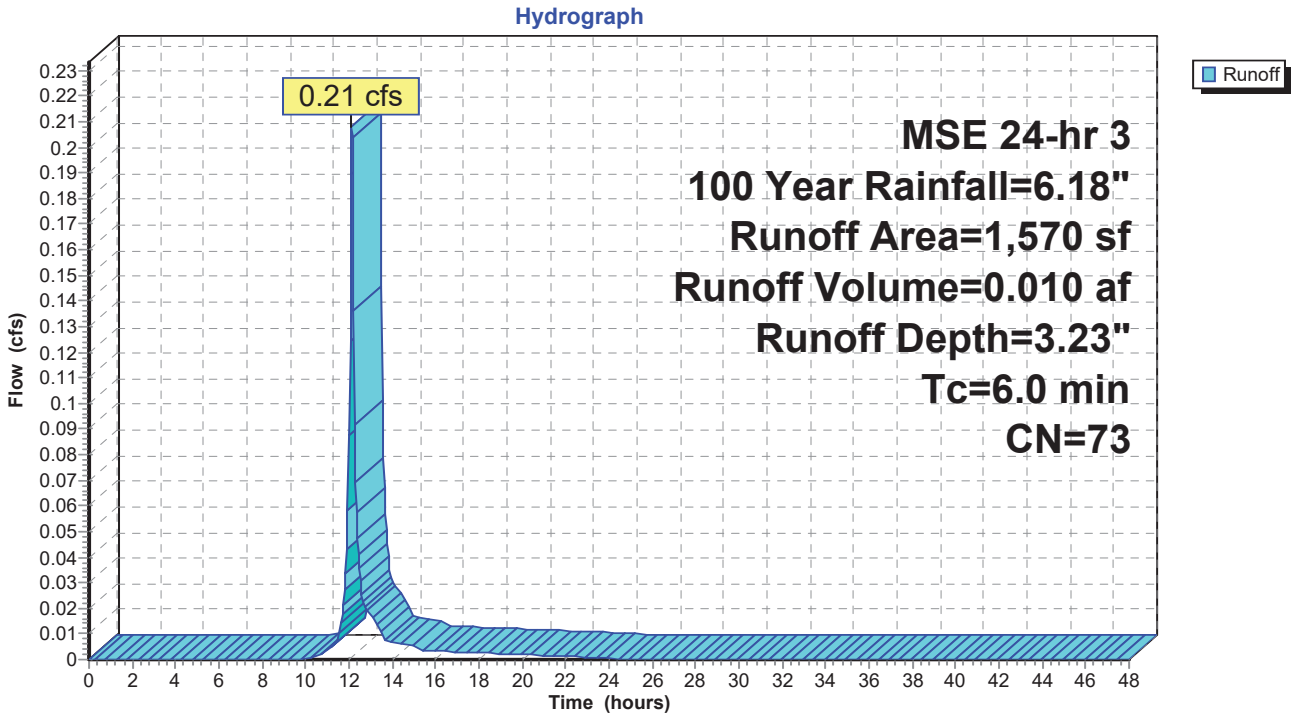
Runoff = 0.21 cfs @ 12.13 hrs, Volume= 0.010 af, Depth= 3.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

	Area (sf)	CN	Description
	1,065	61	>75% Grass cover, Good, HSG B
*	505	98	SIDEWALK
	1,570	73	Weighted Average
	1,065		67.83% Pervious Area
	505		32.17% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: UNDETAINED SOUTH



Summary for Subcatchment 4S: UNDETAINED NW

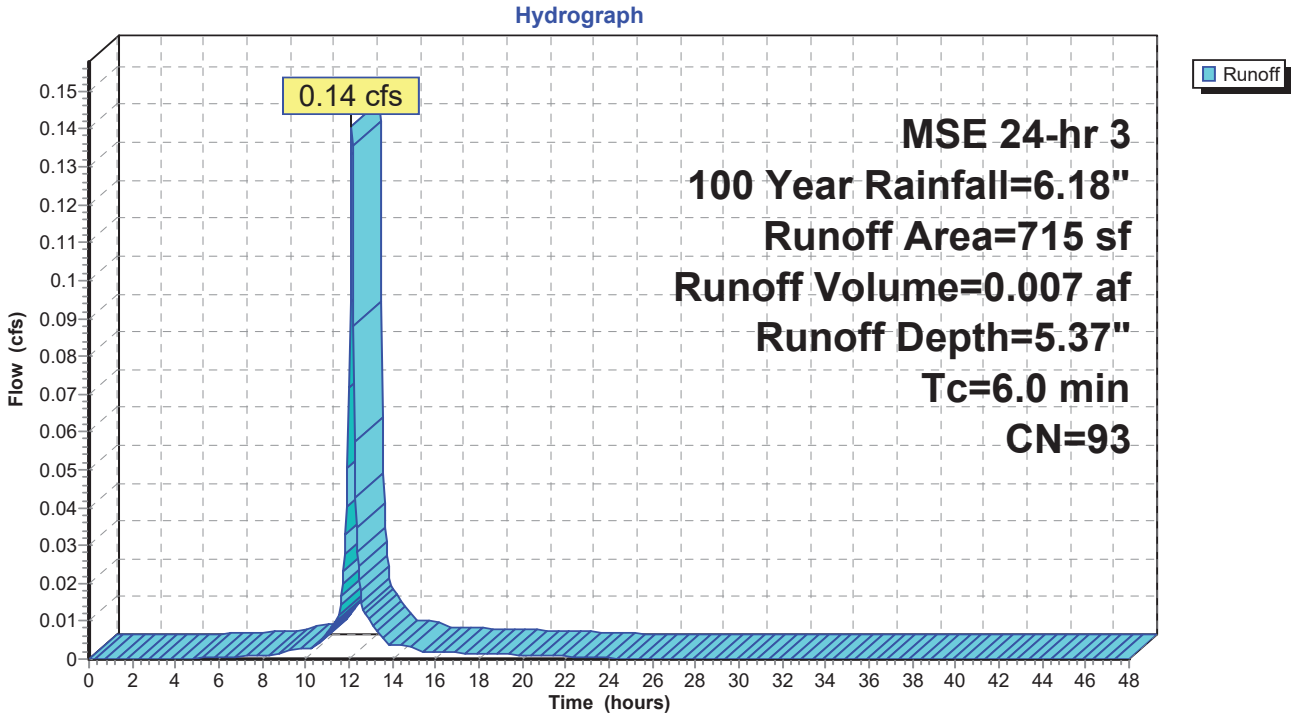
Runoff = 0.14 cfs @ 12.13 hrs, Volume= 0.007 af, Depth= 5.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100 Year Rainfall=6.18"

	Area (sf)	CN	Description
	95	61	>75% Grass cover, Good, HSG B
*	490	98	ROOF
*	130	98	SIDEWALK
	715	93	Weighted Average
	95		13.29% Pervious Area
	620		86.71% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: UNDETAINED NW



Summary for Pond 1P: BIO BASIN

Inflow Area = 0.913 ac, 56.49% Impervious, Inflow Depth = 4.14" for 100 Year event
Inflow = 6.58 cfs @ 12.13 hrs, Volume= 0.315 af
Outflow = 1.52 cfs @ 12.39 hrs, Volume= 0.315 af, Atten= 77%, Lag= 15.4 min
Discarded = 0.01 cfs @ 12.39 hrs, Volume= 0.022 af
Primary = 1.51 cfs @ 12.39 hrs, Volume= 0.293 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 814.76' @ 12.39 hrs Surf.Area= 3,620 sf Storage= 6,462 cf

Plug-Flow detention time= 143.5 min calculated for 0.315 af (100% of inflow)
Center-of-Mass det. time= 144.5 min (934.3 - 789.9)

Volume	Invert	Avail.Storage	Storage Description
#1	811.00'	9,377 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
811.00	2,289	225.0	0.0	0	0	2,289
811.50	2,289	225.0	33.0	378	378	2,402
812.00	2,289	225.0	27.0	309	687	2,514
813.00	2,289	225.0	27.0	618	1,305	2,739
814.00	3,017	248.0	100.0	2,645	3,949	3,636
815.00	3,824	272.0	100.0	3,413	7,362	4,663
815.50	4,239	281.0	100.0	2,015	9,377	5,083

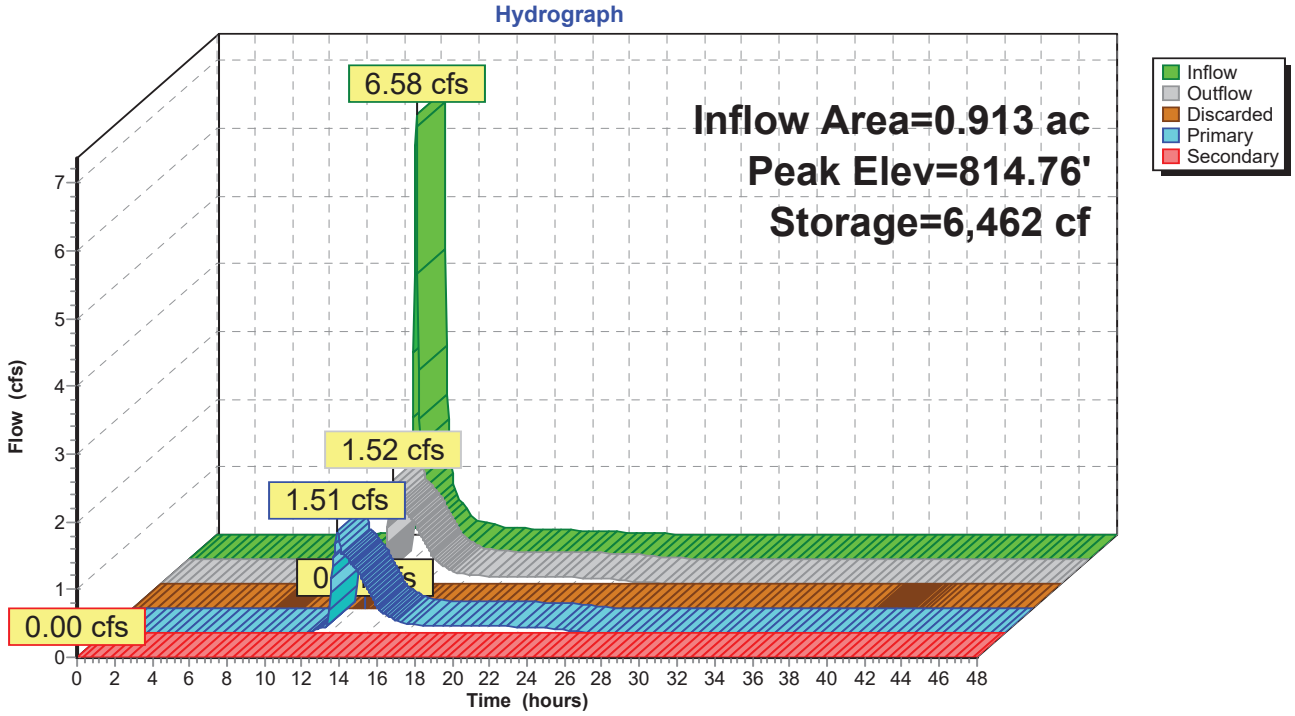
Device	Routing	Invert	Outlet Devices
#1	Discarded	811.00'	**0.150 in/hr Exfiltration over Horizontal area** Conductivity to Groundwater Elevation = 20.00'
#2	Primary	811.00'	**8.0" Round Culvert** L= 41.4' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.00' / 810.83' S= 0.0041 '/' Cc= 0.900 n= 0.010 PVC, smooth interior, Flow Area= 0.35 sf
#3	Device 2	811.43'	**6.0" Round Culvert** L= 86.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 811.43' / 811.00' S= 0.0050 '/' Cc= 0.900 n= 0.100, Flow Area= 0.20 sf
#4	Device 3	811.00'	**3.600 in/hr Exfiltration over Surface area** Conductivity to Groundwater Elevation = 800.00'
#5	Device 2	813.25'	**6.0" Vert. Orifice/Grate** C= 0.600
#6	Device 2	814.70'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#7	Secondary	814.80'	**20.0' long x 10.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 Coef. (English) 2.49 2.56 2.70 2.69 2.68 2.69 2.67 2.64

Discarded OutFlow Max=0.01 cfs @ 12.39 hrs HW=814.76' (Free Discharge)
└**1=Exfiltration** (Controls 0.01 cfs)

Primary OutFlow Max=1.48 cfs @ 12.39 hrs HW=814.76' (Free Discharge)
└**2=Culvert** (Passes 1.48 cfs of 2.46 cfs potential flow)
  └**3=Culvert** (Barrel Controls 0.14 cfs @ 0.72 fps)
    └**4=Exfiltration** (Passes 0.14 cfs of 0.37 cfs potential flow)
  └**5=Orifice/Grate** (Orifice Controls 1.06 cfs @ 5.40 fps)
  └**6=Orifice/Grate** (Weir Controls 0.28 cfs @ 0.78 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=811.00' (Free Discharge)
└**7=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond 1P: BIO BASIN

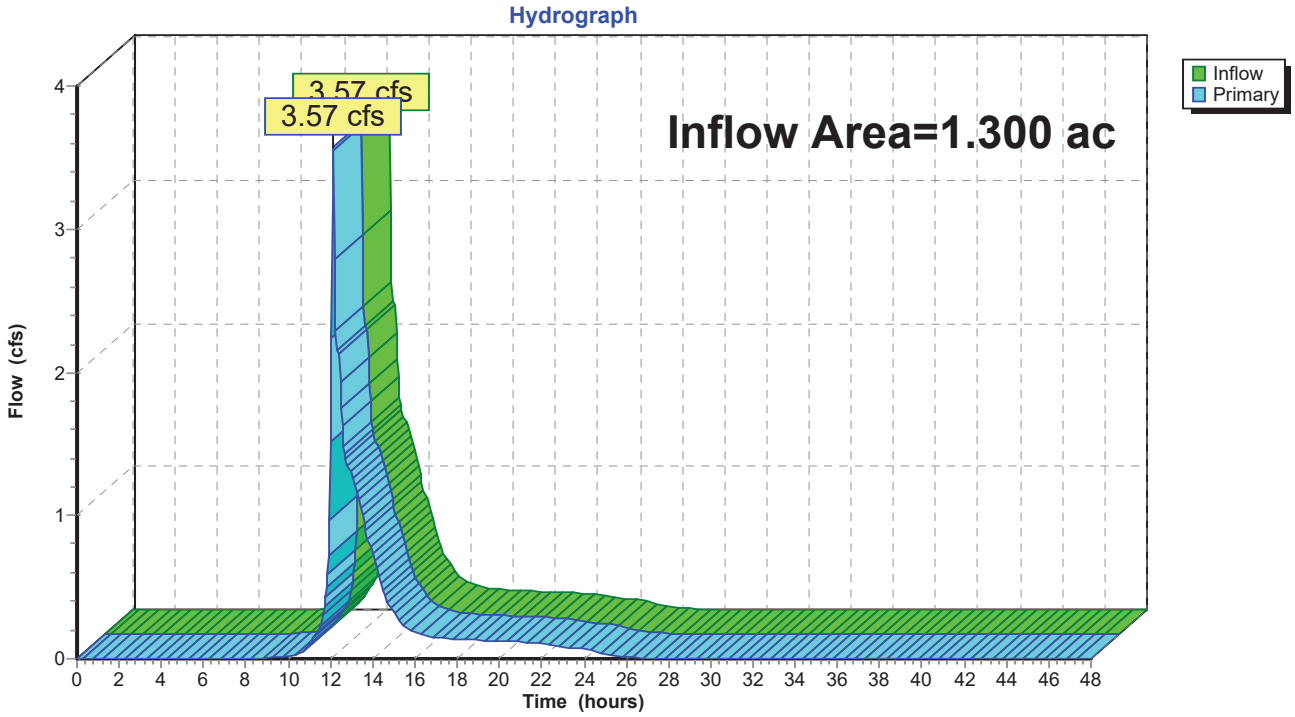


Summary for Link O: OUTLET

Inflow Area = 1.300 ac, 54.48% Impervious, Inflow Depth = 3.86" for 100 Year event
Inflow = 3.57 cfs @ 12.14 hrs, Volume= 0.418 af
Primary = 3.57 cfs @ 12.14 hrs, Volume= 0.418 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-48.00 hrs, dt= 0.05 hrs

Link O: OUTLET

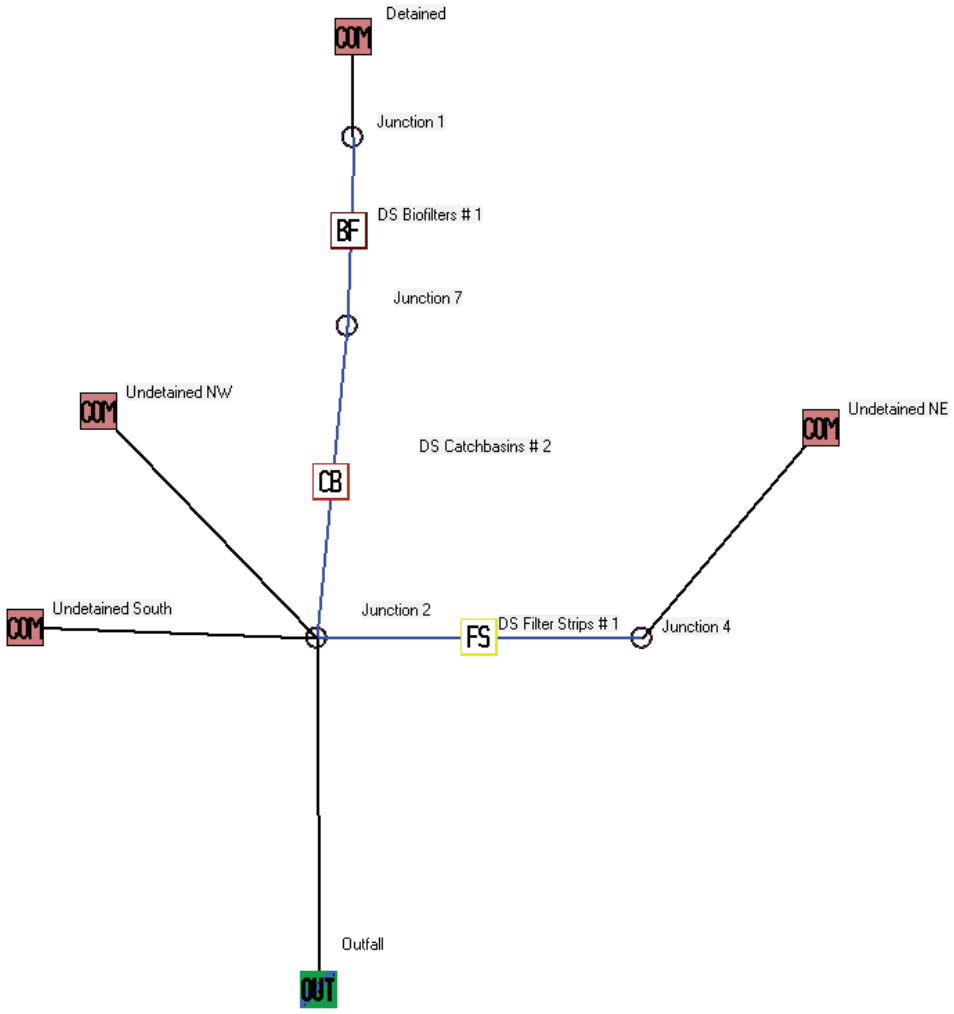


APPENDIX 5

Water Quality Calculations

- Post-Development Input Summary
- Post-Development Output Summary

SLAMM MODELING



Data file name: R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\04 Civil\SWMP\Modeling\Winslamm\19-9231Castle Senior Living.mdb
WinSLAMM Version 10.4.1
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Study period starting date: 03/28/69 Study period ending date: 12/06/69
Date: 02-06-2020 Time: 13:59:21
Site information:

LU# 1 - Commercial: Detained Total area (ac): 0.913
1 - Roofs 1: 0.211 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
13 - Paved Parking 1: 0.260 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.039 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.006 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.397 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Commercial: Undetained South Total area (ac): 0.036
25 - Driveways 1: 0.012 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.024 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Commercial: Undetained NE Total area (ac): 0.335
1 - Roofs 1: 0.151 ac. Pitched Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
25 - Driveways 1: 0.002 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.014 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
52 - Small Landscaped Areas 2: 0.168 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 4 - Commercial: Undetained NW Total area (ac): 0.016
1 - Roofs 1: 0.011 ac. Flat Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
31 - Sidewalks 1: 0.003 ac. Disconnected Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz
51 - Small Landscaped Areas 1: 0.002 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - DS Biofilters # 1
1. Top area (square feet) = 4239
2. Bottom aea (square feet) = 2399
3. Depth (ft): 4.8
4. Biofilter width (ft) - for Cost Purposes Only: 23
5. Infiltration rate (in/hr) = 0.02
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0.5
10. Porosity of rock filled volume = 0.33
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 1.5
13. Engineered soil porosity = 0.27
14. Percent solids reduction due to flow through engineered soil = 80
15. Biofilter peak to average flow ratio = 3.8
16. Number of biofiltration control devices = 1
17. Particle size distribution file: Not needed - calculated by program
18. Initial water surface elevation (ft): 0
Soil Data Soil Type Fraction in Eng. Soil
User-Defined Soil Type 1.000
Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir
1. Weir crest length (ft): 20
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 3.8

Outlet type: Vertical Stand Pipe
1. Stand pipe diameter (ft): 2
2. Stand pipe height above datum (ft): 3.7

Outlet type: Surface Discharge Pipe
1. Surface discharge pipe outlet diameter (ft): 0.5
2. Pipe invert elevation above datum (ft): 2.25
3. Number of surface pipe outlets: 1

Outlet type: Drain Tile/Underdrain
1. Underdrain outlet diameter (ft): 0.5
2. Invert elevation above datum (ft): 0
3. Number of underdrain outlets: 1

Control Practice 2: Filter Strip CP# 1 (DS) - DS Filter Strips # 1
Total drainage area (acres)= 0.335
Fraction of drainage area served by filter strips (ac) = 1.00
Total filter strip width (ft) = 150.0
Effective flow length (ft) = 15
Infiltration rate (in/hr)= 0.020
Typical longitudinal slope (ft.H/ft.V) = 0.015
Typical grass height (in) = 6.0
Swale retardance factor = C
Use stochastic analysis to determine infiltration rate: False
Infiltration rate coeficient of variation (COV) = 0.00
Particle size distribution file name: Not needed - calculated by program
Surface Clogging Load (lbs/sf) = 3.50

Control Practice 3: Catchbasin Cleaning CP# 1 (DS) - DS Catchbasins # 2
1. Fraction of area served by catchbasins = 1.00
2. Number of catchbasins = 1
3. Average sump depth below catchbasin outlet invert (feet) = 2
4. Depth of sediment in catchbasin sump at beginning of study period (ft) = 0
5. Typical outlet pipe diameter (ft) = 0.67
6. Typical outlet pipe Mannings n = 0.01
7. Typical outlet pipe slope (ft/ft) = 0.016
8. Typical catchbasin sump surface area (square feet) = 7.1
9. Total catchbasin depth (feet) = 5
10. Inflow hydrograph peak to average flow ratio = 3.8
11. Leakage rate through sump bottom (in/hr) = 0
12. Catchbasin Critical Particle Size File Name:
13. Catchbasin cleaning frequency: Once every two years

SLAMM for Windows Version 10.4.1

Data file name: R:\2019\19-9231 Mukwonago RCAC (Mukwonago WI)\04 Civil\SWMP\Modeling\Winslamm\19-9231Castle Senior Living.mdb
Data file description:
Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Milwaukee WI 1969.RAN
Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx
Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx
Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppdx
Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std
Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std
Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std
Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False
Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv
Cost Data file name:
Seed for random number generator: -42
Model Run Start Date: 03/28/69 Model Run End Date: 12/06/69
Date of run: 02-06-2020 Time of run: 13:50:22
Total Area Modeled (acres): 1.300
Years in Model Run: 0.67

	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	49989	-	94.95	296.3	-
Outfall Total with Controls:	46173	7.63%	24.54	70.75	76.12%
Annualized Total After Outfall Controls:	69355			106.3	

Pollutant	Concentration No Controls	Concentration With Controls	Conc. Units	Pollutant Yield No Controls	Pollutant Yield With Controls	Pollutant Yield Units	Percent Reduction
Particulate Solids	94.95	24.54	mg/L	296.3	70.75	lbs	76.12%
Particulate Phosphorus	0.2519	0.06706	mg/L	0.7862	0.1933	lbs	75.41%

APPENDIX 6

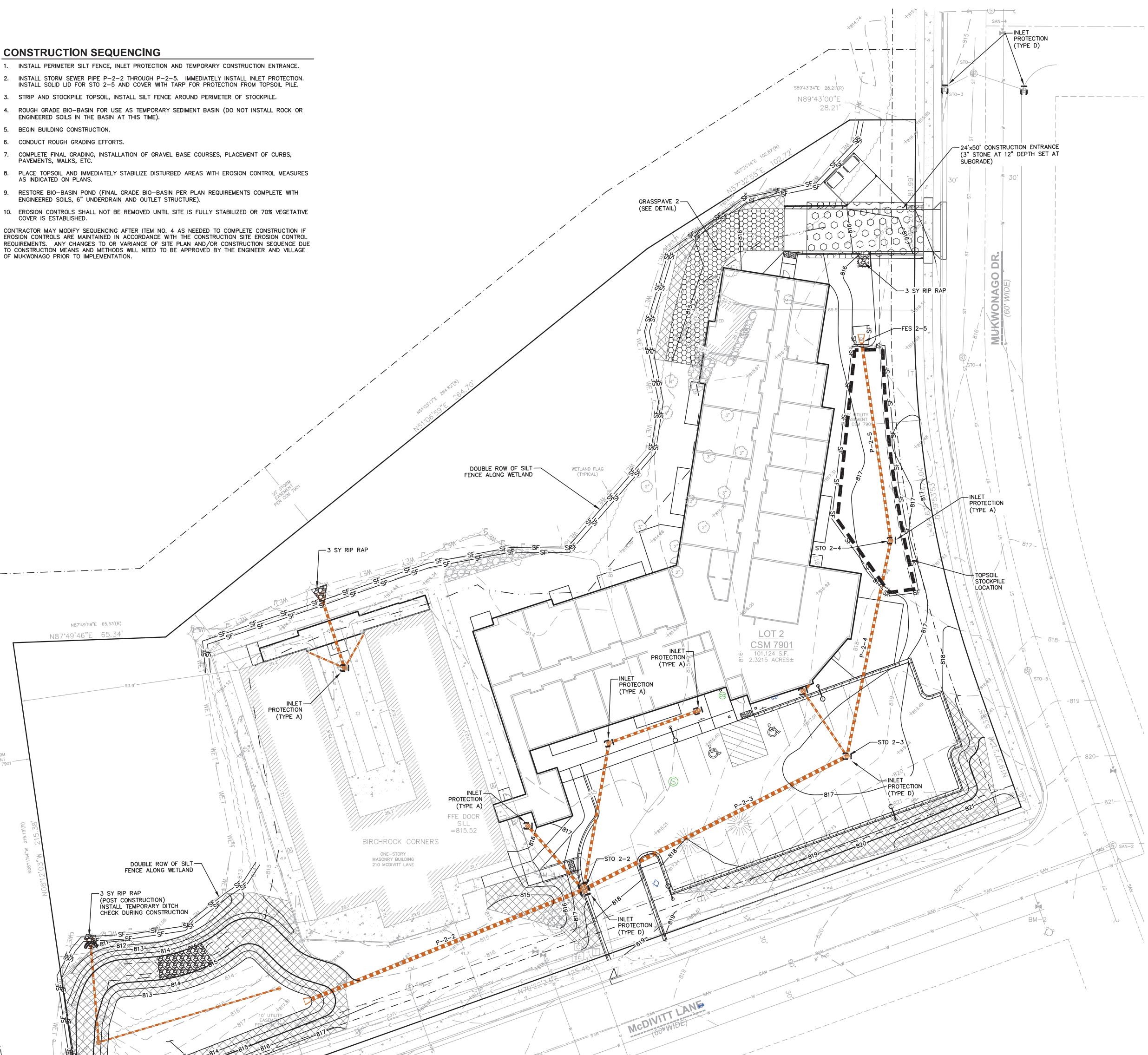
Design Details

- Proposed Erosion Control Plan
- Proposed Grading & Utility Plan
- Proposed Bioretention Basin Detail
- Storm Sewer Sizing Calculations
- Anti-Seep Collar Design

CONSTRUCTION SEQUENCING

1. INSTALL PERIMETER SILT FENCE, INLET PROTECTION AND TEMPORARY CONSTRUCTION ENTRANCE.
2. INSTALL STORM SEWER PIPE P-2-2 THROUGH P-2-5. IMMEDIATELY INSTALL INLET PROTECTION. INSTALL SOLID LID FOR STO 2-5 AND COVER WITH TARP FOR PROTECTION FROM TOPSOIL PILE.
3. STRIP AND STOCKPILE TOPSOIL, INSTALL SILT FENCE AROUND PERIMETER OF STOCKPILE.
4. ROUGH GRADE BIO-BASIN FOR USE AS TEMPORARY SEDIMENT BASIN (DO NOT INSTALL ROCK OR ENGINEERED SOILS IN THE BASIN AT THIS TIME).
5. BEGIN BUILDING CONSTRUCTION.
6. CONDUCT ROUGH GRADING EFFORTS.
7. COMPLETE FINAL GRADING, INSTALLATION OF GRAVEL BASE COURSES, PLACEMENT OF CURBS, PAVEMENTS, WALKS, ETC.
8. PLACE TOPSOIL AND IMMEDIATELY STABILIZE DISTURBED AREAS WITH EROSION CONTROL MEASURES AS INDICATED ON PLANS.
9. RESTORE BIO-BASIN POND (FINAL GRADE BIO-BASIN PER PLAN REQUIREMENTS COMPLETE WITH ENGINEERED SOILS, 6" UNDERDRAIN AND OUTLET STRUCTURE).
10. EROSION CONTROLS SHALL NOT BE REMOVED UNTIL SITE IS FULLY STABILIZED OR 70% VEGETATIVE COVER IS ESTABLISHED.

CONTRACTOR MAY MODIFY SEQUENCING AFTER ITEM NO. 4 AS NEEDED TO COMPLETE CONSTRUCTION IF EROSION CONTROLS ARE MAINTAINED IN ACCORDANCE WITH THE CONSTRUCTION SITE EROSION CONTROL REQUIREMENTS. ANY CHANGES TO OR VARIANCE OF SITE PLAN AND/OR CONSTRUCTION SEQUENCE DUE TO CONSTRUCTION MEANS AND METHODS WILL NEED TO BE APPROVED BY THE ENGINEER AND VILLAGE OF MUKWONAGO PRIOR TO IMPLEMENTATION.



LEGEND

PROPERTY LINE		LIGHT POLE	
EASEMENT LINE		ADA PARKING SIGN	
WETLAND BOUNDARY		RIP-RAP	
BUILDING OUTLINE		CONSTRUCTION ENTRANCE	
PAVEMENT SETBACK LINE		EROSION MATTING (SEE NOTE 17)	
EDGE OF PAVEMENT		SPOT ELEVATION	
STANDARD CURB AND GUTTER		DITCH CHECK	
REJECT CURB AND GUTTER		INLET PROTECTION	
PROPOSED 1 FOOT CONTOUR			
PROPOSED 5 FOOT CONTOUR			
EXISTING 1 FOOT CONTOUR			
EXISTING 5 FOOT CONTOUR			
SILT FENCE			

north
SCALE IN FEET
20' 0 20'

DIGGERS HOTLINE
Toll Free (800) 242-8511

EROSION CONTROL NOTES

1. ALL CONSTRUCTION SHALL ADHERE TO THE REQUIREMENTS SET FORTH IN WISCONSIN'S NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) STORMWATER GENERAL PERMIT FOR CONSTRUCTION SITE LAND DISTURBANCE ACTIVITIES. ALL EROSION AND SEDIMENT CONTROL MEASURES ARE TO BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR) TECHNICAL STANDARDS AND VILLAGE OF MUKWONAGO ORDINANCES. IT IS THE RESPONSIBILITY OF ALL CONTRACTORS ASSOCIATED WITH THE PROJECT TO OBTAIN A COPY OF, AND UNDERSTAND, THESE STANDARDS PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
2. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL CONTROL MEASURES AS DIRECTED BY JSD PROFESSIONAL SERVICES, INC. (JSD) OR AUTHORITY HAVING JURISDICTION SHALL BE INSTALLED WITHIN 24 HOURS OF REQUEST.
3. MODIFICATIONS TO THE APPROVED EROSION CONTROL PLAN IN ORDER TO MEET UNFORESEEN FIELD CONDITIONS ARE ALLOWED IF MODIFICATIONS CONFORM TO WDNR TECHNICAL STANDARDS. CONTRACTOR IS RESPONSIBLE TO NOTIFY JSD AND AUTHORITY HAVING JURISDICTION OF ANY CHANGES TO THE EROSION CONTROL AND STORMWATER MANAGEMENT PLANS. ALL MODIFICATIONS MUST BE APPROVED BY JSD/AUTHORITY HAVING JURISDICTION PRIOR TO DEVIATION FROM THE APPROVED PLAN.
4. INSTALL PERIMETER EROSION CONTROL MEASURES (SUCH AS CONSTRUCTION ENTRANCE(S), SILT FENCE AND EXISTING INLET PROTECTION) PRIOR TO ANY SITE WORK, INCLUDING GRADING OR DISTURBANCE OF EXISTING SURFACE COVER, AS SHOWN ON PLAN IN ORDER TO PROTECT ADJACENT PROPERTIES/STORM SEWER SYSTEMS FROM SEDIMENT TRANSPORT.
5. CONSTRUCTION ENTRANCE(S) SHALL BE INSTALLED AT THE LOCATION OF VEHICLE INGRESS/EGRESS POINT(S) AS SHOWN ON THE PLAN. CONTRACTOR IS RESPONSIBLE TO COORDINATE LOCATION(S) WITH THE PROPER AUTHORITY HAVING JURISDICTION, PROVIDE NECESSARY FEES AND OBTAIN ALL REQUIRED APPROVALS OR PERMITS. ADDITIONAL CONSTRUCTION ENTRANCES OTHER THAN AS SHOWN ON THE PLANS MUST BE PRIOR APPROVED BY THE APPLICABLE AUTHORITY HAVING JURISDICTION PRIOR TO INSTALLATION. CONSTRUCTION ENTRANCES SHALL BE MAINTAINED BY THE CONTRACTOR IN A CONDITION WHICH WILL PREVENT THE TRACKING OF MUD OR DRY SEDIMENT ONTO ADJACENT PUBLIC STREETS AFTER EACH WORKING DAY OR MORE FREQUENTLY AS REQUIRED.
6. PAVED SURFACES ADJACENT TO CONSTRUCTION ENTRANCES SHALL BE SWEPT AND/OR SCRAPED TO REMOVE ACCUMULATED SOIL, DIRT AND/OR DUST AFTER THE END OF EACH WORK DAY AND AS REQUESTED BY THE AUTHORITY HAVING JURISDICTION.
7. THE ADJACENT INLETS THAT WILL COLLECT RUNOFF FROM DISTURBED AREAS SHALL BE PROTECTED TO PREVENT SEDIMENT DEPOSITION. INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER. ALL INLETS, STRUCTURES, PIPES, AND SWALES SHALL BE KEPT CLEAN AND FREE OF SEDIMENTATION AND DEBRIS.
8. AT A MINIMUM, SEDIMENT TRAPS AND NECESSARY TEMPORARY DRAINAGE PROVISIONS SHALL BE CONSTRUCTED AND OPERATIONAL BEFORE BEGINNING OF SIGNIFICANT MASS GRADING OPERATIONS TO PREVENT OFFSITE DISCHARGE OF UNTREATED RUNOFF.
9. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE GENERAL CONTRACTOR WILL BE RESPONSIBLE FOR INSPECTION AND REPAIR DURING CONSTRUCTION. THE OWNER WILL BE RESPONSIBLE IF EROSION CONTROL IS REQUIRED AFTER THE CONTRACTOR HAS COMPLETED THE PROJECT.
10. DITCH CHECKS AND APPLICABLE EROSION NETTING/MATTING SHALL BE INSTALLED IMMEDIATELY AFTER COMPLETION OF GRADING EFFORTS WITHIN DITCHES/SWALES TO PREVENT SOIL TRANSPORTATION.
11. EROSION CONTROL FOR UTILITY CONSTRUCTION (STORM SEWER, SANITARY SEWER, WATER MAIN, ETC.) OUTSIDE OF THE PERIMETER CONTROLS SHALL INCORPORATE THE FOLLOWING:
    - PLACE EXCAVATED TRENCH MATERIAL ON THE HIGH SIDE OF THE TRENCH.
    - BACKFILL, COMPACT, AND STABILIZE THE TRENCH IMMEDIATELY AFTER PIPE CONSTRUCTION.
    - DISCHARGE TRENCH WATER INTO A SEDIMENTATION BASIN OR FILTERING TANK IN ACCORDANCE WITH THE DEWATERING TECHNICAL STANDARD NO. 1061 PRIOR TO RELEASE INTO THE STORM SEWER, RECEIVING STREAM, OR DRAINAGE DITCH.
12. INLET PROTECTION SHALL BE IMMEDIATELY FITTED AT THE INLET OF ALL INSTALLED STORM SEWER AND DITCH CHECKS SHALL BE IMMEDIATELY FITTED AT ALL INSTALLED CULVERT INLETS TO PREVENT SEDIMENT DEPOSITION WITHIN STORM SEWER SYSTEMS.
13. TOPSOIL STOCKPILE SHALL BE LOCATED GENERALLY AS SHOWN. CONTRACTOR MAY SUBMIT AN ALTERNATE PLAN FOR LOCATION OF TEMPORARY TOPSOIL STOCKPILE TO ENGINEER FOR APPROVAL. INSTALL EROSION CONTROLS ON THE DOWNSTREAM SIDE OF STOCKPILES. IF STOCKPILE REMAINS UNDISTURBED FOR MORE THAN SEVEN (7) DAYS, TEMPORARY SEEDING AND STABILIZATION IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS IS REQUIRED. IF DISTURBANCE OCCURS BETWEEN NOVEMBER 15TH AND MAY 15TH, THE MULCHING SHALL BE PERFORMED BY HYDRO-MULCHING WITH A "TACKIFIER."
14. EROSION CONTROL MEASURES TEMPORARILY REMOVED FOR UNAVOIDABLE CONSTRUCTION ACTIVITIES SHALL BE IN WORKING ORDER PRIOR TO THE COMPLETION OF EACH WORK DAY.
15. PUMPS MAY BE USED AS BYPASS DEVICES. IN NO CASE SHALL PUMPED WATER BE DIVERTED OUTSIDE THE PROJECT LIMITS.
16. GRADING EFFORTS SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. EROSION AND SEDIMENT CONTROL MEASURES SHALL CONSIDER THE TIME OF YEAR, SITE CONDITIONS, AND THE USE OF TEMPORARY OR PERMANENT MEASURES. ALL DISTURBED AREAS THAT WILL NOT BE WORKED FOR A PERIOD OF FOURTEEN (14) DAYS REQUIRE TEMPORARY SEEDING FOR EROSION CONTROL. SEEDING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS.
17. ALL DISTURBED SLOPES EXCEEDING 4:1 YET LESS THAN 3:1, SHALL BE STABILIZED WITH NORTH AMERICAN GREEN S75BN EROSION MATTING (OR APPROVED EQUAL) AND DISTURBED SLOPES EXCEEDING 3:1 YET LESS THAN 2:1 SHALL BE STABILIZED WITH NORTH AMERICAN GREEN C125BN (OR APPROVED EQUAL) OR APPLICATION OF AN APPROVED POLYMER SOIL STABILIZATION TREATMENT OR A COMBINATION THEREOF, AS REQUIRED WITHIN 7 DAYS OF REACHING FINAL GRADE AND/OR AS SOON AS CONDITIONS ALLOW. DRAINAGE SWALES SHALL BE STABILIZED WITH CLASS II, TYPE B EROSION MATTING. EROSION MATTING AND/OR NETTING USED ONSITE SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES AND WDNR TECHNICAL STANDARDS 1052 AND 1053.
18. STABILIZATION PRACTICES:
    - 18.1. STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS PRACTICABLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED. NO MORE THAN SEVEN (7) DAYS SHALL PASS AFTER THE CONSTRUCTION ACTIVITY IN THAT PORTION OF THE SITE HAS CEASED UNLESS:
    - 18.2. THE INITIATION STABILIZATION MEASURES BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS CEASED IS PRECLUDED BY SNOW COVER. IN THAT EVENT, STABILIZATION SHALL BE INITIATED AS SOON AS PRACTICABLE.
    - 18.3. CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN FOURTEEN (14) DAYS FROM WHEN ACTIVITY CEASED, (I.E. THE TOTAL TIME PERIOD THAT THE CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN FOURTEEN (14) DAYS. IN THAT EVENT, STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF THE SITE BY THE SEVENTH (7) DAY AFTER CONSTRUCTION ACTIVITY HAS TEMPORARILY CEASED.
    - 18.4. STABILIZATION MEASURES SHALL BE DETERMINED BASED ON SITE CONDITIONS AT THE TIME OF CONSTRUCTION ACTIVITY HAS CEASED, INCLUDING BUT NOT LIMITED TO WEATHER CONDITIONS AND LENGTH OF TIME MEASURE MUST BE EFFECTIVE. THE FOLLOWING ARE ACCEPTABLE STABILIZATION MEASURES:
        - PERMANENT SEEDING; IN ACCORDANCE WITH APPROVED CONSTRUCTION SPECIFICATION
        - TEMPORARY SEEDING; MAY CONSIST OF SPRING OATS(100LBS/ACRE) AND/OR WHEAT OR CEREAL RYE (150LB/ACRE)
        - HYDRO-MULCHING WITH A TACKIFIER
        - GEOTEXTILE EROSION MATTING
        - SODDING
19. DURING PERIODS OF EXTENDED DRY WEATHER, THE CONTRACTOR SHALL KEEP A WATER TRUCK ON SITE FOR THE PURPOSE OF WATERING DOWN SOILS WHICH MAY OTHERWISE BECOME AIRBORNE. THE CONTRACTOR IS RESPONSIBLE FOR CONTROLLING WIND EROSION (DUST) DURING CONSTRUCTION AT THEIR EXPENSE. REFER TO WDNR TECHNICAL STANDARD 1068.
20. DISTURBED AREAS AND AREAS USED FOR STORAGE OF MATERIALS THAT ARE EXPOSED TO PRECIPITATION SHALL BE VISUALLY INSPECTED FOR EVIDENCE OF, OR THE POTENTIAL FOR, POLLUTANTS ENTERING THE DRAINAGE SYSTEM ON A DAILY BASIS.
21. MAINTAIN SOIL EROSION CONTROL DEVICES THROUGH THE DURATION OF THIS PROJECT. EROSION CONTROL MEASURES SHALL NOT BE REMOVED UNTIL ALL LAND DISTURBING CONSTRUCTION ACTIVITY AT THE SITE HAS BEEN COMPLETED AND THAT A UNIFORM PERENNIAL VEGETATIVE COVER HAS BEEN ESTABLISHED WITH A DENSITY OF AT LEAST 70% FOR UNPAVED AREAS AND AREAS NOT COVERED BY PERMANENT STRUCTURES OR THAT EMPLOY EQUIVALENT PERMANENT STABILIZATION MEASURES. DISTURBANCE ASSOCIATED WITH EROSION CONTROL REMOVAL SHALL BE IMMEDIATELY STABILIZED.
22. QUALIFIED PERSONNEL (PROVIDED BY THE GENERAL/PRIME CONTRACTOR) SHALL INSPECT DISTURBED AREAS OF THE CONSTRUCTION SITE THAT HAVE NOT BEEN FINALLY STABILIZED AND EROSION AND SEDIMENT CONTROLS WITHIN 24 HOURS OF ALL 0.5-INCH, OR MORE, PRECIPITATION EVENTS WITH A MINIMUM INSPECTION INTERVAL OF ONCE EVERY SEVEN (7) CALENDAR DAYS IN THE ABSENCE OF A QUALIFYING RAIN OR SNOWFALL EVENT. REPORTING SHALL BE IN ACCORDANCE WITH PART IV D.4. (a-f). OF THE NPDES GENERAL PERMIT. CONTRACTOR SHALL IMMEDIATELY ARRANGE TO HAVE ANY DEFICIENT ITEMS REVEALED DURING INSPECTIONS REPAIRED/REPLACED.
23. THE FOLLOWING MAINTENANCE PRACTICES SHALL BE USED TO MAINTAIN, IN GOOD AND EFFECTIVE OPERATING CONDITIONS, VEGETATION, EROSION AND SEDIMENT CONTROL MEASURES, AND OTHER PROTECTIVE MEASURES IDENTIFIED IN THIS PLAN. UPON IDENTIFICATION, DEFICIENCIES IN STORMWATER CONTROLS SHALL BE ADDRESSED IMMEDIATELY. THE MAINTENANCE PROCEDURES FOR THIS DEVELOPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO THOSE LISTED BELOW:
    - SILT FENCE – REPAIR OR REPLACE ANY DAMAGED FILTER FABRIC AND/OR STAKES. REMOVE ACCUMULATED SEDIMENT WHEN IT HAS REACHED ONE-HALF THE ABOVE GROUND HEIGHT OF THE FENCE.
    - CONSTRUCTION ENTRANCE – AS NEEDED, ADD STONE TO MAINTAIN CONSTRUCTION ENTRANCE DIMENSIONS AND EFFECTIVENESS.
    - EROSION CONTROL MATTING – REPAIR MATTING IMMEDIATELY IF INSPECTION REVEALS BREACHED OR FAILED CONDITIONS. REPAIR AND RE-GRADE SOIL WHERE CHANNELIZATION HAS OCCURRED.
    - DIVERSION BERM/SWALE – REPLACE OR RE-COMPACT THE CONSTRUCTION MATERIALS AS NECESSARY.
    - INLET PROTECTION – CLEAN, REPAIR OR REPLACE FILTER FABRIC AND/OR STONE WHEN CONTROL MEASURE IS CLOGGED. INLET FILTER BAGS SHALL BE REPLACED ONCE BAG BECOMES ONE-HALF FULL OF SEDIMENT.

ADDITIONAL POLLUTANT CONTROL MEASURES TO BE IMPLEMENTED DURING CONSTRUCTION ACTIVITIES SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

- CONSTRUCTION WASTE SHALL BE PROPERLY DISPOSED OF. THIS INCLUDES ALL CONSTRUCTION SITE WASTE MATERIAL, SANITARY WASTE, AND WASTE FROM VEHICLE TRACKING OF SEDIMENTS. THE CONTRACTOR SHALL ENSURE THAT NO MATERIAL WASTES OR UNUSED BUILDING MATERIALS SHALL BE BURIED, DUMPED, BURNED, OR DISCHARGED TO THE WATERS OF THE STATE. VEHICLES HAULING MATERIAL AWAY FROM THE SITE SHALL BE COVERED WITH A TARPAULIN TO PREVENT BLOWING DEBRIS.
- DUST CONTROL SHALL BE ACCOMPLISHED BY ONE OR MORE OF THE FOLLOWING METHODS:
- COVERING 30% OR MORE OF THE SOIL SURFACE WITH A NON-ERODIBLE MATERIAL.
- ROUGHENING THE SOIL TO PRODUCE RIDGES PERPENDICULAR TO THE PREVAILING WIND. RIDGES SHALL BE AT LEAST SIX (6) INCHES IN HEIGHT.
- FREQUENT WATERING OF EXCAVATION AND FILL AREAS.
- PROVIDING GRAVEL OR PAVING AT ENTRANCE/EXIT DRIVES, PARKING AREAS AND TRANSIT PATHS.
- STREET SWEEPING SHALL BE PERFORMED TO IMMEDIATELY REMOVE ANY SEDIMENT TRACKED ON PAVEMENTS.

24. CONTRACTOR/OWNER SHALL FILE A NOTICE OF TERMINATION UPON COMPLETION OF THE PROJECT IN ACCORDANCE WITH WDNR REQUIREMENTS AND/OR PROPERTY SALE IN ACCORDANCE WITH WDNR REQUIREMENTS.

JSD Professional Services, Inc.
Engineers • Surveyors • Planners
CREATE THE VISION TELL THE STORY
MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE
MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	12/12/2019	Revised per City Comments
2	01/29/2020	PER WDNR COMMENTS
3	02/06/2020	Rev. per Vill. & WDNR Comments
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

SHEET TITLE:
EROSION CONTROL PLAN

SHEET NUMBER:
C4.0

JSD PROJECT NO: 19-9231

UTILITY NOTES

1. ALL EXISTING UTILITIES ARE SHOWN FOR INFORMATIONAL PURPOSES ONLY AND ARE NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATIONS OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. CONTRACTOR/OWNER SHALL CALL "DIGGER'S HOTLINE" PRIOR TO ANY CONSTRUCTION.
2. PRIOR TO CONSTRUCTION, THE PRIME CONTRACTOR IS RESPONSIBLE FOR:
   * EXAMINING ALL SITE CONDITIONS RELATIVE TO THE CONDITIONS INDICATED ON THE ENGINEERING DRAWINGS. ANY DISCREPANCIES ARE TO BE REPORTED TO THE ENGINEER AND RESOLVED PRIOR TO THE START OF CONSTRUCTION.
   * OBTAINING ALL PERMITS INCLUDING PERMIT COSTS, TAP FEES, METER DEPOSITS, BONDS, AND ALL OTHER FEES REQUIRED FOR PROPOSED WORK TO OBTAIN OCCUPANCY.
   * VERIFYING ALL ELEVATIONS, LOCATIONS AND SIZES OF SANITARY, WATER AND STORM LATERALS AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS. NOTIFY ENGINEER OF ANY DISCREPANCY. NO WORK SHALL BE PERFORMED UNTIL THE DISCREPANCY IS RESOLVED.
   * NOTIFYING ALL UTILITIES PRIOR TO INSTALLATION OF ANY UNDERGROUND IMPROVEMENTS.
   * NOTIFYING THE DESIGN ENGINEER AND MUNICIPALITY 48 HOURS PRIOR TO THE START OF CONSTRUCTION TO ARRANGE FOR APPROPRIATE CONSTRUCTION OBSERVATION.
   * COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.
3. ALL UTILITY WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN HEREIN REFERRED TO AS THE "STANDARD SPECIFICATIONS" AND ALL STATE AND LOCAL CODES AND SPECIFICATIONS. IT IS THE CONTRACTORS RESPONSIBILITY TO DETERMINE WHICH SPECIFICATIONS AND CODES APPLY, AND TO COORDINATE ALL CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE LOCAL AND STATE AUTHORITIES.
4. SPECIFICATIONS SHALL COMPLY WITH THE VILLAGE OF MUKWONAGO SPECIFICATIONS AND WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES DSPS 382.
5. TRACER WIRES SHALL BE INSTALLED AS NECESSARY IN ACCORD WITH 182.0715(2R) OF THE STATE STATUTES AND THE VILLAGE OF MUKWONAGO REQUIREMENTS.
6. LENGTHS OF ALL UTILITIES ARE TO CENTER OF STRUCTURES OR FITTINGS AND MAY VARY SLIGHTLY FROM PLAN. LENGTHS ARE SHOWN FOR CONTRACTOR CONVENIENCE ONLY. CONTRACTOR IS SOLELY RESPONSIBLE FOR COMPUTATIONS OF MATERIALS REQUIRED TO COMPLETE WORK. LENGTHS SHALL BE FIELD VERIFIED DURING CONSTRUCTION.
7. CONTRACTOR SHALL FIELD VERIFY LOCATIONS, ELEVATIONS, AND SIZES OF PROPOSED UTILITIES AND CHECK ALL UTILITY CROSSINGS FOR CONFLICTS PRIOR TO ATTEMPTING CONNECTIONS AND BEGINNING UTILITY CONSTRUCTION.
8. CONTRACTOR IS RESPONSIBLE FOR SITE SAFETY DURING THE CONSTRUCTION OF IMPROVEMENTS.
9. CONTRACTOR SHALL ADJUST AND/OR RECONSTRUCT ALL UTILITY COVERS (SUCH AS MANHOLE COVERS, VALVE BOX COVERS, ETC.) TO MATCH THE FINISHED GRADES OF THE AREAS EFFECTED BY THE CONSTRUCTION.
10. THE PRIME CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL CONSTRUCTION WITH OTHER CONTRACTORS INVOLVED WITH CONSTRUCTION OF THE PROPOSED DEVELOPMENT AND FOR REPORTING ANY ERRORS OR DISCREPANCIES BETWEEN THESE PLANS AND PLANS PREPARED BY OTHERS.
11. ANY SANITARY SEWER, SANITARY SEWER SERVICES, WATER MAIN, WATER SERVICES, STORM SEWER, OR OTHER UTILITIES, WHICH ARE TO REMAIN, THAT ARE DAMAGED BY THE CONTRACTORS, SHALL BE REPAIRED TO THE OWNER'S SATISFACTION AT THE CONTRACTOR'S EXPENSE.
12. WATER SERVICE FOR THE PROPOSED ADDITION TO BE INTERNALLY FED FROM EXISTING BUILDING. SEE ARCHITECTURAL PLANS FOR DETAILS.
13. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING UTILITY AS-BUILT PLANS. DRAWINGS PREPARED TO MUNICIPALITY STANDARDS ARE REQUIRED PRIOR TO OCCUPANCY PERMIT ISSUANCE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING AND REPORTING ANY CHANGES TO THE DRAWINGS OR ADDITIONAL ITEMS TO THE ENGINEER AS WORK PROGRESSES.
14. SEE TABLE FOR STORM SEWER STRUCTURE INFORMATION.
15. STORM SEWER SPECIFICATIONS –

    PIPE – ALL STORM SEWER USED ON THIS PROJECT SHALL BE HIGH DENSITY POLYETHYLENE UNLESS OTHERWISE NOTED.

    HIGH DENSITY POLYETHYLENE SMOOTH-WALLED INTERIOR CORRUGATED PIPE SHALL BE AS MANUFACTURED BY ADS OR EQUAL, WITH WATER TIGHT JOINTS, MANNING "N" VALUE OF 0.010 AND SHALL MEET THE REQUIREMENTS OF AASHTO DESIGNATION M-294 TYPE S. MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH ASTM D3350, D2412, AND D2321 WITH ELASTOMERIC GASKETS CONFORMING TO ASTM F477.

    INLETS AND FRAMES

    INLETS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF WISCONSIN DEPARTMENT OF SAFETY AND PROFESSIONAL SERVICES SPS 382.36(9)b.3.

    FRAMES AND GRATES SHALL BE GRAY IRON MATERIAL (PER ASTM A-48) OF STYLES / NEENAH CATALOG NUMBERS AS INDICATED ON THESE CONSTRUCTION DRAWINGS.

    MANHOLES AND FRAMES
    MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE REQUIREMENTS OF SPS 382.35(8)a,b.

    FRAMES AND LIDS SHALL BE GRAY IRON MATERIAL (PER ASTM A-48) OF STYLES/NEENAH CATALOG NUMBERS AS INDICATED ON THESE CONSTRUCTION DRAWINGS. INTERNAL CHIMNEY SEALS SHALL BE CRETEX SPECIALTY PRODUCTS, OR EQUAL.

    CLEANOUTS – CLEANOUTS SHALL BE EQUIPPED WITH FROST SLEEVES IN ACCORDANCE WITH SPS 382.35(5)(A)2. (REFER TO DETAIL)

    BACKFILL AND BEDDING – STORM SEWER SHALL BE CONSTRUCTED WITH GRAVEL BACKFILL AND CLASS "B" BEDDING IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS".

    ROOF LEADER/STORM DRAIN LINES – ALL EXISTING ROOF LEADERS/STORM DRAIN LINES ENCOUNTERED WHICH ARE NOT SHOWN ON THE PLANS SHALL BE BROUGHT TO THE ATTENTION OF JSD PRIOR TO ABANDONMENT, REMOVAL, OR CONNECTION TO THE PROPOSED STORM SEWER SYSTEM. PROPOSED ROOF LEADERS FOR NORTHERLY SIDE OF ADDITION TO DRAIN TO SPLASH BLOCKS AND THEN OVERLAND TO THE NORTH. THE REMAINDER OF THE PROPOSED ROOF LEADERS TO EITHER DRAIN TO SPLASH BLOCKS THEN OVERLAND INTO PROPOSED STORM SEWER SYSTEM OR BE DIRECTLY TIED INTO PROPOSED STORM SEWER SYSTEM.
16. WATER MAIN SPECIFICATIONS –

    PIPE – ALL WATERMAIN PIPE USED ON THIS PROJECT SHALL BE POLYVINYL CHLORIDE UNLESS OTHERWISE NOTED.

    POLYVINYL CHLORIDE (PVC) PIPE SHALL MEET THE REQUIREMENTS OF AWWA STANDARD C-900, CLASS 150, DR-18, WITH CAST IRON O.D. AND INTEGRAL ELASTOMERIC BELL AND SPIGOT JOINTS. NON-METALLIC WATER MAINS SHALL BE INSTALLED WITH BLUE INSULATION TRACER WIRE AND CONFORM WITH SPS 382.30(11)(h).

    VALVES AND VALVE BOXES – GATE VALVES SHALL BE AWWA GATE VALVES MEETING THE REQUIREMENTS OF AWWA C-500 AND CHAPTER 8.27.0 OF THE "STANDARD SPECIFICATIONS". GATE VALVES AND VALVE BOXES SHALL CONFORM TO LOCAL PLUMBING ORDINANCES.

    HYDRANTS – HYDRANTS SHALL CONFORM TO THE SPECIFICATIONS OF THE VILLAGE OF MUKWONAGO. THE DISTANCE FROM THE GROUND LINE TO THE CENTERLINE OF THE LOWEST NOZZLE AND THE LOWEST CONNECTION OF THE FIRE DEPARTMENT SHALL BE NO LESS THAN 18-INCHES AND NO GREATER THAN 23-INCHES (SEE DETAIL).

    10-GAUGE TRACER WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF ALL PRIVATE WATER MAINS, HYDRANT LEADS, FIRE DEPARTMENT CONNECTION LEADS AND LATERALS. THE TRACER WIRE SHALL BE EXTENDED TO THE SURFACE AT THE BUILDING WALL AND ALL OTHER SYSTEM LIMITS AND ENCLOSED IN RISER BOX WITH "WATER" ON THE COVER.

    BEDDING AND COVER MATERIAL – PIPE BEDDING AND COVER MATERIAL SHALL BE SAND, CRUSHED STONE CHIPS OR CRUSHED STONE SCREENINGS CONFORMING TO CHAPTER 8.43.2 OF THE "STANDARD SPECIFICATIONS".

    THRUST BLOCKS SHOULD BE USED WHEREVER NECESSARY TO PREVENT SEPARATION OF JOINTS AND PIPE MOVEMENT. JOINT RESTRAINTS MAY ALSO BE USED AS APPLICABLE.

    BACKFILL – BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE WITH CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS". GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS".
17. WATERMAIN SHALL BE INSULATED WHEREVER THE DEPTH OF COVER IS LESS THAN 6 FEET. INSULATION AND INSTALLATION OF INSULATION SHALL BE CONFORMING WITH CHAPTER 4.17.0 "INSULATION" OF THE "STANDARD SPECIFICATIONS".
18. ALL NEW ON-SITE STORM AND WATER UTILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.
19. THE CONTRACTOR SHALL CONTACT THE VILLAGE OF MUKWONAGO 48-HOURS IN ADVANCE TO COORDINATE CONNECTION TO THE MUNICIPAL SYSTEM.
20. SANITARY SEWER SPECIFICATIONS –

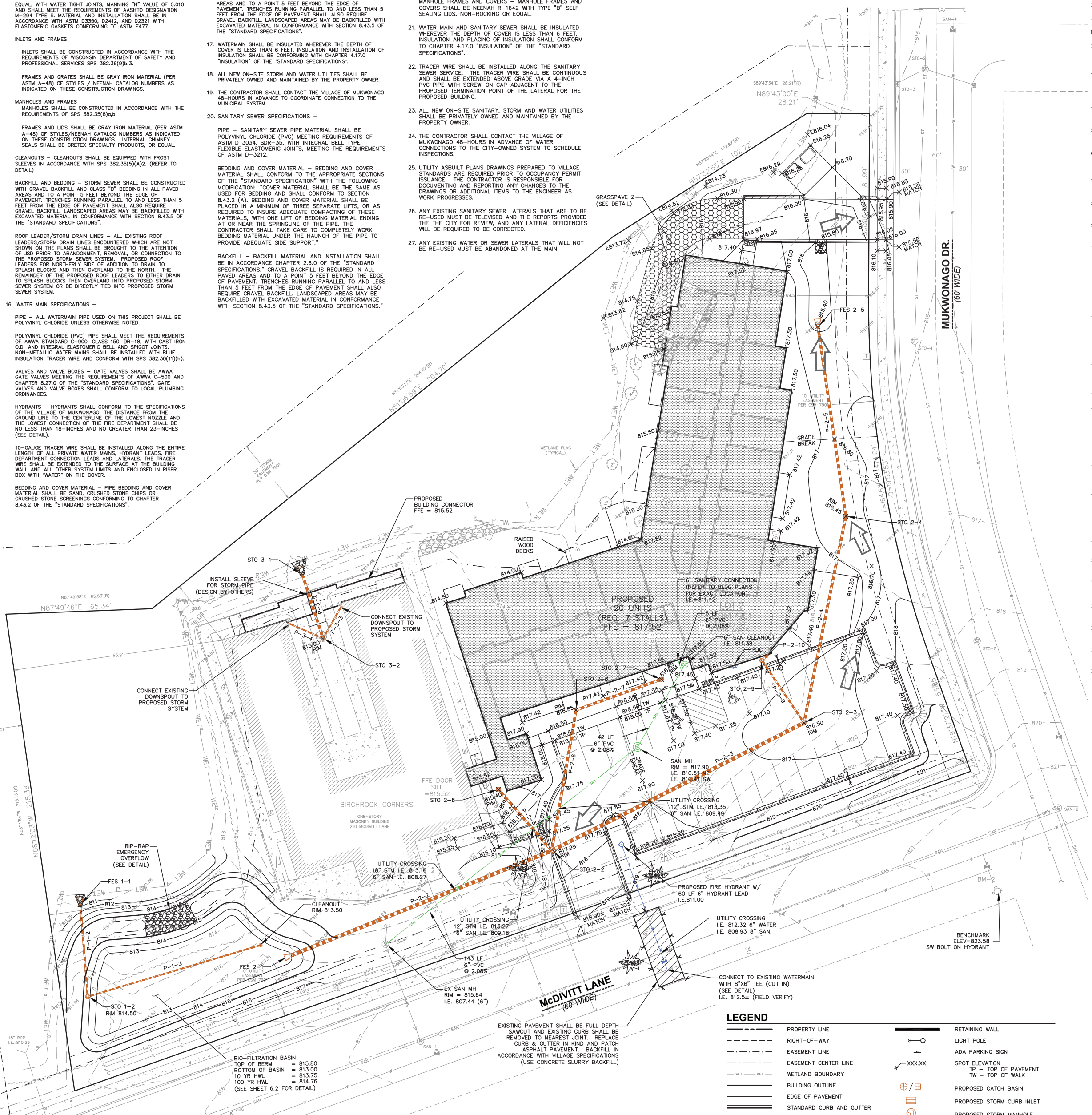
    PIPE – SANITARY SEWER PIPE MATERIAL SHALL BE POLYVINYL CHLORIDE (PVC) MEETING REQUIREMENTS OF ASTM D 3034, SDR-35, WITH INTEGRAL BELL TYPE FLEXIBLE ELASTOMERIC JOINTS, MEETING THE REQUIREMENTS OF ASTM D-3212.

    BEDDING AND COVER MATERIAL – BEDDING AND COVER MATERIAL SHALL CONFORM TO THE APPROPRIATE SECTIONS OF THE "STANDARD SPECIFICATION" WITH THE FOLLOWING MODIFICATION: "COVER MATERIAL SHALL BE THE SAME AS USED FOR BEDDING AND SHALL CONFORM TO SECTION 8.43.2 (A). BEDDING AND COVER MATERIAL SHALL BE PLACED IN A MINIMUM OF THREE SEPARATE LIFTS, OR AS REQUIRED TO INSURE ADEQUATE COMPACTING OF THESE MATERIALS, WITH ONE LIFT OF BEDDING MATERIAL ENDING AT OR NEAR THE SPRINGLINE OF THE PIPE. THE CONTRACTOR SHALL TAKE CARE TO COMPLETELY WORK BEDDING MATERIAL UNDER THE HAUNCH OF THE PIPE TO PROVIDE ADEQUATE SIDE SUPPORT."

    BACKFILL – BACKFILL MATERIAL AND INSTALLATION SHALL BE IN ACCORDANCE CHAPTER 2.6.0 OF THE "STANDARD SPECIFICATIONS." GRAVEL BACKFILL IS REQUIRED IN ALL PAVED AREAS AND TO A POINT 5 FEET BEYOND THE EDGE OF PAVEMENT. TRENCHES RUNNING PARALLEL TO AND LESS THAN 5 FEET FROM THE EDGE OF PAVEMENT SHALL ALSO REQUIRE GRAVEL BACKFILL. LANDSCAPED AREAS MAY BE BACKFILLED WITH EXCAVATED MATERIAL IN CONFORMANCE WITH SECTION 8.43.5 OF THE "STANDARD SPECIFICATIONS."

    MANHOLES – MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH FILE NOS. 12, 13 AND 15 OF THE "STANDARD SPECIFICATIONS" AND ALL SPECIAL PROVISIONS OF THE VILLAGE OF MUKWONAGO.

    MANHOLE FRAMES AND COVERS – MANHOLE FRAMES AND COVERS SHALL BE NEENAH R-1642 WITH TYPE "B" SELF SEALING LIDS, NON-ROCKING OR EQUAL.
21. WATER MAIN AND SANITARY SEWER SHALL BE INSULATED WHEREVER THE DEPTH OF COVER IS LESS THAN 6 FEET. INSULATION AND PLACING OF INSULATION SHALL CONFORM TO CHAPTER 4.17.0 "INSULATION" OF THE "STANDARD SPECIFICATIONS".
22. TRACER WIRE SHALL BE INSTALLED ALONG THE SANITARY SEWER SERVICE. THE TRACER WIRE SHALL BE CONTINUOUS AND SHALL BE EXTENDED ABOVE GRADE VIA A 4-INCH PVC PIPE WITH SCREW-ON CAP ADJACENT TO THE PROPOSED TERMINATION POINT OF THE LATERAL FOR THE PROPOSED BUILDING.
23. ALL NEW ON-SITE SANITARY, STORM AND WATER UTILITIES SHALL BE PRIVATELY OWNED AND MAINTAINED BY THE PROPERTY OWNER.
24. THE CONTRACTOR SHALL CONTACT THE VILLAGE OF MUKWONAGO 48-HOURS IN ADVANCE OF WATER CONNECTIONS TO THE CITY-OWNED SYSTEM TO SCHEDULE INSPECTIONS.
25. UTILITY ASBUILT PLANS DRAWINGS PREPARED TO VILLAGE STANDARDS ARE REQUIRED PRIOR TO OCCUPANCY PERMIT ISSUANCE. THE CONTRACTOR IS RESPONSIBLE FOR DOCUMENTING AND REPORTING ANY CHANGES TO THE DRAWINGS OR ADDITIONAL ITEMS TO THE ENGINEER AS WORK PROGRESSES.
26. ANY EXISTING SANITARY SEWER LATERALS THAT ARE TO BE RE-USED MUST BE TELEVISED AND THE REPORTS PROVIDED THE THE CITY FOR REVIEW, AND ANY LATERAL DEFICIENCIES WILL BE REQUIRED TO BE CORRECTED.
27. ANY EXISTING WATER OR SEWER LATERALS THAT WILL NOT BE RE-USED MUST BE ABANDONED AT THE MAIN.



GENERAL NOTES

1. REFER TO THE EXISTING CONDITIONS SURVEY FOR EXISTING CONDITIONS NOTES AND LEGENDS.
2. ALL WORK IN THE ROW AND/OR PUBLIC EASEMENTS SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN AND MUNICIPAL REQUIREMENTS.
3. EXISTING GRADE SPOT ELEVATIONS SHOWN FOR INFORMATIONAL PURPOSES. DURING CONSTRUCTION MATCH EXISTING GRADES AT CONSTRUCTION LIMITS.
4. NO SITE GRADING OUTSIDE OR DOWNSLOPE OF PROPOSED SILT FENCE LOCATION. NO LAND DISTURBANCE BEYOND PROPERTY LINES.
5. JSD PROFESSIONAL SERVICES, INC. (JSD) SHALL BE HELD HARMLESS AND DOES NOT WARRANT ANY DEVIATIONS BY THE OWNER/CONTRACTOR FROM THE APPROVED CONSTRUCTION PLANS THAT MAY RESULT IN DISCIPLINARY ACTIONS BY ANY OR ALL REGULATORY AGENCIES.

LEGEND

PROPERTY LINE
RIGHT-OF-WAY
EASEMENT LINE
EASEMENT CENTER LINE
WETLAND BOUNDARY
BUILDING OUTLINE
EDGE OF PAVEMENT
STANDARD CURB AND GUTTER
REJECT CURB AND GUTTER
959 PROPOSED 1 FOOT CONTOUR
960 PROPOSED 5 FOOT CONTOUR
959 EXISTING 1 FOOT CONTOUR
960 EXISTING 5 FOOT CONTOUR
PROPOSED BREAKLINE
OVERFLOW ROUTE
RIP-RAP
RETAINING WALL
LIGHT POLE
ADA PARKING SIGN
XXX.XX SPOT ELEVATION
TP – TOP OF PAVEMENT
TW – TOP OF WALK
PROPOSED CATCH BASIN
PROPOSED STORM CURB INLET
PROPOSED STORM MANHOLE
PROPOSED STORM SEWER
W PROPOSED WATERMAIN
SAN PROPOSED SANITARY
PROPOSED SANITARY MANHOLE
PROPOSED SANITARY CLEANOUT
PROPOSED WATER VALVE
PROPOSED FIRE HYDRANT

GRADING AND SEEDING NOTES

1. THE CONTRACTOR SHALL FIELD VERIFY THE FOLLOWING:
   A. ELEVATIONS OF THE BENCHMARKS PRIOR TO COMMENCING WORK.
   B. LOCATION AND ELEVATION OF:
      1. EXISTING PIPE INVERTS
2. FLOOR ELEVATIONS
      3. CURB OR PAVEMENT WHERE MATCHING INTO EXISTING WORK
4. HORIZONTAL CONTROL BY REFERENCING SHOWN COORDINATES TO KNOWN PROPERTY LINES.

NOTIFY ENGINEER OF DISCREPANCIES IN EITHER VERTICAL OR HORIZONTAL CONTROL PRIOR TO PROCEEDING WITH WORK.

2. ALL PROPOSED GRADES SHOWN ARE FINISHED GRADES. CONTRACTOR SHALL VERIFY ALL GRADES, MAKE SURE ALL AREAS DRAIN PROPERLY AND SHALL REPORT ANY DISCREPANCIES TO THE JSD PROFESSIONAL SERVICES, INC. (JSD) PRIOR TO THE START OF ANY CONSTRUCTION ACTIVITIES.
3. CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR COMPUTATIONS OF ALL GRADING QUANTITIES. WHILE JSD ATTEMPTS TO PROVIDE A COST- EFFECTIVE APPROACH TO BALANCE EARTHWORK, GRADING DESIGN IS BASED ON MANY FACTORS, INCLUDING SAFETY, AESTHETICS, AND COMMON ENGINEERING STANDARDS OF CARE. THEREFORE, NO GUARANTEE CAN BE MADE FOR A BALANCED SITE.
4. THE CONTRACTOR MAY SOLICIT APPROVAL FROM JSD/OWNER TO ADJUST FINAL GRADES FROM DESIGN GRADES TO PROVIDE AN OVERALL SITE BALANCE AS A RESULT OF FIELD CONDITIONS.
5. ALL UNSURFACED AREAS ARE TO RECEIVE FOUR INCHES OF TOPSOIL AND BE SEEDED, MULCHED AND WATERED UNTIL A HEALTHY STAND OF GRASS IS OBTAINED.
6. THIS GRADING PLAN IS BASED ON A TOPOGRAPHIC SURVEY. SOME FIELD ADJUSTMENTS MAY BE NECESSARY AT POINTS WHERE PROPOSED GRADES MEET EXISTING. REVIEW ANY REQUIRED CHANGES WITH JSD PRIOR TO CONSTRUCTION OF WORK.
7. PROPERTY CORNER MARKERS SHALL BE CAREFULLY PROTECTED. MONUMENTS DISTURBED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.
8. PROPOSED CONTOURS ARE PROVIDED FOR INFORMATIONAL PURPOSES ONLY. ALL CONSTRUCTION SHALL BE BASED UPON PROPOSED SPOT ELEVATIONS WHERE PROVIDED.
9. PARKING LOT AND DRIVEWAY ELEVATIONS ARE PAVEMENT GRADES LOCATED ALONG THE FLANGE LINE, NOT TOP OF CURB GRADES, UNLESS OTHERWISE NOTED.
10. ALL EXCAVATIONS AND MATERIAL PLACEMENT SHALL BE COMPLETED TO DESIGN ELEVATIONS AS DEPICTED IN THE PLANS.
11. GRADING ACTIVITIES SHALL BE IN A MANNER TO ALLOW POSITIVE DRAINAGE ACROSS DISTURBED SOILS, WHICH MAY INCLUDE EXCAVATION OF TEMPORARY DITCHES TO PREVENT PONDING, AND IF NECESSARY, PUMPING TO ALLEVIATE PONDING. CONTRACTOR SHALL PREVENT SURFACE WATER FROM ENTERING INTO EXCAVATIONS. IN NO WAY SHALL OWNER BE RESPONSIBLE FOR REMEDIATION OF UNSUITABLE SOILS CREATED/ORIGINATED AS A RESULT OF IMPROPER SITE GRADING OR SEQUENCING. CONTRACTOR SHALL SEQUENCE GRADING ACTIVITIES TO LIMIT EXPOSURE OF DISTURBED SOILS DUE TO WEATHER.
12. THE CONTRACTOR IS RESPONSIBLE FOR MEETING MINIMUM COMPACTION STANDARDS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER. CONTRACTOR SHALL REFER TO THE GEOTECHNICAL ENGINEERING REPORT FOR SITE COMPACTION REQUIREMENTS. THE CONTRACTOR SHALL NOTIFY ENGINEER/OWNER IF PROPER COMPACTION CANNOT BE OBTAINED. THE PROJECT'S GEOTECHNICAL CONSULTANT SHALL DETERMINE WHICH IN-SITU SOILS ARE TO BE CONSIDERED UNSUITABLE SOILS. THE ENGINEER/OWNER AND GEOTECHNICAL TESTING CONSULTANT WILL DETERMINE IF REMEDIAL MEASURES WILL BE NECESSARY.
13. IN THE EVENT THAT ANY MOISTURE-DENSITY TEST(S) FAIL TO MEET SPECIFICATION REQUIREMENTS, THE CONTRACTOR SHALL PERFORM CORRECTIVE WORK AS NECESSARY TO BRING THE MATERIAL INTO COMPLIANCE AND RETEST THE FAILED AREA AT NO COST TO THE OWNER.
14. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY JSD/OWNER IF GROUNDWATER IS ENCOUNTERED DURING EXCAVATION.
15. CONTRACTOR IS SOLELY RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF ADEQUATE AND SAFE TEMPORARY SHORING, BRACING, RETENTION STRUCTURES, AND EXCAVATIONS.
16. THE SITE SHALL BE COMPLETED TO WITHIN 0.10-FT (+/-) OF THE PROPOSED GRADES AS INDICATED WITHIN THE PLANS PRIOR TO PLACEMENT OF TOPSOIL OR STONE. CONTRACTOR IS ENCOURAGED TO SEQUENCE CONSTRUCTION SUCH THAT THE SITE IS DIVIDED INTO SMALLER AREAS TO ALLOW STABILIZATION OF DISTURBED SOILS IMMEDIATELY UPON COMPLETION OF INDIVIDUAL SMALLER AREAS.
17. CONTRACTOR SHALL CONTACT "DIGGER'S HOTLINE" FOR LOCATIONS OF ALL EXISTING UTILITIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES AND SHALL BE RESPONSIBLE FOR PROTECTING SAID UTILITIES FROM ANY DAMAGE DURING CONSTRUCTION.
18. WORK WITHIN ANY ROADWAY RIGHT-OF-WAY SHALL BE COORDINATED WITH THE APPROPRIATE AUTHORITY HAVING JURISDICTION PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION ACTIVITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FEES. GRADING WITHIN RIGHT-OF-WAY IS SUBJECT TO APPROVAL BY SAID AUTHORITY. RESTORATION OF RIGHT-OF-WAY IS CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF GRADING. RESTORATION SHALL INCLUDE ALL ITEMS NECESSARY TO RESTORE RIGHT-OF-WAY IN-KIND INCLUDING LANDSCAPING.
19. CONTRACTOR SHALL COMPLY WITH ALL CITY AND/OR STATE CONSTRUCTION STANDARDS/ORDINANCES.
20. CONTRACTOR SHALL PROVIDE NOTICE TO THE MUNICIPALITY IN ADVANCE OF ANY SOIL DISTURBING ACTIVITIES, IN ACCORDANCE WITH MUNICIPAL REQUIREMENTS.
21. ALL DISTURBED AREAS SHALL BE SODDED AND/OR SEEDED AND MULCHED IMMEDIATELY FOLLOWING GRADING ACTIVITIES. SOD/SEED MIX TO BE IN ACCORDANCE WITH LANDSCAPE PLAN.
22. CONTRACTOR SHALL WATER ALL NEWLY SODDED/SEEDED AREAS DURING THE SUMMER MONTHS WHENEVER THERE IS A 7 DAY LAPSE WITH NO SIGNIFICANT RAINFALL.
23. CONTRACTOR TO DEEP TILL ALL COMPACTED PERVIOUS SURFACES PRIOR TO SODDING AND/OR SEEDING AND MULCHING.
24. ALL SLOPES 20% OR GREATER SHALL BE TEMPORARY SEEDED, MULCHED, OR OTHER MEANS OF COVER PLACED ON THEM WITHIN 2 WEEKS OF DISTURBANCE.
25. ALL EXPOSED SOIL AREAS THAT WILL NOT BE BROUGHT TO FINAL GRADE OR ON WHICH LAND DISTURBING ACTIVITIES WILL NOT BE PERFORMED FOR A PERIOD GREATER THAN 30 DAYS AND REQUIRE VEGETATIVE COVER FOR LESS THAN 1 YEAR, REQUIRE TEMPORARY SEEDING FOR EROSION CONTROL. SEEDING FOR EROSION CONTROL SHALL BE IN ACCORDANCE WITH WDNR TECHNICAL STANDARD 1059 AND VILLAGE OF MUKWONAGO ORDINANCES.

PROPOSED STRUCTURES TABLE

LABEL	RIM EL. (FT)	INVERT EL. (FT)	DEPTH (FT)	STRUCTURE DESC.	FRAME & GRATE
FES 1-1		S INV: 810.83 (8")		8 IN HDPE FES	
FES 2-1		E INV: 813.00 (18")		18 IN HDPE FES	
FES 2-5		S INV: 815.40 (12")		12 IN HDPE FES	
STO 1-2	814.50	N INV: 811.00 (8") E INV: 811.00 (6")	3.0	36 IN CB (FLAT)	R-2565-G
STO 2-2	817.25	W INV: 813.25 (18") NE INV: 813.25 (18") NW INV: 813.25 (12") N INV: 813.25 (12")	4.0	72 IN MH (FLAT)	R-3067 TYPE R
STO 2-3	816.50	SW INV: 813.50 (18") N INV: 813.50 (12") NW INV: 813.50 (8")	3.0	60 IN MH (FLAT)	R-2501 TYPE D
STO 2-4	816.45	S INV: 813.88 (12") N INV: 813.88 (12")	2.6	12 IN DB	12 IN DOME GRATE
STO 2-6	816.85	S INV: 813.60 (12") E INV: 813.60 (12")	3.2	24 IN DB	24 IN DOME GRATE
STO 2-7	816.85	W INV: 813.85 (12")	3.0	12 IN DB	12 IN DOME GRATE
STO 2-8	815.40	SE INV: 813.32 (12")	2.1	24 IN DB	24 IN DOME GRATE
STO 2-9	817.35	SE INV: 813.85 (8") NE INV: 813.85 (8")	3.5	12 IN DB	12 IN DOME GRATE
STO 3-1		S INV: 812.50 (12")		12 IN HDPE FES	
STO 3-2	815.00	N INV: 812.65 (12") NE INV: 812.65 (6") NW INV: 812.65 (6")	2.4	24 IN DB	24 IN DOME GRATE

PROPOSED PIPES TABLE

LABEL	FROM	TO	LENGTH	INVERT EL. (FT)	DISCHARGE EL. (FT)	SLOPE	SIZE & MATERIAL
P-1-2	STO 1-2	FES 1-1	41'	811.00	810.83	0.41%	8 IN HDPE
P-1-3		STO 1-2	81'	811.40	811.00	0.50%	6 IN HDPE
P-2-2	STO 2-2	FES 2-1	125'	813.25	813.00	0.20%	18 IN HDPE
P-2-3	STO 2-3	STO 2-2	126'	813.50	813.25	0.20%	18 IN HDPE
P-2-4	STO 2-4	STO 2-3	94'	813.88	813.50	0.40%	12 IN HDPE
P-2-5	FES 2-5	STO 2-4	86'	815.40	813.88	1.77%	12 IN HDPE
P-2-6	STO 2-6	STO 2-2	64'	813.60	813.25	0.55%	12 IN HDPE
P-2-7	STO 2-7	STO 2-6	41'	813.85	813.60	0.62%	12 IN HDPE
P-2-8	STO 2-8	STO 2-2	36'	813.32	813.25	0.20%	12 IN HDPE
P-2-9	STO 2-9	STO 2-3	34'	813.85	813.50	1.04%	8 IN HDPE
P-2-10	Downspout	STO 2-9	4'	813.90	813.85	1.25%	8 IN HDPE
P-3-2	STO 3-2	STO 3-1	30'	812.65	812.50	0.50%	12 IN HDPE
P-3-3	Downspout	STO 3-2	17'	812.83	812.65	1.08%	6 IN HDPE
P-3-4	Downspout	STO 3-2	17'	812.83	812.65	1.07%	6 IN HDPE

north

SCALE IN FEET

20' 0 20'

DIGGERS HOTLINE
Toll Free (800) 242-8511

JSD Professional Services, Inc.
Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W238 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:

Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	12/12/2019	Revised per Village Comments
2	02/06/2020	Rev. per Vill. & WDNR Comments
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

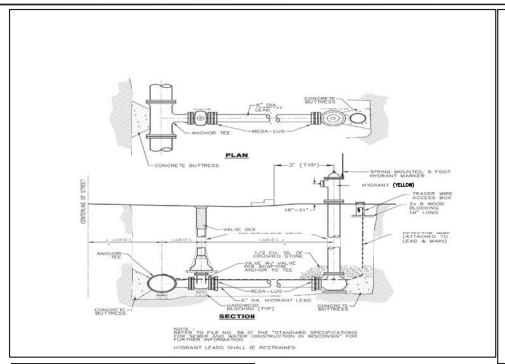
Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

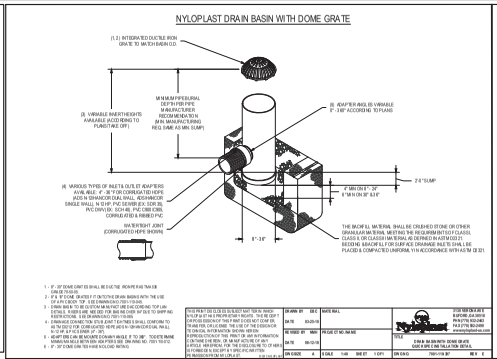
SHEET TITLE:
GRADING AND UTILITY PLAN

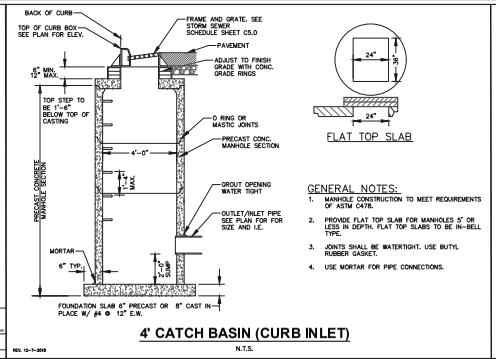
SHEET NUMBER:
C5.0

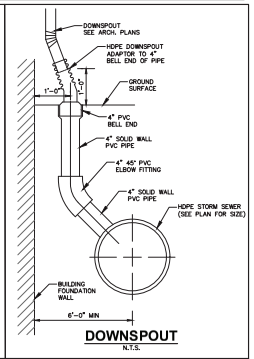
JSD PROJECT NO: 19-9231

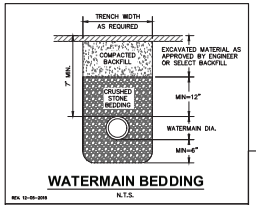
R:\2019\19-9231 Mukwonago RCAC (Mukwonago, WI)\DWG\Civil\Civil Sheets\19-9231 C5 - Grading and Utility Plan.dwg Layout: 5.0 Grading Plan User: cpeterson Plotted: Feb 06, 2020 - 4:35pm Xref's:

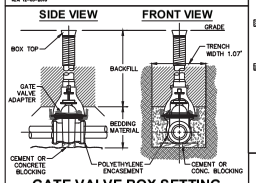


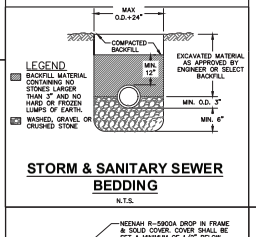


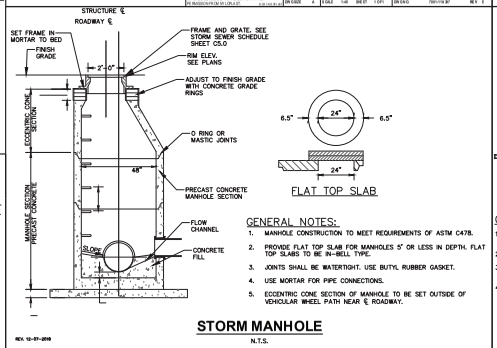


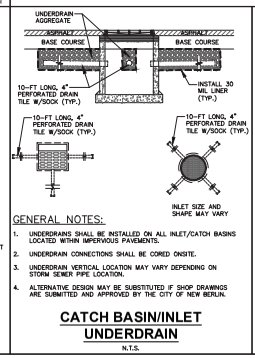


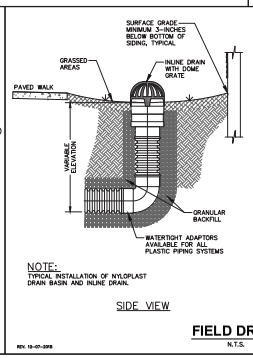


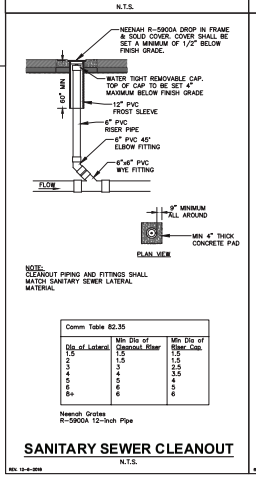


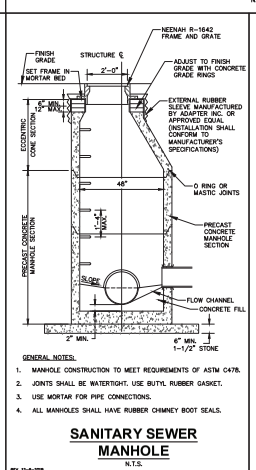


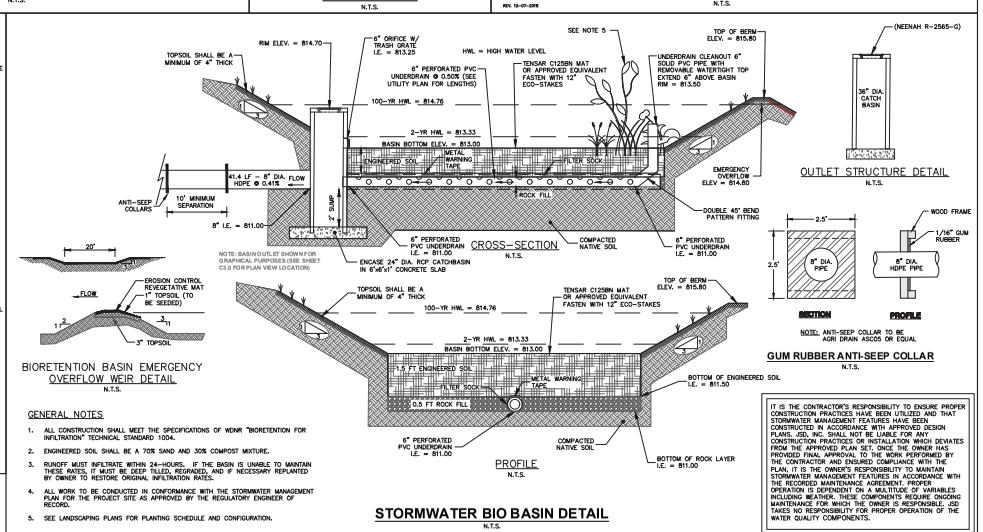












IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER CONSTRUCTION PRACTICES HAVE BEEN UTILIZED AND THAT STORMWATER MANAGEMENT FEATURES HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH APPROVED DESIGN PLANS. JSD, INC. SHALL NOT BE LIABLE FOR ANY CONSTRUCTION PRACTICES OR INSTALLATION WHICH DEVIATES FROM THE APPROVED PLAN SET. ONCE THE OWNER HAS PROVIDED FINAL APPROVAL TO THE WORK PERFORMED BY THE CONTRACTOR AND ENSURED COMPLIANCE WITH THE PLAN, IT IS THE OWNER'S RESPONSIBILITY TO MAINTAIN STORMWATER MANAGEMENT FEATURES IN ACCORDANCE WITH THE RECORDED MAINTENANCE AGREEMENT. PROPER OPERATION IS DEPENDENT ON A MULTITUDE OF VARIABLES INCLUDING WEATHER. THESE COMPONENTS REQUIRE ONGOING MAINTENANCE FOR WHICH THE OWNER IS RESPONSIBLE. JSD TAKES NO RESPONSIBILITY FOR PROPER OPERATION OF THE WATER QUALITY COMPONENTS.

RATIONAL METHOD STORM SEWER CALCULATIONS

Project Name: BIRCHROCK CASTLE ADDITION
Project Location: Mukwonago, WI
JSD Project Number: 19-0231
Performed by: IRN
Date: 2/5/2020

MILWAUKEE REGIONAL OFFICE
W239 N1610 Busse Road, Suite 100
Waukesha, Wisconsin 53186
Ph (262) 513-0666 Fax (262) 513-1232

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

Structure abbreviations are as follows: ES - End Section, MH - Manhole, FI - Field Inlet, TD - Trench Drain, BC - Building Connection, RD - Roof Drain, STB - Stub

PIPE LOCATION		STRUCTURE CONTRIBUTING AREA					PIPE FLOW				PIPE DATA				PIPE CAPACITY INFORMATION							DROP	ELEVATIONS			COVER
		ROOF	PAVED	GRASS	IND/VID AREA	NDV COM C VALUE	STORM EVENT (10,25,50,100)	INTENSITY I (IN/HR)	INDIV RUNOFF (CFS)	TOTAL FLOW (CFS)	TOTAL FLOW (GPM)				ACTUAL FLOW			FULL FLOW	TIME TO STRUCT.	TIME IN SEWER	THRU STRUCT				TO CROWN
UP STRUCT	DOWN STRUCT	C = 0.95 (SQ FT)	C = 0.95 (SQ FT)	C = 0.2 (SQ FT)	(ACRES)	(UNITLESS)					LENGTH (FT)	DIA. (IN)	SLOPE %	REQD DROP	ACTUAL DROP	PARTS FULL	VEL (FPS)	(CFS)	(MIN)	(MIN)	(FT)	IM/(F/L) UP	INVERT UP	INVERT DOWN	(FT)
FES 2-5	STO 2-4	1290	0	2910	0.10	0.43	100	7.29	0.30	0.30	136	85.94	12.00	1.77%	0.012	0.01	1.52	0.18	4.47	5.13	10.00	10.32	0.00	N/A	815.40	813.88	0.00
STO 2-4	STO 2-3	1910	665	1370	0.09	0.69	100	7.21	0.45	0.75	338	94.16	12.00	0.40%	0.012	0.04	0.38	0.37	2.80	2.44	10.32	10.88	0.00	816.45	813.88	813.50	1.47
STO 2-3	STO 2-2	0	7495	2815	0.24	0.75	100	7.08	1.25	2.49	1117	126.46	18.00	0.20%	0.012	0.06	0.25	0.54	2.96	5.09	10.88	11.59	0.00	816.50	813.50	813.25	1.35
STO 2-2	FES 2-1	0	3045	545	0.08	0.84	100	6.92	0.48	3.54	1591	125.26	18.00	0.20%	0.012	0.12	0.25	0.72	3.20	5.09	11.59	12.24	0.00	817.25	813.25	813.00	2.35
STO 2-7	STO 2-6	3120	100	290	0.08	0.89	100	7.29	0.52	0.52	234	41.00	12.00	0.62%	0.012	0.01	0.25	0.86	4.41	3.04	10.00	10.15	0.00	816.85	813.86	813.60	1.89
STO 2-6	STO 2-2	0	100	490	0.01	0.33	100	7.25	0.03	0.55	249	64.00	12.00	0.55%	0.012	0.01	0.35	0.32	3.12	2.86	10.15	10.50	0.00	816.85	813.60	813.25	2.15
STO 2-8	STO 2-2	0	100	260	0.01	0.41	100	7.29	0.02	0.02	11	36.30	12.00	0.20%	0.012	0.00	0.07	0.10	1.18	1.73	10.00	10.51	0.00	815.40	813.32	813.25	0.98
STO 2-9	STO 2-3	2910	100	260	0.08	0.89	100	7.29	0.49	0.49	219	34.00	8.00	1.04%	0.012	0.05	0.35	0.55	3.95	1.33	10.00	10.14	0.00	817.35	813.86	813.50	2.76

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

CREATE THE VISION TELL THE STORY

MADISON | MILWAUKEE | WAUSAU
APPLETON | KENOSHA | CHICAGO
COEUR D'ALENE

MILWAUKEE REGIONAL OFFICE
W239 N1610 BUSSE ROAD, SUITE 100
WAUKESHA, WISCONSIN 53188
P. 262.513.0666

CLIENT:
Castle Senior Living

CLIENT ADDRESS:
210 McDIVITT LANE
MUKWONAGO, WI 53149

PROJECT:
BIRCHROCK CASTLE ADDITION

PROJECT LOCATION:
VILLAGE OF MUKWONAGO
WAUKESHA COUNTY, WISCONSIN

PLAN MODIFICATIONS:

#	Date:	Description:
1	02/06/2020	Rev. per V.E. & WDNR Comments
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

Design/Drawn: CAP
Approved: DSR
Date: 11/06/2019

SHEET TITLE:
DETAILS

SHEET NUMBER:
C6.2

JSD PROJECT NO. 19-0231

Anti-Seep Collar Design

Project: **MUKWONAGO CBRF**
Project Location: MUKWONAGO, WI
JSD Project # : 19-9231

Performed By: IRN Date: 10/24/2019

MADISON REGIONAL OFFICE
161 Horizon Drive, Suite 101
Verona, Wisconsin 53593
Ph: (608) 848-5060 Fax: (608) 848-2255

MILWAUKEE REGIONAL OFFICE
W238 N1610 Busse Rd., Ste 100
Waukesha, Wisconsin 53188
Ph: (262) 513-0666 Fax: (262) 513-1232

JSD Professional Services, Inc.
• Engineers • Surveyors • Planners

SOUTH BIORETENTION

Discharge Pipe Diameter =	0.67	ft
Discharge Pipe Slope =	0.0041	ft/ft
100yr Pond Water Surface Elev. =	814.95	
Pond Discharge Pipe Elev. =	811.00	
Embankment Side Slope (H:1) =	3.00	

Notes:

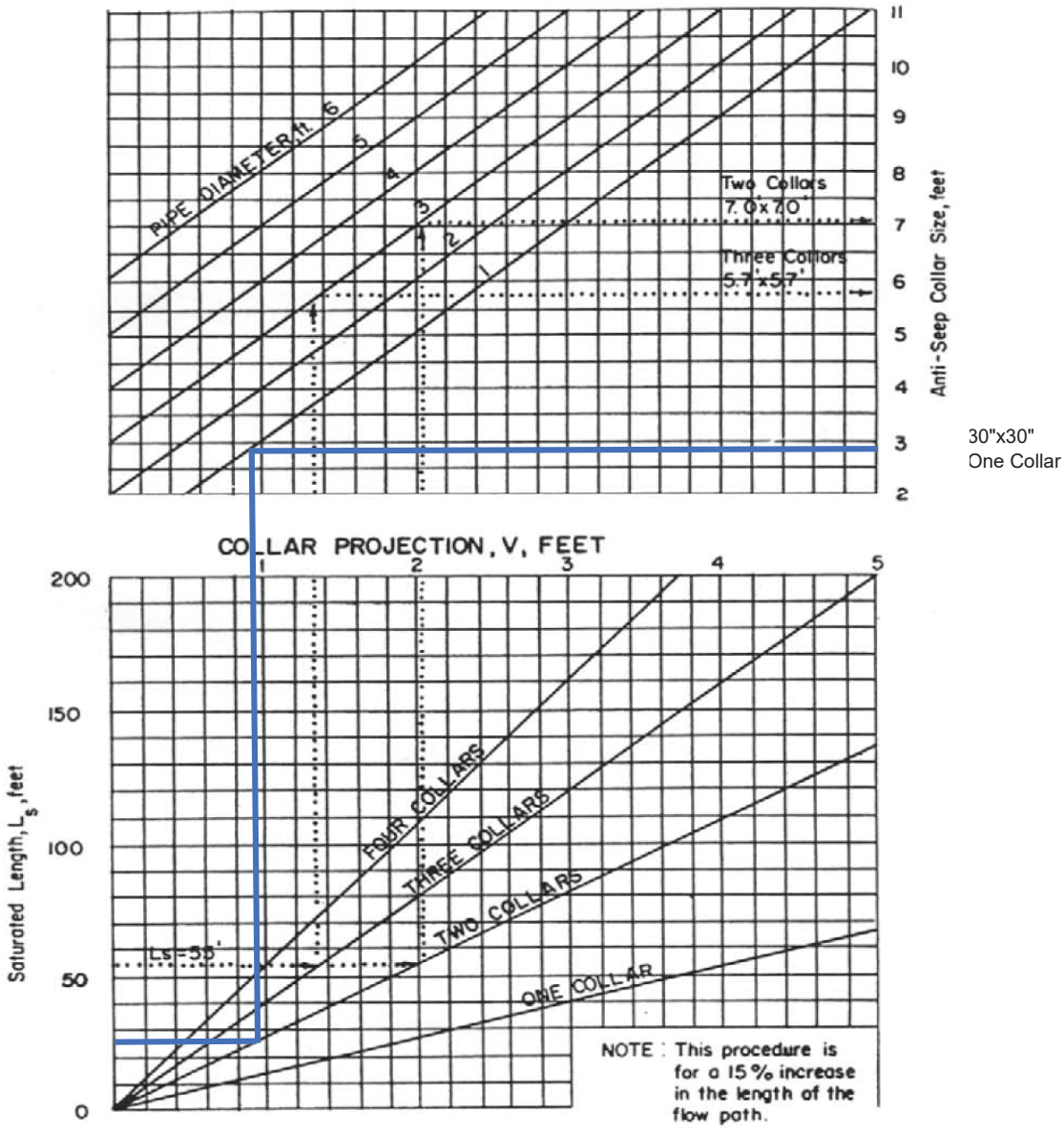
Ls - Length of Discharge Pipe in Saturated Zone
y - Headwater Acting on Discharge Pipe
z - Embankment Side Slope

$$Ls = y(z+4)\left[1+\frac{PipeSlope}{0.25-PipeSlope}\right]$$

$$Ls = (814.95 - 811.00)\ (3.00 + 4)\left|1 + \frac{0.0041}{(0.25 - 0.0410)}\right|$$

Ls = **28.11 ft**

Figure 5A.31(2)
Anti-Seep Collar Design Charts (USDA - NRCS)



APPENDIX 7

Operation and Maintenance Plan

Birchrock Castle Addition
Storm Water Maintenance Agreement
Village of Mukwonago, County of Waukesha, WI

_____, as "Owner" of the property described in Exhibit A, in accordance with Chapter 34 of the Village of Mukwonago Municipal Code, agrees to install and maintain storm water *management practices* on the subject property in accordance with approved plans and Storm Water Permit conditions. The Owner further agrees to the terms stated in this document to ensure that the storm water management practices continue serving the intended functions in perpetuity. This Agreement includes the following exhibits:

Exhibit A: Legal Description of the real estate for which this Agreement applies ("Property").
Exhibit B: Location Map - shows an accurate location of each storm water management practice affected by this Agreement.
Exhibit C: Maintenance Plan - prescribes those activities that must be carried out to maintain compliance with this Agreement.
Exhibit D: Design Summary - contains a summary of key Engineering calculations and other data used to design the storm water management practices.
Exhibit E: As-built survey (to be recorded as an addendum) - shows a detailed "as-built" cross section and plan view of the storm water management practices.
Exhibit F: Engineering/Construction Verification (to be recorded as an addendum) - provides verification from a Professional Engineer that the design and construction of the storm water management practices complies with all applicable technical standards and the Village's requirements.

NOTE: After construction verification has been accepted by the Village of Mukwonago, for all planned storm water management practices, an addendum(s) to this agreement shall be recorded by the Village showing construction details and construction verification. The addendum(s) may contain several additional exhibits, as described below.

Through this Agreement, the Owner hereby subjects the Property to the following covenants, conditions and restrictions:

1. Upon execution of this Agreement, the Village shall record the Agreement at the Waukesha County or Walworth County Register of Deeds, as applicable. The recording of this Agreement shall be a condition for the issuance of a Storm Water Permit. An addendum to this Agreement shall be recorded upon project completion which shall include submittal of Exhibit E and Exhibit F in an acceptable form to the Village. The recording of Amendment #1 including Exhibit E and Exhibit F shall be a condition for the issuance of an occupancy permit.

2. The Owner shall construct, maintain and if necessary reconstruct the storm water management practices so as to maintain their compliance with applicable governmental, statutes, ordinances or rules. The Owner shall be responsible for the routine and extraordinary maintenance and repair of the storm water management practices identified in Exhibit B in accordance with the maintenance plan contained in Exhibit C.

3. The Owner shall, at their own cost inspect the storm water best management practices on an annual basis and maintain records of annual inspections and maintenance performed. Records

shall be made available to the Village upon request within 30 days of written notice. Annual inspections shall be performed as detailed in Exhibit C Maintenance Plan of the storm water maintenance agreement and shall be performed to determine if the facility is functioning within the design parameters. Commencing in 2020 - and every five years thereafter the Owner shall, at their own cost, have a certification inspection of the storm water management practices conducted by a professional engineer, who shall then file a report with the Village of Mukwonago no later than December 31st of the same year. Upon written notification by Village of Mukwonago or its designee the Owner shall, at their own cost and within a reasonable time period determined by the Village of Mukwonago, have an inspection of the storm water management practices conducted by a professional engineer, who shall then file a report with the Village of Mukwonago. The Owner shall thereafter timely complete any maintenance or repair work recommended in any of the above reports. The Owner shall be liable for the failure to undertake any maintenance or repairs.

4. In addition, and independent of the requirements under paragraph 2 above, the Village of Mukwonago, or its designee, is authorized but not required to access the property as necessary to conduct inspections of the storm water management BMP's to ascertain compliance with the terms and intent of this Agreement and the activities prescribed in Exhibit C. The Village of Mukwonago may require work to be done which differs from the report(s) described in paragraph 3 above, if the Village of Mukwonago reasonably concludes that such work is necessary and consistent with the intent of this agreement and /or with Chapter 34 of the Village Code of Ordinances. Upon notification by the Village of Mukwonago of required maintenance or repairs, the Owner shall complete the specified maintenance or repairs within a reasonable time frame, as determined by the Village of Mukwonago.

5. If the Owner does not complete an inspection under 3 above or complete the required maintenance or repairs under 2 above within the specified time period, the Village of Mukwonago is authorized, but not required, to perform the specified inspections, maintenance or repairs. In the case of an emergency situation, as determined by the Village of Mukwonago, no notice shall be required prior to the Village of Mukwonago performing emergency maintenance or repairs.

   The cost of inspections or measures undertaken by the Village pursuant to this agreement shall be first paid from the proceeds of any surety maintained to secure the performance by the Owner/Developer of its obligations under this agreement and the conditions of the use, site and architectural approval. In the event that the costs of said measures shall exceed the value of the surety or the surety has expired or been terminated, then in that event the cost of said measures shall be assessed as a special charge for current services pursuant to Wis Stat Sec. 66.0627. Any such assessment which is not paid within 60 days after billing shall be deemed a delinquent special charge and shall become a lien upon the parcel against which such charge has been assessed. Such delinquent charges shall be extended upon the current or next tax roll as a delinquent tax against the parcels for which payment has not been received by the Village and all proceedings in relation to the collection, return and sale of property for delinquent real estate taxes shall apply to such special charges. The Developer hereby consents to the levy of such charge and waives notice and the right to hearing.

6. This Agreement shall run with the property and be binding upon all heirs, successors and assigns. After the Village records this document, the Village of Mukwonago shall have the sole authority to modify this agreement contingent upon the Village of Mukwonago providing a 30 day written notice to the current Owner. Any modifications shall conform to the minimum requirements of Chapter 34 (or its successor) and be written so as to ensure the long-term maintenance of the storm water BMP's.

7. The Owner/Developer agrees to pledge a surety in a form acceptable to the Village of Mukwonago to secure performance of the obligations arising from the construction and maintenance of the storm water BMPs provided for under this Agreement in the amount of 120% of the actual cost of the storm water BMPs. Said surety shall remain in effect for a period of three

(3) years from the date of the execution of this Agreement or until drawn upon in full by the Village or one year (1) from the date of the certification of the storm water improvements whichever occurs first. Release of the surety prior to the deadlines stated herein shall be governed by Mukwonago Village code section 34-108(c) as amended

8. This Agreement shall be governed and construed in accordance with the laws of the State of Wisconsin.

Dated this ____ day of _____, 202____

Owner:

_____
Authorized Representative of

_____
(Printed Name of Authorized Representative)

State of Wisconsin:
County of Waukesha

Personally came before me this ____ day of _____, 202____, the above named _____ _____, as the authorized Representative of _____ _____for the purpose of signing this document, to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____
[Name]

Notary Public, Waukesha County, WI
My commission expires: _____

Accepted by the Village of Mukwonago this ____ day of _____, 202__.

_____
Fred Winchowky, Village President

_____
Diana Dykstra, Village Clerk

This document was drafted by:
David Roberts, P.E.
JSD Professional Services, Inc.
Milwaukee Regional Office
W238 N1610 Busse Road, Suite 100
Waukesha, WI 53188
Telephone: 262-513-0666
Email: david.roberts@jsdinc.com

Exhibit A – Legal Description

The following description and reduced copy map identifies the land parcel(s) affected by this Agreement. For a larger scale view of the referenced document, contact the Waukesha County Register of Deeds office.

Project Identifier: Mukwonago CBRF building

Date of Recording: 11/6/95

Map Produced By: Gary Schaefer

Legal Description: Lot 2 of Certified Survey Map No. 7901, recorded on December 22. 1995 in Volume 68 of Certified Survey Maps on Pages 140 to 146, as Document No. 2089198, being a redivision of Outlet 1, Mukwonago Estates East, being a resubdivision of Lots 43 and 44, 56 to 61 inclusive, 78 to 82 inclusive, 103 and 104, 157 to 200 inclusive, Outlet 1, Part of outlot 2, and all of Outlots 3, 4, 7 and 8 in "Mukwonago Estates", being a subdivision of part of the Northwest l /4 of the Southeast I1/4 of Section 35, Township 5 North, Range l8 East, in the Village of Mukwonago, County of Waukesha, State of Wisconsin.

Exhibit B - Location Map
Storm Water Management Practices Covered by this Agreement

The storm water management practices covered by this Agreement are depicted in the reduced copy of the construction plans, as shown below. The practices include the **Biofiltration Basin, filter strip, catch basins and storm sewer system.**

All of the noted storm water management practices are located in Lot 2 of CSM 7901, as noted in Exhibit A.

Subdivision Name: **N/A**

Storm water Practices: **Biofiltration Basin, Filter Strip, Catch Basin and Storm Sewer System**

Location of Practices: **The Biofiltration Basin is located in the SW corner of site, the catch basin and storm sewer are located within the parking lot and landscape areas in front of the building and the filter strip is between the back of the building and the wetland.**

Owners: **Castle Senior Living**

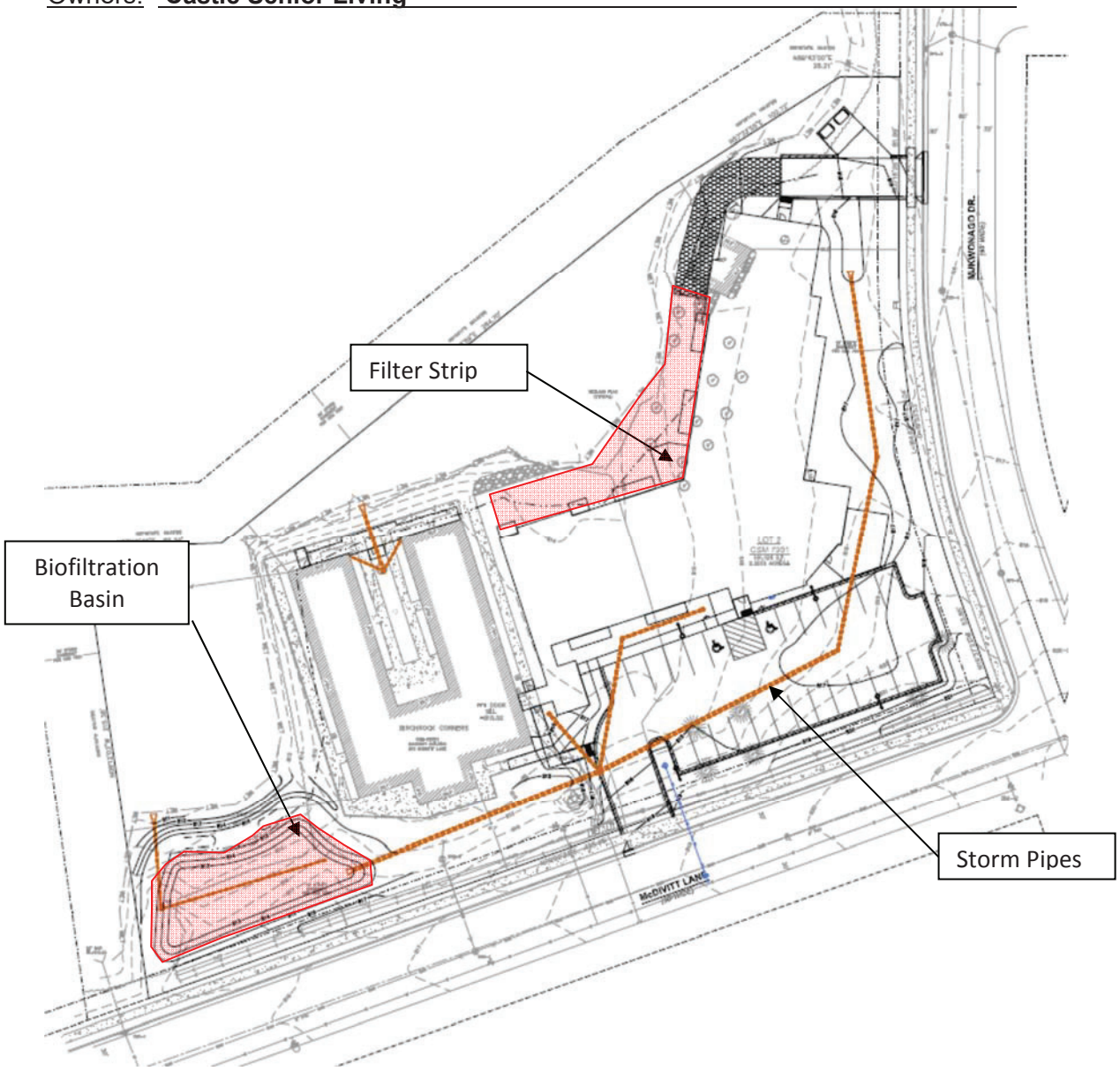


Exhibit C
Maintenance Plan

This exhibit explains the basic function of each of the storm water practices listed in Exhibit B and prescribes the maintenance requirements to remain compliant with this Agreement. The maintenance activities listed below are aimed to ensure these practices continue serving their intended functions in perpetuity. The list of activities is not all inclusive, but rather indicates the minimum type of maintenance that can be expected for this particular site. Access to the storm water practices for maintenance vehicles is shown in Exhibit B. Any failure of a storm water practice that is caused by a lack of maintenance will subject the Responsible Party to enforcement of the provisions of this Agreement by the Village of Mukwonago.

BIOFILTRATION BASIN
OPERATIONS AND MAINTENANCE

I. ROUTINE MAINTENANCE

A. Inspection

1. Performance of the bioretention should be inspected monthly and after every major storm event, following the initial construction to evaluate if the basin is draining within the design time limits.
    a. Water plants should be watered as necessary the first year to establish plants.
2. If performance does not meet the design goals, complete repairs to the facility to meet the design requirements.
3. Following the initial year of monthly inspections, quarterly inspections of the facility should be made. Inspect the facility for:
    a. Differential settlement
    b. Cracking
    c. Erosion
    d. Leakage
    e. Tree and woody plant growth on the embankments and plant health
    f. Condition of the inlets and outlets and level spreaders
    g. Sediment accumulation
    h. Vigor and density of vegetation on the floor of the basin and buffer strips
    i. pH testing of the soil
    j. Observation wells and/or under drains

B. Mowing – Native Vegetation

1. During establishment of vegetation, the first mowing shall occur once it reaches a height of 10 to 12 inches.
2. Control woody plant invasion by mowing once a year. The vegetation height shall be 5 to 6 inches after mowing.
3. Mow once per year in the fall after November 1st.
4. Remove trash and debris at the time of mowing.

C. Erosion Control

1. Inspect quarterly for erosion. Inspection after major storm events for erosion problems is also recommended if practical
2. Repair all eroded areas immediately. Temporary erosion controls may be necessary to facilitate repairs.

D. Tilling
1. If the basin is located on marginally permeable soils, annual or semi- annual tilling may be needed to maintain infiltration capacity.
2. Tilled areas should be immediately re-vegetated to prevent erosion.

E. Pre-Treatment Systems
1. Maintenance of the pre-treatment system should include sediment removal, oil and grease skimming, and grass filter strip maintenance.
2. Inspect the structural elements of the pre-treatment system and repair if needed.

F. Mulch
1. Re-mulch void areas as needed.
2. Add additional mulch once per year.

II. NON-ROUTINE MAINTENANCE

A. Structural Maintenance
1. Inspect pipe systems quarterly.
2. Remove and replace pipe systems that have eroded or rusted.
3. Earthen structures should be inspected annually. Erosion should be repaired immediately upon discovery.

B. Restoration of Infiltration Capacity
1. Over time the original infiltration capacity of the basin will be diminished.
2. Deep tilling can be done to restore the infiltration capacity of the basin. The basin will be drained and the soils dried to a depth of 8 inches.
3. The top 2 to 3 inches of topsoil, chisel plowing, and adding topsoil and compost can be done.
4. The basin must be restored with native plantings.

C. Watering
1. Water plants need to be watered as necessary during the first growing season.
2. After the first growing season, water as necessary during dry periods.

STORM SEWER SYSTEM
OPERATIONS AND MAINTENANCE

I. INSPECTION

A. Frequency
a. Inspect catch basins, inlets and manholes at least once per year.
b. Inspect storm sewer end sections at least twice per year and after major rainfall events.

B. Inspection
a. Catch Basins, Inlets and Manholes
i. Inspect for sediment deposition in the bottom of structures.
ii. Check frames and lids for cracks and wear such as rocking lids

or lids moved by traffic and for shifted frames.
iii. Check chimneys for cracked mortar, cracked lift rings and spalling.
iv. Check for leaks at joints.
v. Check surrounding areas for pollutants such as leaks from dumpsters, minor spills and oil dumping.

b. Storm Sewer End sections
i. Observe for obstructions, accumulation of sediment and trash, undermining and joint separation.
ii. Inspect end treatment for settlement, scour and displaced armoring.

II. STANDARD MAINTENANCE

A. Catch Basins, Inlets and Manholes
a. Repair any deterioration threatening structural integrity immediately.
b. Replace worn or cracked frames and lids. Frames that have shifted should be re-centered and re-set on the structure.
c. Repair any spalled or cracked mortar. Cracked rings should be repaired or replaced.
d. Repair leaking joints.
e. Clean manhole and storm inlet inverts of deposited material. Catch basins should be cleaned before the sump is 40 percent full or every 2-years, whichever comes first.
f. Remove potential sources of contamination away from catch basins, inlets and manholes.

B. Storm Sewer End sections
a. End sections should be free flowing; trash, debris and obstructions should be removed to prevent backups.
b. End sections which have separated from the storm sewer pipe shall be reset on firm bedding and reconnected to the existing storm sewer pipe. Restrain joints if necessary.
c. Scour areas shall be repaired immediately. Replace missing soil with clean fill and replace/install end treatment. Missing armoring will require additional stone, typically one class larger.
d. Excessive material deposited at the storm sewer outfall is indicative of: a disturbed area upstream draining to the system or a potential failure of a system component. Disturbed areas draining to the system should be stabilized immediately or diverted to drain to a BMP. Potential system failures require non-standard maintenance.

III. NON-STANDARD MAINTENANCE

A. Non-standard maintenance includes inspection, repair or replacement of buried structures.
a. Televising of buried structures (pipes) should occur when excessive material is found within the system or at an outfall with no apparent source area visible at the surface, or the system experiences frequent backups.
b. Follow the recommendations for the repair and/or replacement of system components televised by a firm specializing in this work.

FILTER STRIP
OPERATIONS AND MAINTENANCE

I. ROUTINE MAINTENANCE

A. Inspection
1. Vegetative buffers shall at a minimum be inspected weekly and

within 24 hours after every precipitation event that produces 0.5 inches of rain or more during a 24-hour period.

2. Vegetative buffers shall be inspected for proper distribution of flows, sediment accumulation and signs of rill formation.

B. Mowing

1. A stand of dense vegetation shall be maintained to a height of 3 – 12 inches.

C. Erosion Control

1. If the vegetative buffer becomes silt covered, contains rills, or is otherwise rendered ineffective, other perimeter sediment control measures shall be installed. Eroded areas shall be repaired and stabilized.
2. Repairs shall be completed as soon as possible with consideration to site conditions.

Exhibit D – Design Summary

The proposed development is 15,7770 sq.ft building expansion with a new parking lot. The proposed development has been designed to capture the storm water drainage from the parking lot and for the south half of the roof and routed to a bio-retention basin. Below is a summary of the release rates and water quality.

Site Release Rate Summary

The Table below summarizes the storm water release rates associated with the development.

	Existing Release Rate (cfs)	Proposed Release Rate (cfs)
1-year	0.63	0.61
2-year	0.96	0.77
10-year	2.46	1.42
100-year	6.44	3.57

* Note: Total peak runoff rates are based on the addition of the peak discharge rates from the associated hydrographs at the peak time for the site; due to varying peak times, the total discharge rates are not a direct summation of the peak rates for each. Refer to the attached watershed summary for additional information.

Water Quality Summary

The Table below summarizes the water quality associated with the development.

	Pollutant Yield Without Controls (lbs)	Pollutant Yield After Controls (lbs)	Percent Reduction
Particulate Solids	296.3	70.75	**76.12%**
Particulate Phosphorus	0.7862	0.1933	**75.41%**

Exhibit D
Watershed Summary

Project Name: Birchrock Castle Addition
Watershed (ultimate discharge): Upper Fox River - Illinois
REVISION: 02-04-2020

Project Size: 1.30 acres
Watershed Area (including off-site runoff traveling through project area): 1.3 acres

Summary Data Elements	Pre-developed	Post-development							
	Subwatershed A to extisting SW local depression	**Subwatershed 1S** to Bio-Basin	**Subwatershed 2S** Undetained NE	**Subwatershed 3S** Undetained S	**Subwatershed 4S** Undetained NW	**Subwatershed (1S) w/o BMPs**	***Total Site Subwatershed (1+2+3+4) w/o BMPs***	**Subwatershed (1S) with BMPs**	***Total Site Subwatershed (1+2+3+4) with BMPs***
Watershed Areas	1.300 acres	1.065 acres	0.183 acres	0.036 acres	0.016 acres	1.065 acres	*1.300 acres*	1.065 acres	*1.300 acres*
Average Watershed Slopes	7 – 19%	1 – 2%	1 – 3%	0.8 – 2.3%	1-2%	0.5 – 33%	*0.5 – 33%*	0.5 – 33%	*0.5 – 33%*
Land Uses (% of each)	0.235 acres – Impervious (18%)	0.362 acres – Building (34%)			0.011 acres – Building (69%)	0.362 acres – Building (16%)	*0.34 acres* – Building (10%)	0.34 acres – Building (16%)	*0.34 acres* – Building (10%)
	0.010 acres – Gravel (1%)	0.305 acres – Impervious (29%)	0.016 acres – Impervious (9%)	0.012 acres – Impervious (33%)	0.003 acres – Impervious (19%)	1.04 acres – Pavement (47%)	*1.29 acres – Pavement (37%)*	1.04 acres – Pavement (47%)	*1.29 acres – Pavement (37%)*
	1.055 acres – Grass (81%)	0.398 acres – Grass (37%)	0.168 acres – Grass (91%)	0.024 acres – Grass (67%)	0.002 acres – Grass (12%)	0.80 acres – Grass (37%)	*1.89 acres – Grass (53%)*	0.80 acres – Grass (37%)	*1.89 acres – Grass (53%)*
Runoff Curve Numbers	Impervious = 98	Building = 98			Building = 98	Building = 98	Building = 98	Building = 98	Building = 98
	Gravel=96	Impervious = 98	Pavement = 98	Pavement = 98	Pavement = 98	Pavement = 98	*Pavement = 98*	Pavement = 98	*Pavement = 98*
	Grass = 61	Grass = 61	Grass = 61	Grass = 61	Grass = 61	Grass = 61	*Grass = 61*	Grass = 61	*Grass = 61*
	Composite = 68	**Composite = 84**	**Composite = 64**	**Composite = 73**	**Composite = 93**	**Composite = 84**	***Composite = 81***	**Composite = 84**	***Composite = 81***
Conveyance Systems Types	Overland flow	Overland flow, storm sewer	Overland low	Overland low	Overland low	Overland flow, infiltration, storm sewer	*Overland flow, infiltration, storm sewer*	Overland flow, infiltration, storm sewer	*Overland flow, infiltration, storm sewer*
Summary of Average Conveyance System Data	Slope = 2 – 13%	Slope = 1.0 – 2%	Slope = 1.0 – 3% 4" PVC @ slope = 10.8%	Slope = 0.8 – 2.3% 8" PVC @ slope = 2.08%	Slope = 1.0 – 2%	Slope = 1.0 – 2%	*Slope = 1.0 – 3%; 4" PVC @ 10.8%*	Slope = 0.8 – 2.3%; 8" PVC @ 2.08%	*Slope = 5 – 25%*
Time of Concentration (Tc)	6 minutes	6 minutes	6 minutes	6 minutes	6 minutes	6 minutes	6 minutes	6 minutes	6 minutes
Peak Flow: 1-yr.	0.63 cfs	1.51 cfs	0.47 cfs	0.03 cfs	0.05 cfs	1.51cfs	*2.05 cfs*	0.11 cfs	*0.61 cfs*
Peak Flow: 2-yr	0.96 cfs	1.87 cfs	0.60 cfs	0.04 cfs	0.06 fs	1.87 cfs	*2.57 cfs*	0.13 cfs	*0.77 cfs*
Peak Flow: 10-yr.	2.46 cfs	3.32 cfs	1.11 cfs	0.09 cfs	0.08cfs	3.32 cfs	*4.59 cfs*	0.60 cfs	*1.42 cfs*
Peak Flow: 100-yr.	6.44 cfs	6.58 cfs	2.28 cfs	0.21 cfs	0.14 cfs	6.58 cfs	*9.21 cfs*	1.52 cfs	*3.57 cfs*

Exhibit D

Data Summary Sheet for Bio-Basin

Design Element	Design Data
Site assessment data: (see attached maps)	
Contributing drainage area to basin (Subcatchment 1S)	1.065 acres
Distance to nearest private well (including off-site wells)	>100 feet
Distance to municipal well (including off-site wells)	>1200 feet
Wellhead protection area involved?	No
Ground slope at site of proposed basin	Approx. = 9.0-11.0%
Any buried or overhead utilities in the area?	No
Proposed outfall conveyance system/discharge (w/distances)	41' – 8" HDPE to Wetland
Any downstream roads or other structures? (describe)	No
Floodplain, shoreland or wetlands?	Existing wetland complex to the North
Soil investigation data (see attached map & soil logs):	
Number of soil investigations completed	0
Do elevations of test holes extend 3 ft. below proposed bottom?	N/A
Average soil texture at basin bottom elevation (USDA)	Compacted native soil
Design infiltration rate at basin bottom and method of analysis	0.15 – Based on infiltration rate for Soil type
Measured infiltration rate following construction	-
Distance from basin bottom to bedrock	10+ feet
Distance from basin bottom to seasonal water table	-
General basin design data (see attached detailed drawings):	
Basin bottom surface area	0.053 acre
Effective infiltration area	0.053 acre
2% of development area (1.3 acres)	0.026 acre
Basin bottom elevation	813.00
Top of berm elevation (after settling) and width	815.80 / 6 ft. minimum
Basin storage below outlet	0
10% of 2-yr 24-hr post development runoff volume	0.0066 ac-ft
Time to completely infiltrate stored water through engineered fill.	26 hours (100 yr storm event)
Sediment forebay size & depth	N/A – no forebay for bio basin
Sediment storage depth & design maintenance	N/A – no permanent pool depth

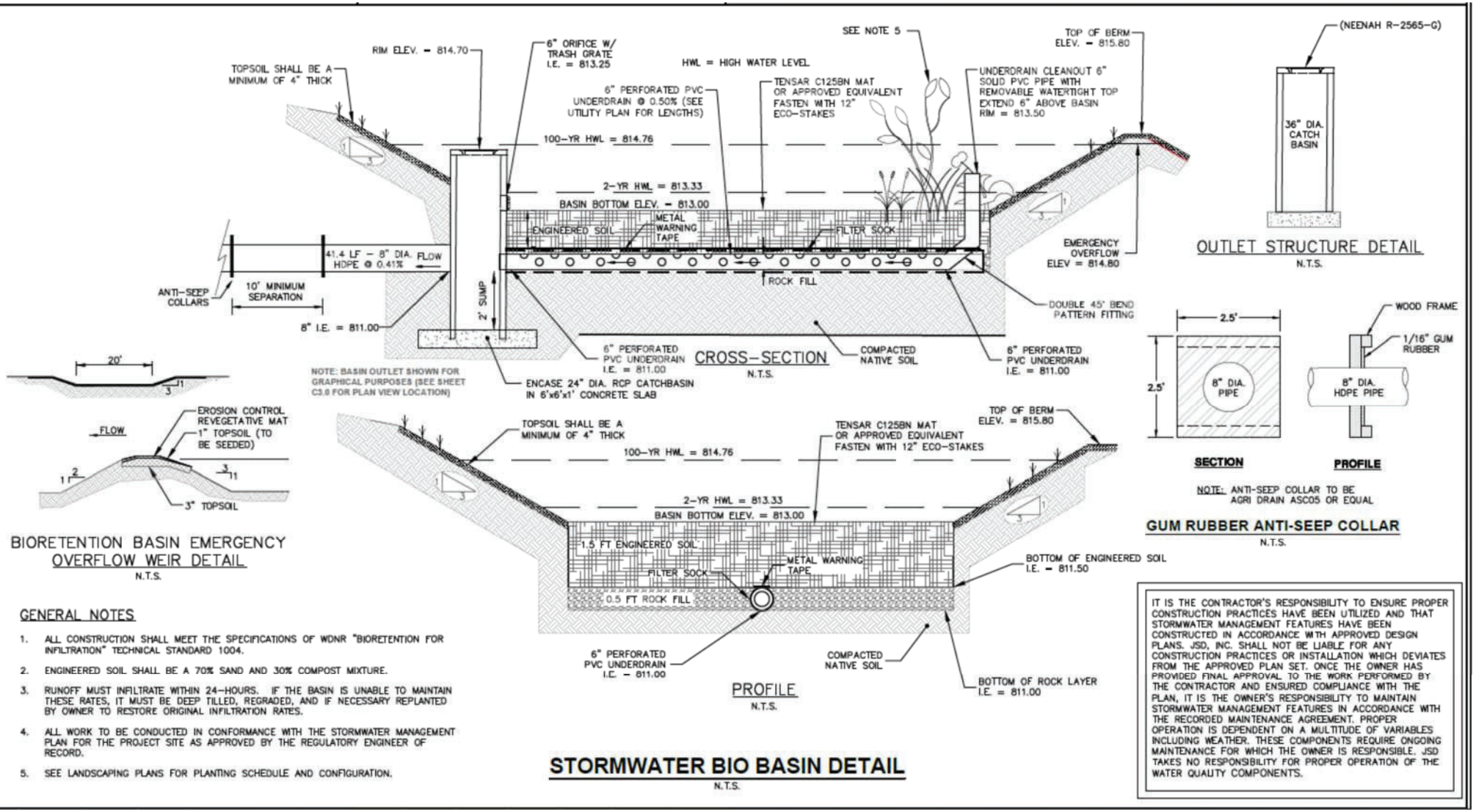
Design Basin Inflow, Outflow & Storage Data
(see attached hydrographs and detail drawings)

Inflow Peak	Maximum Outflow Rate	Max. Water Elevation	Storage Volume at Max. Elev.	Outflow Control Structures*
1.51 cfs (Post 1-yr./24 hr. peak)	0.11 cfs	813.13	1,619 c.f.	#3 and #5
1.87 cfs (Post 2-yr./24 hr. peak)	0.13 cfs	813.33	2,089 c.f.	#3 and #5
3.32 cfs (Post 10-yr./24 hr. peak)	0.60 cfs	813.75	3,230 c.f.	#3 and #5
6.58 cfs (Post 100-yr./24 hr. peak)	1.52 cfs	814.76	6,462 c.f.	#3, #5 and #6

*** The controlling elements are summarized below (See attached detail drawing of Biofiltration Basin):**

#3 = Underdrain
#5 = 6" Orifice @ elev. 813.25
#6 = 24" Grate @ elev. 814.70

Biofiltration Detail



GENERAL NOTES

1. ALL CONSTRUCTION SHALL MEET THE SPECIFICATIONS OF WDNR "BIORETENTION FOR INFILTRATION" TECHNICAL STANDARD 1004.
2. ENGINEERED SOIL SHALL BE A 70% SAND AND 30% COMPOST MIXTURE.
3. RUNOFF MUST INFILTRATE WITHIN 24-HOURS. IF THE BASIN IS UNABLE TO MAINTAIN THESE RATES, IT MUST BE DEEP TILLED, REGRADED, AND IF NECESSARY REPLANTED BY OWNER TO RESTORE ORIGINAL INFILTRATION RATES.
4. ALL WORK TO BE CONDUCTED IN CONFORMANCE WITH THE STORMWATER MANAGEMENT PLAN FOR THE PROJECT SITE AS APPROVED BY THE REGULATORY ENGINEER OF RECORD.
5. SEE LANDSCAPING PLANS FOR PLANTING SCHEDULE AND CONFIGURATION.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER CONSTRUCTION PRACTICES HAVE BEEN UTILIZED AND THAT STORMWATER MANAGEMENT FEATURES HAVE BEEN CONSTRUCTED IN ACCORDANCE WITH APPROVED DESIGN PLANS. JSD, INC. SHALL NOT BE LIABLE FOR ANY CONSTRUCTION PRACTICES OR INSTALLATION WHICH DEVIATES FROM THE APPROVED PLAN SET. ONCE THE OWNER HAS PROVIDED FINAL APPROVAL TO THE WORK PERFORMED BY THE CONTRACTOR AND ENSURED COMPLIANCE WITH THE PLAN, IT IS THE OWNER'S RESPONSIBILITY TO MAINTAIN STORMWATER MANAGEMENT FEATURES IN ACCORDANCE WITH THE RECORDED MAINTENANCE AGREEMENT. PROPER OPERATION IS DEPENDENT ON A MULTITUDE OF VARIABLES INCLUDING WEATHER. THESE COMPONENTS REQUIRE ONGOING MAINTENANCE FOR WHICH THE OWNER IS RESPONSIBLE. JSD TAKES NO RESPONSIBILITY FOR PROPER OPERATION OF THE WATER QUALITY COMPONENTS.

STORMWATER BIO BASIN DETAIL
N.T.S.

RESOLUTION 2020-03

CONDITIONAL USE PERMIT
TO APPROVE A SITE PLAN AND ARCHITECTURAL REVIEW AS A CONDITIONAL USE FOR PLANNED UNIT OVERLAY DISTRICT (PUD) FOR BIRCHROCK PROPERTIES, LLC; 210 MCDIVITT LN; PARCEL MUKV 2012-215-002; BIRCHROCK PROPERTIES, LLC; APPLICANT

WHEREAS, pursuant to Section 100-53 of the Zoning Code, an application for a Conditional Use Permit has been filed to approve a site plan and architectural review as a conditional use for planned unit overlay district (PUD) for property located at 210 McDivitt Ln; Parcel MUKV 2012-215-002; Birchrock Properties, LLC; Applicant, and

WHEREAS, the existing parking surface area being removed, and a new parking lot being situated along the southern portion of the property. The new single story structure is being positioned to the East of the existing structure and being connected with a walkway. There is also a proposed new walkway at the terminus and north end of the existing structure, to connect the hallways with a corridor; and

WHEREAS, applicant submitted application and plans to take existing parking surface area being removed, and a new parking lot being situated along the southern portion of the property. The new single story structure is being positioned to the East of the existing structure and being connected with a walkway. There is also a proposed new walkway at the terminus and north end of the existing structure, to connect the hallways with a corridor; and

WHEREAS, Section 100-53 allows modifications to certain standards of the Zoning Code and other Municipal Code requirements as a Planned Unit Development Overlay approved as a Conditional Use; and

WHEREAS, Section 100-53 requires with submittal of a request for modifications as a Planned Unit Development that a General Development Plan be approved prior to submittal of final and detailed development construction plans; and

WHEREAS, after proper notice pursuant to the Village of Mukwonago Zoning Code, a public hearing was noticed in the official newspaper as a Class II notice, and with notice being mailed at least ten (10) days prior to the date of such public hearing to the owners of record of the properties situated within 250 feet of the boundaries of the properties affected, a public hearing was conducted by the Village Plan Commission on December 10, 2019; and

WHEREAS, the Board of Building and Zoning Appeals, on January 30, 2020, approved the following:

a. Variance of 18.2 feet to allow a proposed pervious concrete drive to be 1.8 feet from the mapped wetland.
b. Variance of 17.5 feet to allow a proposed concrete pad to house a dumpster enclosure to be 2.5 feet from the mapped wetland.
c. Variance of 6.7 feet to allow a proposed building addition to be 13.3 feet from the mapped wetland, instead of the required 20-foot setback from a mapped an delineated wetland, pursuant to Section 100-283(f)(1)a. of the Village of Mukwonago Municipal Code.

WHEREAS, the request for site plan and architectural review as a conditional use for planned unit overlay district (PUD) or property located at 210 McDivitt Ln; Parcel MUKV 2012-215-002; Birchrock Properties, LLC as submitted has been reviewed and recommended by the Village Plan Commission on March 10, 2020.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the Conditional Use Permit to approve a site plan and architectural review as a conditional use for planned unit overlay district (PUD) or property located at 210 McDivitt Ln; Parcel MUKV 2012-215-002; Birchrock Properties, LLC; Applicant, subject to the following conditions:

1. Entry gable ends will be accented with brick or brick veneer matching the existing building.
2. For the R-10 Zoning standards, the rear yard building setback shall be permitted to be amended from the required 40 feet to the shown 24.4 feet, on the provided pan set from the applicant and on file with the Zoning Administrator at Village Hall
3. For the Parking Lot standards, the setback of the edge of parking surface area shall be permitted to be amended from the required 20 feet to the shown 15 feet with landscaping between the surface and the roadway, as shown on the provided plan set from the applicant and on file with the Zoning Administrator at Village Hall.
4. For the impervious coverage standards, the total amount of impervious coverage shall be permitted to be amended from the required 40% to the proposed percentage of 52%, as calculated and shown on the plans submitted by the applicants dated December 12, 2019 to accommodate the desire for parking on the site.
5. Site Plan and Architectural Review approval for the new single story 20 unit RCAC structure and associated parking lot, building additions, storm water pond, shall be subject to all plans and information submitted for the application by the applicant, Castle Senior Living, and dated February 6, 2020, with all plans and information on file in the office of the Zoning Administrator. The plans may be further modified to conform to other conditions of approval; the building and floor plans may be modified with the approval of the Zoning Administrator and Supervisor of Inspections to conform to the Building and Fire Safety Codes and all plans may be further modified to conform to Village design standards. However, the basic layout and design of the site shall remain unchanged.
6. Approval shall be valid for one (1) year from date of approval by the Village Board and will be unique to the applicant and this proposal only.
7. Prior to the start of any site construction or issuance of a building permit, whichever occurs first, the following shall occur:
   a. All final site development plans shall be consistent with the plans noted in Condition No 5 and all calculations verified or as modified.
   b. Approval of the site construction and building plans by the Fire Chief, which may include, but are not limited to, Knox box and notification requirements, internal fire suppression, external fire department connection location and hydrant locations.
   c. Approval of building plans by the Building Inspector after receipt of approval of building plans by the State of Wisconsin.
   d. The Village Engineer, the Utilities Director and the Public Works Director shall approve all updated revised site engineering and utility plans and documents, including a complete Erosion Control Plan, and Stormwater Management Plan. Items specified in the letter from the Village Engineer dated January 6, 2020 shall be satisfied with the consent of the Village Engineer prior to permit issuance.
   e. The issuance of this permit is contingent upon the approval of a storm water management plan and storm water maintenance agreement by the Village Board.
   f. Approval of building plans shall include appropriate locations of the external mechanical equipment (if applicable) to be placed hidden from view from neighboring properties, as approved by the Zoning Administrator.

g. Approval of dumpster construction plan specification showing block construction and shielded metal gates to ensure the Zoning standards are met, as approved by the Zoning Administrator.
h. A pre-construction meeting shall occur with Village Staff to ensure all applicable items mentioned above have been remedied.

8. Prior to temporary occupancy issuance, and if needed prior to final occupancy permit, the following shall occur:
   a. Completion of all site grading in accordance with submitted and approved plans.
   b. Completion of the storm water management basin for the overall development.
   c. Completion of the building and additions in accordance with approved plans and all applicable codes.
   d. Completion of paving of driveways and parking lots, including parking signage, space pavement markings and all other pavement markings.
9. Prior to final occupancy permit, which shall be issued no later than 120 days after any temporary occupancy permit, the following shall occur:
   a. Completion of all items required in Condition No 7.
   b. Installation of all Zoning Administrator approved site landscaping as shown on approved plans.

NOW, THEREFORE, BE IT RESOLVED subject to the following:

1. This permit shall become effective upon the execution and recording by the owners and operators of the Premises of an acceptance hereof in such form as to constitute an effective covenant that shall run with the land subject to the provisions contained herein. Said permit shall be recorded with the Register of Deeds.
2. This permit shall be void unless, pursuant to the building and Zoning Codes of the Village, the approved use is commenced or the building permit is obtained within twelve (12) months of the date of Planning Commission approval noted above.
3. This grant is subject to amendment and termination in accordance with the provisions of the Zoning Code of the Village
4. Construction and operation of the use granted shall be in strict conformity to the approved site, building, and operations plans filed in connection with the Petition for this permit, and exhibited hereto.
5. Any of the conditions of this permit which would normally be the responsibility of tenants of the premises shall be made a part of their lease by the Owner, which lease shall contain provisions for posting of the pertinent conditions to notify employees thereof.
6. This grant shall automatically be null and void if this use is discontinued for a period of twelve (12) months.
7. Failure to allow reasonable and routine inspections of the property constitutes grounds for revocation of the Conditional Use permit.
8. Upon recording of this grant, any/all other use approvals related to this property including for instance but not necessarily limited to, conditional uses. Uses by right, concept plans, and similar, shall immediately and permanently become null and void.

Passed and dated this 18th day of March 2020.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Diana A Dykstra, Village Clerk

Village of Mukwonago
Office of the Village Planner

440 River Crest Court, Mukwonago, Wisconsin 53149 Tel.(262) 363-6420x2111 –Fax (262) 363-6425 –planner@villageofmukwonago.com

Date: March 3, 2020

To: Village of Mukwonago Plan Commission

From: Ben Kohout, AICP; Village Planner

Subject: Family Ventures of Mukwonago, LLC (Maple Centre PUD) Three Lot CSM for 80 foot wide public road extension and 100 foot wide public road extension on Parcel No. MUKV2013999008

Meeting: March 10, 2020 Plan Commission meeting

Property location: East side of E. Wolf Run, approximately 600 feet east of E. Wolf Run, and approximately 2,400 feet (1/2 mile) north of Maple Avenue.

Current zoning: B-5, Business District with Business Mixed Use (BMX) Overlay District

General description: The proposed CSM is part of the requirements and obligations of the Village to provide for access to the site, as well as provisions for utilities, from E. Wolf Run and northerly to adjoining property. The resulting roadway and utility access is part of the agreed upon terms of development and will be an exhibit (Exhibit C) in the Developer's agreement as part of this development (approved in 2019 as part of Maple Centre PUD approval).

The resulting CSM will create three lots, with Lots 1 and 2 to be future Commercial usage, and Lot 3 to be future apartments and other associated amenities, as approved with the Planned Unit Development from 2019.

Staff has reviewed this CSM and has no concerns with this request.

Recommendation

Approval.

*CERTIFIED SURVEY MAP NO.*_____

Lot 2 of CSM#11558 being part of the NE ¼ of the NE ¼ of Section 36 , Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ of Section 31,Town 5 North, Range 19 East, Village of Mukwonago, Waukesha County, Wisconsin

SURVEYOR/ENGINEER:
Paul H. Van Henkelum, PLS
201 Broad Street, Suite B
Lake Geneva, WI. 53147
PHONE: (414) 406-3248

OWNER/SUBDIVIDER:
Family Ventures of
Mukwonago, LLC
N7152 Bowers Rd.
Elkhorn, WI 53121

NOTES:
1. SEE SHEET 2 FOR SOIL INFORMATION.
2. SEE SHEET 3 FOR TOPOGRAPHY AND CURVE INFORMATION.
3. SEE SHEET 4 FOR GENERAL NOTES.

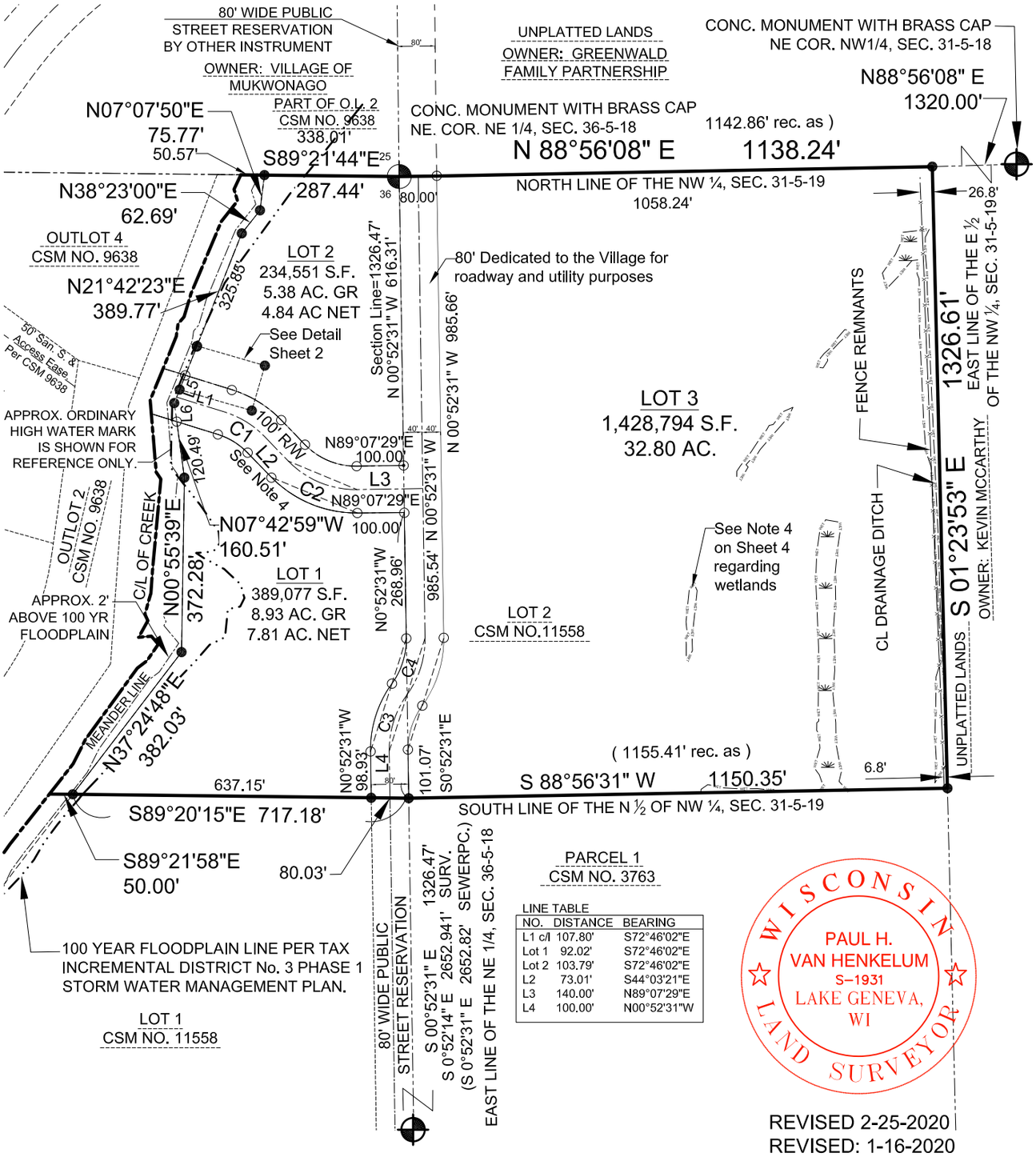
REFERENCE BEARING: THE NORTH LINE OF THE NW 1/4, SEC. 31-5-19 WAS USED AS THE REFERENCE BEARING AND HAS A BEARING OF S88°56'08"W (SOUTH ZONE)

LEGEND:
- -IRON PIPE 2" DIA. (FOUND)
- -IRON PIPE/ROD 18" x 1" DIA. SET 1.13+ LBS. PER LIN. FT.
- -CONCRETE MONUMENT WITH BRASS CAP
- -WETLANDS
- (xx.xx) -PREVIOUSLY RECORDED AS

SCALE: 1" = 300'

LOCATION MAP
SECTION 36-5-18
SCALE: 1"=3000'

LOCATION MAP
SECTION 31-5-19
SCALE: 1"=3000'



LINE TABLE

NO.	DISTANCE	BEARING
L1 c/l	107.80'	S72°46'02"E
Lot 1	92.02'	S72°46'02"E
Lot 2	103.79'	S72°46'02"E
L2	73.01'	S44°03'21"E
L3	140.00'	N89°07'29"E
L4	100.00'	N00°52'31"W

WISCONSIN
PAUL H. VAN HENKELUM
S-1931
LAKE GENEVA, WI
LAND SURVEYOR

REVISED 2-25-2020
REVISED: 1-16-2020
REVISED: 3-15-2019
DATE : MAR. 06, 2019
SHEET 1 OF 5

INSTRUMENT DRAFTED BY PAUL H. VAN HENKELUM
DWG: 1701331 CSM

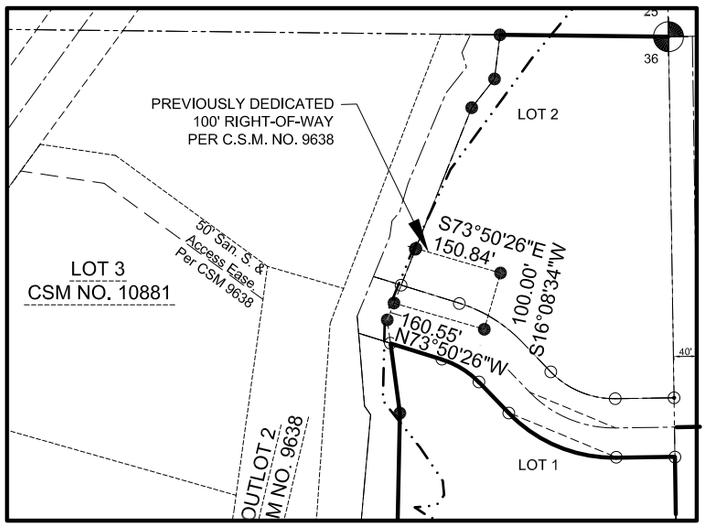
CERTIFIED SURVEY MAP NO._____

Lot 2 of CSM#11558 being part of the NE ¼ of the NE ¼ of Section 36 , Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ of Section 31,Town 5 North, Range 19 East, Village of Mukwonago, Waukesha County, Wisconsin

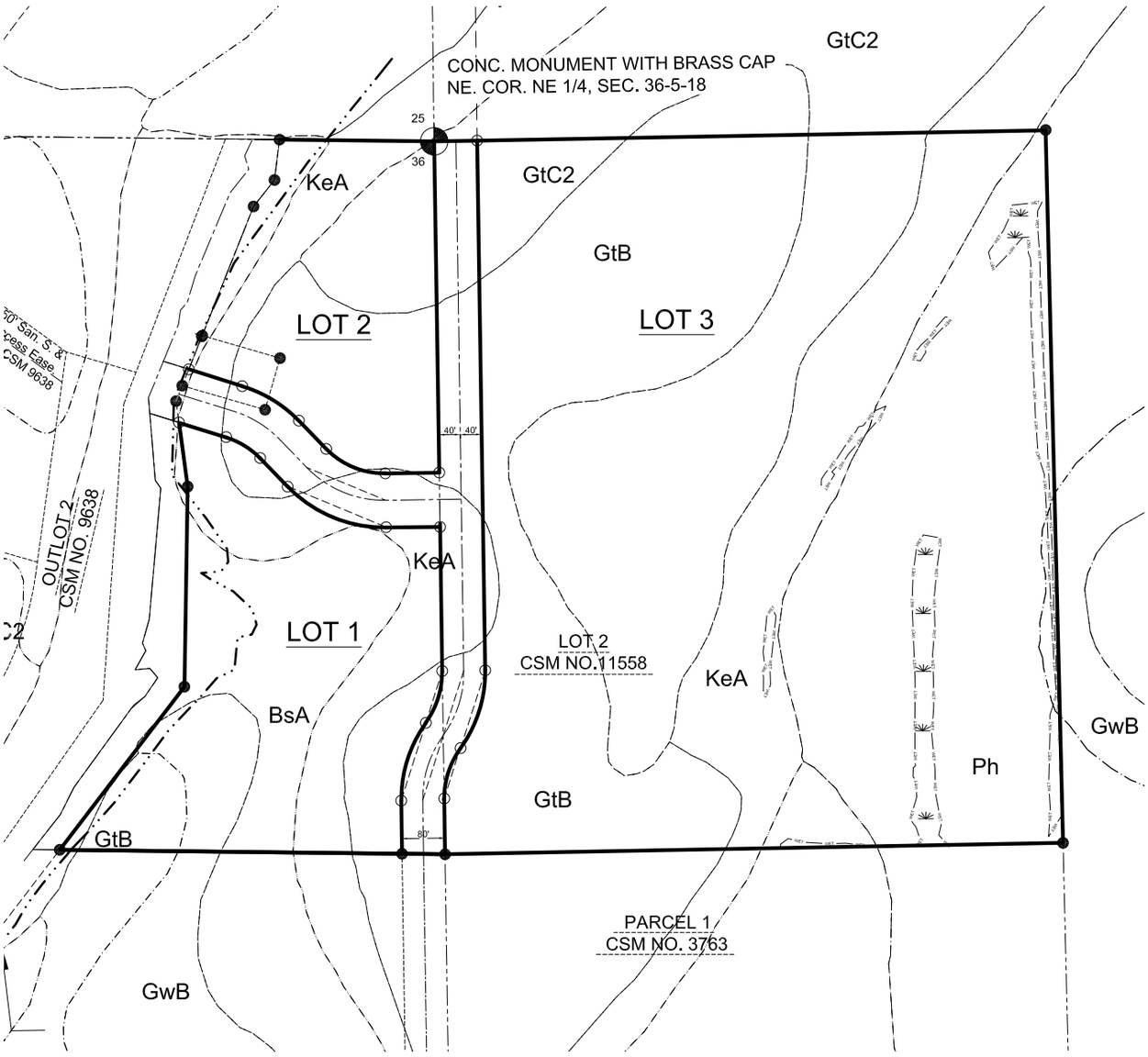
WISCONSIN
PAUL H.
VAN HENKELUM
S-1931
LAKE GENEVA,
WI
LAND SURVEYOR

0 300
SCALE: 1" = 300'

DETAIL OF PREVIOUSLY DEDICATED 100' R/W



SOIL DATA



REVISED 2-25-2020
REVISED: 1-16-2020
REVISED: 3-15-2019
DATE : MAR. 06, 2019
SHEET 2 OF 5

INSTRUMENT DRAFTED BY PAUL H. VAN HENKELUM
DWG: 1701331 CSM

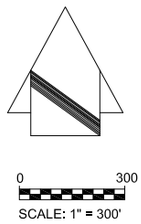
CERTIFIED SURVEY MAP NO._____

Lot 2 of CSM#11558 being part of the NE ¼ of the NE ¼ of Section 36 , Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ of Section 31,Town 5 North, Range 19 East, Village of Mukwonago, Waukesha County, Wisconsin

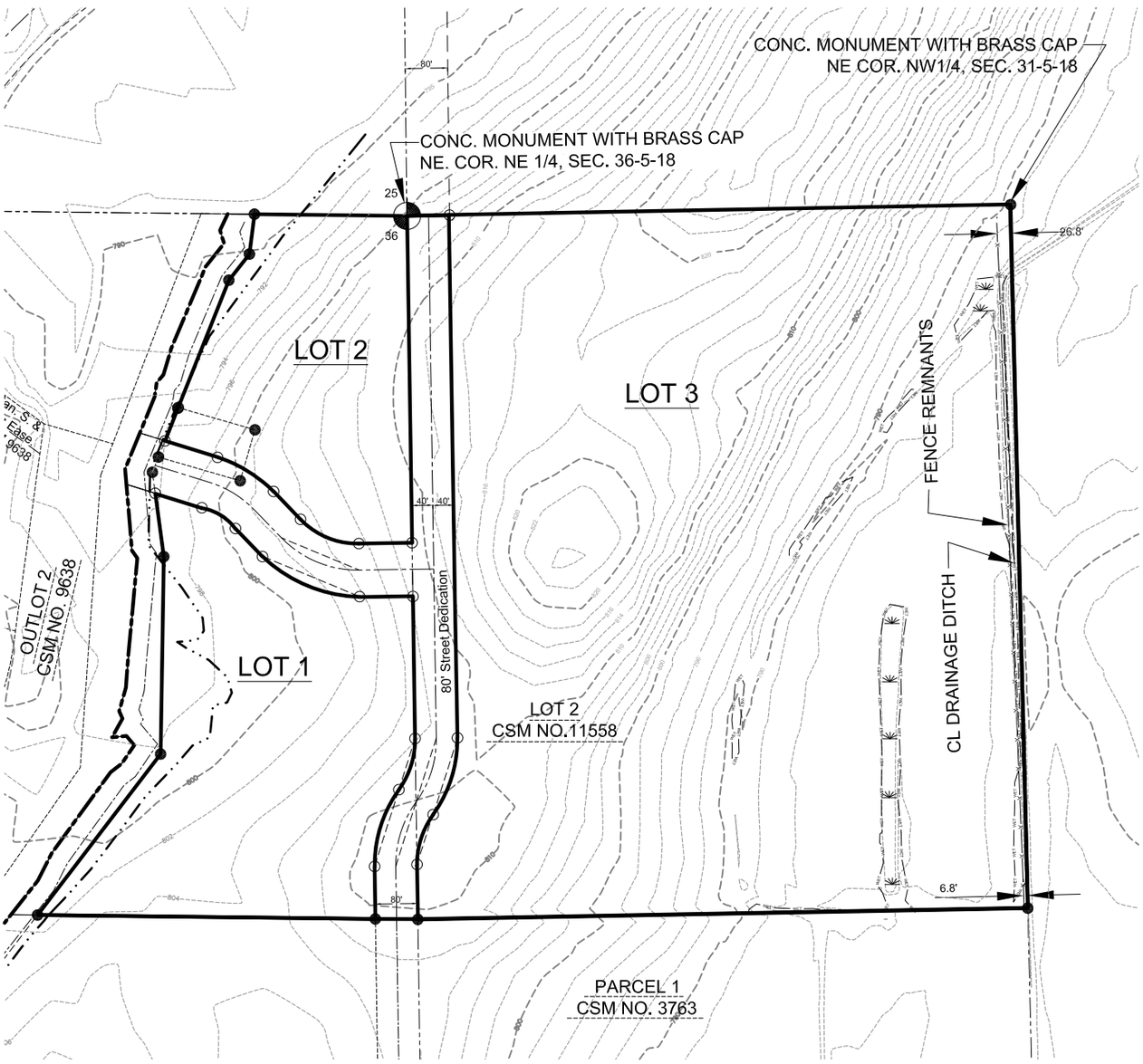
WISCONSIN
PAUL H.
VAN HENKELUM
S–1931
LAKE GENEVA,
WI
LAND SURVEYOR

CURVE TABLE

NO.	ARC	RADIUS	CHORD	BEARING	CEN. ANGLE	TAN. IN	TAN. OUT
C1 c/l	100.22'	200.00'	99.18'	S58°24'41"E	28°42'41"	S72°46'02"E	S44°03'21"E
Lot 1	75.17'	150.00	74.38'	S58°24'41"E	28°42'41"	S72°46'02"E	S44°03'21"E
Lot 2	125.28'	250.00	123.97'	S58°24'41"E	28°42'41"	S72°46'02"E	S44°03'21"E
C2 c/l	163.43'	200.00'	158.92'	S67°27'56"E	46°49'10"	S44°03'21"E	N89°07'29"E
Lot 1	204.29'	250.00'	198.65'	S67°27'56"E	46°49'10"	S44°03'21"E	N89°07'29"E
Lot 2	122.57'	150.00'	119.19'	S67°27'56"E	46°49'10"	S44°03'21"E	N89°07'29"E
C3 c/l	128.70'	200.00'	126.49'	N17°33'35"E	36°52'12"	N00°52'31"E	N34°44'45"E
Lot 1	154.44'	240.00'	151.79'	N17°33'35"E	36°52'12"	N00°52'31"E	N34°44'45"E
Lot 3	102.96'	160.00'	101.19'	S17°33'35"W	36°52'12"	S34°44'45"W	S00°52'31"E
C4 c/l	128.70'	200.00'	126.49'	N17°33'35"E	36°52'12"	N34°44'45"E	N00°52'31"E
Lot 1	102.96'	160.00'	101.19'	N17°33'35"E	36°52'12"	N34°44'45"E	N00°52'31"E
Lot 3	154.44'	240.00'	151.79'	S17°33'35"W	36°52'12"	S00°52'31"W	S34°44'45"W



TOPOGRAPHIC DATA



INSTRUMENT DRAFTED BY PAUL H. VAN HENKELUM
DWG: 1701331 CSM

REVISED 3-25-2020
REVISED: 1-16-2020
REVISED: 3-15-2019
DATE : MAR. 06, 2019
SHEET 3 OF 5

CERTIFIED SURVEY MAP NO._____

Lot 2 of CSM#11558 being part of the NE ¼ of the NE ¼ of Section 36 , Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ of Section 31,Town 5 North, Range 19 East, Village of Mukwonago, Waukesha County, Wisconsin

SURVEYOR'S CERTIFICATE:

I, PAUL H. VAN HENKELUM PROFESSIONAL LAND SURVEYOR, HEREBY CERTIFY THAT I HAVE SURVEYED, DIVIDED, DEDICATED AND MAPPED THE FOLLOWING LAND HEREIN DESCRIBED:

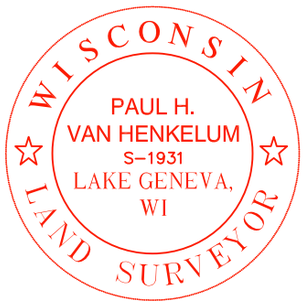
LOT 2 OF CERTIFIED SURVEY MAP NO. 11558, RECORDED AS DOCUMENT NO. 3843057 IN THE OFFICE OF THE REGISTER OF DEEDS, WAUKESHA COUNTY, BEING PART OF THE NE 1/4 OF THE NE 1/4 OF SECTION 36 , TOWN 5 NORTH, RANGE 18 EAST AND PART THE NW 1/4 OF THE NW 1/4 OF SECTION 31, TOWN 5 NORTH, RANGE 19 EAST, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN. SAID LANDS CONTAIN 48.81 ACRES MORE OR LESS TO THE MEANDER LINE OF PLATTED CREEK. ALSO INCLUDING LANDS BETWEEN THE MEANDER LINE AND THE CENTERLINE OF PLATTED CREEK (CONTAINING 50.95 ACRES.)

I FURTHER CERTIFY THAT I HAVE MADE SAID MAP BY THE DIRECTION OF FAMILY VENTURES OF MUKWONAGO, LLC, OWNER(S) OF SAID LAND. THAT SUCH LAND DIVISION IS A CORRECT REPRESENTATION OF ALL THE EXTERIOR BOUNDARIES OF THE LANDS SURVEYED AND THE COMBINATION THEREOF.

THAT I HAVE FULLY COMPLIED WITH THE PROVISIONS OF CHAPTER 236 OF THE WISCONSIN STATUTES AND THE LAND DIVISION ORDINANCES OF THE VILLAGE OF MUKWONAGO IN SURVEYING, DIVIDING, DEDICATING AND MAPPING THE SAME.

DATED THIS _____ DAY OF _____, 2020.

_____
PAUL H. VAN HENKELUM,
PROFESSIONAL LAND SURVEYOR



GENERAL NOTES:

1. ANY LAND BELOW THE ORDINARY HIGH WATER MARK OF A LAKE OR A NAVIGABLE STREAM IS SUBJECT TO THE PUBLIC TRUST IN NAVIGABLE WATERS THAT IS ESTABLISHED UNDER ARTICLE IX, SECTION 1 OF THE STATE CONSTITUTION.

2. SOIL TYPES, DELINEATION AND EXISTING TOPOGRAPHY TAKEN FROM WAUKESHA COUNTY G.I.S. WEBSITE, JULY, 2017.

3. WETLANDS LOCATED ON LOT 3 WERE DELINEATED BY WETLAND AND WATERWAY CONSULTING, LLC ON 10-18-17 AND SURVEYED BY V2G SURVEYING, LLC ON JAN. 30, 2018.

4. PROPOSED RIGHT-OF-WAY TO BE DEDICATED TO THE VILLAGE OF MUKWONAGO FOR PUBLIC ROAD AND UTILITIES. SAID PROPOSED RIGHT-OF-WAY CONTAINS 3.8+/- ACRES TO C/L OF CREEK.

5. THIS PROPERTY IS NOT IN A FLOOD HAZARD AREA PER FIRM PANEL 55133C0431G, REVISED NOV. 5, 2014.

BASEMENT RESTRICTION - GROUNDWATER:

ALTHOUGH THE LOTS IN THIS CERTIFIED SURVEY MAP HAVE BEEN REVIEWED AND APPROVED FOR DEVELOPMENT WITH SINGLE-FAMILY RESIDENTIAL USE IN ACCORDANCE WITH SECTION 236 WISCONSIN STATUTES, THE LANDS THAT ARE PART OF THIS CERTIFIED SURVEY MAP ARE LOCATED IN AN AREA WITH MAPPED SOILS THAT MY CONTAIN SEASONAL HIGH GROUNDWATER. THE WAUKESHA COUNTY SHORELAND AND FLOODLAND PROTECTION ORDINANCE CURRENTLY REQUIRES THAT THE LOWEST LEVEL OF ANY RESIDENCE MUST BE AT AN ELEVATION THAT IS AT LEAST ONE (1) FOOT HIGHER THAN THE HIGHEST SEASONAL GROUNDWATER LEVEL, UNLESS A VARIANCE FROM THAT REQUIREMENTS IS OBTAINED FROM THE WAUKESHA COUNTY BOARD OF ADJUSTMENT. THEREFORE, ADDITIONAL SOIL TESTING IN THE VICINITY OF ANY PROPOSED RESIDENCE WILL BE REQUIRED TO ENSURE COMPLIANCE WITH THIS REQUIREMENT . IF THE REQUIREMENT REGARDING VERTICAL SEPARATION DISTANCE FROM THE HIGHEST SEASONAL GROUND WATER LEVEL IS MODIFIED BY A FUTURE AMENDMENT OF THE WAUKESHA COUNTY SHORELAND AND FLOODLAND PROTECTION ORDINANCE, THE REQUIREMENT AT THE TIME OF CONSTRUCTION SHALL APPLY. ALL GROUNDWATER SEPARATION REQUIREMENTS SET FORTH BY THE VILLAGE OF MUKWONAGO MUST ALSO BE COMPLIED WITH.

INSTRUMENT DRAFTED BY PAUL H. VAN HENKELUM
DWG: 1701331 CSM

REVISED 3-24-2020
REVISED: 1-16-2020
REVISED: 3-15-2019
DATE : MAR. 06, 2019
SHEET 4 OF 5

CERTIFIED SURVEY MAP NO._____

Lot 2 of CSM#11558 being part of the NE ¼ of the NE ¼ of Section 36 , Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ of Section 31,Town 5 North, Range 19 East, Village of Mukwonago, Waukesha County, Wisconsin

OWNER'S CERTIFICATE

AS OWNERS, FAMILY VENTURES OF MUKWONAGO, LLC, A WISCONSIN LIMITED LIABILITY COMPANY, HEREBY CERTIFY THAT IT HAS CAUSED THE LAND DESCRIBED ON THIS CERTIFIED SURVEY MAP TO BE SURVEYED, DIVIDED, MAPPED AND DEDICATED AS REPRESENTED HEREON.

AS OWNERS, WE FURTHER CERTIFY THAT THIS MAP IS REQUIRED BY S.236.10 OR S.236.12 TO BE SUBMITTED TO THE FOLLOWING FOR APPROVAL OR OBJECTION:

1.) THE VILLAGE OF MUKWONAGO

DATED THIS _____ DAY OF _____ , 2020.

_____

THOMAS LARSON, MANAGING MEMBER

STATE OF _____) ss
COUNTY OF_____)

PERSONALLY CAME BEFORE ME THIS _____ DAY OF _____ , 2020
THE ABOVE NAMED THOMAS LARSON, MANAGING MEMBER OF FAMILY VENTURES OF MUKWONAGO, LLC, TO ME KNOWN TO BE THE PERSON WHO EXECUTED THE FOREGOING INSTRUMENT AND ACKNOWLEDGED THE SAME.

_____

NOTARY PUBLIC

MY COMMISSION EXPIRES:_____

CONSENT OF CORPORATE MORTGAGEE

_____, A CORPORATION DULY ORGANIZED AND EXISTING UNDER AND BY VIRTUE OF THE LAWS OF THE STATE OF _____, MORTGAGEE OF THE ABOVE DESCRIBED LAND, DOES HEREBY CONSENT TO THE SURVEYING, DIVIDING, DEDICATING, AND MAPPING OF THE LAND DESCRIBED ON THIS MAP, AND DOES HEREBY CONSENT TO THE ABOVE CERTIFICATE OF _____, MANAGING MEMBER OF FAMILY VENTURES OF MUKWONAGO, LLC, OWNERS.

IN WITNESS WHEREOF, THE SAID _____ HAS CAUSED THESE PRESENTS TO BE SIGNED AND IT'S CORPORATE SEAL TO BE HEREUNTO AFFIXED

THIS _____ DAY OF _____ , 2020.

NAME: _____ NAME: _____
TITLE: _____ TITLE: _____

STATE OF _____) ss
COUNTY OF _____)

PERSONALLY CAME BEFORE ME THIS _____ DAY OF _____ , 2020

THE ABOVE NAMED _____, TO ME KNOWN TO BE THE PERSONS WHO EXECUTED THE FOREGOING INSTRUMENT AND ACKNOWLEDGED THE SAME.

_____

NOTARY PUBLIC

MY COMMISSION EXPIRES:_____

CERTIFICATE OF PLAN COMMISSION APPROVAL:

APPROVED BY THE PLAN COMMISSION OF THE VILLAGE OF MUKWONAGO
ON THIS _____ DAY OF _____ , 2020.

_____ _____
FRED WINCHOWKY, CHAIRPERSON
DIANA DYKSTRA, VILLAGE CLERK

WISCONSIN
PAUL H.
VAN HENKELUM
S–1931
LAKE GENEVA,
WI
LAND SURVEYOR

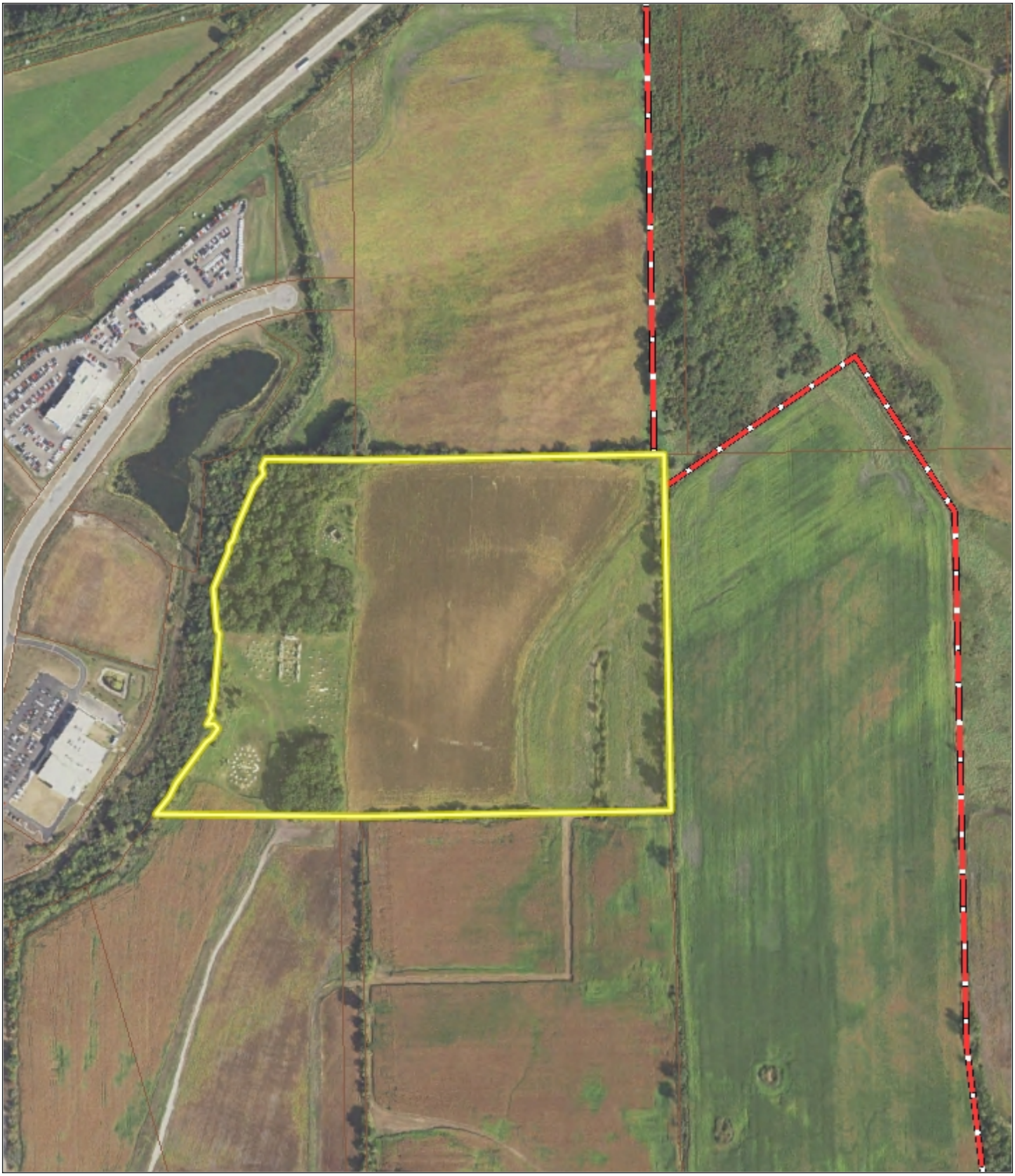
CERTIFICATE OF VILLAGE BOARD APPROVAL:

APPROVED BY THE VILLAGE BOARD OF THE VILLAGE OF MUKWONAGO
ON THIS _____ DAY OF _____ , 2020.

_____ _____
FRED WINCHOWKY, PRESIDENT
DIANA DYKSTRA, VILLAGE CLERK

INSTRUMENT DRAFTED BY PAUL H. VAN HENKELUM
DWG: 1701331 CSM

REVISED 3-25-2020
REVISED: 1-16-2020
REVISED: 3-15-2019
DATE : MAR. 06, 2019
SHEET 5 OF 5



Village of Mukwonago GIS

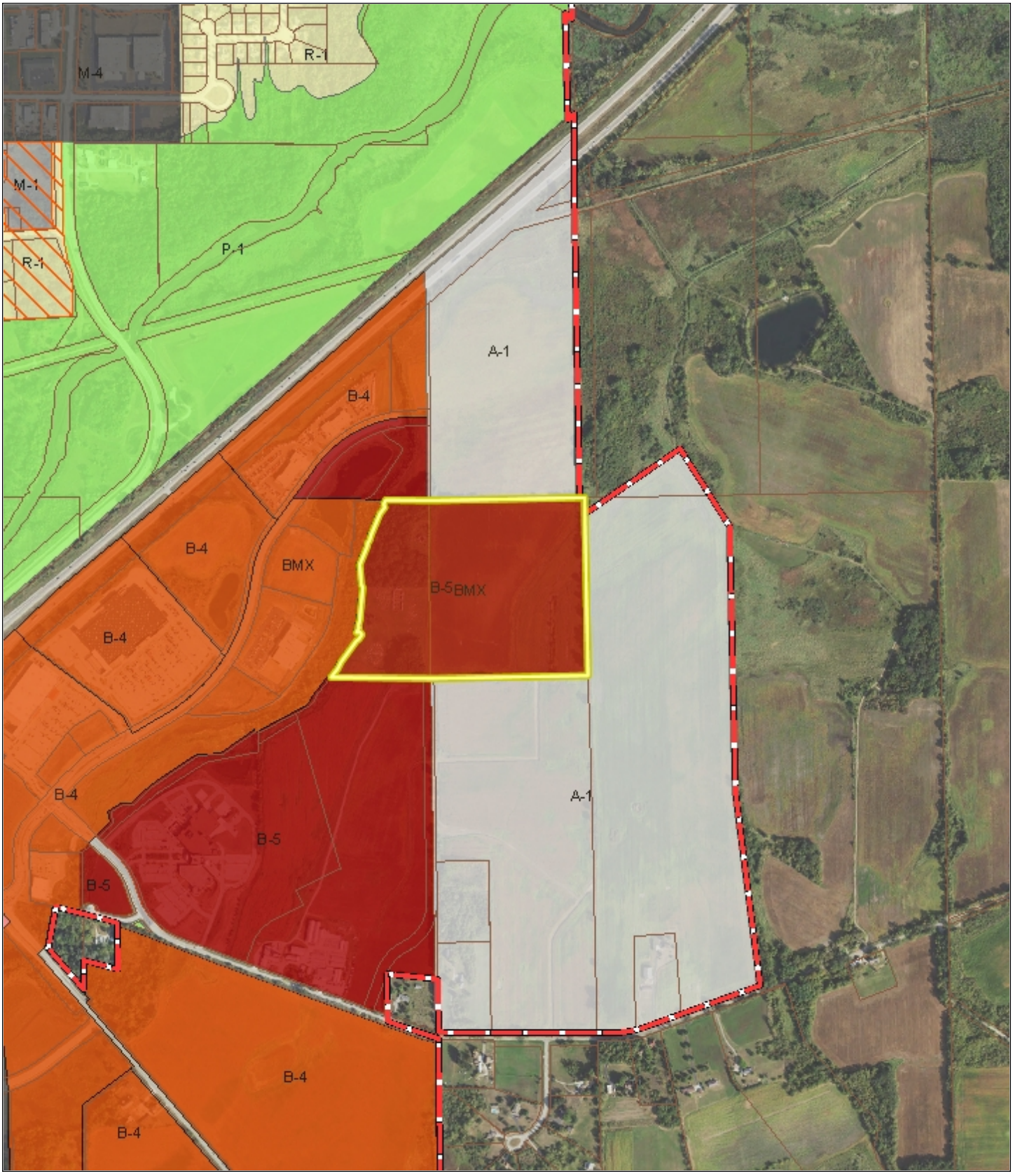
Maple Centre CSM Roadways

DISCLAIMER: The Village of Mukwonago does not guarantee the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.

SCALE: 1" = 500 '

VILLAGE OF MUKWONAGO
440 River Crest Court
PO Box 206
Mukwonago, WI 53149
262-363-6420

Print Date: 3/3/2020



Village of Mukwonago GIS

Maple Centre CSM Roadways

DISCLAIMER: The Village of Mukwonago does not guarantee the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.

SCALE: 1" = 1000 '

VILLAGE OF MUKWONAGO
440 River Crest Court
PO Box 206
Mukwonago, WI 53149
262-363-6420

Print Date: 3/3/2020

RESOLUTION 2020-13

RESOLUTION APPROVING A CERTIFIED SURVEY MAP VILLAGE OF MUKWONAGO, APPLICANT

WHEREAS, pursuant to Article IV of the Land Division Ordinance, an application for a 3-Lot Certified Survey Map for the vacant property located along the East side of E Wolf Run, approximately 600 feet east of E Wolf Run, and approximately 2,400 feet (1/2 mile) north of Maple Avenue, in the Village of Mukwonago, was filed in the office of the Village Clerk, Village of Mukwonago, Wisconsin, and

WHEREAS, the application was submitted by the Village of Mukwonago, will create three lots, with Lots 1 and 2 to be future Commercial usage, and Lot 3 to be future apartments and other associated amenities, and

WHEREAS, the Certified Survey Map has been reviewed and recommended by the Village Plan Commission.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the 2-Lot Certified Survey Map dated March 18, 2020 prepared by Chris Ruetten, Public Land Surveyor.

NOW, THEREFORE, BE IT FURTHER RESOLVED the applicant, upon the approval of this Certified Survey Map, shall agree to accept the same in writing.

Passed and dated this 18th day of March 2020.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Diana Dykstra, Village Clerk

Village of Mukwonago
Office of the Village Planner

440 River Crest Court, Mukwonago, Wisconsin 53149 Tel.(262) 363-6420x2111 –Fax (262) 363-6425 –planner@villageofmukwonago.com

Date: March 3, 2020

To: Village of Mukwonago Plan Commission

From: Ben Kohout, AICP; Village Planner

Subject: Village of Mukwonago Property One lot CSM

Meeting: March 10, 2020 Plan Commission meeting

Property location: East side of E. Wolf Run, at terminus of existing E. Wolf run (SE side).

Current zoning: B-5, Business District

General description: The proposed CSM is part of the requirements and obligations of the Village to provide for water main and sanitary sewer main extensions and property for stormwater detention area to adjoining property to the East and to provide this property to the adjoining property owner. This property transaction was a part of agreed upon terms of development and will be an exhibit (Exhibit D) in the Developer's agreement as part of this development (approved in 2019 as part of Maple Centre PUD approval).

The resulting CSM will create two lots, with the proposed "Lot 1" to be given to the adjoining land owner to the east. The remaining southern balance of land will be retained by the Village of Mukwonago.

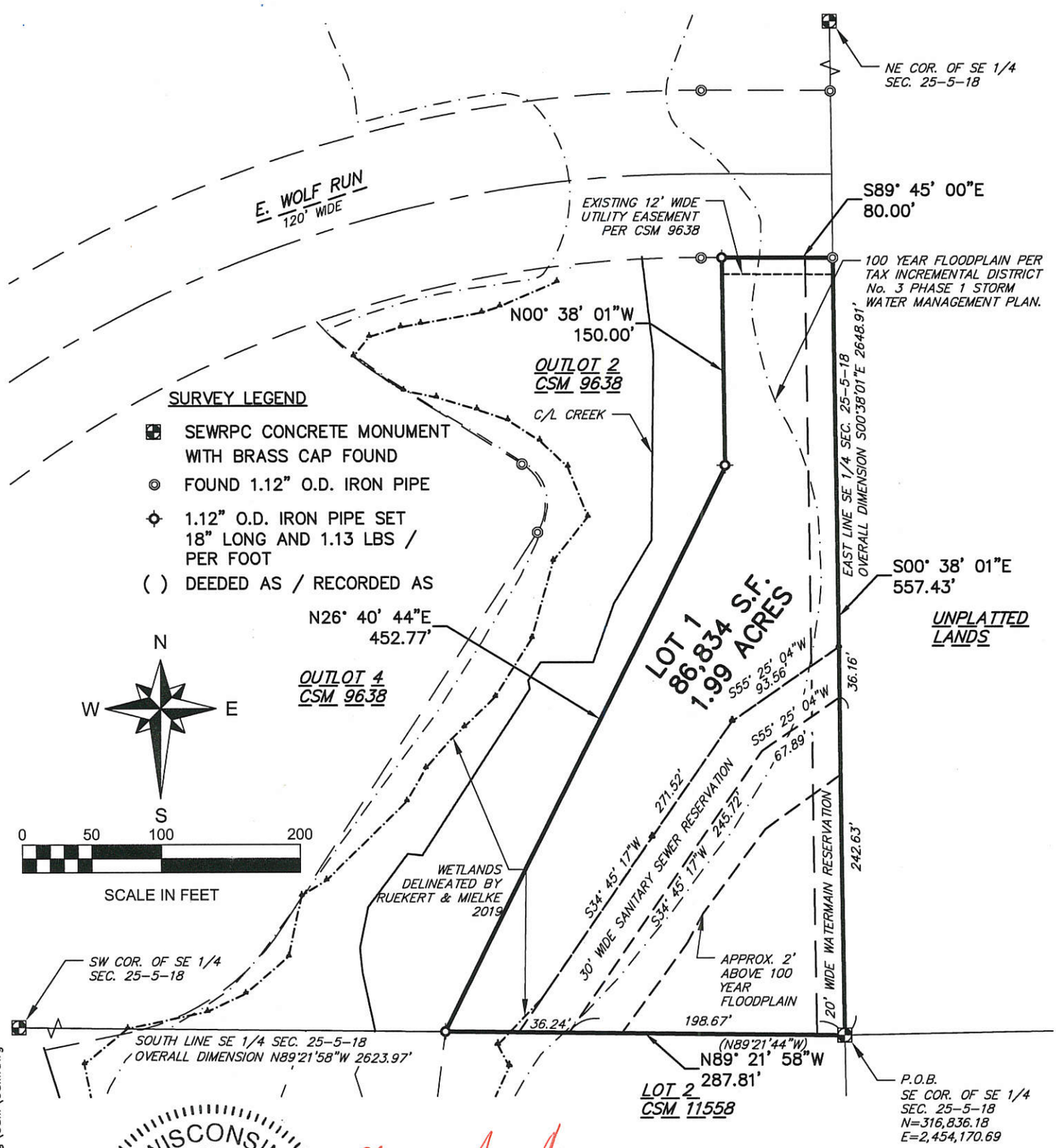
Staff has reviewed this CSM and has no concerns with this request.

Recommendation

Approval.

CERTIFIED SURVEY MAP - _____

Being part of Outlot 2 C.S.M. 9638, located in the SE 1/4 of the SE 1/4 of Section 25, Township 5 North, Range 18 East, Village of Mukwonago, Waukesha County, Wisconsin.



WISCONSIN
CHRIS
RUETTEN
S-2942
WATERTOWN
WI
LAND SURVEYOR

Chris Ruetten, P.L.S. 2942

Dated this 3rd day of March, 2020

OWNER/SUBDIVIDER:
Village of Mukwonago
440 River Crest Ct.
Mukwonago, WI 53149

PREPARED BY:
Ruekert & Mielke, Inc.
W233 N2080 Ridgeview Pkwy.
Waukesha, WI 53188

Ruekert • Mielke
www.ruekertmielke.com

THIS INSTRUMENT WAS DRAFTED BY CHRIS RUETTEN, P.L.S.
CHECKED BY: JOHN SCHULZ (3/2/20)

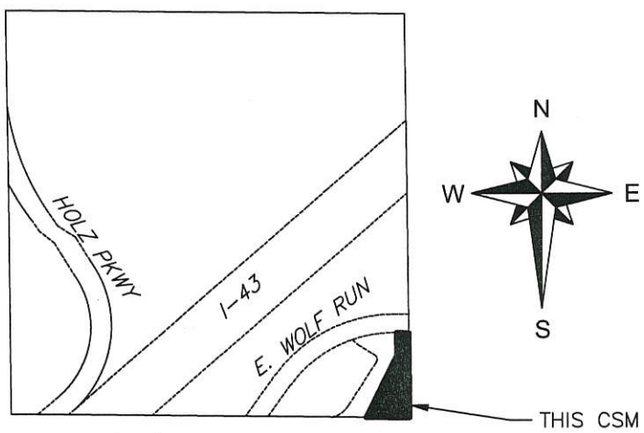
SHEET 1 OF 4

G:\C3D_2018\12_Village of Mukwonago\10096\dwg\CSM\CSM.dwg

CERTIFIED SURVEY MAP - _____

Being part of Outlot 2 C.S.M. 9638, located in the SE 1/4 of the SE 1/4 of Section 25, Township 5 North, Range 18 East, Village of Mukwonago, Waukesha County, Wisconsin.

LOCATION MAP



SE 1/4 SEC
25-5-18
NOT TO SCALE

NOTES:

1. NO BUILDINGS EXIST WITHIN THIS PROPOSED CERTIFIED SURVEY MAP.
2. LOT 1 WILL BE SERVED BY PUBLIC SANITARY SEWER AND PUBLIC WATER.
3. UPON THE SALE AND DEVELOPMENT OF LOT 1, THE 30' WIDE SANITARY RESERVATION, AND 20' WIDE WATERMAIN RESERVATION AS DEPICTED ON SHEET 1 OF 4, OF THIS CERTIFIED SURVEY MAP, SHALL BE GRANTED AS AN EASEMENT TO THE VILLAGE OF MUKWONAGO BY SEPARATE DOCUMENT AND RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR WAUKESHA COUNTY.

_____

Chris Ruetten, P.L.S. 2942

Dated this 3rd day of March, 2020

OWNER/SUBDIVIDER:
Village of Mukwonago
440 River Crest Ct.
Mukwonago, WI 53149

PREPARED BY:
Ruekert & Mielke, Inc.
W233 N2080 Ridgeview Pkwy.
Waukesha, WI 53188

Ruekert • Mielke
www.ruekertmielke.com

THIS INSTRUMENT WAS DRAFTED BY CHRIS RUETTEN, P.L.S.
CHECKED BY: JOHN SCHULZ (3/2/20)

G:\C3D_2018\12_Village of Mukwonago\10096\dwg\CSM\CSM.dwg

CERTIFIED SURVEY MAP - _____

Being part of Outlot 2 C.S.M. 9638, located in the SE 1/4 of the SE 1/4 of Section 25, Township 5 North, Range 18 East, Village of Mukwonago, Waukesha County, Wisconsin.

SURVEYOR'S CERTIFICATE

STATE OF WISCONSIN }
COUNTY OF WAUKESHA } SS

I Chris Ruetten, Professional Land Surveyor, do hereby certify that at the direction of the Village of Mukwonago, that I have surveyed, divided and mapped part of Outlot 2 of Certified Survey Map No. 9638, being a part of the Southeast 1/4, of the Southeast 1/4, of Section 25, Township 5 North, Range 18 East, Village of Mukwonago, Waukesha County, Wisconsin, more particularly described as follows:

Beginning at the Southeast Corner of the Southeast 1/4 of Section 25, Township 5 North, Range 18 East; thence bearing N89°21'58"W, along the South line of said Southeast 1/4, a distance of 287.81 feet; thence bearing N26°40'44"E, a distance of 452.77 feet; thence bearing N00°38'01"W, a distance of 150.00 feet to the South line of E. Wolf Run; thence bearing S89°45'00"E, along said South line, a distance of 80.00 feet to the East line of said Southeast 1/4; thence bearing S00°38'01"E, along said East line, a distance of 557.43 feet to the POINT OF BEGINNING. Said lands contain 86,834 S.F. more–or–less. Subject to covenants, conditions, restrictions and easements of record.

That I have made this survey, land division and map by the direction of the Village of Mukwonago, Owner(s) of said land.

That such map is a correct representation of all the exterior boundaries of the land surveyed and the division thereof made.

That I have fully complied with the provisions of Section 236.34 of the Wisconsin Statutes and the Village of Mukwonago ordinances in surveying, dividing and mapping of same.

WISCONSIN
CHRIS
RUETTEN
S-2942
WATERTOWN
WI
LAND SURVEYOR

_____

Chris Ruetten, P.L.S. 2942

Dated this 3rd day of March, 2020

OWNER/SUBDIVIDER:
Village of Mukwonago
440 River Crest Ct.
Mukwonago, WI 53149

PREPARED BY:
Ruekert & Mielke, Inc.
W233 N2080 Ridgeview Pkwy.
Waukesha, WI 53188

Ruekert • Mielke
www.ruekertmielke.com

THIS INSTRUMENT WAS DRAFTED BY CHRIS RUETTEN, P.L.S.
CHECKED BY: JOHN SCHULZ (3/2/20)

G:\C3D_2018\12_Village of Mukwonago\10096\dwg\CSM\CSM.dwg

CERTIFIED SURVEY MAP - _____

Being part of Outlot 2 C.S.M. 9638, located in the SE 1/4 of the SE 1/4 of Section 25, Township 5 North, Range 18 East, Village of Mukwonago, Waukesha County, Wisconsin.

CORPORATE OWNER'S CERTIFICATE

The Village of Mukwonago, a Municipal Corporation duly organized and existing under, and by virtue of, the laws of the State of WI, and as owner(s), do hereby certify that said Municipal Corporation, caused the land described on this map to be surveyed, divided, mapped, and dedicated as represented on this map.

The Village of Mukwonago, does further certify that this Certified Survey Map is to be submitted to the following for approval or objection:
(Village of Mukwonago)

WITNESS the hand and seal of said owner(s) this _____ day of _____ , 2020.

In the presence of:

Signed: _____
Fred Winchowky, Village President

Countersigned: _____
Diana Dykstra, Village Clerk

STATE OF WISCONSIN)
COUNTY OF _____) SS

Personally came before me this _____ day of _____, 2020, Fred Winchowky, Village President, and Diana Dykstra, Deputy Village Clerk of the above named Municipal Corporation, to me known to be the persons who executed the foregoing instrument, and to me known to be such Village President and Village Clerk of said Municipal Corporation, and acknowledged that they executed the foregoing instrument as such officer(s) as the deed of said Municipal Corporation, by its authority.

_____

Notary Public, _____ County, Wisconsin

My Commission Expires _____

VILLAGE BOARD CERTIFICATE

Resolved, that this Certified Survey Map, in the Village of Mukwonago, is hereby approved by the Village Board.

Dated this _____ day of _____ , 2020.

_____
Fred Winchowky, Village President

I hereby certify that the foregoing is a copy of a resolution adopted by the Village of Mukwonago Board.

_____
Diana Dykstra, Village Clerk

VILLAGE PLANNING COMMISSION CERTIFICATE

Resolved, that this Certified Survey Map, in the Village of Mukwonago, is hereby approved by the Village Planning Commission.

_____
Fred Winchowky, Village President

I hereby certify that the foregoing is a copy of a resolution adopted by the Planning Commission of the Village of Mukwonago.

_____ _____
Diana Dykstra, Village Clerk

WISCONSIN
CHRIS RUETTEN
S-2942
WATERTOWN
LAND SURVEYOR

_____
Chris Ruetten, P.L.S. 2942

Dated this 3rd day of March, 2020

Ruekert • Mielke
www.ruekertmielke.com

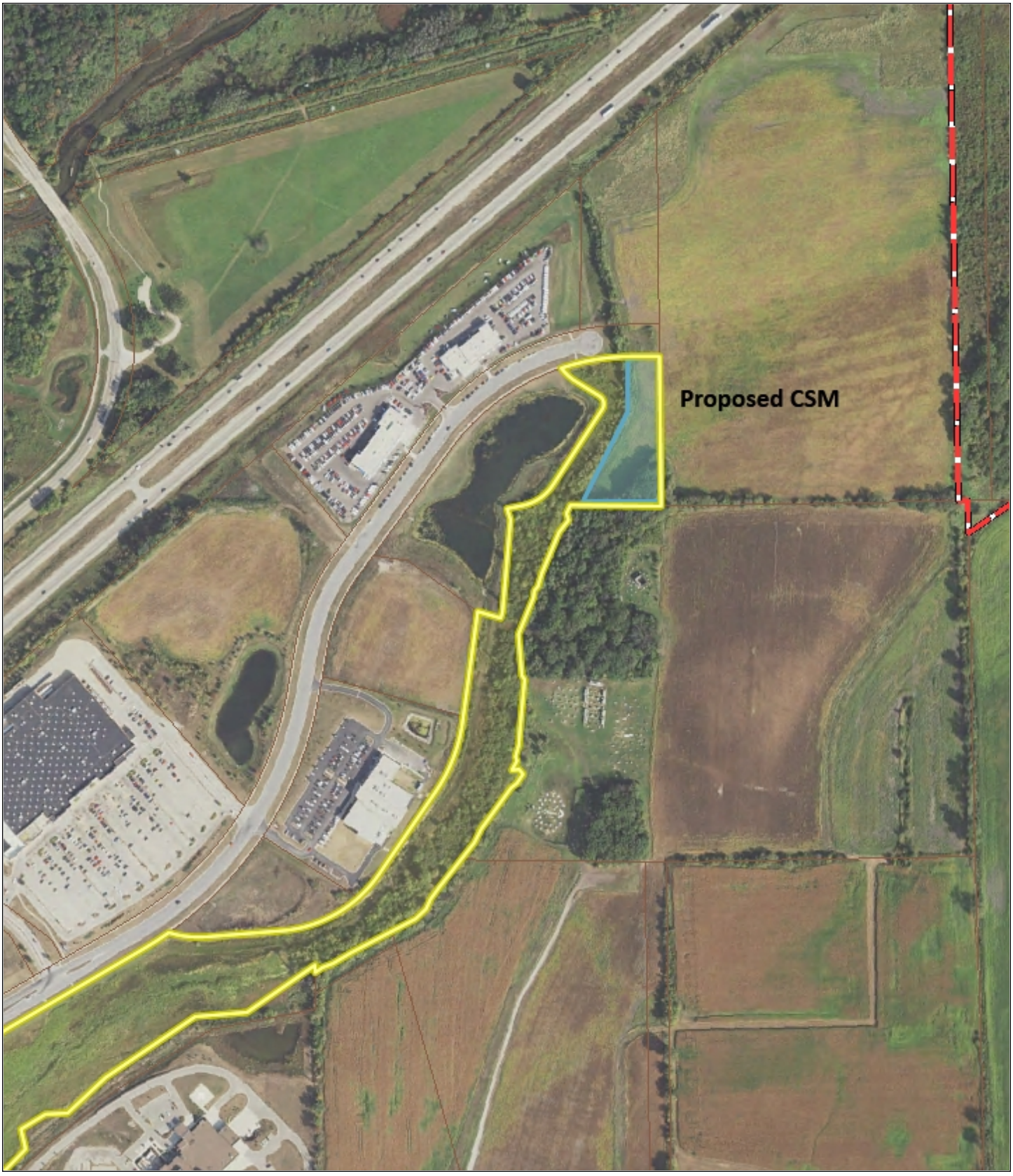
OWNER/SUBDIVIDER:
Village of Mukwonago
440 River Crest Ct.
Mukwonago, WI 53149

PREPARED BY:
Ruekert & Mielke, Inc.
W233 N2080 Ridgeview Pkwy.
Waukesha, WI 53188

THIS INSTRUMENT WAS DRAFTED BY CHRIS RUETTEN, P.L.S.

CHECKED BY: JOHN SCHULZ (3/2/20)

G:\C3D_2018\12_Village of Mukwonago\10096\dwg\CSM\CSM.dwg



Village of Mukwonago GIS

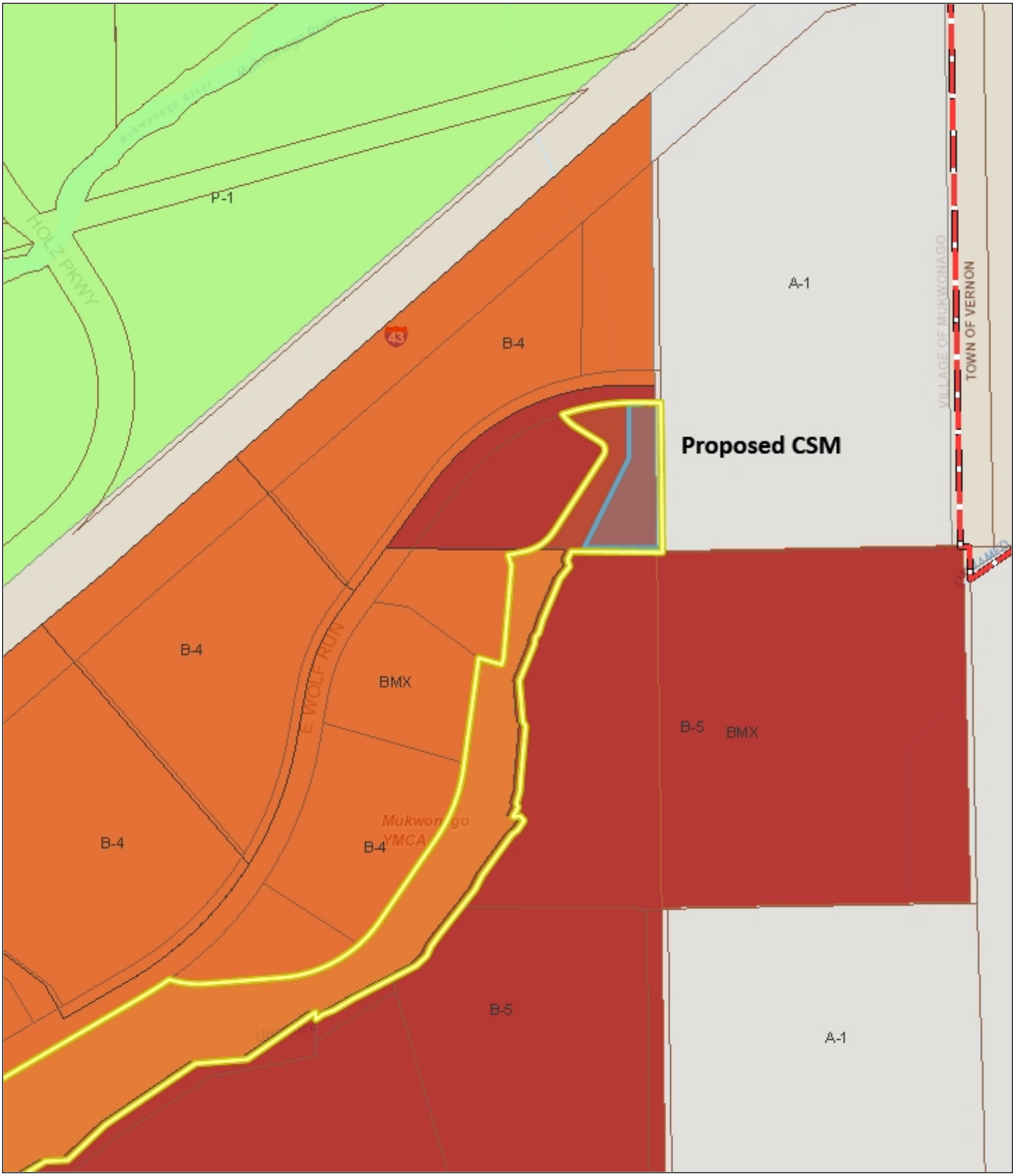
Maple Centre CSM Village Lot EX D

DISCLAIMER: The Village of Mukwonago does not guarantee the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.

SCALE: 1" = 500 '

VILLAGE OF MUKWONAGO
440 River Crest Court
PO Box 206
Mukwonago, WI 53149
262-363-6420

Print Date: 3/3/2020



Village of Mukwonago GIS

Zoning Maple Centre CSM Village Lot EX D

DISCLAIMER: The Village of Mukwonago does not guarantee the accuracy of the material contained here in and is not responsible for any misuse or misrepresentation of this information or its derivatives.

SCALE: 1" = 500 '

VILLAGE OF MUKWONAGO
440 River Crest Court
PO Box 206
Mukwonago, WI 53149
262-363-6420

Print Date: 3/3/2020

RESOLUTION 2020-12

RESOLUTION APPROVING A CERTIFIED SURVEY MAP VILLAGE OF MUKWONAGO, APPLICANT

WHEREAS, pursuant to Article IV of the Land Division Ordinance, an application for a 2-Lot Certified Survey Map for the vacant property located along the East side of E Wolf Run, at terminus of existing E Wolf Run (SE side), in the Village of Mukwonago, was filed in the office of the Village Clerk, Village of Mukwonago, Wisconsin, and

WHEREAS, the application was submitted by the Village of Mukwonago, with the proposed "Lot 1" to be given to the adjoining land owner to the east. The remaining southern balance of land will be retained by the Village of Mukwonago, and

WHEREAS, the Certified Survey Map has been reviewed and recommended by the Village Plan Commission.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the 2-Lot Certified Survey Map dated March 18, 2020 prepared by Chris Ruetten, Public Land Surveyor.

NOW, THEREFORE, BE IT FURTHER RESOLVED the applicant, upon the approval of this Certified Survey Map, shall agree to accept the same in writing.

Passed and dated this 18th day of March 2020.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Diana Dykstra, Village Clerk

Who Should Attend

Plan commission members, planners, zoning administrators, elected officials and anyone else who has an interest in gaining new skills regarding public engagement.

Benefits of Participation

Have you considered using Social Media to reach your constituents or to increase public engagement?
Through two presentations participants will learn about surveys, strategies and use of Social Media platforms to increase public engagement.

This workshop can help bridge the knowledge/experience gap and increase confidence for those who will make decisions affecting their community for years to come.

Workshop Location

Genesee Town Hall
S43 W31391 Hwy. 83
Genesee Depot, WI

Public Engagement:

- **Going Beyond the Usual Participants**
- **Evaluating Public Input in a Digital Age**

Enhance Your Plan Commission Skills

April 30, 2020
6:30-8:30 pm
Genesee Town Hall

A Plan Commission Workshop Offered by UW-Madison Extension Waukesha County

Extension
UNIVERSITY OF WISCONSIN–MADISON
WAUKESHA COUNTY

Plan Commission Workshop

April 30, 2020 — 6:30-8:30 PM — Genesee Town Hall

Agenda Overview

Welcome and Agenda Review

Presentations:

Kristin Runge will lead a discussion on the promise and peril of social media for stakeholder engagement. We'll look at strategies for engaging or disengaging with residents and stakeholders in online forums such as Facebook, Twitter and NextDoor, and how those social media sites can be used as platforms for moving users into broader engagements and issue-based surveys.

Presenter: Kristin Runge, Communications Researcher, Economic Development Administration University Center, UW-Madison

Kevin Muhs will share The Southeastern Wisconsin Regional Planning Commission's (SEWRPC) experience with using social media to engage with the public, the lessons they've learned, and how they'd like to improve and grow.

Presenter: Kevin Muhs, Executive Director of the Southeastern Wisconsin Regional Planning Commission

Wrap Up and Evaluation

Workshop is $40. Registration is required. Space is limited. No Refunds.

Contact Ann Wied at 262-548-7788 or ann.wied@wisc.edu
for more information.

Plan Commission Workshop

I/We plan to attend and have enclosed $40 per person for a total of $_____.

Name_____

Company_____

Address_____

City_____ State_____

Zip_____ Phone_____

Email_____

Please attach list of additional attendees with email addresses.

Mail your completed registration form and check payable to ***Waukesha County Extension*** to:
Waukesha County Extension
Plan Commission Workshop
515 W Moreland Blvd AC G22
Waukesha WI 53188

Online registration is available at
http://uwex.maxgalaxy.net

Credit Card Type_____ Exp Date_____

Name on Card_____

Card No._____

Credit Card information will be shredded immediately after registration is processed