Village of Mukwonago

Notice of Meeting and Agenda

PLAN COMMISSION MEETING
Tuesday, July 8, 2025

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

1. Call to Order

2. Roll Call

3. Comments from the Public

Please be advised, per Wisconsin Statute Sec. 19.84(2), information and comment will be received from the public by the Plan Commission. The Public Comment Session is granted to the public at the start of each Plan Commission meeting. The Public Comment Session shall last no longer than fifteen (15) minutes and individual presentations are limited to three (3) minutes per speaker. However, these time limits may be extended at the discretion of the Chief Presiding Officer. The Plan Commission may not respond to or have any discussion on information received during the public comment session unless it is placed upon the Agenda for a subsequent meeting. Public comments should be addressed to the Plan Commission as a body. Presentations shall not deal in personalities personal attacks on members of the Plan Commission, the applicant for any project or Village Employees. Comments shall not be used to engage others in a debate in this forum. All comments, questions and concerns should be presented in a respectful professional manner. Any questions to an individual member of the Plan Commission or Staff will be deemed out of order by the Presiding Officer.

4. Approval of Minutes

4.1 Discussion and possible approval of Planning Commission minutes from June 10, 2025.
20250610 Minutes draft.docx

5. Public Hearings

All persons interested in making comments about any of the public hearing items will be heard. Formal petitions and written comments regarding any of the public hearing items may be submitted tonight. During the public hearing(s), if you wish to be heard, the Plan Commission asks that you begin by stating your name and address, speak for no more than three minutes and attempt to avoid duplication. Each person speaking at the public hearing must sign the Public Hearing Appearance sign-in sheet before speaking. The sign-in sheet is available on the table located at the back of the room.

5.1 Public hearing for a Conditional Use Permit for an expansion of the Mukwonago Baptist Church, located at 1610 Honeywell Road, Parcel #A352400001, applicant (Mukwonago Baptist Church, Inc.).
Public Hearing Notice-July 2025-Multiple PHs

5.2 Public hearing on the following items:

1. General Development Plan Amendment for a Planned Unit Development for Maple Centre Development, Parcel MUKV2013999013, Applicant (Family Ventures of Mukwonago LLC
2. Final Development Plan Amendment for Phase 1 of a Planned Unit Development for Maple Centre Development, Parcel MUKV2013999013, Applicant (Family Ventures of Mukwonago LLC)
3. Final Development Plan Approval for Phase 2 of a Planned Unit Development for Maple Centre Development, Parcel MUKV2013999013, Applicant (Family Ventures of Mukwonago LLC)

Public Hearing Notice-July 2025-Multiple PHs.docx

5.3 Public hearing for a Conditional Use Permit for a drive-through facility and outdoor seating associated with “Café Bliss” located at 318 S Rochester Street, Parcels MUKV1976146 and MUKV1976143, applicant (Campbell Construction & Kevin Bird, authorized representatives for Café Bliss).
Public Hearing Notice-July 2025-Multiple PHs.docx

5.4 Public hearing for a Zoning Map Amendment to rezone multiple parcels from R-1 Residential to R-2 Residential, specifically 606, 612, and 618 Meadow View Court, and 430, 440, 450, 459, 460, 467, 477, 470, 487, 493, 490, 500, 503, 511 Eagle Lake Avenue, and 512 Bay Street. Parcels MUKV1974979001, MUKV1974979002, MUKV1974979003, MUKV1974985, MUKV1974984, MUKV1974983, MUKV1974982, MUKV1974981, MUKV1974980, MUKV1974979004, MUKV1974970, MUKV1974971, MUKV1974972, MUKV1974973, MUKV1974974, MUKV1974975, MUKV1974976, MUKV1974977, MUKV1974969
Public Hearing Notice-July 2025-Multiple PHs.docx

6. New Business

Discussion and Possible Action on the Following Items

6.1 Discussion and possible recommendation to approve **Resolution 2025-19** for Conditional Use and Prescribing Conditions for a building expansion of a religious assembly (Mukwonago Baptist Church) on Parcel A352400001, Mukwonago, WI
1 Staff Report-20250627-Mukwonago Baptist Church Expansion-SPAR and CUP.pdf
RESOLUTION 2025-19 - Mukwonago Baptist Church Expansion-CUP
2 Site Plan and Architectural Application_Redacted.pdf
3 Conditional Use Permit Application_Redacted.pdf
4 Plan of Operation.pdf
5 MBC Building Addition - Construction Drawings - 6.2.25.pdf
6 MBC - Architectural and Elevations.pdf
7 MBC Landscape Plan.pdf
8 MBC Building Addition - SWMP Documents - 6.2.25.pdf
9 Mukwonago_Baptist_Church_Expansion_Site_Lighting_06102025.pdf

6.2 Discussion and possible approval of **PC-Resolution 2025-16** a Site Plan and Architectural Review for Mukwonago Baptist Church expansion, Parcel # A352400001.

1 Staff Report-20250627-Mukwonago Baptist Church Expansion-SPAR and CUP.pdf

PC RESOLUTION 2025-16- Mukwonago Baptist Church Expansion-SPAR.docx

6.3 Discussion and possible recommendation to approve **Resolution 2025-20** for Conditional Use and Prescribing Conditions for a Drive-Through Facility and Outdoor Seating for Café Bliss on Parcel MUKV1976146, Mukwonago, WI

1 Staff Report-20250630-Cafe Bliss-SPAR and CU.pdf

RESOLUTION 2025-20 - Cafe Bliss CUP.docx

2 Cafe Bliss SPAR application.pdf

3 Cafe Bliss Cond Use application.pdf

4 Cafe Bliss Agreement for Reimbursable Services.pdf

5 Scale Drawings _Prelim Civil_Landscape_Renderings_Photometric_Floor Plan_Elevations_.pdf

6 Finishes.pdf

6.4 Discussion and possible approval of **PC-Resolution 2025-17** for a Site Plan and Architectural Review for Café Bliss, Parel MUKV 1976 146 and MUKV 1976 143

1 Staff Report-20250630-Cafe Bliss-SPAR and CU.pdf

PC RESOLUTION 2025-17 - Cafe Bliss SPAR.docx

6.5 Discussion and possible recommendation to approve **Ordinance No.1036** to Amend the Zoning Map of The Village of Mukwonago on behalf of The Village of Mukwonago for Multiple Properties and Addresses from R-1 Residential to R-2 Residential, specifically 606, 612, and 618 Meadow View Court, and 430, 440, 450, 459, 460, 467, 477, 470, 487, 493, 490, 500, 503, 511 Eagle Lake Avenue, and 512 Bay Street. Parcels MUKV1974979001, MUKV1974979002, MUKV1974979003, MUKV1974985, MUKV1974984, MUKV1974983, MUKV1974982, MUKV1974981, MUKV1974980, MUKV1974979004, MUKV1974970, MUKV1974971, MUKV1974972, MUKV1974973, MUKV1974974, MUKV1974975, MUKV1974976, MUKV1974977, MUKV1974969

Staff Report-20250628-Rezoning Multiple Parcels

ORDINANCE 1036 - Amend Zoning Map - Multiple Parcels

6.6 Discussion and possible recommendation to approve **Resolution 2025-18** for CSM Review for 807 and 809 Main St, Parcel Number MUKV 2009 972 and MUKV 2009 974

Staff Report-20250625-807 Main Street CSM

RESOLUTION 2025-18 - 807 Main Street CSM

6.7 Review and consideration of amendments and recommendation for approval for the Maple Centre Development, Parcel MUKV2013999013, MUKV2013999012, MUKV2013999011, (Family Ventures of Mukwonago, LLC, applicant)

a. Discussion and possible recommendation to direct the Village Attorney to draft and coordinate an amendment or correction instrument for the Developer Guaranty Agreement for Maple Centre Development to revise language related to maximum allowable residential units
b. Discussion and possible recommendation to approve **Resolution 2025-21** amending the General Development Plan for the Maple Centre Development
c. Discussion and possible recommendation to approve **Resolution 2025-22** amending the Final Development Plan for Phase 1 of the Maple Centre Development
d. Discussion and possible recommendation to approve **Resolution 2025-23** approving the Final Development Plan for Phase 2 of the Maple Centre Development

1 Staff Report-20250627-Maple Centre PUD Amendment and Final Development Plan Approval.pdf
RESOLUTION 2025-21 Family Ventures Maple Centre GDP Amendment.docx
RESOLUTION 2025-22 Family Ventures Maple Centre - Phase 1 PD.docx
RESOLUTION 2025-23 Family Ventures Maple Centre - Phase 2 PD.docx
2 RESOLUTION 2019-018 Family Ventures GDP PUD CUP - Signed.pdf
3 Family Ventures Development Guarantee Agreement-Maple Centre-RECORDED.pdf
4 RESOLUTION 2022-38 (Final Dev Plan first phase Maple Centre) Signed.pdf
5 Prior Approved Site Plan Showing 3-Story Buildings.pdf
6 PUD Amendment Application Maple Centre 6-3-2025_Redacted.pdf
7 PUD Amendment Request - Maple Centre Narrative - 6-3-2025.pdf
8 Combined 3-Story Renderings.pdf
9 Combined 4-Story Renderings.pdf
10 Combined Clubhouse Renderings.pdf
11 Maple Centre Civil Plans 6-2-2025.pdf

7. Adjournment

Membership:

Eric Brill, John Meiners, Karl Kettner, Tim Rutenbeck, Jason Wamser, Fred Winchowky, VACANT SEAT, and Village Planner (Advisory)

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, June 8, 2025

Time: **6:30pm**
Place: **Mukwonago Municipal Building/Boar Room, 440 River Crest Court, Mukwonago, WI 53149**

Call to Order
Meeting Called to order by President Winchowky at 6:30pm

Roll Call
Commissioners present:
Fred Winchowky, Village President
Karl Kettner
John Meiners
Tim Rutenbeck
Jason Wamser

Also present: Diana Dykstra, Clerk/ Treasurer/ Administrator
Shay Zerfas, Deputy Clerk/ Treasurer

Excused: Eric Brill
Peter Gesch, Village Planner

Comments from the Public
No Comments
Closed 6:31pm

Approval of Minutes
Meiners/Rutenbeck motion to approve minutes from May 13, 2025, regular meeting.
Unanimously carried.

New Business
Discussion and possible recommendation to approve Resolution 2025-15 for a CSM for Mukwonago Food Pantry located at 305 and 325 Eagle Lake Avenue, Parcel MUKV 1974921 and MUKV 1974922

Administrator Dykstra provided an explanation for Mukwonago's Food Pantry request for CSM of the properties.

Winchowky/Meiners motioned to recommend to Village Board to approve **Resolution 2025-15** for a CSM for Mukwonago Food Pantry located at 305 and 325 Eagle Lake Avenue, Parcel MUKV 1974921 and MUKV 1974922.
Unanimously Carried.

DRAFT

Discussion and possible approval for PC Resolution 2025-13 for a Site Plan and Architectural Review for the Mukwonago Food Pantry Located at 325 Eagle Lake Avenue, Parcel Number MUKV 1974921

Administrator Dykstra provided an overview of the project.

Wamser/Rutenbeck motion to approve **PC-Resolution 2025-13** for a Site Plan and Architectural Review for the Mukwonago Food Pantry Located at 325 Eagle Lake Avenue, Parcel Number MUKV 1974921, with the added condition that exterior building materials (including siding, roofing, etc.) shall reasonably match the existing materials and be subject to staff approval. Unanimously Carried.

Discussion and possible approval for PC Resolution 2025-14 for Site Plan and Architectural Review for Semper-FI Roofing and Exteriors at 820 Swan Dr. Parcel MUKV1970987

Administrator Dykstra provided an overview of the project and explained that the applicant is aware a painted sign is not permitted. The applicant will need to apply for a sign permit when ready and have the approved sign affixed to the building

Meiners/Rutenbeck motioned to approve **PC-Resolution 2025-14** for Site Plan and Architectural Review for Semper-FI Roofing and Exteriors at 820 Swan Dr. Parcel MUKV1970987, with understanding that applicant adheres to signage ordinances. Unanimously Carried

Discussion and possible approval or PC Resolution 2025-15 for Site Plan and Architectural Review for 108 Main Street LLC located at 108 Main Street, Parcel MUKV 1976111

Administrator Dykstra provided an overview of the project.

Meiners/Rutenbeck motioned to approve **Resolution 2025-15** for Site Plan and Architectural Review for 108 Main Street LLC located at 108 Main Street, Parcel MUKV 1976111. Unanimously Carried.

DRAFT

Discussion and possible approval of PC Resolution 2025-12 for the extension of the approval of a Site Plan and Architectural Review for L'Bri Pure N' Natural located at 909 Perkins Drive, Parcel Number MUKV 1969-996-005 and MUKV 1969-996-006

Administrator Dykstra provided an explanation for L'Bri's request to extend.

Meiners/Rutenbeck motioned to approve **Resolution 2025-12** for the extension of the approval of a Site Plan and Architectural Review for L'Bri Pure N' Natural located at 909 Perkins Drive, Parcel Number MUKV 1969-996-005 and MUKV 1969-996-006, with the modification that the extension be granted for 12 months from today's date, rather than the 18 months originally requested.
Unanimously Carried.

Adjournment
Meeting adjourned at 6:52pm

Respectfully Submitted,
Shay Zerfas
Deputy Clerk/Treasurer

DRAFT

NOTICE OF PUBLIC HEARING

VILLAGE OF MUKWONAGO PLAN COMMISSION

The Village of Mukwonago Plan Commission will conduct a public hearing on Tuesday, July 8, 2025, for all of the following:

1. Conditional Use Permit for an expansion of the Mukwonago Baptist Church, located at 1610 Honeywell Road, Parcel #A352400001, applicant (Mukwonago Baptist Church, Inc.).
2. General Development Plan Amendment for a Planned Unit Development for Maple Centre Development, Parcel MUKV2013999013, Applicant (Family Ventures of Mukwonago LLC)
3. Final Development Plan Amendment for Phase 1 of a Planned Unit Development for Maple Centre Development, Parcel MUKV2013999013, Applicant (Family Ventures of Mukwonago LLC)
4. Final Development Plan Approval for Phase 2 of a Planned Unit Development for Maple Centre Development, Parcel MUKV2013999013, Applicant (Family Ventures of Mukwonago LLC)
5. Conditional Use Permit for a drive-through facility associated with “Café Bliss” located at 318 S Rochester Street, Parcels MUKV1976146 and MUKV1976143, applicant (Campbell Construction & Kevin Bird, authorized representatives for Café Bliss).
6. Zoning Map Amendment to rezone multiple parcels from R-1 Residential to R-2 Residential, specifically 606, 612, and 618 Meadow View Court, and 430, 440, 450, 459, 460, 467, 477, 470, 487, 493, 490, 500, 503, 511 Eagle Lake Avenue, and 512 Bay Street. Parcels MUKV1974979001, MUKV1974979002, MUKV1974979003, MUKV1974985, MUKV1974984, MUKV1974983, MUKV1974982, MUKV1974981, MUKV1974980, MUKV1974979004, MUKV1974970, MUKV1974971, MUKV1974972, MUKV1974973, MUKV1974974, MUKV1974975, MUKV1974976, MUKV1974977, MUKV1974969

The meeting will be held in the Board Room of the Village Hall located at 440 River Crest Court, Mukwonago, Waukesha and Walworth Counties. The meeting starts at 6:30PM and the public hearing will be conducted in the order listed on the meeting agenda.

For information regarding this public hearing, contact the Village Planner at planner@villageofmukwonago.gov or 262-363-6420 during regular office hours. All interested parties will be heard.

Notice was sent to property owners within 250 feet of the property and surrounding municipality Clerks within 1000 feet of the Village of Mukwonago boundary.

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, please contact Shay Zerfas, at 262-363-6420.

VILLAGE OF MUKWONAGO
Shay Zerfas, Deputy Clerk-Treasurer

Legal notice to be published in the *Waukesha Freeman* on June 24, 2025 and July 1, 2025.

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VILLAGE OF MUKWONAGO
Shay Zerfas, Deputy Clerk-Treasurer

Legal notice to be published in the *Waukesha Freeman* on June 24, 2025 and July 1, 2025.

PLAN COMMISSION STAFF REPORT

TO: Village of Mukwonago Plan Commission

FROM: Peter Gesch, P.E., Ruekert & Mielke, Inc.

REPORT DATE: June 27, 2025

MEETING DATE: July 8, 2025, 6:30 P.M.

SUBJECT: Mukwonago Baptist Church Expansion – Site Plan & Architectural Review & Conditional Use

BASIC INFORMATION	
Project:	Mukwonago Baptist Church Expansion
Applicant:	Mukwonago Baptist Church
Consulting Engineer:	Drainage Doctor, LLC
Consulting Architect:	Mark Freding - Architect
Request:	Site Plan & Architectural Review & Conditional Use
Staff Recommendation:	Approve with Conditions

PARCEL DATA/CHARACTERISTICS	
Tax Key:	A352400001
Acreage:	22.31 Acres
Current Use:	Religious Assembly
Proposed Use:	Religious Assembly
Reason for Request:	Expansion to Church Building
Land Use Classification:	Public/Semi-Public (Institutional)
Zoning Classification:	P-1 – Public/Semi-Public

Project Summary & Overview

The Mukwonago Baptist Church is seeking to expand it's existing facility located at 1610 Honeywell Road, in the Village. The addition will include areas for a gym/multi-purpose facility, additional classroom space, and administrative space. Site improvements include a new paved access drive, a new parking lot, and storm water management features.

Being located in the P-1 zoning district, churches and places of worship are a permitted use and any structures are a conditional use. The conditional use is to prescribe conditions of approval in a zoning district that doesn't have set zoning district standards for development due to the unique classification of uses that are permitted.

Staff have reviewed the proposed improvement plans and have offered preliminary comments based on the information provided. The proposed improvements substantially conform to the general requirements of the Village of Mukwonago Municipal Code with various items that need to be further coordinated with Department Heads prior to final approval of the construction documents.

The applicant has provided their plan of operation and their proposed timeframe for improvements.

Conditional Use Request

Attached to this staff report is the justification questions for a Conditional Use Permit that have been answered by the applicant. The Planning Commission shall take these into consideration when making their decisions and recommendations.

Conditional Use Process / Findings

The established review procedures are that the Plan Commission shall hold a public hearing and make a recommendation to the Village Board whom makes the final decision.

Following the close of the public hearing, the Plan Commission may recommend (1) approval, (2) approval with conditions, or (3) denial.

If approval is recommended, the Plan Commission can recommend conditions deemed necessary to protect public health, safety, and welfare. The Plan Commission, in passing on the matter, will need to make the following determinations consistent with Section 100-354 of Mukwonago's Zoning Regulations:

1. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
2. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
3. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts. In making this determination, the Plan Commission and Village Board must determine whether the petitioner has demonstrated there are no adverse effects on surrounding properties or that potentially adverse effects have been eliminated or reduced to an acceptable level. Approaches that could be employed to mitigate potentially adverse effects will depend on the particular circumstances but may include:
    a. Adjusting the location of the use, or parts thereof, on the subject property;
    b. Limiting hours of operation;
    c. Limiting the size or scope of the use, or parts thereof;
    d. Controlling how the use is managed on an ongoing basis;
    e. Providing additional landscaping;
    f. Providing additional screening; and
    g. Limiting operations conducted out-of-doors, if otherwise allowed
4. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
5. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.

6. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

In addition, the property owner / tenant has shown compliance with the requirements set forth in the Village's zoning regulations for specified use.

The Village Board will carefully review the recommendation of the Plan Commission and concurs with the Plan Commission's findings set forth above, provided the conditional use is operated pursuant to the conditions of approval set forth in this order.

These findings are incorporated into the draft conditional use order which is attached.

The Plan Commission shall approve a conditional use application if the terms and conditions of the zoning regulations are met. However, in the event the terms and conditions of the ordinance are not consented to and complied with by the applicant, the Commission may deny the application. In addition, the Commission may deny the application or place conditions on it if substantial evidence, as defined in §62.23(7) Wis. Stats. is presented. That evidence must demonstrate the inability of the applicant to comply with or meet the conditions of the zoning regulations or that the conditions to be applied by the Plan Commission are necessary to protect the public health, safety or welfare of the community based upon the presentation of substantial evidence. Potential motion for approval to Recommend to the Village Board approval of the project as a conditional use as set forth in the attached conditional use order as drafted, provided the Village Attorney approves the final form of the conditional use order.

Staff Review

Engineering:

- Final Civil Plans and Storm Water Management Plan (SWMP) shall be stamped by a professional engineer licensed to practice in the State of Wisconsin.
- A Storm Water Maintenance Agreement (SWMA) shall be provided that follows the Village's Standard Form.
- Phosphorus reduction data shall be shown in the SWMP and the SWMA.
- Civil plan details call for asphalt drive and parking lot but details show concrete pavement and gravel drive cross sections. Applicant shall provide applicable sections for proposed plan.
- Applicant shall obtain WDNR construction site storm water permit (erosion control) if disturbance will exceed one acre.
- Applicant shall provide existing conditions and post-development conditions drainage maps with all sub-basins shown to match the proposed development plans to justify the calculations in the storm water management plan.
- Outlet structure elevations for bioretention basins shown on C4.0 don't match the HydroCAD model control structure elevations.
- Applicant shall also ensure that outlet control structure elevations in WinSLAMM water quality analysis meet the design characteristics in the HydroCAD model and the civil plan details.

- Bioretention basin outlet structure characteristics are unclear. Applicant shall ensure ponding depth does not exceed 12-inches and proper outlet configurations are detailed appropriately, including the inclusion of a minimum 6-inch underdrain per WDNR Technical Standard 1004, unless justification is provided for inadequate outlet elevation criteria.
- Overflow weir for bioretention basin shall have heavy duty erosion matting.
- Show inlet protection on proposed storm structures on erosion control plan.

Public Works No comments at this time.

Utilities

- If public utilities are extended fronting the property in the future, then the applicant will be required to connect to the facilities in accordance with the applicable Municipal Code Section.
- All locations of on-site water and septic and proposed tanks shall be shown on the civil plans.

Police No comments at this time.

Fire

- The WB-50 template or approved equal shall be run through the site to address fire truck turning movements.
- If the buildings are adjoined, it would require upgrading the whole structure with suppression including the existing church and under the church basement.
- Applicant shall provide confirmation of compatibility with existing alarm and detection systems with the need for possible upgrades.
- Suppression water supply calculations must be provided including tanks and pumps if required to meet the demands.

Building Inspection No comments at this time.

Planning

- Property lines are not shown on the photometric drawings. Lighting appears to exceed zero footcandles at and beyond property line near Honeywell road. Lighting shall be adjusted to meet the requirements of the Village lighting ordinance.
- The applicant has provided justification for the proposed parking counts and detailed times and events that warrant the provided parking space design.
- Curb and gutter is not required in the parking lot as it is an expansion of an existing parking lot without curb and gutter and surface drainage is managed with ditches and culverts.
- Applicant shall ensure that no trees are planted within the proposed swales or storm water drainage system – landscaping plan indicates

trees in some swale locations and this will not be permitted in final construction.
- Submit a plan showing proposed set-backs for the proposed building, parking, and drive aisle from the west, south, and east property lines.
- Proposed roofing and siding materials shall match existing building styles, materials, and colors.
- Architectural drawings do not list any elevations, but scale to be approximately 41.25-FT to the top of the gymnasium roof. Applicant shall provide annotated elevation drawings meeting any Plan Commission max building height stipulations.
- No dumpster enclosure detail was provided. Applicant shall provide dumpster enclosure detail. Dumpsters shall be fully screened on all four sides with gates for access.

Recommended Action

Conditional Use Permit
Staff recommends the Planning Commission recommend to the Village Board approval of a conditional use permit as set forth in the provided resolution.

To – Grant a Conditional Use Permit for a Religious Assembly facility with the following on-going conditions deemed necessary to protect the health, safety, and welfare:

1. Ongoing conditions of approval. The following conditions shall constitute an ongoing obligation:
    a. Any modifications to the site, buildings, site improvements, shall require the conditional use application being updated.
2. The following conditions are also true and are consistent with Section 100-354 of Mukwonago's zoning regulations:
    a. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
    b. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
    c. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts.
    d. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
    e. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.
    a. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

Site Plan and Architectural Review
Staff Recommends the Planning Commission Approve a resolution for the Site Plan and Architectural Review, as set forth in the attached resolution with the included conditions.

Attachments

1. Application and Development Information
2. Plans and Site Drawings

RESOLUTION 2025-19

Village of Mukwonago Order Granting a Conditional Use and Prescribing Conditions for a building expansion of a religious assembly (Mukwoango Baptist Church) on Parcel A352400001, Mukwonago, WI

WHEREAS, MUKWONAGO BAPTIST CHURCH. (hereinafter "property owner") owns the property identified as parcel A352400001, (hereinafter "subject property") in the Village of Mukwonago, more particularly described as follows:

BEING PART OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST, VILLAGE OF MUKWONAGO, WALWORTH COUNTY, WISCONSIN. BEING DESCRIBED AS FOLLOWS: BEING THAT PART OF THE FOLLOWING DESCRIBED PARCEL BEING WEST OF THE NORTH-SOUTH 1/16 LINE OF THE NORTHEAST 1/4 OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST. COMMENCING AT THE CENTER OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST; THENCE NORTHERLY WITH THE WEST LINE OF THE NORTHEAST 1/4 OF SECTION 2, 341.00 FEET TO THE POINT OF BEGINNING. THENCE EASTERLY ALONG THE NORTH LINE OF THE EXCEPTION DESCRIBED IN VOLUME 206, PAGE 532, 1225.75 FEET TO A POINT; THENCE SOUTHERLY ALONG THE EAST LINE OF SAID EXCEPTION 341.00 FEET TO THE SOUTH LINE OF THE NORTHEAST 1/4 OF SECTION 2; THENCE EASTERLY ALONG SAID SOUTH LINE TO THE WEST RIGHT OF WAY LINE OF THE WISCONSIN CENTRAL LIMITED RAILROAD; THENCE NORTHERLY ALONG THE WEST RIGHT OF WAY OF THE SAID RAILROAD TO THE NORTH LINE OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF SECTION 2; THENCE WESTERLY ALONG THE NORTH LINE OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 TO THE NORTHEAST CORNER OF A PARCEL DESCRIBED IN VOLUME 227, PAGE 687; THENCE SOUTHERLY ALONG THE EASTERLY LINE OF SAID PARCEL 425.OO FEET TO A POINT; THENCE WESTERLY ALONG THE SOUTHERN LINE OF SAID PARCEL 1700.00 FEET TO THE WEST LINE OF THE NORTHEAST 1/4 OF SECTION 2; THENCE SOUTHERLY ALONG SAID WEST LINE TO THE POINT OF BEGINNING. EXCEPTING ANY PART OF VOLUME 664, PAGE 192, THAT EFFECTS THE PARCEL.

Return to:
Lana Kropf, Clerk-Treasurer
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Parcel Number: A352400001

WHEREAS, the property owner has, consistent with the Village of Mukwonago's zoning regulations, submitted a conditional use application for a building expansion of a religious assembly (Mukwonago Baptist Church) per Section 100-251, and

WHEREAS, upon receipt of the petition submitted by the property owner and future purchaser, the Village Clerk properly referred such petition to the Plan Commission; and

WHEREAS, allowing for required public notice, the Plan Commission conducted a public hearing on July 8, 2025, to consider the petitioner's request; and

WHEREAS, members of the public in attendance were given ample opportunity to provide comment regarding the petitioner's request; and

WHEREAS, the Plan Commission passed a motion recommending to the Village Board that the conditional

use be approved subject to certain conditions; and

WHEREAS, the Plan Commission, in passing on the matter, has made the following determinations consistent with Section 100-354 of Mukwonago's zoning regulations:

1. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.

2. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.

3. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.

4. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.

5. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

In addition, the property owner has shown compliance with the requirements set forth in the Village's zoning regulations for the specified use.

WHEREAS, the Village Board has carefully reviewed the recommendation of the Plan Commission and concurs with the Plan Commission's findings set forth above, provided the conditional use is operated pursuant to the conditions of approval set forth in this order.

NOW THEREFORE, IT IS HEREBY DETERMINED AND ORDERED AS FOLLOWS:

1. **Authorized uses**. Subject to the terms and conditions of this approval and the sections of the zoning code that apply, the property owner is authorized to construct a building addition for a religious assembly (Mukwonago Baptist Church).

2. **Issuance of permit required**. The zoning administrator is authorized to issue the property owner a conditional use permit when all conditions enumerated in section 3 have been satisfied to his or her satisfaction. Such permit is the last approval before the property owner/tenant can begin to establish the use as authorized herein.

3. **Initial conditions of approval.** The following conditions shall be satisfied prior to the issuance of the conditional use permit:

   a. The property owner must submit site/architectural plans to the Village for review and obtain approval of the same within 9 months of the date of this decision.

   b. The property owner must accept the terms and conditions of this conditional use order in its entirety in writing within 6 months of the date of this decision. Prior to such expiration, the property owner may request an extension to this time period and the Village Clerk may approve an extension with good cause.

   c. This order must be recorded against the subject property in the Waukesha County or Walworth County register of deeds office (only if subsections 3(a) through 3(b) have been satisfied).

In the event the requirements enumerated in subsections 3(a) and 3(b) above are not satisfied, this order shall automatically be null and void without any further action by the Village of Mukwonago on the aforementioned

date.

4. **Ongoing conditions of approval**. The following conditions shall constitute an ongoing obligation:

    a. Any modifications to the site, buildings, site improvements shall require the conditional use application being updated.
    b. In the event public utilities become available to the subject property, the subject property is required to connect to public utilities in accordance with the applicable Village of Mukwonago Municipal Code section.

5. **Expansion or changes.** The conditional use hereby authorized shall be confined to the subject property without extension or expansion. Any expansion or change in use shall require issuance of a new conditional use approval pursuant to the requirements in effect at the time of application.

6. **Modification of property boundary lines**. The property owner shall not change the size and/or shape of the subject property by any means without the approval of the Village Board. If the Village Board determines that a proposed change is substantial with regard to the overall size of the parcel and/or configuration, such change shall require issuance of a new conditional use approval pursuant to the requirements in effect at the time of application.

7. **Plans and related matters**. Unless otherwise expressly stated herein, plans that are specifically required by this conditional use order may be amended upon the prior approval of the Plan Commission if the Plan Commission finds the amendment to be minor and consistent with the conditional use order and permit. Any change in any plan that the Plan Commission feels, in its sole discretion to be substantial, shall require a new conditional use approval and all procedures in place at the time must be followed.

8. **Inspection**. The property owner shall allow Village of Mukwonago staff, officials, and other authorized agents to inspect the subject property, at any reasonable time and for any proper purpose related to compliance with this conditional use order.

9. **Discontinuance**. Should the conditional use be discontinued in use for 365 consecutive days the use shall be terminated as set forth in the Village of Mukwonago's zoning regulations.

10. **Private rights**. This approval is given under the Village of Mukwonago's zoning regulations and is not to be interpreted to abrogate any private rights other property owners may have pursuant to deed restrictions or restrictive covenants.

11. **Interpretation**. If any aspect of this conditional use order is in conflict with any other aspect of the conditional use order, the more restrictive provisions shall be controlling, as determined by the Plan Commission.

12. **Other permits**. This order shall not be deemed to constitute a building permit, or constitute any other license or permit required by Village ordinance, or other local, state, or federal law.

13. **Severability**. In the event a court of competent jurisdiction determines that a paragraph or phrase of this conditional use order is unlawful, illegal, or unconstitutional, said determination as to the particular phrase or paragraph shall not void the rest of the conditional use order and the remainder shall continue in full force and effect.

14. **Heirs, successors, and assigns**. This conditional use order shall be binding upon the property owner and their heirs, successors, and assigns. Upon a change in ownership, the property owner shall notify the Village Clerk.

15. **Ongoing review**. This conditional use may be reviewed by the Plan Commission with notice to the property owner at any time upon complaint or upon Plan Commission initiative. If it is determined that the authorized use is no longer compatible, or that the provisions of this approval have not been complied with, the

Village Board may revoke or amend this order after recommendation by the Plan Commission and holding of a public hearing.

16. **Amendment**. The property owner may propose an amendment to this conditional use order at anytime by submitting a written petition to the Village Clerk, which shall be reviewed pursuant to the requirements in effect at the time of application.

17. **Violation**. Any violation of this order may be treated as a violation of Mukwonago's zoning regulations and each day of each violation of each condition herein shall be treated as a separate violation.

18. **Acceptance.** GRANTEES hereby accept the said Conditional Use Grant and covenant strictly to comply with all the terms and conditions thereof. GRANTEES acknowledge that, in accordance with the provisions of the Zoning Code, failure to comply with any conditions of the Conditional Use Grant is cause for the termination of said Grant by the Village. GRANTEES also acknowledge that approval of the Conditional Use Grant allows the appropriate Village officials to conduct reasonable and routine inspections of the property. This Covenant shall run with the land and shall be binding on the GRANTEES and all persons claiming any estate or interest in the Premises by, through or under the GRANTEES, as long as the said Premises are used as described in the Conditional Use Grant

Approved this 16th day of July, 2025.

BY THE VILLAGE BOARD OF THE VILLAGE OF MUKWONAGO

_____
Fred Winchowky, Village President

Attest: _____
Lana Kropf, Village Clerk-Treasurer

STATE OF WISCONSIN, WAUKESHA/WALWORTH COUNTY

Personally came before me this ____ day of _____ 2025, the persons described above, Fred Winchowky, Village President, and Lana Kropf, Village Clerk, 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 the Village of Mukwonago and acknowledged that they executed the foregoing instrument as such officers of said municipal corporation by its authority and pursuant to the authorization by the Village Board from their meeting on the ____ day of _____, 2025.

_____
NOTARY PUBLIC

_____
My Commission Expires:

The remainder of this page left intentionally blank.

Acceptance by Property Owner

I, _____ verify that I am an authorized agent for MUKWONAGO BAPTIST CHURCH accepts the terms stated herein.

Dated this _____ day of _____, 2025

_____
_____, agent

STATE OF WISCONSIN, WAUKESHA/WALWORTH COUNTY

Personally, came before me this ____ day of _____, 2025, the above-named person, _____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____
NOTARY PUBLIC

_____
My Commission Expires:

Drafted by Peter Gesch, Contracted Village Planner at the direction of the Mukwonago Village Board.

VILLAGE OF MUKWONAGO

SITE PLAN, ARCHITECTURAL, AND PLANNED UNIT DEVELOPMENT (PUD) APPLICATION

Application Fee: Below

Date Submitted: 6-3-25

FEES

(Please check one)

- ☐ Minor Site Plan (No Building): $160.00
- ☐ Minor Site Pan; Building: $400.00 plus $02 per sq. ft
- ☒ Major Site Plan; New Building/Addition (> 600 sq. ft.): $475.00 plus $.02 per sq. ft.
- ☐ Planned Unit Development (PUD) Review: $225.00 plus $50.00/unit
- ☐ Other (See Current Fee Schedule)_____

CONTACTS

Building Department
Contact: Supervisor of Inspections
Tim Rutenbeck
Phone: (262) 363-6419 Option 1
Fax: (262) 363-6425
Email: trutenbeck@villageofmukwonago.gov

Zoning and Planning
Contact: Village Planner
Peter Gesch
Phone: (262) 542-5733
Fax: (262) 363-6425
Email: pgesch@ruekert-mielke.com

GUIDELINES

The undersigned petition is to consider a request, as stated herein, for the specified parcel(s) of land and will be reviewed by the Plan Commission and Village Board of the Village of Mukwonago. The application packet must be filed with the Village Clerk **at least 30 days prior to the meeting** of the Planning Commission at which action is desired. The Plan Commission meets on the second Tuesday of each month at 6:30 p.m.

Materials listed below must be provided to the Village of Mukwonago in accordance with Village Municipal Code Chapter 100 Article IX. Section 100-601(f) and other pertinent sections of Village ordinances, and, as necessary, to permit review that is consistent with proper planning practice. The Village will strive to accommodate reasonable requests for informal preliminary staff review, however the Village shall not place any items on the agenda for Plan Commission consideration until such time as the application is complete in accordance with all requirements specified on this and other attached application forms.

Mail completed applications to:	Village Planner 440 River Crest Ct Mukwonago, WI 53149
Deliver to:	Village Clerk's Office 440 River Crest Ct
Email to:	inspections@villageofmukwonago.gov

Complete, accurate and specific information must be entered. Please Print.

APPLICANT *(Full Legal Name)*

Name: Rhon L. Roberts
Company: Mukwonago Baptist Church
Address: 1610 Honeywell Rd. City: Mukwonago State: WI Zip: 53149
Daytime Phone [redacted] Fax: _____
E-Mail: philip.rains@mukwonagobaptist.org

APPLICANT IS REPRESENTED BY *(Full Legal Name)*

Name: Philip Rains
Company: Mukwonago Baptist Church
Address: 1610 Honeywell Rd. City: Mukwonago State: WI Zip: 53149
Daytime Phone: [redacted] Fax:
E-Mail: philip.rains@mukwonagobaptist.org

ARCHITECT

Name: Mark Freding
Company: Mark Freding Design
Address: 4181 N. Bartlett Ave. City: Shorewood State: WI Zip: 53211
Daytime Phone: 414-758-8374 Fax:
E-Mail: 4132fred@gmail.com

PROFESSIONAL ENGINEER

Name: John Groh
Company: 4th Dimension Design, Inc.
Address: 817 Venture Ct. City: Waukesha State: WI Zip: 53189
Daytime Phone: 262-896-6500 Fax: ~~414-420-1254~~
E-Mail: John.groh@4dd.com

REGISTERED SURVEYOR

Name: Jason Heinonen
Company: Endpoint Solutions
Address: 6871 South Lovers Lane City: Franklin State: WI Zip: 53132
Daytime Phone: 414-858-1920 Fax:
E-Mail: Jason@endpointcorporation.com

CONTRACTOR

Name: Jay Campbell
Company: Campbell Construction JC, Inc.
Address: 461 River Crest Ct. City: Mukwonago State: WI Zip: 53149
Daytime Phone: 262-436-4760 Fax:
E-Mail: Jay@Campbellconstructionbbg.com

PROPERTY INFORMATION

Property Owner (s) ***(if different from applicant)*****:** N/A Same

Address: _____ **City:** _____ **State:** _____ **Zip:** _____

Daytime Phone: _____ **Fax:** _____

E-Mail: _____

Present Zoning: P-2 **Tax Key No(s).:** _____

Location/Address: _____

Present Use: Church/school **Intended Use:** Church/school

PROCEDURAL CHECKLIST FOR SITE PLAN/ARCHITECTURAL PLAN/PUD REVIEW AND APPROVAL

Submittals for review must include and be accompanied by the following:

Application:

- ❑ Completed application form including the procedural checklist.
- ❑ Application fee: See page 1.
- ❑ Agreement for Reimbursable Services (separate application).

Other Documents:

- ❑ One(1) complete set of Application and materials, in addition to the original, for Village of Mukwonago review.
- ❑ Project Summary: Please attach a statement detailing the reasons and background for this request including: details of proposal, services provided, wares sold, plans and hours of operation, number of employees, frequency of customer visits, frequency of deliveries to site, description of any interior/exterior modifications or additions to be made to property, any outside storage (dumpsters, trucks, materials...), number of parking stalls, screening/buffer type, any other information available. ***PLEASE EXPLAIN IN DETAIL.***
- ❑ **Electronic Submittals are required.** Email (or CD ROM) with all plans and submittal materials in Adobe PDF to trutenbeck@villageofmukwonago.gov .
- ❑ Any additional information as determined by Village staff.

- **Upon receipt of a complete submittal, staff review will be conducted within ten business days.**
- **All Site Plan, Architectural, and Planned Unit Development review requests require Plan Commission review and Village Board approval.**

CERTIFICATION

Applicant hereby certifies that:

1. All of the above statements and other information submitted as part of this application are true and correct to the best of his or her knowledge.
2. Affirms that no Village of Mukwonago elected or appointed official or employee has a proprietary interest in the above referenced property for which this applications being filed (except as stated below under "Exceptions").
3. None of the above referenced individuals has been promised or given any contract for consultation, planning or construction in relation to this project (except as stated below under "Exceptions").
4. Applicant has read and understands all information in this packet.

Applicant further understands the policies of the Village regarding change of zonings and property development. Conditions of the resolution regarding all approvals are strictly followed. Certificates of Occupancy are not given until all conditions of approval have been met

By the execution of this application, applicant hereby authorizes the Village of Mukwonago or its agents to enter upon the property during the hours of 7:00 am to 7:00 pm daily for the purpose of inspection. Applicant grants this authorization to enter even if this land has been posted against trespassing pursuant to Section 943.13 WI Stats.

(The applicant's signature must be from a Managing Member if the business is an LLC, or from the President or Vice President if the business is a corporation. A signed applicant's authorization letter may be provided in lieu of the applicant's signature below, and a signed property owner's authorization letter may be provided in lieu of the property owner's signature[s] below. If more than one, all of the owners of the property must sign this Application).

Rhon Roberts
Signature - Property Owner

Signature - Applicant

Rhon Roberts, Pres.
Name & Title (PRINT)

Name & Title (PRINT)

6-03-25
Date

Date

Signature - Property Owner

Signature – Applicant's Representative

Name & Title (PRINT)

Name & Title (PRINT)

Date

Date

FOR OFFICE USE ONLY	
Date Paid	**Receipt #**
Plan Commission Date(s)	**Village Board Date(s)**
Escrow Required? ❑ Yes ❑ No	**Escrow Amount**
Plan Commission Disposition	
Village Board Disposition	

Village of Mukwonago
440 River Crest Ct
Mukwonago, WI 53149
Phone: (262) 363-6420
Fax: (262) 363-6425
www.villageofmukwonago.com

VILLAGE OF MUKWONAGO

CONDITIONAL USE PERMIT APPLICATION

Application Fee: $450

Date Submitted: _ _Complete, accurate and specific information must be entered. Please Print.

CONTACTS

Zoning and Planning Department
Contact: John S Fellows, Community Planner
Phone: (262) 363-6420 ex 2111
Email: jfellows@villageofmukwonago.com

APPLICATION INFORMATION

Request: The undersigned petition is to consider a request, as stated herein, for the specified parcel(s) of land and will be reviewed by the Plan Commission and Village Board of the Village of Mukwonago.

Meeting Dates: Plan Commission meets on the second Tuesday of each month at 6:30 p.m. A schedule of meeting dates can be found at our web site.

Application Deadlines: Applications deadlines are approximately 5 weeks prior to the scheduled meeting. A schedule of deadlines may be found on our web site.

Public Hearing: Conditional use applications require a public hearing. To ensure the public hearing will be properly advertised, the application must be submitted **on the application deadline** to allow staff time to process and meet newspaper deadlines.

Application Completeness: Materials listed on page 3 must be provided to the Village of Mukwonago in accordance with Village Municipal Code Chapter 100-354 and other pertinent sections of Village ordinances, WI Stats. 62.23, and as necessary to permit review that is consistent with proper planning practice.

Pre-Application Meetings: The Village will strive to accommodate reasonable requests for informal preliminary staff review; however the Village shall not place any items on the agenda for Plan Commission consideration until such time as the application is complete in accordance with all requirements specified on this and other attached application forms.

Application Submission: Applications must be submitted Electronically through the Village on-line permit system. The system may be accessed through this link. Once you arrive to the site you will need to apply for a "Planning, Zoning, or Engineering Process". This link can be found on the left side of the screen under Building Department. The program will allow you search by the address, apply for a conditional use, input various information and upload documents.

Fees: Fees may be paid in one of three ways.

1. You may pay your fee online. After the application is submitted staff has received and reviewed the application an email will be sent to the applicant (email that is provided) letting you know that you can pay the fee online. There is a credit card fee associated with this option.
2. You may pay with cash or a check by mailing or brining the check to Village Hall. There is not a transaction fee associated with this option.
3. You may pay with a credit card at Village Hall during normal hours and in person. There is a transaction fee association with this option.

Paper Copies: Any Application that involves larger format copies (larger than 8 ½ x 11) shall have two copies of the application provided to the Village in printed form.

Paper Copies can be sent to: Village Planner, ATTN: Conditional Use Permits, 440 River Crest Ct
Mukwonago, WI 53149

APPLICANT (Full Legal Name)

Name: Rhon L. Roberts

Company: MBC

Address: 1610 Honeywell Rd **City:** Mukwonago **State:** WI **Zip:** 53149

Daytime Pho [redacted]

E-Mail: philip.rains@mukwonagobaptist.org

APPLICANT IS REPRESENTED BY (Full Legal Name)

Name: Philip Rains
Company: MBC
Address: 1610 Honeywell Rd **City:** Mukwonago **State:** WI **Zip:** 53149
Daytime Phone: [redacted] **Fax:** -
E-Mail: philip.rains@mukwonagobaptist.org

ARCHITECT

Name: Mark Freding
Company: Mark Freding Design
Address: 4181 N. Bartlett Ave. **City:** Shorewood **State:** WI **Zip:** 53211
Daytime Phone: 414-758-8374 **Fax:** -
E-Mail: 4132fred@gmail.com

PROFESSIONAL ENGINEER

Name: John Groh
Company: 4th Dimension Design, Inc.
Address: 817 Venture Ct. **City:** Waukesha **State:** WI **Zip:** 53189
Daytime Phone: 262-896-6500 **Fax:** -
E-Mail: john.groh@4dd.com

REGISTERED SURVEYOR

Name: Jason Heinonen
Company: Endpoint Solutions
Address: 6871 S. Lovers Lane **City:** Franklin **State:** WI **Zip:** 53122
Daytime Phone: 414-858-1920 **Fax:** -
E-Mail: jason@endpointcorporation.com

CONTRACTOR

Name: Jay Campbell
Company: Campbell Construction JC, Inc.
Address: 461 RiverCrest Ct. **City:** Mukwonago **State:** WI **Zip:** 53149
Daytime Phone: 262-436-4760 **Fax:** -
E-Mail: jay@campbellconstructionblog.com

PROPERTY AND PROJECT INFORMATION

Present Zoning: P-2 Tax Key No(s).: #A352400001

Address/Location: 1610 Honeywell Rd, Mukwonago WI 53149

A. I/We request a conditional use permit for:

Expansion of current church and school building

B. The property is presently used as: church and school facility

C. Name of Architect, Professional Engineer, or Contractor: Campbell Construction

D. Project Timetable: Start Date: 9/1/25 Completion Date: 9/1/2029

E. All of the Proposed Use(s) of the property will be:

Principal Use Gym / Fellowship Hall

Secondary Use Additional classroom space

~~Accessory Use~~ Kitchen

F. I/We represent that I/we have a vested interest in this property in the following manner:

- [x] Owner
- [ ] Leasehold. Length of Lease:
- [ ] Contractual. Nature of contract:
- [ ] Other. Please explain

PROCEDURAL CHECKLIST FOR CONDITIONAL USE REVIEW AND APPROVAL

This form is designed to be a guide for submitting a complete application for a conditional use.

~~Application Submittal Packet Requirements for Village and Applicant Use~~ (Check off List)

Application:

- [ ] Completed application form including the procedural checklist and justification of the proposed conditional use.
- [ ] Application fee: $450
- [ ] ~~Agreement for Reimbursable Services (separate application)~~

Required site drawings:

- [x] Survey of the property
- [ ] Landscape plan (working on)
- [x] Parking plan (including parking computations)
- [ ] Lighting plan (including photo metrics)
- N/A [ ] Proposed location and connection to the sanitary sewer and water mains
- [x] Drainage plan (if applicable)
- [x] All building elevations
- [x] Floor plans

Other Documents:

- [x] Plan of operation/proposal
- [ ] Overview of the adjoining lots (including list of parcel identification numbers and names and mailing addresses of the current owners for all properties within 300 feet of the subject property)
- [ ] ~~*Electronic Submittals are required. Email (or CD ROM) with all plans and submittal materials in Adobe PDF to*~~ planner@villageofmukwonago.com.
- [ ] ~~*Any additional information as determined by Village staff*~~

JUSTIFICATION OF THE PROPOSED CONDITIONAL USE

The Plan Commission and Village Board of the Village of Mukwonago will base their decisions on the category standards listed below. It is in the best interest of the applicant to base their presentation on the same applicable set of standards when presenting their petition. Applicant: Please fill out ALL of the questions. Use additional sheets of paper if needed.

A. How is the proposed conditional use (the use in general, independent of its location) in harmony with the purposes, goals, objectives, policies and standards of the Village of Mukwonago Comprehensive Plan, the Zoning Ordinance, and any other plan, program, or ordinance adopted, or under consideration pursuant to official notice by the Village?

Property is zoned P2 - and expansion plans and use fit within those parameters of P2 zoning.

B. How is the proposed conditional use, in its specific location, in harmony with the purposed, goals, objectives, policies and standards of the Village of Mukwonago Comprehensive Plan, the Zoning Ordinance, and any other plan, program, or ordinance adopted, or under consideration pursuant to official notice by the Village?

Building expansion and location fits within Village of Mukwonago's comprehensive plan and zoning ordinance, zoned P-2 and being used that way.

C. Does the proposed conditional use, in its proposed location and as depicted on the required site plan (see Section 100-354 (a), (b), and (c)), result in any substantial or undue adverse impact on nearby property, the character of the neighborhood, environmental factors, traffic factors, parking, public improvements, public property or rights-of-way, or other matters affecting the public health, safety, or general welfare, either as they now exist or as they may in the future be developed as a result of the implementation of the provisions of the Zoning Ordinance, the Comprehensive Plan, or any other plan, program, map ordinance adopted or under consideration pursuant to official notice by the Village or other governmental agency having jurisdiction to guide development?

- No adverse effect on nearby properties, neighbors, environment, roads, or future plans of village.
- Building expansion fits well into Muk. Bap. Church's 80+ surrounding acres.

D. How does the proposed conditional use maintain the desired consistency of land uses, land use intensities, and land use impacts as related to the environs of the subject property?

Proposed building expansion will be simply an expansion of Mukwonago Baptist Church and its current ministries, to provide better facilities and better serve church functions and related ministries to our community.

E. Is the proposed conditional use located in an area that will be adequately served by and will not impose an undue burden on, any of the improvements, facilities, utilities or services provided by public agencies serving the subject property?

Will not be a burden to any services, or difficult to access or service.

F. Do the potential public benefits of the proposed conditional use outweigh all potential adverse impacts of the proposed conditional use (as identified in Sections 100-354 (e)(1) and (2)), after taking into consideration the Applicant's proposal and any requirements recommended by the Applicant to ameliorate such impacts?

F. No potential adverse impacts from this conditional use, as mentioned above, the public benefits are needed and essential to our community.

CERTIFICATION

Applicant hereby certifies that:

1. All of the above statements and other information submitted as part of this application are true and correct to the best of his or her knowledge.
2. Affirms that no Village of Mukwonago elected or appointed official or employee has a proprietary interest in the above referenced property for which this applications being filed (except as stated below under "Exceptions").
3. None of the above referenced individuals has been promised or given any contract for consultation, planning or construction in relation to this project (except as stated below under "Exceptions").
4. Applicant has read and understands all information in this packet.

Applicant further understands the policies of the Village regarding change of zonings and property development. Conditions of the resolution regarding all approvals are strictly followed. Certificates of Occupancy are not given until all conditions of approval have been met

By the execution of this application, applicant hereby authorizes the Village of Mukwonago or its agents to enter upon the property during the hours of 7:00 am to 7:00 pm daily for the purpose of inspection. Applicant grants this authorization to enter even if this land has been posted against trespassing pursuant to Section 943.13 WI Stats.

(The applicant's signature must be from a Managing Member if the business is an LLC, or from the President or Vice President if the business is a corporation. A signed applicant's authorization letter may be provided in lieu of the applicant's signature below, and a signed property owner's authorization letter may be provided in lieu of the property owner's signature[s] below. If more than one, all of the owners of the property must sign this Application).

Rhon Roberts

Signature - Property Owner Signature - Applicant

Rhon Roberts, Pres.

Name & Title (PRINT) Name & Title (PRINT)

6-03-25

Date Date

Signature - Property Owner Signature – Applicant's Representative

Name & Title (PRINT) Name & Title (PRINT)

Date Date

FOR OFFICE USE ONLY			
Date Paid	**Receipt #**	**Date(s) Notice Published**	**Date Notices Mailed**
Public Hearing Date	**Plan Commission Date(s)**	**Village Board Date(s)**	**Resolution Number**
Escrow Required? ☐ Yes ☐ No		**Escrow Amount**	
Plan Commission Disposition			
Village Board Disposition			

The Village of
Mukwonago
Where life, leisure and business thrive.

AGREEMENT FOR REIMBURSABLE SERVICES
Petitioner/Applicant/Property Owner

The Applicant is required to provide the Village with an executed copy of this agreement as a prerequisite to the processing of the development application.

In accordance with Village of Mukwonago Municipal Code of Ordinances Section 70-15 Professionals' Fees, the Village may retain the services of professional consultants (including but not limited to planners, engineers, architects, attorneys, environmental specialists, recreation specialists, and other experts) to assist in its review for all land division, site plan, conditional use, zoning, and other applications which require review. The Village reserves the right to charge for its actual cost for these services, as well as for staff time, publication costs, mileage, equipment used in the processing of this application.

The Property Owner additionally acknowledges that review fees which are applied to an Applicant, but not paid by such Applicant, may be charged by the Village as an assessment against the subject property as a special charge for current services provided the property per Wis. Stat Sec 66.0627.

According to the Village of Mukwonago Municipal Code, and depending on the size of the development, the Applicant may be required to deposit an amount into an escrow account with the Village before incurring any costs. In the event the undersigned(s) fails to replenish the escrow account within (72) hours of a request by the Village to do so, the undersigned(s) agree that the Village, following written notice shall have the right, in its sole discretion, to terminate providing of professional services concerning the review of the pending application/petition for the project or request. The pending application will not receive further consideration by the Village until the escrow account is replenished as required per VMMC 70.15.

Further, the Village shall have the right to refrain from taking any further action whatsoever with regards to the project or request and that the same shall remain in abeyance until the escrow or outstanding invoices are in good standing. The undersigned(s) agree that the Village may withhold any other action, legislative or ministerial, which may include the issuance of zoning permits, licenses, approval and/or execution of any development agreements, economic development agreements, economic incentive agreements, or recording of plats, approval of zoning actions, code amendments, contracts, or any other Village action for, on or upon the subject property, until the default is cured.

The undersigned(s) agree that they shall fully cooperate with the Village, its officials, staff and Professional Consultants with respect to the proposed project or request. The undersigned(s) acknowledge that the Village's Professional Consultants solely represent the Village and the Village's interest, and do not represent the undersigned in any manner.

Project Name: Mukwonago Baptist Church	
Project Type & Description: Church + School Facility Expansion	
Tax Key (s) involved: # A352400001	

Applicant Name: Rhon L. Roberts	Phone Number: 262-470-7428 / 262-352-1474
Business Name: Mukwonago Baptist Church	FEIN# 39-1458101
Mailing Address - (include City, State, Zip Code): 1610 Honeywell Rd. Mukwonago, WI 53149	
Bill To: (If different)	
Billing Address (If different)	
E-mail Address: philip.rains@mukwonagobaptist.org	

Property Owner's Name (if different):	Property Owner's Phone Number:
Mailing Address - (include City, State, Zip Code):	

By signing this Agreement, the undersigned(s) acknowledge that they have read the foregoing paragraphs and fully understand and agree to comply with the terms set forth herein. Further, by signing below, each signatory warrants that he/she/it has been duly authorized by the applicant, its chief executive or governing body to do so..

The undersigned(s) agree that that they shall be jointly and severally liable for payment of fees referred to in this Agreement and Section 70-15 of the Village of Mukwonago Municipal Code of Ordinances.

Rhon Roberts — 6-03-2025

Signature of Applicant (Date)

Signature of Property Owner (If different than applicant) (Date)

This Form shall be submitted to Village Clerk/Treasurer at below address or via email at: ddykstra@villageofmukwonago.gov

(Rev 4-2024)

Mukwonago Baptist Church New Facility

Updated: 5-2-25

Plan for New Facilities

1. Activity center/gym:
    a. Provide enlarged area for opportunity for community ministry (example: Veteran's Banquet)
    b. Provide recreational facilities for Mukwonago Baptist Academy and other church related ministries. (VBS, Kidz Klub etc)
    c. Platform for drama, music, or other opportunities.
2. Provide classrooms for present elementary school (which is now housed in classrooms in church basement) Will meet long term needs of school.
3. On Sundays, will provide additional Sunday School classroom space.
4. Provide a new room for our food panty ministry.
5. Provide new kitchen facilities for Mukwonago Baptist (non-commercial)
6. Lobby of gymnasium: welcome and seating area, possible lunchroom area for Mukwonago Baptist Academy students

Overall Facility Operations

1. Church services and Academy will use facilities at different times. Church is not in session when Mukwonago Baptist Academy is in session. It would be a very rare occasion that an event would be going on simultaneously in church auditorium while school is in session.
2. Funerals are not typically held during school hours. If held during school hours, school would be typically cancelled or shortened for the day, especially if funeral is for a church member or for a large family.
3. Community events such as Veteran's Banquet, etc., are not held when school or church is in session.

Church/School—Numbers/Attendance Enrollment

1. Present church attendance averages 150 in a typical service (infants-adults)
2. Projected increase (hopeful)
    a. If there is a sustained growth:
        i. 3-5-year projection: 200
        ii. 10-year projection: 500
3. School Enrollment*: Note—95% of school enrollment comes from our church
    a. Typical K-12 school enrollment is approximately 15% of church attendance
    b. Projected attendance (hopeful):
        i. 5 years: 35-40 students
        ii. 10 years: 50-60 students
        iii. 15 years: 75

Weekday & School Parking

1. Presently, maximum of 24 cars parked daily
    a. Church Staff: Maximum—4
    b. School Staff: Maximum—8
    c. Day Care Staff: Maximum—2-4
    d. Student Parking: Maximum—4-8
2. Note: Day Care maximum enrollment for foreseeable future: 15-20
3. Food Pantry Parking
    a. Monday Afternoon: 15-20 between 1 p.m.-3 p.m.
    b. Wednesday Afternoon: 15-20 between 1 p.m.-3 p.m.
4. Weekly services:
    a. Sundays
        - 9:30 – Sunday School
        - 10:30 – Morning Service
        - 6:30 pm – Evening Service
    b. Wednesday
        - 7:00 pm – Midweek service

Tentative Timetable: (phases)

Phase 1: Shell Completed

- All framing and exterior finishes
- Fall 2025 through spring/summer of 2026

Phase 2: Site Improvements

- Finish grading (maybe landscaping?)
- Curbing where needed and paving
- Begin mechanical and fire related work
- Summer and fall/winter of 2026

Phase 3: Interior Finishing (Part 1)

- Kitchen
- Gym
- Platform
- Maybe have these areas useable?
- Through summer of 2027

Phase 4: Interior Finishing (Part 2)

- Finish remaining interior
- Fall 2027-spring of 2028

EXISTING CONDITIONS NOTES

THE FOLLOWING NOTES WERE DEVELOPED BY ENDPOINT SOLUTIONS AND PROVIDED AS PART OF THE ALTA SURVEY DOCUMENT THAT THEY DEVELOPED FOR THE OWNER OF THIS PROPERTY, DATED 2/12/2025. PLEASE REFER TO THIS DOCUMENT FOR ADDITIONAL EXISTING INFORMATION AND DOCUMENTATION.

A. BASIS OF BEARING
BEARINGS ARE BASED ON WALWORTH COUNTY COORDINATE SYSTEM IN WHICH THE WEST LINEVOF THE NORTHEAST 1/4 OF SECTION 2, TOWNSHIP 4 NORTH, RANGE 18 EAST IS ASSUMED TO BEAR NORTH 00°25'35" EAST.

B. TITLE COMMITMENT
INFORMATION PROVIDED BY FIRST AMERICAN TITLE INSURANCE COMPANY COMMITMENT NUMBER: OP 6178996
COMMITMENT DATE: NOVEMBER 27, 2002

1. ANY DISCREPANCIES OR CONFLICTS IN BOUNDARY LINES, ANY SHORTAGES IN AREA, OR ANY ENCROACHMENT OR OVERLAPPING OF IMPROVEMENTS AND/OR ANY FACTS, RIGHTS, INTERESTS OR CLAIMS WHICH ARE NOT SHOWN BY THE PUBLIC RECORD BUT WHICH COULD BE ASCERTAINED BY AN ACCEPTABLE AND ACCURATE SURVEY OF THE LAND OR BY MAKING INQUIRY OF PERSONS IN POSSESSION THEREOF.

2. EASEMENTS, LIENS, ENCUMBRANCES, OR CLAIMS THEREOF, WHICH ARE NOT SHOWN BY THE PUBLIC RECORD.

3. ANY LIEN OR RIGHT TO LIEN FOR SERVICES, LABOR, OR MATERIAL IMPOSED BY LAW AND NOT SHOWN BY THE PUBLIC RECORD.

4. SPECIAL TAXES OR ASSESSMENTS, IF ANY, PAYABLE WITH THE TAXES LEVIED OR TO BE LEVIED FOR THE YEAR 2002, AND SUBSEQUENT YEARS.

5. GENERAL TAXES DUE FOR THE YEAR 2002, AND THEREAFTER. TAX NO. VM 00017

6. EASEMENT TO WISCONSIN ELECTRIC POWER COMPANY RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR WALWORTH COUNTY, WISCONSIN ON OCTOBER 1, 1998 IN VOLUME 657 OR RECORDS, PAGE 9773, DOCUMENT NO. 394762.

7. OPTION TO PURCHASE AND RIGHT OF FIRST REFUSAL BETWEEN MUKWONAGO BAPTIST CHURCH INC. AND WAYNE AND MARJORIE SCHULTZ RECORDED IN THE OFFICE OF THE REGISTER OF DEEDS FOR WALWORTH COUNTY, WISCONSIN ON FEBRUARY 23, 2001 IN VOLUME 677 OF RECORDS, PAGE 3228, DOCUMENT NO. 0462962.

C. FLOOD NOTE
ACCORDING TO FLOOD INSURANCE RATE MAP OF THE VILLAGE OF MUKWANAGO, WALWORTH COUNTY WISCONSIN COMMUNITY PANEL NUMBER 55127C1104E, EFFECTIVE ON 04/06/2022 THIS SITE FALLS IN ZONE X (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN)

D. MUNICIPAL ZONING
ACCORDING TO THE VILLAGE OF MUKWONAGO ZONING MAP THIS SITE IS ZONED AS P-1 (PUBLIC AND SEMIPUBLIC DISTRICT)

E. PARKING SPACES
THERE ARE 127 DESIGNATED PARKING STALLS AND 3 DESIGNATED ADA HANDICAP PARKING STALLS ON THIS SITE.

F. NOTES
-- AT THE TIME OF THE SURVEY, THERE WAS NO EVIDENCE OF RECENT EARTH MOVING WORK, BUILDING CONSTRUCTION, OR BUILDING ADDITIONS OBSERVED.

- IN THE PROCESS OF CONDUCTING THE FIELDWORK. THESE PLANS DO NOT ASSURE THE PRESENCE OR LOCATION OF UTILITIES. THE CONTRACTOR SHALL NOTIFY DIGGERS HOTLINE TOLL FREE AT (800) 242-8511.

- DRAINAGE DOCTOR, LLC AND ENDPOINT SOLUTIONS SHALL BE HELD HARMLESS IF EXACT CONDITIONS ON THE SITE DO NOT MATCH THE LINES AND GRADES SHOWN HEREIN.

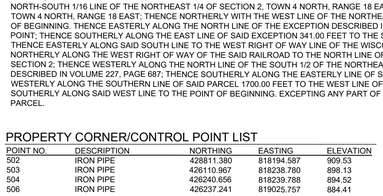
LEGAL DESCRIPTION:
BEING PART OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST, VILLAGE OF MUKWANAGO, WALWORTH COUNTY, WISCONSIN. BEING DESCRIBED AS FOLLOWS: BEING THAT PART OF THE FOLLOWING DESCRIBED PARCEL BEING WEST OF THE NORTH-SOUTH 1/16 LINE OF THE NORTHEAST 1/4 OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST. COMMENCING AT THE CENTER OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST; THENCE NORTHERLY WITH THE WEST LINE OF THE NORTHEAST 1/4 OF SECTION 2, 341.00 FEET TO THE POINT OF BEGINNING. THENCE EASTERLY ALONG THE NORTH LINE OF THE EXCEPTION DESCRIBED IN VOLUME 206, PAGE 532, 1225.75 FEET TO A POINT; THENCE SOUTHERLY ALONG THE EAST LINE OF SAID EXCEPTION 341.00 FEET TO THE SOUTH LINE OF THE NORTHEAST 1/4 OF SECTION 2; THENCE EASTERLY ALONG SAID SOUTH LINE TO THE WEST RIGHT OF WAY LINE OF THE WISCONSIN CENTRAL LIMITED RAILROAD; THENCE NORTHERLY ALONG THE WEST RIGHT OF WAY OF THE SAID RAILROAD TO THE NORTH LINE OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF SECTION 2; THENCE WESTERLY ALONG THE NORTH LINE OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 TO THE NORTHEAST CORNER OF A PARCEL DESCRIBED IN VOLUME 227, PAGE 687; THENCE SOUTHERLY ALONG THE EASTERLY LINE OF SAID PARCEL 425.OO FEET TO A POINT; THENCE WESTERLY ALONG THE SOUTHERN LINE OF SAID PARCEL 1700.00 FEET TO THE WEST LINE OF THE NORTHEAST 1/4 OF SECTION 2; THENCE SOUTHERLY ALONG SAID WEST LINE TO THE POINT OF BEGINNING. EXCEPTING ANY PART OF VOLUME 664, PAGE 192, THAT EFFECTS THE PARCEL.

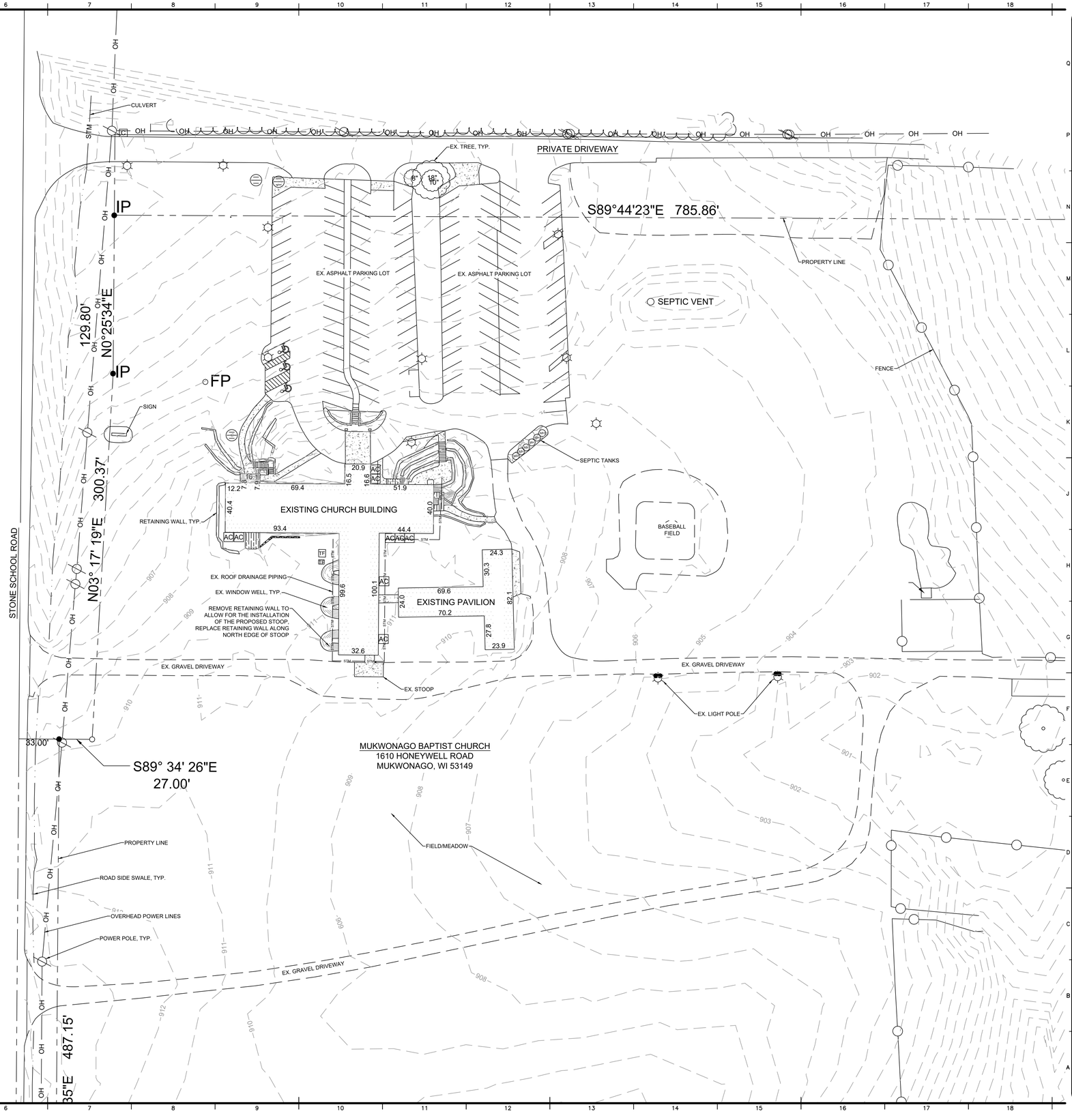
PROPERTY CORNER/CONTROL POINT LIST

POINT NO.	DESCRIPTION	NORTHING	EASTING	ELEVATION
502	IRON PIPE	428811.380	818194.587	909.53
503	IRON PIPE	426110.967	818238.780	898.13
504	IRON PIPE	426240.656	818239.788	894.52
506	IRON PIPE	426237.241	819025.757	884.41

EXISTING CONDITIONS LEGEND

- STREET CENTERLINE
- EXISTING CONTOUR LINE
- UE UE UE UE UE — EXISTING UNDERGROUND ELEC. LINE
- EXISTING FENCE LINE
- FIBER FIBER FIBER FIBER FIBER — EXISTING UNDERGROUND FIBER LINE
- G G G G G G — EXISTING UNDERGROUND GAS LINE
- EXISTING EDGE OF GRAVEL
- OH OH OH OH OH — EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING PROPERTY LINE
- EXISTING BUILDING OFFSET LINE
- SAN SAN SAN — EXISTING SANITARY SEWER LINE
- STM STM STM — EX. STM SEWER LINE W/ FLOW ARROWS
- T — EXISTING UNDERGROUND TELE. LINE
- W W — EXISTING WATER MAIN/SERVICE LINE
- EXISTING ACCESS EASEMENT LINE
- EXISTING UTILITY EASEMENT LINE
- EXISTING SANITARY MH STRUCTURE
- EXISTING PROPERTY CORNER
- EXISTING WATER HYDRANT
- EXISTING WATER VALVE
- EXISTING ELECTRICAL POLE
- EXISTING LIGHT POLE
- EXISTING CONTROL POINT





DRAINAGE DOCTOR
DRAINAGE DOCOTR, LLC
416 W. RED PINE CIRCLE
DOUSMAN, WI 53118
608.535.9380 main

MARK	DATE	DESCRIPTION
1		
1		

REVIEW DOCUMENTS FOR

MUKWONAGO BAPTIST CHURCH SITE DEVELOPMENT

MUKWONAGO, WISCONSIN

DD FILE NO.
ISSUE DATE
DESIGNED BY
DRAWN BY
PROJECT MGR
JOB NO. 4071
6--2--25

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SHEET CONTENTS
EXISTING CONDITIONS

C1.0

SITE PLAN NOTES

1. THE ACCESS DRIVEWAY OFF OF STONE SCHOOL ROAD SHALL BE THE ONLY LOCATION UTILIZED AS CONSTRUCTION VEHICLE ACCESS TO THE SITE.

2. TOTAL PROPERTY AREA: 971,734 SF (22.308 ACRES)

   LAND DISTURBANCE FOR PROJECT: 120,056 SF (3.532 ACRES)

   EXISTING CONDITIONS WITHIN LAND DISTURBANCE AREA (BEFORE REMOVALS)
   - CONCRETE: 325 SF
   - GRAVEL AREAS: 12,946 SF
   - MEADOW/LANDSCAPE AREAS: 106,785 SF

   PROPOSED CONDITIONS WITHIN LAND DISTURBANCE AREA (AFTER REMOVALS)
   - PR. BUILDING: 28,000 SF
   - PR. PAVED AREAS: 49,366 SF
   - PR. CONCRETE AREAS: 2,881 SF
   - LAWN, LANDSCAPE AND STORMWATER AREAS: 37,337 SF
   - STORMWATER BASIN BOTTOM: 1,592 SF

3. PROPOSED LANDSCAPE FEATURES BY OTHERS

4. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS OF THE BUILDING, INTERIOR WALL LAYOUT AND LOCATIONS OF DOORS. ACCESS DOORS, INCLUDING GARAGE DOORS, AND STOOPS

   BUILDING OFFSETS WERE DETERMINED USING VILLAGE OF MUKWONAGO ZONING ORDINANCE,

5. PARKING LAYOUT WAS DESIGNED USING VILLAGE OF MUKWONAGO PARKING REQURIEMENTS.

6. PARKING STALLS PROVIDED, INCLUDING EXISTING PARKING LOT:
   REGULAR STALLS: 175 STALLS
   ACCESSIBLE STALLS: 5 STALLS

7. ACCORDING TO THE DNR ONLINE SURFACE WATER VIEWER MAP, THE FOLLOWING PHYSICAL FEATURES DO NOT EXIST WITHIN THIS PROPERTY:
   - -NAVIGABLE NOR NON-NAVIGABLE WATERWAYS
   - -FLOODPLAIN BOUNDARIES
   - -DELINEATED WETLAND AREAS

8. ALL SIGNAGE SHOULD BE PER WISCONSIN DEPARTMENT OF TRANSPORTATION SIZE AND STYLE, PER NOTED SPECIFICATION. LOCATIONS SHOWN ON MAP SHALL BE APPROVED BY OWNER AND PER DOT RECOMMENDATIONS AND/OR REQUIREMENTS.

DRAWING LEGEND

- STREET CENTERLINE
- EXISTING CONTOUR LINE
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- EXISTING FENCE LINE
- EXISTING UNDERGROUND FIBER LINE
- EXISTING UNDERGROUND GAS LINE
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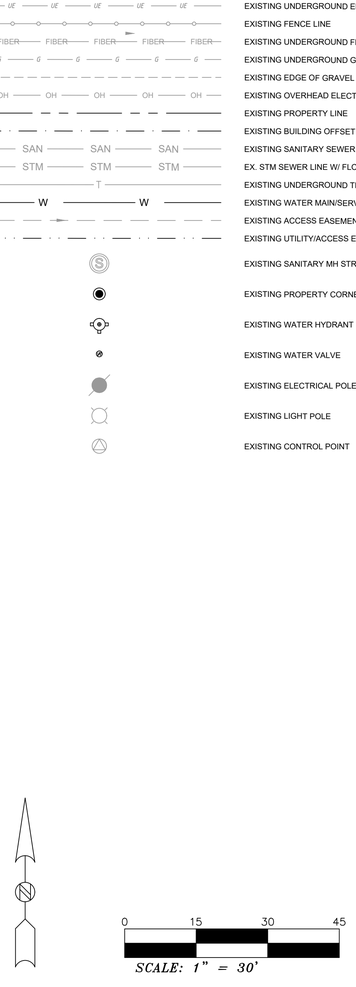

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SHEET CONTENTS

OVERALL PROPOSED SITE PLAN

C2.0

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- EXISTING WATER VALVE
- EXISTING ELECTRICAL POLE
- EXISTING LIGHT POLE
- EXISTING CONTROL POINT

0 20 40 60

SCALE: 1" = 20'

EXISTING CHURCH BUILDING

EXISTING PAVILION

EX. ROOF DRAINAGE PIPING

REMOVE RETAINING WALL TO ALLOW FOR THE INSTALLATION OF THE PROPOSED STOOP. REPLACE RETAINING WALL ALONG NORTH EDGE OF STOOP

SEE PROPOSED STORM SEWER PLAN FOR PIPE CONVEYANCE SYSTEM

5' WIDE BY-PASSSWALE

MUKWONAGO BAPTIST CHURCH
PROPOSED BUILDING EXPANSION

1610 HONEYWELL ROAD
MUKWONAGO, WI 53149

FFE = 909.90

PR. CANOPY AREA
SEE SHEET C2.3 FOR ADDITIONAL DETAIL

PR. STOOP

5' SIDEWALK

5' CURB TAPER

EDGE OF ASPHALT

SIDEWALK ACCESSIBLE RAMP

INTEGRAL SIDEWALK/CURB

PR. CONCRETE

10' CONCRETE APPROACH

30' R

PR. ASPHALT

45' R

30" CONCRETE CURB AND GUTTER, TYP.

32' R

20' R

PR. ASPHALT ISLAND

PR. LANDSCAPE ISLAND

PR. ASPHALT DRIVE

4' WIDE BY-PASS SWALE

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608.535.9380 main

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MUKWONAGO BAPTIST CHURCH SITE DEVELOPMENT

MUKWONAGO, WISCONSIN

DD FILE NO.
ISSUE DATE
DESIGNED BY
DRAWN BY
PROJECT MGR

JOB NO. 4071
6-2-25

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SHEET CONTENTS

NORTH PROPOSED SITE PLAN

C2.1

SITE PLAN NOTES

1. THE ACCESS DRIVEWAY OFF OF STONE SCHOOL ROAD SHALL BE THE ONLY LOCATION UTILIZED AS CONSTRUCTION VEHICLE ACCESS TO THE SITE.

2. TOTAL PROPERTY AREA: 971,734 SF (22.308 ACRES)

   LAND DISTURBANCE FOR PROJECT: 120,056 SF (3.532 ACRES)

   EXISTING CONDITIONS WITHIN LAND DISTURBANCE AREA (BEFORE REMOVALS)
   - CONCRETE: 325 SF
   - GRAVEL AREAS: 12,946 SF
   - MEADOW/LANDSCAPE AREAS: 106,785 SF

   PROPOSED CONDITIONS WITHIN LAND DISTURBANCE AREA (AFTER REMOVALS)
   - PR. BUILDING: 28,880 SF
   - PR. PAVED AREAS: 49,366 SF
   - PR. CONCRETE AREAS: 2,881 SF
   - LAWN, LANDSCAPE AND STORMWATER AREAS: 37,337 SF
   - STORMWATER BASIN BOTTOM: 1,592 SF

3. PROPOSED LANDSCAPE FEATURES BY OTHERS

4. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS OF THE BUILDING, INTERIOR WALL LAYOUT AND LOCATIONS OF DOORS. ACCESS DOORS, INCLUDING GARAGE DOORS, AND STOOPS

   BUILDING OFFSETS WERE DETERMINED USING VILLAGE OF MUKWONAGO ZONING ORDINANCE,

5. PARKING LAYOUT WAS DESIGNED USING VILLAGE OF MUKWONAGO PARKING REQURIEMENTS.

6. PARKING STALLS PROVIDED, INCLUDING EXISTING PARKING LOT:
   REGULAR STALLS: 175 STALLS
   ACCESSIBLE STALLS: 5 STALLS

7. ACCORDING TO THE DNR ONLINE SURFACE WATER VIEWER MAP, THE FOLLOWING PHYSICAL FEATURES DO NOT EXIST WITHIN THIS PROPERTY:
   - -NAVIGABLE NOR NON-NAVIGABLE WATERWAYS
   - -FLOODPLAIN BOUNDARIES
   - -DELINEATED WETLAND AREAS

8. ALL SIGNAGE SHOULD BE PER WISCONSIN DEPARTMENT OF TRANSPORTATION SIZE AND STYLE, PER NOTED SPECIFICATION. LOCATIONS SHOWN ON MAP SHALL BE APPROVED BY OWNER AND PER DOT RECOMMENDATIONS AND/OR REQUIREMENTS.

DRAWING LEGEND

- STREET CENTERLINE
- EXISTING CONTOUR LINE
- EXISTING UNDERGROUND ELEC. LINE
- EXISTING FENCE LINE
- EXISTING UNDERGROUND FIBER LINE
- EXISTING UNDERGROUND GAS LINE
- EXISTING EDGE OF GRAVEL
- EXISTING OVERHEAD ELECTRICAL LINE
- EXISTING PROPERTY LINE
- EXISTING BUILDING OFFSET LINE
- EXISTING SANITARY SEWER LINE
- EX. STM SEWER LINE W/ FLOW ARROWS
- EXISTING UNDERGROUND TELE. LINE
- EXISTING WATER MAIN/SERVICE LINE
- EXISTING ACCESS EASEMENT LINE
- EXISTING UTILITY/ACCESS EASEMENT LINE
- EXISTING SANITARY MH STRUCTURE
- EXISTING PROPERTY CORNER
- EXISTING WATER HYDRANT
- EXISTING WATER VALVE
- EXISTING ELECTRICAL POLE
- EXISTING LIGHT POLE
- EXISTING CONTROL POINT

0 5 10 15

SCALE: 1" = 5'

MUKWONAGO BAPTIST CHURCH
PROPOSED BUILDING EXPANSION

1610 HONEYWELL ROAD
MUKWONAGO, WI 53149

FFE = 909.90

907

PROPOSED PAVEMENT MARKINGS

INTEGRAL SIDEWALK/CURB

CANOPY/PILLAR FOUNDATION, SEE STRUCTURAL PLANS

30" CONCRETE CURB AND GUTTER

MEDIUM DUTY CONCRETE

EDGE OF CONCRETE

5'

2' R

19'–8"

4'

38'–8"

26'–2"

10'

18.33'

INTEGRAL SIDEWALK/CURB

DRAINAGE DOCTOR
DRAINAGE DOCOTR, LLC
416 W. RED PINE CIRCLE
DOUSMAN, WI 53118
608.535.9380 main

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PROPOSED SITE PLAN
CANOPY AREA

C2.1

GRADING PLAN NOTES

1. THE ACCESS DRIVEWAY OFF OF ROBERTS STREET SHALL BE THE ONLY LOCATION UTILIZED AS CONSTRUCTION VEHICLE ACCESS TO THE SITE.
2. SPOT GRADES SHOWN FOR CURBS AND INTEGRAL SIDEWALK/CURBS DEPICTS THE FLOW LINES.
3. REFER TO SHEETS C3.1 AND C3.2 FOR ZOOMED IN VIEWS OF THE GRADING DESIGN FOR THE CANOPY AREA AND ACCESSIBLE PARKING AREA, RESPECTIVELY.
4. REFER TO SHEET C4.0 FOR THE PROPOSED STORM SEWER DESIGN
5. PROPOSED LANDSCAPE FEATURES BY OTHERS
6. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS OF THE BUILDING, INTERIOR WALL LAYOUT AND LOCATIONS OF DOORS, ACCESS DOORS, GARAGE DOORS, AND STOOPS
7. ACCORDING TO THE DNR ONLINE SURFACE WATER VIEWER MAP, THE FOLLOWING PHYSICAL FEATURES DO NOT EXIST WITHIN THIS PROPERTY:
   - -NAVIGABLE NOR NON-NAVIGABLE WATERWAYS
   - -FLOODPLAIN BOUNDARIES
   - -DELINEATED WETLAND AREAS

DRAWING LEGEND

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- EXISTING PROPERTY CORNER
- EXISTING WATER HYDRANT
- EXISTING WATER VALVE
- EXISTING ELECTRICAL POLE
- EXISTING LIGHT POLE
- EXISTING CONTROL POINT

SCALE: 1" = 30'

EXISTING CHURCH BUILDING
FFE = 911.57

EXISTING PAVILION

PR. STOOP

EXISTING ROAD SIDE SWALE

MUKWONAGO BAPTIST CHURCH
PROPOSED BUILDING EXPANSION

1610 HONEYWELL ROAD
MUKWONAGO, WI 53149

FFE = 909.900

DISTURBANCE LIMITS

PROPOSED CONTOURS, TYP.

STORMWATER MANAGEMENT AREA

EX. GRAVEL DRIVE

PR. ASPHALT

PR. ASPHALT DRIVE

PR. HEAVY DUTY DUMPSTER PAD

GRADE SWALE ACROSS EXISTING DRIVEWAY TO ENSURE POSITIVE DRAINAGE FROM NEW DRIVEWAY ENTRANCE

DRAINAGE DOCTOR
DRAINAGE DOCOTR, LLC
416 W. RED PINE CIRCLE
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PROPOSED GRADING PLAN

C3.0

SITE PLAN NOTES

1. THE ACCESS DRIVEWAY OFF OF ROBERTS STREET SHALL BE THE ONLY LOCATION UTILIZED AS CONSTRUCTION VEHICLE ACCESS TO THE SITE.

2. TOTAL PROPERTY AREA: 445,569 SF (10.23 ACRES)

   EXISTING CONDITIONS (BEFORE REMOVALS)
   - BUILDING/ROOF: 5,691 SF
   - ASPHALT PAVEMENT: 8,469 SF
   - GRAVEL AREAS: 6,040 SF
   - EX. WOODED AREAS: 184,335 SF
   - LAWN/LANDSCAPE AREAS: 241,034 SF

   PERVIOUS AREAS: 95.5%

   PROPOSED CONDITIONS (AFTER REMOVALS)
   - PR. BUILDING: 1,440 SF
   - EX. BUILDING: 5,691 SF
   - PR. GRAVEL DRIVE/PARKING: 21,626 SF
   - EX. ASPHALT PAVEMENT: 8,469 SF (EXISTING)
   - EX. GRAVEL AREAS: 4,328 SF (1,712 SF REMOVED FOR PR. GRAVEL)
   - PR. AGGREGATE ACCESSIBLE PATH: 6,472 SF (1,300 FEET OF PATH)
   - EX. WOODED AREAS: 177,712 SF (6,623 SF REMOVED)
   - LAWN, LANDSCAPE AND STORMWATER AREAS: 210,242 SF

   NET ADDITIONAL IMPERVIOUS AREAS SINCE 8/22//21: 27,826 SF

   PERVIOUS AREAS: 89.2%

3. PROPOSED LANDSCAPE FEATURES BY OTHERS

4. REFER TO ARCHITECTURAL DRAWINGS FOR ACTUAL DIMENSIONS OF THE BUILDING, INTERIOR WALL LAYOUT AND LOCATIONS OF DOORS. ACCESS DOORS, EXCLUDING GARAGE DOORS, AND STOOPS

5. BUILDING OFFSETS WERE DETERMINED USING DANE COUNTY CHAPTER 10 ZONING ORDINANCE, SECTION 10.244. ZONING FOR THIS PROPERTY IS DETERMINED TO BE BE RR-8 (RURAL RESIDENTIAL ZONING DISTRICT).

6. PARKING LAYOUT WAS DESIGNED USING DANE COUNTY ORDINANCE SECTION 10.102(8)(d).

7. MINIMUM NUMBER OF PARKING STALLS CALCULATED BASED ON DANE COUNTY ORDINANCE SECTION 10.102(8)(e)33. 6 FULL TIME EMPLOYEES (1 STALL PER 1.3 EMPLOYEES) AND 100 PEOPLE AT FULL OCCUPANCY (1 STALL PER 6 OCCUPANTS) EQUALS A MINIMUM TOTAL OF 22 PARKING SPACES PROVIDED.

PROPOSED PLAN PROVIDES 22 TOTAL PARKING SPACES, PLUS TWO ACCESSIBLE PARKING SPACES. ALSO NOT INCLUDED IS THE PROPOSED GARAGE DESIGNED TO HOLD THREE SHUTTLE VANS AND THE EXISTING GARAGE DESIGNED TO HOLD TWO VEHICLES.

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- UE — EXISTING UNDERGROUND ELEC. LINE
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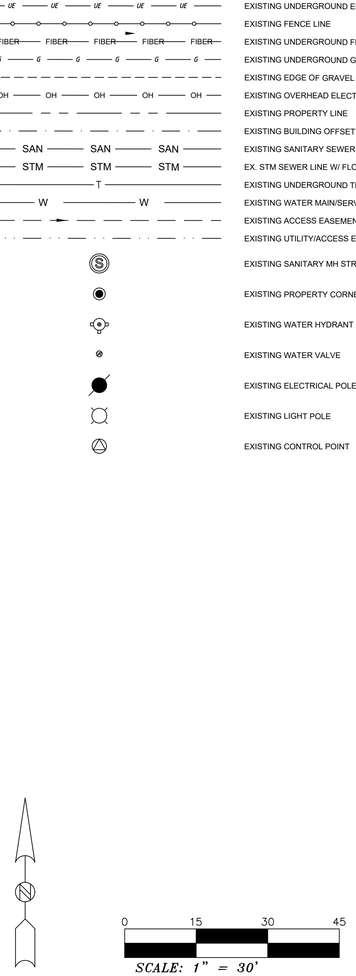

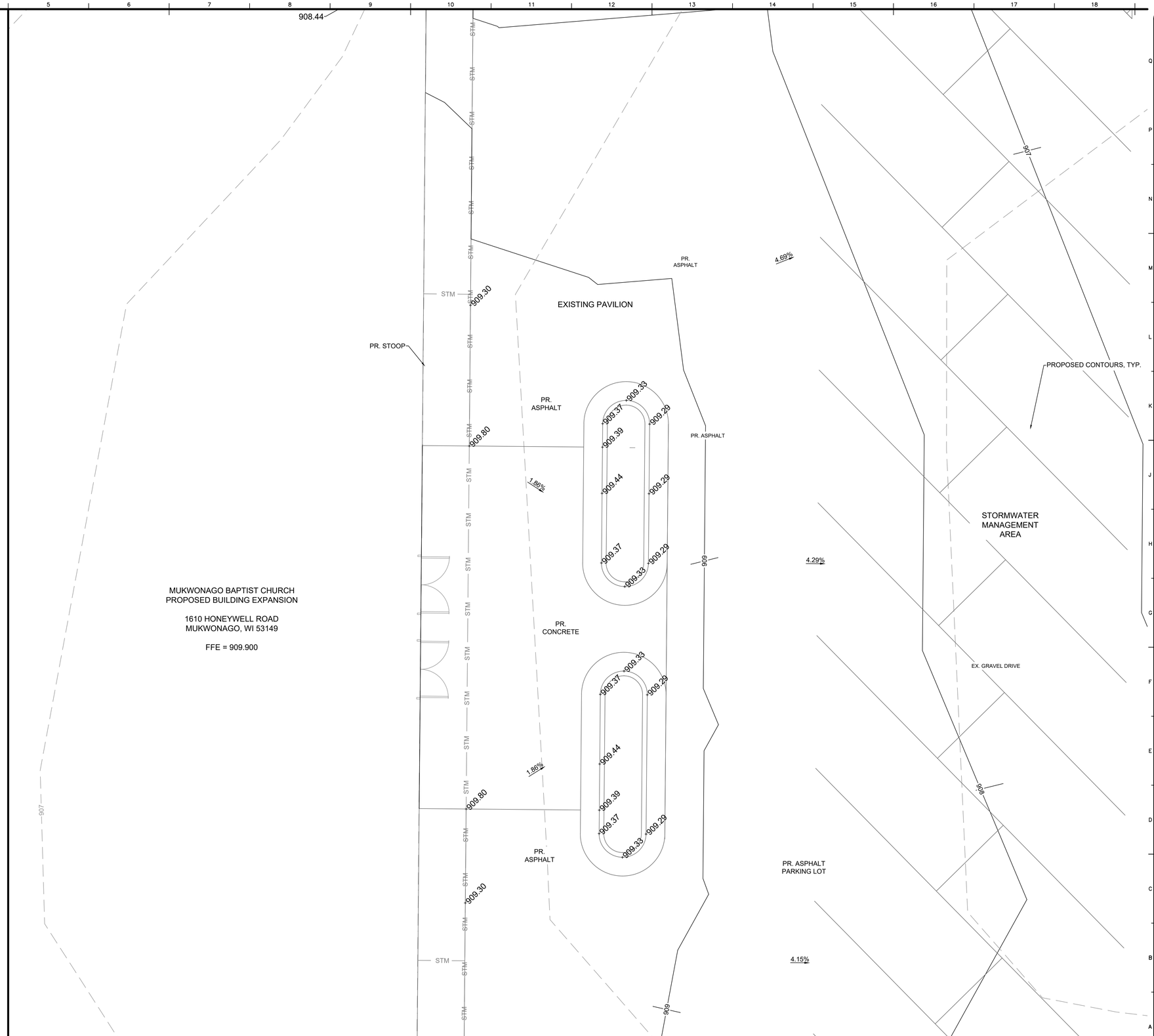

DRAINAGE DOCTOR
DRAINAGE DOCOTR, LLC
416 W. RED PINE CIRCLE
DOUSMAN, WI 53118
608.535.9380 main

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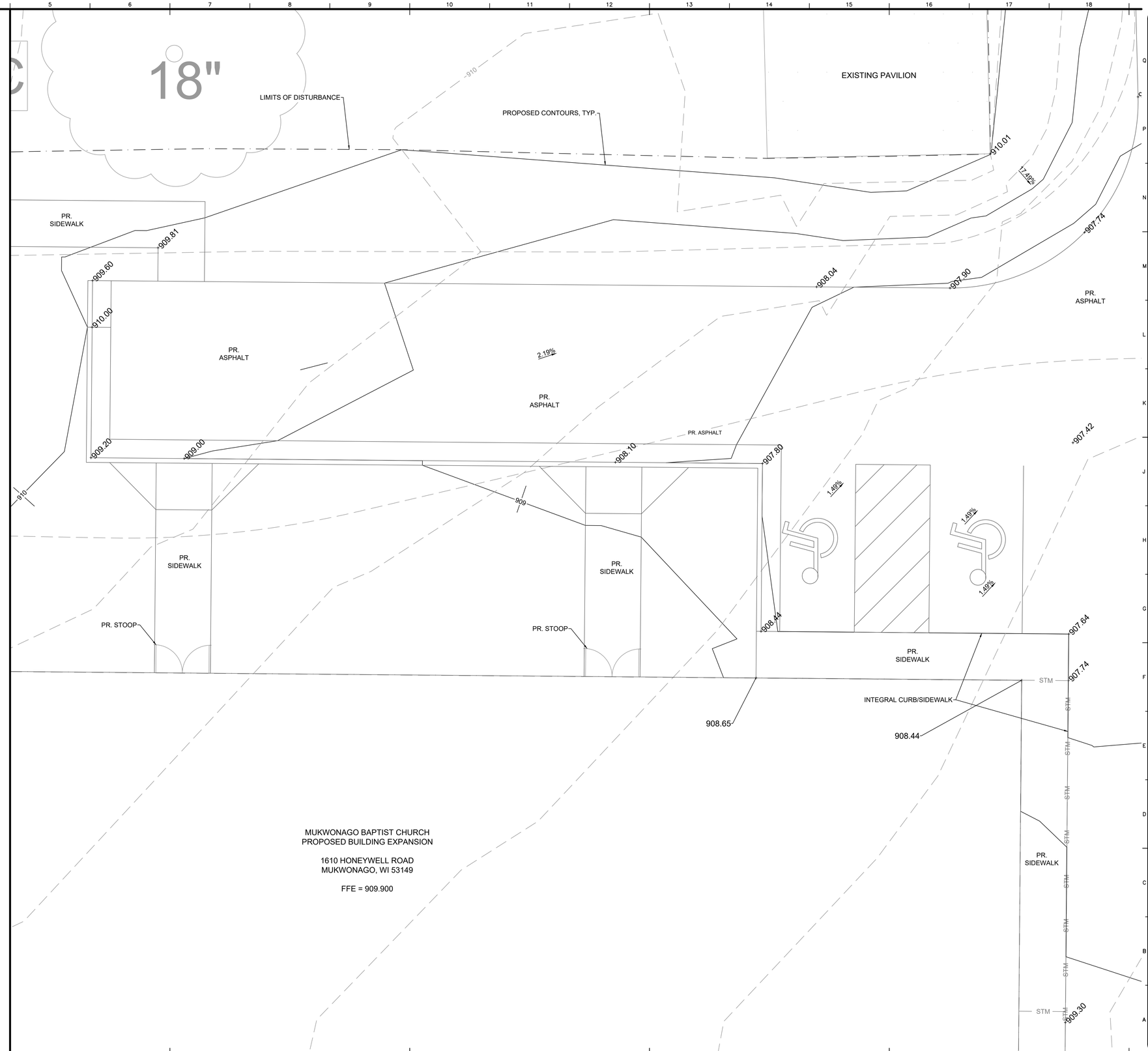

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SCALE: 1" = 30'

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DRAINAGE DOCOTR, LLC
416 W. RED PINE CIRCLE
DOUSMAN, WI 53118
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SHEET CONTENTS
PROPOSED GRADING PLAN

C3.2

STORM SEWER PLAN

1. DRAINAGE DOCTOR AND END POINT SOLUTIONS SHALL BE HELD HARMLESS FROM ANY INVERT ELEVATION DISCREPANCY BETWEEN ACTUAL ELEVATIONS AND ELEVATIONS SHOWN ON THIS PLAN WHERE PROPOSED STORM PIPES ARE TO CONNECT INTO EXISTING STORM PIPES

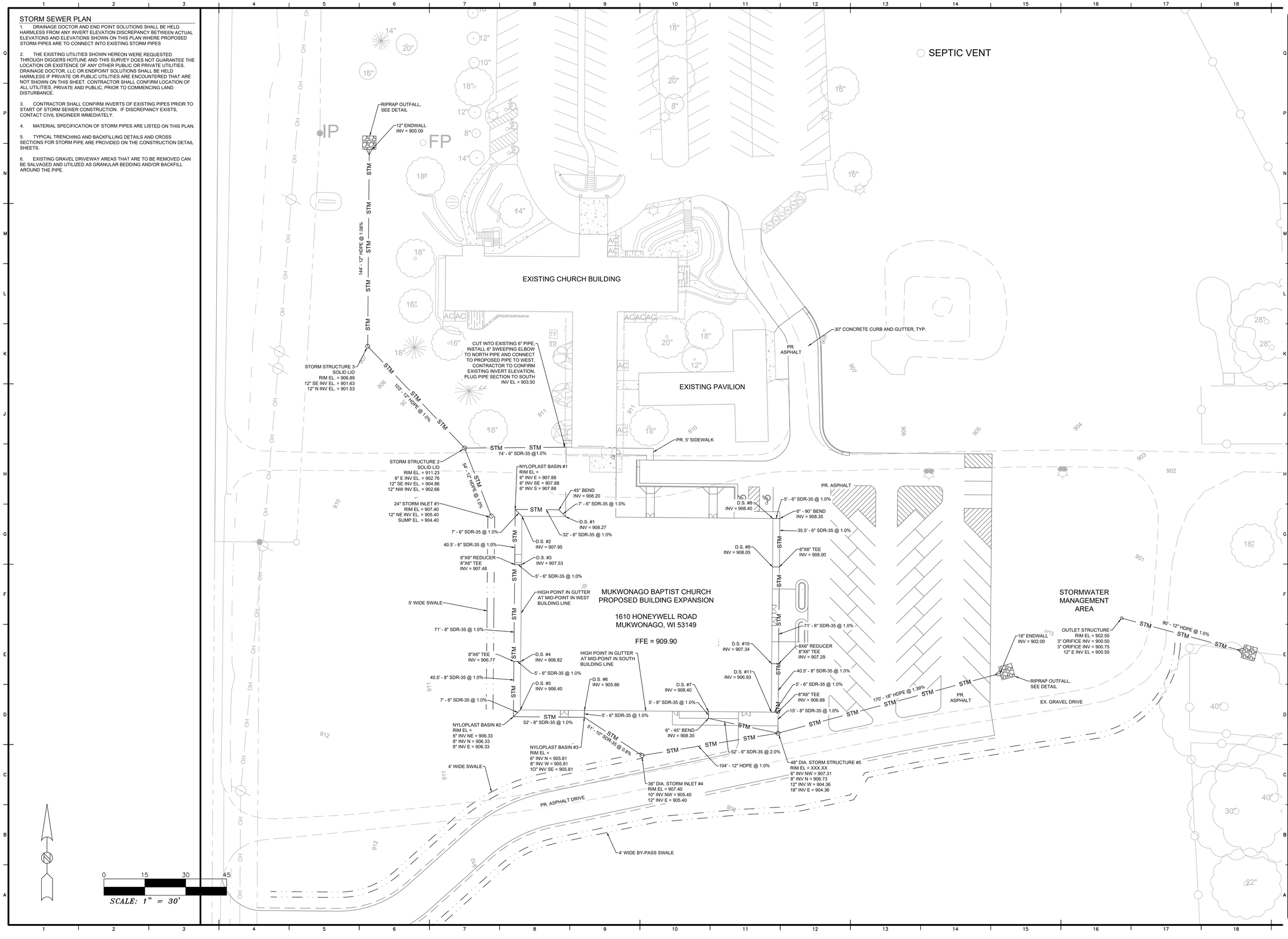
2. THE EXISTING UTILITIES SHOWN HEREON WERE REQUESTED THROUGH DIGGERS HOTLINE AND THIS SURVEY DOES NOT GUARANTEE THE LOCATION OR EXISTENCE OF ANY OTHER PUBLIC OR PRIVATE UTILITIES. DRAINAGE DOCTOR, LLC OR ENDPOINT SOLUTIONS SHALL BE HELD HARMLESS IF PRIVATE OR PUBLIC UTILITIES ARE ENCOUNTERED THAT ARE NOT SHOWN ON THIS SHEET. CONTRACTOR SHALL CONFIRM LOCATION OF ALL UTILITIES, PRIVATE AND PUBLIC, PRIOR TO COMMENCING LAND DISTURBANCE.

3. CONTRACTOR SHALL CONFIRM INVERTS OF EXISTING PIPES PRIOR TO START OF STORM SEWER CONSTRUCTION. IF DISCREPANCY EXISTS, CONTACT CIVIL ENGINEER IMMEDIATELY.

4. MATERIAL SPECIFICATION OF STORM PIPES ARE LISTED ON THIS PLAN.

5. TYPICAL TRENCHING AND BACKFILLING DETAILS AND CROSS SECTIONS FOR STORM PIPE ARE PROVIDED ON THE CONSTRUCTION DETAIL SHEETS.

6. EXISTING GRAVEL DRIVEWAY AREAS THAT ARE TO BE REMOVED CAN BE SALVAGED AND UTILIZED AS GRANULAR BEDDING AND/OR BACKFILL AROUND THE PIPE.



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PROPOSED STORM SEWER PLAN

C4.0

CONSTRUCTION PLAN NOTES

1. REFER TO EXISTING CONDITIONS, SHEET C-1.0 FOR EXISTING TOPOGRAPHY DATA, LINEWORK AND INFORMATION.

2. THE EXISTING UTILITIES SHOWN HEREON WERE REQUESTED THROUGH DIGGERS HOTLINE AND THIS SURVEY DOES NOT GUARANTEE THE LOCATION OR EXISTENCE OF ANY OTHER PUBLIC OR PRIVATE UTILITIES. DRAINAGE DOCTOR, LLC AND ENDPOINT SOLUTIONS SHALL BE HELD HARMLESS IF PRIVATE OR PUBLIC UTILITIES ARE ENCOUNTERED THAT ARE NOT SHOWN ON THIS SHEET. CONTRACTOR SHALL CONFIRM LOCATION OF ALL UTILITIES, PRIVATE AND PUBLIC, PRIOR TO COMMENCING LAND DISTURBANCE.

3. THIS SURVEY DOES NOT GUARANTEE LOCATION OR EXISTENCE OF ANY EASEMENTS THAT MAY BE PART OF THIS PROPERTY. A TITLE POLICY WAS NOT INVESTIGATED AS PART OF THIS SURVEY.

4. CONTRACTOR IS RESPONSIBLE FOR CONFIRMING ALL HARDSCAPE FEATURES, PAVEMENTS, UTILITIES AND STORMWATER MANAGEMENT FEATURES. SOME FEATURES SHOWN ON THIS SHEET MAY HAVE CHANGED SINCE THE TOPOGRAPHIC SURVEY WAS PERFORMED. THE BARN RUINS HAVE BEEN REMOVED.

5. REFER TO CERTIFIED SURVEY MAPS AND/OR TITLE DOCUMENTS FOR ADDITIONAL PROPERTY LINE AND EASEMENT DOCUMENTATION.

6. CONCRETE PADS TO BE REMOVED CAN BE UTILIZED AS BACKFILL IF IT CAN BE BROKEN UP INTO PIECES 3" DIAMETER OR SMALLER. CONFIRM WITH CIVIL ENGINEER PRIOR TO USING AS BACKFILL. EXISTING GRAVEL AREAS TO BE REMOVED CAN ALSO BE USED AS GRANULAR BACKFILL.

EROSION CONTROL PLAN NOTES

1. SEE SHEET C1.0 FOR ALL TOPOGRAPHIC AND SURVEYING NOTES FOR THIS PROJECT.

2. CONTRACTOR SHALL COORDINATE WITH DIGGER'S HOTLINE PRIOR TO START OF CONSTRUCTION TO DETERMINE LOCATION OF PRIVATE AND PUBLIC UTILITIES.

3. ALL EROSION CONTROL PRACTICES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBANCE.

4. IF NECESSARY, DEWATERING OPERATIONS SHALL UTILIZE APPROPRIATE CONTROLS SUCH THAT THE PUMPED WATER HAS NO LARGER THAN THE 100 MICRON PARTICLE.

5. ALL CONSTRUCTION WASTE SHALL BE APPROPRIATELY DISPOSED OF OFFSITE.

6. A TRACKING PAD SHALL BE PLACED AT THE POINT OF ENTRY/EXIT TO THE SITE TO REMOVE ANY SEDIMENT FROM TRACKING ONTO PUBLIC ROADWAYS, TO THE MAXIMUM EXTENT PRACTICAL. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADWAYS BY MEANS OTHER THAN WASHING. PAD SHALL BE 12" THICK AND MADE OUT OF 3" CLEAR STONE. TRACKING PAD MAY NEED TO BE MOVED THROUGHOUT THE SITE DEPENDING ON WHICH BUILDING IS BEING BUILT.

7. ALL NEARBY STORMWATER INLETS SHALL BE PROTECTED WITH APPROVED INLET PROTECTION THROUGHOUT CONSTRUCTION. THERE DOES NOT APPEAR TO BE ANY PUBLIC STORMWATER INLETS NEAR THE SITE OR LAND DISTURBANCE ACTIVITIES.

8. DISTURBED AREAS THAT HAVE BEEN INACTIVE FOR 10 DAYS OR MORE SHALL BE SEEDED, SODDED AND/OR COVERED WITH MULCH. SEEDING AND SODDING ARE ONLY ACCEPTABLE BETWEEN MAY 1 AND SEPTEMBER 15.

9. ALL DIRT STORAGE PILES SHALL BE PROTECTED WITH SILT FENCE OR SILT SOCK.

10. ALL EROSION CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED BY THE CONTRACTOR IN ACCORDANCE WITH WDNR AND/OR DANE COUNTY REQUIREMENTS.

11. THE CONTRACTOR IS REQUIRED TO MAKE EROSION CONTROL INSPECTIONS EACH WEEK AND WHEN 0.5 INCHES OF RAIN FALLS WITHIN 24 HOURS. INSPECTION REPORTS SHALL BE PREPARED AND FILED AS REQUIRED BY WDNR OR DANE COUNTY. ALL MAINTENANCE WILL FOLLOW AN INSPECTION WITHIN 24 HOURS.

12. EROSION CONTROL IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ACCEPTANCE OF THIS PROJECT. EROSION CONTROL MEASURES AS SHOWN SHALL BE THE MINIMUM PRECAUTIONS THAT WILL BE ALLOWED. ADDITIONAL EROSION CONTROL MEASURES, AS REQUESTED IN WRITING BY THE STATE OR LOCAL INSPECTORS, OR THE ENGINEER, SHALL BE INSTALLED WITHIN 24 HOURS.

13. EROSION CONTROL MEASURES SHALL BE REMOVED ONLY AFTER SITE CONSTRUCTION IS COMPLETE, VEGETATION COVER IS ESTABLISHED AND APPROVED BY ENGINEER.

14. ANY PROPOSED CHANGES TO THIS PLAN MUST BE SUBMITTED TO AND APPROVED BY WDNR AND/OR VILLAGE OF MUKWONAGO.

15. IF CONTRCTOR PLANS TO UTILIZE PROPOSED BIORETENTION AREAS FOR TEMPORARY SEDIMENTS, A MINIMUM OF TWO FEET OF SOIL SHALL REMAIN ABOVE THE FINAL EXCAVATION DEPTH TO PROTECT NATIVE SOILS FROM SEDIMENT RUNOFF CAUSING CLOGGING OF THE NATIVE SOILS. SEDIMENT BASIN SHALL BE CONSTRUCTED A MINIMUM OF THREE FEET DEEP AND WITH A STABLE OUTLET, PER WDNR TECH STANDARD 1064.

16. ANY AREAS NOT RECEIVING EROSION MAT SHALL RECEIVE MULCH PER THE WNDR TECH STANDARD 1058.

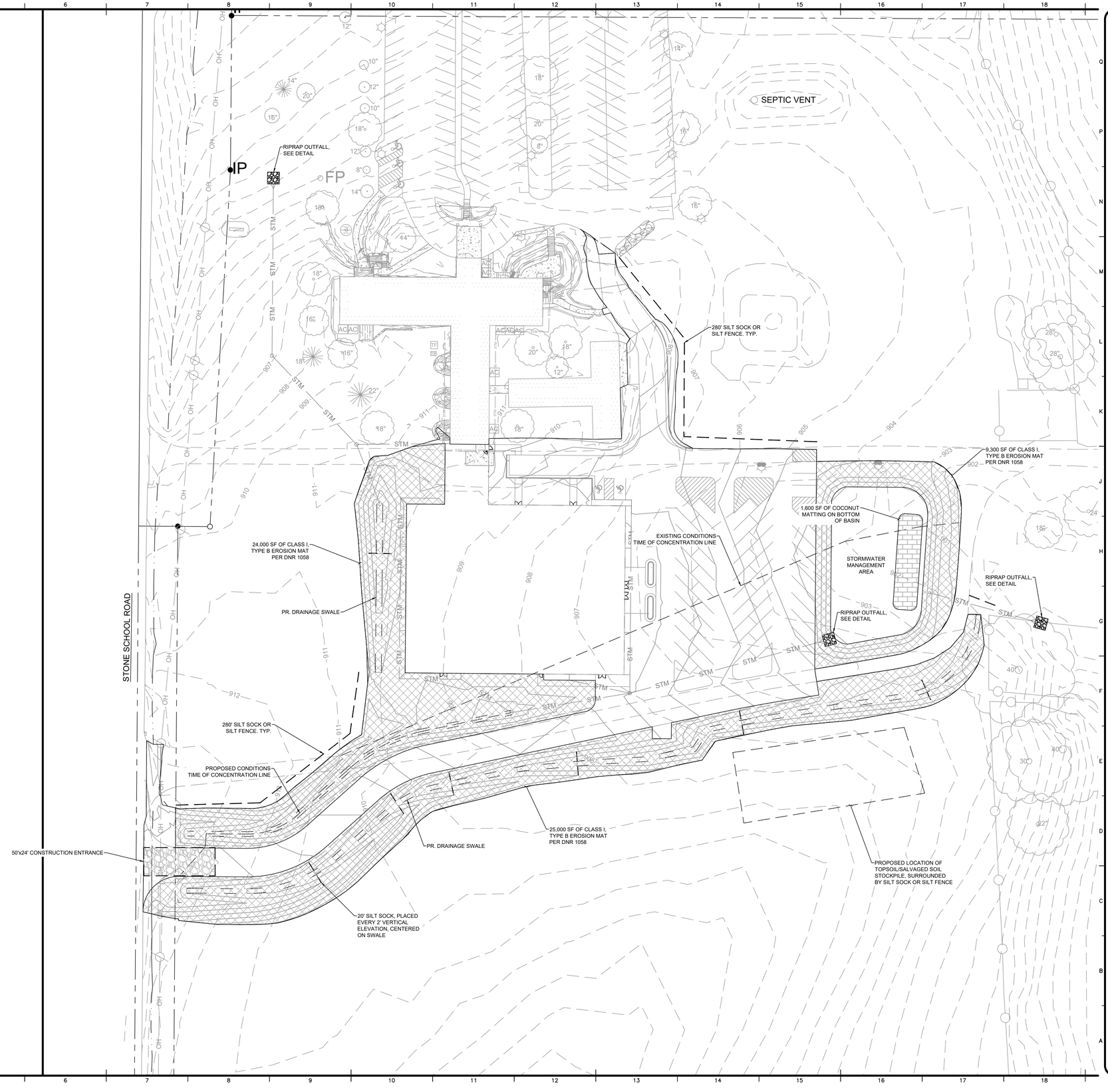
SEEDING RATES

PERMANENT: BETWEEN APRIL 15 AND SEPTEMBER 15 USE DOT 70 MIX AT 3.5 LB./1,000 S.F. FOR PLANTINGS BETWEEN NOVEMBER 1 AND SNOWFALL (DORMANT SEEDING) USE WISDOT 70 MIX AT 7.0 LB./1,000 S.F.

TEMPORARY: BETWEEN SEPTEMBER 15 AND NOVEMBER 1 USE ANNUAL OATS AT 3.0 LB/1,000 S.F. FOR SPRING AND SUMMER PLANTINGS AND USE WINTER WHEAT OR RYE AT 3.0 LB./1,000 S.F. FOR FALL PLANTINGS.

CONSTRUCTION SCHEDULE

JULY 7 - JULY 14, 2025	INSTALL EROSION CONTROL MEASURE, STRIP TOPSOIL, MASS GRADE AND EXCAVATE FOR BUILDING AND STORM PIPE, AND BEGIN CONSTRUCTING PRELIMINARY STORMWATER BASIN TO BE USED AS SEDIMENT BASINS THROUGHOUT CONSTRUCTION
JULY 14, 2025 - MAY 31, 2026	CONSTRUCT BUILDINGS AND DRIVEWAY AREAS FINAL CONSTRUCTION OF STORMWATER MANAGEMENT BASINS, CONSTRUCT PAVED AREAS, FINISH GRADE SITE, AND FINAL RESTORATION WITH SEED AND EROSION MAT AS SPECIFIED AROUND THE FIRST BUILDING CONSTRUCTED (FAR WEST BUILDING) ALL SEDIMENT TO BE REMOVED FROM CONSTRUCTION SITE RUNOFF PRIOR TO OVER-EXCAVATING AND INSTALLING ENGINEERED SOIL FOR STORMWATER BASIN. IT IS RECOMMENDED THAT THE STORMWATER BASIN IS TO BE SURROUNDING WITH SILT SOCK TO PROTECT IT FROM ADDITIONAL SEDIMENT ACCUMULATION.
MAY 15, 2026 - MAY 31, 2026	FINAL SEEDING, MULCH AND/OR EROSION MATTING TO BE COMPLETED BY THIS DATE.



0 40 80 120

SCALE: 1" = 40'

DRAINAGE DOCTOR

DRAINAGE DOCOTR, LLC
416 W. RED PINE CIRCLE
DOUSMAN, WI 53118
608.535.9380 main

MARK	DATE	DESCRIPTION
1		
1		

REVIEW DOCUMENTS FOR

MUKWONAGO BAPTIST CHURCH SITE DEVELOPMENT

MUKWONAGO, WISCONSIN

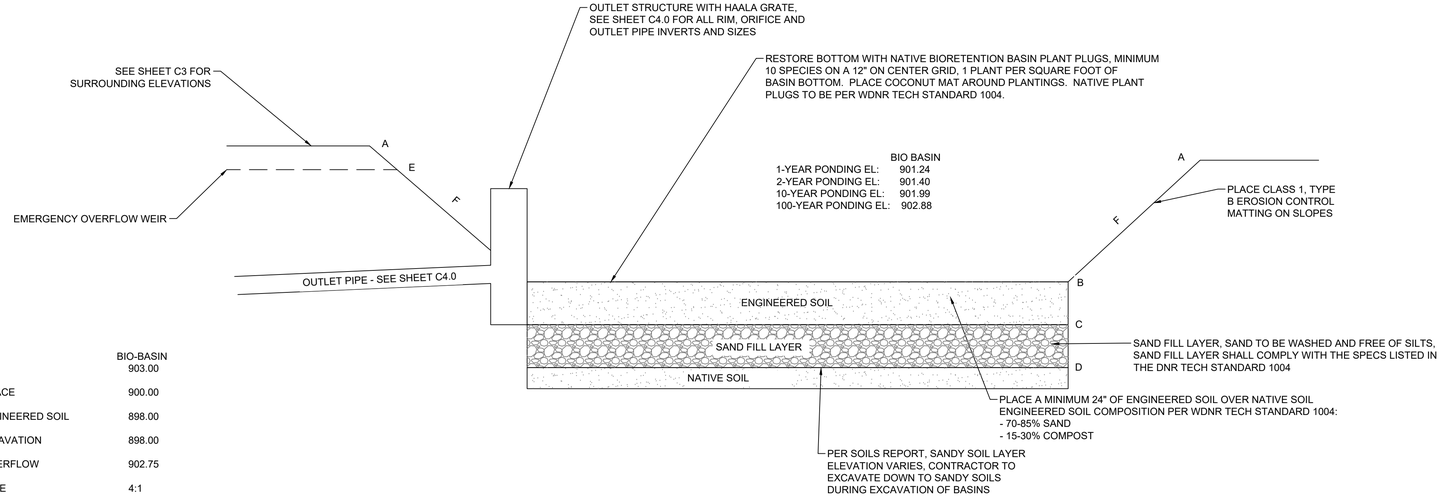
DD FILE NO.
JOB NO. 4071
ISSUE DATE 6-2-25
DESIGNED BY
DRAWN BY
PROJECT MGR

©2022 DRAINAGE DOCTORS, LLC

SHEET CONTENTS

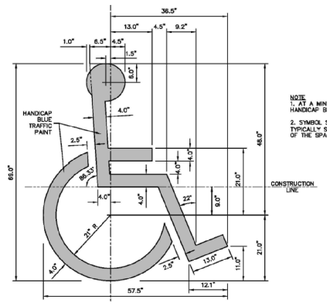
EROSION CONTROL PLAN

C5.0



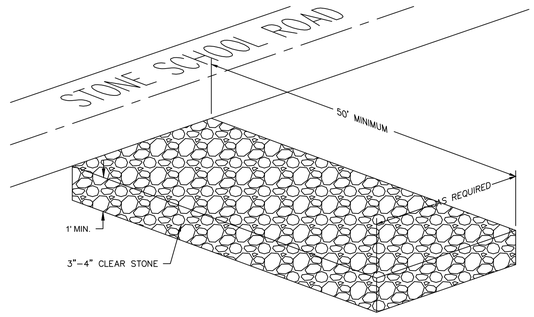
ITEM	BIO-BASIN
A - TOP OF BASIN	903.00
B - PLANTING SURFACE	900.00
C - BOTTOM OF ENGINEERED SOIL	898.00
D - BOTTOM OF EXCAVATION	898.00
E - EMERGENCY OVERFLOW	902.75
F - BASIN SIDE SLOPE	4:1

L7 BIORETENTION BASIN CROSS SECTION

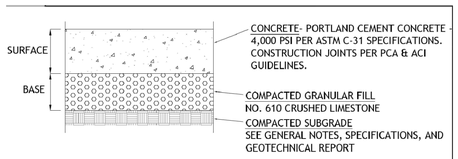


NOTE
1. AT A MINIMUM, THE SYMBOL SHALL RECEIVE A DOUBLE COAT OF HANDICAP BLUE TRAFFIC PAINT.
2. SYMBOL SHALL BE CENTERED ON THE WIDTH OF THE STALL AND TYPICALLY SHOULD BE INSTALLED LENGTHWISE IN THE BOTTOM ⅔ OF THE SPACE CLOSEST TO THE TRAVEL AISLE.

13M ACCESSIBLE SYMBOL



15 STONE CONSTRUCTION ENTRANCE



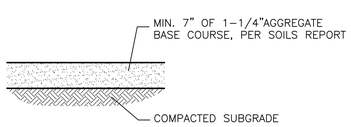
- TYPICAL SECTION -

RIGID (CONCRETE) PAVEMENT
NTS

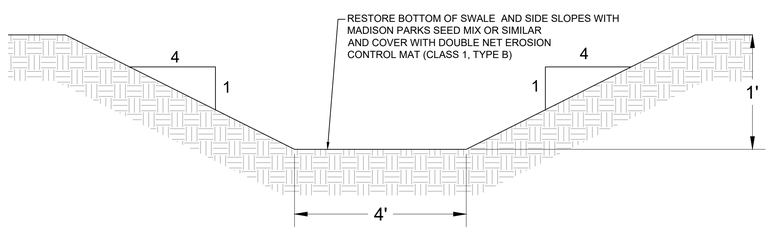
SECTION	CONCRETE	BASE
LIGHT DUTY	5"	6"
HEAVY DUTY	7"	6"
DUMPSTER PAD	8"	6"

*NOTE: COURSE DEPTHS TO BE APPROVED BY GEOTECHNICAL ENGINEER & OWNER

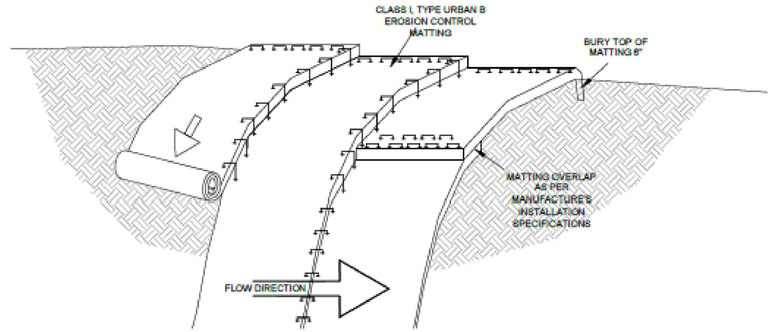
F1 CONCRETE PAVEMENT SECTION



D1 GRAVEL DRIVEWAY/PARKING SECTION



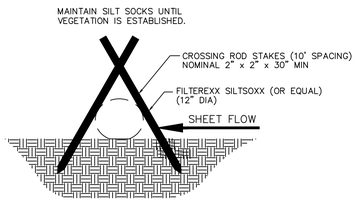
A3 TYPICAL SWALE CROSS SECTION



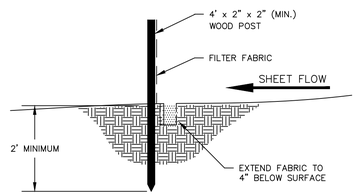
EROSION MATTING NOTES

1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING APPLICATION OF FERTILIZER AND MULCH AND SEED.
2. BEGIN AT THE TOP OF THE SHOULDER (OR CHANNEL) BY ANCHORING THE BLANKET IN A 6" DEEP x 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
3. ROLL THE BLANKETS DOWN (STARTING AT DOWNSTREAM, PROCEEDING UPSTREAM) HORIZONTALLY ACROSS THE SLOPE
4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH MANUFACTURER'S RECOMMENDED OVERLAP.
5. WHEN BLANKETS MUST BE SPLICED DOWN THE SLOPE, PLACE BLANKETS END OVER END (SHINGLE STYLE) WITH AN OVERLAP. USE A DOUBLE ROW OF STAGGERED STAPLES 4" APART TO SECURE BLANKETS.
6. IN HIGH CHANNEL APPLICATIONS, A STAPLE SLOT IS RECOMMENDED AT 30 TO 40 FOOT INTERVALS. USE A ROW OF STAPLES 4" APART OVER THE ENTIRE WIDTH OF THE CHANNEL. PLACE A SECOND ROW 4" BELOW THE FIRST ROW IN A STAGGERED PATTERN.
7. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED IN A 6" DEEP x 6" WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

D9 EROSION CONTROL BLANKET DETAIL



15E SILT SOCK DETAIL



16B SILT FENCE DETAIL

DRAINAGE DOCTOR
DRAINAGE DOCOTR, LLC
416 W. RED PINE CIRCLE
DOUSMAN, WI 53118
608.535.9380 main

MARK	DATE	DESCRIPTION
1	9.5.24	DANE COUNTY REVIEW
2	10.1.24	DANE COUNTY REVIEW
3	11.26.24	DANE COUNTY REVIEW
4	2.17.25	DANE COUNTY REVIEW

REVIEW DOCUMENTS FOR
FORT LITTLE GREEN
SITE DEVELOPMENT
STOUGHTON, WISCONSIN

DD FILE NO. JOB NO. 4136
ISSUE DATE 6–24–24
DESIGNED BY
DRAWN BY
PROJECT MGR

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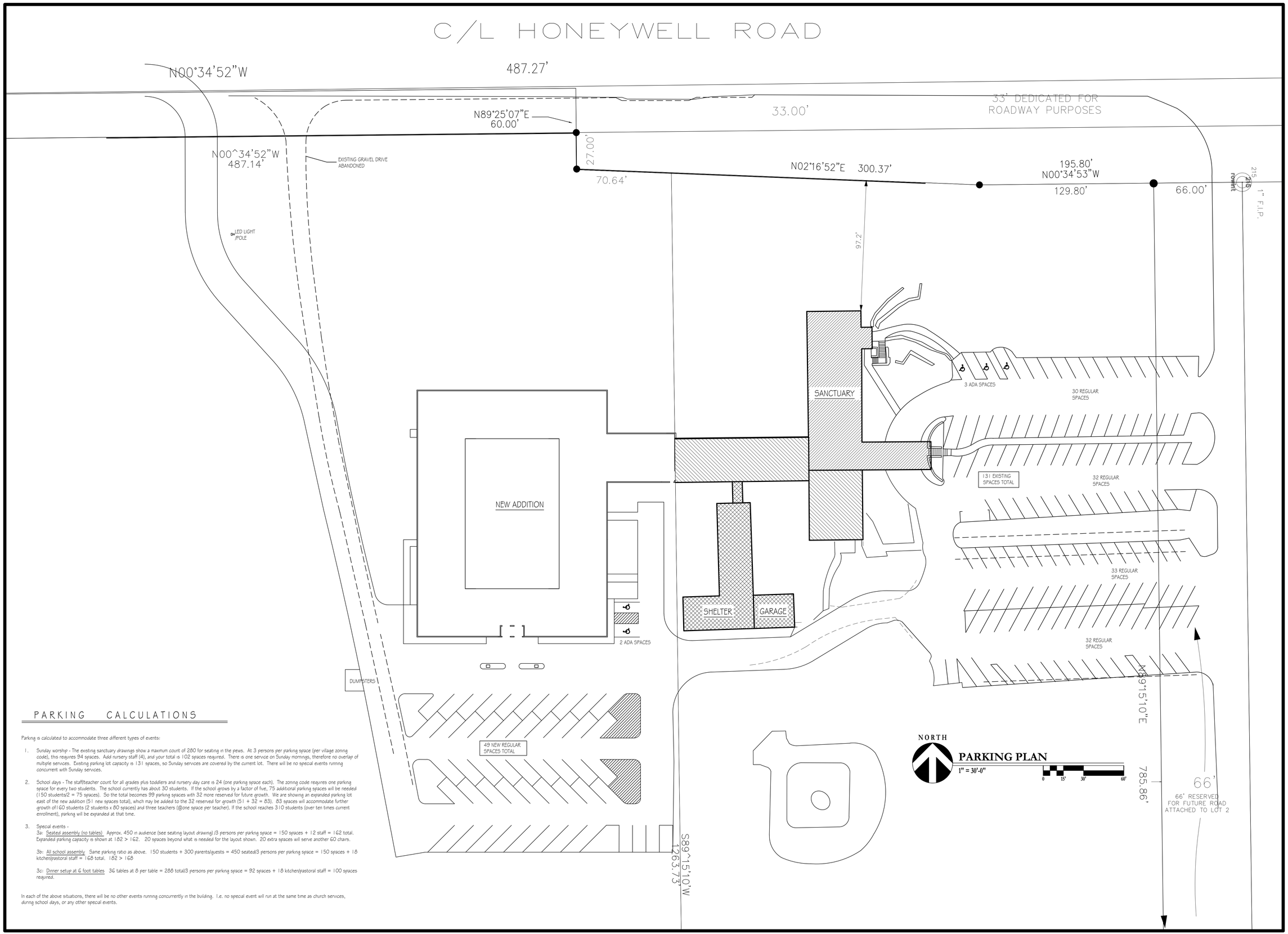
SHEET CONTENTS
CONSTRUCTION DETAILS

C6.0



PARKING CALCULATIONS

Parking is calculated to accommodate three different types of events:

1. Sunday worship - The existing sanctuary drawings show a maximum count of 280 for seating in the pews. At 3 persons per parking space (per village zoning code), this requires 94 spaces. Add nursery staff (4), and your total is 102 spaces required. There is one service on Sunday mornings, therefore no overlap of multiple services. Existing parking lot capacity is 131 spaces, so Sunday services are covered by the current lot. There will be no special events running concurrent with Sunday services.

2. School days - The staff/teacher count for all grades plus toddlers and nursery day care is 24 (one parking space each). The zoning code requires one parking space for every two students. The school currently has about 30 students. If the school grows by a factor of five, 75 additional parking spaces will be needed (150 students/2 = 75 spaces). So the total becomes 99 parking spaces with 32 more reserved for future growth. We are showing an expanded parking lot east of the new addition (51 new spaces total), which may be added to the 32 reserved for growth (51 + 32 = 83). 83 spaces will accommodate further growth of 160 students (2 students x 80 spaces) and three teachers (@one space per teacher). If the school reaches 310 students (over ten times current enrollment), parking will be expanded at that time.

3. Special events -
   3a: Seated assembly (no tables) Approx. 450 in audience (see seating layout drawing) /3 persons per parking space = 150 spaces + 12 staff = 162 total. Expanded parking capacity is shown at 182 > 162. 20 spaces beyond what is needed for the layout shown. 20 extra spaces will serve another 60 chairs.

   3b: All school assembly Same parking ratio as above. 150 students + 300 parents/guests = 450 seated/3 persons per parking space = 150 spaces + 18 kitchen/pastoral staff = 168 total. 182 > 168

   3c: Dinner setup at 6 foot tables 36 tables at 8 per table = 288 total/3 persons per parking space = 92 spaces + 18 kitchen/pastoral staff = 100 spaces required.

In each of the above situations, there will be no other events running concurrently in the building. I.e. no special event will run at the same time as church services, during school days, or any other special events.

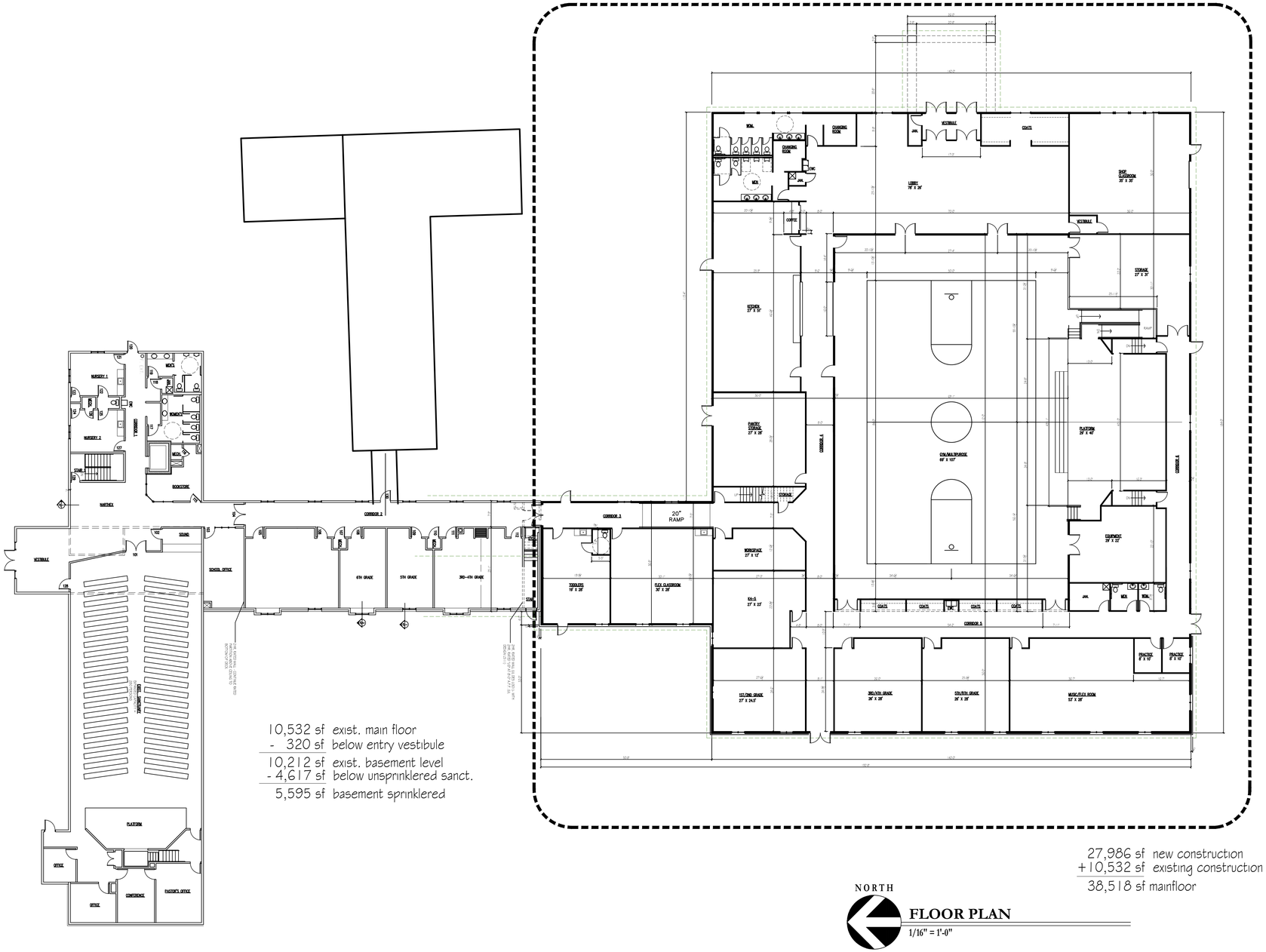
REVISIONS

Rev.	Date	Description	By

ADDITION TO
MUKWONAGO BAPTIST CHURCH
1610 HONEYWELL ROAD
MUKWONAGO, WISCONSIN

Drawn By	MF
Date	5-28-25
Scale	1" = 30'-0"
Job Number	
Sheet Name	SITE PLAN
Sheet Number	A1.1

SHEET OF TOTAL SHEETS



10,532 sf exist. main floor
- 320 sf below entry vestibule
10,212 sf exist. basement level
- 4,617 sf below unsprinklered sanct.
5,595 sf basement sprinklered

27,986 sf new construction
+10,532 sf existing construction
38,518 sf mainfloor

NORTH

FLOOR PLAN

1/16" = 1'-0"

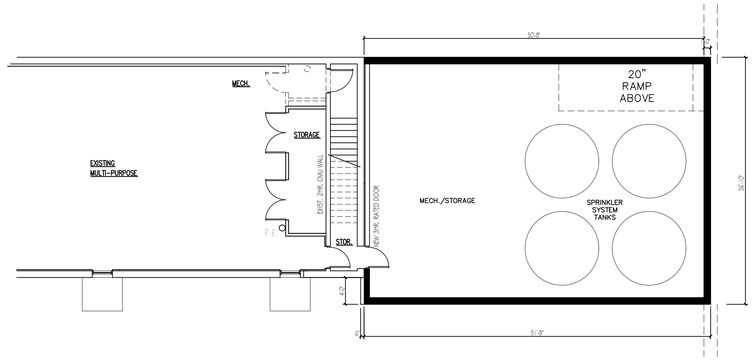
REVISIONS

Rev.	Date	Description	By

MARK FREDING - ARCHITECT
4132 N. MARYLAND AVENUE
SHOREWOOD, WI 53211
414-758-8374

ADDITION TO
MUKWONAGO BAPTIST CHURCH
1610 HONEYWELL ROAD
MUKWONAGO, WISCONSIN

Drawn By: MF
Date: 5-28-25
Scale: 1/16' = 1'-0"
Job Number:
Sheet Name: **FLOOR PLAN**
Sheet Number: **A2.0**
SHEET OF TOTAL SHEETS



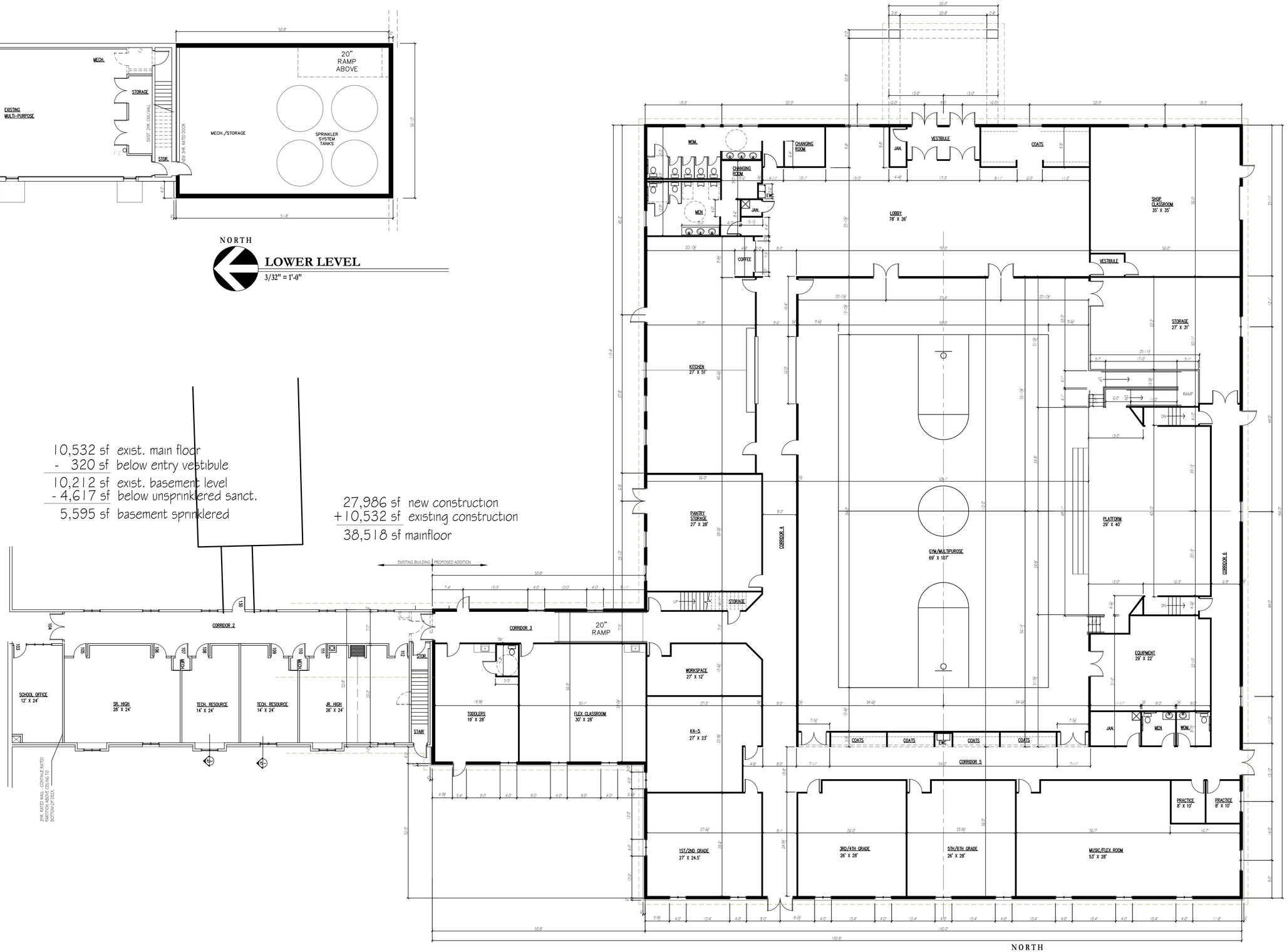
NORTH

LOWER LEVEL

3/32" = 1'-0"

10,532 sf exist. main floor
- 320 sf below entry vestibule
10,212 sf exist. basement level
- 4,617 sf below unsprinklered sanct.
5,595 sf basement sprinklered

27,986 sf new construction
+10,532 sf existing construction
38,518 sf mainfloor



NORTH

FLOOR PLAN

3/32" = 1'-0"

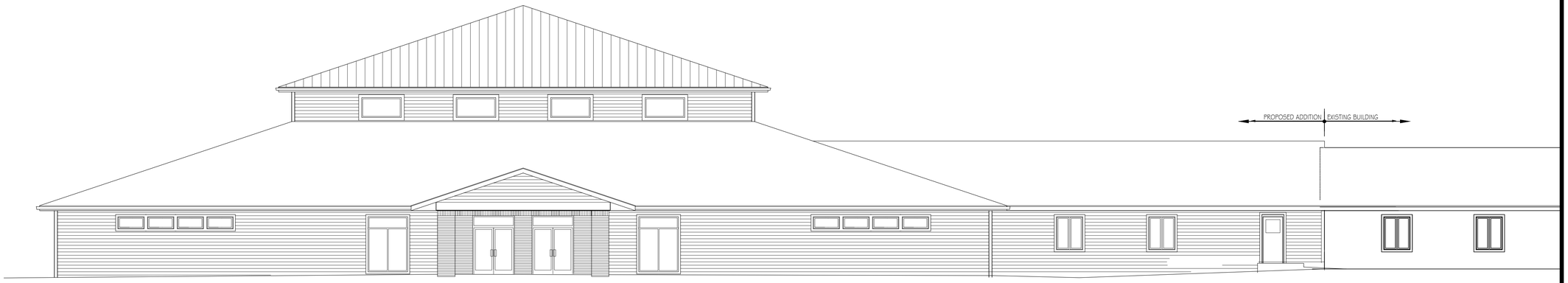
REVISIONS

Rev.	Date	Description	By

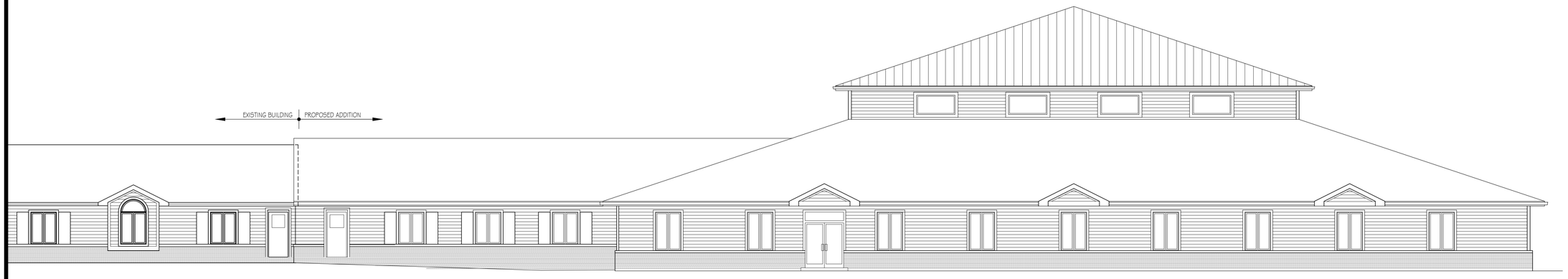
MARK FREDING - ARCHITECT
4181 N. BARTLETT AVENUE
SHOREWOOD, WI 53211
414-758-8374

ADDITION TO
MUKWONAGO BAPTIST CHURCH
1610 HONEYWELL ROAD
MUKWONAGO, WISCONSIN

Drawn By: MF
Date: 5-28-25
Scale: 3/32" = 1'-0"
Job Number:
Sheet Name: **ADDITION ENLARGED**
Sheet Number: **A2.1**
SHEET OF TOTAL SHEETS



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



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

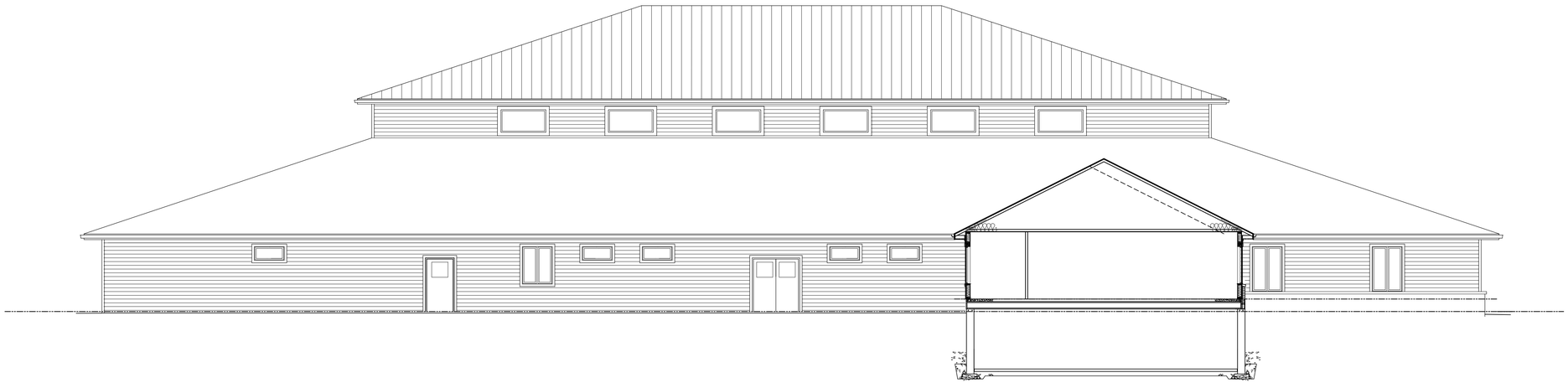
REVISIONS

Rev.	Date	Description	By

ADDITION TO
MUKWONAGO BAPTIST CHURCH
1610 HONEYWELL ROAD
MUKWONAGO, WISCONSIN

Drawn By
MF
Date
5-28-25
Scale
1/8" = 1'-0"
Job Number

Sheet Name
EXTERIOR ELEVATIONS
Sheet Number
A4.1
SHEET OF TOTAL SHEETS



NORTH ELEVATION
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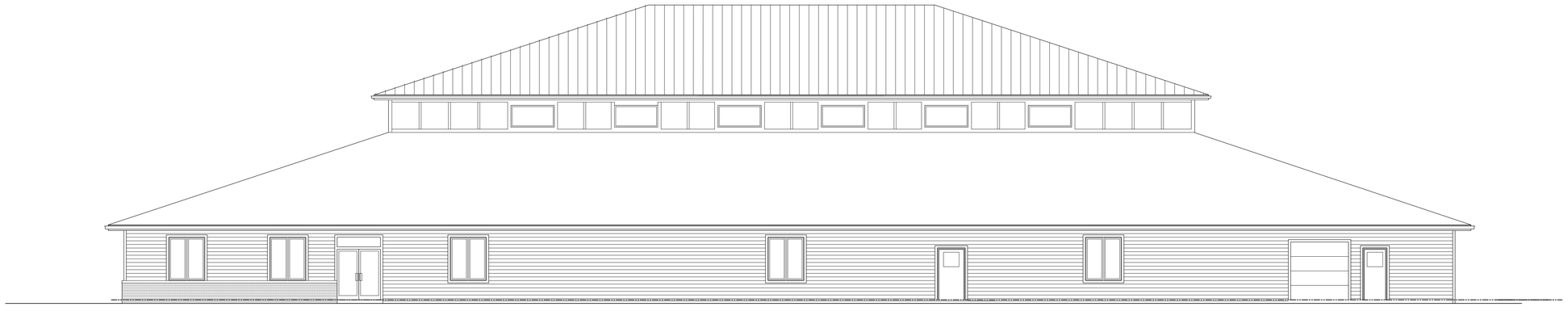


SOUTH ELEVATION
1/8" = 1'-0"

REVISIONS

Rev.	Date	Description	By

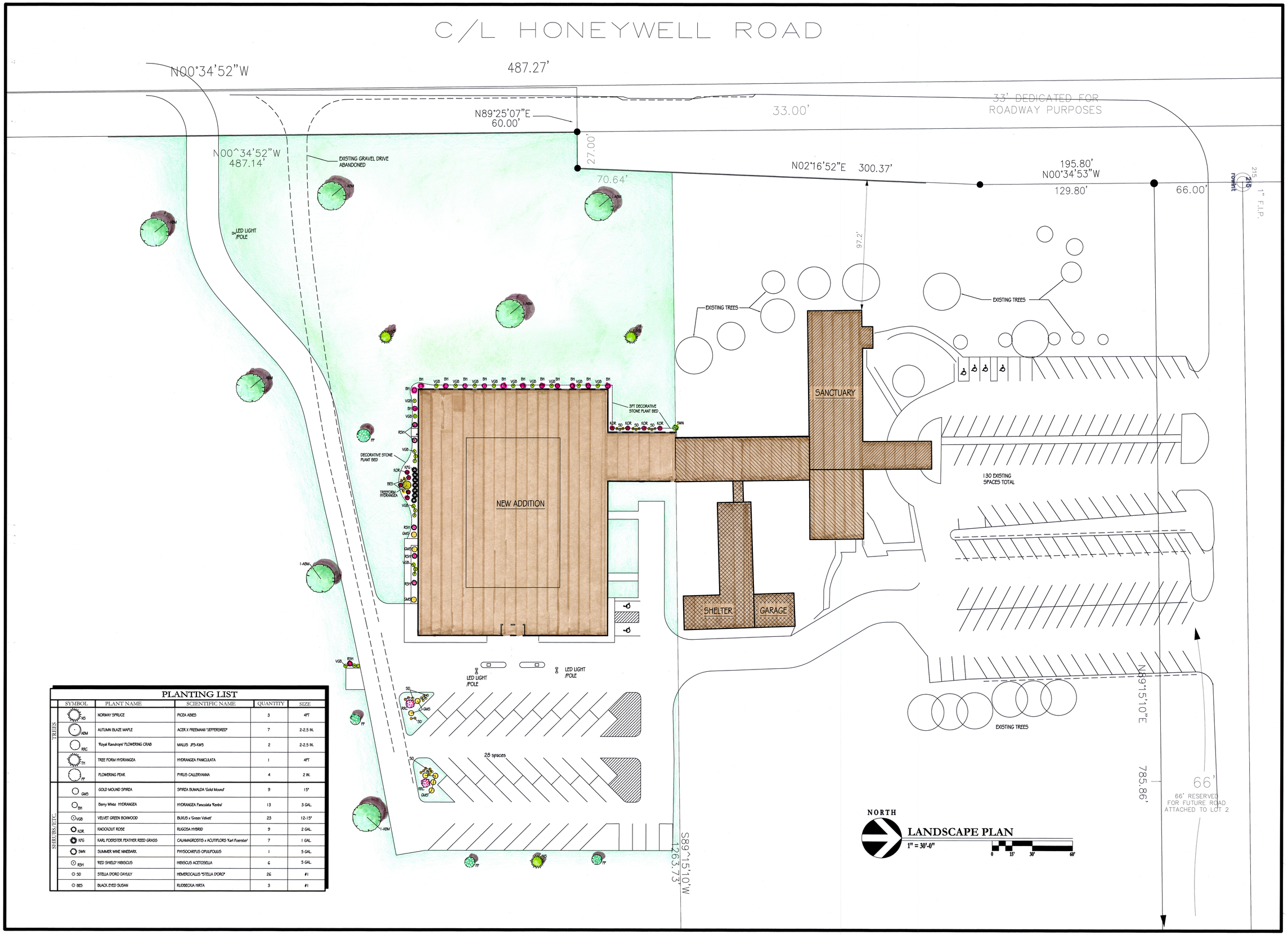
ADDITION TO
MUKWONAGO BAPTIST CHURCH
1610 HONEYWELL ROAD
MUKWONAGO, WISCONSIN

Drawn By
MF
Date
5-28-25
Scale
1/8" = 1'-0"
Job Number

Sheet Name
EXTERIOR ELEVATIONS
Sheet Number
A4.2
SHEET OF TOTAL SHEETS

SOUTH ELEVATION

WEST ELEVATION



PLANTING LIST

	SYMBOL	PLANT NAME	SCIENTIFIC NAME	QUANTITY	SIZE
TREES	NS	NORWAY SPRUCE	PICEA ABIES	3	4FT
	ADM	AUTUMN BLAZE MAPLE	ACER X FREEMANII 'JEFFERSRED'	7	2-2.5 IN.
	RRC	'Royal Raindrops' FLOWERING CRAB	MALUS JFS-KW5	2	2-2.5 IN.
	TH	TREE FORM HYDRANGEA	HYDRANGEA PANICULATA	1	4FT
	FP	FLOWERING PEAR	PYRUS CALLERYANNA	4	2 IN.
SHRUBS ETC.	GMS	GOLD MOUND SPIREA	SPIREA BUMALDA 'Gold Mound'	9	15"
	BH	Berry White HYDRANGEA	HYDRANGEA Paniculata 'Renhsi'	13	3 GAL.
	VGB	VELVET GREEN BOXWOOD	BUXUS x 'Green Velvet'	23	12-15"
	KOR	KNOCKOUT ROSE	RUGOSA HYBRID	9	2 GAL.
	KFG	KARL FOERSTER FEATHER REED GRASS	CALAMAGROSTIS x ACUTIFLORS 'Karl Foerster'	7	1 GAL.
	SWN	SUMMER WINE NINEBARK	PHYSOCARPUS OPULIFOLIUS	1	5 GAL.
	RSH	'RED SHIELD' HIBISCUS	HIBISCUS ACETOSELLA	6	5 GAL.
	SD	STELLA D'ORO DAYLILY	HEMEROCALLIS 'STELLA D'ORO'	26	#1
	BES	BLACK EYED SUSAN	RUDBECKIA HIRTA	3	#1

REVISIONS

Rev.	Date	Description	By

ADDITION TO
MUKWONAGO BAPTIST CHURCH
1610 HONEYWELL ROAD
MUKWONAGO, WISCONSIN

Drawn By	MF
Date	5-28-25
Scale	1" = 30'-0"
Job Number	
Sheet Name	LANDSCAPE PLAN
Sheet Number	L1.1

SHEET OF TOTAL SHEETS

STORMWATER MANAGEMENT AND EROSION CONTROL REPORT

Mukwonago Baptist Church Building Addition

Village of Mukwonago, Wisconsin

Prepared For:

Mukwonago Baptist Church

1610 Honeywell Road

Mukwonago, WI 53149

Prepared By:

Drainage Doctor, LLC

416 W. Red Pine Circle

Dousman, WI 53118

Prepared On:

June 2, 2025

NARRATIVE

1.0 Introduction

Drainage Doctor, LLC (DD) has prepared a Stormwater Management Plan (SWMP) and Erosion Control Plan to meet the goals of the Village of Mukwonago (Chapter 34, Division 4) and Wisconsin Department of Natural Resources (WDNR; NR151 an NR216) for this proposed building expansion project. The goals of the Village's ordinance, Chapter 34, are more inclusive than the WDNR goals for stormwater and therefore will be used as the criteria for meeting these goals for this project. The stormwater goals require that post-development runoff match pre-development runoff for the storm frequency return interval as follows:

-Proposed 1-year equal or decrease existing 1-year

-Proposed 2-year equal or decrease existing 2-year

-Proposed 10-year equal or decrease existing 2-year

-Proposed 100-year equal or decrease existing 10-year

The rainfall type that is used in the models are MSE3-24hr. Additional goals are to achieve 80% reduction in total suspended solids (TSS), infiltrate 60% of predevelopment volume and treat the first 0.5 inches of runoff with oil and grease removal technology from the parking area.

The proposed site improvements include topsoil removal in all proposed disturbed areas, new paved driveways and parking area, proposed school building expansion, bioretention basin, topsoil respread and restoration of disturbed areas. Please refer to the proposed construction plans for details on the proposed improvements to the site.

The site lies on a property along the east side of Stone School Road in the Village of Mukwonago, approximately 670 feet south of the Interstate 43 overpass. The address of the site is 1610 Honeywell Road, Mukwonago, WI, 53149. The total property area is approximately 22.31 acres (971,734 square feet). However, the area of disturbance will mostly remain within the gravel driveway area immediately south of the existing building. The area of disturbance will approximately be 157,942 square feet. This includes the disturbance that is required to construct two by-pass swales to keep stormwater runoff through the property away from the proposed improvements. The disturbance area for the by-pass swales is 38,789 square feet. The area of the project that includes the building expansion, driveways, and parking lot that will be managed with the proposed bioretention basin is 119,153 square feet.

The County parcel number of this property is A352400001. The site is situated in part of the South ½ of the Northeast ½ of Section 2, Township 4 North (T4N), Range 18 East (R18E).

Prior to this development proposal, there was an existing building and existing asphalt parking lot north of the building accessible from the Private Drive via Honeywell Road. Where the proposed building and parking lot is located, there was an existing concrete pad and existing gravel driveway

that will be removed to allow the proposed construction. The proposed building addition will be added to the south end of the building and a new parking lot will be constructed to the east of the new building. A garbage disposal dumpster pad will be placed south east of the new building, along the south side of the proposed driveway from Stone School Road. The stormwater management practice (bioretention basin) will be installed east of the proposed paved parking area .As a part of this project, storm sewer piping will be installed to convey runoff to the proposed stormwater basin.

2.0 Existing Conditions

The majority of the area between the existing gravel driveways where the proposed improvement will be located, south of the existing building, flows toward the east. A smaller area of the far western portion of this portion of the property flows to the north along the west side of the existing building. Existing contours shown on Sheet C1.0 depict the flow of stormwater runoff in the pre-construction conditions.

The closest water body to this site is a Potter Lake (WBIC 753800) that is located to the southwest, 1.3 miles away from the project area. The DNR water surface viewer is provided as Appendix I. Please note that according to the DNR surface water viewer, wetlands do not exist on this property.

According to the USGS Web Soil Survey (included in Appendix A), there are two soil types within the limits of disturbance for this project, both of which are McHenry Silt Loams (MpA) and (MpB). The only difference between the two soils is the average percent of slopes. These soils, according to the USGS Web Soil Survey, are in the Hydrologic Soil Group B. There is another soil group within the disturbance, but it is an extremely small area at the southeast corner of the bioretention basin, outside of the basin itself. The berm that surrounds the bioretention basin on the east side would be the only feature within this soil type.

According to the DNR Surface Water Viewer (online GIS map), with the wetland layer turned on, the closest wetland to the project site is approximately 1,400 feet to the southeast. This map is attached as Appendix I. A FEMA FIRMette map has been attached in Appendix J. Neither wetlands nor floodplains exist within the project property.

3.0 Design Criteria

The following table outlines the design criteria for the proposed development. The net added impervious area is 80,247 square feet, with the majority of that area to be added paved driveway and parking area as well as the building addition added to the property. Please note that there are no re-development impervious areas being proposed with this project.

Stormwater Management Goals (Dane County Ch. 14)		
Requirement	**Goal**	**Proposed BMP**
Peak Runoff Discharge	Pre-developed to Post-developed 1-yr, 2-yr, 10-yr, 100-yr , 24-hour storm event, as described above	Bioretention

Total Suspended Solids	Reduce TSS loadings to 80% on an annunal basis	Bioretention
Infiltration	Post-dev infiltration vol to be 60% of pre-dev infiltration volume, based on annual rain event	Bioretention
Oil & Grease	Treat first 0.5" of runoff from parking area	Bioretention

4.0 Summary of Results

Peak Runoff Discharge

Village of Mukwonago requires that the post-developed peak runoff rate for this re-development site not exceed the pre-developed peak runoff rate for the site for the 1-year, 2-year, 10-year, and 100-year, 24-hour storm events as described above.

The existing condition is modeled as two drainage areas and the proposed conditions are also divided into two (2) different drainage areas, due to the location of the proposed bioretention basin. A small area directly to the east of the existing building where the gravel driveway is being expanded and paved for a 24' wide driveway will flow through the existing parking lot as it currently does and be considered offsite flow.

E-B – Existing drainage area that flows toward the area where the proposed basin will be located
E-OFF – Existing drainage area where the proposed section of paved driveway will flow away from the proposed basin

P-AB – Proposed drainage area going east to the bioretention basin
P-OFF – Proposed drainage area going north through existing driveway (not being detained or treated)

Stormwater runoff for the existing and proposed conditions was modeled with HydroCAD (version 10.00). The model was utilized to generate and route the peak flow rates for the disturbed areas. Peak water surface elevations and flood storage volumes were also generated for the bioretention basin location. The site was evaluated for the 1-year (2.40-inch), 2-year (2.70-inch), 10-year (3.81-inch), and 100-year (6.18-inch) NRCS, 24-hour, Type MSE3 rainfall events. Depth of rainfall for the corresponding storm event is in parentheses.

The results of the hydrologic modeling for the existing (predevelopment) and proposed (post-development) drainage conditions are contained within Appendix C and D, respectively. The table

below summarizes the calculated runoff discharge rates and volumes for the existing and proposed conditions related to each storm return period of concern. Please note that the results shown below are for the area of the property being improved at this time (existing and proposed) and not the full site.

		Runoff Rate per Storm Event (cfs)			
		1-yr	2-yr	10-yr	100-yr
Ex. Flow					
	Area E-B	0.50	0.84	2.64	7.84
	Area E-OFF	0.08	0.10	0.18	0.35
	Total Offsite (Link)	**0.52**	**0.87**	**2.69**	**7.94**
Pr. Flow					
	Area (P-AB)	6.35	7.62	12.46	22.91
	Bioretention Basin (BIO)	0.08	0.12	0.36	1.51
	Area (P-OFF)	0.10	0.11	0.16	0.26
	Total Flow Offsite (Link)	**0.10**	**0.13**	**0.37**	**1.56**

The site meets the Village's peak runoff rate control requirements for new development with the use of the bioretention basin, meeting and/or reducing the runoff rate for the 1-yr, 2-yr, 10-yr, and 100-yr storm events. Please refer to the HydroCAD summaries in Appendix C (pre-development) and Appendix D (post-development).

Total Suspended Solids:

Total Suspended Solids Reduction		
No Controls (lbs)	**Basin Controls (lbs)**	**% Reduction**
1529	26.86	98.24%

The development site is required to meet 80% TSS reduction from a no control condition. The bioretention basin practices have been designed to treat site runoff and will achieve a 98.24% TSS removal rate. TSS was modeled with WinSLAMM v. 10.3.4. Please refer to Appendix E for summary.

Infiltration:

According to Village of Mukwonago infiltration requirements, the site total losses goal should be at least 60% of the pre-development total site losses for an average annual rain event. As shown below, the post-development stay-on depth is greater than 60% of the pre-development stay-on depth, therefore, the designed stormwater management practices meet the infiltration goals. Volume calculations are provided below.

Volume Calculations:

A. Pre-Development Stay-On (CF):
(Drainage Area in Acres) * (1 FT/12 IN) * (Yearly Rainfall IN) * (43,560 SF/AC) – Pre-Dev Runoff CF)

(2.74 Ac) * (1 IN/ 12 FT) * (28.81 IN) * (43,560 SF/AC) – 5,875 CF = 280,675 CF
*The 5,875 CF is from the WinSLAMM model

B. Pre-Development Stay-On (IN):
(Pre-Dev Stay-On CF) / (Area in Acres) * (1 AC/43,560 SF) * (12 IN/1 FT)

(280,675 CF)/(2.74 AC) * (1 AC/43,560 SF) * (12 IN/FT) = 28.22 IN

C. Required Stay-On (IN)
(Pre-Dev Stay-On IN) * (60%)

(28.22 IN) * (60%) = 16.93 IN

D. Post-Development Stay-On (CF)
(Yearly Rainfall IN) * (1 FT/12 IN) * (Drainage Area in Acres) * (43,560 SF/AC) – Runoff per HydroCAD CF)

(28.81 IN) * (1 FT/12 IN) * (2.74 AC) * (43,560 SF/AC) – 1,742 CF = 284,808 CF
*The 1,742 CF is based off 0.040 AC-FT runoff from the proposed stormwater basin per HydroCAD in a 1-year storm event

E. Post-Development Stay-On (IN)
(Post-Dev Stay-On CF) / (Area in Acres) * (1 AC/43,560 SF) * (12 IN/1 FT)

(284,808 CF)/(2.74 AC) * (1 AC/43,560 SF) * (12 IN/FT) = 28.63 IN

F. Infiltration Check – Is Step E > Step C?
Step E = 28.63 IN
Step C = 16.93 IN
28.63 > 16.93

Check = YES

<u>Oil and Grease Control</u>

The existing parking lot, proposed pavement addition, proposed trash pad, existing and proposed sidewalk and the overall building roof area will be conveyed into the bioretention basins at the north and south of the proposed parking and drive areas. The proposed parking area will be large enough to provide 51 parking stalls to serve the building addition. The bioretention basin will be made up of a 24" thick engineered soil layer, meeting the WDNR requirements for sand/compost mixture. According to the Dane County's Erosion Control and Stormwater Management Manual, a bioretention facility is appropriate for treating stormwater runoff for oil and grease and meeting those stormwater goals.

Erosion Control:

Please refer to Appendix H for a Universal Soil Loss Equation that extends from the proposed start date of land disturbance activity through final seeding. Silt fence and/or silt sock will remain in place until final restoration of the proposed landscape areas. The expected soil loss is less than or equal to the maximum acceptable. This is assuming the construction schedule included on the Erosion Control Plan is adhered to. It is expected that the overall construction of the exterior site improvements will be finished prior to the listed end dates. A cost estimate for these erosion control items can be found in Appendix G.

5.0 Conclusion

The proposed best management practices for stormwater management have been designed to meet the Village of Mukwonago's goals for peak runoff, sediment reduction, infiltration and oil and grease control. Additionally, the site exceeds the infiltration requirements, therefore, no additional thermal control is required for the runoff from this site. Peak runoff, sediment reduction and infiltration will be handled within the proposed bioretention basin for the disturbed areas for this development project. The outlet of the bioretention basin will primarily be through the stand pipe, infiltration and the emergency overflow weir. The proposed covenants and maintenance agreement for the post-development stormwater management devices can be found in Appendix F.

Appendix A

USDA Soils Information

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

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

Custom Soil Resource Report for Walworth County, Wisconsin

Preface

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

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

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

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

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

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

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How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Soil Map

88° 20' 12" W
88° 19' 58" W
42° 50' 18" N
42° 50' 11" N
390770
390800
390830
390860
390890
390920
390950
390980
391010
391040
391070
4743720
4743690
4743660
4743630
4743600
4743570
4743540
Stone School Rd
MpC
MpB
CyA
MpC
Soil Map may not be valid at this scale.
Map Scale: 1:1,460 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: Walworth County, Wisconsin
Survey Area Data: Version 21, Sep 3, 2024

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

Date(s) aerial images were photographed: Jul 30, 2022—Aug 18, 2022

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
CyA	Conover silt loam, 1 to 3 percent slopes	0.0	0.8%
MpB	McHenry silt loam, 2 to 6 percent slopes	2.1	68.3%
MpC	McHenry silt loam, 6 to 12 percent slopes	0.9	30.8%
Totals for Area of Interest		**3.0**	**100.0%**

Map Unit Descriptions

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

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

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Walworth County, Wisconsin

CyA—Conover silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: g8w9
Elevation: 660 to 980 feet
Mean annual precipitation: 30 to 38 inches
Mean annual air temperature: 43 to 48 degrees F
Frost-free period: 150 to 190 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Conover and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Conover

Setting

Landform: Drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Parent material: Thin loess over loamy till

Typical profile

Ap,E - 0 to 11 inches: silt loam
Bt - 11 to 23 inches: clay loam
2Bt,2BC,2C - 23 to 60 inches: loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.14 to 0.57 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Occasional
Frequency of ponding: Occasional
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Forage suitability group: Mod AWC, high water table (G095BY004WI)
Other vegetative classification: Mod AWC, high water table (G095BY004WI)
Hydric soil rating: No

Minor Components

Pella

Percent of map unit: 5 percent
Landform: Depressions
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: F095XB004WI - Wet Loamy or Clayey Lowland
Hydric soil rating: Yes

Kendall

Percent of map unit: 3 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Hydric soil rating: No

Griswold, mottled subsoil variant

Percent of map unit: 2 percent
Landform: Moraines
Landform position (two-dimensional): Footslope, backslope
Landform position (three-dimensional): Base slope, side slope
Down-slope shape: Linear, convex
Across-slope shape: Concave, convex
Ecological site: F095XB010WI - Loamy and Clayey Upland
Hydric soil rating: No

MpB—McHenry silt loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2tjyr
Elevation: 820 to 1,490 feet
Mean annual precipitation: 31 to 37 inches
Mean annual air temperature: 45 to 48 degrees F
Frost-free period: 126 to 181 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Mchenry and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mchenry

Setting

Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 5 inches: silt loam
E - 5 to 10 inches: silt loam
Bt1 - 10 to 22 inches: silty clay loam
2Bt2 - 22 to 32 inches: loam
2Bt3 - 32 to 37 inches: fine sandy loam
2C - 37 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: F095XB010WI - Loamy and Clayey Upland
Forage suitability group: High AWC, adequately drained (G095BY008WI)
Other vegetative classification: High AWC, adequately drained (G095BY008WI)
Hydric soil rating: No

Minor Components

Dodge, eroded

Percent of map unit: 5 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Hydric soil rating: No

Elburn

Percent of map unit: 3 percent
Landform: Drainageways

Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F095XB002WI - Wet Floodplain
Hydric soil rating: No

Fox

Percent of map unit: 2 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F095XB010WI - Loamy and Clayey Upland
Hydric soil rating: No

MpC—McHenry silt loam, 6 to 12 percent slopes

Map Unit Setting

National map unit symbol: 2xzl4
Elevation: 790 to 1,120 feet
Mean annual precipitation: 33 to 38 inches
Mean annual air temperature: 46 to 50 degrees F
Frost-free period: 151 to 174 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Mchenry and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Mchenry

Setting

Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loess over loamy till

Typical profile

Ap - 0 to 5 inches: silt loam
BE - 5 to 8 inches: silt loam
Bt1 - 8 to 22 inches: silty clay loam
2Bt2 - 22 to 35 inches: loam
2C - 35 to 79 inches: gravelly sandy loam

Properties and qualities

Slope: 6 to 12 percent

Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: F095XB010WI - Loamy and Clayey Upland
Forage suitability group: High AWC, adequately drained (G095BY008WI)
Other vegetative classification: High AWC, adequately drained (G095BY008WI)
Hydric soil rating: No

Minor Components

Miami

Percent of map unit: 6 percent
Landform: Moraines
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F095XB007WI - Loamy Upland with Carbonates
Hydric soil rating: No

Kendall

Percent of map unit: 4 percent
Landform: Drainageways
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: F095XB005WI - Moist Loamy or Clayey Lowland
Hydric soil rating: No

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Appendix B

Geotechnical Soils Report

CGC, Inc.

Construction • Geotechnical
Consulting Engineering/Testing

May 13, 2025
CM25053

Mr. Tyler Smith
The Drainage Doctors, LLC
416 W. Red Pine Circle
Dousman, WI 53118

Re: Geotechnical Exploration Report
Proposed Mukwonago Baptist Church Addition
1610 Honeywell Road
Mukwonago, Wisconsin

Dear Mr. Lyons:

Construction • Geotechnical Consultants, Inc. (CGC) has completed the subsurface exploration program for the above-referenced project. The purpose of this program was to evaluate the subsurface conditions within the proposed construction area and to provide geotechnical recommendations regarding site preparation, foundation, floor slab, below-grade wall and pavement design/construction. A determination of the site class for seismic design is also included, along with a discussion of the on-site stormwater infiltration potential. We are providing you with an electronic copy of this report and can provide paper copies upon request.

PROJECT AND SITE DESCRIPTION

We understand that a building addition is planned to the south side of the existing Mukwonago Baptist Church facility at the above referenced address in Mukwonago, Wisconsin. We understand the addition will consist of a 1-story structure with a below-grade basement within the 51-foot corridor that connects the building addition to the existing building and slab-on-grade construction (i.e., no basement) for the remainder of the building. It is understood that the existing building adjacent to the addition also contains a basement. Structural loads were not provided; however, it is anticipated that the structure will be moderately to heavily loaded. The project will include associated paved parking lots and driveway to the south and east of the building, as well as a stormwater management basin which is proposed on the east end of the site.

The proposed project site consists of a vacant 10.23-acre parcel of land with ground surface elevations ranging between about EL 901 ft along the eastern portion of the site to about EL 910 ft on the western side of the site. The property is sparsely grass and weed covered and was formerly used as a farm field. A gravel drive extends through portions of the addition area from Stone School Road.

The proposed building's finished floor elevation (FFE) is set to be EL 910 ft. However, the elevation of the basement of the northern addition is anticipated to be EL 900 ft based on an assumed 10-foot basement. We understand the existing building where the addition will be attached contains a basement, and the new addition will be designed so that the basement elevations match. Therefore within areas containing a basement it is anticipated that cuts of about 10 to 11 feet will be necessary to establish the basement floor slab subgrade elevation (assumed at about 1 ft below the FFE). Based upon existing grades within the non-

basement building areas, it is anticipated that up to about 1 ft of cut and about 2.5 ft will be required to establish the building pad subgrade. Based on grades within the paved parking lot area, it is anticipated that fills of about 1 to 3 ft will be required to achieve grades for the planned pavement areas to the east of the building. Additionally, the bottom of the stormwater management area will be at El 901 ft, which will require about 1 to 2 ft of cutting to establish the bottom elevation. The above referenced cutting and filling estimates are considered to be exclusive of any topsoil and vegetation stripping or soil stabilization that may be necessary before grading begins.

SUBSURFACE CONDITIONS

Subsurface conditions on site were explored by drilling a total of seven (7) Standard Penetration Test (SPT) borings. The borings were extended to depths of 10 to 20 ft below existing site grades. Borings 1 through 4 were extended to a depth of 20 ft below the existing site grade and were located within and in the near vicinity of the proposed building addition area. Borings 5 and 6 was extended to the planned depth of 10 ft below the existing grade and were located within the proposed pavement areas. Boring 7 was extended to the planned depth of 20 ft and was located within the planned stormwater management area. The borings were performed at locations selected by CGC in consultation with the client and located in the field by CGC. The approximate soil boring locations are shown in plan on the Soil Boring Location Exhibit attached in Appendix B. The borings were drilled on April 17 and 18, 2023, by J&J Soil Testing, LTD (under subcontract to CGC) using a truck-mounted CME-45 drill rig equipped with hollow-stem augers and manually actuated rope and cathead pulley SPT hammer. The specific procedures used for drilling and sampling are described in Appendix A. The ground surface elevations at the borings were estimated by interpolation from the elevation contours included on the Proposed Grading Plan (Sheet C3.0, dated 4-10-25) prepared and provided by Drainage Doctor, LLC and are considered accurate to within about 1± foot.

Representative samples of the subsoils were collected during the field explorations for classification and laboratory testing. The soils were classified by a geotechnical engineer using the Unified Soil Classification System (USCS). In addition, the samples from Boring 7 in the planned stormwater management basin area, were classified in accordance with the descriptive procedures, terminology and interpretations presented by the USDA - NRCS Field Book for Describing and Sampling Soils (version 3.0, dated September 2012). Pocket penetrometer readings were obtained on intact cohesive samples recovered during the exploration, where appropriate, to aid in the evaluation of their shear strength properties. Natural moisture content determination testing was completed on multiple representative samples of the clay soils. To assist in evaluation and classification of the soils within the planned stormwater basin area, grain-size testing was performed on a composite sample collected from Boring 7 (6 to 15 ft). The Particle Size Distribution Report is enclosed in Appendix G. Laboratory test results are presented on the individual logs in Appendix B. The final logs prepared by the engineer per the USCS procedures are presented in Appendix B.

SITE CONDITIONS

1. Regional Geology

Natural surficial soil deposits (i.e., upper 5 ft) across the site are mapped in the *Soil Survey for Waukesha Counties, Wisconsin* as Conover silt loam (CyA), McHenry silt loam (MpB, MpB2, and MpC), and Miami

loam sandy loam substratum (MxD2). Descriptions of the soils mapped in the planned development areas of the site are included in the following paragraphs:

- **Conover Silt Loam (CyA)**: The Conover silt loam soils typically consist of silt loam to a depth of approximately 11 inches, over clay loam to a depth of 23 inches over loam to at least a depth of 60 inches. These soils are somewhat poorly drained, with a water table typically at about 0 to 24 inches in depth

- **McHenry Silt Loam (MpB, MpB2, and MpC)**: The McHenry silt loam soils typically consist of silt loam to depths of 6 to 10 inches, over silty clay loam to a depth of 22 inches, over loam to depths of 32 to 37 inches, over fine sandy loam to gravelly sandy loam to at least a depth of 79 inches. These soils are well-drained, with a water table typically more than 80 inches in depth.

- **Miami Loam, Sandy Loam Substratum (MxD2)**: The Miami loam, sandy loam substratum soils typically consist of loam to a depth of 10 inches, over clay loam to a depth of 36 inches, underlain by gravelly sandy loam to at least a depth of 60 inches. These soils are well-drained, with a water table typically at about 60 to 80 inches in depth

A copy of the Soil Survey Map, showing the area of the site, is included in Appendix B.

2. Subsurface Conditions

The subsurface profiles at the boring locations were fairly consistent across the site. A generalized profile can be described by the following strata (in descending order):

The surface of the site contained of about 8 to 14 in. (most commonly about 13 in.) of ***dark brown clayey topsoil.*** An exception was encountered at Boring 6, near the existing gravel drive, where about 3 in. of ***dark brown clayey topsoil fill*** over about 2 in. of ***base course fill*** was encountered at the surface. The surface materials were underlain by;

- Medium stiff to very stiff, ***native brown and brown mottled lean clay or brown mottled sandy clay,*** with trace to little sand and gravel content to depths of about 2 to 3.5 ft, underlain by;
- Loose to very dense ***brown and gray sandy silt or silty sand,*** with little clay, fine to coarse gravel, and occasional zones of probable cobbles and boulders, extending to depths of about 8 to 12 ft at Borings 1 through 3 and extending to the termination depths, ranging from 10 to 19.5 ft at Borings 4 through 7. Underlying soils at Borings 1 through 3 consist of,
- Very stiff to hard, ***native brown, reddish brown, and gray lean clay to silty clay,*** with trace to little sand and gravel extending to the termination depth of 20 ft.

Pocket penetrometer readings were performed on relatively undisturbed samples of the clayey soils to provide an estimate of the soil's unconfined compressive strength. Recorded pocket penetrometer readings ranged from about 0.75 tsf to 4.5+ tsf, indicating medium stiff to hard conditions. Standard penetration resistances (N-values) on the native granular soils ranged from about 8 to 100+ blows per foot (bpf)

indicating loose to very dense conditions. Natural moisture contents of representative granular samples measured in our laboratory ranged from 7.8% to 9.8%, indicating moist conditions.

The results of the grain size testing on the composite sample collected from Boring 7 (3.5 to 12.5 ft) indicated a P270 concentration of 33.3 percent and a P200 concentration of 36.6 percent. Based on the testing the soils were classified as SM materials in accordance with the USCS procedures and as gravely sandy loam in accordance with USDA procedures. The results of the grain-size testing are indicated on the Particle Size Distribution Report enclosed in Appendix G.

Groundwater was encountered in all the borings excluding Boring 6 while drilling at depths of about 3.5 ft to 5.5 ft, corresponding to between about EL 899.7 ft to 906.2 ft, however, no free water was encountered within any of the borings upon completion of drilling. Based on the general lack of groundwater within the deeper samples encountered across the site and soil coloration, we consider the long-term groundwater table to be located below the depths explored. As such, the groundwater encountered within the borings is considered to represent perched conditions at those locations. Groundwater levels can be expected to fluctuate with seasonal variations in precipitation, infiltration, evapotranspiration, and other factors.

A more detailed description of the site soil and groundwater conditions is presented on the Soil Boring Logs attached in Appendix B.

DISCUSSION AND RECOMMENDATIONS

Subject to the limitations and design considerations discussed below and based on the subsurface exploration, it is our opinion that the site is suitable for the proposed construction following proper site preparation, and that the building addition structure can be supported by conventional spread footing foundations bearing on suitable native soils or engineered fill placed upon suitable native soils.

Our recommendations for site preparation, foundation, floor slab, below-grade wall, and pavement design/construction are presented in the following subsections. A determination of the site class for seismic design is also included, along with a discussion of the on-site stormwater infiltration potential. Additional information regarding the conclusions and recommendations presented in this report is discussed in Appendix C.

1. Site Preparation

We recommend that topsoil, existing vegetation and associated root balls be removed at least 10 ft beyond the proposed construction areas, including areas requiring fill beyond the building footprints and pavement limits. The topsoil can be stockpiled on-site and later re-used as fill in landscaped areas. As mentioned earlier, topsoil was most commonly encountered to about 13 in. thick at the soil boring locations. However, it was encountered as thin as about 3 in. in one location (Boring 6) and as thick as about 14 in. at Boring 7. Therefore, variable topsoil thicknesses should be expected between and beyond boring locations.

After the above-described stripping and removal operations are complete, the exposed soils are expected to predominantly consist of natural lean clay to sandy clay soils, with some possible areas of sand, silty sand

and/or sandy silt. Overall, the clayey soils exhibited stiff to very stiff conditions and the underlying more granular soils exhibited medium dense to very dense conditions. In areas remaining at-grade or requiring fill, we recommend that the exposed soils be statically recompacted (i.e., without vibration) and subsequently proof-rolled with a piece of heavy rubber-tire construction equipment, such as a loaded tri-axle dump truck, to check for soft/yielding areas. Where unstable areas are encountered, an initial attempt should be made to aerate and densify the subgrade by recompaction where natural moisture contents are at appropriate levels (i.e., on the dry side of optimum moisture content). *However, drying and recompacting is highly weather dependent and could require multiple cycles of drying and recompacting to create an adequate stable subgrade. This will also be dependent on the depth of unstable soils present. Thick deposits will likely not benefit from surficial drying/recompacting.* If the above procedure is ineffective or infeasible, unstable soils should be undercut and replaced with suitable granular backfill compacted to at least 95% compaction based on modified Proctor methods (ASTM D1557) in accordance with our Recommended Compacted Fill Specifications presented in Appendix D. Alternatively, 3-in. dense graded base (DGB) that is placed in loose 10-in. lifts and compacted until deflection ceases can be used to restore grades in undercut areas. In some cases, it may be necessary to perform limited undercutting (on the order of 1.5 to 2± ft) and compact a layer of coarse crushed aggregate stabilizing material, such as an imported 3 in. breaker rock, into the subgrade to create stability. A relatively firm, non-yielding subgrade should be established prior to proceeding with fill placement. Incorporation of a woven geotextile fabric (e.g., Mirafi 600X or equivalent) and/or appropriately specified biaxial geogrids may need to be incorporated over undercut and/or disturbed subgrades, prior to stone placement, should instability concerns arise. Granular subgrades (if encountered) should be thoroughly recompacted with a vibratory smooth-drum roller, and zones that remain loose after recompaction should be undercut and replaced as described above. The proof-rolling, and any undercutting and stabilizing activities, should be monitored and documented by a representative of CGC and should be performed during dry weather conditions. Areas subsequently receiving fill should be checked for their pavement, floor slab and footing support suitability prior to fill placement. *We recommend that the project budget include a contingency and schedule for improving, stabilizing or undercutting/replacing unstable soils, if encountered.*

When a firm and stable subgrade is achieved, fill placement (where required) to establish building and pavement area grades can then proceed. To the extent possible, the use of granular soils (i.e., sands/gravels) as structural fill within the building envelopes and upper 3 to 4 ft in pavement areas is preferred because these soils are relatively easy to place and compact in most weather conditions compared to the predominant clay/silt soils. The use of the on-site materials in structural areas (especially the clay soils) will require close observation on a regular basis during fill placement including the monitoring of moisture contents, compaction levels, and the overall stability of the prepared fill subgrade. Some moisture conditioning (drying) of clay materials should be anticipated on a periodic basis to achieve desired compaction levels, which could delay construction progress. Moisture conditioning by discing and drying (aeration) may be required to achieve desired compaction levels, which is highly weather-dependent (i.e., dry, warm and windy conditions). Difficulties should be anticipated with the fine-grained clay and silt soils present on the site if fill placement proceeds during wet periods of the year. Conversely, if fill placement occurs during very dry periods, the addition of moisture may be required to aid in achieving desired compaction levels within cleaner granular soils. We recommend that fills placed within designated structural areas on the site be compacted to 95 percent of modified Proctor (ASTM D1557). Field density tests should be taken by CGC staff during fill placement to document the adequacy of the compactive effort.

We generally anticipate that excavation sidewalls can be sloped back according to OSHA requirements. The near surface soils encountered in the borings consist of medium stiff to very stiff clays underlain by medium dense to very dense granular soils, with occasional zones of loose soils. Where excavation occurs exclusively in OSHA "Type B" soils, such as in stiff clay (denoted CL on the boring logs), slopes of 1.0H:1.0V are expected to be at least temporarily stable. However, where excavations extend into OSHA "Type C" soils, such as sand, sand and gravel, or sandy silt soils (denoted SP, SP-SM, SW/GW and ML on the boring logs), slopes of 1.5H:1.0V are expected to be at least temporarily stable. Note that flatter side slopes may be required where perched or seeping water is present that destabilizes the side slopes. *The appropriate excavation side slopes should be determined by a competent person completing the earthwork in accordance with OSHA slope guidelines.*

2. Foundation Design

Based on the assumed basement floor elevation (EL 900.0 ft) and the planned FFE (EL 910.0 ft) in the non-basement areas of the building addition, the findings of the borings, and the understanding that site preparation proceeds as recommended in this report, it is our opinion that the following parameters can be used for foundation design for the proposed building addition:

- **Maximum net allowable bearing pressure:**
  -- Native stiff to very stiff lean clay,
  loose to very dense sand, sand and gravel, or sandy silt,
  or engineered fill soils placed upon those soils: 3,000 psf

- **Minimum foundation widths:**
  -- Continuous wall footings: 18 in.
  -- Column pad footings: 30 in.

- **Minimum footing depths:**
  -- Exterior/perimeter footings: 4 ft
  -- Interior footings: no minimum requirement

- **Seismic Site Class:**
  In our opinion, the average soil properties in the upper 100 ft of the site (based on SPT blow counts (N-values) within the granular soils between 15 and 50 blows/ft on average and undrained shear strength within the cohesive soils greater than 1,500 psf on average) can be characterized as a stiff soil profile. This characterization would place the site in ***Class D*** for seismic design according to International Building Code (see Table 1613.5.2).

Where new foundations are planned adjacent to existing foundations, footings should be constructed to match the existing footings' bearing grades, such as within the basement area between the existing building and the planned building addition. Additionally, the effects of overlapping soil stresses must be considered. The net allowable soil bearing pressure of 3,000 psf must not be exceeded. Existing backfill materials may

be encountered within existing utility trenches and within any existing building areas adjacent to existing basement and foundation walls. Over excavation of unsuitable backfill and replacement with structural fill may be necessary for proper foundation support.

We recommend all footings be extended through any existing fill soils to bear within underlying undisturbed and suitable bearing natural lean clay, sandy clay and/or granular soils and/or on engineered fill or lean-mix concrete used to backfill any undercut areas. Existing fill soils are anticipated to be encountered in areas of the planned addition, such as in the near proximity of the existing building, due to existing basement backfill. CGC should be present during footing excavation to determine whether subgrades are satisfactory for the design bearing pressure and to advise on corrective measures, where necessary. The existing natural clays with q_p-readings less than 1.5 tsf, and natural silt/sand soils with N-values of less than 9 bpf or 36 blows per 7 inches for a dynamic cone Penetrometer (DCP) test, if encountered, should be undercut to underlying suitable strength native soils. Where undercutting is required, the base of the undercut excavation should be widened beyond the footing edges at least 0.5 ft in each direction for each foot of undercut depth for stress distribution purposes. Granular backfill or 3-in. dense graded base materials compacted to at least 95% of modified Proctor (ASTM D1557) can be used to re-establish footing grades. As an alternative to the use of engineered fill, the removal excavations could be backfilled with lean-mixed concrete capable of developing a minimum 28-day compressive strength of 500 psi. If lean-mixed concrete is used, the foundation excavations should be a minimum of 1 foot wider than the footing (6 in. on each side).

We recommend using a smooth-edged backhoe bucket for footing excavations. We recommend that granular subgrades should be recompacted and cohesive subgrades be hand-trimmed to densify or remove loose soil prior to lean concrete or foundation concrete placement. Provided the foundation design/construction recommendations discussed above are followed, we estimate that total and differential settlements should not exceed 1.0 and 0.5 in., respectively.

3. Floor Slabs

Based upon existing grades and the estimated planned grades, floor slab subgrades are anticipated to consist of native stiff to very stiff cohesive soils, medium dense to very dense granular soils and newly placed engineered fill soils. We recommend granular floor slab subgrades be thoroughly recompacted with a vibratory smooth-drum roller prior to concrete placement. Cohesive and fine-grained floor slab subgrades will require static recompaction (i.e., without vibration) and subsequent proof-rolling. Areas that remain loose after recompaction or where soft/yielding zones are observed should be undercut and replaced with well-compacted 3-in. DGB or granular fill as outlined in the Site Preparation section of this report.

To serve as a capillary break below floor slabs, the final 4 to 6 in. of soil placed below the slab should consist of well-graded sand or gravel with no more than 5% by weight passing a No. 200 U.S. standard sieve. Note, however, that some structural engineers require a 6-in. layer of granular soils, such as 1¼ -in. DGB, below the slab to increase the subgrade modulus immediately below the slab. Fill and base layer material below the floor slab should be placed as described in the Site Preparation section of this report. To further minimize the potential for moisture migration, a plastic vapor barrier can also be utilized below the slab. We recommend using a subgrade modulus of 125 pci for the design of slabs bearing on a 4 to 6-in.

thick sand/gravel layer above a firm or adequately stabilized subgrade. Floor slabs bearing on a minimum 6-in. thick layer of DGB above a firm or adequately stabilized base may be designed utilizing a subgrade modulus of 150 pci. The design subgrade moduli are based on a recompacted/stabilized subgrade such that non-yielding conditions are developed. The slabs should be structurally separate from the foundations and have construction joints and reinforcement for crack control. Fill and drainage course materials required to prepare floor slab subgrades should be placed in accordance with the guidelines presented in Appendix D. If clean crushed stone is used as a drainage course material, these materials should be densified until no deflection or settlement is observed under compaction equipment.

4. Below-Grade Walls

The northern building addition connection between the existing building and the new addition will include a basement; therefore, we recommend that a below-grade drainage system be included to minimize hydrostatic pressures and maintain drained conditions. Basement walls should be damp-proofed with a spray-applied or mopped-on rubber or bituminous sealer.

We anticipate the basement walls will be laterally restrained by the floor slabs and ground level framing. Therefore, at-rest lateral earth pressures should be used during design. To minimize the development of such pressures, granular backfill should be placed within 4 to 6 ft of the walls. The importation of granular soils for this purpose will be required. The wall backfill should be compacted to a minimum of 95% modified Proctor following the guidelines enclosed in Appendix D. We recommend that a below-grade drainage system including perimeter and interior drain tiles, sump pumps and a drainage course below the basement floor slab be installed to prevent hydrostatic pressure from developing against the walls. The exterior perimeter drains should be interfaced with the underfloor drainage course and the perimeter drainage system should be sloped to drain to appropriate sump pits. To impede the inflow of surface moisture, the final 2 ft of backfill placed along the basement walls should consist of a clayey fill cap or other semi-impermeable material such as asphaltic or concrete pavement. The clay cap or pavement should be graded in a manner which promotes positive drainage away from the walls. Recommended perimeter drain details are attached to this report in Appendix E.

Compaction of the backfill within 3 to 5 ft of the walls in areas, where exterior flatwork or pavement is proposed, should be performed with lightweight compaction equipment. Walls constructed in accordance with the above recommendations may be designed for an equivalent fluid pressure of 55 psf per foot of depth. The basement wall design should also consider surcharge effects which could be applied during or after construction.

5. Pavement Design

We anticipate that pavement design will be controlled by the clayey soils that were present in the near surface profile within the borings performed on this site. Subgrades should be prepared as described in the Site Preparation section of this report, with recompaction/proof-rolling completed prior to base course and asphalt placement. After final site grading, the subgrade soils should be proof-rolled/compacted as described in the Site Preparation section of this report. Soft/yielding areas should be undercut/removed and

replaced with 3-in. dense graded base placed/compacted to re-establish grade to a firm and stable condition after undercutting.

For the main driveways that will circulate the building, we have assumed a traffic load of less than five 18-kip equivalent single axle load (ESAL) per day and Traffic Class II according to Wisconsin Asphalt Pavement Association (WAPA) recommendations. Less-traveled driveways and parking areas may potentially fall under Traffic Class I according to WAPA recommendations, assuming less than one ESAL per day. The pavement sections summarized in Table 1 below were selected assuming a Soil Support Value "SSV" of about 3.8 for a firm or adequately stabilized clay subgrade and a design life of 20 years.

TABLE 1
Recommended Pavement Sections

Material	Thicknesses (in.)		WDOT Specification (1)
	Traffic Class I (Light Duty)	Traffic Class II (Medium Duty)	
Bituminous Upper Layer (2,3)	1.75	1.75	Section 460, Table 460-1
Bituminous Lower Layer (2,3)	1.75	2.25	Section 460. Table 460-1
Dense Graded Base Course (2,4)	8.0	10.0	Sections 301 and 305
Total Thickness	**11.5**	**14.0**	

Notes:

1. Wisconsin DOT *Standard Specifications for Highway and Structure Construction*, latest edition, including supplemental specifications, but excluding Section 460.3.2 relating layer thickness to aggregate size.

2. Compaction requirements:
   -- Bituminous concrete: Refer to Section 460.3.
   -- Base course: 95% modified Proctor (ASTM D1557); also refer to Section 301.3.4.2, Standard Compaction.

3. Type LT (i.e., SuperPave Type E-0.3) or equivalent asphaltic pavement is recommended. Refer to Section 460, Table 460-2 of the *Standard Specifications*. Mixture Type MT is recommended in heavy duty traffic areas. Note that an "H Grade" asphalt surface layer is recommended where there will be slow moving heavy fire truck traffic making turning movements.

4. The need for subgrade stabilization measures in pavement areas should be determined in the field, depending on observations made during proof-rolling operations.

Note that if traffic volumes are greater than those assumed, CGC should be allowed to review the recommended pavement section and adjust it accordingly. The pavement design assumes a stable/non-yielding subgrade which will be evaluated using proof-rolling techniques and that regular maintenance will occur during the life of the pavement to seal cracks, etc. Alternative pavement designs may prove acceptable and should be reviewed by CGC. If there is a delay between subgrade preparation and placing the base course, the subgrade should be recompacted.

Where concrete pavement may be used, such as in pavement areas subjected to concentrated wheel loads (e.g., dumpster pads, etc.), we recommend that the concrete be at least 6 in. thick, contain mesh reinforcement for crack control, and be underlain by a minimum 6 in. of well graded granular soils. It is recommended that the edges of these pads be thickened to 12 in. to minimize cracking. A subgrade modulus of 125 pci should be used for concrete pavement design founded on recompacted/stable soils.

It is recommended underdrains be considered within the pavement subgrade, just below the granular base, to help reduce the potential for trapping water within the aggregate base layer. At a minimum, this should consist of installing radial drain tiles extending outward, from each interior catch basin for about 15 to 20 feet. In addition, drain tiles should extend along curb lines, 15 to 20 feet up the slope from curb inlets. Drain tile should be connected to the storm sewer manhole structures, catch basins, curb inlet basins, or other appropriate outlet. They could also be daylighted, if grades allow, to an appropriate area of the site. The drain tile should be at least 4 inches in diameter and consist of perforated PVC pipe placed beneath the base layer (or stabilizing layer if included), extending at least 8 inches into the subgrade. The pipe should be surrounded by 1-inch size clean stone, with the pipe and stone being wrapped with a non-woven filter fabric to reduce the potential of soils from migrating into and obstructing the pipe. It is also recommended that roof drains be connected to the stormwater collection system to minimize the potential for this water to enter the base and subgrade.

Maintenance and repair of the pavement areas, as needed, should be performed on a regular basis to keep pavements in a serviceable condition. The maintenance program is recommended to be implemented early in the pavement life to be effective. Failure to perform regular maintenance could reduce the service life of the pavement.

6. Stormwater Design Considerations

A. Infiltration Considerations

The soils encountered within the borings performed in the stormwater management areas (Boring 7) were classified in accordance with the USDA Textural Soil Classification System. The soils encountered generally consist of a surface silty clay layer to a depth of about 2.5 ft, underlain by gravelly sandy loam to the boring termination depth, 19.4 ft. Based on the conditions encountered, it is our opinion that the soils are considered to have a limited capacity for infiltration of stormwater through the use of infiltration devices. NR-151 guidelines indicate infiltration rates shall be based on the least permeable soil horizon within 5 feet of the bottom elevation of the proposed infiltration system. Therefore, based on the soil classifications at the boring locations, the groundwater conditions, and guidelines in the current Wisconsin DNR Technical Standard 1002, the site may be eligible for exemption under Chapter NR 151 Wis. Adm.

Code guidelines, in our opinion.

Should infiltration be performed at the site, the following parameters should be considered for design of the stormwater infiltration basin, based upon the soil classifications within the stormwater area borings:

Infiltration Potential: The following infiltration parameters were estimated using Table 2 of the WDNR Conservation Practice Standard 1002, *Site Evaluation for Storm Water Infiltration*. The estimated infiltration rates are as follows:

- Silty Clay (SIC) 0.07 in./hr
- Gravelly Sandy Loam (GRSL) 0.50 in./hr

Note that the infiltration rates should be considered approximate since they are merely based on soil texture and do not account for in-place soil density and other factors, which will affect the infiltration rate. We recommend that the soils at and several feet below the bottom of stormwater management systems be checked by a geotechnical engineer or certified soil tester *in conjunction with the basin designer* to document that the soils are appropriate for the design infiltration rate or recommend remedial measures, if necessary. *Variability in the soil conditions should be expected across the site and within the stormwater basin that could result in a wide range of infiltration rates.*

Groundwater: Groundwater is a limiting factor for infiltration. Perched groundwater was encountered at about 4 feet below the surface at Boring 7 during drilling, however was not encountered upon completion of drilling. Considering the estimated perched water level, the seasonal-high water table (SHWT) is anticipated to be at a depth of 4± ft (EL 887.0± ft).

Bedrock: Bedrock is a limiting factor for infiltration. Bedrock was not encountered within the stormwater area boring within the depth explored.

During construction of the proposed building and related site work, appropriate erosion control measures should be provided to prevent eroded soil from contaminating potential infiltration areas. Where appropriate, basin design should include pretreatment to remove fine-grained soils (silt/clay) from stormwater prior to entering the infiltration area(s). Additionally, a regular maintenance plan should be developed to remove silt/clay soils that may accumulate in the bottom of the basins over time. Failure to adequately control fine-grained soils from entering the infiltration area(s) or failure to regularly remove fine-grained soils that accumulate at the base of the basins will likely cause the basin to fail. Refer to WDNR Conservation Practice Standard 1002 and NR 151 for additional information.
The Soil and Site Evaluation-Storm form prepared by the Certified Soil Tester per USDA procedures is presented in Appendix F.

B. Detention Pond Considerations

In some instances, stormwater management basins may be designed as wet detention ponds with clay liners. The lean clay soils encountered within the borings to depths ranging from about 2 to 3.5 ft below existing site grades may be suitable for use as basin liner materials. Clay liner materials should be compacted to a minimum of 90 percent of the maximum dry density as determined by modified Proctor (ASTM D1557). The on-site lean clays (classified as "CL") appear suitable for reuse as liner quality material during liner construction; however, additional soil testing (P200 grain-size and Atterberg Limits) would be necessary to confirm their suitability dependent on the type of pond (Type A, B or C) required for this site. The moisture content of the cohesive soils at the time of compaction within basins should be within about 3 percent above the optimum moisture content. In general, fill placement/compaction should proceed in general accordance with our Recommended Compacted Fill Specifications presented in Appendix D.

The liner soils must be sufficient to resist lateral earth and water pressure, as well as outward migration that may occur, possibly through tension or shrinkage type cracks. Where it is necessary to raise grades around the basin, the fill soils must consist of clay soils that have relatively low permeabilities when properly placed and compacted.

CONSTRUCTION CONSIDERATIONS

Due to variations in weather, construction methods and other factors, specific construction problems are difficult to predict. Soil related difficulties which could be encountered on the site are discussed below:

- Due to the sensitive nature of the on-site soils, we recommend that final site grading activities be completed during dry weather, if possible. Construction traffic should be avoided on prepared subgrades to minimize potential disturbance.

- Contingencies in the project budget for subgrade stabilization with coarse aggregate or other means in pavement and slab areas should be increased if the project schedule requires that work proceed during adverse weather conditions.

- Earthwork construction during the early spring or late fall could be complicated as a result of wet weather and freezing temperatures. During cold weather, exposed subgrades should be protected from freezing before and after footing construction. Fill should never be placed while frozen or on frozen ground.

- Excavations extending greater than 4 ft in depth below the existing ground surface should be sloped or braced in accordance with current OSHA standards.

- Based on the observations made during our field exploration, we generally do not expect groundwater to be encountered during construction, especially considering the underlying permeable granular soils. However, perched water was encountered at all the borings except Boring 6, therefore some minor dewatering may be necessary. Water accumulating at the

bottom of excavations as a result of precipitation or seepage should be quickly removed, with dewatering means and methods being the contractor's responsibility.

RECOMMENDED CONSTRUCTION MONITORING

The quality of the foundation, floor slab and pavement subgrades will be largely determined by the level of care exercised during site development. To check that earthwork and foundation construction proceeds in accordance with our recommendations, the following operations should be monitored by CGC:

- Topsoil stripping/removal and subgrade proof-rolling within the construction areas;
- Fill/backfill placement and compaction;
- Foundation excavation/subgrade preparation; and
- Concrete placement.

* * * * *

It has been a pleasure to serve you on this project. If you have any questions or need additional consultation, please contact us.

Sincerely,

CGC, Inc.

Adam H. Jaraba
Staff Engineer

Paul J. Giese, P.E., C.S.T.
Senior Consulting Professional

Encl:
- Appendix A - Field Exploration
- Appendix B - Soil Boring Location Exhibit
  - Soil Survey Map
  - Logs of Test Borings (7)
  - Log of Test Boring-General Notes
  - Unified Soil Classification System
- Appendix C - Document Qualifications
- Appendix D - Recommended Compacted Fill Specifications
- Appendix E - Typical Perimeter Drain Details
- Appendix F - WDSPS Soil and Site Evaluation – Storm Form (Boring 7)
- Appendix G - Particle Size Distribution Report (Figure 1)

APPENDIX A

FIELD EXPLORATION

APPENDIX A

FIELD EXPLORATION

Subsurface conditions on site were explored by drilling a total of seven (7) Standard Penetration Test (SPT) borings. The borings were extended to the planned depths of 10 to 20 ft below existing site grades. Borings 1 through 4 were extended to a depth of 20 ft below the existing site grade and were located within and in the near vicinity of the proposed building area. Borings 5 and B-6 was extended to the planned depth of 10 ft below the existing grade and were located within the proposed pavement areas. Boring 7 was extended to the planned depth of 20 ft and was located within the planned stormwater management area. The borings were performed at locations selected by CGC in consultation with the client and located in the field by CGC. The approximate soil boring locations are shown in plan on the Soil Boring Location Exhibit attached in Appendix B. The borings were drilled on April 17 and 18, 2025, by J&J Soil Testing, LTD (under subcontract to CGC) using a truck-mounted CME-45 drill rig equipped with hollow-stem augers and manually actuated rope and cathead pulley SPT hammer. The ground surface elevations at the borings were estimated by interpolation from the elevation contours included on the Proposed Grading Plan (Sheet C3.0, dated 4-10-25) prepared and provided by Drainage Doctor, LLC and are considered accurate to within about 1± foot.

In Borings 1 through 6 soil samples were obtained at 2.5-foot intervals to a depth of 10 ft and at 5 ft intervals thereafter. At Boring 7, within the stormwater area, samples were collected at 2.5-foot intervals for the full depth of the boring, 20 ft. The soil samples were obtained in general accordance with specifications for standard penetration testing, ASTM D 1586. The specific procedures used for drilling and sampling are described below.

1. Boring Procedures between Samples

   The boring is extended downward, between samples, by a hollow-stem auger.

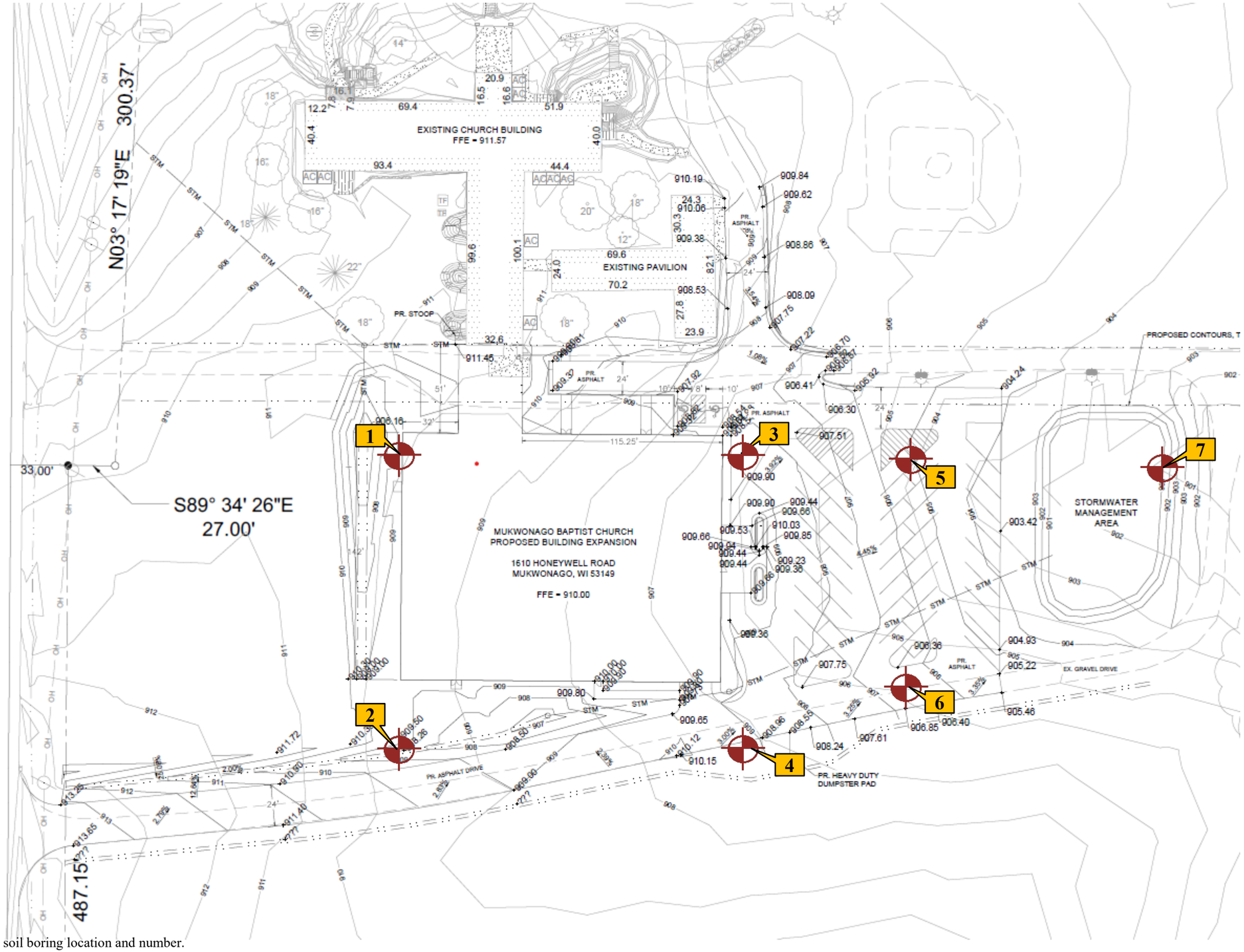
2. Standard Penetration Test and Split-Barrel Sampling of Soils
   (ASTM Designation: D 1586)

   This method consists of driving a 2-inch outside diameter split-barrel sampler using a 140-pound weight falling freely through a distance of 30 inches. The sampler is first seated 6 inches into the material to be sampled and then driven 12 inches. The number of blows required to drive the sampler the final 12 inches is recorded on the log of borings and is known as the Standard Penetration Resistance.

During the field exploration, the driller visually classified the soil and prepared a field log. *Field screening of the soil samples for possible environmental contaminants was not conducted by the drillers as these services were not part of CGC's work scope.* Water level observations were made in each boring during drilling and are shown at the bottom of each boring log. Upon completion of drilling, the borings were backfilled with bentonite to satisfy WDNR regulations and the soil samples were delivered to our laboratory for visual classification and laboratory testing. The soils were visually classified by a geotechnical engineer using the Unified Soil Classification System (USCS) and the soil samples within the stormwater management area boring were additionally classified by a certified soil tester (CST) using the United States Department of Agriculture (USDA) classification system. The final logs prepared by the engineer/CST and a description of the Unified Soil Classification System are presented in Appendix B and the Soil and Site Evaluation – Storm Form is enclosed in Appendix F.

APPENDIX B

SOIL BORING LOCATION EXHIBIT
SOIL SURVEY MAP
LOGS OF TEST BORINGS (7)
LOG OF TEST BORING-GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM



Reduced Scale

Legend

1 Indicates approximate soil boring location and number.

Notes

1. Soil borings staked in the field by CGC, Inc.
2. Borings were drilled by J&J Soil Testing, Ltd on April 17 & 18, 2025.
3. Site developed from an excerpt of the *Proposed Grading Plan* (Sheet C3.0, dated 4-10-25) prepared and provided by Drainage Doctor, LLC.

Date: April 2025	CGC, Inc.	**SOIL BORING LOCATION Exhibit** **PROPOSED MUKWONAGO BAPTIST CHURCH ADDITION** **1610 HONEYWELL ROAD** **VILLAGE OF MUKWONAGO, WISCONSIN**
Job No. CM25053		**101**

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AzA	Aztalan loam, 0 to 2 percent slopes	0.7	1.7%
MgA	Martinton silt loam, 1 to 3 percent slopes	3.3	7.9%
MtA	Mequon silt loam, 1 to 3 percent slopes	17.4	41.5%
OuB	Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes	2.1	5.0%
OuB2	Ozaukee silt loam, high carbonate substratum, 2 to 6 percent slopes, eroded	2.8	6.6%
Ph	Pella silt loam, 0 to 2 percent slopes	15.6	37.3%
Totals for Area of Interest		**41.9**	**100.0%**

Notes

1. Exhibit is an excerpt from the NRCS Soil Survey Website

Job No. CM25023	CGC, Inc.	SOIL SURVEY MAP PROPOSED OZAUKEEE CHRISTIAN SCHOOL HWY 33 & NORTH POPLAR ROAD WEST BEND, WI
Date: Apr. 2025		102

CGC Inc.

LOG OF TEST BORING

Project **Mukwonago Baptist Church Addition**
1610 Honeywell Road
Location **Mukwonago, WI**

Boring No. **1**
Surface Elevation (ft) **910.1±**
Job No. **CM25053**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						8" Dark Brown Clay TOPSOIL					
1	■	12	M	7		Stiff Brown Lean CLAY, Some Fine to Coarse Sand and Gravel (CL)	(1.5)				
2	■	18	M	18		Medium Dense, Brown Fine to Medium SAND, Trace Silt (SP)					
					5	▽					
3	■	13	W	38		Dense, Brown Fine to Coarse SAND AND GRAVEL, Trace to Little Silt (SP/GP)					
4	■	15	M	37		Very Stiff Brown Lean CLAY, Some Fine to Coarse Sand and Gravel, Trace Silt (CL)	(2.5)	8.1			
					10						
5	■	18	M	34		Very Stiff to Hard Grayish Brown Silty CLAY, Trace to Little Fine to Coarse Sand and Gravel (CL-ML)	(4.0)				
					15						
6	■	18	M	62			(4.0)				
					20	End of Boring at 20 ft Backfilled with Bentonite Chips					
					25						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **5.5'±** Upon Completion of Drilling **NW**
Time After Drilling **(perched)**
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/17/25** End **4/17/25**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **JPG**
Drill Method **2.25"HSA**

CGC Inc.

LOG OF TEST BORING

Project **Mukwonago Baptist Church Addition**
1610 Honeywell Road
Location **Mukwonago, WI**

Boring No. **2**
Surface Elevation (ft) **909.7±**
Job No. **CM25053**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						13" Dark Brown Clayey TOPSOIL					
1		18	M	8		Very Stiff Brown Lean CLAY, Trace Fine Sand, Fine to Coarse Gravel (CL)	(2.5)				
						Medium Dense Brown Sandy SILT to Silty SAND, Some Clay and Fine to Coarse Gravel (ML/SM)					
2		18	W/M	15	▽						
					5						
3		18	M	20		Medium Dense to Dense Reddish Brown Sandy SILT to Silty SAND, Little Clay, Trace Fine to Coarse Gravel (ML/SM)					
4		18	M/W	39				9.8			
					10						
						Very Stiff to Hard Gray Lean CLAY, Little Fine Sand, Trace to Little Fine to Coarse Gravel (CL)					
5		18	VM	30	▼		(4.5+)				
					15						
6		18	VM	23			(2.5-3.75)				
					20	End of Boring at 20 ft Backfilled with Bentonite Chips					
					25						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **3.5'±** Upon Completion of Drilling **NW**
Time After Drilling **(perched)**
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/18/25** End **4/18/25**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **JPG**
Drill Method **2.25"HSA**

CGC Inc.

LOG OF TEST BORING

Project **Mukwonago Baptist Church Addition**
1610 Honeywell Road
Location **Mukwonago, WI**

Boring No. **3**
Surface Elevation (ft) **906.2±**
Job No. **CM25053**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LOI
						13" Dark Brown Clayey TOPSOIL					
1		18	M	7		Stiff Brown Lean CLAY, Little to Trace Fine to Coarse Gravel and Sand	(1.75)				
2		12	M/W	11	▽	Medium Dense Brown Sandy Silt to Silty SAND, Little Clay and Fine to Coarse Gravel; Few Cobbles and Boulders (ML/SM)					
3		14	W	15	5						
4		18	M	16		Very Stiff to Hard Reddish Brown Lean CLAY, Little Fine Sand, Fine to Coarse Gravel (CL)	(4.0)	9.4			
5		18	M	45	10 ▼ 15		(4.5+)				
6		18	M	32		Hard, Gray Silty CLAY, Little Fine to Coarse Sand and Gravel (CL-ML)	(4.5+)				
					20	End of Boring at 20 ft Backfilled with Bentonite Chips					
					25						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **4.0'±** Upon Completion of Drilling **NW**
Time After Drilling **(perched)**
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/17/25** End **4/17/25**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **JPG**
Drill Method **2.25"HSA**

CGC Inc.

LOG OF TEST BORING

Project **Mukwonago Baptist Church Addition**
1610 Honeywell Road
Location **Mukwonago, WI**

Boring No. **4**
Surface Elevation (ft) **907.2±**
Job No. **CM25053**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES qu (qa) (tsf)	W	LL	PL	LOI
						13" Dark Brown to Black Clayey TOPSOIL					
1	■	18	VM	8		Medium Stiff to Stiff Brown Mottled Sandy CLAY, Trace Fine to Coarse Gravel	(0.75-1.5)				
2	■	15	W	8	▽	Loose to Very Dense Brown Sandy SILT to Silty SAND, Little Clay and Fine to Coarse Gravel, Few Cobbles and Boulders (ML/SM)					
					5						
3	■	18	W	12							
								7.8			
4	■	17	M	100/ 17							
					10						
						Very Dense Gray Sandy Silt to Silty SAND Little Clay, Little Fine to Coarse Gravel, Possible Cobbles and Boulders (ML/SM)					
5	■	10	M	100/ 10							
					15						
6	■	0	-	100/ 12							
					20	End of Boring at 19.5 ft Backfilled with Bentonite Chips					
					25						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **4.0'±** Upon Completion of Drilling **NW**
Time After Drilling **(perched)**
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/17/25** End **4/17/25**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **JPG**
Drill Method **2.25"HSA**

CGC Inc.

LOG OF TEST BORING

Project **Mukwonago Baptist Church Addition**
1610 Honeywell Road
Location **Mukwonago, WI**

Boring No. **5**
Surface Elevation (ft) **905.2±**
Job No. **CM25053**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						13" Dark Brown to Black Clayey TOPSOIL					
1	■	9	M	18		Stiff to Very Stiff Brown Mottled Lean CLAY, Little Fine Sand, Trace Fine to Coarse Gravel	(2.0)				
						Medium Dense to Dense Brown Sandy SILT to Silty SAND Some Clay and Fine to Coarse Gravel; Few Cobbles and Boulders (ML/SM)					
2	■	12	VM	19				9.1			
					5						
					▽						
3	■	10	W	11							
4	■	6	W	43							
					10	End of Boring at 10 ft Backfilled with Bentonite Chips					
					15						
					20						
					25						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **5.5'±** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/17/25** End **4/17/25**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **JPG**
Drill Method **2.25"HSA**

CGC Inc.

LOG OF TEST BORING

Project **Mukwonago Baptist Church Addition**
1610 Honeywell Road
Location **Mukwonago, WI**

Boring No. **6**
Surface Elevation (ft) **905.9±**
Job No. **CM25053**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						3" Fill: Dark Brown Clayey TOPSOIL, Over 2" Base Course					
1	■	15	M	6		Stiff Brown Lean Clay, Little Fine Sand, Trace Fine to Coarse Gravel (CL)	(1.50)				
						Medium Dense to Very Dense Brown Sandy SILT to Silty SAND, Little Clay, Little to Some Fine to Coarse Gravel (ML/SM)					
2	■	12	M	22				9.8			
					5						
3	■	7	M	20							
4	■	17	M	100/ 17							
					10	End of Boring at 10 ft Backfilled with Bentonite Chips					
					15						
					20						
					25						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **NW** Upon Completion of Drilling **NW**
Time After Drilling
Depth to Water ▼
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/18/25** End **4/18/25**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **JPG**
Drill Method **2.25"HSA**

CGC Inc.

LOG OF TEST BORING

Project **Mukwonago Baptist Church Addition**
1610 Honeywell Road
Location **Mukwonago, WI**

Boring No. **7**
Surface Elevation (ft) **901.0±**
Job No. **CM25053**
Sheet **1** of **1**

336 S. Curtis Rd, West Allis, WI 53214 (414) 443-2000, FAX (414) 443-2099

SAMPLE No.	TYPE	Rec (in.)	Moist	N	Depth (ft)	VISUAL CLASSIFICATION and Remarks	qu (qa) (tsf)	W	LL	PL	LOI
						14" Dark Brown Clayey TOPSOIL					
1		11	M	7		Stiff Brown Lean Clay; Trace to Little Sand and Gravel (CL)	(1.5)				
						Medium Dense to Very Dense Brown Silty SAND,Some Fine Gravel, Trace Clay, Few Cobbles and Boulders (SM)					
2		18	M/W	12	▽						
					5						
3		2	M	53							
4		12	M	100/ 12				5.8			
					10						
5		11	M	100/ 11							
6		13	M	100/ 13							
					15						
						Very Dense Gray Sandy SILT to Silty SAND, Little Clay, Trace to Little Fine to Coarse Gravel, Few Cobbles and Boulders (ML/SM)					
7		14	M	100/ 14							
8		10	M	100/ 10							
					20	End of Boring and Spoon Refusal at 19.4 ft Backfilled with Bentonite Chips					
					25						

WATER LEVEL OBSERVATIONS

While Drilling ▽ **4.0'±** Upon Completion of Drilling **NW**
Time After Drilling **(perched)**
Depth to Water
Depth to Cave in

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

GENERAL NOTES

Start **4/18/25** End **4/18/25**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **JPG**
Drill Method **2.25"HSA**

CGC, Inc.

LOG OF TEST BORING

General Notes

DESCRIPTIVE SOIL CLASSIFICATION

Grain Size Terminology

Soil Fraction	Particle Size	U.S. Standard Sieve Size
Boulders	Larger than 12"	Larger than 12"
Cobbles	3" to 12"	3" to 12"
Gravel: Coarse	¾" to 3"	¾" to 3"
Fine	4.76 mm to ¾"	#4 to ¾"
Sand: Coarse	2.00 mm to 4.76 mm	#10 to #4
Medium	0.42 to mm to 2.00 mm	#40 to #10
Fine	0.074 mm to 0.42 mm	#200 to #40
Silt	0.005 mm to 0.074 mm	Smaller than #200
Clay	Smaller than 0.005 mm	Smaller than #200

Plasticity characteristics differentiate between silt and clay.

General Terminology

Physical Characteristics
Color, moisture, grain shape, fineness, etc.
Major Constituents
Clay, silt, sand, gravel
Structure
Laminated, varved, fibrous, stratified, cemented, fissured, etc.
Geologic Origin
Glacial, alluvial, eolian, residual, etc.

Relative Density

Term	"N" Value
Very Loose	0 - 4
Loose	4 - 10
Medium Dense	10 - 30
Dense	30 - 50
Very Dense	Over 50

Relative Proportions Of Cohesionless Soils

Proportional Term	Defining Range by Percentage of Weight
Trace	0% - 5%
Little	5% - 12%
Some	12% - 35%
And	35% - 50%

Consistency

Term	q_u-tons/sq. ft
Very Soft	0.0 to 0.25
Soft	0.25 to 0.50
Medium	0.50 to 1.0
Stiff	1.0 to 2.0
Very Stiff	2.0 to 4.0
Hard	Over 4.0

Organic Content by Combustion Method

Soil Description	Loss on Ignition
Non Organic	Less than 4%
Organic Silt/Clay	4 – 12%
Sedimentary Peat	12% - 50%
Fibrous and Woody Peat	More than 50%

Plasticity

Term	Plastic Index
None to Slight	0 - 4
Slight	5 - 7
Medium	8 - 22
High to Very High	Over 22

The penetration resistance, N, is the summation of the number of blows required to effect two successive 6" penetrations of the 2" split-barrel sampler. The sampler is driven with a 140 lb. weight falling 30" and is seated to a depth of 6" before commencing the standard penetration test.

SYMBOLS

Drilling and Sampling

CS – Continuous Sampling
RC – Rock Coring: Size AW, BW, NW, 2"W
RQD – Rock Quality Designation
RB – Rock Bit/Roller Bit
FT – Fish Tail
DC – Drove Casing
C – Casing: Size 2 ½", NW, 4", HW
CW – Clear Water
DM – Drilling Mud
HSA – Hollow Stem Auger
FA – Flight Auger
HA – Hand Auger
COA – Clean-Out Auger
SS - 2" Dia. Split-Barrel Sample
2ST – 2" Dia. Thin-Walled Tube Sample
3ST – 3" Dia. Thin-Walled Tube Sample
PT – 3" Dia. Piston Tube Sample
AS – Auger Sample
WS – Wash Sample
PTS – Peat Sample
PS – Pitcher Sample
NR – No Recovery
S – Sounding
PMT – Borehole Pressuremeter Test
VS – Vane Shear Test
WPT – Water Pressure Test

Laboratory Tests

q_a – Penetrometer Reading, tons/sq ft
q_a – Unconfined Strength, tons/sq ft
W – Moisture Content, %
LL – Liquid Limit, %
PL – Plastic Limit, %
SL – Shrinkage Limit, %
LI – Loss on Ignition
D – Dry Unit Weight, lbs/cu ft
pH – Measure of Soil Alkalinity or Acidity
FS – Free Swell, %

Water Level Measurement

▽ - Water Level at Time Shown
NW – No Water Encountered
WD – While Drilling
BCR – Before Casing Removal
ACR – After Casing Removal
CW – Cave and Wet
CM – Caved and Moist

Note: Water level measurements shown on the boring logs represent conditions at the time indicated and may not reflect static levels, especially in cohesive soils.

CGC, Inc.

Madison - Milwaukee

UNIFIED SOIL CLASSIFICATION SYSTEM

UNIFIED SOIL CLASSIFICATION AND SYMBOL CHART

COARSE-GRAINED SOILS (more than 50% of material is larger than No. 200 sieve size.)			
GRAVELS More than 50% of coarse fraction larger than No. 4 sieve size	Clean Gravels (Less than 5% fines)	GW	Well-graded gravels, gravel-sand mixtures, little or no fines
		GP	Poorly-graded gravels, gravel-sand mixtures, little or no fines
	Gravels with fines (More than 12% fines)	GM	Silty gravels, gravel-sand-silt mixtures
		GC	Clayey gravels, gravel-sand-clay mixtures
SANDS 50% or more of coarse fraction smaller than No. 4 sieve size	Clean Sands (Less than 5% fines)	SW	Well-graded sands, gravelly sands, little or no fines
		SP	Poorly graded sands, gravelly sands, little or no fines
	Sands with fines (More than 12% fines)	SM	Silty sands, sand-silt mixtures
		SC	Clayey sands, sand-clay mixtures
FINE-GRAINED SOILS (50% or more of 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 of clayey fine sands or clayey silts with slight plasticity
		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays
		OL	Organic silts and organic silty clays of low plasticity
SILTS AND CLAYS Liquid limit 50% or greater		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

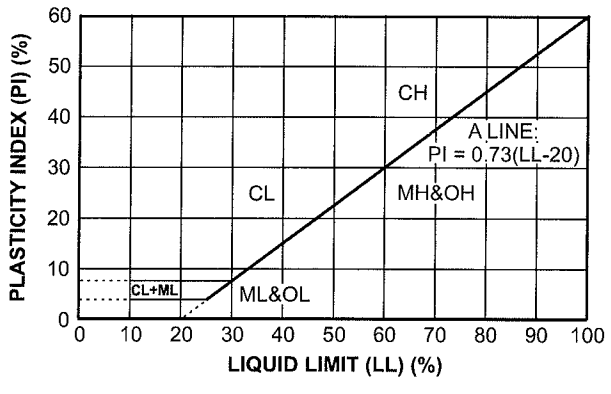
LABORATORY CLASSIFICATION CRITERIA

GW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
GP	Not meeting all gradation requirements for GW	
GM	Atterberg limits below "A" line or P.I. less than 4	Above "A" line with P.I. between 4 and 7 are borderline cases requiring use of dual symbols
GC	Atterberg limits above "A" line with P.I. greater than 7	
SW	$C_u = \frac{D_{60}}{D_{10}}$ greater than 4; $C_c = \frac{D_{30}}{D_{10} \times D_{60}}$ between 1 and 3	
SP	Not meeting all gradation requirements for GW	
SM	Atterberg limits below "A" line or P.I. less than 4	Limits plotting in shaded zone with P.I. between 4 and 7 are borderline cases requiring use of dual symbols.
SC	Atterberg limits above "A" line with P.I. greater than 7	

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

PLASTICITY CHART



APPENDIX C

DOCUMENT QUALIFICATIONS

APPENDIX C
DOCUMENT QUALIFICATIONS

I. GENERAL RECOMMENDATIONS/LIMITATIONS

CGC, Inc. should be provided the opportunity for a general review of the final design and specifications to confirm that earthwork and foundation requirements have been properly interpreted in the design and specifications. CGC should be retained to provide soil engineering services during excavation and subgrade preparation. This will allow us to observe that construction proceeds in compliance with the design concepts, specifications and recommendations, and also will allow design changes to be made in the event that subsurface conditions differ from those anticipated prior to the start of construction. CGC does not assume responsibility for compliance with the recommendations in this report unless we are retained to provide construction testing and observation services.

This report has been prepared in accordance with generally accepted soil and foundation engineering practices and no other warranties are expressed or implied. The opinions and recommendations submitted in this report are based on interpretation of the subsurface information revealed by the test borings indicated on the location plan. The report does not reflect potential variations in subsurface conditions between or beyond these borings. Therefore, variations in soil conditions can be expected between the boring locations and fluctuations of groundwater levels may occur with time. The nature and extent of the variations may not become evident until construction.

II. IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL ENGINEERING REPORT

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes. While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

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 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. *CGC cannot accept responsibility or liability for problems that occur because our reports do not consider developments of which we were not informed.*

SUBSURFACE CONDITIONS CAN CHANGE

A geotechnical engineering report is based on conditions that existed at the time the geotechnical engineer performed the study. *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 OPINION

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 judgement 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 over-rely on the confirmation-dependent recommendations included in your report. *Those confirmation-dependent recommendations are not final*, because geotechnical engineers develop them principally from judgement and opinion. Geotechnical engineers can finalize their recommendations *only* by observing actual subsurface conditions revealed during construction. *CGC cannot assume responsibility or liability for the report's confirmation-dependent recommendations if we do not perform the geotechnical-construction observation required to confirm the recommendations' applicability.*

A GEOTECHNICAL ENGINEERING REPORT IS SUBJECT TO MISINTERPRETATION

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Confront 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. Constructors can also misinterpret a geotechnical engineering report. Confront that risk by having CGC participate in prebid and preconstruction conferences, and by providing geotechnical 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 CONSTRUCTORS A COMPLETE REPORT AND GUIDANCE

Some owners and design professionals mistakenly believe they can make constructors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give constructors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise constructors 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 constructors have sufficient time* to perform additional study. Only then might you be in a position to give constructors 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 constructors 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 engineer's 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.

ENVIRONMENTAL CONCERNS ARE NOT COVERED

The equipment, techniques, and personnel used to perform an *environmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any environmental 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 environmental 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, many 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 GEOTECHNICAL ENGINEER FOR ADDITIONAL ASSISTANCE

Membership in the Geotechnical Business Council (GBC) of Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk confrontation techniques that can be of genuine benefit for everyone involved with a construction project. Confer with CGC, a member of GBC, for more information.

Modified and reprinted with permission from:

Geotechnical Business Council
of the Geoprofessional Business Association
8811 Colesville Road, Suite G 106
Silver Spring, MD 20910

APPENDIX D

RECOMMENDED COMPACTED FILL SPECIFICATIONS

APPENDIX D

CGC, INC.

RECOMMENDED COMPACTED FILL SPECIFICATIONS

General Fill Materials

Proposed fill shall contain no vegetation, roots, topsoil, peat, ash, wood or any other non-soil material which by decomposition might cause settlement. Also, fill shall never be placed while frozen or on frozen surfaces. Rock, stone or broken concrete greater than 6 in. in the largest dimension shall not be placed within 10 ft of the building area. Fill used greater than 10 ft beyond the building limits shall not contain rock, boulders or concrete pieces greater than a 2 sq ft area and shall not be placed within the final 2 ft of finish subgrade or in designated utility construction areas. Fill containing rock, boulders or concrete pieces should include sufficient finer material to fill voids among the larger fragments.

Special Fill Materials

In certain cases, special fill materials may be required for specific purposes, such as stabilizing subgrades, backfilling undercut excavations or filling behind retaining walls. For reference, WisDOT gradation specifications for various types of granular fill are attached in Table 1.

Placement Method

The approved fill shall be placed, spread and leveled in layers generally not exceeding 10 in. in thickness before compaction. The fill shall be placed at a moisture content capable of achieving the desired compaction level. For clay soils or granular soils containing an appreciable amount of cohesive fines, moisture conditioning will likely be required.

It is the Contractor's responsibility to provide all necessary compaction equipment and other grading equipment that may be required to attain the specified compaction. Hand-guided vibratory or tamping compactors will be required whenever fill is placed adjacent to walls, footings, columns or in confined areas.

Compaction Specifications

Maximum dry density and optimum moisture content of the fill soil shall be determined in accordance with modified Proctor methods (ASTM D1557). The recommended field compaction as a percentage of the maximum dry density is shown in Table 2. Note that these compaction guidelines would generally not apply to coarse gravel/stone fill. Instead, a method specification would apply (e.g., compact in thin lifts with a vibratory compactor until no further consolidation is evident).

Testing Procedures

Representative samples of proposed fill shall be submitted to CGC, Inc. for optimum moisture-maximum density determination (ASTM D1557) prior to the start of fill placement. The sample size should be approximately 50 lb.

CGC, Inc. shall be retained to perform field density tests to determine the level of compaction being achieved in the fill. The tests shall generally be conducted on each lift at the beginning of fill placement and at a frequency mutually agreed upon by the project team for the remainder of the project.

Table 1
Gradation of Special Fill Materials

Material	WisDOT Section 311	WisDOT Section 312	WisDOT Section 305			WisDOT Section 209		WisDOT Section 210
	Breaker Run	Select Crushed Material	3-in. Dense Graded Base	1 1/4-in. Dense Graded Base	3/4-in. Dense Graded Base	Grade 1 Granular Backfill	Grade 2 Granular Backfill	Structure Backfill
Sieve Size	Percent Passing by Weight							
6 in.	100							
5 in.		90-100						
3 in.			90-100					100
1 1/2 in.		20-50	60-85					
1 1/4 in.				95-100				
1 in.					100			
3/4 in.			40-65	70-93	95-100			
3/8 in.				42-80	50-90			
No. 4			15-40	25-63	35-70	100 (2)	100 (2)	25-100
No. 10		0-10	10-30	16-48	15-55			
No. 40			5-20	8-28	10-35	75 (2)		
No. 100						15 (2)	30 (2)	
No. 200			2-12	2-12	5-15	8 (2)	15 (2)	15 (2)

Notes:
1. Reference: Wisconsin Department of Transportation *Standard Specifications for Highway and Structure Construction.*
2. Percentage applies to the material passing the No. 4 sieve, not the entire sample.
3. Per WisDOT specifications, both breaker run and select crushed material can include concrete that is 'substantially free of steel, building materials and other deleterious material'.

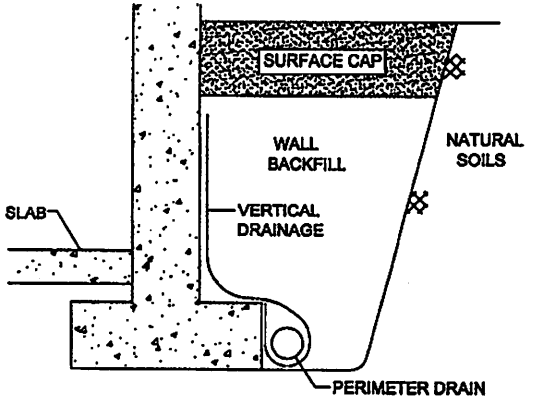
Table 2
Compaction Guidelines

Area	Percent Compaction (1)	
	Clay/Silt	Sand/Gravel
Within 10 ft of building lines		
Footing bearing soils	93 - 95	95
Under floors, steps and walks		
- Lightly loaded floor slab	90	90
- Heavily loaded floor slab and thicker fill zones	92	95
Beyond 10 ft of building lines		
Under walks and pavements		
- Less than 2 ft below subgrade	92	95
- Greater than 2 ft below subgrade	90	90
Landscaping	85	90

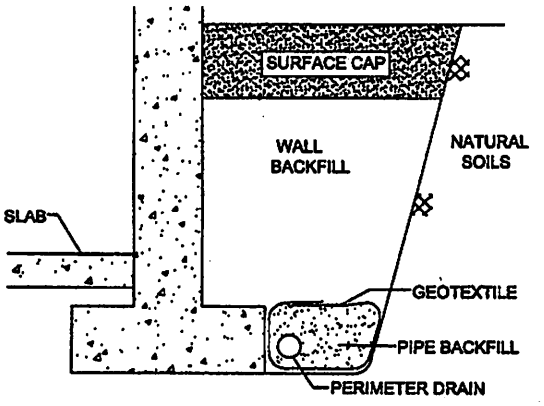
Notes:
1. Based on Modified Proctor Dry Density (ASTM D 1557)

APPENDIX E

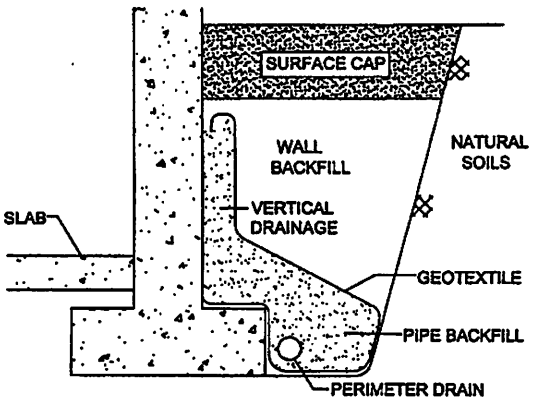
TYPICAL PERIMETER DRAIN DETAILS



ALTERNATE NO. 1



ALTERNATE NO. 2



ALTERNATE NO. 3

DRAINAGE SYSTEM COMPONENTS

Component	Alternate No. 1	Alternate No. 2	Alternate No. 3
Surface Cap	1 to 2 ft of clayey soils. Minimum 1 ft thick if overlain by pavement	Refer to Alternate No. 1	Refer to Alternate No. 1
Vertical Drainage	3-dimensional drainage geocomposite hydraulically connected to perimeter drain.	Relatively free-draining granular soils with P200 (% fines) ≤12%.	Minimum 6-in. wide zone of free-draining granular soils with P200 ≤ 5% hydraulically connected to perimeter drain. Provide geotextile as required (see note 10.
Perimeter Drain	Perforated pipe encapsulated in geocomposite.	Perforated pipe surrounded by free-draining granular pipe backfill with P200 ≤ 5%. Provide geotextile as required (See Note 10).	Refer to Alternate No. 2
Wall Backfill	Excavation spoils or imported materials (granular soils preferred).	Relatively free-draining granular soils with P200 ≤ 12%.	Refer to Alternate No. 1

CGC, Inc.

Typical Perimeter Drain Detail

General Notes

1. This system's primary function is to intercept infiltrating surface water. These alternates are not appropriate for use in situations of high groundwater (i.e., cases where the water table approaches floor slab elevation).

2. Grade surface cap to slope away from structure.

3. Exterior surface of walls below grade should be damp-proofed.

4. A plastic vapor barrier should be installed below the slab.

5. Recommended types of drain pipes:

Specification	Description
ASTM D2729	Polyvinyl Chloride (PVC) Drain Pipe
ASTM F405	Corrugated Polyethylene Drain Pipe
ASTM D2852	Styrene-Rubber Plastic Drain Pipe
AASHTO M1366	Corrugated Metal Underdrain Pipe

6. Minimum slope of drain pipes should be 2 in. per 100 lin ft.

7. Place drain pipe below basement floor level and orient the perforations toward the bottom.

8. Clean-outs should be provided to service the pipe.

9. Collected field water should be discharged to a sump, storm sewer or drainage field.

10. The geotextile for Alternative Nos. 2 and 3 may be eliminated if filter requirements are satisfied between the wall and pipe backfill, as well as between backfill materials and natural soils.

11. Pipe backfill materials should satisfy filter requirements for the slot width or hole diameter of the perforated pipe.

12. Care should be taken during backfilling not to damage the integrity of the system. For compaction requirements, refer to geotechnical report.

13. Pipe, geotextile, and geocomposite should be installed according to manufacturer specifications.

APPENDIX F

SOIL AND SITE EVALUATION – STORM FORM (BORING B-07)

Wisconsin Department of Commerce
Division of Safety and Buildings

SOIL AND SITE EVALUATION - STORM

In accordance with SPS 382.365, 385, Wis. Adm. Code, and WDNR Standard 1002

Attach complete site plan on paper not less than 8 1/2 x 11 inches in size. Plan must include, but not limited to: vertical and horizontal reference point (BM), direction and percent slope, scale or dimensions, north arrow, and BM referenced to nearest road.

Please print all information.

Personal information you provide may be used for secondary purposes (Privacy Law, s.15.04 (1) (m)).

County	Walworth County
Parcel I.D.	#A352400001
Review by	**Date**

Property Owner		**Property Location**	N9594 Stone School Road
Mukwonago Baptist Church		**Govt. Lot**	SW 1/4 NE1/4 Sec. 2 T4N R18E
Property Owner's Mailing Address		**Lot #**	**Block #** / **Subd. Name or CSM#**
1610 Honeywell Road		1	CSM No. 3524
City / **State** / **Zip Code** / **Phone Number**		☐ City ☒ Village ☐ Town	**Nearest Road**
Mukwonago / WI / 53149		Mukwonago	

Drainage area: 22.308 ☐ sq. ft. ☒ acres

Test Site Suitable for (check all that apply) ☐ Site not suitable

☐ Bioretention ☐ Subsurface Dispersal System

☐ Reuse ☐ Irrigation ☐ Other _____

Hydraulic Application Test Method

☒ Morphological Evaluation

☐ Double-Ring Infiltrometer

☐ Other (Specify)_____

Soil Moisture

Date of soil borings: 4-18-25

USDA-NRCS WETS Value:

☐ Dry = 1

☒ Normal = 2

☐ Wet = 3

7 **Obs. #** ☒ Boring ☐ Pit **Ground Surface Elev.** 901.0 ± ft **Elevation of limiting factor** 887.0±1 ft

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	% Fines P270	Hydraulic App. Rate Inches/Hr
1	0-14	7.5YR3/4	None	SIC	2m,bk	mfi	c	<5	>60	0.07
2	14-30	7.5YR5/4	None	SIC	0,m	mfi	gw	<15	>60	0.07
3	30-186	7.5YR5/4	None	GRSL	0,sg	mvfi	gw	24.9	33.3	0.50
4	186-233	7.5YR6/2	None	GRSL	0,sg	mvfi	-	15-35	-	0.50

Comments: Free water (perched) encountered at 4± while drilling. No free water encountered at completion of drilling.

Obs. # ☐ Boring ☐ Pit **Ground Surface Elev.** _____ ft **Elevation of limiting factor** _____ ft

Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	% Fines	Hydraulic App. Rate Inches/Hr

Comments:

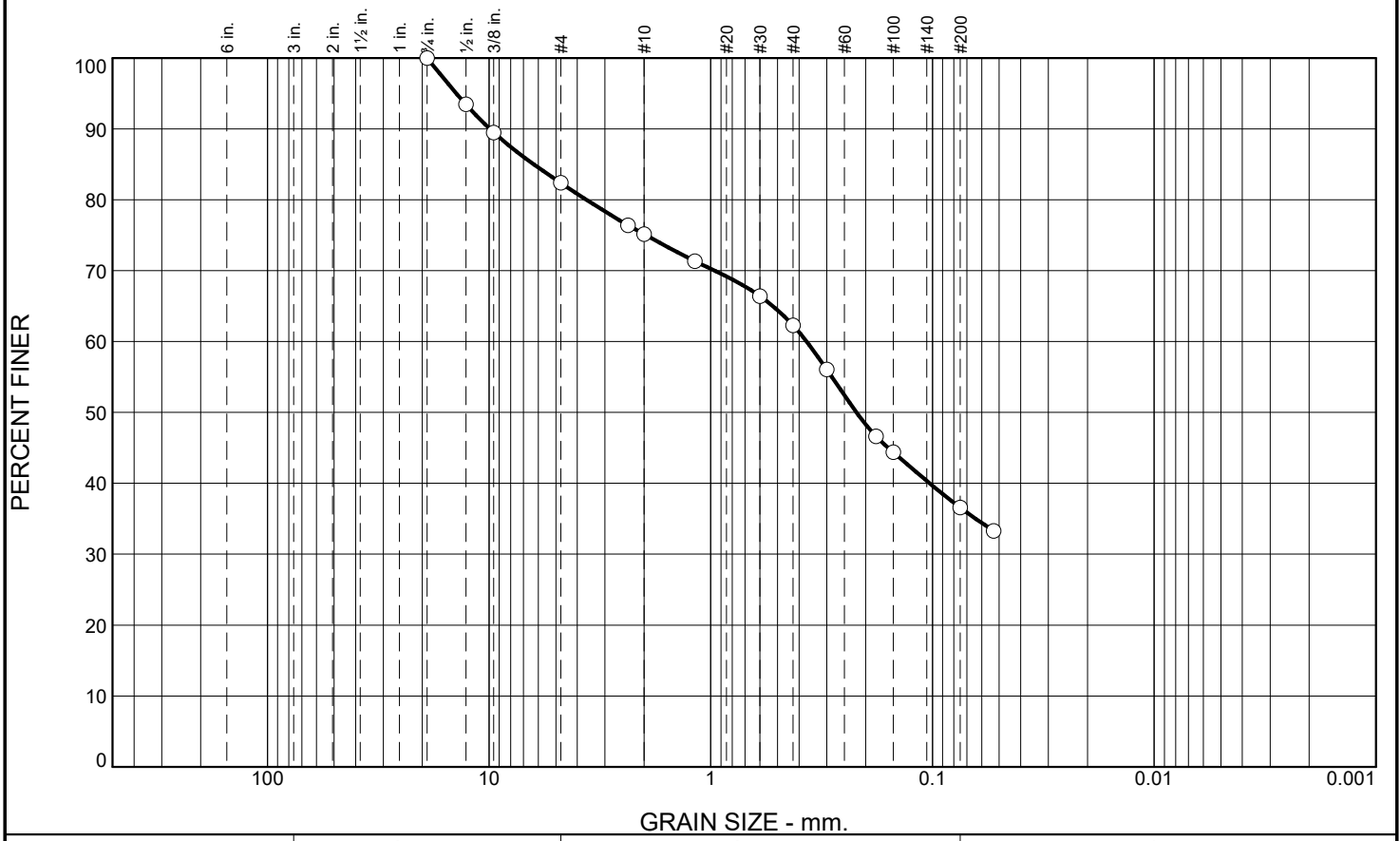
CST/PSS Name (Please Print)	**Signature**	**CST Number / PE Number**
Paul J. Giese, CST	Paul J. Giese	SP-030800004 / 27163-6
Address	**Date Evaluation Conducted**	**Telephone Number**
336 S. Curtis Road, West Allis, WI 53214	4/30/25	(414) 443-2000

SBD-10793 (R.01/17)

APPENDIX G

PARTICLE SIZE DISTRIBUTION REPORT (FIGURE 1)

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	17.6	7.3	12.8	25.7	36.6	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
.75	100.0		
.50	93.4		
.375	89.5		
#4	82.4		
#8	76.4		
#10	75.1		
#16	71.3		
#30	66.4		
#40	62.3		
#50	56.1		
#80	46.6		
#100	44.4		
#200	36.6		
#270	33.3		

* (no specification provided)

Material Description

Brown Silty SAND, Some Fine Gravel, Trace Clay

Atterberg Limits

PL= NP LL= NV PI= NP

Coefficients

D_{90}= 9.9200 D_{85}= 6.3024 D_{60}= 0.3701
D_{50}= 0.2205 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= SM AASHTO= A-4(0)

Remarks

Location: Boring 7
Sample Number: Composite **Depth:** 3.5-12.5 ft **Date:** 4-30-25

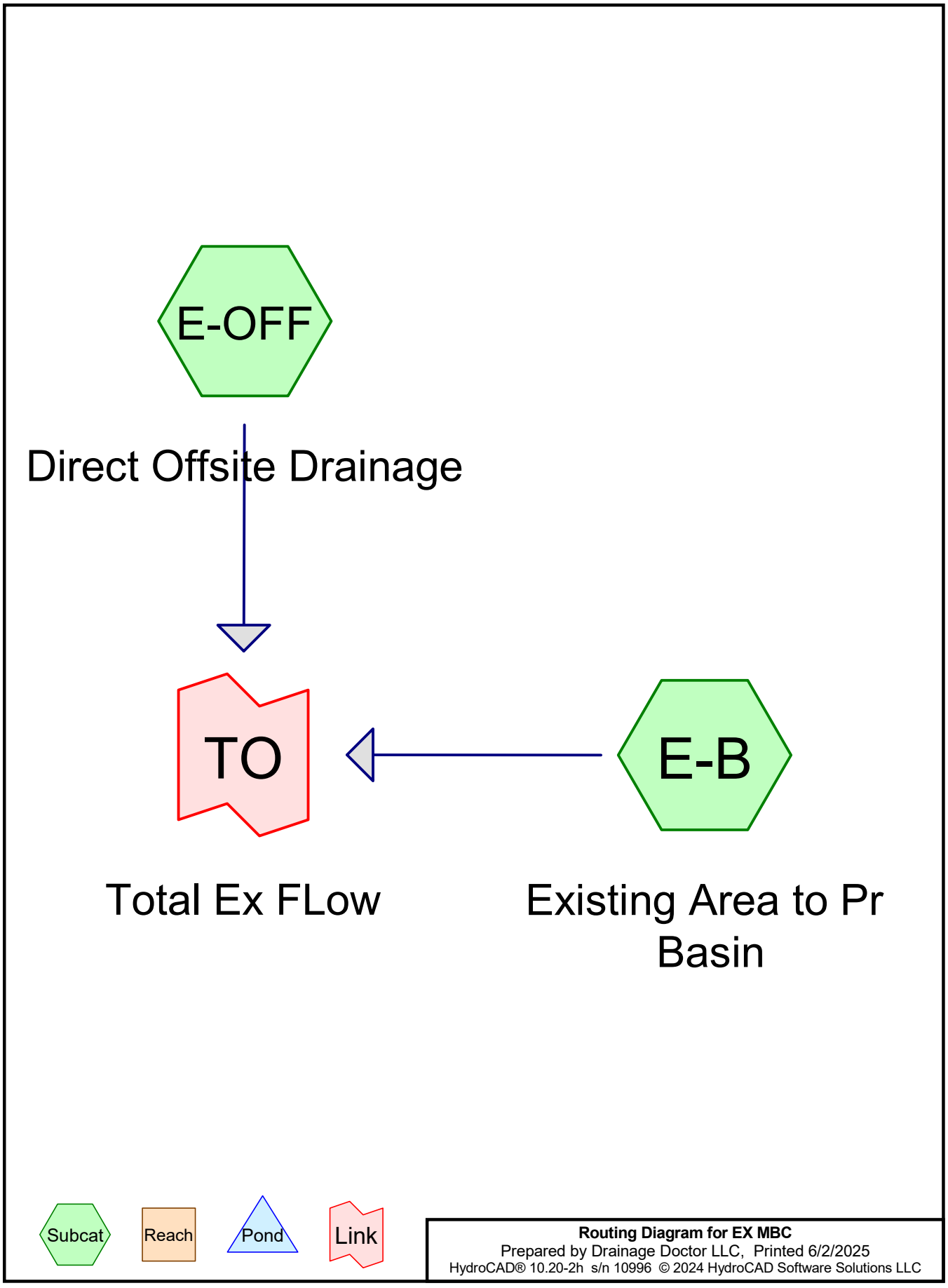
CGC,Inc.

Client: The Drainage Doctor, LLC
Project: Mukwonago Baptist Church
Mukwonago, WI
Project No: CM25053 **Figure** 1

Tested By: T Barganz **Checked By:** P Giese, PE

Appendix C

Pre-Development HydroCAD Model


E-OFF
Direct Offsite Drainage
TO
E-B
Total Ex FLow
Existing Area to Pr Basin
Subcat
Reach
Pond
Link
Routing Diagram for EX MBC
Prepared by Drainage Doctor LLC, Printed 6/2/2025
HydroCAD® 10.20-2h s/n 10996 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	MSE 24-hr	3	Default	24.00	1	2.40	2
2	2-yr	MSE 24-hr	3	Default	24.00	1	2.70	2
3	10-yr	MSE 24-hr	3	Default	24.00	1	3.81	2
4	100-yr	MSE 24-hr	3	Default	24.00	1	6.18	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.017	61	>75% Grass cover, Good, HSG B (E-OFF)
0.297	96	Gravel surface, HSG B (E-B, E-OFF)
2.431	61	Pasture/grassland/range, Good, HSG B (E-B)
0.007	98	Paved parking, HSG B (E-B)
2.752	**65**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.752	HSG B	E-B, E-OFF
0.000	HSG C	
0.000	HSG D	
0.000	Other	
2.752		**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	0.017	0.000	0.000	0.000	0.017	>75% Grass cover, Good	E-OFF
0.000	0.297	0.000	0.000	0.000	0.297	Gravel surface	E-B, E-OFF
0.000	2.431	0.000	0.000	0.000	2.431	Pasture/grassland/range, Good	E-B
0.000	0.007	0.000	0.000	0.000	0.007	Paved parking	E-B
0.000	**2.752**	**0.000**	**0.000**	**0.000**	**2.752**	**TOTAL AREA**	

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 E-B: Existing Area to Pr Runoff Area=117,979 sf 0.28% Impervious Runoff Depth=0.26"
Flow Length=560' Tc=17.7 min CN=65 Runoff=0.50 cfs 0.059 af

Subcatchment E-OFF: Direct Offsite Drainage Runoff Area=1,908 sf 0.00% Impervious Runoff Depth=0.98"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=83 Runoff=0.08 cfs 0.004 af

Link TO: Total Ex FLow Inflow=0.52 cfs 0.062 af
Primary=0.52 cfs 0.062 af

Total Runoff Area = 2.752 ac Runoff Volume = 0.062 af Average Runoff Depth = 0.27"
99.73% Pervious = 2.745 ac 0.27% Impervious = 0.007 ac

Summary for Subcatchment E-B: Existing Area to Pr Basin

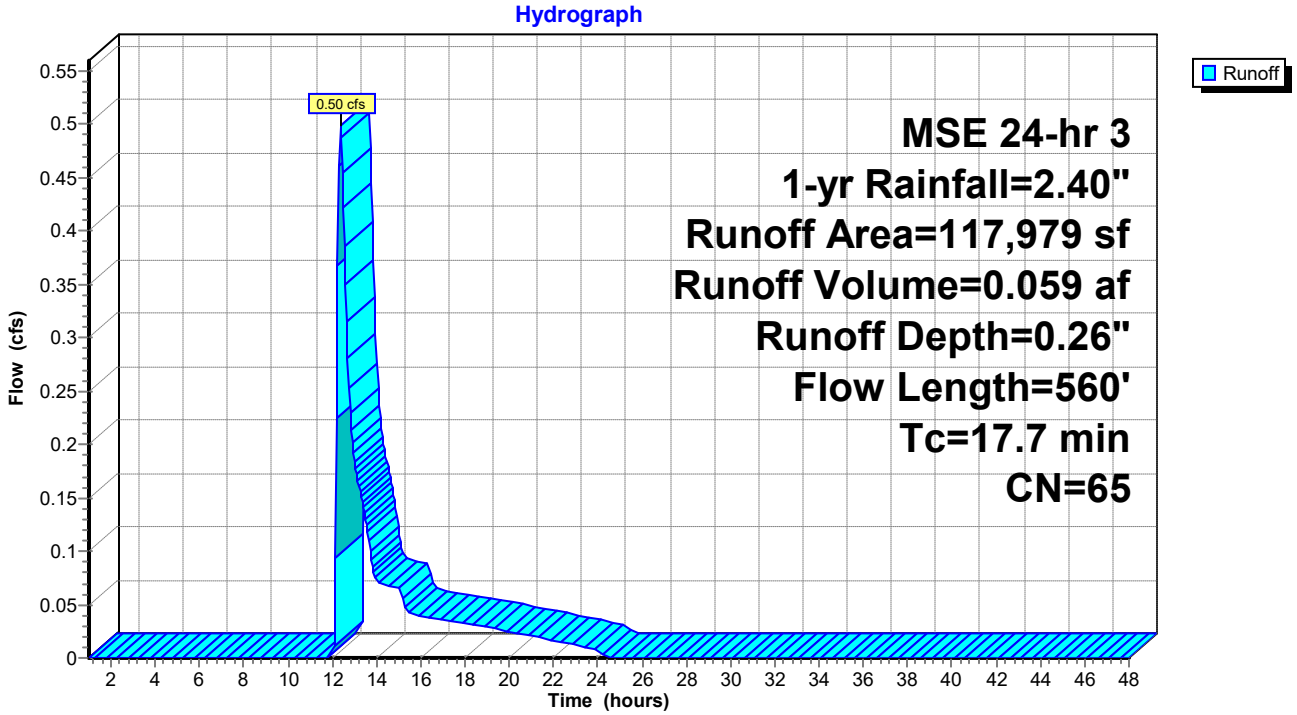
Runoff = 0.50 cfs @ 12.36 hrs, Volume= 0.059 af, Depth= 0.26"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-yr Rainfall=2.40"

Area (sf)	CN	Description
105,882	61	Pasture/grassland/range, Good, HSG B
11,772	96	Gravel surface, HSG B
325	98	Paved parking, HSG B
117,979	65	Weighted Average
117,654		99.72% Pervious Area
325		0.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0200	0.15		**Sheet Flow, Sheet Flow** Cultivated: Residue>20% n= 0.170 P2= 2.90"
6.3	460	0.0185	1.22		**Shallow Concentrated Flow, Shallow Flow** Cultivated Straight Rows Kv= 9.0 fps
17.7	560	Total			

Subcatchment E-B: Existing Area to Pr Basin



Hydrograph for Subcatchment E-B: Existing Area to Pr Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.01	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.05	0.00	0.00
4.00	0.06	0.00	0.00
4.50	0.08	0.00	0.00
5.00	0.09	0.00	0.00
5.50	0.11	0.00	0.00
6.00	0.12	0.00	0.00
6.50	0.14	0.00	0.00
7.00	0.16	0.00	0.00
7.50	0.18	0.00	0.00
8.00	0.20	0.00	0.00
8.50	0.22	0.00	0.00
9.00	0.25	0.00	0.00
9.50	0.29	0.00	0.00
10.00	0.33	0.00	0.00
10.50	0.38	0.00	0.00
11.00	0.46	0.00	0.00
11.50	0.60	0.00	0.00
12.00	1.11	0.00	**0.00**
12.50	1.80	0.09	**0.42**
13.00	1.94	0.12	0.18
13.50	2.02	0.14	0.13
14.00	2.07	0.15	0.07
14.50	2.11	0.17	0.07
15.00	2.15	0.18	0.07
15.50	2.18	0.19	0.04
16.00	2.20	0.19	0.04
16.50	2.22	0.20	0.04
17.00	2.24	0.21	0.04
17.50	2.26	0.21	0.03
18.00	2.28	0.22	0.03
18.50	2.29	0.22	0.03
19.00	2.31	0.23	0.03
19.50	2.32	0.23	0.03
20.00	2.34	0.24	0.02
20.50	2.35	0.24	0.02
21.00	2.36	0.25	0.02
21.50	2.37	0.25	0.02
22.00	2.38	0.25	0.02
22.50	2.39	0.26	0.01
23.00	2.39	0.26	0.01
23.50	2.40	0.26	0.01
24.00	**2.40**	**0.26**	0.01
24.50	2.40	0.26	0.00
25.00	2.40	0.26	0.00
25.50	2.40	0.26	0.00
26.00	2.40	0.26	0.00
26.50	2.40	0.26	0.00
27.00	2.40	0.26	0.00
27.50	2.40	0.26	0.00
28.00	2.40	0.26	0.00
28.50	2.40	0.26	0.00
29.00	2.40	0.26	0.00
29.50	2.40	0.26	0.00
30.00	2.40	0.26	0.00
30.50	2.40	0.26	0.00
31.00	2.40	0.26	0.00
31.50	2.40	0.26	0.00
32.00	2.40	0.26	0.00
32.50	2.40	0.26	0.00
33.00	2.40	0.26	0.00
33.50	2.40	0.26	0.00
34.00	2.40	0.26	0.00
34.50	2.40	0.26	0.00
35.00	2.40	0.26	0.00
35.50	2.40	0.26	0.00
36.00	2.40	0.26	0.00
36.50	2.40	0.26	0.00
37.00	2.40	0.26	0.00
37.50	2.40	0.26	0.00
38.00	2.40	0.26	0.00
38.50	2.40	0.26	0.00
39.00	2.40	0.26	0.00
39.50	2.40	0.26	0.00
40.00	2.40	0.26	0.00
40.50	2.40	0.26	0.00
41.00	2.40	0.26	0.00
41.50	2.40	0.26	0.00
42.00	2.40	0.26	0.00
42.50	2.40	0.26	0.00
43.00	2.40	0.26	0.00
43.50	2.40	0.26	0.00
44.00	2.40	0.26	0.00
44.50	2.40	0.26	0.00
45.00	2.40	0.26	0.00
45.50	2.40	0.26	0.00
46.00	2.40	0.26	0.00
46.50	2.40	0.26	0.00
47.00	2.40	0.26	0.00
47.50	2.40	0.26	0.00
48.00	2.40	0.26	0.00

Summary for Subcatchment E-OFF: Direct Offsite Drainage

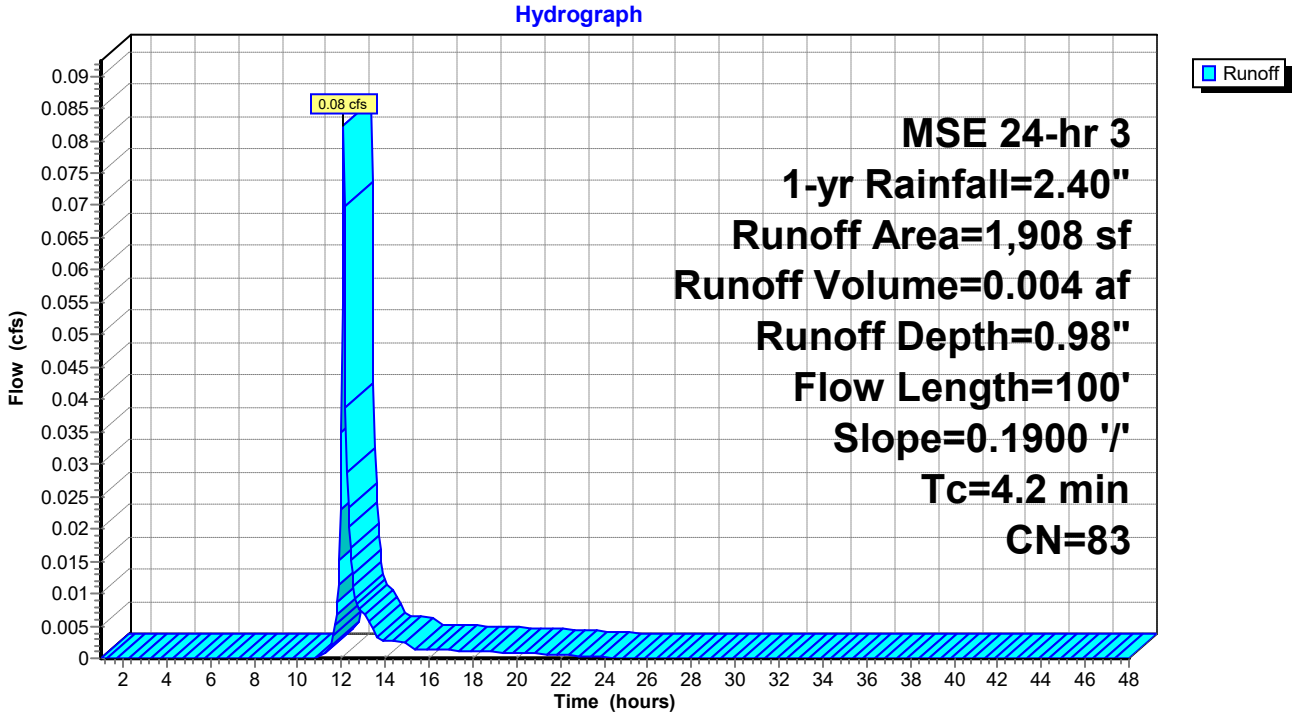
Runoff = 0.08 cfs @ 12.11 hrs, Volume= 0.004 af, Depth= 0.98"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-yr Rainfall=2.40"

Area (sf)	CN	Description
734	61	>75% Grass cover, Good, HSG B
1,174	96	Gravel surface, HSG B
1,908	83	Weighted Average
1,908		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment E-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment E-OFF: Direct Offsite Drainage

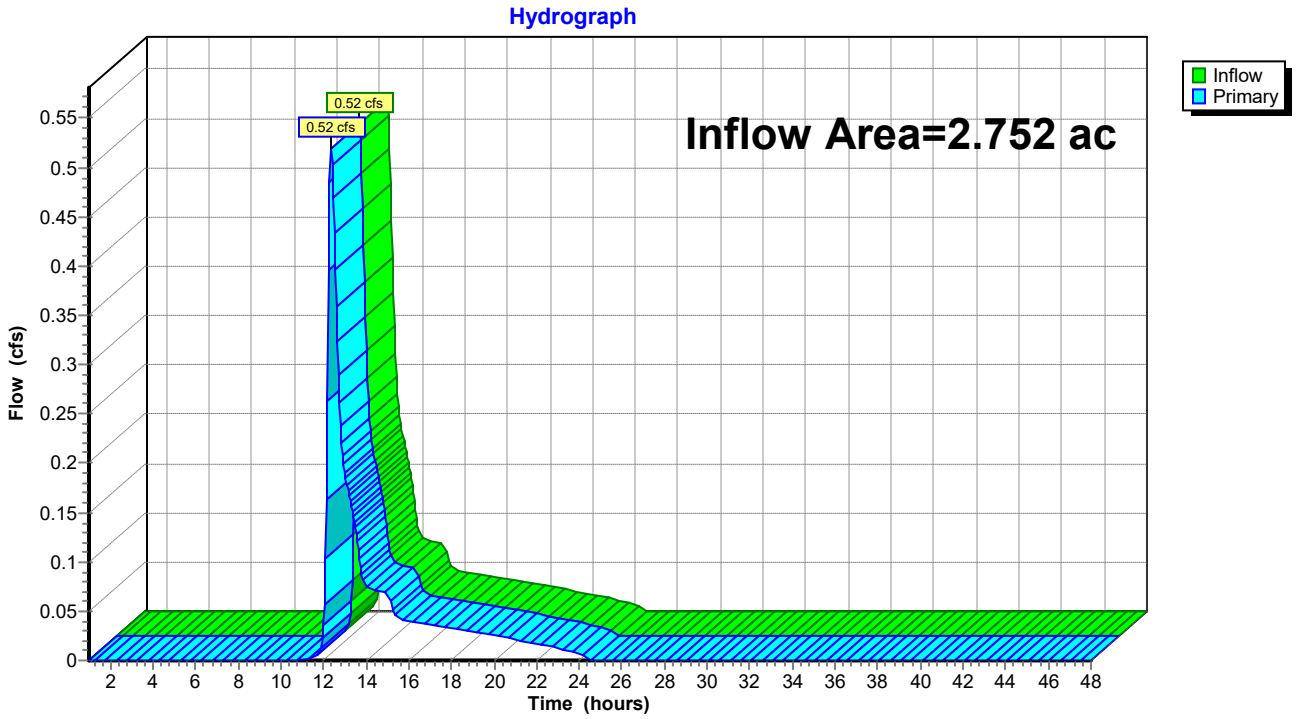
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.01	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.05	0.00	0.00
4.00	0.06	0.00	0.00
4.50	0.08	0.00	0.00
5.00	0.09	0.00	0.00
5.50	0.11	0.00	0.00
6.00	0.12	0.00	0.00
6.50	0.14	0.00	0.00
7.00	0.16	0.00	0.00
7.50	0.18	0.00	0.00
8.00	0.20	0.00	0.00
8.50	0.22	0.00	0.00
9.00	0.25	0.00	0.00
9.50	0.29	0.00	0.00
10.00	0.33	0.00	0.00
10.50	0.38	0.00	0.00
11.00	0.46	0.00	0.00
11.50	0.60	0.02	0.00
12.00	1.11	0.18	**0.04**
12.50	1.80	0.57	**0.01**
13.00	1.94	0.65	0.01
13.50	2.02	0.71	0.00
14.00	2.07	0.74	0.00
14.50	2.11	0.77	0.00
15.00	2.15	0.80	0.00
15.50	2.18	0.82	0.00
16.00	2.20	0.83	0.00
16.50	2.22	0.85	0.00
17.00	2.24	0.86	0.00
17.50	2.26	0.88	0.00
18.00	2.28	0.89	0.00
18.50	2.29	0.90	0.00
19.00	2.31	0.91	0.00
19.50	2.32	0.93	0.00
20.00	2.34	0.93	0.00
20.50	2.35	0.94	0.00
21.00	2.36	0.95	0.00
21.50	2.37	0.96	0.00
22.00	2.38	0.96	0.00
22.50	2.39	0.97	0.00
23.00	2.39	0.97	0.00
23.50	2.40	0.98	0.00
24.00	**2.40**	**0.98**	0.00
24.50	2.40	0.98	0.00
25.00	2.40	0.98	0.00
25.50	2.40	0.98	0.00
26.00	2.40	0.98	0.00
26.50	2.40	0.98	0.00
27.00	2.40	0.98	0.00
27.50	2.40	0.98	0.00
28.00	2.40	0.98	0.00
28.50	2.40	0.98	0.00
29.00	2.40	0.98	0.00
29.50	2.40	0.98	0.00
30.00	2.40	0.98	0.00
30.50	2.40	0.98	0.00
31.00	2.40	0.98	0.00
31.50	2.40	0.98	0.00
32.00	2.40	0.98	0.00
32.50	2.40	0.98	0.00
33.00	2.40	0.98	0.00
33.50	2.40	0.98	0.00
34.00	2.40	0.98	0.00
34.50	2.40	0.98	0.00
35.00	2.40	0.98	0.00
35.50	2.40	0.98	0.00
36.00	2.40	0.98	0.00
36.50	2.40	0.98	0.00
37.00	2.40	0.98	0.00
37.50	2.40	0.98	0.00
38.00	2.40	0.98	0.00
38.50	2.40	0.98	0.00
39.00	2.40	0.98	0.00
39.50	2.40	0.98	0.00
40.00	2.40	0.98	0.00
40.50	2.40	0.98	0.00
41.00	2.40	0.98	0.00
41.50	2.40	0.98	0.00
42.00	2.40	0.98	0.00
42.50	2.40	0.98	0.00
43.00	2.40	0.98	0.00
43.50	2.40	0.98	0.00
44.00	2.40	0.98	0.00
44.50	2.40	0.98	0.00
45.00	2.40	0.98	0.00
45.50	2.40	0.98	0.00
46.00	2.40	0.98	0.00
46.50	2.40	0.98	0.00
47.00	2.40	0.98	0.00
47.50	2.40	0.98	0.00
48.00	2.40	0.98	0.00

Summary for Link TO: Total Ex FLow

Inflow Area = 2.752 ac, 0.27% Impervious, Inflow Depth = 0.27" for 1-yr event
Inflow = 0.52 cfs @ 12.36 hrs, Volume= 0.062 af
Primary = 0.52 cfs @ 12.36 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
11.00	0.00	0.00	0.00	37.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	37.50	0.00	0.00	0.00
12.00	**0.04**	0.00	**0.04**	38.00	0.00	0.00	0.00
12.50	**0.43**	0.00	**0.43**	38.50	0.00	0.00	0.00
13.00	0.19	0.00	0.19	39.00	0.00	0.00	0.00
13.50	0.13	0.00	0.13	39.50	0.00	0.00	0.00
14.00	0.08	0.00	0.08	40.00	0.00	0.00	0.00
14.50	0.07	0.00	0.07	40.50	0.00	0.00	0.00
15.00	0.07	0.00	0.07	41.00	0.00	0.00	0.00
15.50	0.04	0.00	0.04	41.50	0.00	0.00	0.00
16.00	0.04	0.00	0.04	42.00	0.00	0.00	0.00
16.50	0.04	0.00	0.04	42.50	0.00	0.00	0.00
17.00	0.04	0.00	0.04	43.00	0.00	0.00	0.00
17.50	0.04	0.00	0.04	43.50	0.00	0.00	0.00
18.00	0.03	0.00	0.03	44.00	0.00	0.00	0.00
18.50	0.03	0.00	0.03	44.50	0.00	0.00	0.00
19.00	0.03	0.00	0.03	45.00	0.00	0.00	0.00
19.50	0.03	0.00	0.03	45.50	0.00	0.00	0.00
20.00	0.03	0.00	0.03	46.00	0.00	0.00	0.00
20.50	0.02	0.00	0.02	46.50	0.00	0.00	0.00
21.00	0.02	0.00	0.02	47.00	0.00	0.00	0.00
21.50	0.02	0.00	0.02	47.50	0.00	0.00	0.00
22.00	0.02	0.00	0.02	48.00	0.00	0.00	0.00
22.50	0.01	0.00	0.01				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
26.50	0.00	0.00	0.00				

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 E-B: Existing Area to Pr Runoff Area=117,979 sf 0.28% Impervious Runoff Depth=0.38"
Flow Length=560' Tc=17.7 min CN=65 Runoff=0.84 cfs 0.085 af

Subcatchment E-OFF: Direct Offsite Drainage Runoff Area=1,908 sf 0.00% Impervious Runoff Depth=1.21"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=83 Runoff=0.10 cfs 0.004 af

Link TO: Total Ex FLow Inflow=0.87 cfs 0.089 af
Primary=0.87 cfs 0.089 af

Total Runoff Area = 2.752 ac Runoff Volume = 0.089 af Average Runoff Depth = 0.39"
99.73% Pervious = 2.745 ac 0.27% Impervious = 0.007 ac

Summary for Subcatchment E-B: Existing Area to Pr Basin

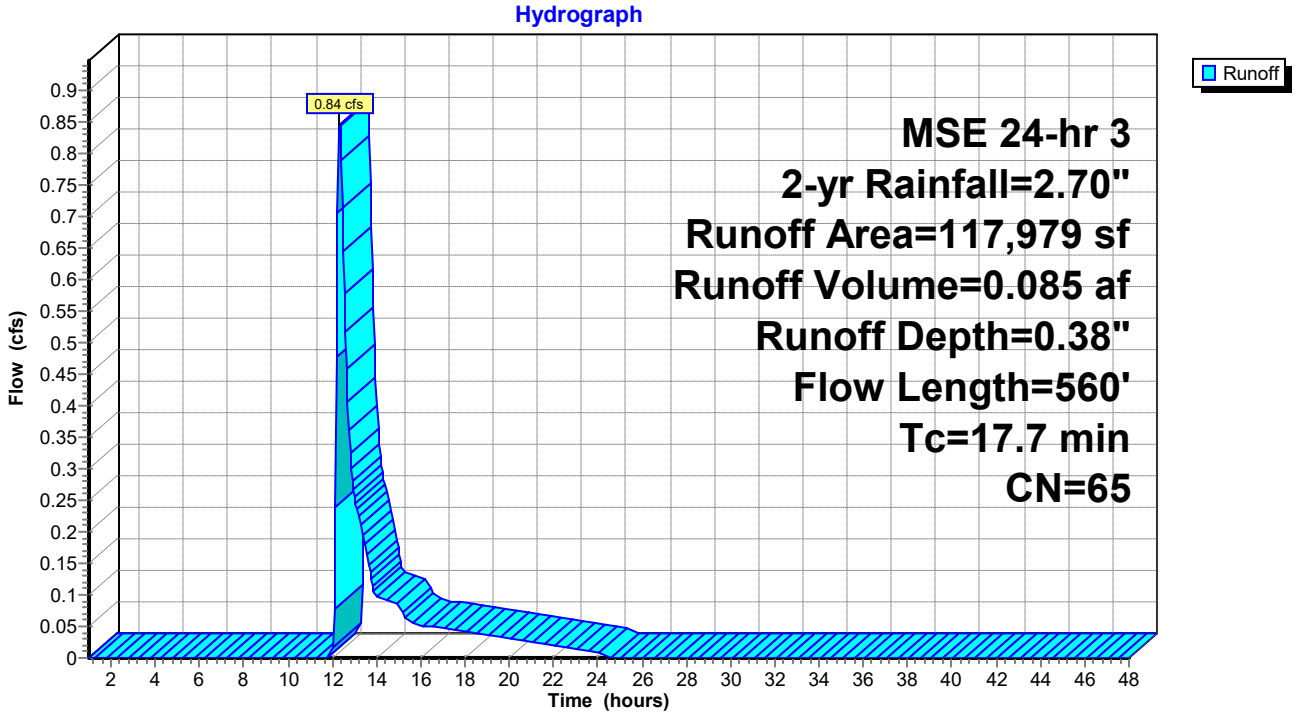
Runoff = 0.84 cfs @ 12.34 hrs, Volume= 0.085 af, Depth= 0.38"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-yr Rainfall=2.70"

Area (sf)	CN	Description
105,882	61	Pasture/grassland/range, Good, HSG B
11,772	96	Gravel surface, HSG B
325	98	Paved parking, HSG B
117,979	65	Weighted Average
117,654		99.72% Pervious Area
325		0.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0200	0.15		**Sheet Flow, Sheet Flow** Cultivated: Residue>20% n= 0.170 P2= 2.90"
6.3	460	0.0185	1.22		**Shallow Concentrated Flow, Shallow Flow** Cultivated Straight Rows Kv= 9.0 fps
17.7	560	Total			

Subcatchment E-B: Existing Area to Pr Basin



Hydrograph for Subcatchment E-B: Existing Area to Pr Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.06	0.00	0.00
4.00	0.07	0.00	0.00
4.50	0.09	0.00	0.00
5.00	0.10	0.00	0.00
5.50	0.12	0.00	0.00
6.00	0.14	0.00	0.00
6.50	0.16	0.00	0.00
7.00	0.18	0.00	0.00
7.50	0.20	0.00	0.00
8.00	0.23	0.00	0.00
8.50	0.25	0.00	0.00
9.00	0.28	0.00	0.00
9.50	0.32	0.00	0.00
10.00	0.37	0.00	0.00
10.50	0.42	0.00	0.00
11.00	0.52	0.00	0.00
11.50	0.67	0.00	0.00
12.00	1.25	0.01	**0.00**
12.50	2.03	0.14	**0.64**
13.00	2.18	0.19	0.25
13.50	2.28	0.22	0.18
14.00	2.33	0.24	0.10
14.50	2.38	0.25	0.09
15.00	2.42	0.27	0.09
15.50	2.45	0.28	0.06
16.00	2.47	0.29	0.05
16.50	2.50	0.30	0.05
17.00	2.52	0.31	0.05
17.50	2.54	0.31	0.04
18.00	2.56	0.32	0.04
18.50	2.58	0.33	0.04
19.00	2.60	0.34	0.04
19.50	2.61	0.34	0.03
20.00	2.63	0.35	0.03
20.50	2.64	0.35	0.03
21.00	2.66	0.36	0.03
21.50	2.67	0.36	0.02
22.00	2.68	0.37	0.02
22.50	2.68	0.37	0.02
23.00	2.69	0.37	0.02
23.50	2.70	0.37	0.01
24.00	**2.70**	**0.38**	0.01
24.50	2.70	0.38	0.00
25.00	2.70	0.38	0.00
25.50	2.70	0.38	0.00
26.00	2.70	0.38	0.00
26.50	2.70	0.38	0.00
27.00	2.70	0.38	0.00
27.50	2.70	0.38	0.00
28.00	2.70	0.38	0.00
28.50	2.70	0.38	0.00
29.00	2.70	0.38	0.00
29.50	2.70	0.38	0.00
30.00	2.70	0.38	0.00
30.50	2.70	0.38	0.00
31.00	2.70	0.38	0.00
31.50	2.70	0.38	0.00
32.00	2.70	0.38	0.00
32.50	2.70	0.38	0.00
33.00	2.70	0.38	0.00
33.50	2.70	0.38	0.00
34.00	2.70	0.38	0.00
34.50	2.70	0.38	0.00
35.00	2.70	0.38	0.00
35.50	2.70	0.38	0.00
36.00	2.70	0.38	0.00
36.50	2.70	0.38	0.00
37.00	2.70	0.38	0.00
37.50	2.70	0.38	0.00
38.00	2.70	0.38	0.00
38.50	2.70	0.38	0.00
39.00	2.70	0.38	0.00
39.50	2.70	0.38	0.00
40.00	2.70	0.38	0.00
40.50	2.70	0.38	0.00
41.00	2.70	0.38	0.00
41.50	2.70	0.38	0.00
42.00	2.70	0.38	0.00
42.50	2.70	0.38	0.00
43.00	2.70	0.38	0.00
43.50	2.70	0.38	0.00
44.00	2.70	0.38	0.00
44.50	2.70	0.38	0.00
45.00	2.70	0.38	0.00
45.50	2.70	0.38	0.00
46.00	2.70	0.38	0.00
46.50	2.70	0.38	0.00
47.00	2.70	0.38	0.00
47.50	2.70	0.38	0.00
48.00	2.70	0.38	0.00

Summary for Subcatchment E-OFF: Direct Offsite Drainage

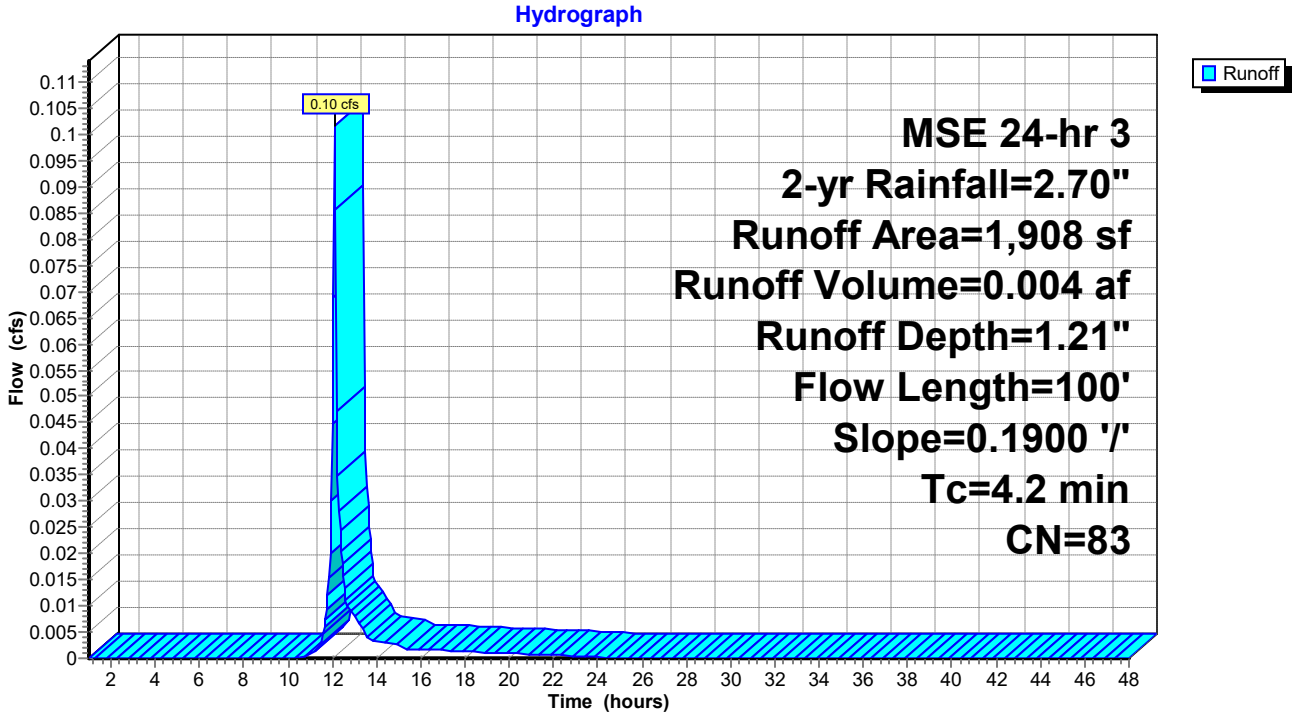
Runoff = 0.10 cfs @ 12.11 hrs, Volume= 0.004 af, Depth= 1.21"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-yr Rainfall=2.70"

Area (sf)	CN	Description
734	61	>75% Grass cover, Good, HSG B
1,174	96	Gravel surface, HSG B
1,908	83	Weighted Average
1,908		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment E-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment E-OFF: Direct Offsite Drainage

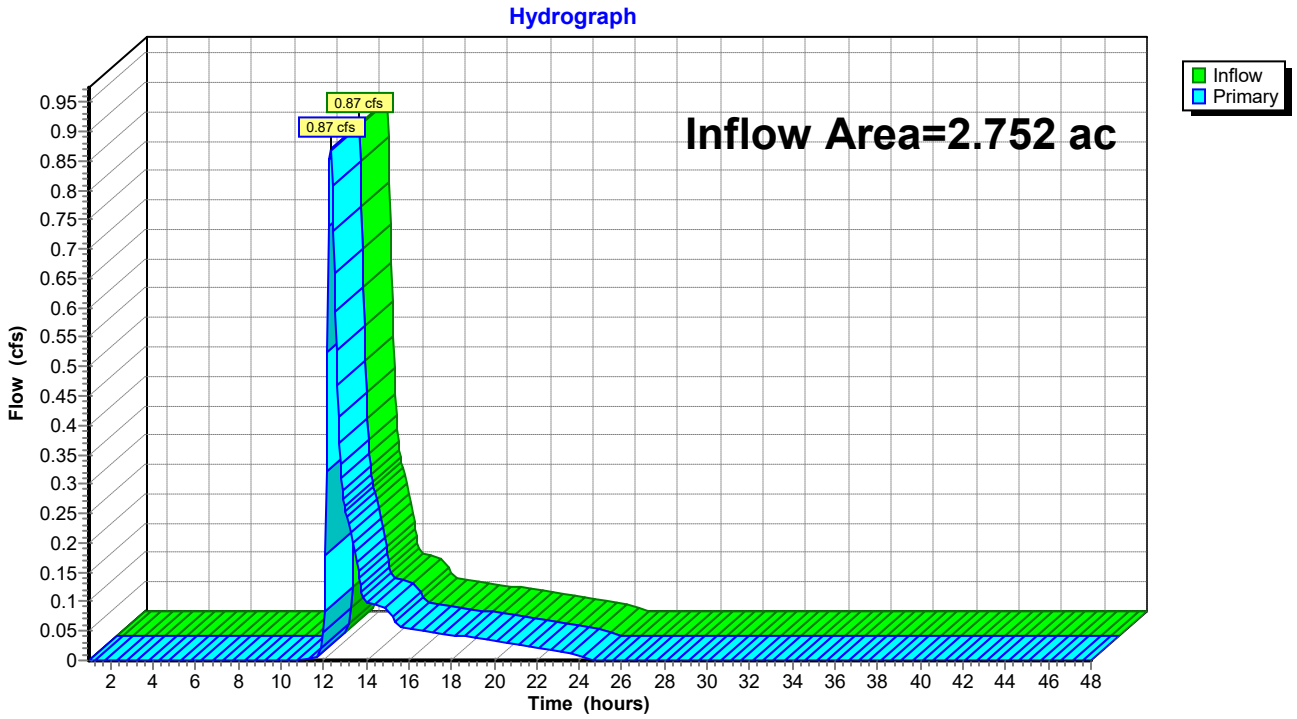
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.06	0.00	0.00
4.00	0.07	0.00	0.00
4.50	0.09	0.00	0.00
5.00	0.10	0.00	0.00
5.50	0.12	0.00	0.00
6.00	0.14	0.00	0.00
6.50	0.16	0.00	0.00
7.00	0.18	0.00	0.00
7.50	0.20	0.00	0.00
8.00	0.23	0.00	0.00
8.50	0.25	0.00	0.00
9.00	0.28	0.00	0.00
9.50	0.32	0.00	0.00
10.00	0.37	0.00	0.00
10.50	0.42	0.00	0.00
11.00	0.52	0.01	0.00
11.50	0.67	0.03	0.00
12.00	1.25	0.24	**0.04**
12.50	2.03	0.72	**0.02**
13.00	2.18	0.82	0.01
13.50	2.28	0.89	0.01
14.00	2.33	0.93	0.00
14.50	2.38	0.96	0.00
15.00	2.42	1.00	0.00
15.50	2.45	1.02	0.00
16.00	2.47	1.04	0.00
16.50	2.50	1.05	0.00
17.00	2.52	1.07	0.00
17.50	2.54	1.09	0.00
18.00	2.56	1.10	0.00
18.50	2.58	1.12	0.00
19.00	2.60	1.13	0.00
19.50	2.61	1.14	0.00
20.00	2.63	1.15	0.00
20.50	2.64	1.17	0.00
21.00	2.66	1.17	0.00
21.50	2.67	1.18	0.00
22.00	2.68	1.19	0.00
22.50	2.68	1.20	0.00
23.00	2.69	1.20	0.00
23.50	2.70	1.21	0.00
24.00	**2.70**	**1.21**	0.00
24.50	2.70	1.21	0.00
25.00	2.70	1.21	0.00
25.50	2.70	1.21	0.00
26.00	2.70	1.21	0.00
26.50	2.70	1.21	0.00
27.00	2.70	1.21	0.00
27.50	2.70	1.21	0.00
28.00	2.70	1.21	0.00
28.50	2.70	1.21	0.00
29.00	2.70	1.21	0.00
29.50	2.70	1.21	0.00
30.00	2.70	1.21	0.00
30.50	2.70	1.21	0.00
31.00	2.70	1.21	0.00
31.50	2.70	1.21	0.00
32.00	2.70	1.21	0.00
32.50	2.70	1.21	0.00
33.00	2.70	1.21	0.00
33.50	2.70	1.21	0.00
34.00	2.70	1.21	0.00
34.50	2.70	1.21	0.00
35.00	2.70	1.21	0.00
35.50	2.70	1.21	0.00
36.00	2.70	1.21	0.00
36.50	2.70	1.21	0.00
37.00	2.70	1.21	0.00
37.50	2.70	1.21	0.00
38.00	2.70	1.21	0.00
38.50	2.70	1.21	0.00
39.00	2.70	1.21	0.00
39.50	2.70	1.21	0.00
40.00	2.70	1.21	0.00
40.50	2.70	1.21	0.00
41.00	2.70	1.21	0.00
41.50	2.70	1.21	0.00
42.00	2.70	1.21	0.00
42.50	2.70	1.21	0.00
43.00	2.70	1.21	0.00
43.50	2.70	1.21	0.00
44.00	2.70	1.21	0.00
44.50	2.70	1.21	0.00
45.00	2.70	1.21	0.00
45.50	2.70	1.21	0.00
46.00	2.70	1.21	0.00
46.50	2.70	1.21	0.00
47.00	2.70	1.21	0.00
47.50	2.70	1.21	0.00
48.00	2.70	1.21	0.00

Summary for Link TO: Total Ex FLow

Inflow Area = 2.752 ac, 0.27% Impervious, Inflow Depth = 0.39" for 2-yr event
Inflow = 0.87 cfs @ 12.33 hrs, Volume= 0.089 af
Primary = 0.87 cfs @ 12.33 hrs, Volume= 0.089 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
11.00	0.00	0.00	0.00	37.00	0.00	0.00	0.00
11.50	0.00	0.00	0.00	37.50	0.00	0.00	0.00
12.00	**0.05**	0.00	**0.05**	38.00	0.00	0.00	0.00
12.50	**0.66**	0.00	**0.66**	38.50	0.00	0.00	0.00
13.00	0.26	0.00	0.26	39.00	0.00	0.00	0.00
13.50	0.18	0.00	0.18	39.50	0.00	0.00	0.00
14.00	0.10	0.00	0.10	40.00	0.00	0.00	0.00
14.50	0.09	0.00	0.09	40.50	0.00	0.00	0.00
15.00	0.09	0.00	0.09	41.00	0.00	0.00	0.00
15.50	0.06	0.00	0.06	41.50	0.00	0.00	0.00
16.00	0.05	0.00	0.05	42.00	0.00	0.00	0.00
16.50	0.05	0.00	0.05	42.50	0.00	0.00	0.00
17.00	0.05	0.00	0.05	43.00	0.00	0.00	0.00
17.50	0.05	0.00	0.05	43.50	0.00	0.00	0.00
18.00	0.04	0.00	0.04	44.00	0.00	0.00	0.00
18.50	0.04	0.00	0.04	44.50	0.00	0.00	0.00
19.00	0.04	0.00	0.04	45.00	0.00	0.00	0.00
19.50	0.04	0.00	0.04	45.50	0.00	0.00	0.00
20.00	0.03	0.00	0.03	46.00	0.00	0.00	0.00
20.50	0.03	0.00	0.03	46.50	0.00	0.00	0.00
21.00	0.03	0.00	0.03	47.00	0.00	0.00	0.00
21.50	0.02	0.00	0.02	47.50	0.00	0.00	0.00
22.00	0.02	0.00	0.02	48.00	0.00	0.00	0.00
22.50	0.02	0.00	0.02				
23.00	0.02	0.00	0.02				
23.50	0.01	0.00	0.01				
24.00	0.01	0.00	0.01				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
26.50	0.00	0.00	0.00				

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 E-B: Existing Area to Pr Runoff Area=117,979 sf 0.28% Impervious Runoff Depth=0.92"
Flow Length=560' Tc=17.7 min CN=65 Runoff=2.64 cfs 0.208 af

Subcatchment E-OFF: Direct Offsite Drainage Runoff Area=1,908 sf 0.00% Impervious Runoff Depth=2.12"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=83 Runoff=0.18 cfs 0.008 af

Link TO: Total Ex FLow Inflow=2.69 cfs 0.215 af
Primary=2.69 cfs 0.215 af

Total Runoff Area = 2.752 ac Runoff Volume = 0.215 af Average Runoff Depth = 0.94"
99.73% Pervious = 2.745 ac 0.27% Impervious = 0.007 ac

Summary for Subcatchment E-B: Existing Area to Pr Basin

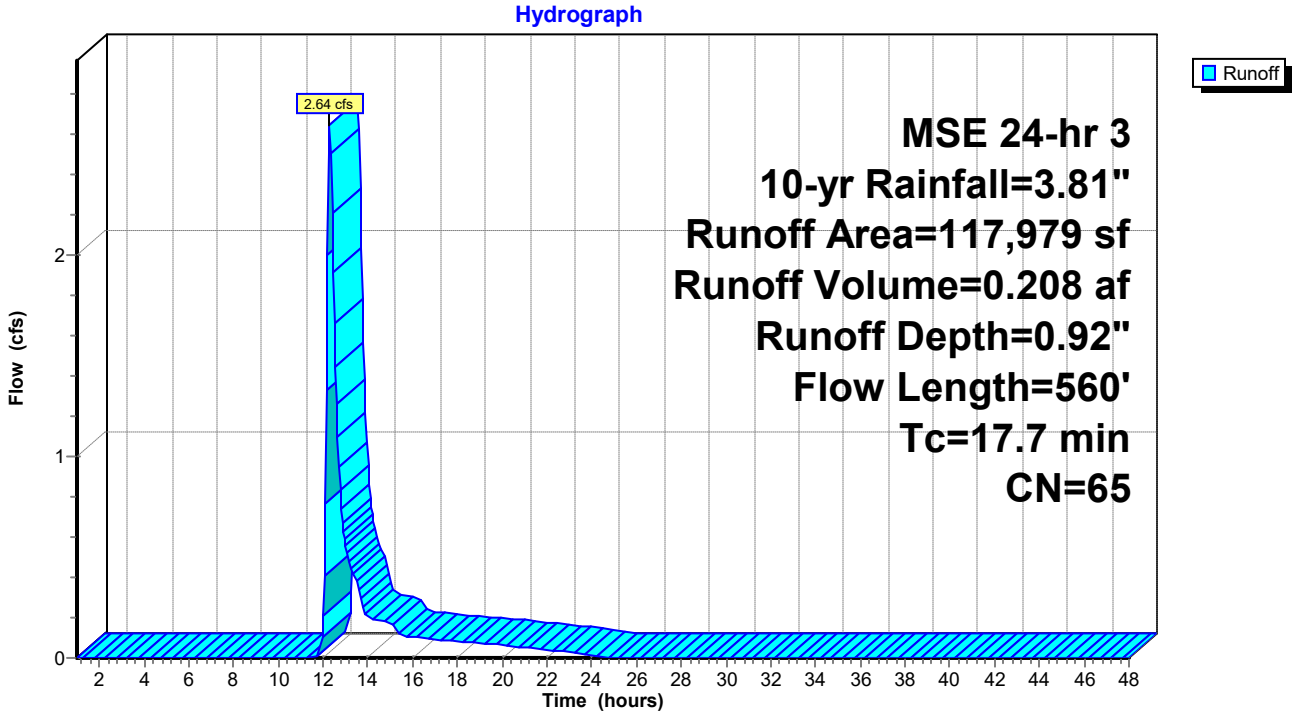
Runoff = 2.64 cfs @ 12.30 hrs, Volume= 0.208 af, Depth= 0.92"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-yr Rainfall=3.81"

Area (sf)	CN	Description
105,882	61	Pasture/grassland/range, Good, HSG B
11,772	96	Gravel surface, HSG B
325	98	Paved parking, HSG B
117,979	65	Weighted Average
117,654		99.72% Pervious Area
325		0.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0200	0.15		**Sheet Flow, Sheet Flow** Cultivated: Residue>20% n= 0.170 P2= 2.90"
6.3	460	0.0185	1.22		**Shallow Concentrated Flow, Shallow Flow** Cultivated Straight Rows Kv= 9.0 fps
17.7	560	Total			

Subcatchment E-B: Existing Area to Pr Basin



Hydrograph for Subcatchment E-B: Existing Area to Pr Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.03	0.00	0.00
2.50	0.05	0.00	0.00
3.00	0.06	0.00	0.00
3.50	0.08	0.00	0.00
4.00	0.10	0.00	0.00
4.50	0.12	0.00	0.00
5.00	0.14	0.00	0.00
5.50	0.17	0.00	0.00
6.00	0.19	0.00	0.00
6.50	0.22	0.00	0.00
7.00	0.25	0.00	0.00
7.50	0.28	0.00	0.00
8.00	0.32	0.00	0.00
8.50	0.35	0.00	0.00
9.00	0.39	0.00	0.00
9.50	0.46	0.00	0.00
10.00	0.52	0.00	0.00
10.50	0.60	0.00	0.00
11.00	0.73	0.00	0.00
11.50	0.94	0.00	0.00
12.00	1.76	0.08	**0.21**
12.50	2.87	0.45	**1.66**
13.00	3.08	0.54	0.56
13.50	3.21	0.61	0.37
14.00	3.29	0.64	0.20
14.50	3.35	0.68	0.19
15.00	3.42	0.71	0.18
15.50	3.46	0.73	0.11
16.00	3.49	0.75	0.10
16.50	3.53	0.77	0.10
17.00	3.56	0.78	0.09
17.50	3.59	0.80	0.09
18.00	3.62	0.81	0.08
18.50	3.64	0.83	0.08
19.00	3.67	0.84	0.07
19.50	3.69	0.85	0.07
20.00	3.71	0.87	0.06
20.50	3.73	0.88	0.06
21.00	3.75	0.88	0.05
21.50	3.76	0.89	0.05
22.00	3.78	0.90	0.04
22.50	3.79	0.91	0.04
23.00	3.80	0.91	0.03
23.50	3.80	0.92	0.02
24.00	**3.81**	**0.92**	0.02
24.50	3.81	0.92	0.00
25.00	3.81	0.92	0.00
25.50	3.81	0.92	0.00
26.00	3.81	0.92	0.00
26.50	3.81	0.92	0.00
27.00	3.81	0.92	0.00
27.50	3.81	0.92	0.00
28.00	3.81	0.92	0.00
28.50	3.81	0.92	0.00
29.00	3.81	0.92	0.00
29.50	3.81	0.92	0.00
30.00	3.81	0.92	0.00
30.50	3.81	0.92	0.00
31.00	3.81	0.92	0.00
31.50	3.81	0.92	0.00
32.00	3.81	0.92	0.00
32.50	3.81	0.92	0.00
33.00	3.81	0.92	0.00
33.50	3.81	0.92	0.00
34.00	3.81	0.92	0.00
34.50	3.81	0.92	0.00
35.00	3.81	0.92	0.00
35.50	3.81	0.92	0.00
36.00	3.81	0.92	0.00
36.50	3.81	0.92	0.00
37.00	3.81	0.92	0.00
37.50	3.81	0.92	0.00
38.00	3.81	0.92	0.00
38.50	3.81	0.92	0.00
39.00	3.81	0.92	0.00
39.50	3.81	0.92	0.00
40.00	3.81	0.92	0.00
40.50	3.81	0.92	0.00
41.00	3.81	0.92	0.00
41.50	3.81	0.92	0.00
42.00	3.81	0.92	0.00
42.50	3.81	0.92	0.00
43.00	3.81	0.92	0.00
43.50	3.81	0.92	0.00
44.00	3.81	0.92	0.00
44.50	3.81	0.92	0.00
45.00	3.81	0.92	0.00
45.50	3.81	0.92	0.00
46.00	3.81	0.92	0.00
46.50	3.81	0.92	0.00
47.00	3.81	0.92	0.00
47.50	3.81	0.92	0.00
48.00	3.81	0.92	0.00

Summary for Subcatchment E-OFF: Direct Offsite Drainage

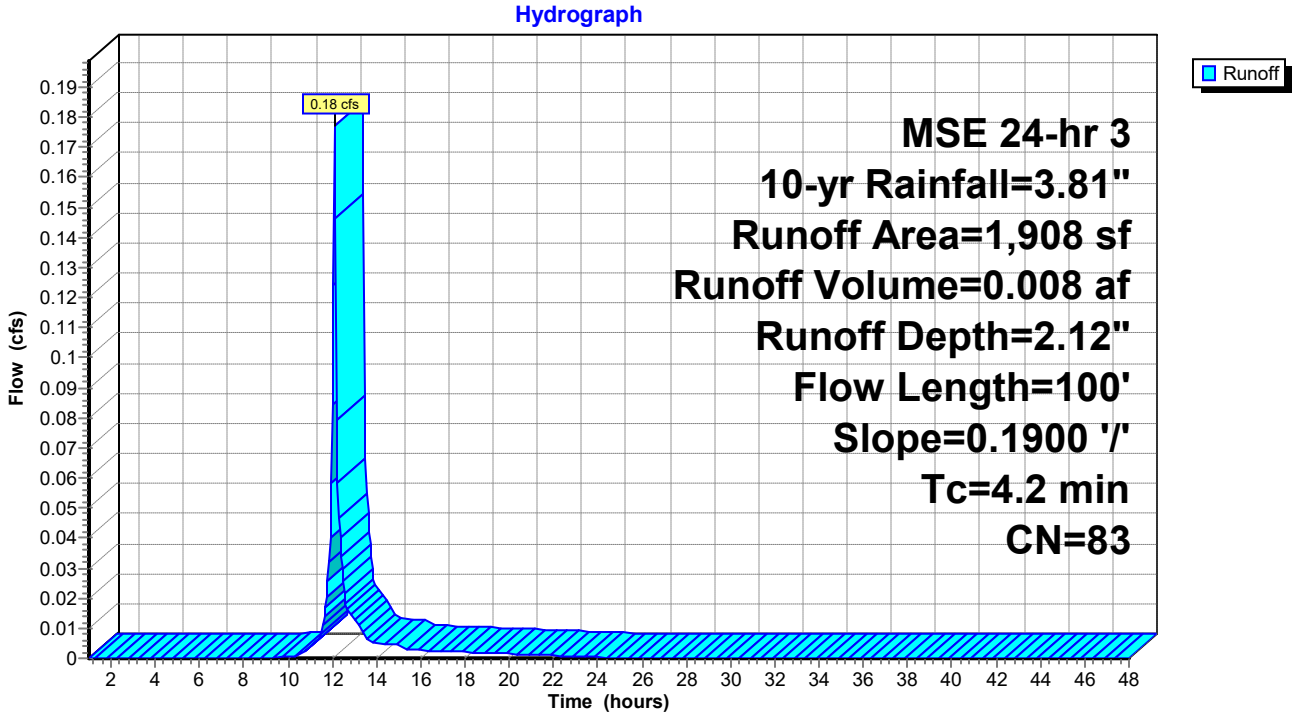
Runoff = 0.18 cfs @ 12.11 hrs, Volume= 0.008 af, Depth= 2.12"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-yr Rainfall=3.81"

Area (sf)	CN	Description
734	61	>75% Grass cover, Good, HSG B
1,174	96	Gravel surface, HSG B
1,908	83	Weighted Average
1,908		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment E-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment E-OFF: Direct Offsite Drainage

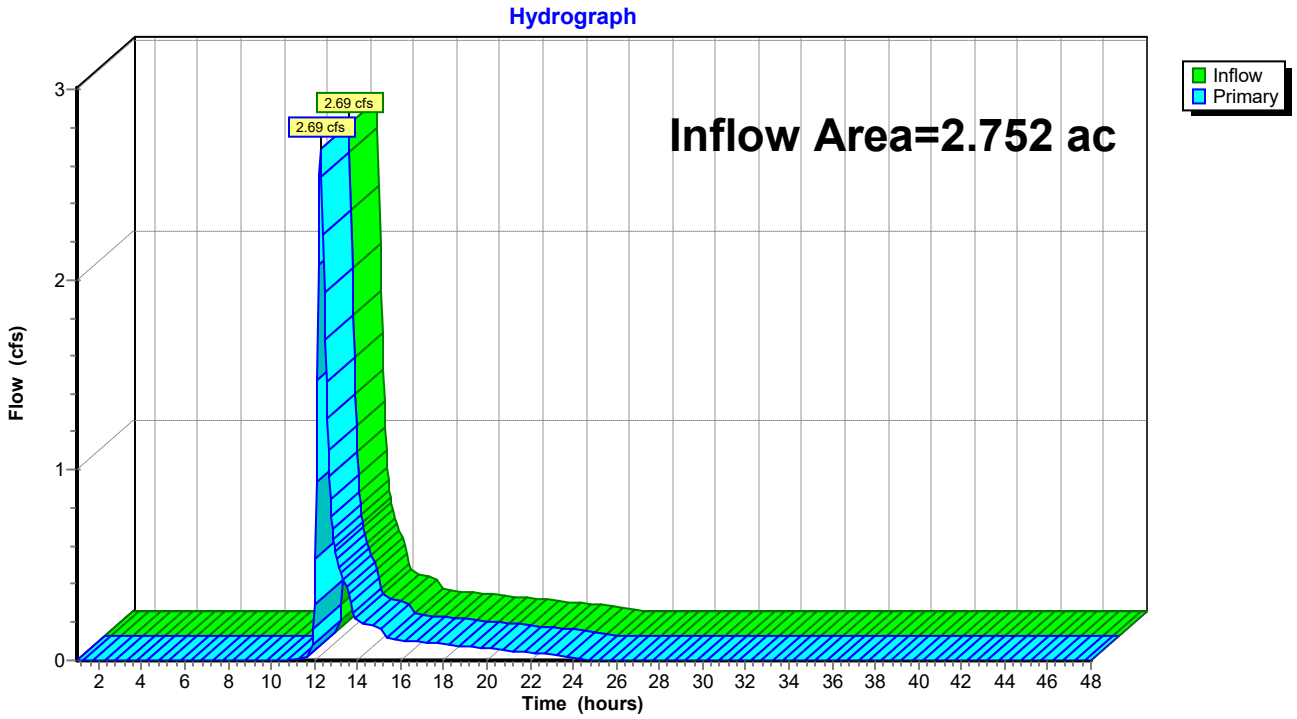
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.03	0.00	0.00
2.50	0.05	0.00	0.00
3.00	0.06	0.00	0.00
3.50	0.08	0.00	0.00
4.00	0.10	0.00	0.00
4.50	0.12	0.00	0.00
5.00	0.14	0.00	0.00
5.50	0.17	0.00	0.00
6.00	0.19	0.00	0.00
6.50	0.22	0.00	0.00
7.00	0.25	0.00	0.00
7.50	0.28	0.00	0.00
8.00	0.32	0.00	0.00
8.50	0.35	0.00	0.00
9.00	0.39	0.00	0.00
9.50	0.46	0.00	0.00
10.00	0.52	0.01	0.00
10.50	0.60	0.02	0.00
11.00	0.73	0.04	0.00
11.50	0.94	0.11	0.01
12.00	1.76	0.54	**0.08**
12.50	2.87	1.34	**0.03**
13.00	3.08	1.51	0.01
13.50	3.21	1.62	0.01
14.00	3.29	1.68	0.01
14.50	3.35	1.74	0.00
15.00	3.42	1.79	0.00
15.50	3.46	1.82	0.00
16.00	3.49	1.85	0.00
16.50	3.53	1.88	0.00
17.00	3.56	1.91	0.00
17.50	3.59	1.93	0.00
18.00	3.62	1.96	0.00
18.50	3.64	1.98	0.00
19.00	3.67	2.00	0.00
19.50	3.69	2.02	0.00
20.00	3.71	2.04	0.00
20.50	3.73	2.05	0.00
21.00	3.75	2.07	0.00
21.50	3.76	2.08	0.00
22.00	3.78	2.09	0.00
22.50	3.79	2.10	0.00
23.00	3.80	2.11	0.00
23.50	3.80	2.12	0.00
24.00	**3.81**	**2.12**	0.00
24.50	3.81	2.12	0.00
25.00	3.81	2.12	0.00
25.50	3.81	2.12	0.00
26.00	3.81	2.12	0.00
26.50	3.81	2.12	0.00
27.00	3.81	2.12	0.00
27.50	3.81	2.12	0.00
28.00	3.81	2.12	0.00
28.50	3.81	2.12	0.00
29.00	3.81	2.12	0.00
29.50	3.81	2.12	0.00
30.00	3.81	2.12	0.00
30.50	3.81	2.12	0.00
31.00	3.81	2.12	0.00
31.50	3.81	2.12	0.00
32.00	3.81	2.12	0.00
32.50	3.81	2.12	0.00
33.00	3.81	2.12	0.00
33.50	3.81	2.12	0.00
34.00	3.81	2.12	0.00
34.50	3.81	2.12	0.00
35.00	3.81	2.12	0.00
35.50	3.81	2.12	0.00
36.00	3.81	2.12	0.00
36.50	3.81	2.12	0.00
37.00	3.81	2.12	0.00
37.50	3.81	2.12	0.00
38.00	3.81	2.12	0.00
38.50	3.81	2.12	0.00
39.00	3.81	2.12	0.00
39.50	3.81	2.12	0.00
40.00	3.81	2.12	0.00
40.50	3.81	2.12	0.00
41.00	3.81	2.12	0.00
41.50	3.81	2.12	0.00
42.00	3.81	2.12	0.00
42.50	3.81	2.12	0.00
43.00	3.81	2.12	0.00
43.50	3.81	2.12	0.00
44.00	3.81	2.12	0.00
44.50	3.81	2.12	0.00
45.00	3.81	2.12	0.00
45.50	3.81	2.12	0.00
46.00	3.81	2.12	0.00
46.50	3.81	2.12	0.00
47.00	3.81	2.12	0.00
47.50	3.81	2.12	0.00
48.00	3.81	2.12	0.00

Summary for Link TO: Total Ex FLow

Inflow Area = 2.752 ac, 0.27% Impervious, Inflow Depth = 0.94" for 10-yr event
Inflow = 2.69 cfs @ 12.30 hrs, Volume= 0.215 af
Primary = 2.69 cfs @ 12.30 hrs, Volume= 0.215 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
11.00	0.00	0.00	0.00	37.00	0.00	0.00	0.00
11.50	0.01	0.00	0.01	37.50	0.00	0.00	0.00
12.00	**0.30**	0.00	**0.30**	38.00	0.00	0.00	0.00
12.50	**1.68**	0.00	**1.68**	38.50	0.00	0.00	0.00
13.00	0.57	0.00	0.57	39.00	0.00	0.00	0.00
13.50	0.38	0.00	0.38	39.50	0.00	0.00	0.00
14.00	0.21	0.00	0.21	40.00	0.00	0.00	0.00
14.50	0.19	0.00	0.19	40.50	0.00	0.00	0.00
15.00	0.18	0.00	0.18	41.00	0.00	0.00	0.00
15.50	0.11	0.00	0.11	41.50	0.00	0.00	0.00
16.00	0.11	0.00	0.11	42.00	0.00	0.00	0.00
16.50	0.10	0.00	0.10	42.50	0.00	0.00	0.00
17.00	0.10	0.00	0.10	43.00	0.00	0.00	0.00
17.50	0.09	0.00	0.09	43.50	0.00	0.00	0.00
18.00	0.09	0.00	0.09	44.00	0.00	0.00	0.00
18.50	0.08	0.00	0.08	44.50	0.00	0.00	0.00
19.00	0.08	0.00	0.08	45.00	0.00	0.00	0.00
19.50	0.07	0.00	0.07	45.50	0.00	0.00	0.00
20.00	0.06	0.00	0.06	46.00	0.00	0.00	0.00
20.50	0.06	0.00	0.06	46.50	0.00	0.00	0.00
21.00	0.05	0.00	0.05	47.00	0.00	0.00	0.00
21.50	0.05	0.00	0.05	47.50	0.00	0.00	0.00
22.00	0.04	0.00	0.04	48.00	0.00	0.00	0.00
22.50	0.04	0.00	0.04				
23.00	0.03	0.00	0.03				
23.50	0.02	0.00	0.02				
24.00	0.02	0.00	0.02				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
26.50	0.00	0.00	0.00				

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 E-B: Existing Area to Pr Runoff Area=117,979 sf 0.28% Impervious Runoff Depth=2.48"
Flow Length=560' Tc=17.7 min CN=65 Runoff=7.84 cfs 0.560 af

Subcatchment E-OFF: Direct Offsite Drainage Runoff Area=1,908 sf 0.00% Impervious Runoff Depth=4.26"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=83 Runoff=0.35 cfs 0.016 af

Link TO: Total Ex FLow Inflow=7.94 cfs 0.576 af
Primary=7.94 cfs 0.576 af

Total Runoff Area = 2.752 ac Runoff Volume = 0.576 af Average Runoff Depth = 2.51"
99.73% Pervious = 2.745 ac 0.27% Impervious = 0.007 ac

Summary for Subcatchment E-B: Existing Area to Pr Basin

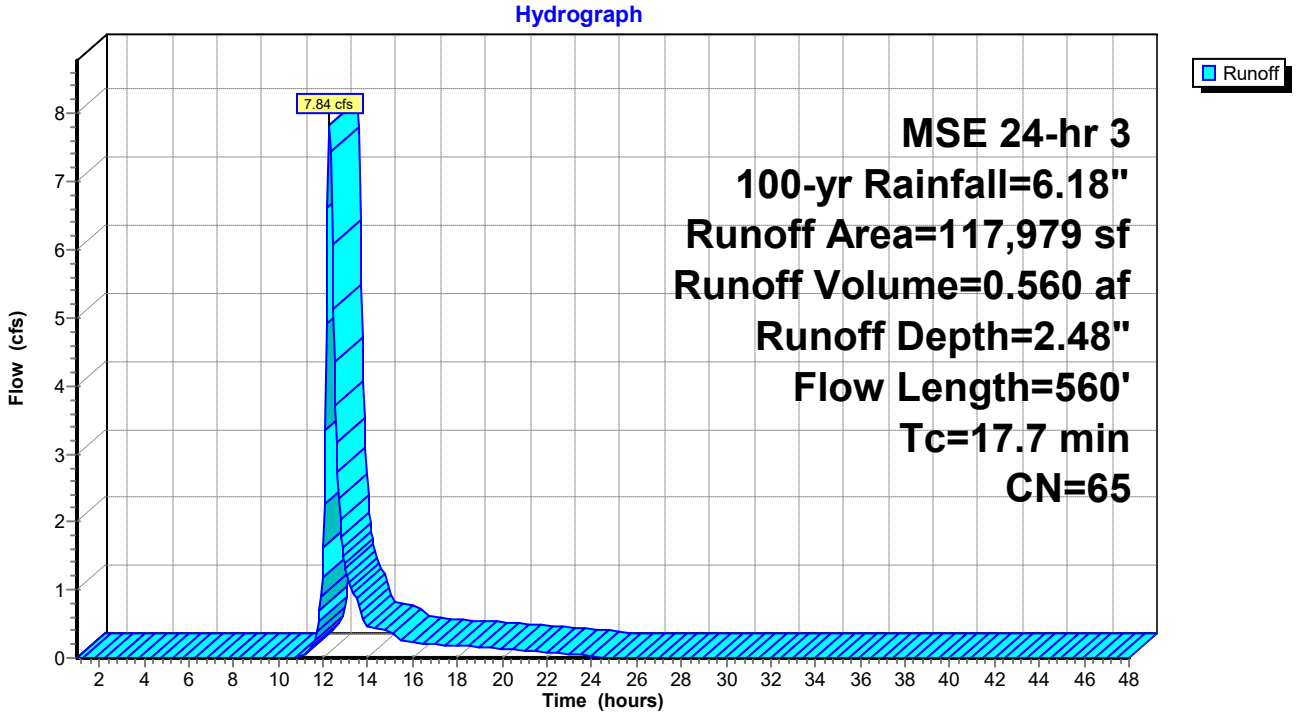
Runoff = 7.84 cfs @ 12.28 hrs, Volume= 0.560 af, Depth= 2.48"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.18"

Area (sf)	CN	Description
105,882	61	Pasture/grassland/range, Good, HSG B
11,772	96	Gravel surface, HSG B
325	98	Paved parking, HSG B
117,979	65	Weighted Average
117,654		99.72% Pervious Area
325		0.28% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.4	100	0.0200	0.15		**Sheet Flow, Sheet Flow** Cultivated: Residue>20% n= 0.170 P2= 2.90"
6.3	460	0.0185	1.22		**Shallow Concentrated Flow, Shallow Flow** Cultivated Straight Rows Kv= 9.0 fps
17.7	560	Total			

Subcatchment E-B: Existing Area to Pr Basin



Hydrograph for Subcatchment E-B: Existing Area to Pr Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.02	0.00	0.00
1.50	0.04	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.13	0.00	0.00
4.00	0.16	0.00	0.00
4.50	0.20	0.00	0.00
5.00	0.23	0.00	0.00
5.50	0.27	0.00	0.00
6.00	0.31	0.00	0.00
6.50	0.36	0.00	0.00
7.00	0.41	0.00	0.00
7.50	0.46	0.00	0.00
8.00	0.52	0.00	0.00
8.50	0.58	0.00	0.00
9.00	0.64	0.00	0.00
9.50	0.74	0.00	0.00
10.00	0.85	0.00	0.00
10.50	0.97	0.00	0.00
11.00	1.19	0.00	0.01
11.50	1.53	0.04	0.17
12.00	2.86	0.44	**1.61**
12.50	4.65	1.42	**4.35**
13.00	4.99	1.65	1.31
13.50	5.21	1.80	0.84
14.00	5.33	1.88	0.45
14.50	5.44	1.95	0.42
15.00	5.54	2.02	0.39
15.50	5.60	2.07	0.24
16.00	5.66	2.11	0.23
16.50	5.72	2.15	0.21
17.00	5.77	2.19	0.20
17.50	5.82	2.22	0.19
18.00	5.87	2.25	0.18
18.50	5.91	2.28	0.17
19.00	5.95	2.31	0.16
19.50	5.98	2.34	0.15
20.00	6.02	2.37	0.13
20.50	6.05	2.39	0.12
21.00	6.08	2.41	0.11
21.50	6.10	2.43	0.10
22.00	6.12	2.44	0.09
22.50	6.14	2.46	0.08
23.00	6.16	2.47	0.06
23.50	6.17	2.48	0.05
24.00	**6.18**	**2.48**	0.04
24.50	6.18	2.48	0.00
25.00	6.18	2.48	0.00
25.50	6.18	2.48	0.00
26.00	6.18	2.48	0.00
26.50	6.18	2.48	0.00
27.00	6.18	2.48	0.00
27.50	6.18	2.48	0.00
28.00	6.18	2.48	0.00
28.50	6.18	2.48	0.00
29.00	6.18	2.48	0.00
29.50	6.18	2.48	0.00
30.00	6.18	2.48	0.00
30.50	6.18	2.48	0.00
31.00	6.18	2.48	0.00
31.50	6.18	2.48	0.00
32.00	6.18	2.48	0.00
32.50	6.18	2.48	0.00
33.00	6.18	2.48	0.00
33.50	6.18	2.48	0.00
34.00	6.18	2.48	0.00
34.50	6.18	2.48	0.00
35.00	6.18	2.48	0.00
35.50	6.18	2.48	0.00
36.00	6.18	2.48	0.00
36.50	6.18	2.48	0.00
37.00	6.18	2.48	0.00
37.50	6.18	2.48	0.00
38.00	6.18	2.48	0.00
38.50	6.18	2.48	0.00
39.00	6.18	2.48	0.00
39.50	6.18	2.48	0.00
40.00	6.18	2.48	0.00
40.50	6.18	2.48	0.00
41.00	6.18	2.48	0.00
41.50	6.18	2.48	0.00
42.00	6.18	2.48	0.00
42.50	6.18	2.48	0.00
43.00	6.18	2.48	0.00
43.50	6.18	2.48	0.00
44.00	6.18	2.48	0.00
44.50	6.18	2.48	0.00
45.00	6.18	2.48	0.00
45.50	6.18	2.48	0.00
46.00	6.18	2.48	0.00
46.50	6.18	2.48	0.00
47.00	6.18	2.48	0.00
47.50	6.18	2.48	0.00
48.00	6.18	2.48	0.00

Summary for Subcatchment E-OFF: Direct Offsite Drainage

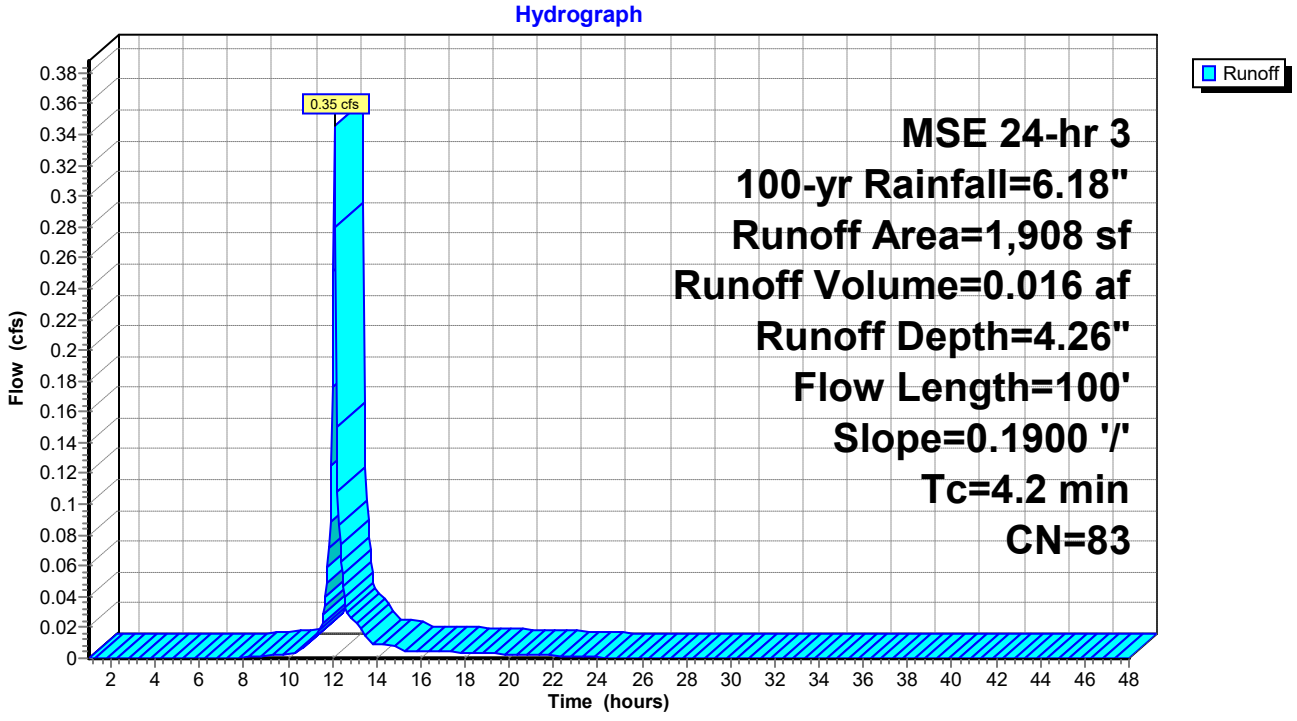
Runoff = 0.35 cfs @ 12.10 hrs, Volume= 0.016 af, Depth= 4.26"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.18"

Area (sf)	CN	Description
734	61	>75% Grass cover, Good, HSG B
1,174	96	Gravel surface, HSG B
1,908	83	Weighted Average
1,908		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment E-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment E-OFF: Direct Offsite Drainage

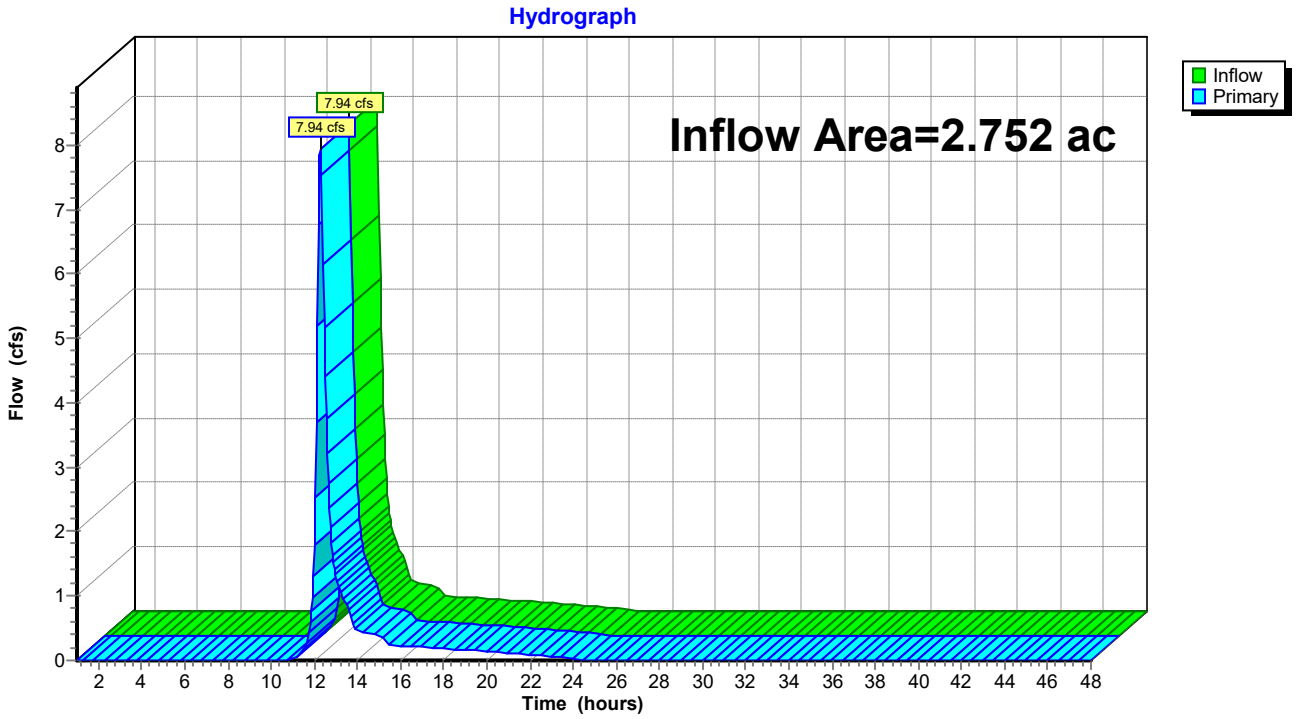
Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.02	0.00	0.00
1.50	0.04	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.13	0.00	0.00
4.00	0.16	0.00	0.00
4.50	0.20	0.00	0.00
5.00	0.23	0.00	0.00
5.50	0.27	0.00	0.00
6.00	0.31	0.00	0.00
6.50	0.36	0.00	0.00
7.00	0.41	0.00	0.00
7.50	0.46	0.00	0.00
8.00	0.52	0.01	0.00
8.50	0.58	0.01	0.00
9.00	0.64	0.02	0.00
9.50	0.74	0.05	0.00
10.00	0.85	0.08	0.00
10.50	0.97	0.12	0.00
11.00	1.19	0.22	0.01
11.50	1.53	0.40	0.02
12.00	2.86	1.34	**0.18**
12.50	4.65	2.86	**0.05**
13.00	4.99	3.16	0.02
13.50	5.21	3.37	0.01
14.00	5.33	3.47	0.01
14.50	5.44	3.58	0.01
15.00	5.54	3.67	0.01
15.50	5.60	3.73	0.00
16.00	5.66	3.78	0.00
16.50	5.72	3.83	0.00
17.00	5.77	3.88	0.00
17.50	5.82	3.92	0.00
18.00	5.87	3.97	0.00
18.50	5.91	4.01	0.00
19.00	5.95	4.04	0.00
19.50	5.98	4.08	0.00
20.00	6.02	4.11	0.00
20.50	6.05	4.14	0.00
21.00	6.08	4.16	0.00
21.50	6.10	4.19	0.00
22.00	6.12	4.21	0.00
22.50	6.14	4.22	0.00
23.00	6.16	4.24	0.00
23.50	6.17	4.25	0.00
24.00	**6.18**	**4.26**	0.00
24.50	6.18	4.26	0.00
25.00	6.18	4.26	0.00
25.50	6.18	4.26	0.00
26.00	6.18	4.26	0.00
26.50	6.18	4.26	0.00
27.00	6.18	4.26	0.00
27.50	6.18	4.26	0.00
28.00	6.18	4.26	0.00
28.50	6.18	4.26	0.00
29.00	6.18	4.26	0.00
29.50	6.18	4.26	0.00
30.00	6.18	4.26	0.00
30.50	6.18	4.26	0.00
31.00	6.18	4.26	0.00
31.50	6.18	4.26	0.00
32.00	6.18	4.26	0.00
32.50	6.18	4.26	0.00
33.00	6.18	4.26	0.00
33.50	6.18	4.26	0.00
34.00	6.18	4.26	0.00
34.50	6.18	4.26	0.00
35.00	6.18	4.26	0.00
35.50	6.18	4.26	0.00
36.00	6.18	4.26	0.00
36.50	6.18	4.26	0.00
37.00	6.18	4.26	0.00
37.50	6.18	4.26	0.00
38.00	6.18	4.26	0.00
38.50	6.18	4.26	0.00
39.00	6.18	4.26	0.00
39.50	6.18	4.26	0.00
40.00	6.18	4.26	0.00
40.50	6.18	4.26	0.00
41.00	6.18	4.26	0.00
41.50	6.18	4.26	0.00
42.00	6.18	4.26	0.00
42.50	6.18	4.26	0.00
43.00	6.18	4.26	0.00
43.50	6.18	4.26	0.00
44.00	6.18	4.26	0.00
44.50	6.18	4.26	0.00
45.00	6.18	4.26	0.00
45.50	6.18	4.26	0.00
46.00	6.18	4.26	0.00
46.50	6.18	4.26	0.00
47.00	6.18	4.26	0.00
47.50	6.18	4.26	0.00
48.00	6.18	4.26	0.00

Summary for Link TO: Total Ex FLow

Inflow Area = 2.752 ac, 0.27% Impervious, Inflow Depth = 2.51" for 100-yr event
Inflow = 7.94 cfs @ 12.28 hrs, Volume= 0.576 af
Primary = 7.94 cfs @ 12.28 hrs, Volume= 0.576 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
11.00	0.02	0.00	0.02	37.00	0.00	0.00	0.00
11.50	0.19	0.00	0.19	37.50	0.00	0.00	0.00
12.00	**1.79**	0.00	**1.79**	38.00	0.00	0.00	0.00
12.50	**4.40**	0.00	**4.40**	38.50	0.00	0.00	0.00
13.00	1.33	0.00	1.33	39.00	0.00	0.00	0.00
13.50	0.86	0.00	0.86	39.50	0.00	0.00	0.00
14.00	0.46	0.00	0.46	40.00	0.00	0.00	0.00
14.50	0.42	0.00	0.42	40.50	0.00	0.00	0.00
15.00	0.40	0.00	0.40	41.00	0.00	0.00	0.00
15.50	0.25	0.00	0.25	41.50	0.00	0.00	0.00
16.00	0.23	0.00	0.23	42.00	0.00	0.00	0.00
16.50	0.22	0.00	0.22	42.50	0.00	0.00	0.00
17.00	0.21	0.00	0.21	43.00	0.00	0.00	0.00
17.50	0.20	0.00	0.20	43.50	0.00	0.00	0.00
18.00	0.18	0.00	0.18	44.00	0.00	0.00	0.00
18.50	0.17	0.00	0.17	44.50	0.00	0.00	0.00
19.00	0.16	0.00	0.16	45.00	0.00	0.00	0.00
19.50	0.15	0.00	0.15	45.50	0.00	0.00	0.00
20.00	0.14	0.00	0.14	46.00	0.00	0.00	0.00
20.50	0.13	0.00	0.13	46.50	0.00	0.00	0.00
21.00	0.11	0.00	0.11	47.00	0.00	0.00	0.00
21.50	0.10	0.00	0.10	47.50	0.00	0.00	0.00
22.00	0.09	0.00	0.09	48.00	0.00	0.00	0.00
22.50	0.08	0.00	0.08				
23.00	0.06	0.00	0.06				
23.50	0.05	0.00	0.05				
24.00	0.04	0.00	0.04				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
26.50	0.00	0.00	0.00				

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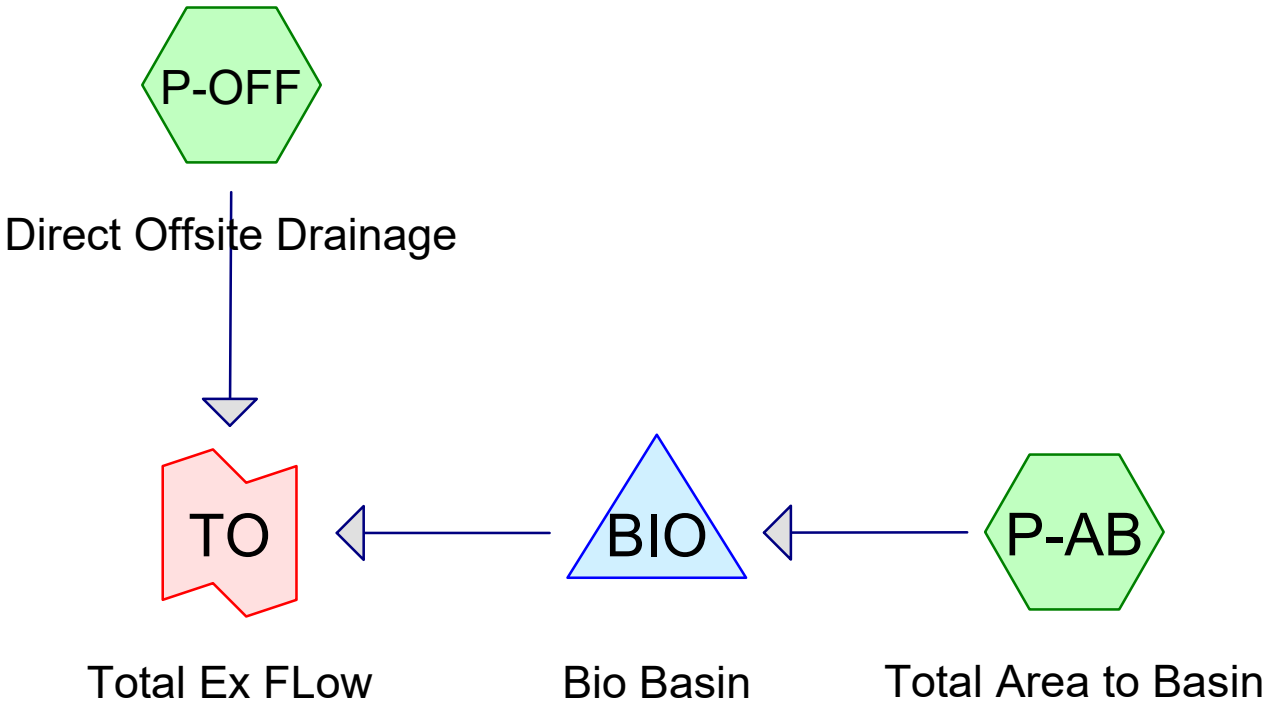
Appendix D

Post-Development HydroCAD Model



Subcat Reach Pond Link

Routing Diagram for PR MBC
Prepared by Drainage Doctor LLC, Printed 6/2/2025
HydroCAD® 10.20-2h s/n 10996 © 2024 HydroCAD Software Solutions LLC

Rainfall Events Listing (selected events)

Event#	Event Name	Storm Type	Curve	Mode	Duration (hours)	B/B	Depth (inches)	AMC
1	1-yr	MSE 24-hr	3	Default	24.00	1	2.40	2
2	2-yr	MSE 24-hr	3	Default	24.00	1	2.70	2
3	10-yr	MSE 24-hr	3	Default	24.00	1	3.81	2
4	100-yr	MSE 24-hr	3	Default	24.00	1	6.18	2

Area Listing (selected nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.838	61	>75% Grass cover, Good, HSG B (P-AB)
0.037	100	Basin Bottom (P-AB)
0.056	98	Concrete, HSG B (P-AB)
1.162	98	Paved parking, HSG B (P-AB, P-OFF)
0.643	98	Roofs, HSG B (P-AB)
2.735	**87**	**TOTAL AREA**

Soil Listing (selected nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
2.699	HSG B	P-AB, P-OFF
0.000	HSG C	
0.000	HSG D	
0.037	Other	P-AB
2.735		**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	0.838	0.000	0.000	0.000	0.838	>75% Grass cover, Good	P-AB
0.000	0.000	0.000	0.000	0.037	0.037	Basin Bottom	P-AB
0.000	0.056	0.000	0.000	0.000	0.056	Concrete	P-AB
0.000	1.162	0.000	0.000	0.000	1.162	Paved parking	P-AB, P-OFF
0.000	0.643	0.000	0.000	0.000	0.643	Roofs	P-AB
0.000	**2.699**	**0.000**	**0.000**	**0.037**	**2.735**	**TOTAL AREA**	

Pipe Listing (selected nodes)

Line#	Node Number	In-Invert (feet)	Out-Invert (feet)	Length (feet)	Slope (ft/ft)	n	Width (inches)	Diam/Height (inches)	Inside-Fill (inches)
1	P-AB	0.00	0.00	307.0	0.0050	0.010	0.0	6.0	0.0
2	BIO	900.50	898.50	100.0	0.0200	0.012	0.0	12.0	0.0

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 P-AB: Total Area to Basin Runoff Area=117,979 sf 69.05% Impervious Runoff Depth=1.23"
Flow Length=636' Tc=4.3 min CN=87 Runoff=6.35 cfs 0.277 af

Subcatchment P-OFF: Direct Offsite Runoff Area=1,174 sf 100.00% Impervious Runoff Depth=2.17"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=98 Runoff=0.10 cfs 0.005 af

Pond BIO: Bio Basin Peak Elev=901.24' Storage=8,044 cf Inflow=6.35 cfs 0.277 af
Discarded=0.12 cfs 0.241 af Primary=0.08 cfs 0.036 af Secondary=0.00 cfs 0.000 af Outflow=0.20 cfs 0.277 af

Link TO: Total Ex FLow Inflow=0.10 cfs 0.040 af
Primary=0.10 cfs 0.040 af

Total Runoff Area = 2.735 ac Runoff Volume = 0.282 af Average Runoff Depth = 1.24"
30.64% Pervious = 0.838 ac 69.36% Impervious = 1.897 ac

Summary for Subcatchment P-AB: Total Area to Basin

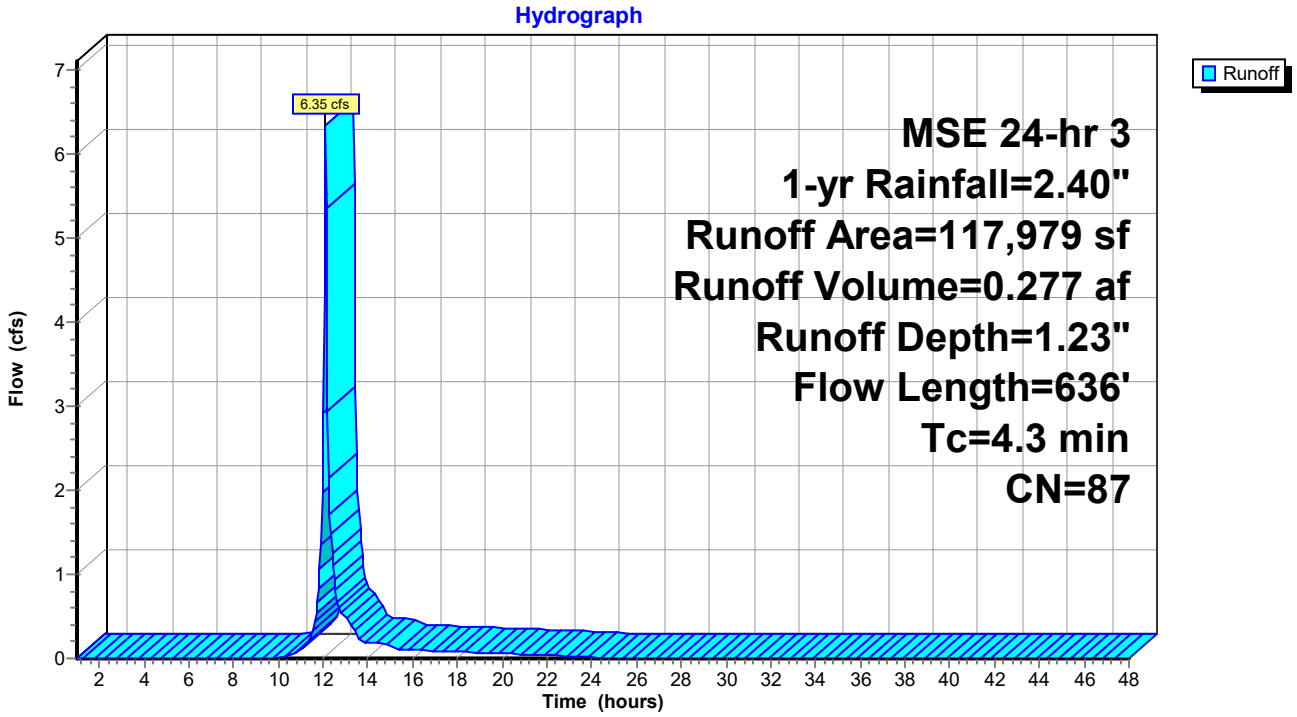
Runoff = 6.35 cfs @ 12.11 hrs, Volume= 0.277 af, Depth= 1.23"
Routed to Pond BIO : Bio Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-yr Rainfall=2.40"

	Area (sf)	CN	Description
	36,511	61	>75% Grass cover, Good, HSG B
	28,000	98	Roofs, HSG B
	49,426	98	Paved parking, HSG B
*	2,450	98	Concrete, HSG B
*	1,592	100	Basin Bottom
	117,979	87	Weighted Average
	36,511		30.95% Pervious Area
	81,468		69.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	32	0.0200	1.04		**Sheet Flow, Sheet Flow - Driveway** Smooth surfaces n= 0.011 P2= 2.90"
0.5	2	0.0500	0.07		**Sheet Flow, Sheet Flow - Shoulder** Grass: Dense n= 0.240 P2= 2.90"
0.9	10	0.2500	0.19		**Sheet Flow, Sheet Flow - Slope** Grass: Dense n= 0.240 P2= 2.90"
0.5	285	0.0243	8.72	209.27	**Channel Flow, Channel Flow - Driveway Swale** Area= 24.0 sf Perim= 20.0' r= 1.20' n= 0.030 Earth, grassed & winding
1.9	307	0.0050	2.63	0.52	**Pipe Channel, Pipe** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
4.3	636	Total			

Subcatchment P-AB: Total Area to Basin



Hydrograph for Subcatchment P-AB: Total Area to Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.01	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.05	0.00	0.00
4.00	0.06	0.00	0.00
4.50	0.08	0.00	0.00
5.00	0.09	0.00	0.00
5.50	0.11	0.00	0.00
6.00	0.12	0.00	0.00
6.50	0.14	0.00	0.00
7.00	0.16	0.00	0.00
7.50	0.18	0.00	0.00
8.00	0.20	0.00	0.00
8.50	0.22	0.00	0.00
9.00	0.25	0.00	0.00
9.50	0.29	0.00	0.00
10.00	0.33	0.00	0.01
10.50	0.38	0.00	0.02
11.00	0.46	0.02	0.10
11.50	0.60	0.05	0.24
12.00	1.11	0.29	**2.92**
12.50	1.80	0.76	**0.94**
13.00	1.94	0.86	0.49
13.50	2.02	0.93	0.30
14.00	2.07	0.96	0.19
14.50	2.11	0.99	0.18
15.00	2.15	1.03	0.17
15.50	2.18	1.05	0.10
16.00	2.20	1.06	0.10
16.50	2.22	1.08	0.09
17.00	2.24	1.10	0.09
17.50	2.26	1.11	0.08
18.00	2.28	1.13	0.08
18.50	2.29	1.14	0.07
19.00	2.31	1.15	0.07
19.50	2.32	1.17	0.06
20.00	2.34	1.18	0.06
20.50	2.35	1.19	0.05
21.00	2.36	1.20	0.05
21.50	2.37	1.20	0.04
22.00	2.38	1.21	0.04
22.50	2.39	1.22	0.03
23.00	2.39	1.22	0.03
23.50	2.40	1.22	0.02
24.00	**2.40**	**1.23**	0.01
24.50	2.40	1.23	0.00
25.00	2.40	1.23	0.00
25.50	2.40	1.23	0.00
26.00	2.40	1.23	0.00
26.50	2.40	1.23	0.00
27.00	2.40	1.23	0.00
27.50	2.40	1.23	0.00
28.00	2.40	1.23	0.00
28.50	2.40	1.23	0.00
29.00	2.40	1.23	0.00
29.50	2.40	1.23	0.00
30.00	2.40	1.23	0.00
30.50	2.40	1.23	0.00
31.00	2.40	1.23	0.00
31.50	2.40	1.23	0.00
32.00	2.40	1.23	0.00
32.50	2.40	1.23	0.00
33.00	2.40	1.23	0.00
33.50	2.40	1.23	0.00
34.00	2.40	1.23	0.00
34.50	2.40	1.23	0.00
35.00	2.40	1.23	0.00
35.50	2.40	1.23	0.00
36.00	2.40	1.23	0.00
36.50	2.40	1.23	0.00
37.00	2.40	1.23	0.00
37.50	2.40	1.23	0.00
38.00	2.40	1.23	0.00
38.50	2.40	1.23	0.00
39.00	2.40	1.23	0.00
39.50	2.40	1.23	0.00
40.00	2.40	1.23	0.00
40.50	2.40	1.23	0.00
41.00	2.40	1.23	0.00
41.50	2.40	1.23	0.00
42.00	2.40	1.23	0.00
42.50	2.40	1.23	0.00
43.00	2.40	1.23	0.00
43.50	2.40	1.23	0.00
44.00	2.40	1.23	0.00
44.50	2.40	1.23	0.00
45.00	2.40	1.23	0.00
45.50	2.40	1.23	0.00
46.00	2.40	1.23	0.00
46.50	2.40	1.23	0.00
47.00	2.40	1.23	0.00
47.50	2.40	1.23	0.00
48.00	2.40	1.23	0.00

Summary for Subcatchment P-OFF: Direct Offsite Drainage

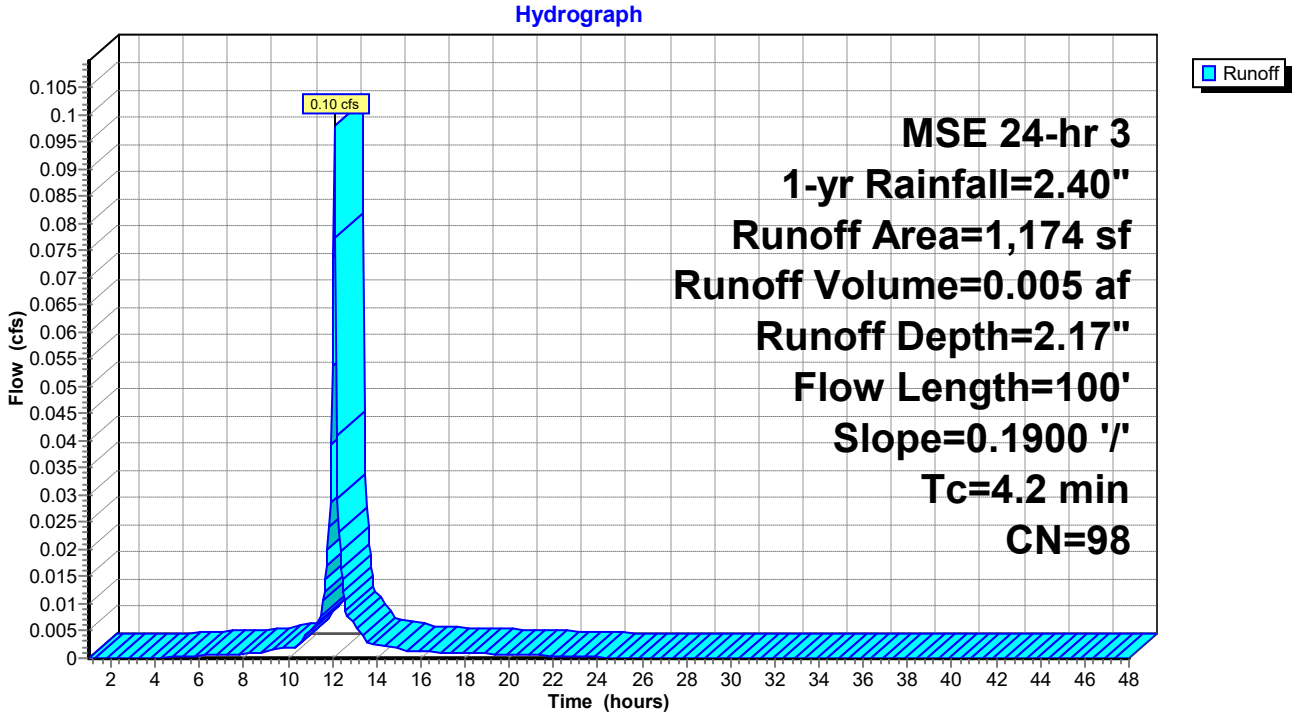
Runoff = 0.10 cfs @ 12.10 hrs, Volume= 0.005 af, Depth= 2.17"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 1-yr Rainfall=2.40"

Area (sf)	CN	Description
1,174	98	Paved parking, HSG B
1,174		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment P-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment P-OFF: Direct Offsite Drainage

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.01	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.05	0.00	0.00
4.00	0.06	0.00	0.00
4.50	0.08	0.01	0.00
5.00	0.09	0.01	0.00
5.50	0.11	0.02	0.00
6.00	0.12	0.02	0.00
6.50	0.14	0.03	0.00
7.00	0.16	0.04	0.00
7.50	0.18	0.06	0.00
8.00	0.20	0.07	0.00
8.50	0.22	0.09	0.00
9.00	0.25	0.10	0.00
9.50	0.29	0.13	0.00
10.00	0.33	0.17	0.00
10.50	0.38	0.21	0.00
11.00	0.46	0.28	0.01
11.50	0.60	0.41	0.01
12.00	1.11	0.90	**0.05**
12.50	1.80	1.58	**0.01**
13.00	1.94	1.71	0.01
13.50	2.02	1.80	0.00
14.00	2.07	1.84	0.00
14.50	2.11	1.89	0.00
15.00	2.15	1.93	0.00
15.50	2.18	1.95	0.00
16.00	2.20	1.97	0.00
16.50	2.22	1.99	0.00
17.00	2.24	2.01	0.00
17.50	2.26	2.03	0.00
18.00	2.28	2.05	0.00
18.50	2.29	2.07	0.00
19.00	2.31	2.08	0.00
19.50	2.32	2.10	0.00
20.00	2.34	2.11	0.00
20.50	2.35	2.12	0.00
21.00	2.36	2.13	0.00
21.50	2.37	2.14	0.00
22.00	2.38	2.15	0.00
22.50	2.39	2.16	0.00
23.00	2.39	2.16	0.00
23.50	2.40	2.17	0.00
24.00	**2.40**	**2.17**	0.00
24.50	2.40	2.17	0.00
25.00	2.40	2.17	0.00
25.50	2.40	2.17	0.00
26.00	2.40	2.17	0.00
26.50	2.40	2.17	0.00
27.00	2.40	2.17	0.00
27.50	2.40	2.17	0.00
28.00	2.40	2.17	0.00
28.50	2.40	2.17	0.00
29.00	2.40	2.17	0.00
29.50	2.40	2.17	0.00
30.00	2.40	2.17	0.00
30.50	2.40	2.17	0.00
31.00	2.40	2.17	0.00
31.50	2.40	2.17	0.00
32.00	2.40	2.17	0.00
32.50	2.40	2.17	0.00
33.00	2.40	2.17	0.00
33.50	2.40	2.17	0.00
34.00	2.40	2.17	0.00
34.50	2.40	2.17	0.00
35.00	2.40	2.17	0.00
35.50	2.40	2.17	0.00
36.00	2.40	2.17	0.00
36.50	2.40	2.17	0.00
37.00	2.40	2.17	0.00
37.50	2.40	2.17	0.00
38.00	2.40	2.17	0.00
38.50	2.40	2.17	0.00
39.00	2.40	2.17	0.00
39.50	2.40	2.17	0.00
40.00	2.40	2.17	0.00
40.50	2.40	2.17	0.00
41.00	2.40	2.17	0.00
41.50	2.40	2.17	0.00
42.00	2.40	2.17	0.00
42.50	2.40	2.17	0.00
43.00	2.40	2.17	0.00
43.50	2.40	2.17	0.00
44.00	2.40	2.17	0.00
44.50	2.40	2.17	0.00
45.00	2.40	2.17	0.00
45.50	2.40	2.17	0.00
46.00	2.40	2.17	0.00
46.50	2.40	2.17	0.00
47.00	2.40	2.17	0.00
47.50	2.40	2.17	0.00
48.00	2.40	2.17	0.00

Summary for Pond BIO: Bio Basin

Inflow Area = 2.708 ac, 69.05% Impervious, Inflow Depth = 1.23" for 1-yr event
Inflow = 6.35 cfs @ 12.11 hrs, Volume= 0.277 af
Outflow = 0.20 cfs @ 13.73 hrs, Volume= 0.277 af, Atten= 97%, Lag= 97.3 min
Discarded = 0.12 cfs @ 13.73 hrs, Volume= 0.241 af
Primary = 0.08 cfs @ 13.73 hrs, Volume= 0.036 af
Routed to Link TO : Total Ex FLow
Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 901.24' @ 13.73 hrs Surf.Area= 10,151 sf Storage= 8,044 cf

Plug-Flow detention time= 650.4 min calculated for 0.277 af (100% of inflow)
Center-of-Mass det. time= 650.0 min (1,454.9 - 804.8)

Volume	Invert	Avail.Storage	Storage Description
#1	900.00'	28,486 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

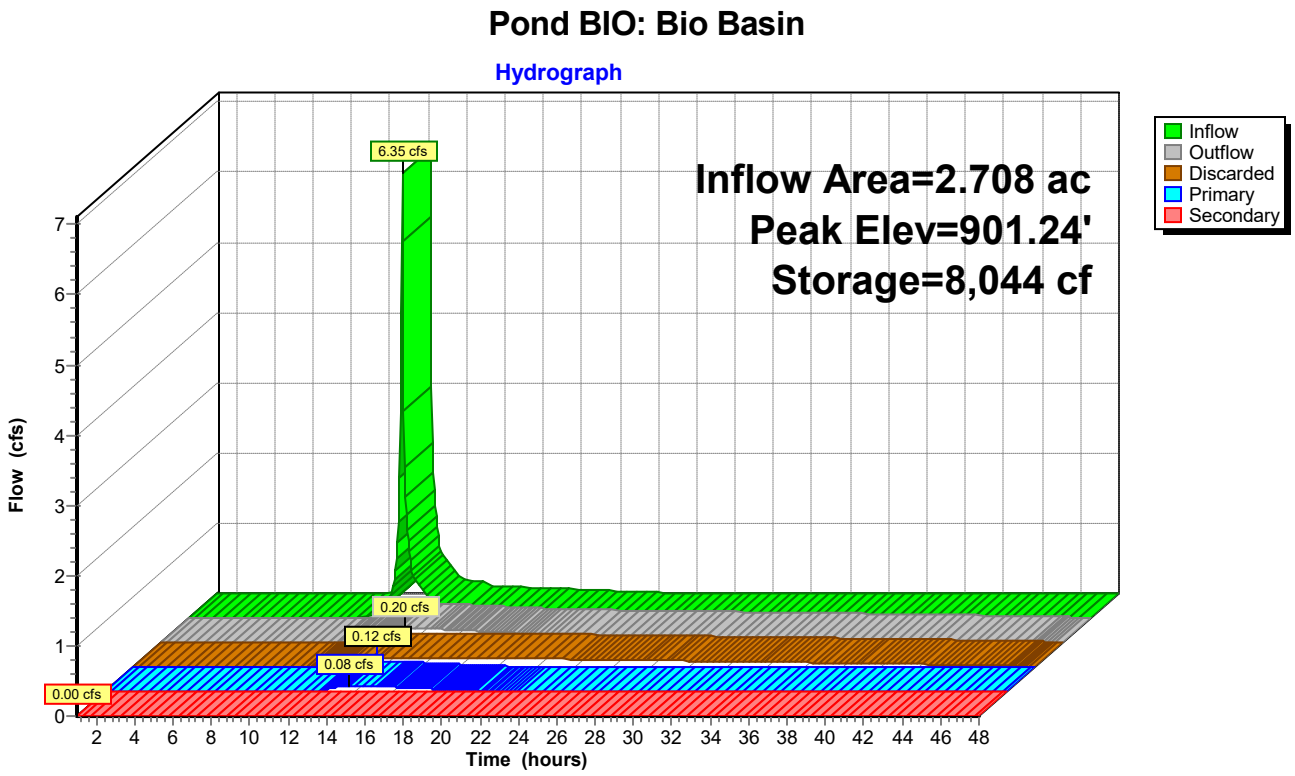
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
900.00	1,592	0	0
901.00	9,767	5,680	5,680
902.00	11,384	10,576	16,255
903.00	13,078	12,231	28,486

Device	Routing	Invert	Outlet Devices
#1	Secondary	902.75'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	900.00'	**0.500 in/hr Exfiltration over Surface area**
#3	Primary	900.50'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.50' / 898.50' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#4	Device 3	901.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	901.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	902.75'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.12 cfs @ 13.73 hrs HW=901.24' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.08 cfs @ 13.73 hrs HW=901.24' (Free Discharge)
└**3=Culvert** (Passes 0.08 cfs of 1.43 cfs potential flow)
  └**4=Orifice/Grate** (Orifice Controls 0.08 cfs @ 1.66 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)
  └**6=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=900.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Hydrograph for Pond BIO: Bio Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
1.00	0.00	0	900.00	0.00	0.00	0.00	**0.00**
2.00	0.00	0	900.00	0.00	0.00	0.00	0.00
3.00	0.00	0	900.00	0.00	0.00	0.00	0.00
4.00	0.00	0	900.00	0.00	0.00	0.00	0.00
5.00	0.00	0	900.00	0.00	0.00	0.00	0.00
6.00	0.00	0	900.00	0.00	0.00	0.00	0.00
7.00	0.00	0	900.00	0.00	0.00	0.00	0.00
8.00	0.00	0	900.00	0.00	0.00	0.00	0.00
9.00	0.00	0	900.00	0.00	0.00	0.00	0.00
10.00	0.01	4	900.00	0.00	0.00	0.00	0.00
11.00	0.10	94	900.05	0.02	0.02	0.00	0.00
12.00	**2.92**	1,899	900.51	0.07	0.07	0.00	0.00
13.00	**0.49**	**7,648**	**901.20**	**0.18**	**0.12**	**0.06**	0.00
14.00	0.19	**8,042**	**901.24**	**0.20**	**0.12**	**0.08**	0.00
15.00	0.17	7,986	901.23	0.20	0.12	0.08	0.00
16.00	0.10	7,690	901.20	0.18	0.12	0.07	0.00
17.00	0.09	7,395	901.17	0.17	0.12	0.05	0.00
18.00	0.08	7,113	901.15	0.15	0.12	0.04	0.00
19.00	0.07	6,842	901.12	0.14	0.12	0.03	0.00
20.00	0.06	6,574	901.09	0.13	0.11	0.02	0.00
21.00	0.05	6,303	901.06	0.12	0.11	0.01	0.00
22.00	0.04	6,021	901.03	0.12	0.11	0.00	0.00
23.00	0.03	5,719	901.00	0.11	0.11	0.00	0.00
24.00	0.01	5,388	900.97	0.11	0.11	0.00	0.00
25.00	0.00	5,002	900.93	0.11	0.11	0.00	0.00
26.00	0.00	4,627	900.89	0.10	0.10	0.00	0.00
27.00	0.00	4,265	900.85	0.10	0.10	0.00	0.00
28.00	0.00	3,918	900.80	0.09	0.09	0.00	0.00
29.00	0.00	3,585	900.76	0.09	0.09	0.00	0.00
30.00	0.00	3,267	900.72	0.09	0.09	0.00	0.00
31.00	0.00	2,962	900.68	0.08	0.08	0.00	0.00
32.00	0.00	2,672	900.64	0.08	0.08	0.00	0.00
33.00	0.00	2,396	900.60	0.07	0.07	0.00	0.00
34.00	0.00	2,134	900.55	0.07	0.07	0.00	0.00
35.00	0.00	1,886	900.51	0.07	0.07	0.00	0.00
36.00	0.00	1,652	900.47	0.06	0.06	0.00	0.00
37.00	0.00	1,433	900.43	0.06	0.06	0.00	0.00
38.00	0.00	1,228	900.39	0.06	0.06	0.00	0.00
39.00	0.00	1,037	900.35	0.05	0.05	0.00	0.00
40.00	0.00	860	900.30	0.05	0.05	0.00	0.00
41.00	0.00	697	900.26	0.04	0.04	0.00	0.00
42.00	0.00	549	900.22	0.04	0.04	0.00	0.00
43.00	0.00	415	900.18	0.04	0.04	0.00	0.00
44.00	0.00	295	900.14	0.03	0.03	0.00	0.00
45.00	0.00	189	900.10	0.03	0.03	0.00	0.00
46.00	0.00	97	900.05	0.02	0.02	0.00	0.00
47.00	0.00	27	900.02	0.01	0.01	0.00	0.00
48.00	0.00	6	900.00	0.00	0.00	0.00	0.00

Stage-Area-Storage for Pond BIO: Bio Basin

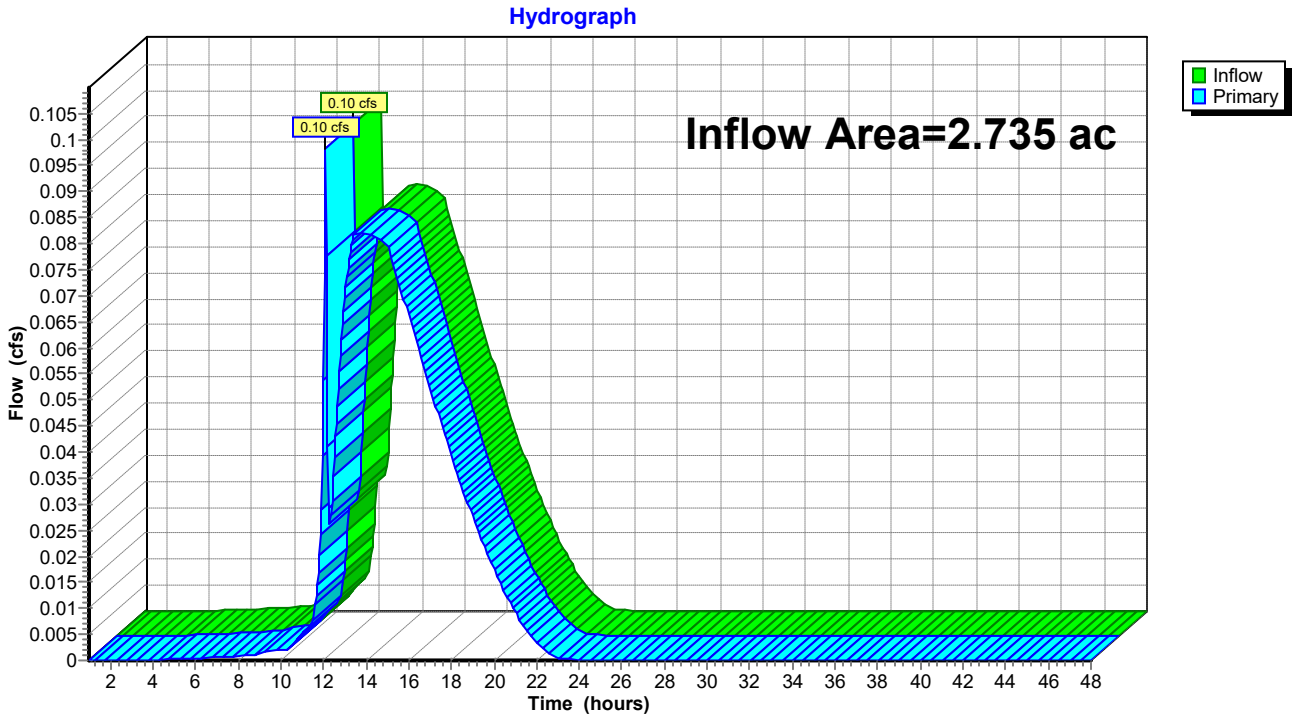
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
900.00	1,592	0
900.05	2,001	90
900.10	2,410	200
900.15	2,818	331
900.20	3,227	482
900.25	3,636	653
900.30	4,044	845
900.35	4,453	1,058
900.40	4,862	1,291
900.45	5,271	1,544
900.50	5,680	1,818
900.55	6,088	2,112
900.60	6,497	2,427
900.65	6,906	2,762
900.70	7,315	3,117
900.75	7,723	3,493
900.80	8,132	3,890
900.85	8,541	4,306
900.90	8,949	4,744
900.95	9,358	5,201
901.00	9,767	5,680
901.05	9,848	6,170
901.10	9,929	6,664
901.15	10,010	7,163
901.20	10,090	7,665
901.25	10,171	8,172
901.30	10,252	8,682
901.35	10,333	9,197
901.40	10,414	9,716
901.45	10,495	10,238
901.50	10,576	10,765
901.55	10,656	11,296
901.60	10,737	11,831
901.65	10,818	12,370
901.70	10,899	12,913
901.75	10,980	13,460
901.80	11,061	14,011
901.85	11,141	14,566
901.90	11,222	15,125
901.95	11,303	15,688
902.00	11,384	16,255
902.05	11,469	16,826
902.10	11,553	17,402
902.15	11,638	17,982
902.20	11,723	18,566
902.25	11,808	19,154
902.30	11,892	19,746
902.35	11,977	20,343
902.40	12,062	20,944
902.45	12,146	21,549
902.50	12,231	22,159
902.55	12,316	22,772
902.60	12,400	23,390
902.65	12,485	24,012
902.70	12,570	24,639
902.75	12,655	25,269
902.80	12,739	25,904
902.85	12,824	26,543
902.90	12,909	27,187
902.95	12,993	27,834
903.00	**13,078**	**28,486**

Summary for Link TO: Total Ex FLow

Inflow Area = 2.735 ac, 69.36% Impervious, Inflow Depth = 0.18" for 1-yr event
Inflow = 0.10 cfs @ 12.10 hrs, Volume= 0.040 af
Primary = 0.10 cfs @ 12.10 hrs, Volume= 0.040 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
11.00	0.01	0.00	0.01	37.00	0.00	0.00	0.00
11.50	0.01	0.00	0.01	37.50	0.00	0.00	0.00
12.00	**0.05**	0.00	**0.05**	38.00	0.00	0.00	0.00
12.50	**0.04**	0.00	**0.04**	38.50	0.00	0.00	0.00
13.00	0.07	0.00	0.07	39.00	0.00	0.00	0.00
13.50	0.08	0.00	0.08	39.50	0.00	0.00	0.00
14.00	0.08	0.00	0.08	40.00	0.00	0.00	0.00
14.50	0.08	0.00	0.08	40.50	0.00	0.00	0.00
15.00	0.08	0.00	0.08	41.00	0.00	0.00	0.00
15.50	0.07	0.00	0.07	41.50	0.00	0.00	0.00
16.00	0.07	0.00	0.07	42.00	0.00	0.00	0.00
16.50	0.06	0.00	0.06	42.50	0.00	0.00	0.00
17.00	0.05	0.00	0.05	43.00	0.00	0.00	0.00
17.50	0.05	0.00	0.05	43.50	0.00	0.00	0.00
18.00	0.04	0.00	0.04	44.00	0.00	0.00	0.00
18.50	0.03	0.00	0.03	44.50	0.00	0.00	0.00
19.00	0.03	0.00	0.03	45.00	0.00	0.00	0.00
19.50	0.02	0.00	0.02	45.50	0.00	0.00	0.00
20.00	0.02	0.00	0.02	46.00	0.00	0.00	0.00
20.50	0.01	0.00	0.01	46.50	0.00	0.00	0.00
21.00	0.01	0.00	0.01	47.00	0.00	0.00	0.00
21.50	0.01	0.00	0.01	47.50	0.00	0.00	0.00
22.00	0.00	0.00	0.00	48.00	0.00	0.00	0.00
22.50	0.00	0.00	0.00				
23.00	0.00	0.00	0.00				
23.50	0.00	0.00	0.00				
24.00	0.00	0.00	0.00				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
26.50	0.00	0.00	0.00				

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 P-AB: Total Area to Basin Runoff Area=117,979 sf 69.05% Impervious Runoff Depth=1.48"
Flow Length=636' Tc=4.3 min CN=87 Runoff=7.62 cfs 0.334 af

Subcatchment P-OFF: Direct Offsite Runoff Area=1,174 sf 100.00% Impervious Runoff Depth=2.47"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=98 Runoff=0.11 cfs 0.006 af

Pond BIO: Bio Basin Peak Elev=901.40' Storage=9,700 cf Inflow=7.62 cfs 0.334 af
Discarded=0.12 cfs 0.259 af Primary=0.12 cfs 0.073 af Secondary=0.00 cfs 0.000 af Outflow=0.24 cfs 0.332 af

Link TO: Total Ex FLow Inflow=0.13 cfs 0.079 af
Primary=0.13 cfs 0.079 af

Total Runoff Area = 2.735 ac Runoff Volume = 0.340 af Average Runoff Depth = 1.49"
30.64% Pervious = 0.838 ac 69.36% Impervious = 1.897 ac

Summary for Subcatchment P-AB: Total Area to Basin

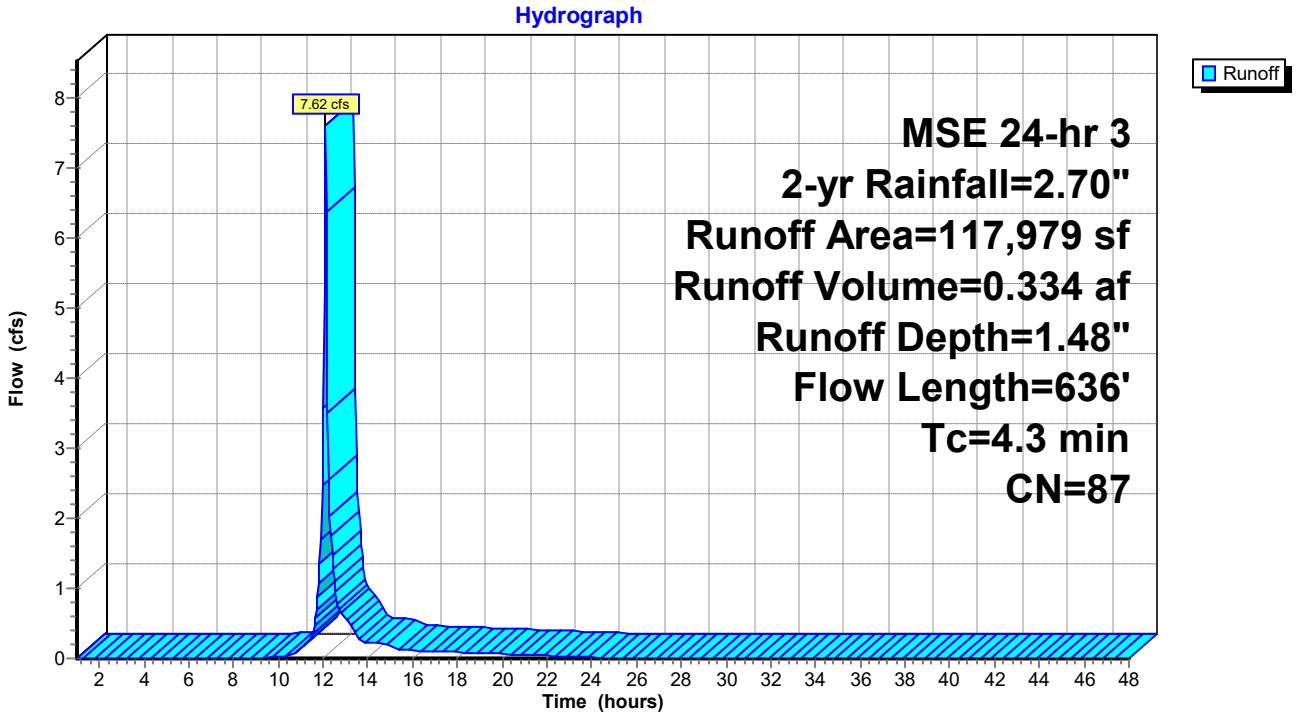
Runoff = 7.62 cfs @ 12.11 hrs, Volume= 0.334 af, Depth= 1.48"
Routed to Pond BIO : Bio Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-yr Rainfall=2.70"

	Area (sf)	CN	Description
	36,511	61	>75% Grass cover, Good, HSG B
	28,000	98	Roofs, HSG B
	49,426	98	Paved parking, HSG B
*	2,450	98	Concrete, HSG B
*	1,592	100	Basin Bottom
	117,979	87	Weighted Average
	36,511		30.95% Pervious Area
	81,468		69.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	32	0.0200	1.04		**Sheet Flow, Sheet Flow - Driveway** Smooth surfaces n= 0.011 P2= 2.90"
0.5	2	0.0500	0.07		**Sheet Flow, Sheet Flow - Shoulder** Grass: Dense n= 0.240 P2= 2.90"
0.9	10	0.2500	0.19		**Sheet Flow, Sheet Flow - Slope** Grass: Dense n= 0.240 P2= 2.90"
0.5	285	0.0243	8.72	209.27	**Channel Flow, Channel Flow - Driveway Swale** Area= 24.0 sf Perim= 20.0' r= 1.20' n= 0.030 Earth, grassed & winding
1.9	307	0.0050	2.63	0.52	**Pipe Channel, Pipe** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
4.3	636	Total			

Subcatchment P-AB: Total Area to Basin



Hydrograph for Subcatchment P-AB: Total Area to Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.06	0.00	0.00
4.00	0.07	0.00	0.00
4.50	0.09	0.00	0.00
5.00	0.10	0.00	0.00
5.50	0.12	0.00	0.00
6.00	0.14	0.00	0.00
6.50	0.16	0.00	0.00
7.00	0.18	0.00	0.00
7.50	0.20	0.00	0.00
8.00	0.23	0.00	0.00
8.50	0.25	0.00	0.00
9.00	0.28	0.00	0.00
9.50	0.32	0.00	0.01
10.00	0.37	0.00	0.02
10.50	0.42	0.01	0.04
11.00	0.52	0.03	0.15
11.50	0.67	0.07	0.32
12.00	1.25	0.37	**3.59**
12.50	2.03	0.93	**1.11**
13.00	2.18	1.05	0.57
13.50	2.28	1.13	0.35
14.00	2.33	1.17	0.22
14.50	2.38	1.21	0.21
15.00	2.42	1.25	0.20
15.50	2.45	1.27	0.12
16.00	2.47	1.29	0.11
16.50	2.50	1.31	0.11
17.00	2.52	1.33	0.10
17.50	2.54	1.35	0.10
18.00	2.56	1.36	0.09
18.50	2.58	1.38	0.08
19.00	2.60	1.39	0.08
19.50	2.61	1.41	0.07
20.00	2.63	1.42	0.07
20.50	2.64	1.43	0.06
21.00	2.66	1.44	0.05
21.50	2.67	1.45	0.05
22.00	2.68	1.46	0.04
22.50	2.68	1.47	0.04
23.00	2.69	1.47	0.03
23.50	2.70	1.48	0.02
24.00	**2.70**	**1.48**	0.02
24.50	2.70	1.48	0.00
25.00	2.70	1.48	0.00
25.50	2.70	1.48	0.00
26.00	2.70	1.48	0.00
26.50	2.70	1.48	0.00
27.00	2.70	1.48	0.00
27.50	2.70	1.48	0.00
28.00	2.70	1.48	0.00
28.50	2.70	1.48	0.00
29.00	2.70	1.48	0.00
29.50	2.70	1.48	0.00
30.00	2.70	1.48	0.00
30.50	2.70	1.48	0.00
31.00	2.70	1.48	0.00
31.50	2.70	1.48	0.00
32.00	2.70	1.48	0.00
32.50	2.70	1.48	0.00
33.00	2.70	1.48	0.00
33.50	2.70	1.48	0.00
34.00	2.70	1.48	0.00
34.50	2.70	1.48	0.00
35.00	2.70	1.48	0.00
35.50	2.70	1.48	0.00
36.00	2.70	1.48	0.00
36.50	2.70	1.48	0.00
37.00	2.70	1.48	0.00
37.50	2.70	1.48	0.00
38.00	2.70	1.48	0.00
38.50	2.70	1.48	0.00
39.00	2.70	1.48	0.00
39.50	2.70	1.48	0.00
40.00	2.70	1.48	0.00
40.50	2.70	1.48	0.00
41.00	2.70	1.48	0.00
41.50	2.70	1.48	0.00
42.00	2.70	1.48	0.00
42.50	2.70	1.48	0.00
43.00	2.70	1.48	0.00
43.50	2.70	1.48	0.00
44.00	2.70	1.48	0.00
44.50	2.70	1.48	0.00
45.00	2.70	1.48	0.00
45.50	2.70	1.48	0.00
46.00	2.70	1.48	0.00
46.50	2.70	1.48	0.00
47.00	2.70	1.48	0.00
47.50	2.70	1.48	0.00
48.00	2.70	1.48	0.00

Summary for Subcatchment P-OFF: Direct Offsite Drainage

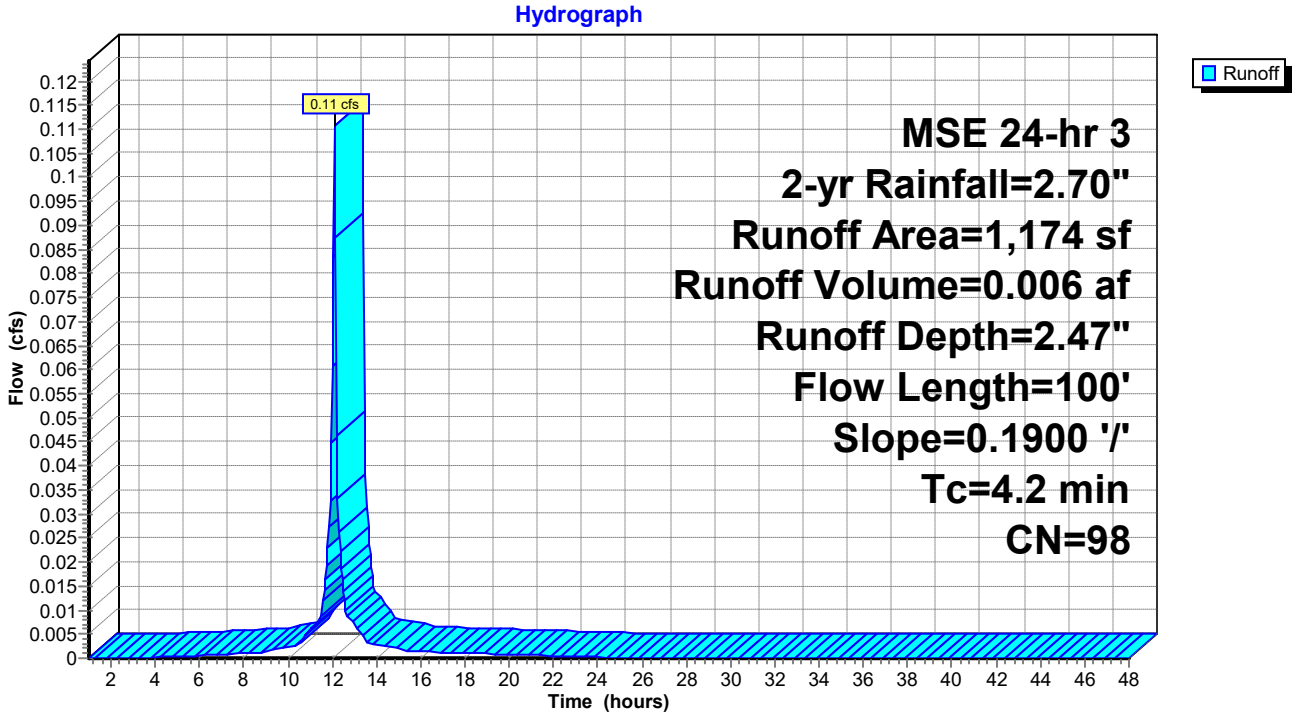
Runoff = 0.11 cfs @ 12.10 hrs, Volume= 0.006 af, Depth= 2.47"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 2-yr Rainfall=2.70"

Area (sf)	CN	Description
1,174	98	Paved parking, HSG B
1,174		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment P-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment P-OFF: Direct Offsite Drainage

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.02	0.00	0.00
2.50	0.03	0.00	0.00
3.00	0.04	0.00	0.00
3.50	0.06	0.00	0.00
4.00	0.07	0.00	0.00
4.50	0.09	0.01	0.00
5.00	0.10	0.01	0.00
5.50	0.12	0.02	0.00
6.00	0.14	0.03	0.00
6.50	0.16	0.04	0.00
7.00	0.18	0.06	0.00
7.50	0.20	0.07	0.00
8.00	0.23	0.09	0.00
8.50	0.25	0.11	0.00
9.00	0.28	0.13	0.00
9.50	0.32	0.16	0.00
10.00	0.37	0.20	0.00
10.50	0.42	0.25	0.00
11.00	0.52	0.34	0.01
11.50	0.67	0.47	0.01
12.00	1.25	1.03	**0.06**
12.50	2.03	1.80	**0.01**
13.00	2.18	1.95	0.01
13.50	2.28	2.05	0.00
14.00	2.33	2.10	0.00
14.50	2.38	2.15	0.00
15.00	2.42	2.19	0.00
15.50	2.45	2.22	0.00
16.00	2.47	2.24	0.00
16.50	2.50	2.27	0.00
17.00	2.52	2.29	0.00
17.50	2.54	2.31	0.00
18.00	2.56	2.33	0.00
18.50	2.58	2.35	0.00
19.00	2.60	2.37	0.00
19.50	2.61	2.38	0.00
20.00	2.63	2.40	0.00
20.50	2.64	2.41	0.00
21.00	2.66	2.43	0.00
21.50	2.67	2.44	0.00
22.00	2.68	2.45	0.00
22.50	2.68	2.45	0.00
23.00	2.69	2.46	0.00
23.50	2.70	2.47	0.00
24.00	**2.70**	**2.47**	0.00
24.50	2.70	2.47	0.00
25.00	2.70	2.47	0.00
25.50	2.70	2.47	0.00
26.00	2.70	2.47	0.00
26.50	2.70	2.47	0.00
27.00	2.70	2.47	0.00
27.50	2.70	2.47	0.00
28.00	2.70	2.47	0.00
28.50	2.70	2.47	0.00
29.00	2.70	2.47	0.00
29.50	2.70	2.47	0.00
30.00	2.70	2.47	0.00
30.50	2.70	2.47	0.00
31.00	2.70	2.47	0.00
31.50	2.70	2.47	0.00
32.00	2.70	2.47	0.00
32.50	2.70	2.47	0.00
33.00	2.70	2.47	0.00
33.50	2.70	2.47	0.00
34.00	2.70	2.47	0.00
34.50	2.70	2.47	0.00
35.00	2.70	2.47	0.00
35.50	2.70	2.47	0.00
36.00	2.70	2.47	0.00
36.50	2.70	2.47	0.00
37.00	2.70	2.47	0.00
37.50	2.70	2.47	0.00
38.00	2.70	2.47	0.00
38.50	2.70	2.47	0.00
39.00	2.70	2.47	0.00
39.50	2.70	2.47	0.00
40.00	2.70	2.47	0.00
40.50	2.70	2.47	0.00
41.00	2.70	2.47	0.00
41.50	2.70	2.47	0.00
42.00	2.70	2.47	0.00
42.50	2.70	2.47	0.00
43.00	2.70	2.47	0.00
43.50	2.70	2.47	0.00
44.00	2.70	2.47	0.00
44.50	2.70	2.47	0.00
45.00	2.70	2.47	0.00
45.50	2.70	2.47	0.00
46.00	2.70	2.47	0.00
46.50	2.70	2.47	0.00
47.00	2.70	2.47	0.00
47.50	2.70	2.47	0.00
48.00	2.70	2.47	0.00

Summary for Pond BIO: Bio Basin

Inflow Area = 2.708 ac, 69.05% Impervious, Inflow Depth = 1.48" for 2-yr event
Inflow = 7.62 cfs @ 12.11 hrs, Volume= 0.334 af
Outflow = 0.24 cfs @ 13.62 hrs, Volume= 0.332 af, Atten= 97%, Lag= 90.9 min
Discarded = 0.12 cfs @ 13.62 hrs, Volume= 0.259 af
Primary = 0.12 cfs @ 13.62 hrs, Volume= 0.073 af
Routed to Link TO : Total Ex FLow
Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 901.40' @ 13.62 hrs Surf.Area= 10,411 sf Storage= 9,700 cf

Plug-Flow detention time= 634.8 min calculated for 0.332 af (100% of inflow)
Center-of-Mass det. time= 631.9 min (1,432.9 - 801.1)

Volume	Invert	Avail.Storage	Storage Description
#1	900.00'	28,486 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

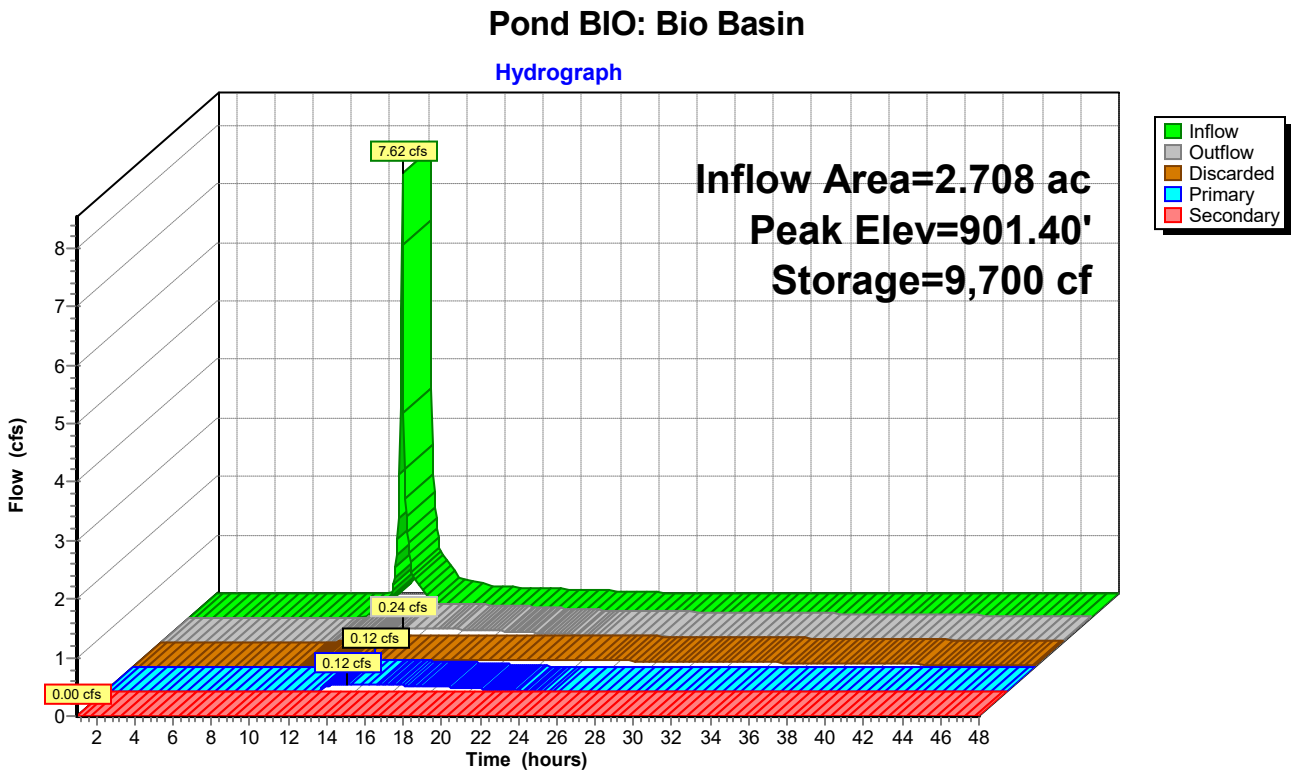
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
900.00	1,592	0	0
901.00	9,767	5,680	5,680
902.00	11,384	10,576	16,255
903.00	13,078	12,231	28,486

Device	Routing	Invert	Outlet Devices
#1	Secondary	902.75'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	900.00'	**0.500 in/hr Exfiltration over Surface area**
#3	Primary	900.50'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.50' / 898.50' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#4	Device 3	901.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	901.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	902.75'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.12 cfs @ 13.62 hrs HW=901.40' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.12 cfs)

Primary OutFlow Max=0.12 cfs @ 13.62 hrs HW=901.40' (Free Discharge)
└**3=Culvert** (Passes 0.12 cfs of 1.89 cfs potential flow)
  └**4=Orifice/Grate** (Orifice Controls 0.12 cfs @ 2.52 fps)
  └**5=Orifice/Grate** (Controls 0.00 cfs)
  └**6=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=900.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)



Hydrograph for Pond BIO: Bio Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
1.00	0.00	0	900.00	0.00	0.00	0.00	**0.00**
2.00	0.00	0	900.00	0.00	0.00	0.00	0.00
3.00	0.00	0	900.00	0.00	0.00	0.00	0.00
4.00	0.00	0	900.00	0.00	0.00	0.00	0.00
5.00	0.00	0	900.00	0.00	0.00	0.00	0.00
6.00	0.00	0	900.00	0.00	0.00	0.00	0.00
7.00	0.00	0	900.00	0.00	0.00	0.00	0.00
8.00	0.00	0	900.00	0.00	0.00	0.00	0.00
9.00	0.00	0	900.00	0.00	0.00	0.00	0.00
10.00	0.02	20	900.01	0.01	0.01	0.00	0.00
11.00	0.15	171	900.09	0.03	0.03	0.00	0.00
12.00	**3.59**	2,502	900.61	0.08	0.08	0.00	0.00
13.00	**0.57**	**9,275**	**901.36**	**0.23**	**0.12**	**0.11**	0.00
14.00	0.22	**9,680**	**901.40**	**0.24**	**0.12**	**0.12**	0.00
15.00	0.20	9,566	901.39	0.24	0.12	0.12	0.00
16.00	0.11	9,163	901.35	0.23	0.12	0.11	0.00
17.00	0.10	8,741	901.31	0.22	0.12	0.10	0.00
18.00	0.09	8,321	901.26	0.21	0.12	0.09	0.00
19.00	0.08	7,907	901.22	0.19	0.12	0.07	0.00
20.00	0.07	7,510	901.18	0.17	0.12	0.06	0.00
21.00	0.05	7,135	901.15	0.16	0.12	0.04	0.00
22.00	0.04	6,778	901.11	0.14	0.12	0.02	0.00
23.00	0.03	6,429	901.08	0.13	0.11	0.01	0.00
24.00	0.02	6,074	901.04	0.12	0.11	0.00	0.00
25.00	0.00	5,665	901.00	0.11	0.11	0.00	0.00
26.00	0.00	5,265	900.96	0.11	0.11	0.00	0.00
27.00	0.00	4,880	900.92	0.11	0.11	0.00	0.00
28.00	0.00	4,509	900.87	0.10	0.10	0.00	0.00
29.00	0.00	4,153	900.83	0.10	0.10	0.00	0.00
30.00	0.00	3,810	900.79	0.09	0.09	0.00	0.00
31.00	0.00	3,482	900.75	0.09	0.09	0.00	0.00
32.00	0.00	3,167	900.71	0.09	0.09	0.00	0.00
33.00	0.00	2,868	900.67	0.08	0.08	0.00	0.00
34.00	0.00	2,582	900.62	0.08	0.08	0.00	0.00
35.00	0.00	2,310	900.58	0.07	0.07	0.00	0.00
36.00	0.00	2,053	900.54	0.07	0.07	0.00	0.00
37.00	0.00	1,810	900.50	0.07	0.07	0.00	0.00
38.00	0.00	1,581	900.46	0.06	0.06	0.00	0.00
39.00	0.00	1,366	900.42	0.06	0.06	0.00	0.00
40.00	0.00	1,165	900.37	0.05	0.05	0.00	0.00
41.00	0.00	979	900.33	0.05	0.05	0.00	0.00
42.00	0.00	806	900.29	0.05	0.05	0.00	0.00
43.00	0.00	648	900.25	0.04	0.04	0.00	0.00
44.00	0.00	504	900.21	0.04	0.04	0.00	0.00
45.00	0.00	375	900.16	0.03	0.03	0.00	0.00
46.00	0.00	259	900.12	0.03	0.03	0.00	0.00
47.00	0.00	158	900.08	0.03	0.03	0.00	0.00
48.00	0.00	71	900.04	0.02	0.02	0.00	0.00

Stage-Area-Storage for Pond BIO: Bio Basin

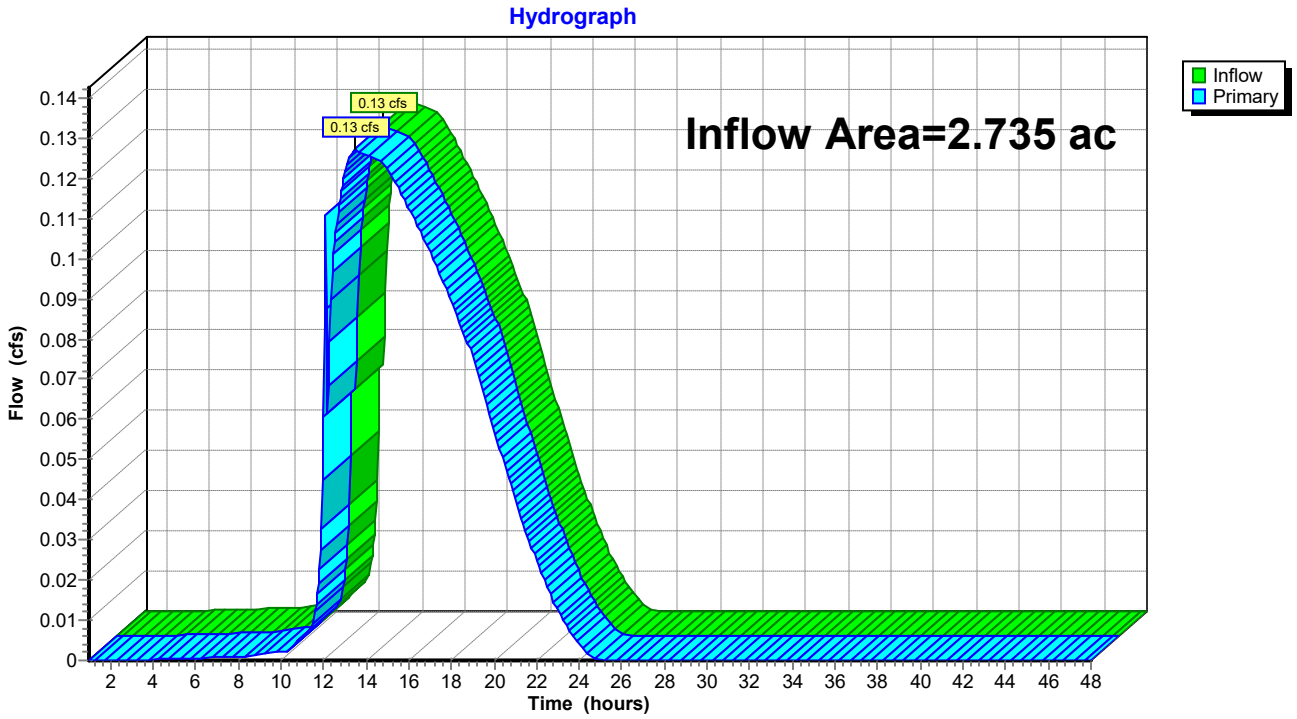
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
900.00	1,592	0
900.05	2,001	90
900.10	2,410	200
900.15	2,818	331
900.20	3,227	482
900.25	3,636	653
900.30	4,044	845
900.35	4,453	1,058
900.40	4,862	1,291
900.45	5,271	1,544
900.50	5,680	1,818
900.55	6,088	2,112
900.60	6,497	2,427
900.65	6,906	2,762
900.70	7,315	3,117
900.75	7,723	3,493
900.80	8,132	3,890
900.85	8,541	4,306
900.90	8,949	4,744
900.95	9,358	5,201
901.00	9,767	5,680
901.05	9,848	6,170
901.10	9,929	6,664
901.15	10,010	7,163
901.20	10,090	7,665
901.25	10,171	8,172
901.30	10,252	8,682
901.35	10,333	9,197
901.40	10,414	9,716
901.45	10,495	10,238
901.50	10,576	10,765
901.55	10,656	11,296
901.60	10,737	11,831
901.65	10,818	12,370
901.70	10,899	12,913
901.75	10,980	13,460
901.80	11,061	14,011
901.85	11,141	14,566
901.90	11,222	15,125
901.95	11,303	15,688
902.00	11,384	16,255
902.05	11,469	16,826
902.10	11,553	17,402
902.15	11,638	17,982
902.20	11,723	18,566
902.25	11,808	19,154
902.30	11,892	19,746
902.35	11,977	20,343
902.40	12,062	20,944
902.45	12,146	21,549
902.50	12,231	22,159
902.55	12,316	22,772
902.60	12,400	23,390
902.65	12,485	24,012
902.70	12,570	24,639
902.75	12,655	25,269
902.80	12,739	25,904
902.85	12,824	26,543
902.90	12,909	27,187
902.95	12,993	27,834
903.00	**13,078**	**28,486**

Summary for Link TO: Total Ex FLow

Inflow Area = 2.735 ac, 69.36% Impervious, Inflow Depth = 0.35" for 2-yr event
Inflow = 0.13 cfs @ 13.50 hrs, Volume= 0.079 af
Primary = 0.13 cfs @ 13.50 hrs, Volume= 0.079 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00	27.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00	28.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
11.00	0.01	0.00	0.01	37.00	0.00	0.00	0.00
11.50	0.01	0.00	0.01	37.50	0.00	0.00	0.00
12.00	0.06	0.00	0.06	38.00	0.00	0.00	0.00
12.50	0.10	0.00	0.10	38.50	0.00	0.00	0.00
13.00	0.12	0.00	0.12	39.00	0.00	0.00	0.00
13.50	**0.13**	0.00	**0.13**	39.50	0.00	0.00	0.00
14.00	0.13	0.00	0.13	40.00	0.00	0.00	0.00
14.50	0.12	0.00	0.12	40.50	0.00	0.00	0.00
15.00	0.12	0.00	0.12	41.00	0.00	0.00	0.00
15.50	0.12	0.00	0.12	41.50	0.00	0.00	0.00
16.00	0.11	0.00	0.11	42.00	0.00	0.00	0.00
16.50	0.11	0.00	0.11	42.50	0.00	0.00	0.00
17.00	0.10	0.00	0.10	43.00	0.00	0.00	0.00
17.50	0.10	0.00	0.10	43.50	0.00	0.00	0.00
18.00	0.09	0.00	0.09	44.00	0.00	0.00	0.00
18.50	0.08	0.00	0.08	44.50	0.00	0.00	0.00
19.00	0.08	0.00	0.08	45.00	0.00	0.00	0.00
19.50	0.07	0.00	0.07	45.50	0.00	0.00	0.00
20.00	0.06	0.00	0.06	46.00	0.00	0.00	0.00
20.50	0.05	0.00	0.05	46.50	0.00	0.00	0.00
21.00	0.04	0.00	0.04	47.00	0.00	0.00	0.00
21.50	0.03	0.00	0.03	47.50	0.00	0.00	0.00
22.00	0.02	0.00	0.02	48.00	0.00	0.00	0.00
22.50	0.02	0.00	0.02				
23.00	0.01	0.00	0.01				
23.50	0.01	0.00	0.01				
24.00	0.00	0.00	0.00				
24.50	0.00	0.00	0.00				
25.00	0.00	0.00	0.00				
25.50	0.00	0.00	0.00				
26.00	0.00	0.00	0.00				
26.50	0.00	0.00	0.00				

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 P-AB: Total Area to Basin Runoff Area=117,979 sf 69.05% Impervious Runoff Depth=2.46"
Flow Length=636' Tc=4.3 min CN=87 Runoff=12.46 cfs 0.556 af

Subcatchment P-OFF: Direct Offsite Runoff Area=1,174 sf 100.00% Impervious Runoff Depth=3.58"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=98 Runoff=0.16 cfs 0.008 af

Pond BIO: Bio Basin Peak Elev=901.99' Storage=16,098 cf Inflow=12.46 cfs 0.556 af
Discarded=0.13 cfs 0.303 af Primary=0.36 cfs 0.240 af Secondary=0.00 cfs 0.000 af Outflow=0.49 cfs 0.543 af

Link TO: Total Ex FLow Inflow=0.37 cfs 0.248 af
Primary=0.37 cfs 0.248 af

Total Runoff Area = 2.735 ac Runoff Volume = 0.564 af Average Runoff Depth = 2.47"
30.64% Pervious = 0.838 ac 69.36% Impervious = 1.897 ac

Summary for Subcatchment P-AB: Total Area to Basin

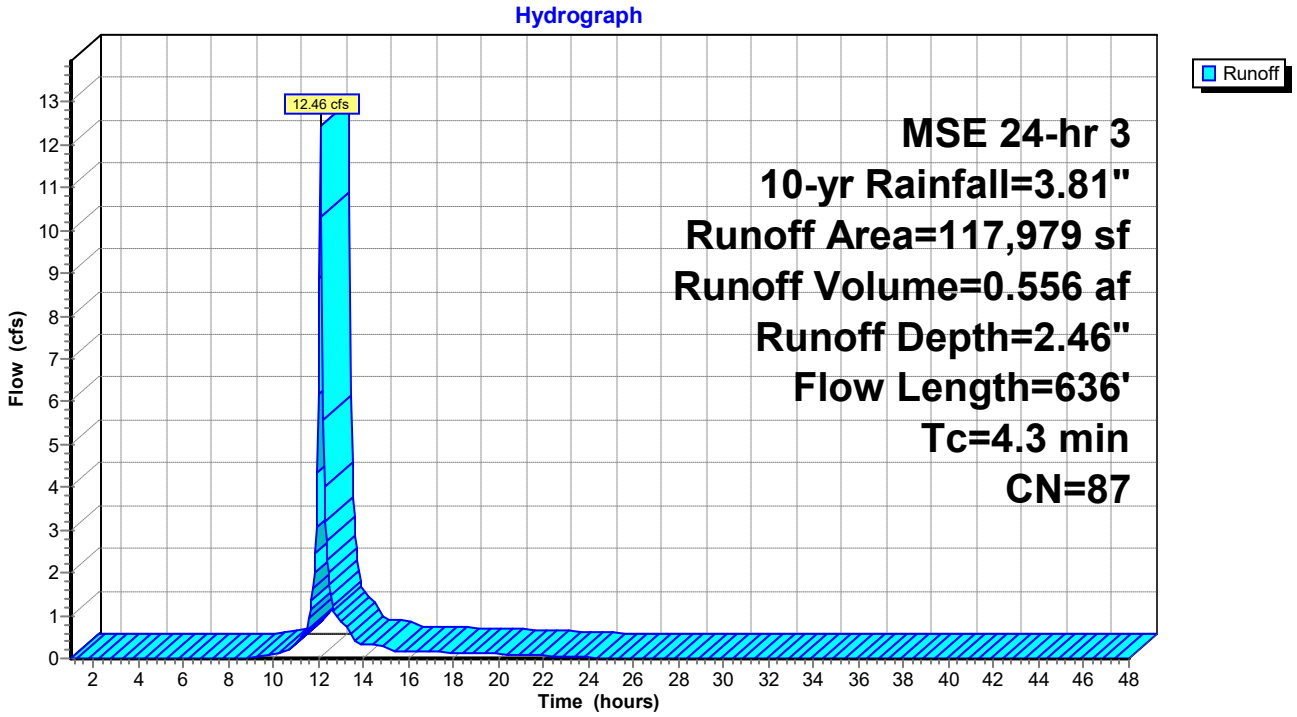
Runoff = 12.46 cfs @ 12.11 hrs, Volume= 0.556 af, Depth= 2.46"
Routed to Pond BIO : Bio Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-yr Rainfall=3.81"

	Area (sf)	CN	Description
	36,511	61	>75% Grass cover, Good, HSG B
	28,000	98	Roofs, HSG B
	49,426	98	Paved parking, HSG B
*	2,450	98	Concrete, HSG B
*	1,592	100	Basin Bottom
	117,979	87	Weighted Average
	36,511		30.95% Pervious Area
	81,468		69.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	32	0.0200	1.04		**Sheet Flow, Sheet Flow - Driveway** Smooth surfaces n= 0.011 P2= 2.90"
0.5	2	0.0500	0.07		**Sheet Flow, Sheet Flow - Shoulder** Grass: Dense n= 0.240 P2= 2.90"
0.9	10	0.2500	0.19		**Sheet Flow, Sheet Flow - Slope** Grass: Dense n= 0.240 P2= 2.90"
0.5	285	0.0243	8.72	209.27	**Channel Flow, Channel Flow - Driveway Swale** Area= 24.0 sf Perim= 20.0' r= 1.20' n= 0.030 Earth, grassed & winding
1.9	307	0.0050	2.63	0.52	**Pipe Channel, Pipe** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
4.3	636	Total			

Subcatchment P-AB: Total Area to Basin



Hydrograph for Subcatchment P-AB: Total Area to Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.03	0.00	0.00
2.50	0.05	0.00	0.00
3.00	0.06	0.00	0.00
3.50	0.08	0.00	0.00
4.00	0.10	0.00	0.00
4.50	0.12	0.00	0.00
5.00	0.14	0.00	0.00
5.50	0.17	0.00	0.00
6.00	0.19	0.00	0.00
6.50	0.22	0.00	0.00
7.00	0.25	0.00	0.00
7.50	0.28	0.00	0.00
8.00	0.32	0.00	0.00
8.50	0.35	0.00	0.01
9.00	0.39	0.01	0.02
9.50	0.46	0.01	0.06
10.00	0.52	0.03	0.09
10.50	0.60	0.05	0.12
11.00	0.73	0.10	0.35
11.50	0.94	0.19	0.65
12.00	1.76	0.73	**6.19**
12.50	2.87	1.62	**1.72**
13.00	3.08	1.81	0.88
13.50	3.21	1.93	0.54
14.00	3.29	1.99	0.34
14.50	3.35	2.05	0.32
15.00	3.42	2.11	0.30
15.50	3.46	2.14	0.18
16.00	3.49	2.17	0.17
16.50	3.53	2.20	0.16
17.00	3.56	2.23	0.15
17.50	3.59	2.26	0.15
18.00	3.62	2.29	0.14
18.50	3.64	2.31	0.13
19.00	3.67	2.33	0.12
19.50	3.69	2.35	0.11
20.00	3.71	2.37	0.10
20.50	3.73	2.39	0.09
21.00	3.75	2.41	0.08
21.50	3.76	2.42	0.07
22.00	3.78	2.43	0.06
22.50	3.79	2.44	0.05
23.00	3.80	2.45	0.04
23.50	3.80	2.46	0.04
24.00	**3.81**	**2.46**	0.03
24.50	3.81	2.46	0.00
25.00	3.81	2.46	0.00
25.50	3.81	2.46	0.00
26.00	3.81	2.46	0.00
26.50	3.81	2.46	0.00
27.00	3.81	2.46	0.00
27.50	3.81	2.46	0.00
28.00	3.81	2.46	0.00
28.50	3.81	2.46	0.00
29.00	3.81	2.46	0.00
29.50	3.81	2.46	0.00
30.00	3.81	2.46	0.00
30.50	3.81	2.46	0.00
31.00	3.81	2.46	0.00
31.50	3.81	2.46	0.00
32.00	3.81	2.46	0.00
32.50	3.81	2.46	0.00
33.00	3.81	2.46	0.00
33.50	3.81	2.46	0.00
34.00	3.81	2.46	0.00
34.50	3.81	2.46	0.00
35.00	3.81	2.46	0.00
35.50	3.81	2.46	0.00
36.00	3.81	2.46	0.00
36.50	3.81	2.46	0.00
37.00	3.81	2.46	0.00
37.50	3.81	2.46	0.00
38.00	3.81	2.46	0.00
38.50	3.81	2.46	0.00
39.00	3.81	2.46	0.00
39.50	3.81	2.46	0.00
40.00	3.81	2.46	0.00
40.50	3.81	2.46	0.00
41.00	3.81	2.46	0.00
41.50	3.81	2.46	0.00
42.00	3.81	2.46	0.00
42.50	3.81	2.46	0.00
43.00	3.81	2.46	0.00
43.50	3.81	2.46	0.00
44.00	3.81	2.46	0.00
44.50	3.81	2.46	0.00
45.00	3.81	2.46	0.00
45.50	3.81	2.46	0.00
46.00	3.81	2.46	0.00
46.50	3.81	2.46	0.00
47.00	3.81	2.46	0.00
47.50	3.81	2.46	0.00
48.00	3.81	2.46	0.00

Summary for Subcatchment P-OFF: Direct Offsite Drainage

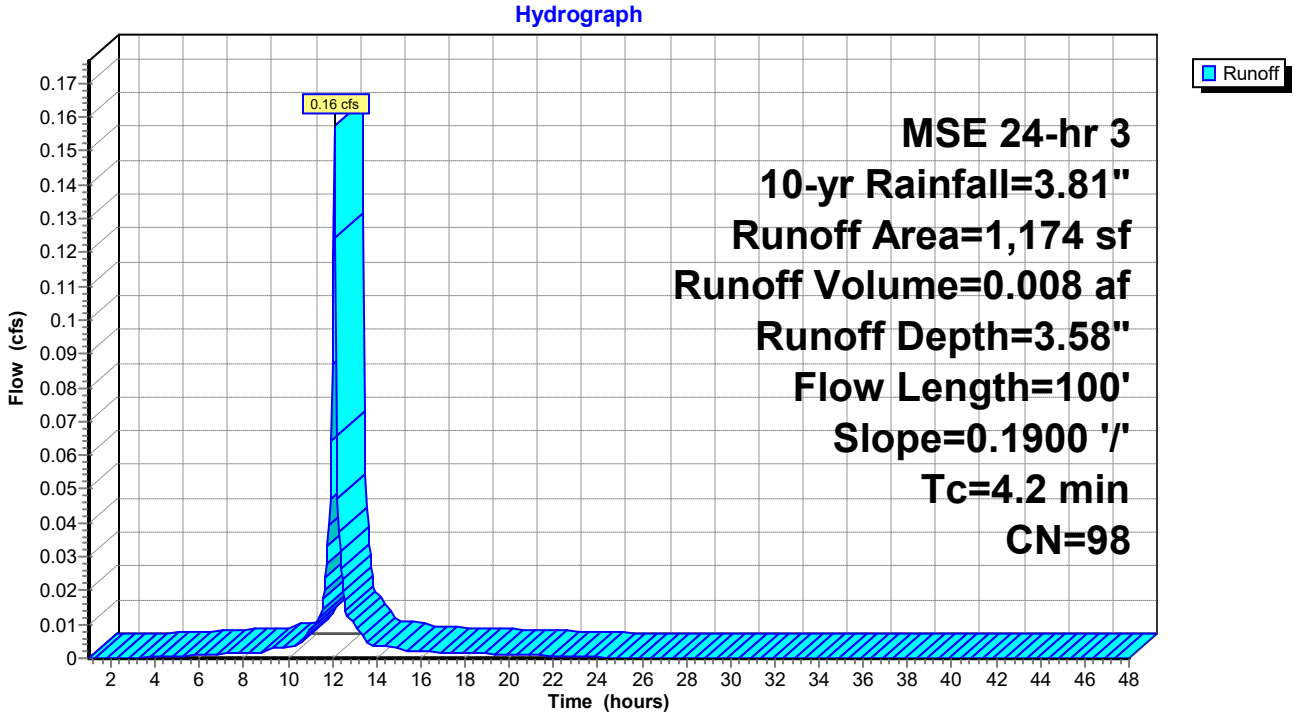
Runoff = 0.16 cfs @ 12.10 hrs, Volume= 0.008 af, Depth= 3.58"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 10-yr Rainfall=3.81"

Area (sf)	CN	Description
1,174	98	Paved parking, HSG B
1,174		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment P-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment P-OFF: Direct Offsite Drainage

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.01	0.00	0.00
1.50	0.02	0.00	0.00
2.00	0.03	0.00	0.00
2.50	0.05	0.00	0.00
3.00	0.06	0.00	0.00
3.50	0.08	0.01	0.00
4.00	0.10	0.01	0.00
4.50	0.12	0.02	0.00
5.00	0.14	0.03	0.00
5.50	0.17	0.05	0.00
6.00	0.19	0.07	0.00
6.50	0.22	0.09	0.00
7.00	0.25	0.11	0.00
7.50	0.28	0.13	0.00
8.00	0.32	0.16	0.00
8.50	0.35	0.19	0.00
9.00	0.39	0.22	0.00
9.50	0.46	0.28	0.00
10.00	0.52	0.34	0.00
10.50	0.60	0.41	0.00
11.00	0.73	0.54	0.01
11.50	0.94	0.74	0.01
12.00	1.76	1.54	**0.09**
12.50	2.87	2.63	**0.02**
13.00	3.08	2.84	0.01
13.50	3.21	2.98	0.01
14.00	3.29	3.05	0.00
14.50	3.35	3.12	0.00
15.00	3.42	3.18	0.00
15.50	3.46	3.22	0.00
16.00	3.49	3.26	0.00
16.50	3.53	3.29	0.00
17.00	3.56	3.32	0.00
17.50	3.59	3.35	0.00
18.00	3.62	3.38	0.00
18.50	3.64	3.41	0.00
19.00	3.67	3.43	0.00
19.50	3.69	3.46	0.00
20.00	3.71	3.48	0.00
20.50	3.73	3.50	0.00
21.00	3.75	3.51	0.00
21.50	3.76	3.53	0.00
22.00	3.78	3.54	0.00
22.50	3.79	3.55	0.00
23.00	3.80	3.56	0.00
23.50	3.80	3.57	0.00
24.00	**3.81**	**3.58**	0.00
24.50	3.81	3.58	0.00
25.00	3.81	3.58	0.00
25.50	3.81	3.58	0.00
26.00	3.81	3.58	0.00
26.50	3.81	3.58	0.00
27.00	3.81	3.58	0.00
27.50	3.81	3.58	0.00
28.00	3.81	3.58	0.00
28.50	3.81	3.58	0.00
29.00	3.81	3.58	0.00
29.50	3.81	3.58	0.00
30.00	3.81	3.58	0.00
30.50	3.81	3.58	0.00
31.00	3.81	3.58	0.00
31.50	3.81	3.58	0.00
32.00	3.81	3.58	0.00
32.50	3.81	3.58	0.00
33.00	3.81	3.58	0.00
33.50	3.81	3.58	0.00
34.00	3.81	3.58	0.00
34.50	3.81	3.58	0.00
35.00	3.81	3.58	0.00
35.50	3.81	3.58	0.00
36.00	3.81	3.58	0.00
36.50	3.81	3.58	0.00
37.00	3.81	3.58	0.00
37.50	3.81	3.58	0.00
38.00	3.81	3.58	0.00
38.50	3.81	3.58	0.00
39.00	3.81	3.58	0.00
39.50	3.81	3.58	0.00
40.00	3.81	3.58	0.00
40.50	3.81	3.58	0.00
41.00	3.81	3.58	0.00
41.50	3.81	3.58	0.00
42.00	3.81	3.58	0.00
42.50	3.81	3.58	0.00
43.00	3.81	3.58	0.00
43.50	3.81	3.58	0.00
44.00	3.81	3.58	0.00
44.50	3.81	3.58	0.00
45.00	3.81	3.58	0.00
45.50	3.81	3.58	0.00
46.00	3.81	3.58	0.00
46.50	3.81	3.58	0.00
47.00	3.81	3.58	0.00
47.50	3.81	3.58	0.00
48.00	3.81	3.58	0.00

Summary for Pond BIO: Bio Basin

Inflow Area = 2.708 ac, 69.05% Impervious, Inflow Depth = 2.46" for 10-yr event
Inflow = 12.46 cfs @ 12.11 hrs, Volume= 0.556 af
Outflow = 0.49 cfs @ 13.53 hrs, Volume= 0.543 af, Atten= 96%, Lag= 85.6 min
Discarded = 0.13 cfs @ 13.53 hrs, Volume= 0.303 af
Primary = 0.36 cfs @ 13.53 hrs, Volume= 0.240 af
Routed to Link TO : Total Ex FLow
Secondary = 0.00 cfs @ 1.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 901.99' @ 13.53 hrs Surf.Area= 11,362 sf Storage= 16,098 cf

Plug-Flow detention time= 571.6 min calculated for 0.543 af (98% of inflow)
Center-of-Mass det. time= 559.9 min (1,350.7 - 790.9)

Volume	Invert	Avail.Storage	Storage Description
#1	900.00'	28,486 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
900.00	1,592	0	0
901.00	9,767	5,680	5,680
902.00	11,384	10,576	16,255
903.00	13,078	12,231	28,486

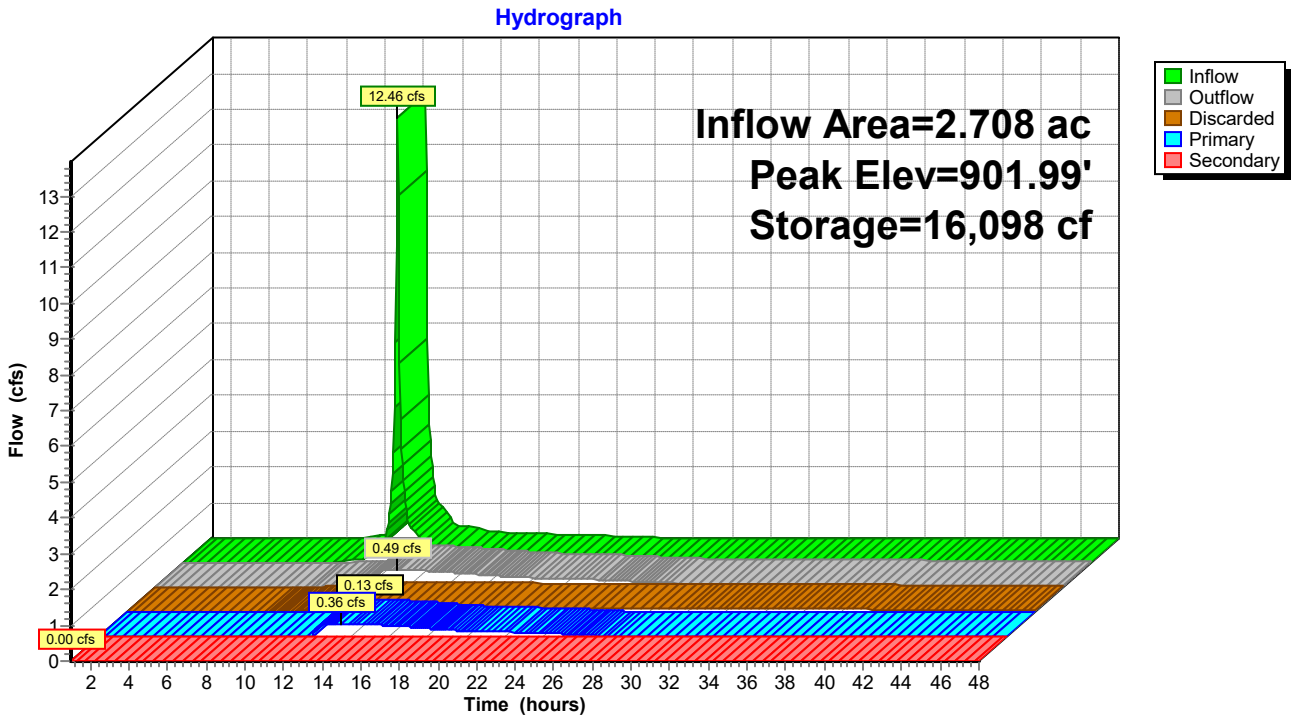
Device	Routing	Invert	Outlet Devices
#1	Secondary	902.75'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	900.00'	**0.500 in/hr Exfiltration over Surface area**
#3	Primary	900.50'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.50' / 898.50' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#4	Device 3	901.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	901.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	902.75'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.13 cfs @ 13.53 hrs HW=901.99' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.13 cfs)

Primary OutFlow Max=0.36 cfs @ 13.53 hrs HW=901.99' (Free Discharge)
└**3=Culvert** (Passes 0.36 cfs of 2.96 cfs potential flow)
  └**4=Orifice/Grate** (Orifice Controls 0.22 cfs @ 4.47 fps)
  └**5=Orifice/Grate** (Orifice Controls 0.14 cfs @ 2.89 fps)
  └**6=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 1.00 hrs HW=900.00' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Pond BIO: Bio Basin



Hydrograph for Pond BIO: Bio Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
1.00	0.00	0	900.00	0.00	0.00	0.00	**0.00**
2.00	0.00	0	900.00	0.00	0.00	0.00	0.00
3.00	0.00	0	900.00	0.00	0.00	0.00	0.00
4.00	0.00	0	900.00	0.00	0.00	0.00	0.00
5.00	0.00	0	900.00	0.00	0.00	0.00	0.00
6.00	0.00	0	900.00	0.00	0.00	0.00	0.00
7.00	0.00	0	900.00	0.00	0.00	0.00	0.00
8.00	0.00	1	900.00	0.00	0.00	0.00	0.00
9.00	0.02	29	900.02	0.01	0.01	0.00	0.00
10.00	0.09	170	900.09	0.03	0.03	0.00	0.00
11.00	0.35	666	900.25	0.04	0.04	0.00	0.00
12.00	**6.19**	5,132	900.94	0.11	0.11	0.00	0.00
13.00	**0.88**	**15,692**	**901.95**	**0.48**	**0.13**	**0.35**	0.00
14.00	0.34	**15,888**	**901.97**	**0.49**	**0.13**	**0.36**	0.00
15.00	0.30	15,326	901.92	0.47	0.13	0.34	0.00
16.00	0.17	14,378	901.83	0.44	0.13	0.31	0.00
17.00	0.15	13,466	901.75	0.40	0.13	0.27	0.00
18.00	0.14	12,637	901.67	0.35	0.13	0.23	0.00
19.00	0.12	11,904	901.61	0.31	0.12	0.19	0.00
20.00	0.10	11,236	901.54	0.28	0.12	0.16	0.00
21.00	0.08	10,586	901.48	0.26	0.12	0.14	0.00
22.00	0.06	9,923	901.42	0.25	0.12	0.13	0.00
23.00	0.04	9,247	901.35	0.23	0.12	0.11	0.00
24.00	0.03	8,568	901.29	0.21	0.12	0.10	0.00
25.00	0.00	7,846	901.22	0.19	0.12	0.07	0.00
26.00	0.00	7,220	901.16	0.16	0.12	0.04	0.00
27.00	0.00	6,692	901.10	0.14	0.11	0.02	0.00
28.00	0.00	6,231	901.06	0.12	0.11	0.01	0.00
29.00	0.00	5,811	901.01	0.11	0.11	0.00	0.00
30.00	0.00	5,407	900.97	0.11	0.11	0.00	0.00
31.00	0.00	5,016	900.93	0.11	0.11	0.00	0.00
32.00	0.00	4,640	900.89	0.10	0.10	0.00	0.00
33.00	0.00	4,279	900.85	0.10	0.10	0.00	0.00
34.00	0.00	3,931	900.81	0.09	0.09	0.00	0.00
35.00	0.00	3,597	900.76	0.09	0.09	0.00	0.00
36.00	0.00	3,278	900.72	0.09	0.09	0.00	0.00
37.00	0.00	2,973	900.68	0.08	0.08	0.00	0.00
38.00	0.00	2,682	900.64	0.08	0.08	0.00	0.00
39.00	0.00	2,406	900.60	0.07	0.07	0.00	0.00
40.00	0.00	2,143	900.55	0.07	0.07	0.00	0.00
41.00	0.00	1,895	900.51	0.07	0.07	0.00	0.00
42.00	0.00	1,661	900.47	0.06	0.06	0.00	0.00
43.00	0.00	1,441	900.43	0.06	0.06	0.00	0.00
44.00	0.00	1,235	900.39	0.06	0.06	0.00	0.00
45.00	0.00	1,044	900.35	0.05	0.05	0.00	0.00
46.00	0.00	866	900.31	0.05	0.05	0.00	0.00
47.00	0.00	703	900.26	0.04	0.04	0.00	0.00
48.00	0.00	554	900.22	0.04	0.04	0.00	0.00

Stage-Area-Storage for Pond BIO: Bio Basin

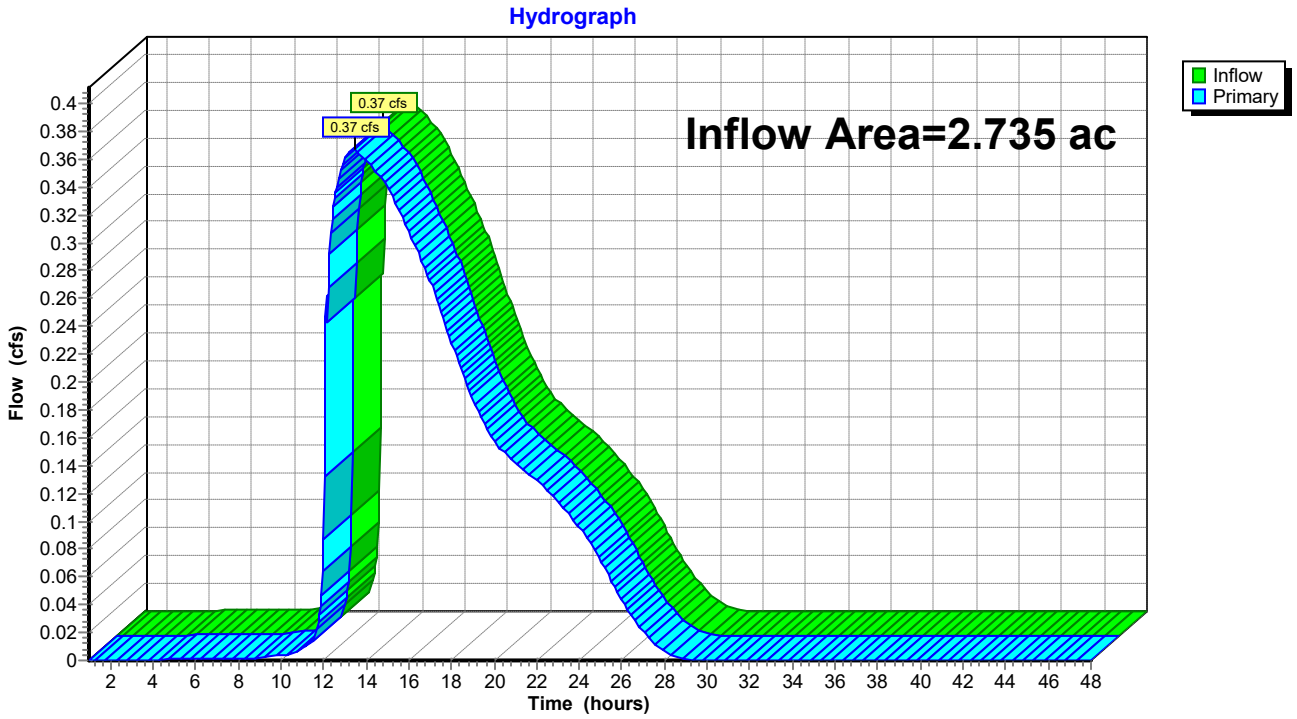
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
900.00	1,592	0
900.05	2,001	90
900.10	2,410	200
900.15	2,818	331
900.20	3,227	482
900.25	3,636	653
900.30	4,044	845
900.35	4,453	1,058
900.40	4,862	1,291
900.45	5,271	1,544
900.50	5,680	1,818
900.55	6,088	2,112
900.60	6,497	2,427
900.65	6,906	2,762
900.70	7,315	3,117
900.75	7,723	3,493
900.80	8,132	3,890
900.85	8,541	4,306
900.90	8,949	4,744
900.95	9,358	5,201
901.00	9,767	5,680
901.05	9,848	6,170
901.10	9,929	6,664
901.15	10,010	7,163
901.20	10,090	7,665
901.25	10,171	8,172
901.30	10,252	8,682
901.35	10,333	9,197
901.40	10,414	9,716
901.45	10,495	10,238
901.50	10,576	10,765
901.55	10,656	11,296
901.60	10,737	11,831
901.65	10,818	12,370
901.70	10,899	12,913
901.75	10,980	13,460
901.80	11,061	14,011
901.85	11,141	14,566
901.90	11,222	15,125
901.95	11,303	15,688
902.00	11,384	16,255
902.05	11,469	16,826
902.10	11,553	17,402
902.15	11,638	17,982
902.20	11,723	18,566
902.25	11,808	19,154
902.30	11,892	19,746
902.35	11,977	20,343
902.40	12,062	20,944
902.45	12,146	21,549
902.50	12,231	22,159
902.55	12,316	22,772
902.60	12,400	23,390
902.65	12,485	24,012
902.70	12,570	24,639
902.75	12,655	25,269
902.80	12,739	25,904
902.85	12,824	26,543
902.90	12,909	27,187
902.95	12,993	27,834
903.00	**13,078**	**28,486**

Summary for Link TO: Total Ex FLow

Inflow Area = 2.735 ac, 69.36% Impervious, Inflow Depth = 1.09" for 10-yr event
Inflow = 0.37 cfs @ 13.46 hrs, Volume= 0.248 af
Primary = 0.37 cfs @ 13.46 hrs, Volume= 0.248 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.02	0.00	0.02
1.50	0.00	0.00	0.00	27.50	0.01	0.00	0.01
2.00	0.00	0.00	0.00	28.00	0.01	0.00	0.01
2.50	0.00	0.00	0.00	28.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00	29.00	0.00	0.00	0.00
3.50	0.00	0.00	0.00	29.50	0.00	0.00	0.00
4.00	0.00	0.00	0.00	30.00	0.00	0.00	0.00
4.50	0.00	0.00	0.00	30.50	0.00	0.00	0.00
5.00	0.00	0.00	0.00	31.00	0.00	0.00	0.00
5.50	0.00	0.00	0.00	31.50	0.00	0.00	0.00
6.00	0.00	0.00	0.00	32.00	0.00	0.00	0.00
6.50	0.00	0.00	0.00	32.50	0.00	0.00	0.00
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.00	0.00	0.00	35.50	0.00	0.00	0.00
10.00	0.00	0.00	0.00	36.00	0.00	0.00	0.00
10.50	0.00	0.00	0.00	36.50	0.00	0.00	0.00
11.00	0.01	0.00	0.01	37.00	0.00	0.00	0.00
11.50	0.01	0.00	0.01	37.50	0.00	0.00	0.00
12.00	0.09	0.00	0.09	38.00	0.00	0.00	0.00
12.50	0.33	0.00	0.33	38.50	0.00	0.00	0.00
13.00	**0.36**	0.00	**0.36**	39.00	0.00	0.00	0.00
13.50	**0.37**	0.00	**0.37**	39.50	0.00	0.00	0.00
14.00	0.36	0.00	0.36	40.00	0.00	0.00	0.00
14.50	0.35	0.00	0.35	40.50	0.00	0.00	0.00
15.00	0.34	0.00	0.34	41.00	0.00	0.00	0.00
15.50	0.33	0.00	0.33	41.50	0.00	0.00	0.00
16.00	0.31	0.00	0.31	42.00	0.00	0.00	0.00
16.50	0.29	0.00	0.29	42.50	0.00	0.00	0.00
17.00	0.27	0.00	0.27	43.00	0.00	0.00	0.00
17.50	0.25	0.00	0.25	43.50	0.00	0.00	0.00
18.00	0.23	0.00	0.23	44.00	0.00	0.00	0.00
18.50	0.21	0.00	0.21	44.50	0.00	0.00	0.00
19.00	0.19	0.00	0.19	45.00	0.00	0.00	0.00
19.50	0.17	0.00	0.17	45.50	0.00	0.00	0.00
20.00	0.16	0.00	0.16	46.00	0.00	0.00	0.00
20.50	0.15	0.00	0.15	46.50	0.00	0.00	0.00
21.00	0.14	0.00	0.14	47.00	0.00	0.00	0.00
21.50	0.14	0.00	0.14	47.50	0.00	0.00	0.00
22.00	0.13	0.00	0.13	48.00	0.00	0.00	0.00
22.50	0.12	0.00	0.12				
23.00	0.11	0.00	0.11				
23.50	0.11	0.00	0.11				
24.00	0.10	0.00	0.10				
24.50	0.08	0.00	0.08				
25.00	0.07	0.00	0.07				
25.50	0.06	0.00	0.06				
26.00	0.04	0.00	0.04				
26.50	0.03	0.00	0.03				

Time span=1.00-48.00 hrs, dt=0.05 hrs, 941 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 P-AB: Total Area to Basin Runoff Area=117,979 sf 69.05% Impervious Runoff Depth=4.69"
Flow Length=636' Tc=4.3 min CN=87 Runoff=22.91 cfs 1.058 af

Subcatchment P-OFF: Direct Offsite Runoff Area=1,174 sf 100.00% Impervious Runoff Depth=5.94"
Flow Length=100' Slope=0.1900 '/' Tc=4.2 min CN=98 Runoff=0.26 cfs 0.013 af

Pond BIO: Bio Basin Peak Elev=902.88' Storage=26,897 cf Inflow=22.91 cfs 1.058 af
Discarded=0.15 cfs 0.355 af Primary=1.51 cfs 0.566 af Secondary=2.13 cfs 0.107 af Outflow=3.80 cfs 1.028 af

Link TO: Total Ex FLow Inflow=1.56 cfs 0.580 af
Primary=1.56 cfs 0.580 af

Total Runoff Area = 2.735 ac Runoff Volume = 1.072 af Average Runoff Depth = 4.70"
30.64% Pervious = 0.838 ac 69.36% Impervious = 1.897 ac

Summary for Subcatchment P-AB: Total Area to Basin

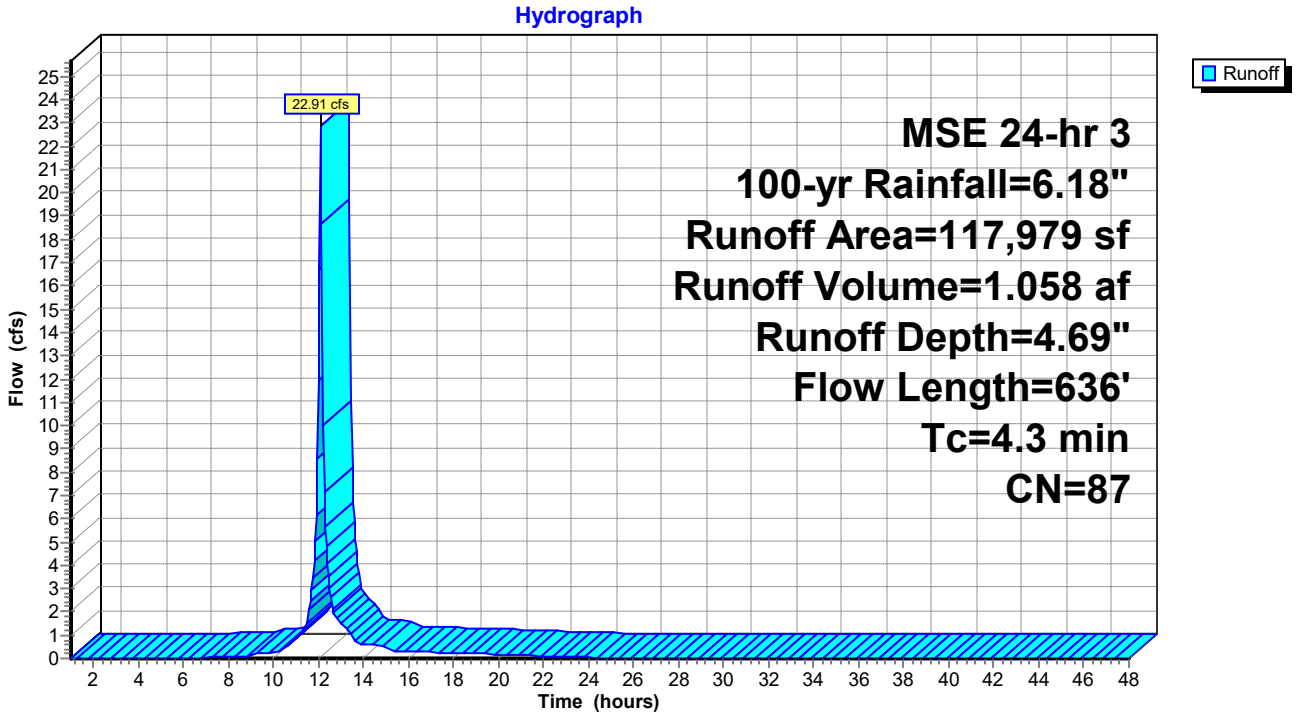
Runoff = 22.91 cfs @ 12.10 hrs, Volume= 1.058 af, Depth= 4.69"
Routed to Pond BIO : Bio Basin

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.18"

	Area (sf)	CN	Description
	36,511	61	>75% Grass cover, Good, HSG B
	28,000	98	Roofs, HSG B
	49,426	98	Paved parking, HSG B
*	2,450	98	Concrete, HSG B
*	1,592	100	Basin Bottom
	117,979	87	Weighted Average
	36,511		30.95% Pervious Area
	81,468		69.05% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.5	32	0.0200	1.04		**Sheet Flow, Sheet Flow - Driveway** Smooth surfaces n= 0.011 P2= 2.90"
0.5	2	0.0500	0.07		**Sheet Flow, Sheet Flow - Shoulder** Grass: Dense n= 0.240 P2= 2.90"
0.9	10	0.2500	0.19		**Sheet Flow, Sheet Flow - Slope** Grass: Dense n= 0.240 P2= 2.90"
0.5	285	0.0243	8.72	209.27	**Channel Flow, Channel Flow - Driveway Swale** Area= 24.0 sf Perim= 20.0' r= 1.20' n= 0.030 Earth, grassed & winding
1.9	307	0.0050	2.63	0.52	**Pipe Channel, Pipe** 6.0" Round Area= 0.2 sf Perim= 1.6' r= 0.13' n= 0.010 PVC, smooth interior
4.3	636	Total			

Subcatchment P-AB: Total Area to Basin



Hydrograph for Subcatchment P-AB: Total Area to Basin

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.02	0.00	0.00
1.50	0.04	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.00	0.00
3.00	0.10	0.00	0.00
3.50	0.13	0.00	0.00
4.00	0.16	0.00	0.00
4.50	0.20	0.00	0.00
5.00	0.23	0.00	0.00
5.50	0.27	0.00	0.00
6.00	0.31	0.00	0.00
6.50	0.36	0.00	0.02
7.00	0.41	0.01	0.03
7.50	0.46	0.02	0.05
8.00	0.52	0.03	0.07
8.50	0.58	0.04	0.09
9.00	0.64	0.06	0.11
9.50	0.74	0.10	0.23
10.00	0.85	0.15	0.28
10.50	0.97	0.21	0.34
11.00	1.19	0.33	0.87
11.50	1.53	0.56	1.45
12.00	2.86	1.62	**11.94**
12.50	4.65	3.24	**3.02**
13.00	4.99	3.56	1.53
13.50	5.21	3.77	0.94
14.00	5.33	3.88	0.59
14.50	5.44	3.98	0.56
15.00	5.54	4.08	0.52
15.50	5.60	4.14	0.31
16.00	5.66	4.20	0.30
16.50	5.72	4.25	0.28
17.00	5.77	4.30	0.26
17.50	5.82	4.34	0.25
18.00	5.87	4.39	0.23
18.50	5.91	4.43	0.22
19.00	5.95	4.47	0.20
19.50	5.98	4.50	0.19
20.00	6.02	4.54	0.17
20.50	6.05	4.56	0.16
21.00	6.08	4.59	0.14
21.50	6.10	4.61	0.12
22.00	6.12	4.64	0.11
22.50	6.14	4.65	0.09
23.00	6.16	4.67	0.08
23.50	6.17	4.68	0.06
24.00	**6.18**	**4.69**	0.04
24.50	6.18	4.69	0.00
25.00	6.18	4.69	0.00
25.50	6.18	4.69	0.00
26.00	6.18	4.69	0.00
26.50	6.18	4.69	0.00
27.00	6.18	4.69	0.00
27.50	6.18	4.69	0.00
28.00	6.18	4.69	0.00
28.50	6.18	4.69	0.00
29.00	6.18	4.69	0.00
29.50	6.18	4.69	0.00
30.00	6.18	4.69	0.00
30.50	6.18	4.69	0.00
31.00	6.18	4.69	0.00
31.50	6.18	4.69	0.00
32.00	6.18	4.69	0.00
32.50	6.18	4.69	0.00
33.00	6.18	4.69	0.00
33.50	6.18	4.69	0.00
34.00	6.18	4.69	0.00
34.50	6.18	4.69	0.00
35.00	6.18	4.69	0.00
35.50	6.18	4.69	0.00
36.00	6.18	4.69	0.00
36.50	6.18	4.69	0.00
37.00	6.18	4.69	0.00
37.50	6.18	4.69	0.00
38.00	6.18	4.69	0.00
38.50	6.18	4.69	0.00
39.00	6.18	4.69	0.00
39.50	6.18	4.69	0.00
40.00	6.18	4.69	0.00
40.50	6.18	4.69	0.00
41.00	6.18	4.69	0.00
41.50	6.18	4.69	0.00
42.00	6.18	4.69	0.00
42.50	6.18	4.69	0.00
43.00	6.18	4.69	0.00
43.50	6.18	4.69	0.00
44.00	6.18	4.69	0.00
44.50	6.18	4.69	0.00
45.00	6.18	4.69	0.00
45.50	6.18	4.69	0.00
46.00	6.18	4.69	0.00
46.50	6.18	4.69	0.00
47.00	6.18	4.69	0.00
47.50	6.18	4.69	0.00
48.00	6.18	4.69	0.00

Summary for Subcatchment P-OFF: Direct Offsite Drainage

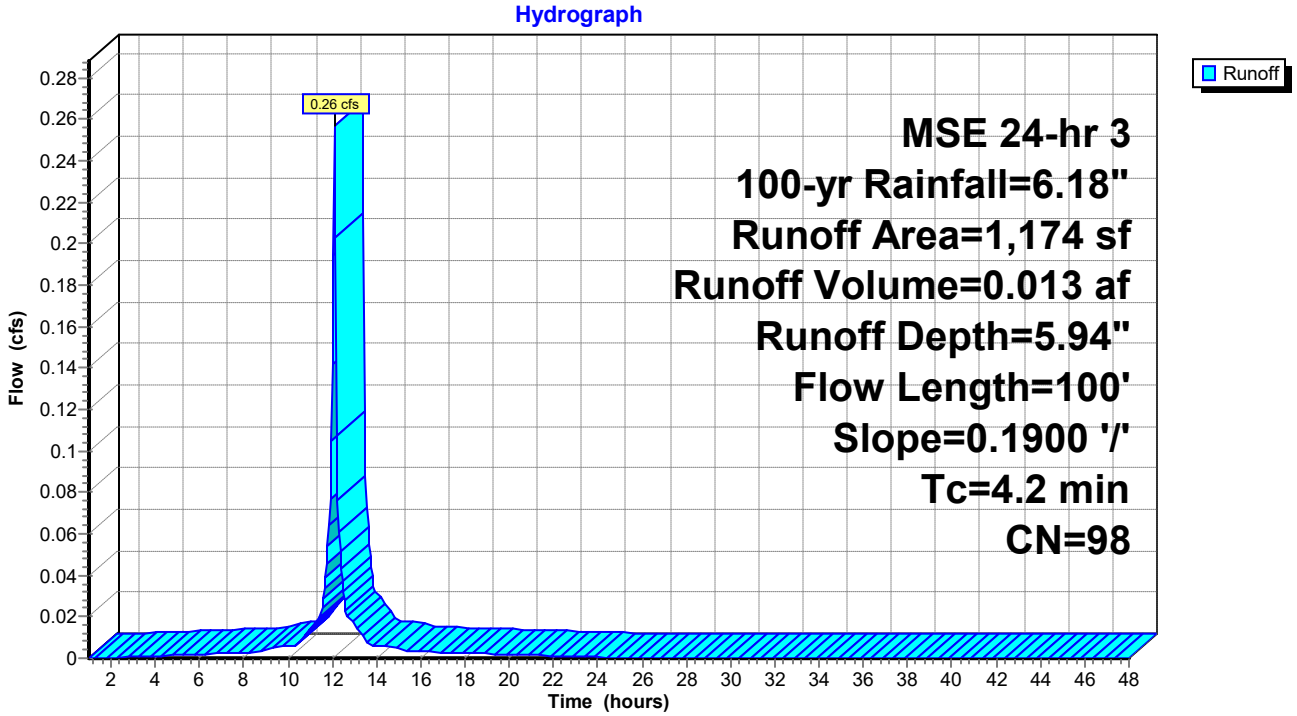
Runoff = 0.26 cfs @ 12.10 hrs, Volume= 0.013 af, Depth= 5.94"
Routed to Link TO : Total Ex FLow

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
MSE 24-hr 3 100-yr Rainfall=6.18"

Area (sf)	CN	Description
1,174	98	Paved parking, HSG B
1,174		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
4.2	100	0.1900	0.40		**Sheet Flow, Sheet Flow** Grass: Short n= 0.150 P2= 2.90"

Subcatchment P-OFF: Direct Offsite Drainage



Hydrograph for Subcatchment P-OFF: Direct Offsite Drainage

Time (hours)	Precip. (inches)	Excess (inches)	Runoff (cfs)
1.00	0.02	0.00	0.00
1.50	0.04	0.00	0.00
2.00	0.06	0.00	0.00
2.50	0.08	0.01	0.00
3.00	0.10	0.01	0.00
3.50	0.13	0.03	0.00
4.00	0.16	0.04	0.00
4.50	0.20	0.07	0.00
5.00	0.23	0.09	0.00
5.50	0.27	0.12	0.00
6.00	0.31	0.16	0.00
6.50	0.36	0.20	0.00
7.00	0.41	0.24	0.00
7.50	0.46	0.28	0.00
8.00	0.52	0.33	0.00
8.50	0.58	0.39	0.00
9.00	0.64	0.44	0.00
9.50	0.74	0.54	0.01
10.00	0.85	0.65	0.01
10.50	0.97	0.76	0.01
11.00	1.19	0.98	0.01
11.50	1.53	1.31	0.02
12.00	2.86	2.63	**0.14**
12.50	4.65	4.41	**0.03**
13.00	4.99	4.75	0.02
13.50	5.21	4.98	0.01
14.00	5.33	5.09	0.01
14.50	5.44	5.20	0.01
15.00	5.54	5.31	0.01
15.50	5.60	5.37	0.00
16.00	5.66	5.42	0.00
16.50	5.72	5.48	0.00
17.00	5.77	5.53	0.00
17.50	5.82	5.58	0.00
18.00	5.87	5.63	0.00
18.50	5.91	5.67	0.00
19.00	5.95	5.71	0.00
19.50	5.98	5.75	0.00
20.00	6.02	5.78	0.00
20.50	6.05	5.81	0.00
21.00	6.08	5.84	0.00
21.50	6.10	5.86	0.00
22.00	6.12	5.89	0.00
22.50	6.14	5.90	0.00
23.00	6.16	5.92	0.00
23.50	6.17	5.93	0.00
24.00	**6.18**	**5.94**	0.00
24.50	6.18	5.94	0.00
25.00	6.18	5.94	0.00
25.50	6.18	5.94	0.00
26.00	6.18	5.94	0.00
26.50	6.18	5.94	0.00
27.00	6.18	5.94	0.00
27.50	6.18	5.94	0.00
28.00	6.18	5.94	0.00
28.50	6.18	5.94	0.00
29.00	6.18	5.94	0.00
29.50	6.18	5.94	0.00
30.00	6.18	5.94	0.00
30.50	6.18	5.94	0.00
31.00	6.18	5.94	0.00
31.50	6.18	5.94	0.00
32.00	6.18	5.94	0.00
32.50	6.18	5.94	0.00
33.00	6.18	5.94	0.00
33.50	6.18	5.94	0.00
34.00	6.18	5.94	0.00
34.50	6.18	5.94	0.00
35.00	6.18	5.94	0.00
35.50	6.18	5.94	0.00
36.00	6.18	5.94	0.00
36.50	6.18	5.94	0.00
37.00	6.18	5.94	0.00
37.50	6.18	5.94	0.00
38.00	6.18	5.94	0.00
38.50	6.18	5.94	0.00
39.00	6.18	5.94	0.00
39.50	6.18	5.94	0.00
40.00	6.18	5.94	0.00
40.50	6.18	5.94	0.00
41.00	6.18	5.94	0.00
41.50	6.18	5.94	0.00
42.00	6.18	5.94	0.00
42.50	6.18	5.94	0.00
43.00	6.18	5.94	0.00
43.50	6.18	5.94	0.00
44.00	6.18	5.94	0.00
44.50	6.18	5.94	0.00
45.00	6.18	5.94	0.00
45.50	6.18	5.94	0.00
46.00	6.18	5.94	0.00
46.50	6.18	5.94	0.00
47.00	6.18	5.94	0.00
47.50	6.18	5.94	0.00
48.00	6.18	5.94	0.00

Summary for Pond BIO: Bio Basin

Inflow Area = 2.708 ac, 69.05% Impervious, Inflow Depth = 4.69" for 100-yr event
Inflow = 22.91 cfs @ 12.10 hrs, Volume= 1.058 af
Outflow = 3.80 cfs @ 12.43 hrs, Volume= 1.028 af, Atten= 83%, Lag= 19.3 min
Discarded = 0.15 cfs @ 12.43 hrs, Volume= 0.355 af
Primary = 1.51 cfs @ 12.43 hrs, Volume= 0.566 af
Routed to Link TO : Total Ex FLow
Secondary = 2.13 cfs @ 12.43 hrs, Volume= 0.107 af

Routing by Stor-Ind method, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs
Peak Elev= 902.88' @ 12.43 hrs Surf.Area= 12,870 sf Storage= 26,897 cf

Plug-Flow detention time= 465.6 min calculated for 1.027 af (97% of inflow)
Center-of-Mass det. time= 451.0 min (1,229.1 - 778.1)

Volume	Invert	Avail.Storage	Storage Description
#1	900.00'	28,486 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
900.00	1,592	0	0
901.00	9,767	5,680	5,680
902.00	11,384	10,576	16,255
903.00	13,078	12,231	28,486

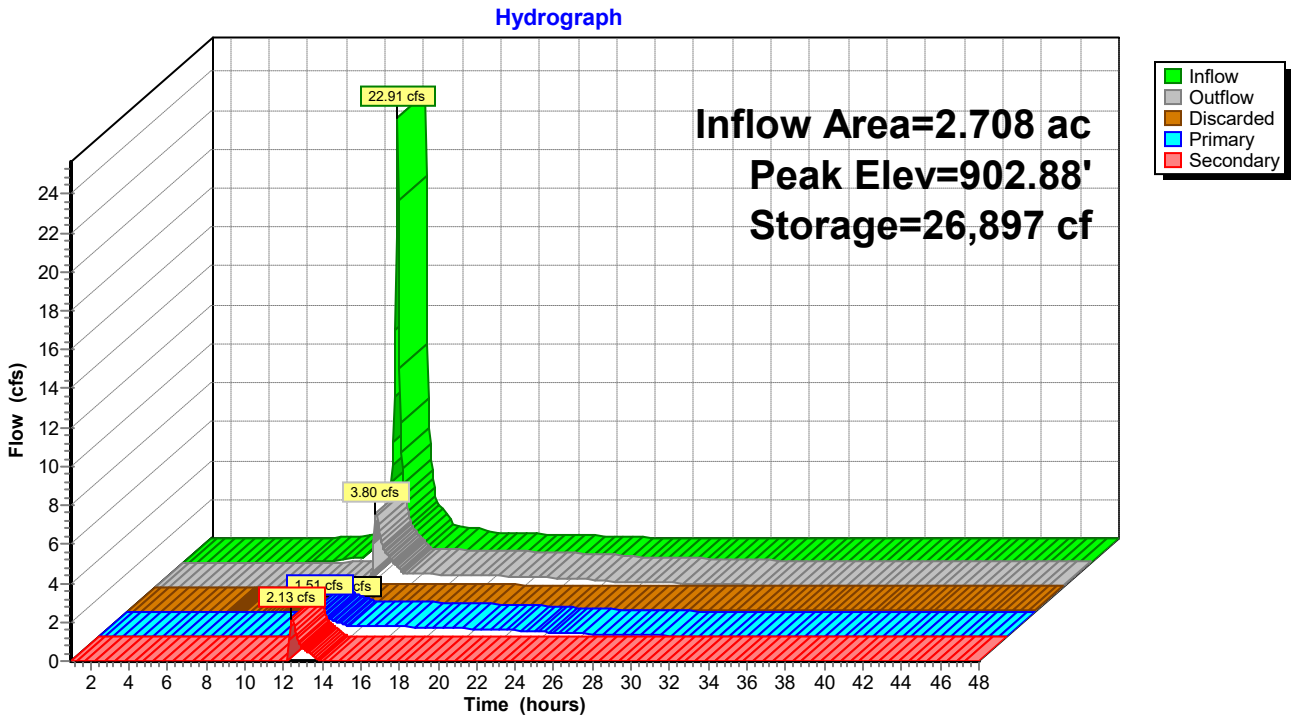
Device	Routing	Invert	Outlet Devices
#1	Secondary	902.75'	**20.0' long x 5.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.34 2.50 2.70 2.68 2.68 2.66 2.65 2.65 2.65 2.65 2.67 2.66 2.68 2.70 2.74 2.79 2.88
#2	Discarded	900.00'	**0.500 in/hr Exfiltration over Surface area**
#3	Primary	900.50'	**12.0" Round Culvert** L= 100.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 900.50' / 898.50' S= 0.0200 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf
#4	Device 3	901.00'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#5	Device 3	901.50'	**3.0" Vert. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#6	Device 3	902.75'	**24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Discarded OutFlow Max=0.15 cfs @ 12.43 hrs HW=902.88' (Free Discharge)
└**2=Exfiltration** (Exfiltration Controls 0.15 cfs)

Primary OutFlow Max=1.50 cfs @ 12.43 hrs HW=902.88' (Free Discharge)
└**3=Culvert** (Passes 1.50 cfs of 4.09 cfs potential flow)
  └**4=Orifice/Grate** (Orifice Controls 0.31 cfs @ 6.37 fps)
  └**5=Orifice/Grate** (Orifice Controls 0.26 cfs @ 5.39 fps)
  └**6=Orifice/Grate** (Weir Controls 0.93 cfs @ 1.16 fps)

Secondary OutFlow Max=2.11 cfs @ 12.43 hrs HW=902.88' (Free Discharge)
└**1=Broad-Crested Rectangular Weir** (Weir Controls 2.11 cfs @ 0.83 fps)

Pond BIO: Bio Basin



Hydrograph for Pond BIO: Bio Basin

Time (hours)	Inflow (cfs)	Storage (cubic-feet)	Elevation (feet)	Outflow (cfs)	Discarded (cfs)	Primary (cfs)	Secondary (cfs)
1.00	0.00	0	900.00	0.00	0.00	0.00	0.00
2.00	0.00	0	900.00	0.00	0.00	0.00	0.00
3.00	0.00	0	900.00	0.00	0.00	0.00	0.00
4.00	0.00	0	900.00	0.00	0.00	0.00	0.00
5.00	0.00	0	900.00	0.00	0.00	0.00	0.00
6.00	0.00	1	900.00	0.00	0.00	0.00	0.00
7.00	0.03	42	900.02	0.02	0.02	0.00	0.00
8.00	0.07	150	900.08	0.03	0.03	0.00	0.00
9.00	0.11	372	900.16	0.03	0.03	0.00	0.00
10.00	0.28	1,024	900.34	0.05	0.05	0.00	0.00
11.00	0.87	2,482	900.61	0.08	0.08	0.00	0.00
12.00	**11.94**	**11,910**	**901.61**	**0.31**	**0.12**	**0.19**	**0.00**
13.00	**1.53**	**26,038**	**902.81**	**1.73**	**0.15**	**0.88**	**0.71**
14.00	0.59	25,302	902.75	0.72	0.15	0.56	0.01
15.00	0.52	24,798	902.71	0.69	0.15	0.54	0.00
16.00	0.30	23,526	902.61	0.67	0.14	0.52	0.00
17.00	0.26	22,186	902.50	0.64	0.14	0.50	0.00
18.00	0.23	20,832	902.39	0.61	0.14	0.47	0.00
19.00	0.20	19,469	902.28	0.58	0.14	0.44	0.00
20.00	0.17	18,107	902.16	0.55	0.13	0.41	0.00
21.00	0.14	16,756	902.04	0.51	0.13	0.38	0.00
22.00	0.11	15,428	901.93	0.47	0.13	0.34	0.00
23.00	0.08	14,139	901.81	0.43	0.13	0.30	0.00
24.00	0.04	12,916	901.70	0.37	0.13	0.24	0.00
25.00	0.00	11,725	901.59	0.30	0.12	0.18	0.00
26.00	0.00	10,713	901.50	0.27	0.12	0.14	0.00
27.00	0.00	9,791	901.41	0.25	0.12	0.13	0.00
28.00	0.00	8,942	901.33	0.22	0.12	0.11	0.00
29.00	0.00	8,174	901.25	0.20	0.12	0.08	0.00
30.00	0.00	7,498	901.18	0.17	0.12	0.06	0.00
31.00	0.00	6,927	901.13	0.15	0.12	0.03	0.00
32.00	0.00	6,439	901.08	0.13	0.11	0.01	0.00
33.00	0.00	6,004	901.03	0.12	0.11	0.00	0.00
34.00	0.00	5,593	900.99	0.11	0.11	0.00	0.00
35.00	0.00	5,196	900.95	0.11	0.11	0.00	0.00
36.00	0.00	4,814	900.91	0.10	0.10	0.00	0.00
37.00	0.00	4,445	900.87	0.10	0.10	0.00	0.00
38.00	0.00	4,091	900.82	0.10	0.10	0.00	0.00
39.00	0.00	3,751	900.78	0.09	0.09	0.00	0.00
40.00	0.00	3,425	900.74	0.09	0.09	0.00	0.00
41.00	0.00	3,114	900.70	0.08	0.08	0.00	0.00
42.00	0.00	2,816	900.66	0.08	0.08	0.00	0.00
43.00	0.00	2,533	900.62	0.08	0.08	0.00	0.00
44.00	0.00	2,264	900.57	0.07	0.07	0.00	0.00
45.00	0.00	2,009	900.53	0.07	0.07	0.00	0.00
46.00	0.00	1,768	900.49	0.06	0.06	0.00	0.00
47.00	0.00	1,542	900.45	0.06	0.06	0.00	0.00
48.00	0.00	1,329	900.41	0.06	0.06	0.00	0.00

Stage-Area-Storage for Pond BIO: Bio Basin

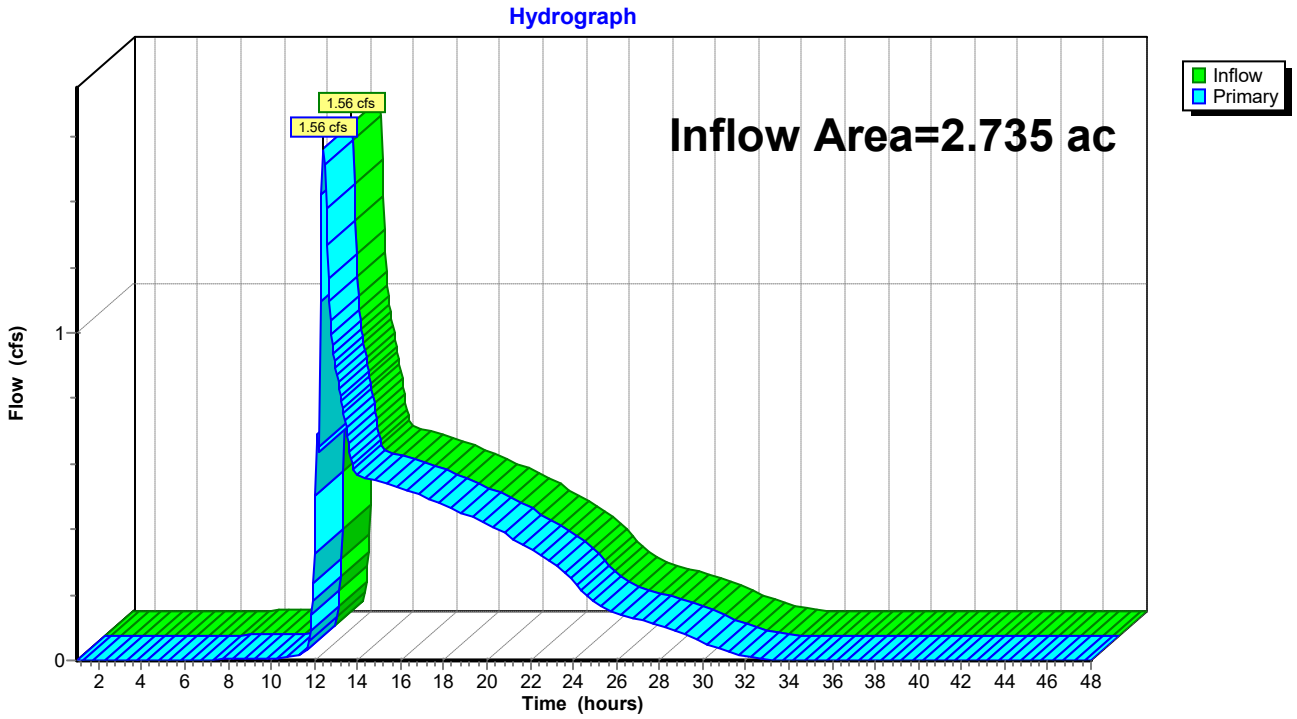
Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
900.00	1,592	0
900.05	2,001	90
900.10	2,410	200
900.15	2,818	331
900.20	3,227	482
900.25	3,636	653
900.30	4,044	845
900.35	4,453	1,058
900.40	4,862	1,291
900.45	5,271	1,544
900.50	5,680	1,818
900.55	6,088	2,112
900.60	6,497	2,427
900.65	6,906	2,762
900.70	7,315	3,117
900.75	7,723	3,493
900.80	8,132	3,890
900.85	8,541	4,306
900.90	8,949	4,744
900.95	9,358	5,201
901.00	9,767	5,680
901.05	9,848	6,170
901.10	9,929	6,664
901.15	10,010	7,163
901.20	10,090	7,665
901.25	10,171	8,172
901.30	10,252	8,682
901.35	10,333	9,197
901.40	10,414	9,716
901.45	10,495	10,238
901.50	10,576	10,765
901.55	10,656	11,296
901.60	10,737	11,831
901.65	10,818	12,370
901.70	10,899	12,913
901.75	10,980	13,460
901.80	11,061	14,011
901.85	11,141	14,566
901.90	11,222	15,125
901.95	11,303	15,688
902.00	11,384	16,255
902.05	11,469	16,826
902.10	11,553	17,402
902.15	11,638	17,982
902.20	11,723	18,566
902.25	11,808	19,154
902.30	11,892	19,746
902.35	11,977	20,343
902.40	12,062	20,944
902.45	12,146	21,549
902.50	12,231	22,159
902.55	12,316	22,772
902.60	12,400	23,390
902.65	12,485	24,012
902.70	12,570	24,639
902.75	12,655	25,269
902.80	12,739	25,904
902.85	12,824	26,543
902.90	12,909	27,187
902.95	12,993	27,834
903.00	**13,078**	**28,486**

Summary for Link TO: Total Ex FLow

Inflow Area = 2.735 ac, 69.36% Impervious, Inflow Depth = 2.54" for 100-yr event
Inflow = 1.56 cfs @ 12.42 hrs, Volume= 0.580 af
Primary = 1.56 cfs @ 12.42 hrs, Volume= 0.580 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 1.00-48.00 hrs, dt= 0.05 hrs

Link TO: Total Ex FLow



Hydrograph for Link TO: Total Ex FLow

Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)	Time (hours)	Inflow (cfs)	Elevation (feet)	Primary (cfs)
1.00	0.00	**0.00**	0.00	27.00	0.13	0.00	0.13
1.50	0.00	0.00	0.00	27.50	0.12	0.00	0.12
2.00	0.00	0.00	0.00	28.00	0.11	0.00	0.11
2.50	0.00	0.00	0.00	28.50	0.10	0.00	0.10
3.00	0.00	0.00	0.00	29.00	0.08	0.00	0.08
3.50	0.00	0.00	0.00	29.50	0.07	0.00	0.07
4.00	0.00	0.00	0.00	30.00	0.06	0.00	0.06
4.50	0.00	0.00	0.00	30.50	0.04	0.00	0.04
5.00	0.00	0.00	0.00	31.00	0.03	0.00	0.03
5.50	0.00	0.00	0.00	31.50	0.02	0.00	0.02
6.00	0.00	0.00	0.00	32.00	0.01	0.00	0.01
6.50	0.00	0.00	0.00	32.50	0.01	0.00	0.01
7.00	0.00	0.00	0.00	33.00	0.00	0.00	0.00
7.50	0.00	0.00	0.00	33.50	0.00	0.00	0.00
8.00	0.00	0.00	0.00	34.00	0.00	0.00	0.00
8.50	0.00	0.00	0.00	34.50	0.00	0.00	0.00
9.00	0.00	0.00	0.00	35.00	0.00	0.00	0.00
9.50	0.01	0.00	0.01	35.50	0.00	0.00	0.00
10.00	0.01	0.00	0.01	36.00	0.00	0.00	0.00
10.50	0.01	0.00	0.01	36.50	0.00	0.00	0.00
11.00	0.01	0.00	0.01	37.00	0.00	0.00	0.00
11.50	0.02	0.00	0.02	37.50	0.00	0.00	0.00
12.00	**0.33**	0.00	**0.33**	38.00	0.00	0.00	0.00
12.50	**1.48**	0.00	**1.48**	38.50	0.00	0.00	0.00
13.00	0.89	0.00	0.89	39.00	0.00	0.00	0.00
13.50	0.70	0.00	0.70	39.50	0.00	0.00	0.00
14.00	0.56	0.00	0.56	40.00	0.00	0.00	0.00
14.50	0.55	0.00	0.55	40.50	0.00	0.00	0.00
15.00	0.55	0.00	0.55	41.00	0.00	0.00	0.00
15.50	0.54	0.00	0.54	41.50	0.00	0.00	0.00
16.00	0.53	0.00	0.53	42.00	0.00	0.00	0.00
16.50	0.51	0.00	0.51	42.50	0.00	0.00	0.00
17.00	0.50	0.00	0.50	43.00	0.00	0.00	0.00
17.50	0.49	0.00	0.49	43.50	0.00	0.00	0.00
18.00	0.48	0.00	0.48	44.00	0.00	0.00	0.00
18.50	0.46	0.00	0.46	44.50	0.00	0.00	0.00
19.00	0.45	0.00	0.45	45.00	0.00	0.00	0.00
19.50	0.43	0.00	0.43	45.50	0.00	0.00	0.00
20.00	0.42	0.00	0.42	46.00	0.00	0.00	0.00
20.50	0.40	0.00	0.40	46.50	0.00	0.00	0.00
21.00	0.38	0.00	0.38	47.00	0.00	0.00	0.00
21.50	0.36	0.00	0.36	47.50	0.00	0.00	0.00
22.00	0.34	0.00	0.34	48.00	0.00	0.00	0.00
22.50	0.32	0.00	0.32				
23.00	0.30	0.00	0.30				
23.50	0.27	0.00	0.27				
24.00	0.24	0.00	0.24				
24.50	0.21	0.00	0.21				
25.00	0.18	0.00	0.18				
25.50	0.16	0.00	0.16				
26.00	0.14	0.00	0.14				
26.50	0.13	0.00	0.13				

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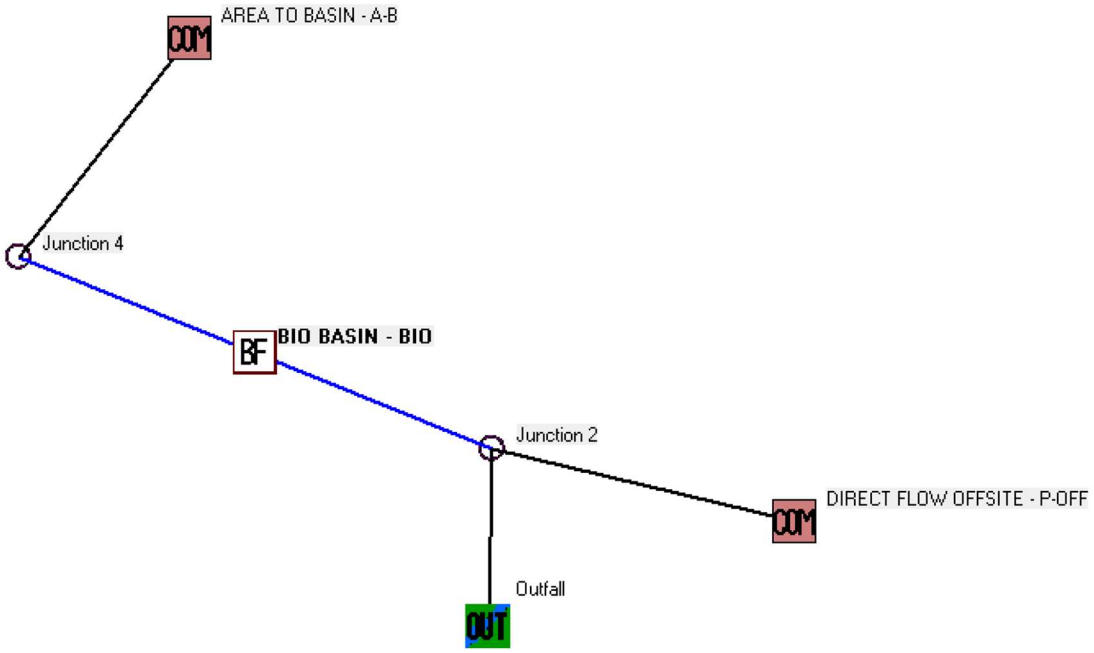
Appendix E

WinSLAMM Model – Inputs and Outputs And Volume Calculations

WinSLAMM Model Layout Sheet



WinSLAMM Input Data

Data file name: D:\Drainage Doctors\Projects\Mukwonago Baptist Church\MBC.mdb

WinSLAMM Version 10.3.4

Rain file name: C:\WinSLAMM Files\Rain Files\WisReg - Madison WI 1981.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: 01/01/81 Study period ending date: 12/31/81

Start of Winter Season: 12/02 End of Winter Season: 03/12

Date: 06-02-2025 Time: 21:10:11

Site information:

Pre-Development Area Description	Pre-Development Area (ac)	Pre-Development CN
Ex	2.740	65

Total Area (ac)/Composite CN 2.740 65

LU# 1 - Commercial: DIRECT FLOW OFFSITE - P-OFF Total area (ac): 0.027

13 - Paved Parking 1: 0.027 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Commercial: AREA TO BASIN - A-B Total area (ac): 2.708

1 - Roofs 1: 0.643 ac. Pitched Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

13 - Paved Parking 1: 1.135 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

31 - Sidewalks 1: 0.056 ac. Connected Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

45 - Large Landscaped Areas 1: 0.837 ac. Normal Silty Source Area PSD File: C:\WinSLAMM Files\NURP.cpz

70 - Water Body Areas: 0.037 ac. Source Area PSD File:

Control Practice 1: Biofilter CP# 1 (DS) - BIO BASIN - BIO

1. Top area (square feet) = 13078
2. Bottom aea (square feet) = 8274
3. Depth (ft): 5
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 0.5
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 0.01

8. Infiltration rate fraction (bottom): 1

9. Depth of biofilter that is rock filled (ft) 0

10. Porosity of rock filled volume = 0

11. Engineered soil infiltration rate: 3.6

12. Engineered soil depth (ft) = 2

13. Engineered soil porosity = 0.27

14. Percent solids reduction due to flow through engineered soil = 0

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): 10
2. Weir crest width (ft): 5
3. Height of datum to bottom of weir opening: 4.75

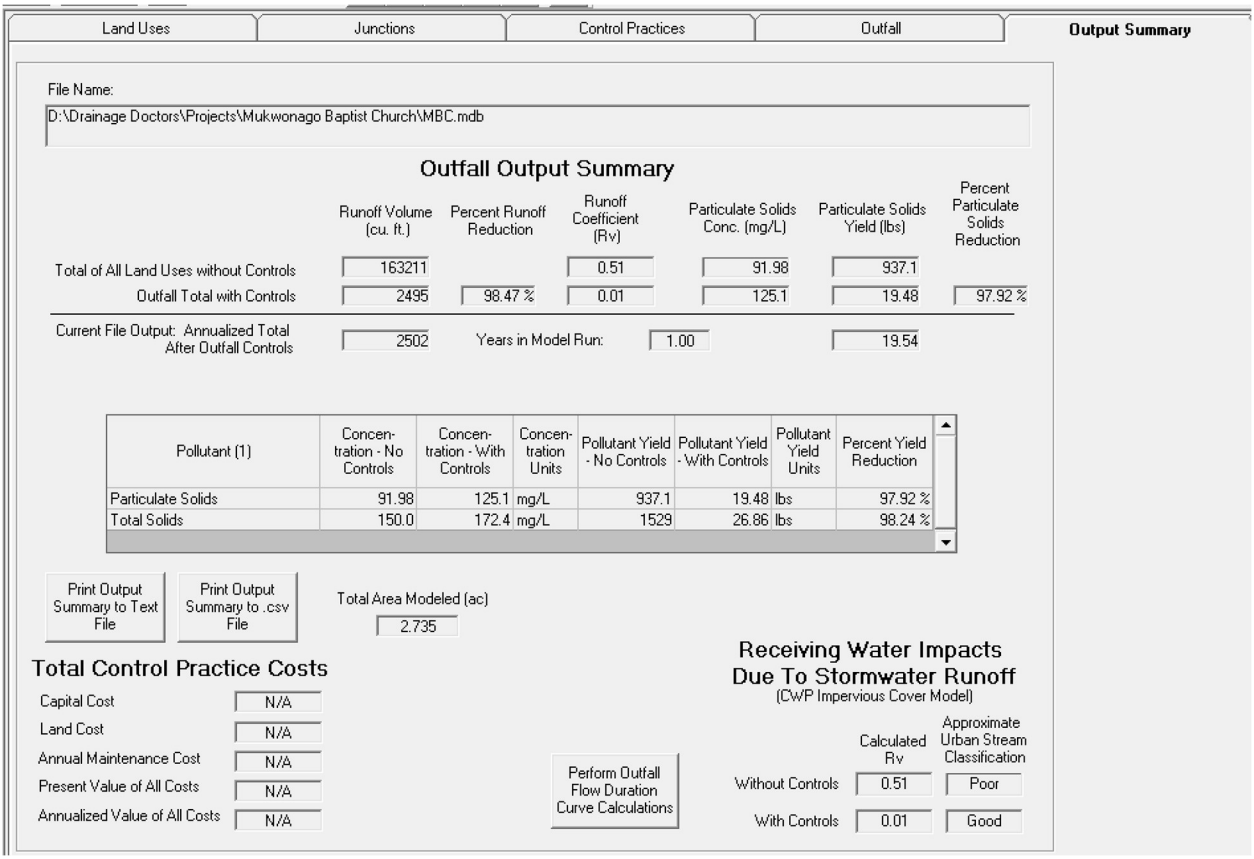
Outlet type: Vertical Stand Pipe

1. Stand pipe diameter (ft): 2
2. Stand pipe height above datum (ft): 4.75

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 0.25
2. Pipe invert elevation above datum (ft): 3
3. Number of surface pipe outlets: 1

WinSLAMM Output Summary Sheet



Land Uses | Junctions | Control Practices | Outfall | **Output Summary**

File Name:

D:\Drainage Doctors\Projects\Mukwonago Baptist Church\MBC.mdb

Outfall Output Summary

	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of All Land Uses without Controls	163211		0.51	91.98	937.1	
Outfall Total with Controls	2495	98.47 %	0.01	125.1	19.48	97.92 %

Current File Output: Annualized Total After Outfall Controls: 2502 | Years in Model Run: 1.00 | 19.54

Pollutant (1)	Concentration - No Controls	Concentration - With Controls	Concentration Units	Pollutant Yield - No Controls	Pollutant Yield - With Controls	Pollutant Yield Units	Percent Yield Reduction
Particulate Solids	91.98	125.1	mg/L	937.1	19.48	lbs	97.92 %
Total Solids	150.0	172.4	mg/L	1529	26.86	lbs	98.24 %

Print Output Summary to Text File | Print Output Summary to .csv File

Total Area Modeled (ac): 2.735

Total Control Practice Costs

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

Perform Outfall Flow Duration Curve Calculations

Receiving Water Impacts Due To Stormwater Runoff

(CWP Impervious Cover Model)

	Calculated Rv	Approximate Urban Stream Classification
Without Controls	0.51	Poor
With Controls	0.01	Good

WinSLAMM Volume Summary Sheet

Land Uses | Junctions | Control Practices | **Outfall**

Runoff Volume (cf) | Part. Solids Yield (lbs) | Part. Solids Conc. (mg/L) | Pollutant Yield (lbs)

Data File: D:\Drainage Doctors\Projects\Mukwonago Baptist Church\MBC.mdb
Rain File: WisReg - Madison WI 1981.RAN
Date: 06-02-25 Time: 9:03:33 PM
Site Description:

Runoff Volume Total (cf) at the Outfall

Rain Number	Start Date	Rain Total (in)	Outfall Total (cf)	Rv	Total Losses (in.)	Calculated CN*	Event Peak Flow (cfs)	Pre-Dev Runoff Vol.
83	09/29/81	0.16	8.268	0.005	0.16	93.6	0.004	0
84	09/30/81	0.36	22.10	0.006	0.36	86.9	0.019	0
85	10/01/81	0.01	0.08713	0.001	0.01	99.5	0.000	0
86	10/04/81	0.15	7.621	0.005	0.15	94.0	0.002	0
87	10/05/81	0.04	1.378	0.003	0.04	98.3	0.001	0
88	10/05/81	0.02	0.3485	0.002	0.02	99.1	0.000	0
89	10/09/81	0.14	6.991	0.005	0.14	94.4	0.001	0
90	10/13/81	1.20	95.55	0.008	1.19	67.2	0.006	27
91	10/15/81	0.02	0.3485	0.002	0.02	99.1	0.000	0
92	10/17/81	0.95	71.05	0.008	0.94	72.0	0.008	0
93	10/18/81	0.06	2.336	0.004	0.06	97.5	0.000	0
94	10/21/81	0.06	2.336	0.004	0.06	97.5	0.000	0
95	10/21/81	0.01	0.08713	0.001	0.01	99.5	0.000	0
96	10/24/81	0.01	0.08713	0.001	0.01	99.5	0.000	0
97	10/31/81	0.01	0.08713	0.001	0.01	99.5	0.000	0
98	11/05/81	0.04	1.378	0.003	0.04	98.3	0.000	0
99	11/15/81	0.07	2.882	0.004	0.07	97.1	0.000	0
100	11/18/81	0.05	1.834	0.004	0.05	97.9	0.001	0
101	11/19/81	0.26	14.92	0.006	0.26	90.1	0.000	0
102	11/23/81	0.18	9.615	0.005	0.18	92.9	0.001	0
103	11/25/81	0.89	65.50	0.007	0.88	73.2	0.003	0
104	11/30/81	0.37	22.86	0.006	0.37	86.6	0.001	0
105	12/03/81	-	-	-	-	-	-	-
106	12/14/81	-	-	-	-	-	-	-
107	12/20/81	-	-	-	-	-	-	-
108	12/26/81	-	-	-	-	-	-	-
109	12/31/81	-	-	-	-	-	-	-
Minimum:		0.00	0	0.001	0.01	53.0	0.000	0.0
Maximum:		2.59	678.0	0.026	2.52	99.5	0.055	3301.0
Average:		0.26	22.89	0.004	0.26	68.2	0.014	65.3
Total:		28.81	2495		28.61			5875.00

* Note: NRCS does not recommend using CN method for rains < 0.5 in.
See 'PreDevelopment Areas and CN' Help for more info.

DRAINAGE
DOCTOR

AGREEMENT FOR MAINTENANCE OF STORMWATER MANAGEMENT MEASURES

This space is reserved for recording data

Return to:
Village of Mukwonago
440 River Crest Court
Mukwonago, Wisconsin 53149

Parcel Number(s):
A352400001

RECITALS:

A. Mukwonago Baptist Church, Inc.*,* is the owner*(s)* of property in the Village of Mukwonago, County of Walworth, State of Wisconsin, more particularly described on Exhibit A attached hereto ("Property").

B. The Village requires Owner to record this Agreement regarding maintenance of stormwater management measures to be located on the Property. Owner agrees to maintain the stormwater management measures and to grant to the Village the rights set forth below.

NOW, THEREFORE, in consideration of the agreement herein and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the owner agrees as follows:

1. Maintenance. Owner and its successors and assigns shall be responsible to repair and maintain the stormwater management measures located on the Property in good condition and in working order and such that the measures comply with approved plans on file with the Village of Mukwonago. Said maintenance shall be at the Owner's sole cost and expense. Owner will conduct such maintenance or repair work in accordance with all applicable laws, codes, regulations, and similar requirements. Specific maintenance task are more particularly described on Exhibit A. The location of each stormwater management practice is shown on Exhibit B.

2. Easement to Village. If Owner fails to maintain the stormwater management measures as required in Section 1, then Village shall have the right, after providing Owner with written notice of the maintenance issue ("Maintenance Notice") and thirty (30) days to comply with the Village's maintenance request, to enter the Property in order to conduct the maintenance specified in the Maintenance Notice. Village will conduct such maintenance work in accordance with all applicable laws, codes, regulations, and similar requirements and will not unreasonably interfere with Owner's use of the Property. All costs and expenses incurred by the Village in conducting such maintenance may be charged to the owner of the Property by placing the amount on the tax roll for the Property as a special assessment in accordance with Section 66.0703, Wis. Stats. and applicable portions of the Village of Mukwonago Ordinances.

3. Term/Termination. The term of this Agreement shall commence on the date that this Agreement is recorded with the Register of Deeds Office for Village of Mukwonago, Wisconsin, and except as otherwise herein specifically provided, shall continue in perpetuity. Notwithstanding the foregoing, this Agreement may be terminated by recording with the Register of Deeds Office for Village of Mukwonago, Wisconsin, a written instrument of termination signed by the Village and all of the then-owners of the Property.

4. Miscellaneous.

   (a) Notices. Any notice, request or demand required or permitted under this Agreement shall be in writing and shall be deemed given when personally served or three (3) days after the same has been deposited with the United States Post Office, registered or certified mail, return receipt requested, postage prepaid and addressed as follows:

   If to Owner: Pastor Rhon Roberts
   2402 Robert Street
   Stoughton, WI 53589

   If to Village: Village of Mukwonago
   Engineering Division
   440 River Crest Court
   Mukwonago, WI 53149

   Any party may change its address for the receipt of notice by written notice to the other.

(b) Governing Law. This Agreement shall be governed and construed in accordance with the laws of the State of Wisconsin.

(c) Amendments or Further Agreements to be in Writing. This Agreement may not be modified in whole or in part unless such agreement is in writing and signed by all parties bound hereby.

(d) Covenants Running with the Land. All of the easements, restrictions, covenants and agreements set forth in this Agreement are intended to be and shall be construed as covenants running with the land, binding upon, inuring to the benefit of, and enforceable by the parties hereto and their respective successors and assigns.

(e) Partial Invalidity. If any provisions, or portions thereof, of this Agreement or the application thereof to any person or circumstance shall, to any extent, be invalid or unenforceable, the remainder of this Agreement, or the application of such provision, or portion thereof, to any other persons or circumstances shall not be affected thereby and each provision of this Agreement shall be valid and enforceable to the fullest extent permitted by law.

X_____
Engineering Division Staff Signature

_____
Print or type name

State of WI, County of _____; Subscribed and sworn before me on _____ by the above named person(s).

_____
Notary Public

Print or type name: _____

My Commission Expires:_____

X_____
Owner Signature

_____
Print or type name

State of WI, County of _____; Subscribed and sworn before me on _____ by the above named person(s).

_____
Notary Public

Print or type name: _____

My Commission Expires:_____

DRAFTED BY: Tyler Smith, PE
Drainage Doctor, LLC
416 W Red Pine Circle
Dousman, WI 53118

ATTACHMENT A

Property Description:

BEING PART OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST, VILLAGE OF MUKWANAGO, WALWORTH COUNTY, WISCONSIN. BEING DESCRIBED AS FOLLOWS: BEING THAT PART OF THE FOLLOWING DESCRIBED PARCEL BEING WEST OF THE NORTH-SOUTH 1/16 LINE OF THE NORTHEAST 1/4 OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST. COMMENCING AT THE CENTER OF SECTION 2, TOWN 4 NORTH, RANGE 18 EAST; THENCE NORTHERLY WITH THE WEST LINE OF THE NORTHEAST 1/4 OF SECTION 2, 341.00 FEET TO THE POINT OF BEGINNING. THENCE EASTERLY ALONG THE NORTH LINE OF THE EXCEPTION DESCRIBED IN VOLUME 206, PAGE 532, 1225.75 FEET TO A POINT; THENCE SOUTHERLY ALONG THE EAST LINE OF SAID EXCEPTION 341.00 FEET TO THE SOUTH LINE OF THE NORTHEAST 1/4 OF SECTION 2; THENCE EASTERLY ALONG SAID SOUTH LINE TO THE WEST RIGHT OF WAY LINE OF THE WISCONSIN CENTRAL LIMITED RAILROAD; THENCE NORTHERLY ALONG THE WEST RIGHT OF WAY OF THE SAID RAILROAD TO THE NORTH LINE OF THE SOUTH ½ OF THE NORTHEAST 1/4 OF SECTION 2; THENCE WESTERLY ALONG THE NORTH LINE OF THE SOUTH 1/2 OF THE NORTHEAST 1/4 TO THE NORTHEAST CORNER OF A PARCEL DESCRIBED IN VOLUME 227, PAGE 687; THENCE SOUTHERLY ALONG THE EASTERLY LINE OF SAID PARCEL 425.OO FEET TO A POINT; THENCE WESTERLY ALONG THE SOUTHERN LINE OF SAID PARCEL 1700.00 FEET TO THE WEST LINE OF THE NORTHEAST 1/4 OF SECTION 2; THENCE SOUTHERLY ALONG SAID WEST LINE TO THE POINT OF BEGINNING. EXCEPTING ANY PART OF VOLUME 664, PAGE 192, THAT EFFECTS THE PARCEL.

Maintenance Provisions:

Bioretention Basin:

- Bioretention basin shall be constructed per the approved plans and details.
- Infiltration surface shall be protected from construction sediment with staging or through the use of erosion control measures. Basin shall be inspected upon completion to confirm that clogging due to construction sediment has not occurred
- In the first Spring and Summer after construction, water the area once per week during the first 8 weeks if rainfall has not occurred within the previous 7 days. At least 1 inch of water is recommended per week.
- Remove emergency drawdown plug for first growing season in basin. This will allow plug plants to establish and minimize the risk of plant failure.
- Semiannually inspect and record status of components of bioretention basin including infiltration surface, surface mulch, plug plants, basin overflow, and emergency drawdown. Record how many days since last rainfall and approximate rainfall depth.
- Basin shall be considered compromised if surface water remains ponded for more than 24 hours following cessation of rainfall.
- If compromised, Basin shall be restored per specifications of originally approved plan or modified as approved by City Engineer.
- If de-icing salt containing sodium is applied to surfaces that drain to the basin, measures should be taken during winter months to divert runoff to bypass the bioretention basin so as to avoid clogging of the infiltrating surface.
    - It is recommended that emergency drawdown is open during winter months to promote bypassing snowmelt with high sodium content. Emergency drawdown cap or plug must be reinstalled in spring.
- Operation and Maintenance of Native Vegetation:

    - Mowing: Mowing shall reduce the height of plants to 5 to 6 inches. After establishment, if burning cannot be accommodated, mowing shall occur once in the fall (after November 1). The area shall be mowed to a height of 5 to 6 inches.
    - All undesirable and/or non-native vegetation and volunteer tree growth shall be removed, including close proximity to any outfall and outlet.
    - Burning: Routine Maintenance – beginning the second year, burning shall occur in the early spring (prior to May 1st) or in the late fall (after November 1st). Burning shall be done two consecutive years and then up to three years can pass before next burning. Under no circumstance shall burning occur every other year.
- All vehicles and equipment are prohibited from driving onto or across basin
- Pedestrian traffic is prohibited from crossing basin except for the necessary maintenance activities as needed.
- Snow shall not be dumped directly onto the infiltration surface.
- Inspections shall be performed according to the most current City of Middleton stormwater ordinances. As of 2020, stormwater management inspections and reports shall be completed and submitted to the City Engineer every even year prior to June 30.
- Owner shall maintain records of inspections, cleaning, mowing, dredging, replacement and all other maintenance provisions in accordance with applicable standards and ordinances.
- A topographic survey of the infiltration basin shall be taken every three (3) years. The survey shall be of sufficient detail so as to insure maintenance of basin ad outlet design and integrity of outfall. Siltation in the basin, as identified by the topographic survey, shall be dredged and disposed of offsite in accordance with NR 347.

Exhibit G: Engineer's Opinion of Probable Cost of Erosion Control Practices

Item No.	Description	Estimated Quantity	Unit	Unit Price	Amount
1	Silt Fence/Sock	560	LF	$3.00	$1,680.00
2	Stone Construction Entrance	1	EA	$1,000.00	$1,000.00
3	Class 1, Type B Erosion Mat	58,300	SF	$0.15	$8,745.00
4	Restoration	58,300	SF	$0.15	$8,745.00
5	Bioretention Basin	1,592	SF	$15.00	$23,880.00
	Total				**$44,050.00**

Appendix H

Universal Soil Loss Equation

Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)

WISCONSIN DEPT. OF NATURAL RESOURCES

YEAR 1

Developer: Mukwonago Baptist Church

Project: MBC - Building Addition

Date: 06/02/25

County: Walworth

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	07/08/25	07/15/25	6.2%	140	Silt Loam	0.43	1.4%	557	0.27	1.00	1.0	1.226	Sediment Basin	0.2
Bare Ground	07/15/25	05/01/26	56.4%	140	Silt Loam	0.43	25.0%	5	1.39	1.00	47.1	0.417	Sediment Basin	3.9
Mulch or Erosion Mat	05/01/26	07/01/26	30.0%	140	Silt Loam	0.43	25.0%	5	1.39	0.20	5.0	0.417	Sediment Basin	0.4
End	07/01/26	-----	-----	-----	-------	-----	25.0%	5	1.39	------	-----	0.000	Sediment Basin	0.0
		-----	-----	-----	-------	-----	25.0%	0	-----	-----	-----	0.000		0.0
		-----	-----	-----	-------	-----	0.0%	0	-----	-----	-----	0.000		0.0
										TOTAL	**53.1**		**TOTAL**	**4.6**
													% Reduction Required	**NONE**

SLOPE > 20% USE PRESCRIPTIVE COMPLIANCE

Notes:

See Help Page for further descriptions of variables and items in drop-down boxes.
The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.
For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Recommended Permanent Seeding Dates:

4/1-5/15	and	8/7-8/29	Turf, introduced grasses and legumes
Thaw-6/30			Native Grasses, forbs, and legumes

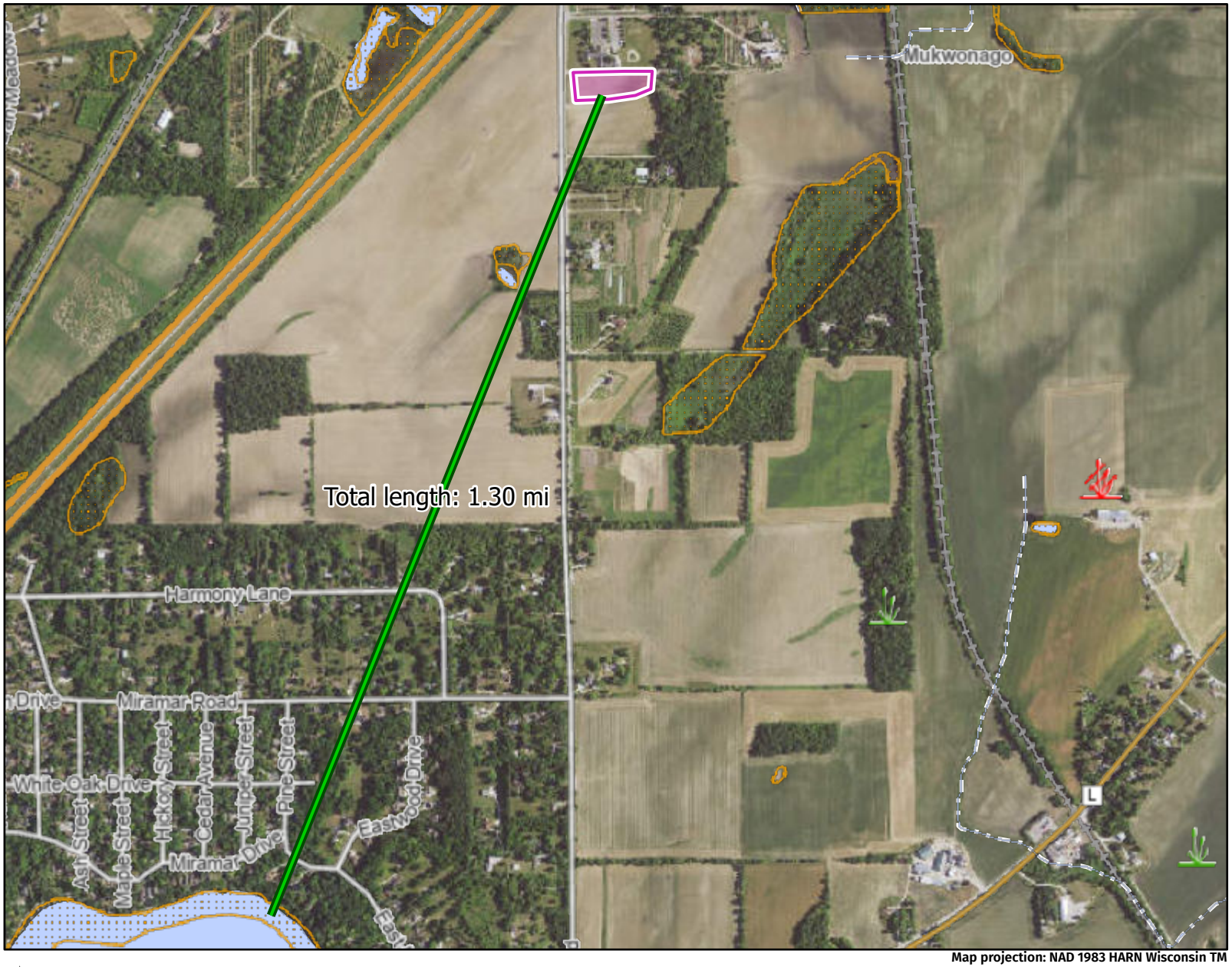
Designed By:	Tyler Smith
Date	6/21/2024

Appendix I

DNR Surface Water Viewer

WISCONSIN DEPARTMENT OF NATURAL RESOURCES

MBC - Building Addition



Legend: (some map layers may not be displayed)

- Rivers and Streams
- Intermittent Streams
- Open Water
- 24K Intermittent Streams
- 24K Lakes and Open Water
- City or Village
- County Boundaries

Major Roads

- Interstate Highway

County and Local Roads

- County HWY
- Local Road
- Railroads
- Latest Leaf On Imagery

Notes:

Map projection: NAD 1983 HARN Wisconsin TM

N

Map: 0 1,000 2,000 Feet
0 310 620 Meters

Service Layer Credits:
Wisconsin Wetland Inventory NWI (cached): , Latest Leaf On: , Cities, Roads & Boundaries: , Surface Water (Cached): WiDNR, USGS, and other data

This map is a product generated by a DNR web mapping application.

This map is for informational purposes only and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. The user is solely responsible for verifying the accuracy of information before using for any purpose. By using this product for any purpose user agrees to be bound by all disclaimers found here: https://dnr.wisconsin.gov/legal.

Date Printed: 6/2/2025 7:37 PM

Appendix J

FEMA Firmette Map

National Flood Hazard Layer FIRMette

FEMA

88°20'24"W 42°50'33"N

88°19'47"W 42°50'7"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance / Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

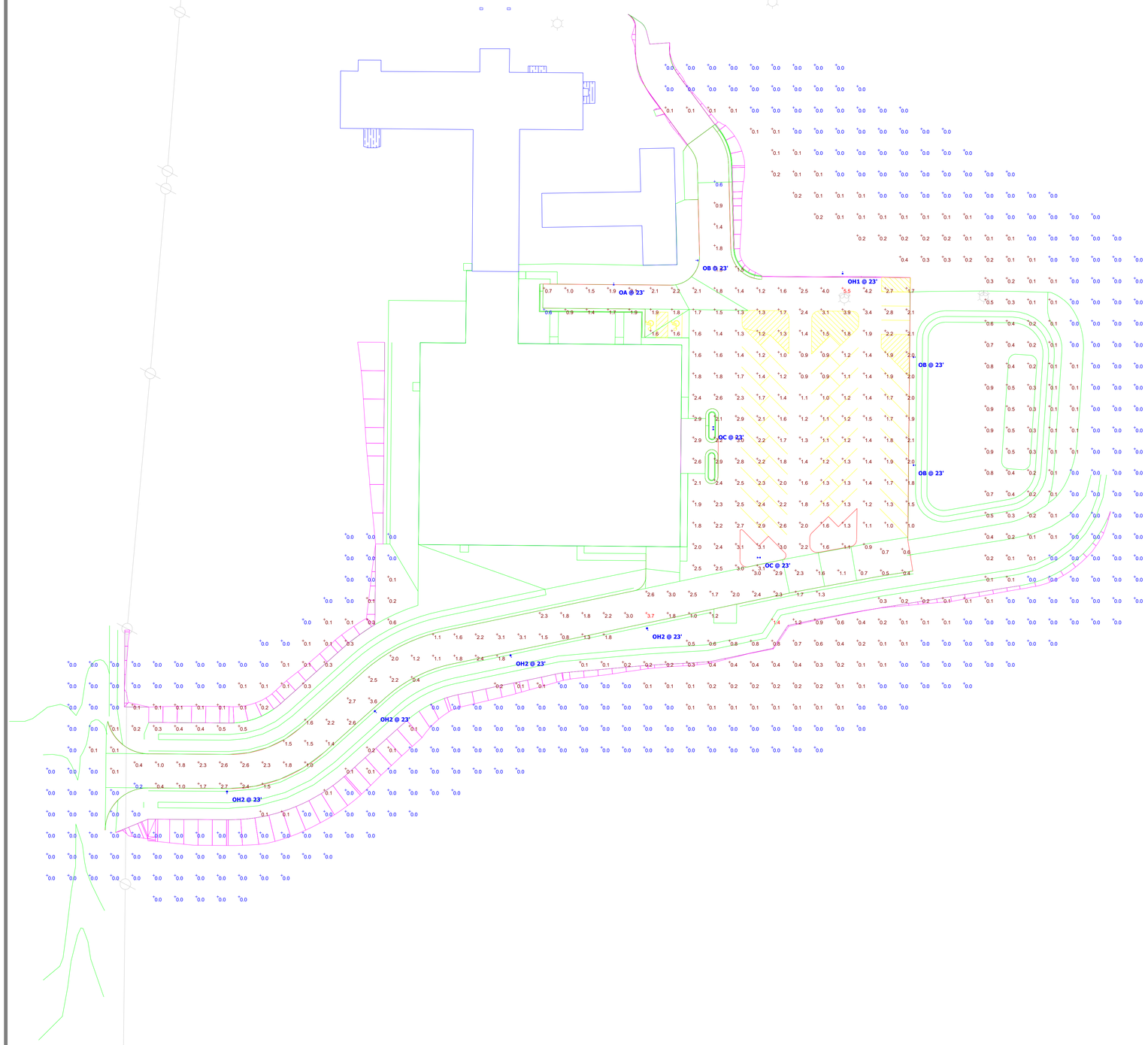
N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/3/2025 at 12:49 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.



Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
NEW PARKING LOT	+	1.8 fc	5.5 fc	0.6 fc	9.2:1	3.0:1
PERIMETER	+	0.1 fc	1.4 fc	0.0 fc	N/A	N/A
ENTRANCE	+	1.8 fc	3.7 fc	0.2 fc	18.5:1	9.0:1

Schedule

Symbol	Label	QTY	Catalog	Input Power
	OA	1	RSX1 LED P3 40K R5; MOUNTED ON 20' POLE ON 3' CONCRETE BASE	109.44
	OB	3	RSX1 LED P4 40K R5; MOUNTED ON 20' POLE ON 3' CONCRETE BASE	133.14
	OC	2	RSX1 LED P3 40K R5; MOUNTED ON 20' POLE ON 3' CONCRETE BASE	218.88
	OH1	1	RSX1 LED P4 40K R4 HS; MOUNTED ON 20' POLE ON 3' CONCRETE BASE	133.14
	OH2	4	RSX1 LED P3 40K R3 HS; MOUNTED ON 20' POLE ON 3' CONCRETE BASE	109.44

CRESCENT ELECTRIC SUPPLY COMPANY

MUKWONAGO BAPTIST CHURCH EXPANSION SITE LIGHTING

Designer

Date
06/10/2025
Scale
Not to Scale
Drawing No.

Summary

RSX1 LED
Area Luminaire

Catalog Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

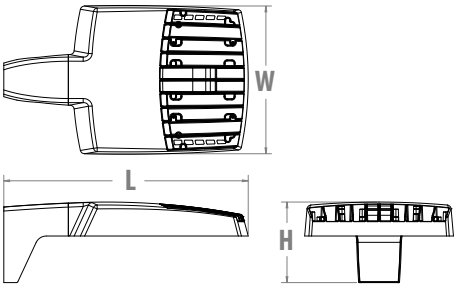
EPA (ft²@0°): 0.57 ft² (0.05 m²)

Length: 21.8" (55.4 cm) (SPA mount)

Width: 13.3" (33.8 cm)

Height: 3.0" (7.6 cm) Main Body
7.2" (18.4 cm) Arm

Weight (SPA mount): 22.0 lbs (10.0 kg)



Introduction

The new RSX LED Area family delivers maximum value by providing significant energy savings, long life and outstanding photometric performance at an affordable price. The RSX1 delivers 7,000 to 17,000 lumens allowing it to replace 70W to 400W HID luminaires.

The RSX features an integral universal mounting mechanism that allows the luminaire to be mounted on most existing drill hole patterns. This "no-drill" solution provides significant labor savings. An easy-access door on the bottom of mounting arm allows for wiring without opening the electrical compartment. A mast arm adaptor, adjustable integral slipfitter and other mounting configurations are available.

design select

Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Design Select options indicated by this color background.

Ordering Information

EXAMPLE: RSX1 LED P4 40K R3 MVOLT SPA DDBXD

RSX1 LED

Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX1 LED	P1	30K 3000K	R2 Type 2 Wide	MVOLT (120V-277V) [2]	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°)
	P2	40K 4000K	R3 Type 3 Wide	HVOLT (347V-480V) [3]	RPA Round pole mounting (3.2" min. dia. RND pole for 2, 3, 4 at 90°, 3.0" min. dia. RND pole for 1 at 90°, 2 at 180°, 3 at 120°)
	P3	50K 5000K	R3S Type 3 Short	XVOLT (277V-480V) [4]	MA Mast arm adaptor (fits 2-3/8" OD horizontal tenon)
	P4		R4 Type 4 Wide	(use specific voltage for options as noted)	IS Adjustable slipfitter (fits 2-3/8" OD tenon) [6]
			R4S Type 4 Short	120 [3] 277 [5]	WBA Wall bracket [1]
			R5 Type 5 Wide [1]	208 [3] 347 [5]	WBASC Wall bracket with surface conduit box
			R5S Type 5 Short [1]	240 [3] 480 [5]	AASP Adjustable tilt arm square pole mounting [6]
			AFR Automotive Front Row		AARP Adjustable tilt arm round pole mounting [6]
			AFRR90 Automotive Front Row Right Rotated		AAWB Adjustable tilt arm with wall bracket [6]
			AFRL90 Automotive Front Row Left Rotated		AAWSC Adjustable tilt arm wall bracket and surface conduit box [6]

Options

Shipped Installed

HS	House-side shield [7]
PE	Photocontrol, button style [8,9]
PER7	Seven-wire twist-lock receptacle only (no controls) [9,10,11]
SF	Single fuse (120, 277, 347) [5]
DF	Double fuse (208, 240, 480) [5]
SPD20KV	20KV Surge pack (10KV standard)
FAO	Field adjustable output [9]
DMG	0-10V dimming extend out back of housing for external control (control ordered separate) [9]

Shipped Installed

***Standalone and Networked Sensors/Controls (factory default settings, see table page 9)**

NLTAIR2 PIRHN	nLight AIR generation 2, with Networked, Bi-Level motion/ambient sensor [9, 12, 13, 14]
BAA	Buy America(n) Act and/or Build America Buy America Qualified
CCE	Coastal Construction [15]

*Note: NLTAIR2 PIRHN with nLight Air can be used as a standalone or networked solution. Sensor coverage pattern is affected when luminaire is tilted.

Shipped Separately (requires some field assembly)

EGS	External glare shield [7]
EGFV	External glare full visor (360° around light aperture) [7]
BS	Bird spikes [16]

Finish

DDBXD	Dark Bronze
DBLXD	Black
DNAXD	Natural Aluminum
DWHXD	White
DDBTXD	Textured Dark Bronze
DBLBXD	Textured Black
DNATXD	Textured Natural Aluminum
DWHGXD	Textured White

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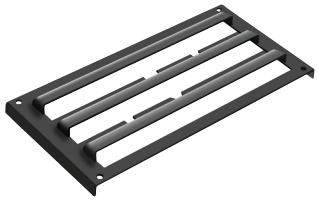
Ordering Information

Accessories
Ordered and shipped separately.

RSX1HS	RSX1 House side shield (includes 1 shield)
RSX1HSAFRR U	RSX1 House side shield for AFR rotated optics (includes 1 shield)
RSX1EGS (FINISH) U	External glares hield (specify finish)
RSX1EGFV (FINISH) U	External glare full visor (specify finish)
RSXRPA (FINISH) U	RSX Universal round pole adaptor plate (specify finish)
RSXWBA (FINISH) U	RSX WBA wall bracket (specify finish) [1]
RSXSCB (FINISH) U	RSX Surface conduit box (specify finish, for use with WBA, WBA not included)
DLL127F 1.5 JU	Photocell -SSL twist-lock (120-277V) [17]
DLL347F 1.5 CUL JU	Photocell -SSL twist-lock (347V) [17]
DLL480F 1.5 CUL JU	Photocell -SSL twist-lock (480V) [17]
DSHORT SBK U	Shorting cap [17]

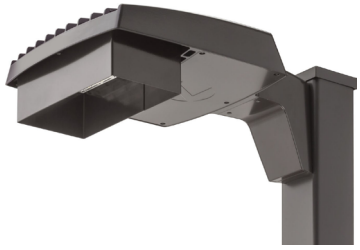
NOTES
1. Any Type 5 distribution, is not available with WBA.
2. MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3. HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
4. XVOLT driver not available with P1 or P2. XVOLT driver operates on any line voltage from 277V-480V (50/60 Hz). XVOLT not available with fusing (SF or DF) and not available with PE.
5. Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
6. Maximum tilt is 90° above horizontal.
7. It may be ordered as an accessory.
8. Requires MVOLT or 347V.
9. Two or more of the following options cannot be combined including PE, DMG, PER7, FAO and NLTAIR2 PIRHN. (Exception: PE and FAO can be combined; also PE and DMG can be combined.)
10. Compatible with standard twist-lock photocells for dusk to dawn operation or advanced control nodes that provide 0-10V dimming signals. Wire 4/Wire 5 wired to dimming leads on driver. Wire6/Wire7 capped inside luminaire. Twistlock photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
11. For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
12. Must be ordered with PIRHN.
13. Requires MVOLT or HVOLT.
14. Must be ordered with NLTAIR2. For additional information on PIRHN visit here.
15. CCE option not available with WBA, WBASC, AASP, AARP, AAWB, AAWBSC, EGS, EGFV and BS.
16. Must be ordered with fixture for factory pre-drilling.
17. Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.

External Shields



House Side Shield

External Glare Shield

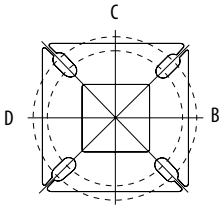


External 360 Full Visor

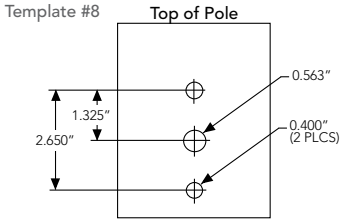
Pole/Mounting Informatiion

Accessories including bullhorns, cross arms and other adpaters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click here to visit Accessories.

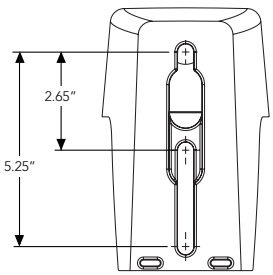
HANDHOLE ORIENTATION



RSX POLE DRILLING



RSX STANDARD ARM & ADJUSTABLE ARM



Round Tenon Mount - Pole Top Slipfitters

Tenon O.D.	RSX Mounting	Single	2 at 180°	2 at 90°	3 at 120°	3 at 90°	4 at 90°
2 - 3/8"	RPA, AARP	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 320	AS3-5 390	AS3-5 490
2 - 7/8"	RPA, AARP	AST25-190	AST25-280	AST25-290	AST25-320	AST25-390	AST25-490
4"	RPA, AARP	AST35-190	AST35-280	AST35-290	AST35-320	AST35-390	AST35-490

Drill/Side Location by Configuration Type

Drilling Template	Mounting Option	Single	2 @ 180	2 @ 90	3 @ 120	3 @ 90	4 @ 90
	Head Location	Side B	Side B & D	Side B & C	Round Pole Only	Side B, C & D	Side A, B, C & D
#8	**Drill Nomenclature**	DM19AS	DM28AS	DM29AS	DM32AS	DM39AS	DM49AS

RSX1 - Luminaire EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration		Single	2 @ 90	2 @ 180	3 @ 90	3 @ 120	4 @ 90	2 Side by Side	3 Side by Side	4 Side by Side
Mounting Type	**Tilt**									
SPA - Square Pole Adaptor	0°	0.57	1.03	1.05	1.52	1.36	2.03	1.31	1.7	2.26
RPA - Round Pole Adaptor		0.62	1.08	1.15	1.62	1.46	2.13	1.36	1.8	2.36
MA - Mast Arm Adaptor		0.49	0.95	0.89	1.36	1.2	1.87	1.23	1.54	2.1
IS - Integral Slipfitter AASP/AARP - Adjustable Arm Square/Round Pole	0°	0.57	1.03	1.05	1.52	1.36	2.03	1.31	1.7	2.26
	10°	0.68	1.34	1.33	2	1.74	2.64	1.35	2.03	2.71
	20°	0.87	1.71	1.73	2.56	2.26	3.42	1.75	2.62	3.49
	30°	1.24	2.19	2.3	3.21	2.87	4.36	2.49	3.73	4.97
	40°	1.81	2.68	2.98	3.85	3.68	5.30	3.62	5.43	7.24
	45°	2.11	2.92	3.44	4.2	4.08	5.77	4.22	6.33	8.44
	50°	2.31	3.17	3.72	4.52	4.44	6.26	4.62	6.94	9.25
	60°	2.71	3.66	4.38	5.21	5.15	7.24	5.43	8.14	10.86
	70°	2.78	3.98	4.54	5.67	5.47	7.91	5.52	8.27	11.03
	80°	2.76	4.18	4.62	5.97	5.76	8.31	5.51	8.27	11.03
	90°	2.73	4.25	4.64	6.11	5.91	8.47	5.45	8.18	10.97

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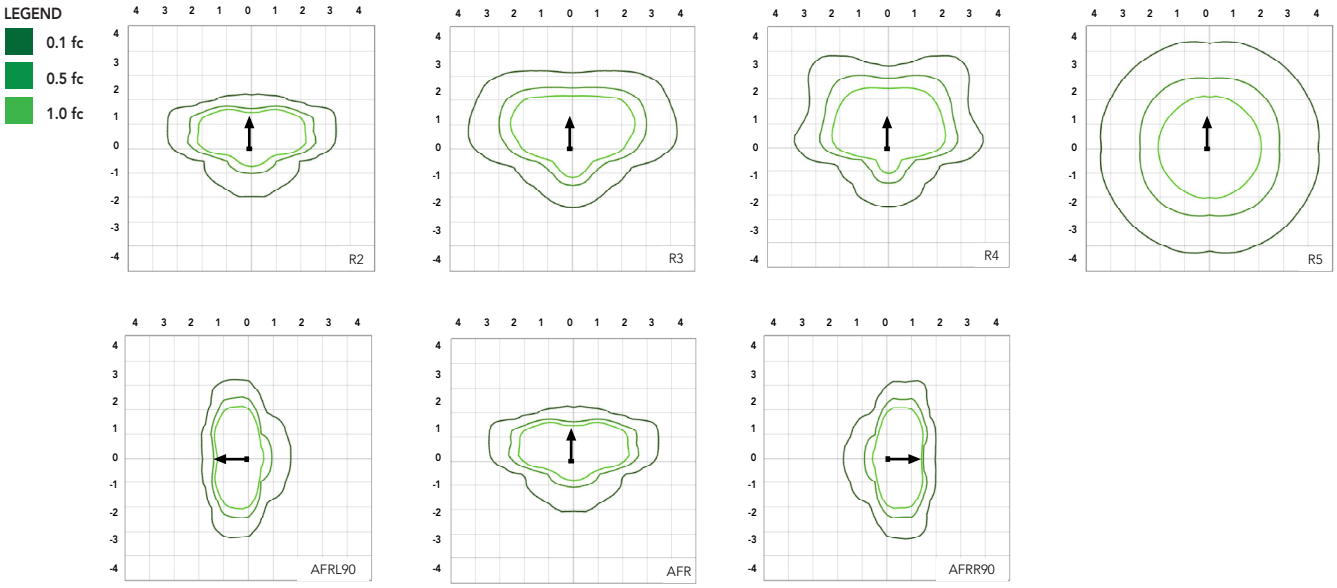
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's RSX Area homepage.

Isofootcandle plots for the RSX1 LED P4 40K. Distances are in units of mounting height (20').



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.05
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°F	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97
45°C	113°F	0.96
50°C	122°F	0.95

Electrical Load

		Current (A)					
Performance Package	System Watts (W)	120V	208V	240V	277V	347V	480V
P1	51W	0.42	0.25	0.21	0.19	0.14	0.11
P2	72W	0.60	0.35	0.30	0.26	0.21	0.15
P3	109W	0.91	0.52	0.45	0.39	0.31	0.23
P4	133W	1.11	0.64	0.55	0.48	0.38	0.27

Projected LED Lumen Maintenance

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.97	>0.95	>0.92

Values calculated according to IESNA TM-21-11 methodology and valid up to 40°C.

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Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of the configurations shown, within the tolerances allowed by Lighting Facts. Contact factory for performance data on any configurations not shown here.

Performance Package	System Watts	Distribution. Type	30K (3000K, 70 CRI)					40K (4000K, 70 CRI)					50K (5000K, 70 CRI)				
			Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P1	51W	R2	6,482	1	0	1	126	7,121	1	0	1	139	7,121	1	0	1	139
		R3	6,459	1	0	2	127	7,096	1	0	2	139	7,096	1	0	2	139
		R3S	6,631	1	0	1	129	7,286	1	0	2	142	7,286	1	0	2	142
		R4	6,543	1	0	2	128	7,189	1	0	2	141	7,189	1	0	2	141
		R4S	6,313	1	0	1	124	6,936	1	0	1	136	6,936	1	0	1	136
		R5	6,631	3	0	2	130	7,286	3	0	2	143	7,286	3	0	2	143
		R5S	6,807	3	0	1	133	7,479	3	0	1	147	7,479	3	0	1	147
		AFR	6,473	1	0	1	127	7,112	1	0	1	139	7,112	1	0	1	139
		AFRR90	6,535	2	0	2	127	7,179	2	0	2	140	7,179	2	0	2	140
		AFRL90	6,562	2	0	1	128	7,210	2	0	2	140	7,210	2	0	2	140
P2	72W	R2	8,991	2	0	1	123	9,878	2	0	1	135	9,878	2	0	1	135
		R3	8,959	2	0	2	124	9,843	2	0	2	137	9,843	2	0	2	137
		R3S	9,198	2	0	2	126	10,106	2	0	2	139	10,106	2	0	2	139
		R4	9,077	2	0	2	126	9,972	2	0	2	139	9,972	2	0	2	139
		R4S	8,757	1	0	2	122	9,622	2	0	2	134	9,622	2	0	2	134
		R5	9,198	4	0	2	128	10,106	4	0	2	140	10,106	4	0	2	140
		R5S	9,443	3	0	1	131	10,374	3	0	1	144	10,374	3	0	1	144
		AFR	8,979	2	0	1	125	9,865	2	0	1	137	9,865	2	0	1	137
		AFRR90	9,064	3	0	2	124	9,959	3	0	2	137	9,959	3	0	2	137
		AFRL90	9,102	3	0	2	125	10,001	3	0	2	137	10,001	3	0	2	137
P3	109W	R2	12,808	2	0	1	117	14,072	2	0	2	129	14,072	2	0	2	129
		R3	12,763	2	0	2	117	14,023	2	0	2	129	14,023	2	0	2	129
		R3S	13,104	2	0	2	120	14,397	2	0	2	132	14,397	2	0	2	132
		R4	12,930	2	0	2	119	14,206	2	0	2	130	14,206	2	0	2	130
		R4S	12,475	2	0	2	114	13,707	2	0	2	126	13,707	2	0	2	126
		R5	13,104	4	0	2	120	14,397	4	0	2	132	14,397	4	0	2	132
		R5S	13,452	3	0	2	123	14,779	3	0	2	136	14,779	3	0	2	136
		AFR	12,791	2	0	1	117	14,053	2	0	2	129	14,053	2	0	2	129
		AFRR90	12,913	3	0	3	118	14,187	3	0	3	130	14,187	3	0	3	130
		AFRL90	12,967	3	0	2	118	14,247	3	0	3	130	14,247	3	0	3	130
P4	133W	R2	14,943	2	0	2	112	16,417	2	0	2	123	16,417	2	0	2	123
		R3	14,890	2	0	3	112	16,360	2	0	3	123	16,360	2	0	3	123
		R3S	15,287	2	0	2	115	16,796	2	0	2	126	16,796	2	0	2	126
		R4	15,085	2	0	3	113	16,574	2	0	3	125	16,574	2	0	3	125
		R4S	14,554	2	0	2	109	15,991	2	0	2	120	15,991	2	0	2	120
		R5	15,287	4	0	2	115	16,796	4	0	2	126	16,796	4	0	2	126
		R5S	15,693	4	0	2	118	17,242	4	0	2	130	17,242	4	0	2	130
		AFR	14,923	2	0	2	112	16,395	2	0	2	123	16,395	2	0	2	123
		AFRR90	15,065	3	0	3	113	16,551	3	0	3	124	16,551	3	0	3	124
		AFRL90	15,128	3	0	3	114	16,621	3	0	3	125	16,621	3	0	3	125

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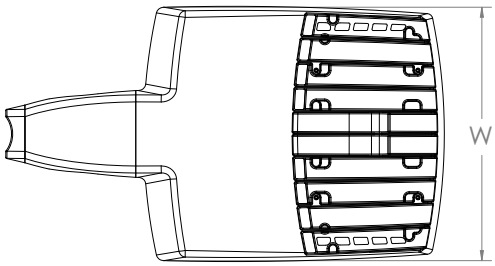
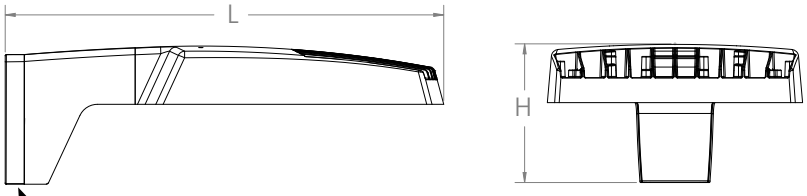
Luminaire Weight by Mounting Type

Mounting Configuration	Total Luminaire Weight
SPA	22 lbs
RPA	24 lbs
MA	22 lbs
WBA	25 lbs
WBASC	28 lbs
IS	25 lbs
AASP	25 lbs
AARP	27 lbs
AAWB	28 lbs
AAWSC	31 lbs

RSX1 with Round Pole Adapter (RPA)

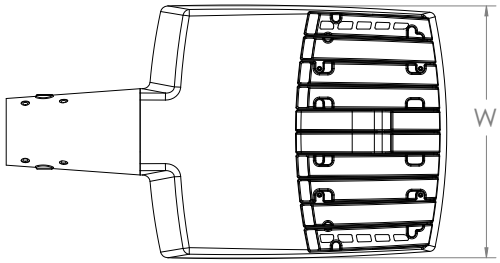


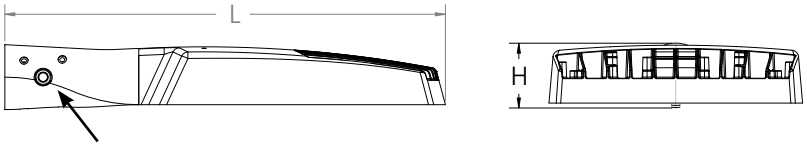


Note: RPA — Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

Length: 22.8" (57.9 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.4 cm) Arm

RSX1 with Mast Arm Adapter (MA)

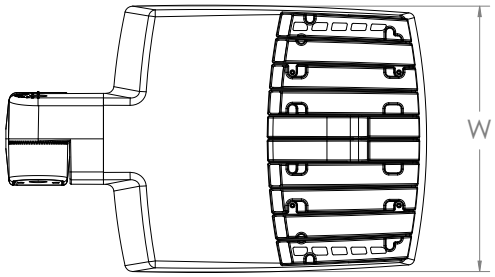


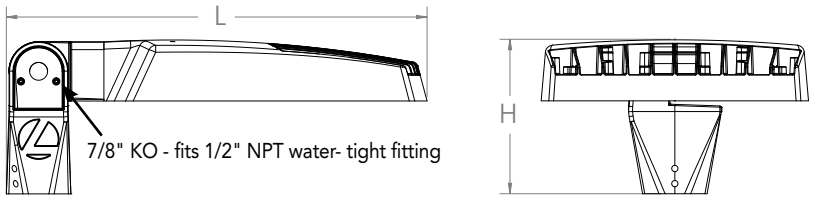


7/16" locking thru bolt/nut provided

Length: 23.2" (59.1 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm

RSX1 with Adjustable Slipfitter (IS)





7/8" KO - fits 1/2" NPT water- tight fitting

Length: 20.7" (52.7 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
7.6" (19.3 cm) Arm

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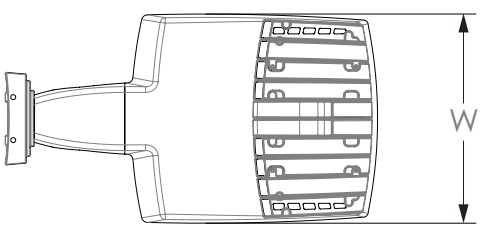
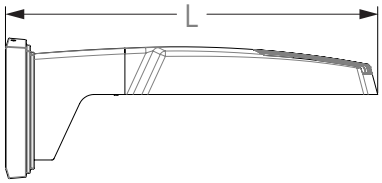
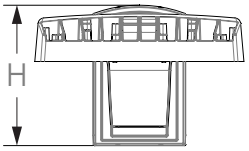
Dimensions

RSX1 with Wall Bracket (WBA)

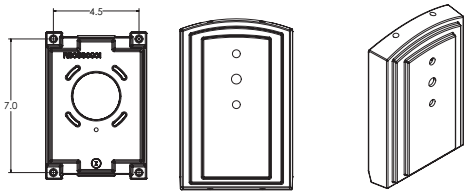




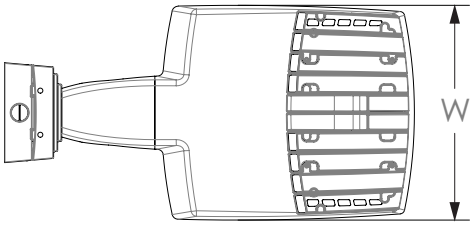


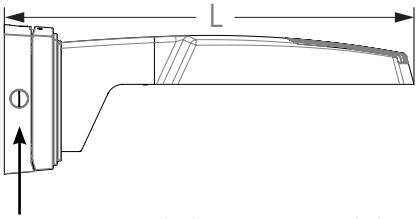
Length: 23.6" (59.9 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

Wall Bracket (WBA) Mounting Detail

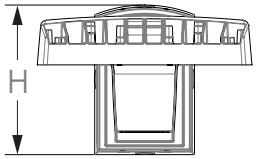


RSX1 with Wall Bracket with Surface Conduit Box (WBASC)



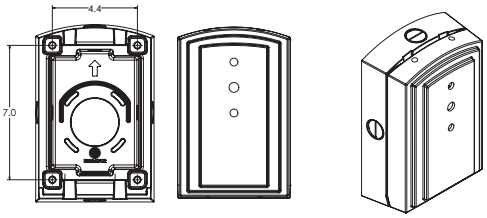


3/4" NPT taps with plugs - Qty (4) provided



Length: 25.3" (64.3 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

Surface Conduit Box (SCB) Mounting Detail



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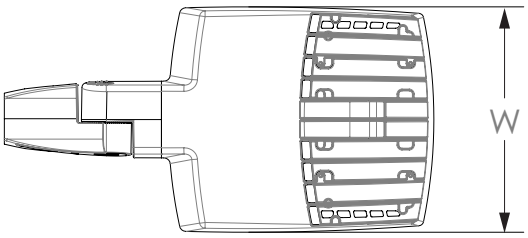
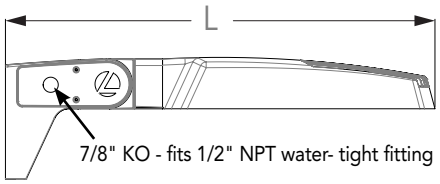
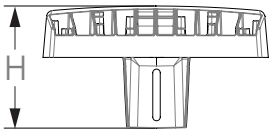
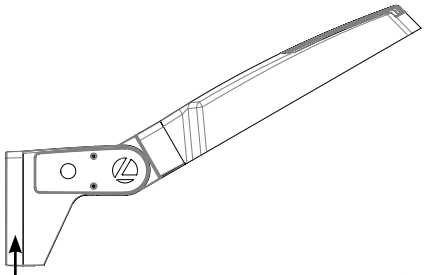
Dimensions

RSX1 with Adjustable Tilt Arm - Square or Round Pole (AASP or AARP)









Length: 25.3" (65.3 cm) **AASP**
26.3" (66.8 cm) **AARP**
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.2 cm) Arm

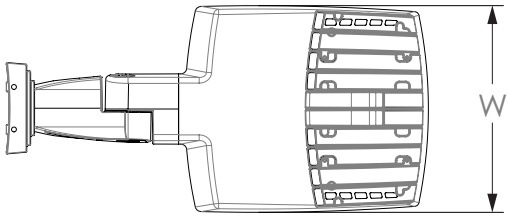
NOTE:
RPA - Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

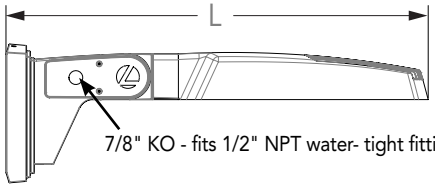
Notes

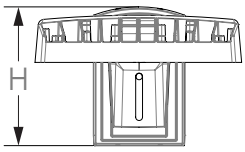
AASP: Requires 3.0" min. square pole for 1 at 90°. Requires 3.5" min. square pole for mounting 2, 3, 4 at 90°.

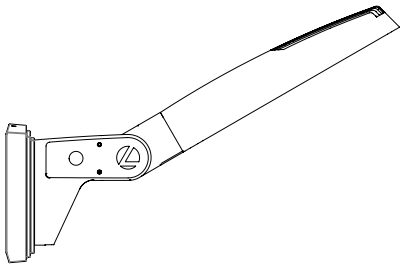
AARP: Requires 3.2" min. dia. round pole for 2, 3, 4 at 90°. Requires 3.0" min. dia. round pole for mounting 1 at 90°, 2 at 180°, 3 at 120°.

RSX1 with Adjustable Tilt Arm with Wall Bracket (AAWB)



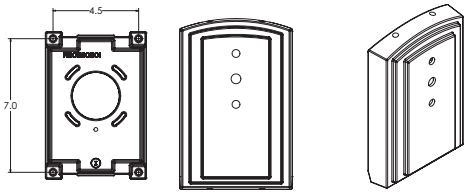






Length: 27.1" (68.8 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

Wall Bracket (WBA) Mounting Detail



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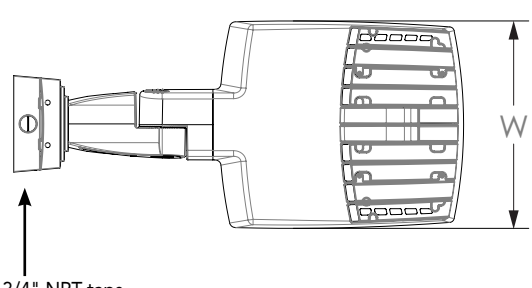
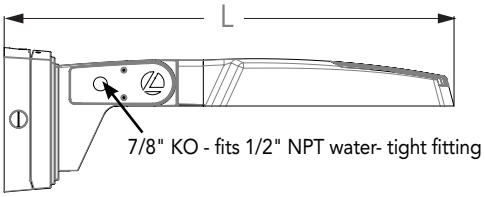
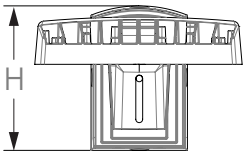
Dimensions

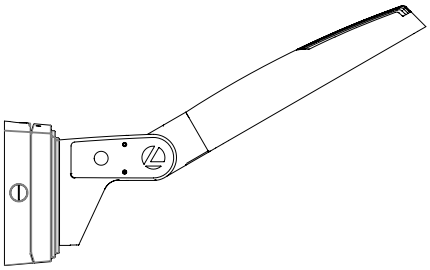
RSX1 with Adjustable Tilt Arm with Wall Bracket and Surface Conduit Box (AAWSC)





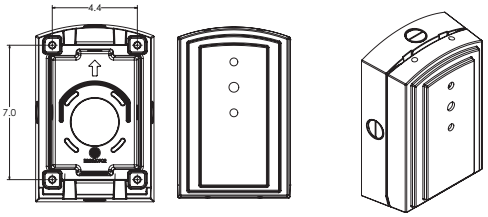


3/4" NPT taps
with plugs - Qty (4)
provided

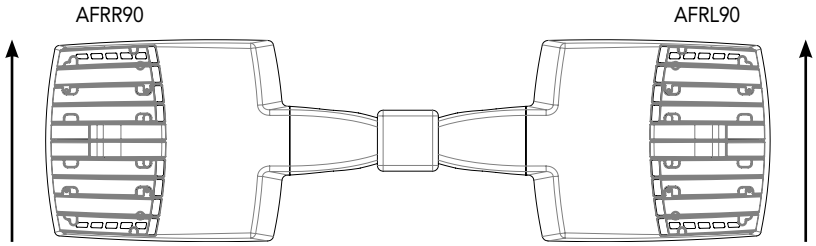


Length: 28.8" (73.2 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
9.2" (23.4 cm) Arm

Surface Conduit Box (SCB) Mounting Detail



Automotive Front Row - Rotated Optics (AFRL90/R90)



(Example: 2@180 - arrows indicate direction of light exiting the luminaire)

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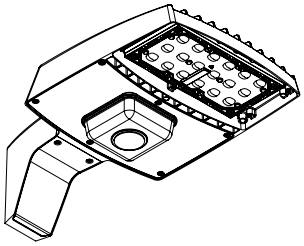
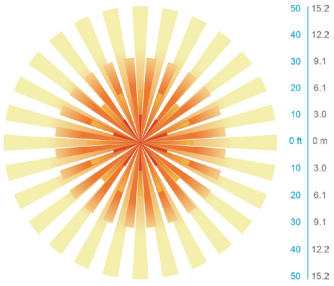
nLight Control - Sensor Coverage and Settings

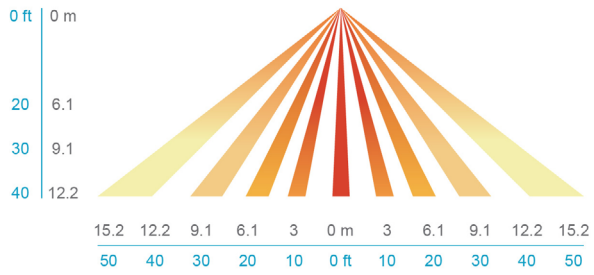
nLight Sensor Coverage Pattern

NLTAIR2 PIRHN





Top



Side

Motion Sensor Default Settings - Option PIRHN						
Option	Dimmed State (unoccupied)	High Level (when occupied)	Photocell Operation	Dwell Time (occupancy time delay)	Ramp-up Time (from unoccupied to occupied)	Ramp-down Time (from occupied to unoccupied)
NLTAIR2 PIRHN	Approx. 30% Output	100% Output	Enabled @ 1.5FC	7.5 minutes	3 seconds	5 minutes

*Note: NLTAIR2 PIRHN default settings including photocell set-point, high/low dim rates, and occupancy sensor time delay are all configurable using the Clairity Pro App. Sensor coverage pattern shown with luminaire at 0°. Sensor coverage pattern is affected when luminaire is titled.

FEATURES & SPECIFICATIONS

INTENDED USE
The RSX LED area family is designed to provide a long-lasting, energy-efficient solution for the one-for-one replacement of existing metal halide or high pressure sodium lighting. The RSX1 delivers 7,000 to 17,000 lumens and is ideal for replacing 70W to 400W HID pole-mounted luminaires in parking lots and other area lighting applications.

CONSTRUCTION
The RSX LED area luminaire features a rugged die-cast aluminum main body that uses heat-dissipating fins and flow-through venting to provide optimal thermal management that both enhances LED performance and extends component life. Integral "no drill" mounting arm allows the luminaire to be mounted on existing pole drillings, greatly reducing installation labor. The light engines and housing are sealed against moisture and environmental contaminants to IP66. The low-profile design results in a low EPA, allowing pole optimization. All mountings are rated for minimum 1.5 G vibration load per ANSI C136.31. 3G Mountings: Include SPA, RPA, MA, IS, AASP, and AARP rated for 3G vibration. 1.5G Mountings: Include WBA, WBASC, AAWB and AAWSC rated for 1.5G vibration.

FINISH
Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures superior adhesion as well as a minimum finish thickness of 3 mils. The result is a high-quality finish that is warrantied not to crack or peel.

COASTAL CONSTRUCTION (CCE)
Optional corrosion-resistant construction is engineered with added corrosion protection in materials and/or pre-treatment of base material under super durable paint. Provides additional corrosion protection for applications near coastal areas. Finish is salt spray tested to over 5,000 hours per ASTM B117 with scribe rating of 10. Additional lead times apply.

OPTICS
Precision acrylic refractive lenses are engineered for superior application efficiency, distributing the light to where it is needed most. Available in short and wide pattern distributions including Type 2, Type 3, Type 3S, Type 4, Type 4S, Type 5, Type 5S, AFR (Automotive Front Row), and AFR rotated AFRR90 and ARFL90.

ELECTRICAL
Light engine(s) configurations consist of high-efficacy LEDs mounted on metal-core circuit boards and aluminum heat sinks to maximize heat dissipation. Light engines are IP66 rated. LED lumen maintenance is >L92/100,000 hours. CCT's of 3000K, 4000K and 5000K (minimum 70 CRI) are available. Fixtures ship standard with 0-10v dimming driver. Class 1 electronic drivers ensure system power factor >90% and THD <20%. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS
The RSX LED area luminaire has a wide assortment of control options. Dusk to dawn controls include MVOLT and 347V button-type photocells and NEMA twist-lock photocell receptacles.

nLIGHT AIR CONTROLS
The RSX LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing with photocontrol functionality and is suitable for mounting heights up to 40 feet. No commissioning is required when using factory default settings that provide basic stand-alone motion occupancy dimming that is switched on and off with a built-in photocell. See chart above for motion sensor default out-of-box settings. For more advanced wireless functionality, such as group dimming, nLight AIR can be commissioned using a smartphone and the easy-to-use CLAIRITY app. nLight AIR equipped luminaries can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclypse. Additional information about nLight Air can be found here.

INSTALLATION
Integral "no-drill" mounting arm allows for fast, easy mounting using existing pole drillings. Select the "SPA" option for square poles and the "RPA" option to mount to round poles. Note, the RPA mount can also be used for mounting to square poles by omitting the RPA adapter plate. Select the "MA" option to attach the luminaire to a 2 3/8" horizontal mast arm or the "IS" option for an adjustable slipfitter that mounts on a 2 3/8" OD tenon. The adjustable slipfitter has an integral junction box and offers easy installation. Can be tilted up to 90° above horizontal. Additional mountings are available including a wall bracket, adjustable tilt arm for direct-to-pole and wall and a surface conduit box for wall mount applications.

LISTINGS
CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. Rated for -40°C minimum ambient. DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only. U.S. Patent No. D882, 146S

GOVERNMENT PROCUREMENT
BAA – Buy America(n) Act: Product with the BAA option qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product with the BAA option also qualifies as manufactured in the United States under DOT Buy America regulations.
BABA – Build America Buy America: Product with the BAA option also qualifies as produced in the United States under the definitions of the Build America, Buy America Act.
Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY
5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at:
www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

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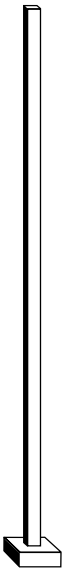
LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	



Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL

BAA BABA

FEATURES & SPECIFICATIONS

INTENDED USE — **These specifications are for USA standards only.** Square Straight Steel is a general purpose light pole for up to 39-foot mounting heights. This pole provides a robust yet cost effective option for mounting area lights and floodlights.

CONSTRUCTION —

Pole Shaft: The pole shaft is of uniform dimension and wall thickness and is made of a weldable-grade, hot-rolled, commercial-quality steel tubing with a minimum yield of 55 KSI (11-gauge, 0.120"), or 50 KSI (7-gauge, 0.179"). Shaft is one-piece with a full-length longitudinal high-frequency electric resistance weld. Uniformly square in cross-section with flat sides, small corner radii and excellent torsional qualities. Available shaft widths are 4", 5" and 6".

Pole Top: Options include 4" tenon top, drilled for side mount fixture, tenon with drilling (includes extra handhole) and open top. Side drilled and open top poles include a removable top cap.

Handhole: A reinforced handhole with grounding provision is provided at 18" from the base on side A. Positioning the handhole lower may not be possible and requires engineering review; consult Tech Support-Outdoor for further information. Every handhole includes a cover and cover attachment hardware. The handhole has a nominal dimension of 2.5" x 5".

Base Cover: A durable ABS plastic two-piece full base cover, finished to match the pole, is provided with each pole assembly. Additional base cover options are available upon request.

Anchor Base/Bolts: Anchor base is fabricated from steel that meets ASTM A36 standards and can be altered to match existing foundations; consult factory for modifications. Anchor bolts are manufactured to ASTM F1554 Standards grade 55, (55 KSI minimum yield strength and tensile strength of 75-95 KSI). Top threaded portion (nominal 12") is hot-dipped galvanized per ASTM A-153.

HARDWARE — All structural fasteners are high-strength galvanized carbon steel. All non-structural fasteners are galvanized or zinc-plated carbon steel or stainless steel.

FINISH — Extra durable painted finish is coated with TGIC (Triglycidyl Isocyanurate) Polyester powder that meets 5A and 5B classifications of ASTM D3359. Powder-coat finishes include Dark Bronze, White, Black, and Natural Aluminum colors. Architectural Colors and Special Finishes are available by quote and include, but are not limited to Paint over Hot-dipped Galvanized, RAL Colors, Custom Colors and Extended Warranty Finishes.

GOVERNEMENT PROCUREMENT —

BAA – Buy America(n) Act: Product qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product also qualifies as manufactured in the United States under DOT Buy America regulations.

BABA – Build America Buy America: Product qualifies as produced in the United States under the definitions of the Build America, Buy America Act.

Please refer to www.acuitybrands.com/buy-american for additional information.

INSTALLATION — **Do not** erect poles without having fixtures installed. Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates. If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage. Lithonia Lighting is not responsible for the foundation design.

WARRANTY — 1-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

NOTE: Actual performance may differ as a result of end-user environment and application.
Specifications subject to change without notice.

SSS Square Straight Steel Poles

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** SSS 20 5C DM28AS DDBXD

SSS					
Series	**Nominal fixture mounting height**	**Nominal shaft base size/wall thickness[1]**	**Mounting[2]**	**Options**	**Finish**
SSS	10'-39' (for 1/2 ft increments, add -6 to the pole height. **Ex:** 20-6 equals 20ft 6in.) (See technical information table for complete ordering information.)	4C 4" 11g (0.120") 4G 4" 7g (0.179") 5C 5" 11g (0.120") 5G 5" 7g (0.179") 6G 6" 7g (0.179") (See technical information table for complete ordering information.)	Tenon mounting PT Open top (includes top cap) T20 2-3/8" O.D. (2" NPS) T25 2-7/8" O.D. (2-1/2" NPS) T30 3-1/2" O.D. (3" NPS) T35 4" O.D. (3-1/2" NPS) DSX/RSX/OMERO™ Drill mounting[3] DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM39AS 3 at 90° DM49AS 4 at 90° RAD drill mounting[3] DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° ESX Drill mounting[3] DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90° Arm drill mounting To be added as series + drill orientations **EX:** SMAC19 for SMAC arm drilling 1 at 90°	Shipped installed VD Vibration damper[4] JHxy J-Hook for cable strain relief[5] HAxy Horizontal arm bracket (1 fixture)[5,6] FDLxy Festoon outlet less electrical[5,7] FDLGFCIxy Festoon with GFCI outlet and in-use cover[5,8] CPL12/xy 1/2" coupling[5] CPL34/xy 3/4" coupling[5] CPL1/xy 1" coupling[5] NPL12/xy 1/2" threaded nipple[5] NPL34/xy 3/4" threaded nipple[5] NPL1/xy 1" threaded nipple[5] EHHxy Extra handhole[5,9] STLTMP Steel anchor bolt template (standard is paper) STLHHC Steel handhole cover (standard is plastic, finish is smooth)[10] FBCSTL2PC 2 Piece steel base cover (standard is plastic)[10] IC Interior coating[11] L/AB Less anchor bolts (Include when anchor bolts are not needed) TP Tamper resistant handhole cover fasteners NEC NEC 410.30 compliant gasketed handhole (Not UL Labeled) UL UL listed with label (Includes NEC compliant cover) BAA Buy America(n) Act Compliant[12] VM/original order# Match pole to prior order or project[13]	Super durable paint colors DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DSSXD Sandstone DGCXD Charcoal gray DTGXD Tennis green DBRXD Bright red DSBXD Steel blue DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white Other finishes GALV Galvanized finish Architectural colors and special finishes[14] [PAINT] GALV Paint over galvanizing VP30 3 year warranty extension VP53 5 year warranty extension RAL#### Use designated Lithonia Lighting nomenclature in brochure Custom color Nomenclature assigned through Customer Care "Custom Color Process"

Accessories: *Order as separate catalog number.*	
PL DT20	Plugs for ESX drillings
PL DT8	Plugs for DMxxAS drillings
FVD xxFT	Field installed vibration damper (snake style)

NOTES:
1. Wall thickness will be signified with a "C" (11 Gauge) or a "G" (7-Gauge) in nomenclature. "C" - 0.120" | "G" - 0.179".
2. PT open top poles include top cap. When ordering tenon mounting and drill mounting for the same pole, specify as drilling option/tenon option. The combination includes a required extra handhole.
   Example: DM28/T20.
3. Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
4. On 4" and 5" poles, VD cannot be installed if provisions (EHH, FDL, NPL, CPL) are located higher than 2/3 of the pole's total height.
   Example: Pole height is 25ft, A provision cannot be placed above 16ft.
5. Specify location and orientation when ordering option.
   For "x": Specify the height above the base of pole in feet or feet and inches; separate feet and inches with a "-".
   Example: 5ft = 5 and 20ft 3in = 20-3
   For "y": Specify orientation from handhole (A,B,C,D) Refer to the Handhole Orientation diagram below.
   Example: 1/2" coupling at 5' 8 ", orientation C = CPL12/5-8C
6. Horizontal arm is 18" x 2-3/8" O.D. tenon standard, with radius curve providing 12" rise and 2-3/8" O.D. If ordering two horizontal arm at the same height, specify with HAxyy.
   Example: HA20BD.
7. FDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.
8. Festoon option that comes with GFCI and in-use cover. GFCI and in-use cover ship separately from pole.
9. Combination of tenon-top and drill mount includes extra handhole. EHH includes cover.
10. Plastic hand hole cover and base covers come standard with all poles. Items ship separately. Additional parts can be ordered as replacements.
11. N/A with GALV.
12. Use when mill certifications are required.
13. Must add original order number. Not for replacement parts or post sales issues, contact tech support or post sales teams. VM is used to ensure poles match in appearance exactly from order to order, on a single project site. A common use case would be a multi-phase project with multiple orders. *Example: VM/010-36784*
14. Must be quoted through AQD. Finishes do not require RFA. RAL colors available are shown in "Architectural Colors brochure". Lead times may be extended up to 2 weeks due to paint procurement.

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TECHNICAL INFORMATION — EPA (ft^2) with 1.3 gust

Catalog Number	Nominal Shaft Length (ft.)*	Pole Shaft Size (Base in. x Top in. x ft.)	Wall thick (in.)	Gauge	EPA (ft^2) with 1.3 gust						Approximate ship weight (lbs.)
					80 MPH	Max. weight	90 MPH	Max. weight	100 MPH	Max. weight	
SSS 10 4C	10	4.0 x 10.0	0.120"	11	30.6	765	23.8	595	18.9	473	75
SSS 12 4C	12	4.0 x 12.0	0.120"	11	24.4	610	18.8	470	14.8	370	90
SSS 14 4C	14	4.0 x 14.0	0.120"	11	19.9	498	15.1	378	11.7	293	100
SSS 16 4C	16	4.0 x 16.0	0.120"	11	15.9	398	11.8	295	8.9	223	115
SSS 18 4C	18	4.0 x 18.0	0.120"	11	12.6	315	9.2	230	6.7	168	125
SSS 20 4C	20	4.0 x 20.0	0.120"	11	9.6	240	6.7	167	4.5	150	140
SSS 20 4G	20	4.0 x 20.0	0.179"	7	14	350	11	275	8	200	198
SSS 20 5C	20	5.0 x 20.0	0.120"	11	17.7	443	12.7	343	9.4	235	185
SSS 20 5G	20	5.0 x 20.0	0.179"	7	28.1	703	21.4	535	16.2	405	265
SSS 25 4C	25	4.0 x 25.0	0.120"	11	4.8	150	2.6	100	1	50	170
SSS 25 4G	25	4.0 x 25.0	0.179"	7	10.8	270	7.7	188	5.4	135	245
SSS 25 5C	25	5.0 x 25.0	0.120"	11	9.8	245	6.3	157	3.7	150	225
SSS 25 5G	25	5.0 x 25.0	0.179"	7	18.5	463	13.3	333	9.5	238	360
SSS 30 4G	30	4.0 x 30.0	0.179"	7	6.7	168	4.4	110	2.6	65	295
SSS 30 5C	30	5.0 x 30.0	0.120"	11	4.7	150	2	50	--	--	265
SSS 30 5G	30	5.0 x 30.0	0.179"	7	10.7	267	6.7	167	3.9	100	380
SSS 30 6G	30	6.0 x 30.0	0.179"	7	19	475	13.2	330	9	225	520
SSS 35 5G	35	5.0 x 35.0	0.179"	7	5.9	150	2.5	100	--	--	440
SSS 35 6G	35	6.0 x 35.0	0.179"	7	12.4	310	7.6	190	4.2	105	540
SSS 39 6G	39	6.0 x 39.0	0.179"	7	7.2	180	3	75	--	--	605

NOTE: EPA values are based ASCE 7-93 wind map.
* For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

TECHNICAL INFORMATION — EPA (ft^2) WITH 3-SECOND GUST PER AASHTO 2013

Series	Mounting Height (ft.)*	Shaft Base Size	90 MPH	Max. weight	100 MPH	Max. weight	110 MPH	Max. weight	120 MPH	Max. weight	130 MPH	Max. weight	140 MPH	Max. weight	150 MPH	Max. weight	Approximate ship weight (lbs.)
SSS	10	4C	20	500	16	400	13	325	10.5	263	8.5	213	7	175	6	150	75
SSS	12	4C	16	400	13	325	10	250	8	200	6.5	163	5	125	4	100	90
SSS	14	4C	13.5	338	10	250	7.5	188	6	150	4.5	113	3.5	88	2.5	63	100
SSS	16	4C	10.5	263	7.5	188	5.5	138	4	100	3	75	1.5	38	1	25	115
SSS	18	4C	8	200	5.5	138	4	100	2.5	63	1.5	38	0.5	13	-	-	125
SSS	18	4G	13	325	9.5	238	7	175	5	125	3.5	88	2.5	63	1.5	38	185
SSS	18	5C	13	325	9.5	238	6.5	163	4.5	113	3	75	1.5	38	.5	13	170
SSS	20	4C	6	150	4	100	2.5	63	1	25	-	-	-	-	-	-	140
SSS	20	4G	10.5	263	7.5	188	5.5	138	3.5	88	2	50	1	25			205
SSS	20	5C	10	250	7	175	4.5	113	2.5	63	1	25	-	-	-	-	185
SSS	20	5G	20	500	15	375	11.5	288	8.5	213	6	150	4.5	113	3	75	265
SSS	25	4C	2	50	0.5	13	-	-	-	-	-	-	-	-	-	-	170
SSS	25	4G	5.5	138	3	75	1.5	38	-	-	-	-	-	-	-	-	245
SSS	25	5C	4.5	113	2	50	-	-	-	-	-	-	-	-	-	-	225
SSS	25	5G	12	300	8.5	213	5.5	138	3	75	1.5	38	-	-	-	-	360
SSS	25	6G	19	475	13.5	338	9	225	5.5	138	3	75	1	25			445
SSS	30	4G	1.5	38	-	-	-	-	-	-	-	-	-	-	-	-	291
SSS	30	5C	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265
SSS	30	5G	6.5	163	3.5	88	1	25	-	-	-	-	-	-	-	-	380
SSS	30	6G	11	275	6	150	2.5	63	-	-	-	-	-	-	-	-	520
SSS	35	5G	2	50	-	-	-	-	-	-	-	-	-	-	-	-	440
SSS	35	6G	4	100	-	-	-	-	-	-	-	-	-	-	-	-	540
SSS	39	6G	-	-	-	-	-	-	-	-	-	-	-	-	-	-	605

NOTE: AASHTO 2013 design criteria is the most common EPA and uses wind map ASCE7-05. Please review the project Spec document to determine the correct design criteria for the poles on your jobsite.
*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

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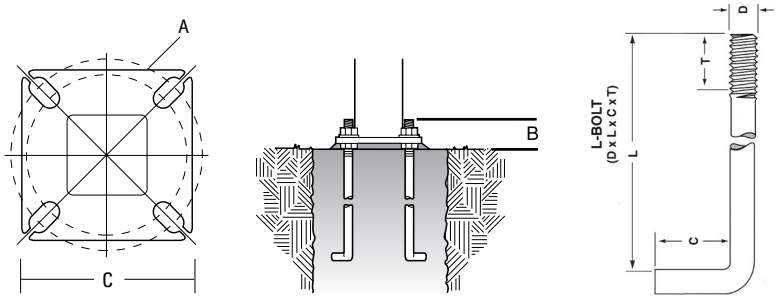
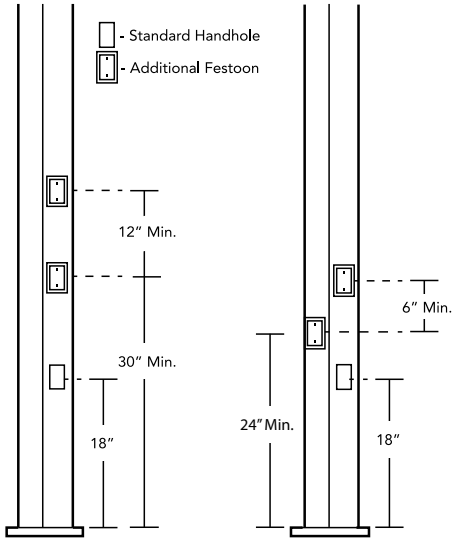
ANCHORAGE AND TEMPLATE INFORMATION								
Shaft base size	**Bolt circle A**	**Bolt projection B**	**Base square C**	**Base plate thickness**	**Template description ***	**Anchor bolt description**	**Bolt size (in.) D x L x C**	**Anchor bolt/ Template Combo**
4"C	8" – 9"	3.25"- 3.75"	8"- 8.25"	0.75"	ABTEMPLATE PJ50004	AB18-0	3/4 x 18 x 3	ABSSS-4C
4"G	8" – 9"	3.38"- 3.75"	8"- 8.25"	0.875"	ABTEMPLATE PJ50004	AB30-0	3/4 x 30 x 3	ABSSS-4G
5"	10" – 12"	3.5"- 4"	11"	1"	ABTEMPLATE PJ50010	AB36-0	1 x 36 x 4	ABSSS-5
6"	11" – 13"	4"- 4.50"	12.5"	1"	ABTEMPLATE PJ50011	AB36-0	1 x 36 x 4	N/A

* Paper template standard. Add STL to end of description for the steel template.

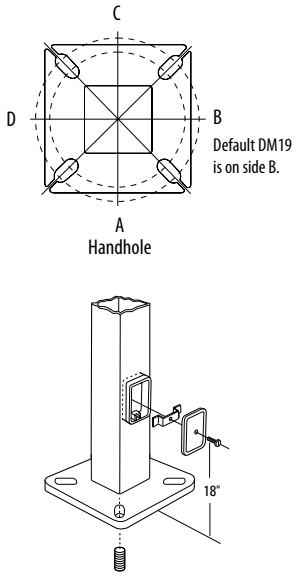
BASE & BOLT DETAIL



SQUARE STEEL HANDHOLE AND FESTOON - PLACEMENT RULES



HANDHOLE DETAIL



IMPORTANT INSTALLATION NOTES:

- **Do not** erect poles without having fixtures installed.
- Factory-supplied templates must be used when setting anchor bolts. Lithonia Lighting will not accept claim for incorrect anchorage placement due to failure to use Lithonia Lighting factory templates.
- If poles are stored outside, all protective wrapping must be removed immediately upon delivery to prevent finish damage.
- Lithonia Lighting is not responsible for the foundation design.
- Bolt circles have +/- 1/2" tolerance.

CAUTION: These specifications are intended for general purposes only. Lithonia Lighting reserves the right to change material or design, without prior notice, in a continuing effort to upgrade its products.

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PLAN COMMISSION STAFF REPORT

TO: Village of Mukwonago Plan Commission

FROM: Peter Gesch, P.E., Ruekert & Mielke, Inc.

REPORT DATE: June 27, 2025

MEETING DATE: July 8, 2025, 6:30 P.M.

SUBJECT: Mukwonago Baptist Church Expansion – Site Plan & Architectural Review & Conditional Use

BASIC INFORMATION	
Project:	Mukwonago Baptist Church Expansion
Applicant:	Mukwonago Baptist Church
Consulting Engineer:	Drainage Doctor, LLC
Consulting Architect:	Mark Freding - Architect
Request:	Site Plan & Architectural Review & Conditional Use
Staff Recommendation:	Approve with Conditions

PARCEL DATA/CHARACTERISTICS	
Tax Key:	A352400001
Acreage:	22.31 Acres
Current Use:	Religious Assembly
Proposed Use:	Religious Assembly
Reason for Request:	Expansion to Church Building
Land Use Classification:	Public/Semi-Public (Institutional)
Zoning Classification:	P-1 – Public/Semi-Public

Project Summary & Overview

The Mukwonago Baptist Church is seeking to expand it's existing facility located at 1610 Honeywell Road, in the Village. The addition will include areas for a gym/multi-purpose facility, additional classroom space, and administrative space. Site improvements include a new paved access drive, a new parking lot, and storm water management features.

Being located in the P-1 zoning district, churches and places of worship are a permitted use and any structures are a conditional use. The conditional use is to prescribe conditions of approval in a zoning district that doesn't have set zoning district standards for development due to the unique classification of uses that are permitted.

Staff have reviewed the proposed improvement plans and have offered preliminary comments based on the information provided. The proposed improvements substantially conform to the general requirements of the Village of Mukwonago Municipal Code with various items that need to be further coordinated with Department Heads prior to final approval of the construction documents.

The applicant has provided their plan of operation and their proposed timeframe for improvements.

Conditional Use Request

Attached to this staff report is the justification questions for a Conditional Use Permit that have been answered by the applicant. The Planning Commission shall take these into consideration when making their decisions and recommendations.

Conditional Use Process / Findings

The established review procedures are that the Plan Commission shall hold a public hearing and make a recommendation to the Village Board whom makes the final decision.

Following the close of the public hearing, the Plan Commission may recommend (1) approval, (2) approval with conditions, or (3) denial.

If approval is recommended, the Plan Commission can recommend conditions deemed necessary to protect public health, safety, and welfare. The Plan Commission, in passing on the matter, will need to make the following determinations consistent with Section 100-354 of Mukwonago's Zoning Regulations:

1. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
2. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
3. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts. In making this determination, the Plan Commission and Village Board must determine whether the petitioner has demonstrated there are no adverse effects on surrounding properties or that potentially adverse effects have been eliminated or reduced to an acceptable level. Approaches that could be employed to mitigate potentially adverse effects will depend on the particular circumstances but may include:
    a. Adjusting the location of the use, or parts thereof, on the subject property;
    b. Limiting hours of operation;
    c. Limiting the size or scope of the use, or parts thereof;
    d. Controlling how the use is managed on an ongoing basis;
    e. Providing additional landscaping;
    f. Providing additional screening; and
    g. Limiting operations conducted out-of-doors, if otherwise allowed
4. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
5. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.

6. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

In addition, the property owner / tenant has shown compliance with the requirements set forth in the Village's zoning regulations for specified use.

The Village Board will carefully review the recommendation of the Plan Commission and concurs with the Plan Commission's findings set forth above, provided the conditional use is operated pursuant to the conditions of approval set forth in this order.

These findings are incorporated into the draft conditional use order which is attached.

The Plan Commission shall approve a conditional use application if the terms and conditions of the zoning regulations are met. However, in the event the terms and conditions of the ordinance are not consented to and complied with by the applicant, the Commission may deny the application. In addition, the Commission may deny the application or place conditions on it if substantial evidence, as defined in §62.23(7) Wis. Stats. is presented. That evidence must demonstrate the inability of the applicant to comply with or meet the conditions of the zoning regulations or that the conditions to be applied by the Plan Commission are necessary to protect the public health, safety or welfare of the community based upon the presentation of substantial evidence. Potential motion for approval to Recommend to the Village Board approval of the project as a conditional use as set forth in the attached conditional use order as drafted, provided the Village Attorney approves the final form of the conditional use order.

Staff Review

Engineering:

- Final Civil Plans and Storm Water Management Plan (SWMP) shall be stamped by a professional engineer licensed to practice in the State of Wisconsin.
- A Storm Water Maintenance Agreement (SWMA) shall be provided that follows the Village's Standard Form.
- Phosphorus reduction data shall be shown in the SWMP and the SWMA.
- Civil plan details call for asphalt drive and parking lot but details show concrete pavement and gravel drive cross sections. Applicant shall provide applicable sections for proposed plan.
- Applicant shall obtain WDNR construction site storm water permit (erosion control) if disturbance will exceed one acre.
- Applicant shall provide existing conditions and post-development conditions drainage maps with all sub-basins shown to match the proposed development plans to justify the calculations in the storm water management plan.
- Outlet structure elevations for bioretention basins shown on C4.0 don't match the HydroCAD model control structure elevations.
- Applicant shall also ensure that outlet control structure elevations in WinSLAMM water quality analysis meet the design characteristics in the HydroCAD model and the civil plan details.

- Bioretention basin outlet structure characteristics are unclear. Applicant shall ensure ponding depth does not exceed 12-inches and proper outlet configurations are detailed appropriately, including the inclusion of a minimum 6-inch underdrain per WDNR Technical Standard 1004, unless justification is provided for inadequate outlet elevation criteria.
- Overflow weir for bioretention basin shall have heavy duty erosion matting.
- Show inlet protection on proposed storm structures on erosion control plan.

Public Works No comments at this time.

Utilities

- If public utilities are extended fronting the property in the future, then the applicant will be required to connect to the facilities in accordance with the applicable Municipal Code Section.
- All locations of on-site water and septic and proposed tanks shall be shown on the civil plans.

Police No comments at this time.

Fire

- The WB-50 template or approved equal shall be run through the site to address fire truck turning movements.
- If the buildings are adjoined, it would require upgrading the whole structure with suppression including the existing church and under the church basement.
- Applicant shall provide confirmation of compatibility with existing alarm and detection systems with the need for possible upgrades.
- Suppression water supply calculations must be provided including tanks and pumps if required to meet the demands.

Building Inspection No comments at this time.

Planning

- Property lines are not shown on the photometric drawings. Lighting appears to exceed zero footcandles at and beyond property line near Honeywell road. Lighting shall be adjusted to meet the requirements of the Village lighting ordinance.
- The applicant has provided justification for the proposed parking counts and detailed times and events that warrant the provided parking space design.
- Curb and gutter is not required in the parking lot as it is an expansion of an existing parking lot without curb and gutter and surface drainage is managed with ditches and culverts.
- Applicant shall ensure that no trees are planted within the proposed swales or storm water drainage system – landscaping plan indicates

trees in some swale locations and this will not be permitted in final construction.
- Submit a plan showing proposed set-backs for the proposed building, parking, and drive aisle from the west, south, and east property lines.
- Proposed roofing and siding materials shall match existing building styles, materials, and colors.
- Architectural drawings do not list any elevations, but scale to be approximately 41.25-FT to the top of the gymnasium roof. Applicant shall provide annotated elevation drawings meeting any Plan Commission max building height stipulations.
- No dumpster enclosure detail was provided. Applicant shall provide dumpster enclosure detail. Dumpsters shall be fully screened on all four sides with gates for access.

Recommended Action

Conditional Use Permit
Staff recommends the Planning Commission recommend to the Village Board approval of a conditional use permit as set forth in the provided resolution.

To – Grant a Conditional Use Permit for a Religious Assembly facility with the following on-going conditions deemed necessary to protect the health, safety, and welfare:

1. Ongoing conditions of approval. The following conditions shall constitute an ongoing obligation:
    a. Any modifications to the site, buildings, site improvements, shall require the conditional use application being updated.
2. The following conditions are also true and are consistent with Section 100-354 of Mukwonago's zoning regulations:
    a. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
    b. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
    c. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts.
    d. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
    e. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.
    a. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

Site Plan and Architectural Review
Staff Recommends the Planning Commission Approve a resolution for the Site Plan and Architectural Review, as set forth in the attached resolution with the included conditions.

Attachments

1. Application and Development Information
2. Plans and Site Drawings

VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES

PC RESOLUTION NO. 2025-16

A RESOLUTION FOR A SITE PLAN AND ARCHITECTURAL REVIEW FOR THE MUKWONAGO BAPTIST CHURCH EXPANSION, PARCEL A352400001

WHEREAS, pursuant to Section 100-601 of the Zoning Code, an application for a site plan and architectural review has been filed for the approval of a building expansion and site redevelopment for The Mukwonago Baptist Church, which application was filed in the office of the Village Clerk, Village of Mukwonago, Wisconsin, and

WHEREAS, the application has been submitted by The Mukwonago Baptist Church as the applicant and authorized agent, and

WHEREAS, the use is a permitted use within the P-1 Public and Semi-Public District and a conditional use for all structures – in which the subject property is located, and

WHEREAS, the plan of operation and development plans have been reviewed and recommended by the Plan Commission.

NOW, THEREFORE, BE IT RESOLVED by the Plan Commission of the Village of Mukwonago, Wisconsin hereby approves the site plan and architectural review for the Mukwonago Baptist Church Expansion to be constructed, based upon the plans submitted to the Village.

NOW, THEREFORE, BE IT FURTHER RESOLVED the site plan and architectural review approval shall be subject to the following conditions:

1. Prior to any land disturbing activity, the applicant must submit a complete and final set of site construction plans to the Village and receive approval of said plans prior to issuance of any building permits. Plans shall include but are not limited to grading, utilities, utility calculations, erosion control, landscaping, lighting, building architecture, building materials and other plans as required. All Village department heads must verify in writing whether they have approved the final plans within their purview. Any outstanding matters must be resolved to staff's satisfaction. Construction shall comply with any conditions of approval issued by staff.
2. A final erosion control plan shall be submitted for review and approval.
3. All required regulatory agency permits shall be received and provided to the Village prior to the start of construction.
4. Prior to any land-disturbing activity, a pre-construction meeting must be held with the applicants' representatives and primary contractors, and Village department heads and representatives. The applicant representative shall coordinate such meeting.
5. The applicant must obtain all required land disturbance permits within six months of this date, and start construction within six months of the date of building permit issuance and continue in good faith to completion.

6. Prior to any land-disturbing activity, the applicant must reimburse the Village for any outstanding charges and establish an escrow account with the Village as may be required.
7. The Applicant shall establish an escrow in the value of $10,000 prior to the start of construction.
8. The applicant must obtain all required building permits within nine months of this date, and start construction within six months of the date of building permit issuance and continue in good faith to completion.
9. All work related to this project must comply with all project plans approved by the Village.
10. The developer must comply with all requirements related to impact fees imposed by the Village.
11. Upon the extension public utilities that front the subject property, the applicant is required to connect to Village public utilities as prescribed in the applicable Municipal Code.
12. The developer shall comply with all parts of the Municipal Code as it relates to this project.
13. If the approved plans need to be revised to address any of the conditions of approval or to conform to Building and Fire Safety Codes, the Zoning Administrator and the Building Inspectors are authorized to approve minor modifications so long as the overall project elements remain unchanged. If they determine that the revision is substantial, the plans must be submitted to the Plan Commission for review and approval.
14. Refuse/Recycling Collection shall be contracted privately.
15. All lighting within the parking lot and building lighting shall be full cut off lighting and meet municipal standards. Building lighting shall not be direct light or the appearance of light towards adjoining properties. The Police Department or Zoning Administrator, after completion or any modification to the lighting in the future, may request adjustments. A final photometric lighting plan must be submitted and approved prior to construction.
16. Landscaping shall be installed per Village standards and approved plans and no trees shall be planted in any storm water drainage or treatment facility locations.
17. New siding and roofing colors and materials shall match existing roofing and siding materials, styles, and colors.
18. Any future modification to the site such as modification of parking, lighting, grading, signage, fences, etc. may require Site Plan and Architectural Review.

Passed and adopted by the Village of Mukwonago Plan Commission this 8th day of July, 2025.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Shay Zerfas, Deputy Clerk-Treasurer

PLAN COMMISSION STAFF REPORT

TO: Village of Mukwonago Plan Commission

FROM: Peter Gesch, P.E., Ruekert & Mielke, Inc.

REPORT DATE: June 30, 2025

MEETING DATE: July 8, 2025, 6:30 P.M.

SUBJECT: Café Bliss – Site Plan & Architectural Review and Conditional Use

BASIC INFORMATION	
Project:	Café Bliss
Applicant:	Campbell Construction & Kevin Bird, authorized representatives for Café Bliss
Consulting Engineer:	Endpoint Solutions
Consulting Architect:	Haag Muller, Inc.
Request:	Site Plan & Architectural Review & Conditional Use
Staff Recommendation:	Approve with Conditions

PARCEL DATA/CHARACTERISTICS	
Tax Key:	MUKV1976146 and MUKV1976143
Acreage:	0.71 Acres Combined
Current Use:	Vacant
Proposed Use:	Restaurant/Cafe w/ Drive-Thru & Outdoor Seating
Reason for Request:	Development of new Restaurant/Café Facility
Land Use Classification:	Business
Zoning Classification:	B-2 – General Business and Multi-Purpose Perimeter

Project Summary & Overview

Café Bliss intends to develop two parcels at the northern corner of S. Rochester Street and Meacham Street. Improvements include a café facility, drive-through, outdoor seating, and on-site parking as required by the municipal zoning code. The café meets the requirements of a permitted use in the B-2 District and Multi-Purpose Perimeter overlay, however outdoor seating and a drive-through are conditional uses.

Staff have been coordinating with Café Bliss representatives for improvements to Meacham Street and Pleasant Lane to facilitate proper public access and orderly development of the surrounding area. There are right-of-way acquisitions and improvements that need to be made prior to construction beginning and the Village is looking into ways to facilitate the improvements in a timely fashion. The site layout is

dependent on the improvements to Meacham Street and Pleasant Lane and temporary access can be coordinated if needed.

The combination of on-site parking and available adjacent street parking is adequate for the proposed dining facility area. Based on the required ordinance section, with the available seating areas and approximately 8-staff members, they would need around 30 parking stalls on-site. They are providing 25-parking spaces on-site and street parking is available on S. Rochester, Jefferson, Meacham to the west, and future improvements on Pleasant Lane. Adequate stacking is provided in the drive-through lane with space for 8-9 vehicles.

Storm water management is not required because the impervious area is less than 0.5 acres.

The approvals include conditions that a CSM be completed and approved prior to construction, which will incorporate potential right-of-way changes.

Conditional Use Request

Attached to this staff report is the justification questions for a Conditional Use Permit that have been answered by the applicant. The Planning Commission shall take these into consideration when making their decisions.

Conditional Use Process / Findings

The established review procedures are that the Plan Commission shall hold a public hearing and make a recommendation to the Village Board whom makes the final decision.

Following the close of the public hearing, the Plan Commission may recommend (1) approval, (2) approval with conditions, or (3) denial.

If approval is recommended, the Plan Commission can recommend conditions deemed necessary to protect public health, safety, and welfare. The Plan Commission, in passing on the matter, will need to make the following determinations consistent with Section 100-354 of Mukwonago's Zoning Regulations:

1. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
2. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
3. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts. In making this determination, the Plan Commission and Village Board must determine whether the petitioner has demonstrated there are no adverse effects on surrounding properties or that potentially adverse effects have been eliminated or reduced to an acceptable level. Approaches that could be employed to mitigate potentially adverse effects will depend on the particular circumstances but may include:
    a. Adjusting the location of the use, or parts thereof, on the subject property;
    b. Limiting hours of operation;
    c. Limiting the size or scope of the use, or parts thereof;
    d. Controlling how the use is managed on an ongoing basis;

e. Providing additional landscaping;
f. Providing additional screening; and
g. Limiting operations conducted out-of-doors, if otherwise allowed

4. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
5. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.
6. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

In addition, the property owner / tenant has shown compliance with the requirements set forth in the Village's zoning regulations for specified use.

The Village Board will carefully review the recommendation of the Plan Commission and concurs with the Plan Commission's findings set forth above, provided the conditional use is operated pursuant to the conditions of approval set forth in this order.

These findings are incorporated into the draft conditional use order which is attached.

The Plan Commission shall approve a conditional use application if the terms and conditions of the zoning regulations are met. However, in the event the terms and conditions of the ordinance are not consented to and complied with by the applicant, the Commission may deny the application. In addition, the Commission may deny the application or place conditions on it if substantial evidence, as defined in §62.23(7) Wis. Stats. is presented. That evidence must demonstrate the inability of the applicant to comply with or meet the conditions of the zoning regulations or that the conditions to be applied by the Plan Commission are necessary to protect the public health, safety or welfare of the community based upon the presentation of substantial evidence. Potential motion for approval to Recommend to the Village Board approval of the project as a conditional use as set forth in the attached conditional use order as drafted, provided the Village Attorney approves the final form of the conditional use order.

Staff Review

Engineering:	Engineering improvements may need minor modifications to be coordinated with ultimate Meacham Street and Pleasant Lane. Any minor modifications will not impact the overall site layout.
Public Works	No comments at this time.
Utilities	Utility connections will need to be coordinated with the ultimate improvements for Meacham Street. Utilities will coordinate with applicant to modify utility connections and possible locations, if needed.
Police	No comments at this time.

Fire:

- A WB-50 turning template should be run through the parking lot area of the site but does not need to be run through the drive-thru due to access of S. Rochester Street.
- Water main loop through Pleasant Lane will help with hydrant spacing around development.
- If occupancy is under 99 persons, no suppression is required.
- Class 1 hood with suppression is required.

Building Inspection: No comments at this time.

Planning:

- All minimum setback requirements are met.
- Adequate landscaping is provided.
- Flat roof requires plan commission approval. Approval of the SPAR resolution renders the necessary approval.
- Drawings indicate peaked roof section will be a green color. B-2 zoning requirements indicate roofs must be gray, black or dark brown.
- Photometric plan shows greater than zero footcandles beyond the northern, eastern, and southern property lines. Lighting plan should be revised to produce zero footcandles at all property lines.
- Max light mounting height is 25-FT.
- Plan Commission should review and make decision on proposed mural on parking lot side of building.

Recommended Action

Conditional Use Permit
Staff recommends the Planning Commission recommend to the Village Board approval of a conditional use permit as set forth in the provided resolution.

To – Grant a Conditional Use Permit for a drive-thru facility with the following on-going conditions deemed necessary to protect the health, safety, and welfare:

1. Ongoing conditions of approval. The following conditions shall constitute an ongoing obligation:
    a. Any modifications to the site, buildings, site improvements, shall require the conditional use application being updated.
2. The following conditions are also true and are consistent with Section 100-354 of Mukwonago's zoning regulations:
    a. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
    b. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
    c. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts.

d. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
e. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.
f. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

Site Plan and Architectural Review
Staff Recommends the Planning Commission Approve a resolution for the Site Plan and Architectural Review, as set forth in the attached resolution.

Attachments

1. Application and Development Information
2. Plans and Site Drawings

RESOLUTION 2025-20

Village of Mukwonago Order Granting a Conditional Use and Prescribing Conditions for a Drive-Through Facility and Outdoor Seating for Café Bliss on Parcel MUKV1976146, Mukwonago, WI

WHEREAS, CAFÉ BLISS (hereinafter "property owner") owns the property identified MUKV1976146, (hereinafter "subject property") in the Village of Mukwonago, more particularly described as follows:

LOT 6 BLK 2 ASSESSORS PLAT NO 1 OF THE VILLAGE OF MUKWONAGO PT NE1/4 & SE1/4 SEC 26 T5N R18E :: DOC# 4215499

WHEREAS, the property owner has, consistent with the Village of Mukwonago's zoning regulations, submitted a conditional use application for a new Drive-Through Facility and Outdoor Seating for Café Bliss per Section 100-251, and

WHEREAS, upon receipt of the petition submitted by the property owner and future purchaser, the Village Clerk properly referred such petition to the Plan Commission; and

WHEREAS, allowing for required public notice, the Plan Commission conducted a public hearing on July 8, 2025, to consider the petitioner's request; and

WHEREAS, members of the public in attendance were given ample opportunity to provide comment regarding the petitioner's request; and

Return to:
Lana Kropf, Clerk-Treasurer
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Parcel Number: MUKV1976146

WHEREAS, the Plan Commission passed a motion recommending to the Village Board that the conditional use be approved subject to certain conditions; and

WHEREAS, the Plan Commission, in passing on the matter, has made the following determinations consistent with Section 100-354 of Mukwonago's zoning regulations:

1. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.

2. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.

3. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.

4. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.

5. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

In addition, the property owner has shown compliance with the requirements set forth in the Village's zoning

regulations for the specified use.

WHEREAS, the Village Board has carefully reviewed the recommendation of the Plan Commission and concurs with the Plan Commission's findings set forth above, provided the conditional use is operated pursuant to the conditions of approval set forth in this order.

NOW THEREFORE, IT IS HEREBY DETERMINED AND ORDERED AS FOLLOWS:

1. **Authorized uses**. Subject to the terms and conditions of this approval and the sections of the zoning code that apply, the property owner is authorized to construct a Drive-Through Facility and Outdoor Seating for Café Bliss.

2. **Issuance of permit required**. The zoning administrator is authorized to issue the property owner a conditional use permit when all conditions enumerated in section 3 have been satisfied to his or her satisfaction. Such permit is the last approval before the property owner/tenant can begin to establish the use as authorized herein.

3. **Initial conditions of approval.** The following conditions shall be satisfied prior to the issuance of the conditional use permit:

a. The property owner must submit site/architectural plans to the Village for review and obtain approval of the same within 9 months of the date of this decision.

b. The property owner must accept the terms and conditions of this conditional use order in its entirety in writing within 6 months of the date of this decision. Prior to such expiration, the property owner may request an extension to this time period and the Village Clerk may approve an extension with good cause.

c. This order must be recorded against the subject property in the Waukesha County or Walworth County register of deeds office (only if subsections 3(a) through 3(b) have been satisfied).

In the event the requirements enumerated in subsections 3(a) and 3(b) above are not satisfied, this order shall automatically be null and void without any further action by the Village of Mukwonago on the aforementioned date.

4. **Ongoing conditions of approval**. The following conditions shall constitute an ongoing obligation:

a. Any modifications to the site, buildings, site improvements shall require the conditional use application being updated.

5. **Expansion or changes.** The conditional use hereby authorized shall be confined to the subject property without extension or expansion. Any expansion or change in use shall require issuance of a new conditional use approval pursuant to the requirements in effect at the time of application.

6. **Modification of property boundary lines**. The property owner shall not change the size and/or shape of the subject property by any means without the approval of the Village Board. If the Village Board determines that a proposed change is substantial with regard to the overall size of the parcel and/or configuration, such change shall require issuance of a new conditional use approval pursuant to the requirements in effect at the time of application.

7. **Plans and related matters**. Unless otherwise expressly stated herein, plans that are specifically required by this conditional use order may be amended upon the prior approval of the Plan Commission if the Plan Commission finds the amendment to be minor and consistent with the conditional use order and permit. Any change in any plan that the Plan Commission feels, in its sole discretion to be substantial, shall require a new conditional use approval and all procedures in place at the time must be followed.

8. **Inspection**. The property owner shall allow Village of Mukwonago staff, officials, and other authorized agents to inspect the subject property, at any reasonable time and for any proper purpose related to compliance with this conditional use order.

9. **Discontinuance**. Should the conditional use be discontinued in use for 365 consecutive days the use shall be terminated as set forth in the Village of Mukwonago's zoning regulations.

10. **Private rights**. This approval is given under the Village of Mukwonago's zoning regulations and is not to be interpreted to abrogate any private rights other property owners may have pursuant to deed restrictions or restrictive covenants.

11. **Interpretation**. If any aspect of this conditional use order is in conflict with any other aspect of the conditional use order, the more restrictive provisions shall be controlling, as determined by the Plan Commission.

12. **Other permits**. This order shall not be deemed to constitute a building permit, or constitute any other license or permit required by Village ordinance, or other local, state, or federal law.

13. **Severability**. In the event a court of competent jurisdiction determines that a paragraph or phrase of this conditional use order is unlawful, illegal, or unconstitutional, said determination as to the particular phrase or paragraph shall not void the rest of the conditional use order and the remainder shall continue in full force and effect.

14. **Heirs, successors, and assigns**. This conditional use order shall be binding upon the property owner and their heirs, successors, and assigns. Upon a change in ownership, the property owner shall notify the Village Clerk.

15. **Ongoing review**. This conditional use may be reviewed by the Plan Commission with notice to the property owner at any time upon complaint or upon Plan Commission initiative. If it is determined that the authorized use is no longer compatible, or that the provisions of this approval have not been complied with, the Village Board may revoke or amend this order after recommendation by the Plan Commission and holding of a public hearing.

16. **Amendment**. The property owner may propose an amendment to this conditional use order at anytime by submitting a written petition to the Village Clerk, which shall be reviewed pursuant to the requirements in effect at the time of application.

17. **Violation**. Any violation of this order may be treated as a violation of Mukwonago's zoning regulations and each day of each violation of each condition herein shall be treated as a separate violation.

18. **Acceptance.** GRANTEES hereby accept the said Conditional Use Grant and covenant strictly to comply with all the terms and conditions thereof. GRANTEES acknowledge that, in accordance with the provisions of the Zoning Code, failure to comply with any conditions of the Conditional Use Grant is cause for the termination of said Grant by the Village. GRANTEES also acknowledge that approval of the Conditional Use Grant allows the appropriate Village officials to conduct reasonable and routine inspections of the property. This Covenant shall run with the land and shall be binding on the GRANTEES and all persons claiming any estate or interest in the Premises by, through or under the GRANTEES, as long as the said Premises are used as described in the Conditional Use Grant

Approved this 16th day of July, 2025.

BY THE VILLAGE BOARD OF THE VILLAGE OF MUKWONAGO

_____
Fred Winchowky, Village President

Attest:

_____
Lana Kropf, Village Clerk-Treasurer

STATE OF WISCONSIN, WAUKESHA/WALWORTH COUNTY

Personally came before me this ____ day of _____ 2025, the persons described above, Fred Winchowky, Village President, and Lana Kropf, Village Clerk, 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 the Village of Mukwonago and acknowledged that they executed the foregoing instrument as such officers of said municipal corporation by its authority and pursuant to the authorization by the Village Board from their meeting on the ____ day of _____, 2025.

_____
NOTARY PUBLIC

_____
My Commission Expires:

The remainder of this page left intentionally blank.

Acceptance by Property Owner

I, _____ verify that I am an authorized agent for CAFÉ BLISS accepts the terms stated herein.

Dated this _____ day of _____, 2025

_____
_____, agent

STATE OF WISCONSIN, WAUKESHA/WALWORTH COUNTY

Personally, came before me this ____ day of _____, 2025, the above-named person, _____ to me known to be the person who executed the foregoing instrument and acknowledged the same.

_____
NOTARY PUBLIC

_____
My Commission Expires:

Drafted by Peter Gesch, Contracted Village Planner at the direction of the Mukwonago Village Board.

Process Details: PZ25-0018

Property Address: 318 S ROCHESTER ST, Mukwonago, WI 53149 | Parcel: MUKV1976146

Property Owner: JOHN & LORRAINE MCADAMS FAMILY TRUST

Summary Information

> 18 Process Step(s) Found > 0 Inspection(s) Found

This Site Plan was created from an application. Click here to view the application.

Amount Due

Process - Site Plan $530.70
Total
Pay Now

Process Information

Filed As	Site Plan	**Application Date**	06/06/2025
Process Name	Site Plan	**Date Process Started**	*No Data to Display*
Process Number	PZ25-0018	**Date Completed**	*No Data to Display*
Status	Preprocess - Hold	**Last Status Change**	06/06/2025
Scope Of Work	New Construction of a cafe or coffee shop		
Conditions	*No Data to Display*		

Process Step Information

Step Number	Step Display Name	Status	Date Step Started	Date Step Completed	Date Step Due	
1	Review Application for Completeness	Not Started				View
2	Staff Review	Not Started				View
3	CIVIL DRAWINGS	Not Started				View
4	STORMWATER MGT PLAN	Not Started				View
5	LIGHTING PLAN	Not Started				View
6	LANDSCAPE PLAN	Not Started				View
7	EROSION CONTROL PLAN	Not Started				View
8	PRE CON ESCROW TO DEPUTY CLERK $5K	Not Started				View
9	Post PC Agenda	Not Started				View
10	PC Review and Decision	Not Started				View
11	VILLAGE BOARD NOTIFICATION ONLY	Not Started				View
12	Owner and Applicant Notified	Not Started				View
13	LETTER OF CREDIT - IF INFRASTRUCTURE VILLAGE RESPONSIBILITY	Not Started				View
14	STORM WATER MAINT AGMT	Not Started				View
15	DEVELOPER AGMT	Not Started				View
16	PRE CON MTG	Not Started				View
17	POST APPROVAL CONSTR ESCROW $10K	Not Started				View
		Not Started				View

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Document Summary

Document Title
Checklist

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	Checklist	Not Started	6/5/2025		View Document
1	Checklist	Not Started	6/5/2025		View Document

CIVIL DRAWINGS

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	CIVIL DRAWINGS	Not Started			No Attachment

EROSION CONTROL PLAN

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	EROSION CONTROL PLAN	Not Started			No Attachment

Finishes

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	Finishes	Not Started	6/5/2025		View Document
1	Finishes	Not Started	6/5/2025		View Document

LANDSCAPE PLAN

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	LANDSCAPE PLAN	Not Started			No Attachment

LIGHTING PLAN

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	LIGHTING PLAN	Not Started			No Attachment

Scale Drawings

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	Scale Drawings	Not Started	6/5/2025		View Document
1	Scale	Not Started	6/5/2025		View Document

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Document Title

SITE PLAN

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	SITE PLAN	Not Started			No Attachment

STORMWATER MGT PLAN

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	STORMWATER MGT PLAN	Not Started			No Attachment

SUBMITTAL ESCROW $5K

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	SUBMITTAL ESCROW $5K	Not Started			No Attachment

Review Comments/Concerns

Show All

[Collapse All]

Title	Type	Comment Type	Corrected	Date Found	Date Corrected	Process Step	Review	
No records to display.								

Inspection Information

Inspection Type	Inspector	Status	Scheduled Date	Completed Date	Result	
No records to display.						

Fees & Payments

Date	Action	Qty	Description	Billed	Paid
6/6/2025	Invoice Item	2,785.00	PZE Fees: Site Plan - Major (Invoice Number: 00006568)	$530.70	

Applicant Information

Address CAMPBELLS CONSTRUCTION
461 RIVER CREST CT
MUKWONAGO, WI 53149

Phone *No Data to Display* **Fax** *No Data to Display*
Mobile *No Data to Display* **Other Phone** *No Data to Display*

Parcel/Land Details

Notes *No Data to Display*

Zoning/Rezoning and Usage

Dimensional Information

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Notes *No Data to Display*

Utility Details

Setback Details

Miscellaneous Fields

Parking Details

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Village of Mukwonago
440 River Crest Ct
Mukwonago, WI 53149
Phone: (262) 363-6420
Fax: (262) 363-6425
www.villageofmukwonago.gov

VILLAGE OF MUKWONAGO
CONDITIONAL USE PERMIT APPLICATION
Application Fee: $475

Date Submitted: 6/17/25
Complete, accurate and specific information must be entered. Please Print or Type.

CONTACTS

Zoning and Planning Department
Contact: Tim Rutenbeck, Supervisor of Inspections
Email: trutenbeck@villageofmukwonago.gov
Phone: (262) 363-6419 option 1

Peter Gesch, Village Planner
Email: pgesch@ruekert-mielke.com

APPLICATION INFORMATION

Request: The undersigned petition is to consider a request, as stated herein, for the specified parcel(s) of land and will be reviewed by the Plan Commission and Village Board of the Village of Mukwonago.

Meeting Dates: Plan Commission meets on the second Tuesday of each month at 6:30 p.m. A schedule of meeting dates can be found at our www.villagofmukwonago.gov

Application Deadlines: Applications deadlines are approximately 5 weeks prior to the scheduled meeting.

Public Hearing: Conditional use applications require a public hearing. To ensure the public hearing will be properly advertised, the application must be submitted **on the application deadline** to allow staff time to process and meet newspaper deadlines.

Application Completeness: Materials listed on page 3 must be provided to the Village of Mukwonago in accordance with Village Municipal Code Chapter 100-354 and other pertinent sections of Village ordinances, WI Stats. 62.23, and as necessary to permit review that is consistent with proper planning practice.

Pre-Application Meetings: The Village will strive to accommodate reasonable requests for informal preliminary staff review; however the Village shall not place any items on the agenda for Plan Commission consideration until such time as the application is complete in accordance with all requirements specified on this and other attached application forms.

Application Submission: Applications must be submitted Electronically through the Village on-line permit system. The system may be accessed through this link. Once you arrive to the site you will need to apply for a "Planning, Zoning, or Engineering Process". This link can be found on the left side of the screen under Building Department. The program will allow you search by the address, apply for a conditional use, input various information and upload documents.

Fees: Fees may be paid in one of three ways.

1. You may pay your fee online. After the application is submitted staff has received and reviewed the application an email will be sent to the applicant (email that is provided) letting you know that you can pay the fee online. There is a credit card fee associated with this option.
2. You may pay with cash or a check by mailing or brining the check to Village Hall. There is not a transaction fee associated with this option.
3. You may pay with a credit card at Village Hall during normal hours and in person. There is a transaction fee association with this option.

Paper Copies: Any Application that involves larger format copies (larger than 8 ½ x 11) shall have two copies of the application provided to the Village in printed form.

Paper Copies can be sent to:
Village Planner, ATTN: Conditional Use Permits, 440 River Crest Ct Mukwonago, WI 53149

APPLICANT *(Full Legal Name)*

Name: Kevin Bird

Company: Cafe bliss

Address: 29606 Durand ave **City:** Burlington **State:** Wi **Zip:** 53105

Daytime Phone: 262-206-9843 **Fax:** Not Applicable / Available

E-Mail: Ksbird@wanasek.com

APPLICANT IS REPRESENTED BY *(Full Legal Name)*

Name: Joe Dedick

Company: Campbell Construction JC, Inc.

Address: 461 River Crest Ct City: Mukwonago State: WI Zip: 53149

Daytime Phone: 262-436-4760 Fax: Not Available

E-Mail: joe@campbellconstructionbbg.com; monica@campbellconstructionbbg.com

ARCHITECT

Name: Steve Jeske

Company: Haag Muller, Inc.

Address: 101 East Grand Ave Suite 1 City: Port Washington State: WI Zip: 53074

Daytime Phone: 262-268-1200 Fax:

E-Mail: sjeske@haagmuller.com

PROFESSIONAL ENGINEER

Name: Jason Heinonen

Company: Endpoint Solutions

Address: 6871 South Lovers Lane City: Franklin State: WI Zip: 53132

Daytime Phone: 414-427-1200 Fax: 414-427-1259

E-Mail: jason@endpointcorporation.com

REGISTERED SURVEYOR

Name: See Professional Engineer

Company:

Address: City: State: Zip:

Daytime Phone: Fax:

E-Mail:

CONTRACTOR

Name: Jay Campbell

Company: Campbell Construction JC, Inc.

Address: 461 River Crest Ct City: Mukwonago State: WI Zip: 53149

Daytime Phone: 262-436-4760 Fax:

E-Mail: jay@campbellconstructionbbg.com

PROPERTY AND PROJECT INFORMATION

Present Zoning: B-2 General Business District **Tax Key No(s).: MUK 1976.143 & MUK 1976-146**

Address/Location: NE Corner of S. Rochester St. & Meacham St. Mukwonago, WI 53149

A. I/We request a conditional use permit for: The New Construction of a Café with Drive Thru

B. The property is presently used as: Vacant

C. Name of Architect, Professional Engineer, or Contractor: Campbell Construction JC, Inc

D. Project Timetable: Start Date: 2025 Ideally Completion Date: _____

E. All of the Proposed Use(s) of the property will be:

Principal Use : Restaurant

Secondary Use

Accessory Use

F. I/We represent that I/we have a vested interest in this property in the following manner:

- ☐ Owner
- ☐ Leasehold. Length of Lease: _____
- ☐ Contractual. Nature of contract: _____
- ☐ Other. Please explain

PROCEDURAL CHECKLIST FOR CONDITIONAL USE REVIEW AND APPROVAL

This form is designed to be a guide for submitting a complete application for a conditional use.
Application Submittal Packet Requirements for Village and Applicant Use (Check off List)

Application:

- ❑ Completed application form including the procedural checklist and justification of the proposed conditional use.
- ❑ Application fee: $475
- ❑ Agreement for Reimbursable Services (separate application)

Required site drawings:

- ❑ Survey of the property
- ❑ Landscape plan
- ❑ Parking plan (including parking computations)
- ❑ Lighting plan (including photo metrics)
- ❑ Proposed location and connection to the sanitary sewer and water mains
- ❑ Drainage plan (if applicable)
- ❑ All building elevations
- ❑ Floor plans

Other Documents:

- ❑ Plan of operation/proposal
- ❑ Overview of the adjoining lots (including list of parcel identification numbers and names and mailing addresses of the current owners for all properties within 300 feet of the subject property)
- ❑ **Electronic Submittals are required.** Email (or CD ROM) with all plans and submittal materials in Adobe PDF to planner@villageofmukwonago.gov.
- ❑ Any additional information as determined by Village staff

JUSTIFICATION OF THE PROPOSED CONDITIONAL USE

The Plan Commission and Village Board of the Village of Mukwonago will base their decisions on the category standards listed below. It is in the best interest of the applicant to base their presentation on the same applicable set of standards when presenting their petition. **Applicant: Please fill out ALL of the questions. Use additional sheets of paper if needed.**

A. **How is the proposed conditional use (the use in general, independent of its location) in harmony with the purposes, goals, objectives, policies and standards of the Village of Mukwonago Comprehensive Plan, the Zoning Ordinance, and any other plan, program, or ordinance adopted, or under consideration pursuant to official notice by the Village?**

B. The proposed café use is in harmony with the purposes, goals, objectives, policies, and standards of the Village of Mukwonago Comprehensive Plan and Zoning Ordinance. It supports the Village's vision for creating vibrant, community-oriented spaces by offering a welcoming environment for residents and visitors to gather, socialize, and enjoy locally prepared food and beverages. As a conditional use within the applicable zoning district, the café aligns with land use policies that encourage small-scale, pedestrian-friendly commercial development that complements surrounding uses. The proposal adheres to design and operational standards that ensure compatibility with the neighborhood, including considerations for parking, signage, and noise. Additionally, the café contributes to the Village's economic development goals by supporting local entrepreneurship, enhancing the local business mix, and activating street-level spaces. It is consistent with adopted plans and ordinances and reflects the Village's commitment to fostering a connected, livable, and economically resilient community.

C. **How is the proposed conditional use, in its specific location, in harmony with the purposed, goals, objectives, policies and standards of the Village of Mukwonago Comprehensive Plan, the Zoning Ordinance, and any other plan, program, or ordinance adopted, or under consideration pursuant to official notice by the Village?**

D. The proposed café use, in its specific location, is in harmony with the purposes, goals, objectives, policies, and standards of the Village of Mukwonago Comprehensive Plan and Zoning Ordinance. The site is strategically situated to support walkability, accessibility, and neighborhood connectivity—key principles emphasized in the Village's planning documents. Its proximity to residential areas, commercial corridors, or community gathering spaces enhances its role as a local amenity, fostering social interaction and supporting a vibrant streetscape. The location is appropriately zoned for such a use and meets all site-specific criteria, including access, parking, traffic circulation, and compatibility with adjacent land uses. The café's design and operations will be tailored to respect the character of the surrounding area, minimize potential nuisances, and contribute positively to the local aesthetic. This proposal aligns with the Village's broader goals of promoting mixed-use development, supporting small businesses, and enhancing the quality of life for residents.

C. **Does the proposed conditional use, in its proposed location and as depicted on the required site plan (see Section 100-354 (a), (b), and (c)), result in any substantial or undue adverse impact on nearby property, the character of the neighborhood, environmental factors, traffic factors, parking, public improvements, public property or rights-of-way, or other matters affecting the public health, safety, or general welfare, either as they now exist or as they may in the future be developed as a result of the implementation of the provisions of the Zoning Ordinance, the Comprehensive Plan, or any other plan, program, map ordinance adopted or under consideration pursuant to official notice by the Village or other governmental agency having jurisdiction to guide development?**

D. The proposed café, in its specific location and as depicted on the submitted site plan, will not result in any substantial or undue adverse impact on nearby properties, the character of the neighborhood, or any environmental, traffic, or public infrastructure factors. The site has been carefully selected and designed to integrate harmoniously with its surroundings, respecting existing land uses and enhancing the pedestrian-friendly nature of the area. The café's scale, hours of operation, and architectural design are consistent with the neighborhood's character and will contribute positively to the local streetscape.

Environmental considerations have been addressed through responsible site planning, including appropriate stormwater management, landscaping, and waste handling practices. Traffic and parking impacts are expected to be minimal and manageable, with adequate on-site parking provided in accordance with Village standards and safe ingress/egress points designed to maintain smooth traffic flow. The café will not encroach upon public property or rights-of-way and will not interfere with public improvements or utilities.

Overall, the proposed use supports the public health, safety, and general welfare by offering a community-oriented amenity that aligns with the Village's Comprehensive Plan and Zoning Ordinance. It is designed to be a low-impact, high-value addition to the neighborhood, both now and as the area continues to evolve under the guidance of adopted plans and policies.

E. **How does the proposed conditional use maintain the desired consistency of land uses, land use intensities, and land use impacts as related to the environs of the subject property?**

F. The proposed café maintains the desired consistency of land uses, land use intensities, and land use impacts in relation to the surrounding environment of the subject property. The café is appropriately scaled to complement the existing development pattern and is compatible with adjacent land uses, which may include residential, commercial, or mixed-use properties. Its operational characteristics—such as limited hours, moderate customer volume, and minimal noise or traffic generation—ensure that the intensity of use remains in balance with the neighborhood's character and infrastructure capacity.

The café contributes to a cohesive land use framework by reinforcing the Village's goals for walkable, community-oriented development. It serves as a transitional or supporting use that enhances the functionality and appeal of nearby properties without introducing disruptive impacts. The site plan has been designed to mitigate potential concerns related to parking, access, and aesthetics, ensuring that the café integrates seamlessly into its context. Overall, the proposed use supports the Village's vision for orderly, compatible, and sustainable development.

E. Is the proposed conditional use located in an area that will be adequately served by and will not impose an undue burden on, any of the improvements, facilities, utilities or services provided by public agencies serving the subject property?

F. The proposed café is located in an area that is adequately served by existing public improvements, facilities, utilities, and services, and it will not impose an undue burden on any public agency serving the subject property. The site benefits from established infrastructure, including water and sewer service, electricity, stormwater management systems, and roadway access, all of which are sufficient to support the proposed use without requiring significant upgrades or expansions.

The anticipated demand generated by the café—such as utility usage, waste disposal, and traffic volume—is modest and well within the capacity of current municipal services. Coordination with relevant public agencies has confirmed that no adverse impacts are expected on emergency services, public works, or other community resources. The café's design and operations will comply with all applicable codes and standards, ensuring that it integrates responsibly into the existing service network. As such, the proposed use aligns with the Village's goals for efficient, sustainable development and responsible use of public resources.

G. Do the potential public benefits of the proposed conditional use outweigh all potential adverse impacts of the proposed conditional use (as identified in Sections 100-354 (e)(1) and (2)), after taking into consideration the Applicant's proposal and any requirements recommended by the Applicant to ameliorate such impacts?

H. Yes, the potential public benefits of the proposed café significantly outweigh any potential adverse impacts, particularly when considering the applicant's proactive measures to mitigate such impacts. The café will serve as a valuable community amenity, offering a welcoming space for social interaction, supporting local economic development, and enhancing the vibrancy of the surrounding area. It aligns with the Village's goals for walkable, mixed-use environments and contributes to a sense of place and community identity.

Any potential adverse impacts—such as increased traffic, noise, or parking demand—are expected to be minimal due to the café's modest scale and thoughtful site design. The applicant has incorporated mitigation strategies, including adequate on-site parking, controlled hours of operation, and landscaping buffers, to ensure compatibility with adjacent uses. These measures, along with compliance with all applicable zoning and design standards, ensure that the café will not negatively affect public health, safety, or welfare.

In balance, the café's contributions to local quality of life, economic vitality, and neighborhood cohesion clearly outweigh any limited and manageable impacts, making it a beneficial addition to the community.

CERTIFICATION

Applicant hereby certifies that:

1. All of the above statements and other information submitted as part of this application are true and correct to the best of his or her knowledge.
2. Affirms that no Village of Mukwonago elected or appointed official or employee has a proprietary interest in the above referenced property for which this applications being filed (except as stated below under "Exceptions").
3. None of the above referenced individuals has been promised or given any contract for consultation, planning or construction in relation to this project (except as stated below under "Exceptions").
4. Applicant has read and understands all information in this packet.

Applicant further understands the policies of the Village regarding change of zonings and property development. Conditions of the resolution regarding all approvals are strictly followed. Certificates of Occupancy are not given until all conditions of approval have been met

By the execution of this application, applicant hereby authorizes the Village of Mukwonago or its agents to enter upon the property during the hours of 7:00 am to 7:00 pm daily for the purpose of inspection. Applicant grants this authorization to enter even if this land has been posted against trespassing pursuant to Section 943.13 WI Stats.

(The applicant's signature must be from a Managing Member if the business is an LLC, or from the President or Vice President if the business is a corporation. A signed applicant's authorization letter may be provided in lieu of the applicant's signature below, and a signed property owner's authorization letter may be provided in lieu of the property owner's signature[s] below. If more than one, all of the owners of the property must sign this Application).

KEVIN BIRD (Jun 17, 2025 13:28 CDT)
Signature - Property Owner

Kevin Bird
Name & Title (PRINT)

Jun 17, 2025
Date

KEVIN BIRD (Jun 17, 2025 13:28 CDT)
Signature - Applicant

Kevin Bird
Name & Title (PRINT)

Jun 17, 2025
Date

Signature - Property Owner

Name & Title (PRINT)

Date

Signature – Applicant's Representative

Joe Dedick (Proj. Manager)
Name & Title (PRINT)

6/17/25
Date

FOR OFFICE USE ONLY			
Date Paid	**Receipt #**	**Date(s) Notice Published**	**Date Notices Mailed**
Public Hearing Date	**Plan Commission Date(s)**	**Village Board Date(s)**	**Resolution Number**
Escrow Required? ☐ Yes ☐ No		**Escrow Amount**	
Plan Commission Disposition			
Village Board Disposition			

The Village of
Mukwonago
Where life, leisure and business thrive.

AGREEMENT FOR REIMBURSABLE SERVICES
Petitioner/Applicant/Property Owner

The Applicant is required to provide the Village with an executed copy of this agreement as a prerequisite to the processing of the development application.

In accordance with Village of Mukwonago Municipal Code of Ordinances Section 70-15 Professionals' Fees, the Village may retain the services of professional consultants (including but not limited to planners, engineers, architects, attorneys, environmental specialists, recreation specialists, and other experts) to assist in its review for all land division, site plan, conditional use, zoning, and other applications which require review. The Village reserves the right to charge for its actual cost for these services, as well as for staff time, publication costs, mileage, equipment used in the processing of this application.

The Property Owner additionally acknowledges that review fees which are applied to an Applicant, but not paid by such Applicant, may be charged by the Village as an assessment against the subject property as a special charge for current services provided the property per Wis. Stat Sec 66.0627.

According to the Village of Mukwonago Municipal Code, and depending on the size of the development, the Applicant may be required to deposit an amount into an escrow account with the Village before incurring any costs. In the event the undersigned(s) fails to replenish the escrow account within (72) hours of a request by the Village to do so, the undersigned(s) agree that the Village, following written notice shall have the right, in its sole discretion, to terminate providing of professional services concerning the review of the pending application/petition for the project or request. The pending application will not receive further consideration by the Village until the escrow account is replenished as required per VMMC 70.15.

Further, the Village shall have the right to refrain from taking any further action whatsoever with regards to the project or request and that the same shall remain in abeyance until the escrow or outstanding invoices are in good standing. The undersigned(s) agree that the Village may withhold any other action, legislative or ministerial, which may include the issuance of zoning permits, licenses, approval and/or execution of any development agreements, economic development agreements, economic incentive agreements, or recording of plats, approval of zoning actions, code amendments, contracts, or any other Village action for, on or upon the subject property, until the default is cured.

The undersigned(s) agree that they shall fully cooperate with the Village, its officials, staff and Professional Consultants with respect to the proposed project or request. The undersigned(s) acknowledge that the Village's Professional Consultants solely represent the Village and the Village's interest, and do not represent the undersigned in any manner.

Project Name: Cafe Bliss
Project Type & Description: New Construction of a Cafe
Tax Key (s) involved: MUK 1976.143 & MUK 1976.146

Applicant Name: Joe Dedick (262-812-7327)	Phone:
Business Name: Campbell Construction JC, Inc. (26-1608330)	FEIN#
Mailing Address - (include City, State, Zip Code): 461 River Crest Ct Mukwonago, WI 53149	
Bill To: (If different)	
Billing Address (If different)	
E-mail Address: joe@campbellconstructionbbg.com ; monica@campbellconstructionbbg.com	

Property Owner's Name (if different): Kevin Bird	Property Owner's Phone Number: 262-206-9843
Mailing Address - (include City, State, Zip Code): 29606 Durand Ave. Burlington, WI 53105	

By signing this Agreement, the undersigned(s) acknowledge that they have read the foregoing paragraphs and fully understand and agree to comply with the terms set forth herein. Further, by signing below, each signatory warrants that he/she/it has been duly authorized by the applicant , its chief executive or governing body to do so..

The undersigned(s) agree that that they shall be jointly and severally liable for payment of fees referred to in this Agreement and Section 70-15 of the Village of Mukwonago Municipal Code of Ordinances.

Signature of Applicant — (Date) 6/17/25

Kevin Bird (Jun 17, 2025 12:43 CDT) — Jun 17, 2025

Signature of Property Owner (If different than applicant) — (Date)

This Form shall be submitted to Village Clerk/Treasurer at below address or via email at: lkropf@villageofmukwonago.gov

(Rev 3-2025)

ISSUED FOR MUNICIPAL REVIEW

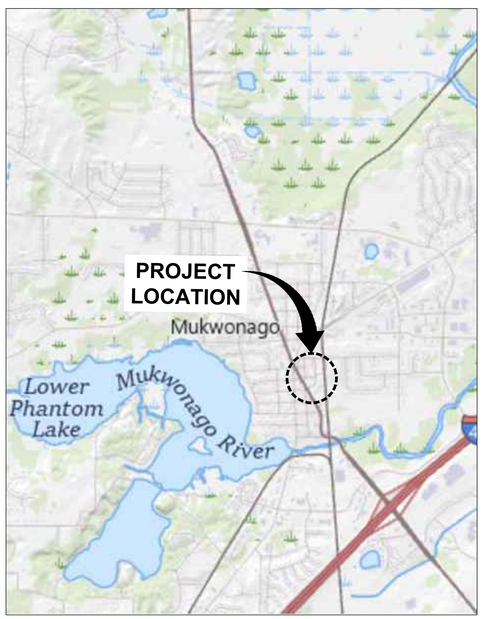
CAFE BLISS

318 ROCHESTER ST
MUKWONAGO, WISCONSIN

CALL OR CLICK 3 WORKING DAYS BEFORE YOU DIG

Help Us... Help You... Protect Your Facilities!

CALL 811 BEFORE YOU DIG 811 SAFE DIGGING PARTNER



LOCATION MAP
0 2000' 4000'
N

SITE MAP
0 500' 1000'
N

DATE ISSUED

JUNE 3, 2025

BENCHMARKS:

BM-1
CHISEL CROSS SET MANHOLE RIM S
N: 318413.2410'
E: 2416202.0790'
ELEV: 820.11'

BM-2
MAG NAIL SET N OF SIDEWALK, SE SIDE OF MEACHAM ST
N: 318301.6050'
E: 2416033.0120'
ELEV: 820.12'

Endpoint Solutions

CONTACTS

ARCHITECT:
HAAG MULLER, INC.
101 E. GRAND AVENUE
PORT WASHINGTON, WI 53074
CONTACT: STEPHEN JESKE
PHONE: 262-268-1200
EMAIL: SJESKE@HAAGMULLER.COM

ENGINEER/AGENT:
ENDPOINT SOLUTIONS CORP.
6871 S. LOVERS LANE
FRANKLIN, WI 53132
CONTACT: JASON HEINONEN, P.E.
PHONE: 414-858-1920
EMAIL: JASON@ENDPOINTCORPORATION.COM

DRAWING SHEET INDEX

CS	COVER SHEET
C1	PRE-CONSTRUCTION CONDITIONS
C2	PROPOSED SITE PLAN
C3	PROPOSED GRADING AND EROSION CONTROL PLAN
C4	PROPOSED UTILITY PLAN
C5	EROSION CONTROL NOTES & DETAILS
C6	GENERAL CONSTRUCTION NOTES
C7	CONSTRUCTION DETAILS
C8	CONSTRUCTION DETAILS

REVISION LOG

REVISION	ISSUE DATE	REVISED SHEETS	ISSUED FOR

P:\Wanasek Corporation - 1129\CAD\C0_1129-001 Cover Sheet.dwg

SOURCE: GOOGLE MAPS, USGS

Jun 02, 2025 3:26pm PLOTTED BY: jjeffery SAVED BY: jjeffery
P:\Wonasek Corporation - 1129\CAD\CT_1129-001 Cafe Bliss- Pre-construction conditions.dwg Layout1
IMAGES: T:\Template Forms\CADD\Logos\Endpoint\Endpoint Solutions HI-Res.jpg; T:\Template Forms\CADD\Logos\Endpoint\Endpoint Solutions HI-Res.jpg; T:\Template Forms\CADD\Logos\Endpoint\Endpoint Solutions HI-Res.jpg; P:\Wonasek Corporation - 1129-001 Brazil Cafe - Survey Base.dwg; \1129-001 Cafe Bliss- Proposed Layout.dwg
XREFS: _Endpoint 22x34 Border-Brazil Cafe.dwg; \1129-001 Brazil Cafe - Survey Base.dwg; \1129-001 Cafe Bliss- Proposed Layout.dwg

HENRY ST.

S. ROCHESTER ST.
(66' ROW)

MEACHAM ST.
(66' ROW)

MEACHAM ST.
(30' ROW)

PLEASANT LN.

EXSITING BUILDING

SHED

LOT 5

LOT 6

GRAVEL

1" IRON PIPE FND

1" IRON PIPE FND

1" IRON PIPE FND

1" IRON PIPE FND

1" IRON PIPE FND

#118
RIM ELEV=821.59'
24" RCP NW: 817.11'
24" RCP SE: 815.61'
24" RCP NE: 815.63'

#117
RIM ELEV=821.58'
24" RCP SW: 815.61'

#119
RIM ELEV=821.63'
10" RCP NW: 813.85'
10" RCP S: 813.80'

#389
RIM ELEV=820.86'
8" RCP NE: 812.27'
8" RCP SE: 812.35'

#257
RIM ELEV=820.28'
24" RCP NW: 815.80'
36" RCP SE: 814.30'
24" RCP NE: 814.32'

#238
RIM ELEV=820.14'
8" RCP SW: 813.36'
6" RCP N: 813.70'

SET CHIS "X" ON MH RIM ELEV=820.11'

SEE PUBLIC ROADWAY IMPROVEMENT PLANS FOR WORK WITHIN THE MEACHAM ST. & PLEASANT LN. RIGHT OF WAY, BY OTHERS.

EXISTING SIDEWALK TO BE REMOVED

BOTTOM OF SLOPE

TOP OF SLOPE

821.47 819.93 821.76 819.83 821.23 819.65 820.18 821.11 821.34 820.02 820.21 821.27 820.34 821.84 821.63 821.68 821.83 821.61 821.96 821.12 821.20

N

0 20' 40'

SCALE 1" = 20'

- PROPERTY LINE
- BUILDING
- CONCRETE
- LEAD-IN LINE
- STM STORM LINE
- SAN SANITARY LINE
- GAS GAS LINE
- CBL UNDERGROUND CABLE LINE
- OEL OVERHEAD ELECTRICAL LINE
- MAJOR CONTOUR, (5' INTERVAL)
- MINOR CONTOUR, (1' INTERVAL)
- UTILITY POLE
- GUY WIRE
- GAS VALVE
- WATER VALVE
- CURB INLET
- SANITARY MANHOLE
- STORM MANHOLE
- COMMUNICATION PEDESTAL
- ELECTRIC BOX/PEDESTAL, TRANSFORMER, METER
- GAS METER
- END OF UTILITY LOCATE MARKING
- UTILITY POLE
- FOUND 1" IRON PIPE / ROD
- STREET SIGN

SURVEY PERFORMED BY ENDPOINT SOLUTIONS CORP. ON 12/13/24 SURVEY GRADE GPS AND CONVENTIONAL ROBOTIC SURVEY. COORDINATES ARE BASED ON NORTH AMERICAN DATUM, 1983 (NAD83), US SURVEY FOOT.

ALL UTILITIES SHOWN ARE APPROXIMATE AND SHOULD BE FIELD LOCATED AND VERIFIED.

REV:	DATE:
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Endpoint Solutions
6871 S. LOVERS LANE
FRANKLIN, WI 53132
PHONE: (414) 427-1200

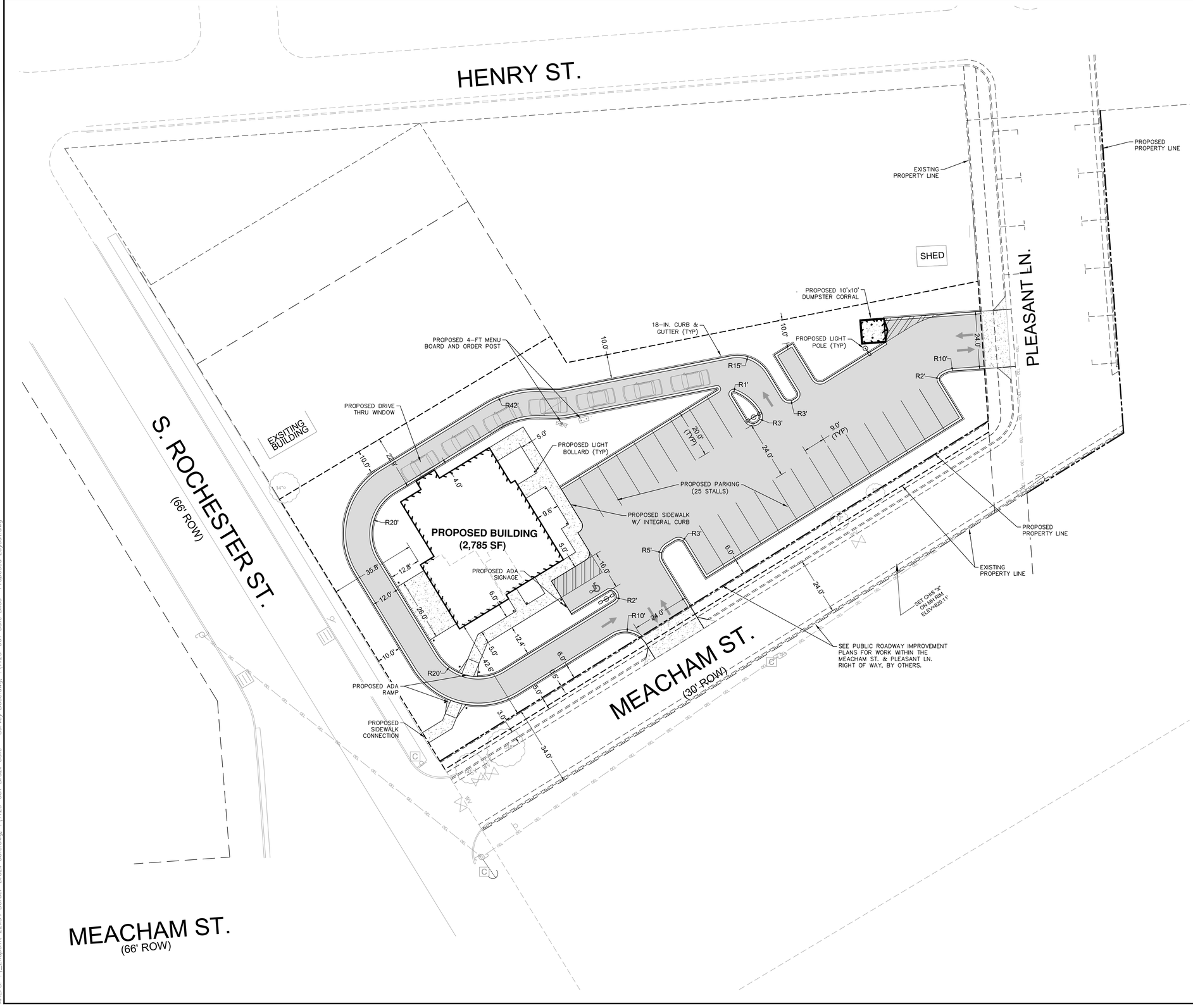
CAFE BLISS
PRE-CONSTRUCTION CONDITIONS

318 S ROCHESTER ST. AND 112 MEACHAM ST.
MUKWONAGO, WISCONSIN

DRAWN BY:	JAH/TJS	DATE:
CHECKED BY:	JJJ	6/03/2025
APPROVED BY:	JAH	

PROJECT NO.
1129-001

SHEET NO.
C1



N

0 20' 40'

SCALE 1" = 20'

- PROPERTY LINE
- BUILDING
- PROPOSED CONCRETE
- PROPOSED ASPHALT
- LEAD-IN LINE
- STM — STORM LINE
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SURVEY PERFORMED BY ENDPOINT SOLUTIONS CORP. ON 12/13/24
SURVEY GRADE GPS AND CONVENTIONAL ROBOTIC SURVEY.
COORDINATES ARE BASED ON NORTH AMERICAN DATUM, 1983 (NAD83), US SURVEY FOOT.

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Endpoint Solutions
6871 S. LOVERS LANE
FRANKLIN, WI 53132
PHONE: (414) 427-1200

CAFE BLISS

PROPOSED SITE PLAN

318 S ROCHESTER ST. AND 112 MEACHAM ST.
MUKWONAGO, WISCONSIN

DRAWN BY:	JAH/TJS	DATE: 6/03/2025
CHECKED BY:	JJJ	
APPROVED BY:	JAH	

PROJECT NO.
1129-001

SHEET NO.
C2

Jun 02, 2025 3:26pm PLOTTED BY: jeffery SAVED BY: jeffery
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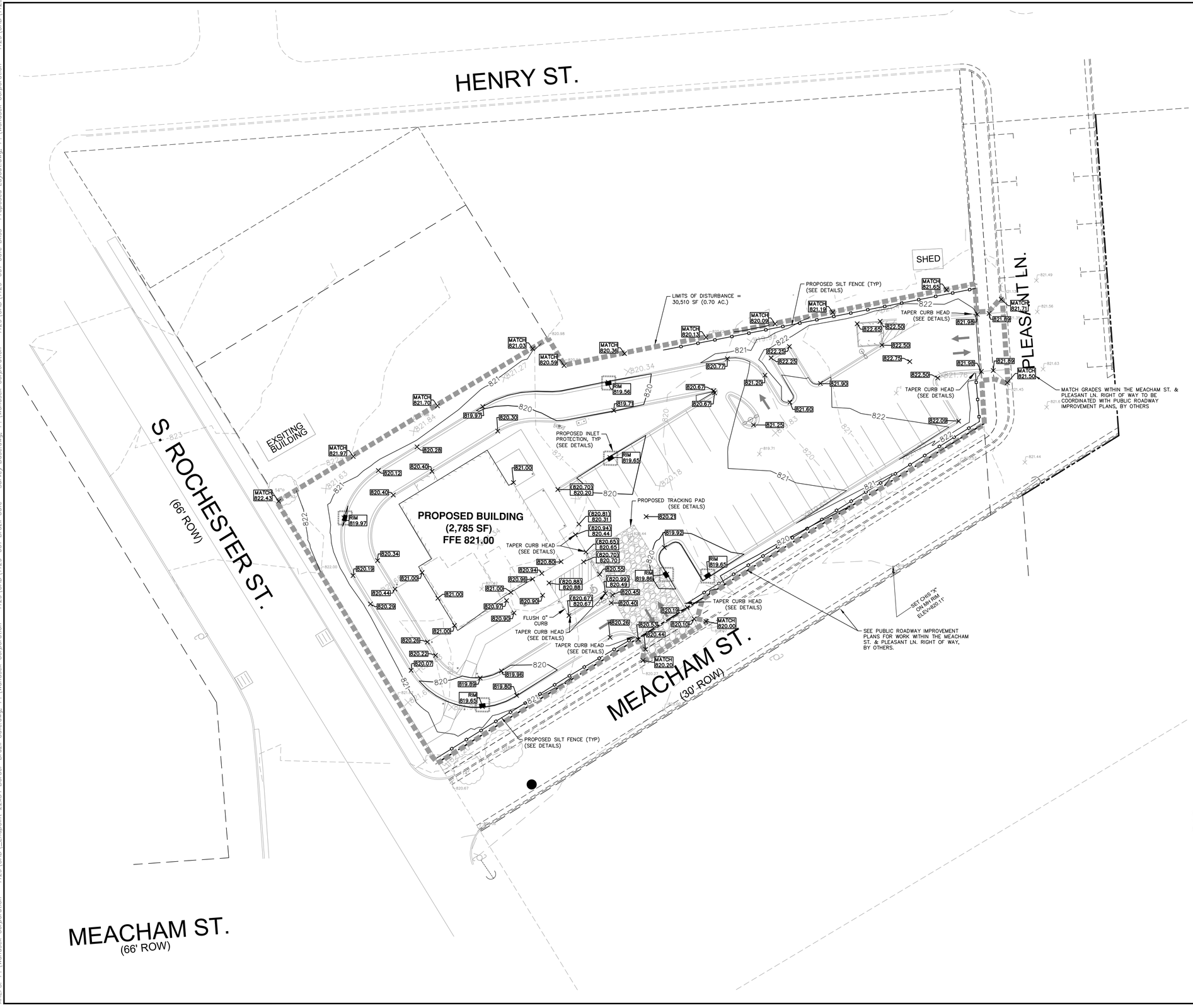

- PROPERTY LINE
- BUILDING
- CONCRETE
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- G — GAS METER
- END OF UTILITY LOCATE MARKING
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- FOUND 1" IRON PIPE / ROD
- STREET SIGN
- —795— PROPOSED MAJOR CONTOUR, (5' INTERVAL)
- —794— PROPOSED MINOR CONTOUR, (1' INTERVAL)
- 794.00 × PROPOSED SPOT ELEVATION
- 794.00 MATCH × PROPOSED SPOT ELEVATION (MATCH EXISTING)
- (794.50) × PROPOSED SPOT ELEVATION (TOP OF CURB)
- 794.00 × PROPOSED SPOT ELEVATION (BOTTOM OF CURB)

SURVEY PERFORMED BY ENDPOINT SOLUTIONS CORP. ON 12/13/24
SURVEY GRADE GPS AND CONVENTIONAL ROBOTIC SURVEY.
COORDINATES ARE BASED ON NORTH AMERICAN DATUM, 1983 (NAD83), US SURVEY FOOT.

ALL UTILITIES SHOWN ARE APPROXIMATE AND SHOULD BE FIELD LOCATED AND VERIFIED.

CONSTRUCTION SEQUENCE

1. INSTALL SILT FENCE AND EROSION CONTROL AS SHOWN ON PLAN. MAINTAIN AS NECESSARY DURING CONSTRUCTION. INSPECT FOLLOWING RAIN EVENTS.
2. GRADE SITE AND CONSTRUCT IMPROVEMENTS.
3. STABILIZE DISTURBED GROUND WITH TEMPORARY SEED, FERTILIZER, AND MULCH.
4. CONTRACTOR SHALL REMOVE ALL TEMPORARY EROSION CONTROL BMPs WHEN DISTURBED AREAS ARE PERMANENTLY STABILIZED AND NO LONGER SUSCEPTIBLE TO EROSION.

NOTE:
CONTRACTOR TO PROVIDE SUFFICIENT SIGNAGE, BARRICADES, ETC. TO VERIFY ALL CONSTRUCTION TRAFFIC USES THE MAIN ENTRANCE WITH PROPOSED TRACKING PAD

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Endpoint Solutions
6871 S. LOVERS LANE
FRANKLIN, WI 53132
PHONE: (414) 427-1200

CAFE BLISS
PROPOSED GRADING AND EROSION CONTROL PLAN
318 S ROCHESTER ST. AND 112 MEACHAM ST.
MUKWONAGO, WISCONSIN

DRAWN BY:	JAH/TJS	DATE: 6/03/2025
CHECKED BY:	JJJ	
APPROVED BY:	JAH	

PROJECT NO.
1129-001

SHEET NO.
C3

Jun 02, 2025 3:26pm PLOTTED BY: jjeffery SAVED BY: jjeffery
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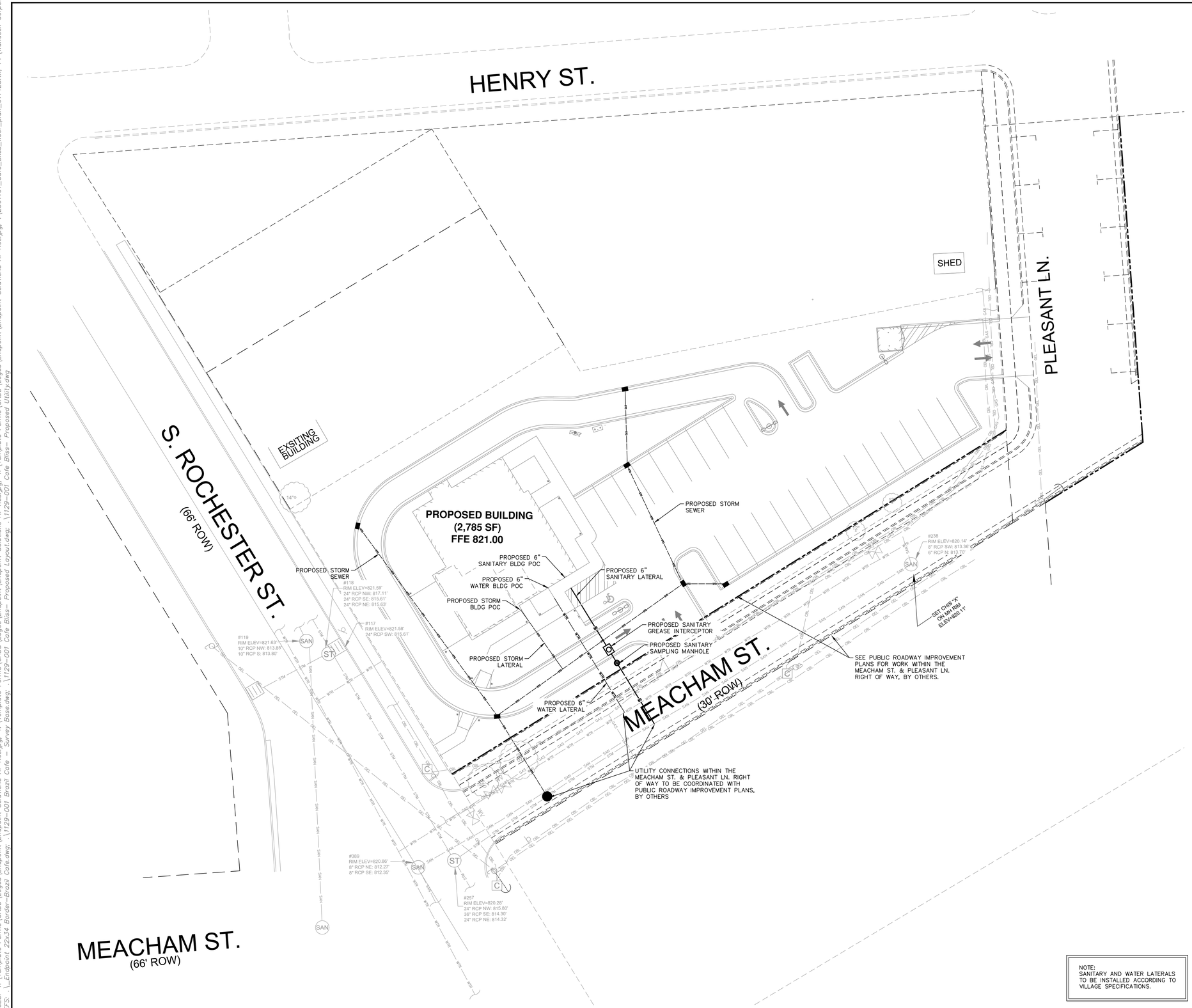

N

0 20' 40'

SCALE 1" = 20'

- PROPERTY LINE
- BUILDING
- CONCRETE
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- GAS VALVE
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- CURB INLET
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- E — ELECTRIC BOX/PEDESTAL, TRANSFORMER, METER
- G — GAS METER
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- UTILITY POLE
- FOUND 1" IRON PIPE / ROD
- STREET SIGN

SURVEY PERFORMED BY ENDPOINT SOLUTIONS CORP. ON 12/13/24
SURVEY GRADE GPS AND CONVENTIONAL ROBOTIC SURVEY.
COORDINATES ARE BASED ON NORTH AMERICAN DATUM, 1983 (NAD83), US SURVEY FOOT.

ALL UTILITIES SHOWN ARE APPROXIMATE AND SHOULD BE FIELD LOCATED AND VERIFIED.

NOTE:
SANITARY AND WATER LATERALS TO BE INSTALLED ACCORDING TO VILLAGE SPECIFICATIONS.

STORM MANHOLE & INLET NOTES:

REFER TO FILE No. 25 (STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, EXCEPT:

A. USE CASTING AS INDICATED BELOW (UNLESS INDICATED OTHERWISE ON PLAN):
1.) CB/INLET (CURB) – NEENAH R–3229–A W/ TYPE C GRATE
2.) CB/INLET (NON–CURB) – NEENAH R–2501–G
2.) CB/INLET (BIORETENTION OUTLET STRUCTURE) – NEENAH R–2561 BEEHIVE

B. USE 48" MINIMUM DIAMETER UNLESS INDICATED OTHERWISE ON PLAN
C. CONTRACTOR RESPONSIBLE FOR VERIFYING REQUIRED CASTING IS COMPATIBLE WITH STRUCTURE. IF NOT COMPATIBLE, CONTACT ENGINEER IMMEDIATELY FOR POSSIBLE REDESIGN.

REFER TO FILE No. 12 (STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN) , EXCEPT:
A. USE CASTING AS INDICATED BELOW:
ALL MANHOLES – NEENAH R–1642
B. USE 48" MINIMUM DIAMETER UNLESS INDICATED OTHERWISE ON PLAN
C. CONTRACTOR RESPONSIBLE FOR VERIFYING REQUIRED CASTING IS COMPATIBLE WITH STRUCTURE. IF NOT COMPATIBLE, CONTACT ENGINEER IMMEDIATELY FOR POSSIBLE REDESIGN.

REV:	DATE:
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Endpoint Solutions
6871 S. LOVERS LANE
FRANKLIN, WI 53132
PHONE: (414) 427-1200

CAFE BLISS

PROPOSED UTILITY PLAN

318 S ROCHESTER ST. AND 112 MEACHAM ST.
MUKWONAGO, WISCONSIN

DRAWN BY: JAH/TJS	DATE:
CHECKED BY: JJJ	6/03/2025
APPROVED BY: JAH	

PROJECT NO.
1129-001

SHEET NO.
C4

Jun 02, 2025 3:26pm PLOTTED BY: jeffery SAVED BY: jeffery
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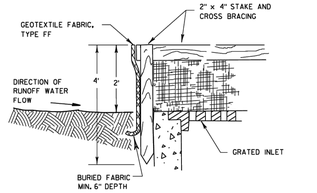
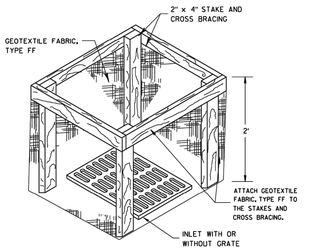
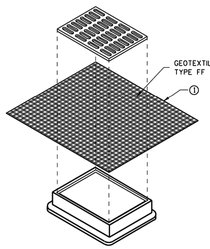
IMAGES: T:\Template Forms\CADD\Logos\Endpoint\Endpoint Solutions Hi-Res.jpg; T:\Template Forms\CADD\Logos\Endpoint\Endpoint Solutions Hi-Res.jpg; ..\2501101_Cafe_Bliss_floor_plan_011425.tif; P:\Wonasek Corporation
XREFS: _Endpoint 22x34 Border-Brazil Cafe.dwg; \1129-001 Brazil Cafe – Survey Base.dwg; \1129-001 Cafe Bliss– Proposed Layout.dwg; \1129-001 Cafe Bliss– Proposed Utility.dwg

8E10: Inlet Protection Type A, B, C and D

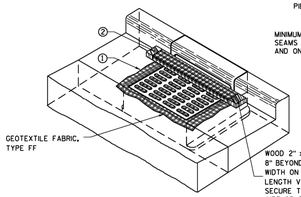




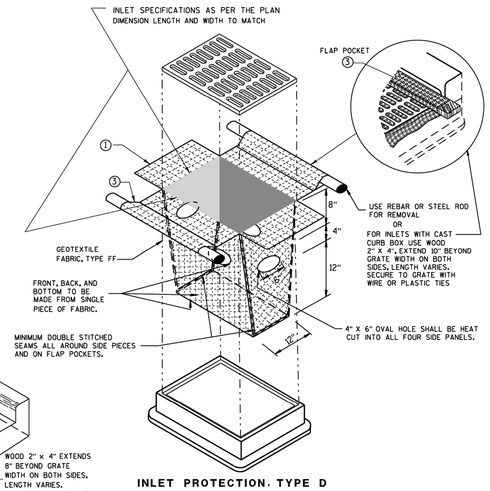
INLET PROTECTION, TYPE A



INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)
(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE C (WITH CURB BOX)



INLET PROTECTION, TYPE D
(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX AS PER NOTE ②)

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 THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

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

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

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

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

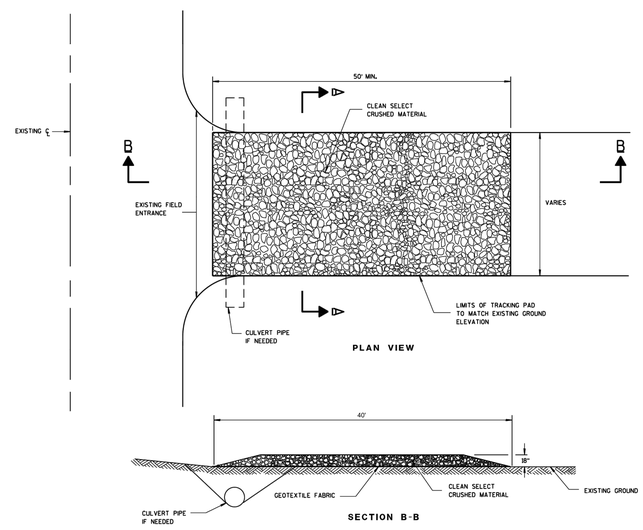
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE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

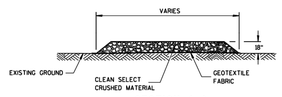
INLET PROTECTION TYPE A, B, C AND D	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 10-16-02 (DATE)	/S/ Beth Conradtz (CHIEF ROADWAY DEVELOPMENT ENGINEER)
FHWA	

S.D.D. 8 E 10-2

INLET PROTECTION
NOT TO SCALE

8E14: Tracking Pad





GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.

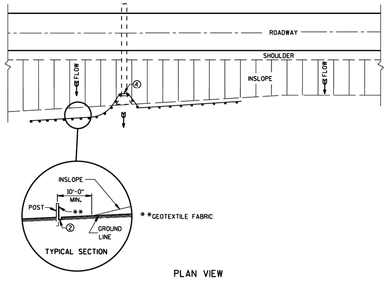
TRACKING PAD

TRACKING PAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3-24-201 (DATE)	/S/ Jerry M. Zogg (ROADWAY STANDARDS DEVELOPMENT ENGINEER)
FHWA	

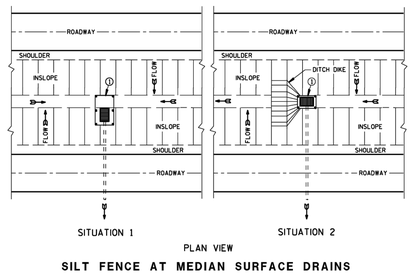
S.D.D. 8 E 14-1

TRACKING PAD
NOT TO SCALE

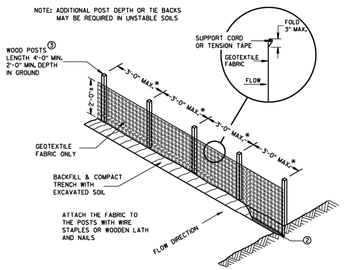
8E9: Silt Fence



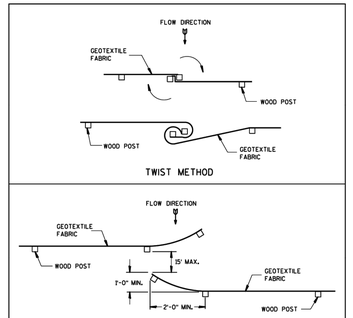
TYPICAL APPLICATION OF SILT FENCE



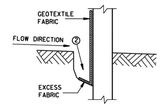
SILT FENCE AT MEDIAN SURFACE DRAINS



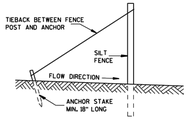
SILT FENCE



JOINING TWO LENGTHS OF SILT FENCE ⑤



TRENCH DETAIL



SILT FENCE TIE BACK
(WHEN REQUIRED BY THE ENGINEER)

GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

① HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.

② FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.

③ WOOD POSTS SHALL BE A MINIMUM SIZE OF 1½" X 1½" OF OAK OR HICKORY.

④ SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.

⑤ CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS: A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

SILT FENCE	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 4-29-05 (DATE)	/S/ Beth Conradtz (CHIEF ROADWAY DEVELOPMENT ENGINEER)
FHWA	

S.D.D. 8 E 9-6

SILT FENCE
NOT TO SCALE

EROSION AND SEDIMENT CONTROL

1. CONSTRUCT AND MAINTAIN EROSION CONTROL MEASURES IN ACCORDANCE WITH THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES (WDNR) CHAPTERS NR 151 AND NR 216, WISCONSIN ADMINISTRATIVE CODE, AND APPROPRIATE WDNR TECHNICAL STANDARDS. EROSION AND SEDIMENT CONTROL PRODUCTS SHALL BE LISTED IN THE WISCONSIN DEPARTMENT OF TRANSPORTATION PRODUCT ACCEPTABILITY LIST (WisDOT PAL). THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING COPIES OF THESE STATE REQUIREMENTS, TECHNICAL STANDARDS, AND WisDOT PAL.
2. IMPLEMENT EROSION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPS) PRIOR TO SOIL DISTURBING ACTIVITIES (E.G., CLEARING, GRUBBING, TOPSOIL STRIPING, EXCAVATION, MATERIAL STOCKPILING, ETC.). INSTALL EROSION CONTROL MEASURES AROUND STOCKPILE LOCATIONS.
3. MINIMIZE DISTURBED AREA BY PHASING OR SEQUENCING CONSTRUCTION AND PRESERVING EXISTING VEGETATION WHERE POSSIBLE.
4. DIVERT STORM WATER AWAY FROM DISTURBED OR EXPOSED AREAS WHEN POSSIBLE.
5. PROTECT ADJACENT PROPERTIES WITH SEDIMENT BALE BARRIERS OR SILT FENCE UNTIL CONSTRUCTION IS COMPLETE IN ACCORDANCE WITH WDNR TECHNICAL STANDARDS 1055 OR 1056, RESPECTIVELY.
6. INSTALL A GRAVEL TRACKING PAD IN ACCORDANCE WITH WDNR TECHNICAL STANDARD 1057. PAVED SURFACES ADJACENT TO CONSTRUCTION SITE VEHICLE ACCESS SHALL BE SWEPT AND/OR SCRAPED PERIODICALLY TO REMOVE SOIL, DIRT, AND/OR DUST. ADJACENT ROADS ARE TO CLEANED IMMEDIATELY IF ANY SEDIMENT TRANSFER AND TRACKING OCCURS.
6. PROTECT INLETS, CATCH BASINS, AND OTHER CONVEYANCE STRUCTURES WITH STRAW BALES, FILTER FABRIC, OR OTHER APPROPRIATE MEASURES IN ACCORDANCE WITH WDNR TECHNICAL STANDARD 1060. TYPE D INLET PROTECTION SHALL BE USED IN STORM STRUCTURES IN THE PUBLIC RIGHT-OF-WAY, WHENEVER POSSIBLE.
7. DURING DEWATERING ACTIVITIES, UTILIZE A COMPARTMENTED CONTAINER, SETTLING BASIN, FILTER, OR OTHER APPROPRIATE BEST MANAGEMENT PRACTICE FOR TREATING SEDIMENT-LADEN WATER PRIOR TO DISCHARGE OFF-SITE IN ACCORDANCE WITH WDNR TECHNICAL STANDARD 1061.
8. INSPECT THE SITE REGULARLY AND PROPERLY MAINTAIN BMPS, ESPECIALLY AFTER RAINSTORMS. AT MINIMUM, INSPECTIONS OF CONSTRUCTION BMPS ARE REQUIRED AT LEAST ONCE EVERY SEVEN DAYS AND WITHIN 24 HOURS AFTER A PRECIPITATION EVENT OF 0.5 INCH OR MORE.
9. BMPS MUST BE REPAIRED OR REPLACED WITHIN 24 HOURS OF INSPECTION OR NOTIFICATION OF A PROBLEM.
10. KEEP THE CONSTRUCTION SITE CLEAN BY PUTTING TRASH IN TRASH CANS, KEEPING STORAGE BINS COVERED, AND PREVENTING OR REMOVING EXCESS SEDIMENT ON ROADS AND OTHER IMPERVIOUS SURFACES.
11. SITE RESTORATION AND STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF INACTIVITY.

REV:	DATE:
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Endpoint Solutions
6871 S. LOVERS LANE
FRANKLIN, WI 53132
PHONE: (414) 427-1200

CAFE BLISS

EROSION CONTROL NOTES & DETAILS

318 S ROCHESTER ST. AND 112 MEACHAM ST.
MUKWONAGO, WISCONSIN

DRAWN BY: JAH/TJS	DATE:
CHECKED BY: JJJ	6/03/2025
APPROVED BY: JAH	

PROJECT NO.
1129-001

SHEET NO.
C5

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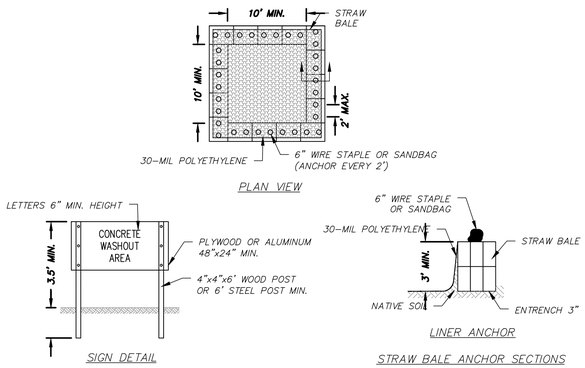
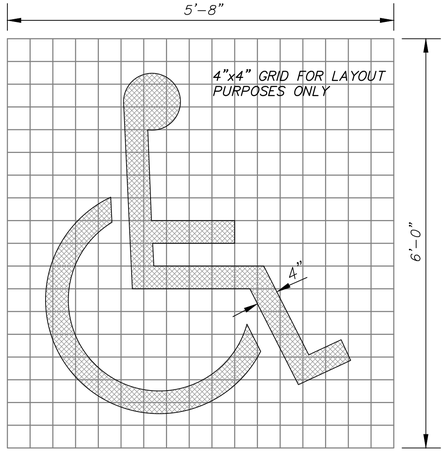


NOTES:
1. MAINTAINING TEMPORARY CONCRETE WASHOUT FACILITIES SHALL INCLUDE REMOVING AND DISPOSING OF HARDENED CONCRETE AND/OR SLURRY AND RETURNING THE FACILITIES TO A FUNCTIONAL CONDITION.
2. FACILITY SHALL BE CLEANED OR RECONSTRUCTED IN A NEW AREA ONCE WASHOUT BECOMES TWO-THIRDS FULL.
3. EACH STRAW BALE IS TO BE STAKED IN PLACE USING (2) 2"x2"x4' WOODEN STAKES.

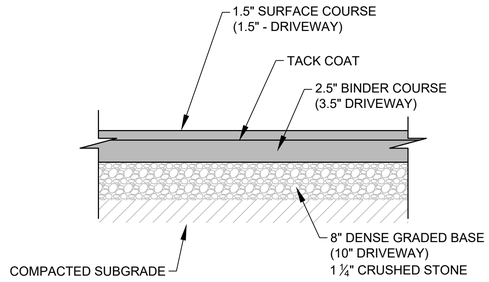
TEMPORARY CONCRETE WASHOUT FACILITY - STRAW BALE

NOT TO SCALE



PAINTED ADA SYMBOL

NOT TO SCALE

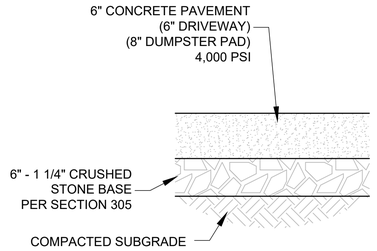


NOTES:

1. PAVEMENT TO BE INSTALLED PER GEOTECHNICAL REPORT OR OWNER RECOMMENDATIONS.

TYPICAL ASPHALT PAVEMENT

NOT TO SCALE

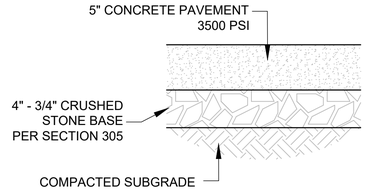


NOTES:

1. PAVEMENT TO BE INSTALLED PER GEOTECHNICAL REPORT OR OWNER RECOMMENDATIONS.

TYPICAL CONCRETE PAVEMENT

NOT TO SCALE



CONCRETE SIDEWALK DETAIL

NOT TO SCALE

GENERAL GRADING NOTES

1. THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO THE D.O.T. STANDARD SPECIFICATIONS, LOCAL ORDINANCES AND SPECIFICATIONS, AND RECOMMENDATIONS IN THE GEOTECHNICAL REPORT.
2. THE CONTRACTOR SHALL ASSUME SOLE RESPONSIBILITY FOR THE COMPUTATIONS OF ALL GRADING AND FOR ACTUAL LAND BALANCE, INCLUDING UTILITY TRENCH SPOIL. THE CONTRACTOR SHALL IMPORT OR EXPORT MATERIAL AS NECESSARY TO COMPLETE THE PROJECT.
3. GRADING SHALL CONSIST OF CLEARING AND GRUBBING EXISTING VEGETATION, STRIPPING TOPSOIL, REMOVAL OF EXISTING PAVEMENT OR FOUNDATIONS, IMPORTING OR EXPORTING MATERIAL TO ACHIEVE AND ON-SITE EARTHWORK BALANCE, GRADING THE PROPOSED BUILDING PADS AND PAVEMENT AREAS, SCARIFYING AND FINAL COMPACTION OF THE PAVEMENT SUBGRADE, AND PLACEMENT OF TOPSOIL.
4. THE CONTRACTOR SHALL MAINTAIN SITE DRAINAGE THROUGHOUT CONSTRUCTION.
5. EROSION AND SEDIMENT CONTROL MEASURES ARE REQUIRED AS PART OF THIS PROJECT. CONSTRUCTION ACTIVITIES MUST COMPLY WITH ALL PROVISIONS OF LOCAL, STATE AND FEDERAL REGULATIONS AS WELL AS THE SITE SPECIFIC SWPPP (IF APPLICABLE). ALL LAND DISTURBING ACTIVITIES MAY BE SUBJECT TO INSPECTION BY LOCAL AUTHORITIES AND THE WISCONSIN DEPARTMENT OF NATURAL RESOURCES.
6. CONTRACTOR SHALL MINIMIZE CLEARING AND DISTURBANCE TO THE ENVIRONMENT TO THE EXTENT POSSIBLE. CONTRACTOR RESPONSIBLE FOR RESTORATION OF ALL DISTURBED AREAS.
7. RUBBISH, TRASH, GARBAGE, LITTER OR OTHER SUCH MATERIALS SHALL BE DISPOSED INTO SEALED CONTAINERS. MATERIALS SHALL BE PREVENTED FROM LEAVING THE SITE THROUGH THE ACTION OF WIND OR STORM WATER DISCHARGE INTO DRAINAGE DITCHES OR WATERS OF THE STATE. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE REMOVAL OF CONSTRUCTION WASTE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REGULATIONS.
8. SILT FENCE AND OTHER EROSION CONTROL FACILITIES MUST BE INSTALLED PRIOR TO CONSTRUCTION OR ANY OTHER LAND DISTURBING ACTIVITY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING ALL EROSION CONTROL FACILITIES ONCE THE SITE HAS STABILIZED.
9. NO FILL SHALL BE PLACED ON A WET OR SOFT SUBGRADE. THE SUBGRADE SHALL BE PROOF-ROLLED AND INSPECTED BY THE GEOTECHNICAL ENGINEER BEFORE ANY MATERIAL IS PLACED.
10. ALL FILL SHALL BE CONSIDERED STRUCTURAL FILL AND SHALL BE PLACED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT
11. BEFORE PROCEEDING WITH ANY UTILITY CONSTRUCTION, THE CONTRACTOR SHALL EXCAVATE EACH EXISTING LATERAL OR POINT OF CONNECTION AND VERIFY THE SIZE, LOCATION AND ELEVATION OF ALL UTILITIES.
12. TEMPORARY EROSION CONTROL MATTING SHALL BE PLACED ON ALL SLOPES THAT ARE STEEPER THAT 4:1.
13. ALL PROPOSED CONTOURS REPRESENT FINAL FINISHED GRADE ELEVATIONS.

GENERAL NOTES

1. THE BIDDER WILL BE SOLELY RESPONSIBLE FOR QUANTITIES AND ESTIMATE OF WORK REQUIRED AND SHALL STATE SUCH QUANTITIES IN THEIR BID.
2. THE CONTRACTOR SHALL INDEMNIFY THE OWNER, THE ENGINEER, AND THE MUNICIPALITY, THEIR AGENTS, ETC, FROM ALL LIABILITY INVOLVED WITH THE CONSTRUCTION OF THIS PROJECT.
3. SITE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR.
4. SOIL CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO COMMENCEMENT OF CONSTRUCTION. A GEOTECHNICAL REPORT IS AVAILABLE FROM THE OWNER. THE CONTRACTOR SHALL ABIDE BY THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER.
5. THE CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS REQUIRED FOR EXECUTION OF THE WORK. THE CONTRACTOR SHALL CONDUCT THEIR WORK ACCORDING TO THE REQUIREMENTS OF THE PERMITS.
6. THE CONTRACTOR IS RESPONSIBLE FOR EXAMINING ALL SITE CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION AND SHALL COMPARE FIELD CONDITIONS WITH DRAWINGS.
7. CONTRACTOR SHALL PROTECT ADJACENT PROPERTIES DURING CONSTRUCTION. ANY PROPERTY (PRIVATE OR PUBLIC) WHICH ARE DAMAGED DURING CONSTRUCTION MUST BE RESTORED TO ORIGINAL CONDITIONS BY THE CONTRACTOR. THE COST OF THE RESTORATION IS CONSIDERED INCIDENTAL, AND SHOULD BE INCLUDED IN THE BID PRICES.
8. THE CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING ALL UTILITY INFORMATION SHOWN ON THE PLANS PRIOR TO THE START OF CONSTRUCTION. THE CONTRACTOR SHALL CALL DIGGER'S HOTLINE TO REQUEST FIELD STAKING OF EXISTING UTILITIES AND NOTIFY THE UTILITIES OF THE PROJECT COMPONENTS.
9. CONTRACTOR SHALL ENSURE ALL MUD AND DEBRIS IS NOT DEPOSITED ONTO THE ADJACENT ROADWAYS PER THE REQUIREMENT OF THE AGENCY HAVING JURISDICTION ON THE ROADWAYS.
10. SUBMITTALS:
    - A. SHOP DRAWINGS AND/OR MANUFACTURER'S PRODUCT DATA SUBMITTALS ARE REQUIRED ONLY IF THE PRODUCT OR METHOD OF CONSTRUCTION:
        - a. IS DIFFERENT FROM THAT SPECIFIED OR
        - b. IS PART OF THE WORK THAT WILL BE DEDICATED AS A PUBLIC UTILITY OR ROADWAY AT THE END OF THE PROJECT OR
        - c. IF REQUIRED BY THE MUNICIPAL ENGINEER.
    - B. FOR UTILITY OR ROAD WORK THAT WILL BE DEDICATED TO A MUNICIPALITY, CONTRACTOR MUST MAKE SUBMITTALS TO THE MUNICIPALITY AS WELL AS ENGINEER.

PRIVATE UTILITIES

1. THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO WISCONSIN ADMINISTRATIVE CODE, SECTION SPS 382-384, LATEST EDITION, THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN, LATEST EDITION, AND THE LOCAL ORDINANCES AND SPECIFICATIONS.
2. PROPOSED UTILITIES IN THIS PLAN SHALL TERMINATE AT A POINT FIVE (5) FEET FROM THE EXTERIOR BUILDING WALL.
3. MATERIALS FOR PROPOSED STORM SEWER SHALL BE AS FOLLOWS:

STORM SEWER PIPE 30" OR LARGER SHALL BE EITHER:

A. REINFORCED CONCRETE, ASTM C-76, CLASS III OR GREATER, WITH ELASTOMERIC SEALS CONFORMING TO ASTM C-443.

B. HIGH DENSITY POLYETHYLENE (HDPE) WITH A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS, SUCH AS ADS N-12 WT. HDPE PIPE SHALL CONFORM TO ASTM F2648 AND F2306. JOINTS SHALL BE WATER TIGHT CONFORMING TO ASTM D3212 WITH ELASTOMERIC SEALS (GASKETS) CONFORMING TO ASTM F477.

STORM SEWER PIPE 24" OR LESS SHALL BE EITHER:

A. HIGH DENSITY POLYETHYLENE (HDPE) WITH A SMOOTH INTERIOR AND ANNULAR EXTERIOR CORRUGATIONS, SUCH AS ADS N-12 WT. HDPE PIPE SHALL CONFORM TO ASTM F2648 AND F2306. JOINTS SHALL BE WATER TIGHT CONFORMING TO ASTM D3212 WITH ELASTOMERIC SEALS (GASKETS) CONFORMING TO ASTM F477.

B. POLYVINYL CHLORIDE (PVC) PIPE, ASTM D-3034, SDR 35, WITH ELASTOMERIC PUSH-ON JOINTS CONFORMING TO ASTM D-3212.

C. REINFORCED CONCRETE, ASTM C-76, CLASS III OR GREATER, WITH ELASTOMERIC SEALS CONFORMING TO ASTM C-443.

TRENCH SECTION SHALL BE CLASS "C" FOR CONCRETE AND CLASS "B" FOR ALL OTHER MATERIALS.

4. EXTREME CAUTION MUST BE FOLLOWED REGARDING THE COMPACTION OF ALL UTILITY TRENCHES. MECHANICALLY COMPACTED GRANULAR BACKFILL IS REQUIRED UNDER & WITHIN 5 FEET OF ALL PAVEMENT INCLUDING SIDEWALKS. FLOODING OF BACKFILL MATERIAL IS NOT ALLOWED. THE COST OF THIS GRANULAR MATERIAL AND ITS COMPACTION IS CONSIDERED INCIDENTAL AND SHALL BE INCLUDED IN THE COST OF THE PROPOSED UTILITY.
5. UPON COMPLETION OF FINAL PAVING OPERATIONS, THE UTILITY CONTRACTOR SHALL ADJUST ALL MANHOLE AND INLET RIMS AND VALVE BOXES TO FINISHED GRADE.
6. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING THE OWNER WITH A SET OF MARKED-UP PRINTS SHOWING ALL CHANGES MADE DURING THE CONSTRUCTION PROCESS. ANY CHANGES TO THE DRAWINGS OR ADDITIONAL ITEMS MUST BE REPORTED TO THE OWNER.
7. TRACER WIRE SHALL BE INSTALLED ON ALL BURIED NON-METALLIC SANITARY SEWERS, PRIVATE SANITARY INTERCEPTOR MAIN SEWERS, STORM BUILDING SEWERS, AND PRIVATE STORM INTERCEPTOR MAIN SEWERS THAT DISCHARGE TO MUNICIPAL MAINS. TRACER WIRE SHALL ALSO BE INSTALLED ON ALL BURIED NON-METALLIC WATER SERVICES AND PRIVATE WATER MAINS CONNECTED TO MUNICIPAL SUPPLY SYSTEMS. TRACER WIRE SHALL BE IN ACCORDANCE WITH SPS 382.30(11)(h) AND SPS 382.36(7)(d)10.b.
8. MATERIALS FOR SANITARY SEWER SHALL BE AS FOLLOWS:

SANITARY SEWER PIPE SHALL BE PVC, ASTM D-3034, SDR-35 WITH RUBBER GASKETED JOINTS, CONFORMING TO ASTM D-3212.

TRENCH SECTION SHALL BE CLASS "B" BEDDING. CRUSHED STONE CHIPS SHALL BE USED FOR BEDDING MATERIAL. PREFABRICATED WYE CONNECTIONS ARE REQUIRED FOR SANITARY LATERALS

9. MATERIALS FOR WATER SERVICE SHALL BE AS FOLLOWS:

WATER SERVICE SHALL BE CLASS 55 DUCTILE IRON (DI), ASTM A-377, WITH ELASTOMERIC JOINTS (AWWA C-111), WITH A VALVE AT THE SUPPLY MAIN OR C900 PVC PRESSURE RATED FOR WATER.

TRENCH SECTION SHALL CONFORM TO SECTION 4.3.C, FILE NO. 38 OF THE STANDARD SPECIFICATIONS. SAND OR STONE CHIP BEDDING MATERIAL IS REQUIRED.

PAVING

1. THE PROPOSED IMPROVEMENTS SHALL BE CONSTRUCTED ACCORDING TO THE WISCONSIN D.O.T. STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION, LATEST EDITION, AND THE LOCAL ORDINANCES AND SPECIFICATIONS, AND THE GEOTECHNICAL REPORT.
2. PAVING SHALL CONSIST OF FINE GRADING PAVEMENT AREAS, INSTALLATION OF CRUSHED STONE BASE, CONCRETE AND/OR BITUMINOUS PAVEMENT, PAVEMENT MARKING, AND CLEANUP. ALL MATERIALS SHALL BE PROVIDED BY THE CONTRACTOR.
3. AGGREGATES USED IN THE HMA SHALL BE IN ACCORDANCE WITH SUBSECTION 460.2.2.3 OF THE STANDARD SPECIFICATIONS.
4. CONCRETE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE FOLLOWING SECTIONS OF THE STANDARD SPECIFICATIONS: SECTION 415 FOR CONCRETE PAVEMENT AND SECTION 602 FOR CONCRETE SIDEWALKS.
5. RESTORATION OF PUBLIC SIDEWALK SHALL BE JOINT TO JOINT. RESTORATION OF W. LAYTON AVENUE PAVEMENT SHALL BE AT THE DISCRETION OF MILWAUKEE COUNTY. RESTORATION OF CURB AND GUTTER AND PAVEMENT IN S 68TH STREET SHALL BE JOINT TO JOINT OR FULL PANEL AT THE DISCRETION OF THE CITY OF GREENFIELD.
6. PAVEMENT MARKINGS SHALL BE PAINT IN ACCORDANCE WITH SECTION 646 OF THE STANDARD SPECIFICATIONS. THE FOLLOWING ITEMS SHALL BE PAINTED WITH COLORS NOTED BELOW:

PARKING STALLS: WHITE
PEDESTRIAN CROSSWALKS: WHITE
ADA SYMBOLS: BLUE OR PER LOCAL CODE
EXTERIOR SIDEWALK CURBED, LIGHTPOLE BASES, AND GUARD POSTS: YELLOW

REV:	DATE:
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Endpoint Solutions
6871 S. LOVERS LANE
FRANKLIN, WI 53132
PHONE: (414) 427-1200

CAFE BLISS

GENERAL CONSTRUCTION NOTES

318 S ROCHESTER ST. AND 112 MEACHAM ST.
MUKWONAGO, WISCONSIN

DRAWN BY: JAH/TJS	DATE: 6/03/2025
CHECKED BY: JJJ	
APPROVED BY: JAH	

PROJECT NO. 1129-001

SHEET NO. C6

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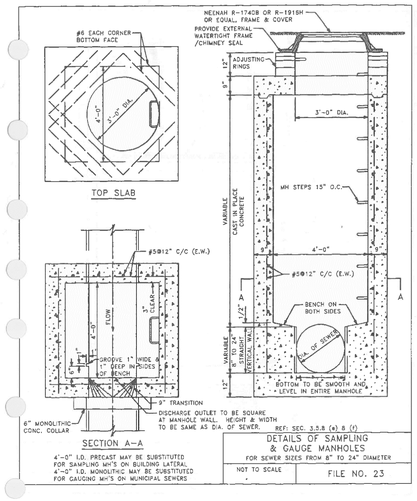
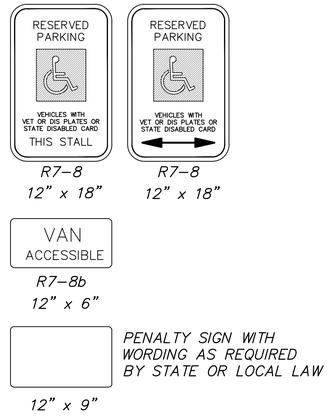


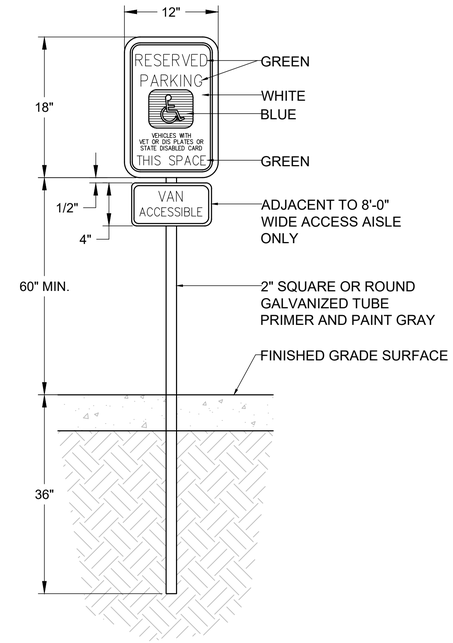
SANITARY SAMPLING MANHOLE

NOT TO SCALE



ACCESSIBLE PARKING SIGNS

NOT TO SCALE



ACCESSIBLE PARKING SIGN

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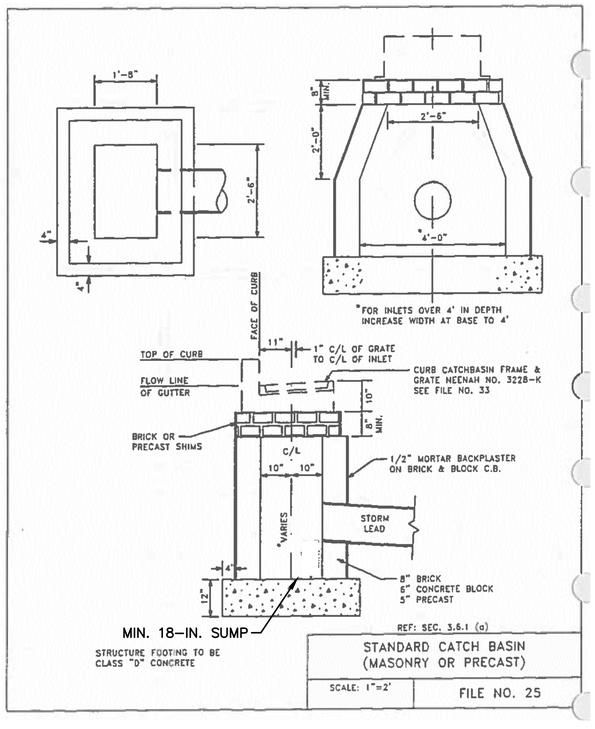
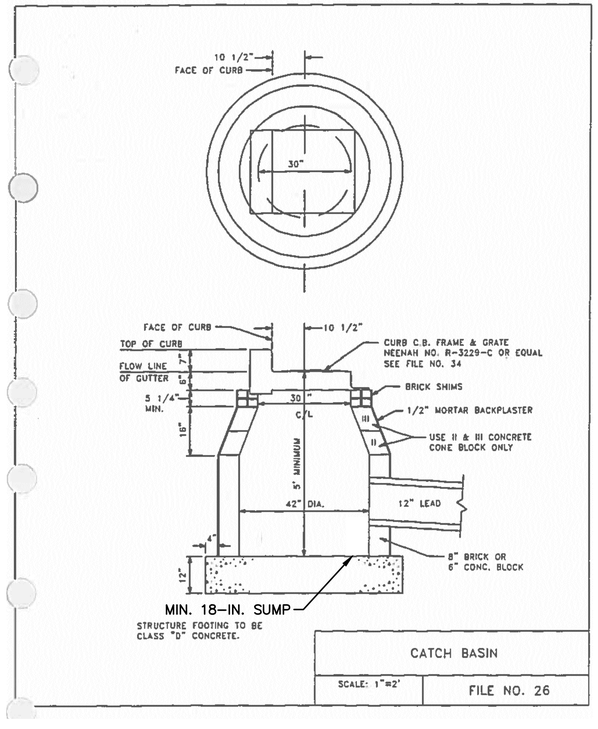


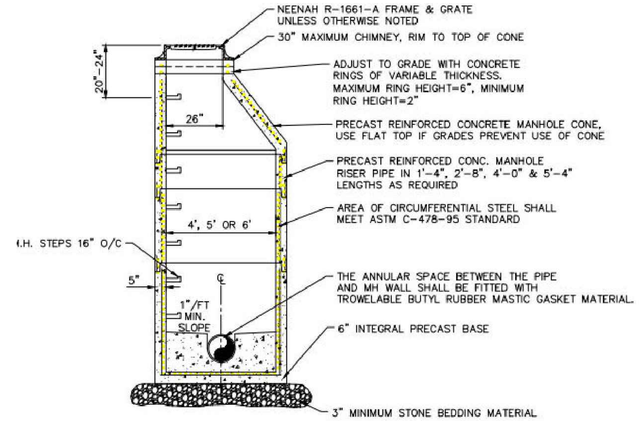
STANDARD CATCH BASIN DETAIL

NOT TO SCALE



CATCH BASIN DETAIL

NOT TO SCALE



STORM MANHOLE NOTES:

1) PRECAST CONCRETE ADJUSTING RINGS TO BE REINFORCED WITH ONE HOOP OF STEEL CENTERED WITHIN THE RING. WHERE NECESSARY, RINGS SHALL BE GROOVED TO RECEIVE STEP.

2) CONCRETE AND STEEL REINFORCEMENT SHALL CONFORM TO DESIGNATION C-478 REQUIREMENTS OF ASTM SPECIFICATIONS.

3) JOINTS SHALL BE WATERTIGHT AND SHALL BE MADE USING RUBBER GASKETS OR BUTYL RUBBER MASTIC MATERIAL.

4) 3" MIN. BEDDING MATERIAL REQUIRED UNDER MANHOLE BASE AND BACKFILLED STRUCTURE WITH GRANULAR BACKFILL MATERIAL.

5) SEE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION, FILE NO. 12 FOR PRECAST MANHOLE AND FILE NO. 13 FOR MANHOLE INVERTS, INCLUDING INVERTS OF LATERAL SEWERS THAT CONNECT DIRECTLY TO MANHOLES.

6) REPLACE CONE WITH FLAT TOP SECTION WHEN NECESSARY DUE TO LARGER DIAMETER OF STRUCTURE/VERTICAL RESTRICTIONS.

(7-5) STORM MANHOLE N.T.S.

STORM MANHOLE DETAIL

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Endpoint Solutions
6871 S. LOVERS LANE
FRANKLIN, WI 53132
PHONE: (414) 427-1200

CAFE BLISS

CONSTRUCTION DETAILS

318 S ROCHESTER ST. AND 112 MEACHAM ST.
MUKWONAGO, WISCONSIN

DRAWN BY: JAH/TJS	DATE:
CHECKED BY: JJJ	6/03/2025
APPROVED BY: JAH	

PROJECT NO.
1129-001

SHEET NO.
C7

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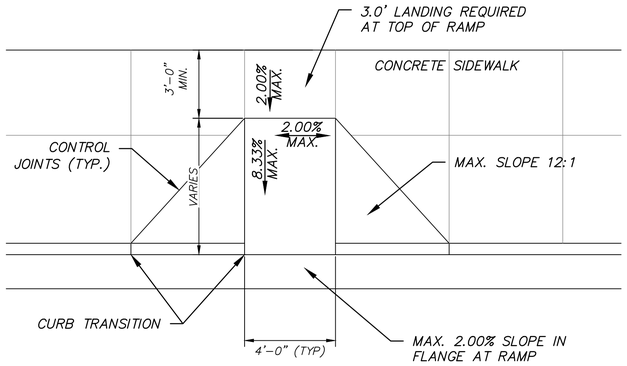
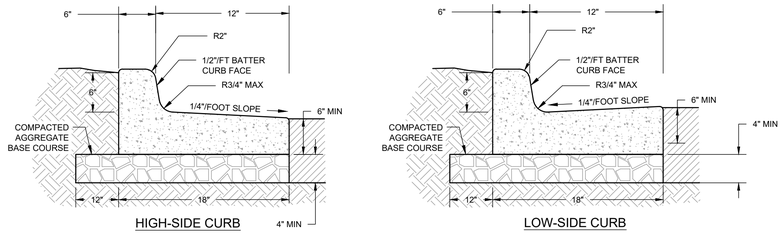


IN-LINE ADA RAMP

NOT TO SCALE



NOTES:

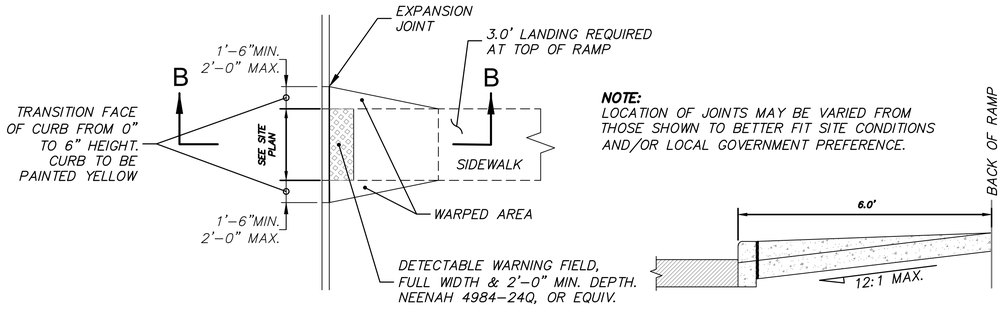
A) 3500 PSI CONCRETE SHALL BE USED IN CONSTRUCTION OF THE CURB & GUTTER.
B) THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE SLOPE OF THE GUTTER PAN.
C) FOR DEPRESSED CURB HEAD SLOPE, USE THE SAME SLOPE AS ADJACENT SIDEWALK.
D) THE BOTTOM OF THE CURB AND GUTTER MAY BE CONSTRUCTED EITHER LEVEL OR PARALLEL TO THE SLOPE OF THE SUBGRADE OR BASE AGGREGATE PROVIDE MINIMUM 6" GUTTER THICKNESS MAINTAINED. TRANSVERSE CONTRACTION JOINTS SHALL BE CUT OR SAWED AT MAXIMUM 20 FOOT INTERVALS.
E) 1/2" PREFORMED EXPANSION JOINT FILLER SHALL BE PLACED TRANSVERSELY IN THE CURB ABUTTING EXISTING CURB AND SIDEWALK, WALLS OR BUILDINGS, AND AT INTERVALS NOT TO EXCEED 300 FEET, WITH PREFERRED LOCATIONS BEING AT RADIUS POINTS OR ANGLE POINTS.

18-IN. CONCRETE CURB & GUTTER

NOT TO SCALE

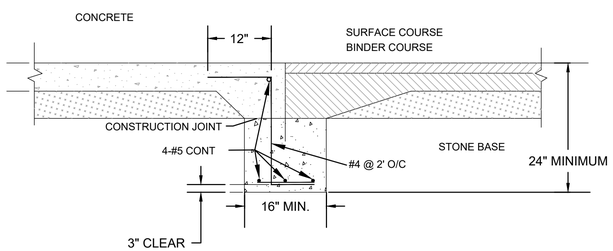
NOTES:

1. CONSTRUCT IN ACCORDANCE WITH WISDOT STANDARD SPECIFICATIONS.
4. CONCRETE SHALL BE GRADE A AIR ENTRAINED IN ACCORDANCE WITH WISDOT SECTION 501.
5. FINISH, CURE, AND PROTECT CURBING IN ACCORDANCE WITH WISDOT SECTION 601.
6. FINISHED CONCRETE SHALL BE COVERED WITH A LIQUID CURING COMPOUND CONFORMING TO AASHTO M 148, TYPE 2, IN ACCORDANCE WITH WISDOT SECTION 415.
7. AGGREGATE BASE COURSE SHALL BE IN ACCORDANCE WITH WISDOT SECTION 305.



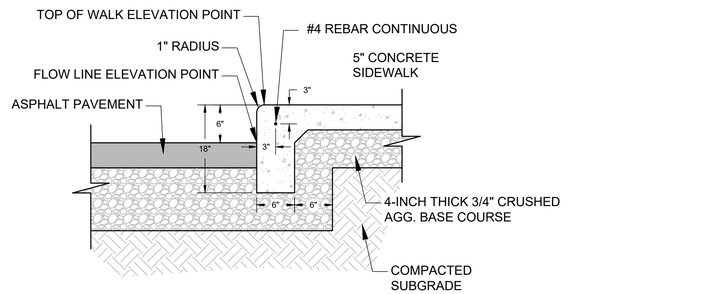
FLARED END CURB RAMP (PRIVATE SITE)

NOT TO SCALE



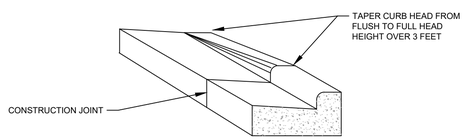
CONCRETE/ASPHALT JOINT DETAIL

NOT TO SCALE



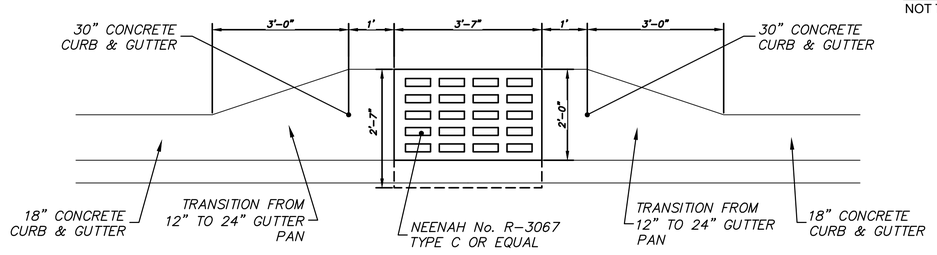
CONCRETE WALK WITH THICKENED EDGE

NOT TO SCALE



CURB & GUTTER TAPER

NOT TO SCALE



TYPICAL CURB AND GUTTER TRANSITION AT STORM INLET/CATCH BASIN

NOT TO SCALE

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PROJECT NO. 1129-001

SHEET NO. C8

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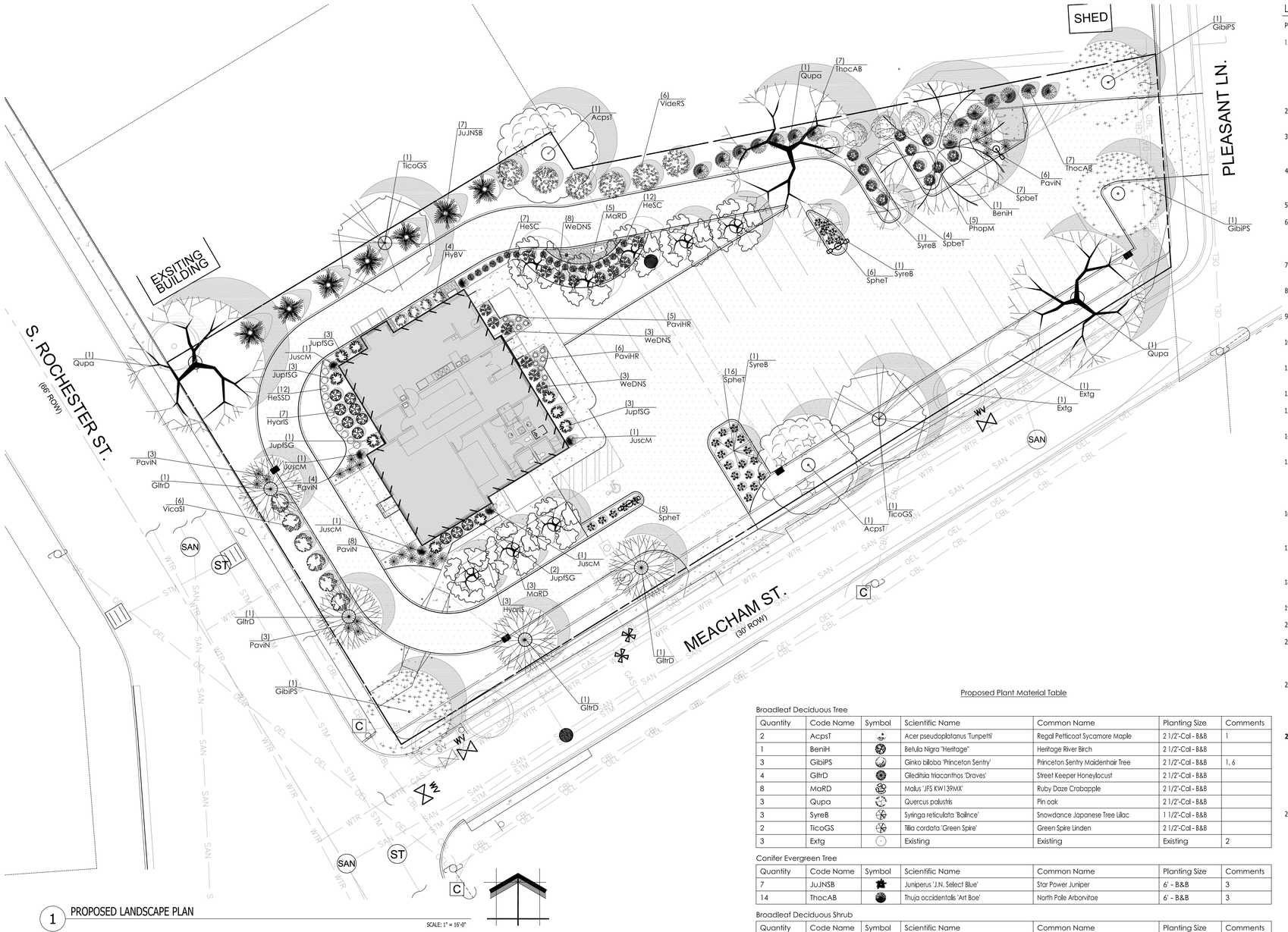

1 PROPOSED LANDSCAPE PLAN

SCALE: 1" = 16'-0"

North

EXISTING CONDITIONS GENERAL NOTES

1. INFORMATION PERTAINING TO EXISTING CONDITIONS GIVEN ON THESE LANDSCAPE DRAWINGS REPRESENTS TO THE BEST OF OUR KNOWLEDGE THE ACTUAL EXISTING FIELD CONDITIONS. INSITE LANDSCAPE DESIGN, INC. MAKES NO WARRANTY AS TO THEIR ACCURACY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS IMPERATIVE TO THEIR NEW WORK. REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND FIELD CONDITIONS TO THE LANDSCAPE ARCHITECT FOR REVIEW. ANY WORK PERFORMED PRIOR TO RESOLUTION OF DISCREPANCIES BY THE LANDSCAPE ARCHITECT IS SUBJECT TO REMOVAL AND REPLACEMENT AT NO ADDITIONAL COST TO THE CONTRACT.
2. THE LOCATIONS OF EXISTING UTILITY INSTALLATIONS AS SHOWN ON THIS PLAN ARE APPROXIMATE. THERE MAY BE UNDERGROUND UTILITY INSTALLATIONS WITHIN THE PROJECT AREA OF DISTURBANCE THAT ARE NOT SHOWN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THE EXISTENCE AND LOCATION OF ALL UNDERGROUND UTILITIES.
3. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ALIGNMENT OF WALLS. BRING ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECTS ATTENTION PRIOR TO FABRICATION / CONSTRUCTION BEGINS.
4. VERIFY LOCATION OF ACCESS PANELS w/ MECHANICAL AND ELECTRICAL EQUIPMENT FOR ACCESSIBILITY OF MECHANICAL & ELECTRICAL ITEMS. VERIFY LOCATIONS OF ALL BURIED UTILITIES AND STRUCTURES AND LOCATIONS OF ALL OVERHEAD WIRES.
5. VERIFY LOCATION OF ALL EXISTING EASEMENTS.
6. INSITE LANDSCAPE DESIGN, INC. ASSUMES NO RESPONSIBILITY FOR DAMAGES, LIABILITY OR COSTS RESULTING FROM CHANGES OR ALTERATIONS MADE TO THIS PLAN WITHOUT THE EXPRESSED WRITTEN CONSENT OF INSITE LANDSCAPE DESIGN, INC.

DESIGN COMPLIANCE: THIS LANDSCAPE PLAN IS ACCURATE AND IN COMPLIANCE WITH THE VILLAGE OF MUKWONAGO LANDSCAPE REQUIREMENTS SET FOR IN SECTION:§ 100-913 General design requirements. § 100-152 B-2 general business district.
(J)General development requirements.
(1)Landscaping. Landscaping plans are subject to plan commission review and approval subject to the following minimum standards. Any alteration to that plan shall be subject to further plan commission review and approval.
(A)The minimum number of trees on a site shall be calculated based on the street frontage; one tree is required for each 20 feet. For lots with 100 feet or less of road frontage; a minimum of five trees shall be planted or retained. A minimum of two trees are to be planted or retained in each front yard and each street side yard.
TOTAL LINIAL FEET OF STREET FRONTAGE = 462'
TOTAL NUMBER OF TREES REQUIRED - 23 TREES

CONTRACTOR NOTE: THE LANDSCAPE CONTRACTOR/GENERAL CONTRACTOR ARE RESPONSIBLE TO INSTALL THE LANDSCAPE AS PER THE APPROVED PLAN. IF ANY CHANGES OR DEVIATIONS ARE MADE FROM THE THIS APPROVED PLAN, THE LANDSCAPE CONTRACTOR / GENERAL CONTRACTOR ARE RESPONSIBLE FOR UPDATING THE PLANS ACCORDINGLY AND SUBMITTING THOSE REVISED PLANS FOR APPROVAL AND "SIGN OFF" WITH THE VILLAGE OF MUKWONAGO. THE LANDSCAPE CONTRACTOR / GENERAL CONTRACTOR ARE ALSO RESPONSIBLE FOR VERIFYING THAT ANY PLANT MATERIAL SUBSTITUTIONS OR MODIFICATIONS THAT ARE MADE TO THE APPROVED LANDSCAPE DESIGN DOCUMENTS WILL NOT CHANGE OR ALTER ANY OF THE REQUIRED SUPPORTING LANDSCAPE REQUIREMENT CALCULATIONS. UPON COMPLETION OF THE CONSTRUCTION PROJECT AND FILE THAT AFFIDAVIT WITH THEVILLAGE OF MUKWONAGO.

SITE INFORMATION

USDA PLANT HARDINESS ZONE	5b (-15 to -10 Degrees F)
LOT ZONING	B-2 - General Business District w/ VC - Retail Center Overlay
LOT AREA	30,700 SQ. FT. (0.70 Acres)
SITE BUILDING AREA	2,785 SQ. FT.
TOTAL IMPERVIOUS	
TOTAL GREENSPACE	
SITE LANDSCAPE PERCENTAGE	
TOTAL PARKING STALLS	25 STALLS

Proposed Plant Material Table Comments

1. Straight central leader, full & even crown. Prune only after planting.
2. Prune existing tree, remove any dead, diseased or hazardous limbs. Thin out as required and raise canopy for safety and viability for both pedestrians and motorists.
3. Evenly shaped upright tree/shrub with full branching to the ground.
4. Full, well rooted plant, evenly shaped.
5. Full, well rooted plant.
6. Male only

LANDSCAPE PLAN GENERAL NOTES

PLANT MATERIAL SHOWN ON LANDSCAPE PLAN IS DEPICTED AT MATURE GROWTH.

1. AT LEAST SEVENTY-TWO HOURS PRIOR TO ANY EXCAVATION, CONTRACTOR SHALL VERIFY UTILITY LOCATIONS AS GIVEN BY THE ELECTRIC, GAS, TELEPHONE, WATER, SEWER, AND CABLE TELEVISION COMPANIES, UTILITIES OR ENTITIES. REVIEW WITH OWNER'S REPRESENTATIVE SITE MECHANICAL, SITE ELECTRICAL AND LIGHTING, SITE GRADING AND DRAINAGE, SITE IRRIGATION AND ALL OTHER DRAWINGS PERTAINING TO UNDERGROUND UTILITY LOCATIONS. RECORD SET OF INFORMATION THE SAME AS IN POSSESSION OF OWNER'S REPRESENTATIVE. ALSO REVIEW OWNER'S "MARK SETS" OF ALL OF THESE DRAWINGS IN POSSESSION OF THE CONTRACTOR OR OWNER. MARK ALL SUCH UTILITIES ON THE SITE PRIOR TO COMMENCING. COORDINATE WITH OWNER BEFORE AND DURING CONSTRUCTION. REPAIR ANY DAMAGE TO ANY SYSTEM THAT IS CAUSED BY LANDSCAPE CONTRACTOR AT NO COST TO OWNER.
2. ALL PLANTINGS SPECIFIED FOR THE CAFE BLISS PROJECT PLANTING TABLES SHALL COMPLY WITH STANDARDS AS DESCRIBED IN AMERICAN STANDARD OF NURSERY STOCK ANSI Z60.1 2014 AND ANSI STANDARDS FOR PLANTING 2012.
3. ALL DEVIATIONS FROM THE APPROVED CAFE BLISS PROJECT PLANS SHALL BE NOTED ON THE RECORD DRAWINGS BY THE CONTRACTOR AND MAY BE EXECUTED ONLY WITH PRIOR APPROVAL FROM THE LANDSCAPE ARCHITECT AND OWNER'S REPRESENTATIVE. VERBAL AGREEMENTS OR REVISIONS WITHOUT A CHANGE ORDER WILL NOT BE RECOGNIZED BY LANDSCAPE ARCHITECT AND OWNER.
4. ALL PLANTS MUST BE BID AND SELECTED PER THE SPECIES SPECIFIED ON THE PLANS. ANY SPECIES SUBSTITUTIONS MUST BE APPROVED IN WRITING BY LANDSCAPE ARCHITECT. THE SIZES OF PLANT MATERIAL LISTED HEREIN IS A MINIMUM ACCEPTABLE SIZE. ADDITIONALLY, IF EXCESSIVE PRUNING REDUCES THE CROWN THE PLANT SHALL BE REPLACED.
5. PROTECT PUBLIC FROM CONSTRUCTION WITH BARRIERS AND BARRICADES.
6. ALL AREAS THAT WERE DISTURBED DURING CONSTRUCTION AND AREAS NOT COVERED WITH PAVEMENT, BUILDING, PLANTING BEDS, OR TREE PITS ARE TO BE TOPSOILED 3" DEEP (MIN.) AND SHALL BE SODDED/SEEDED WITH SPECIFIED LAWN GRASS. LANDSCAPE CONTRACTOR SHALL INCLUDE COST PER SQUARE YARD FOR ADDITIONAL SEED OPERATIONS AS MAY BE POSSIBLY REQUIRED TO REESTABLISH ADJACENT TURF GRASS AREAS WHICH MAY BECOME DAMAGED DURING THE CONSTRUCTION PROCESS OR TO REPAIR DAMAGE DONE BY OTHERS.
7. CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL MATERIALS, TOOLS, EQUIPMENT, LABOR, AND PLANTS NECESSARY FOR PROPER PLANTING AND INSTALLATION OF ALL LANDSCAPE MATERIAL.
8. QUANTITIES ON PLANT MATERIALS LIST ARE FOR CONVENIENCE OF BIDDING ONLY. CONTRACTOR IS RESPONSIBLE FOR ALL PLANTS SHOWN ON LANDSCAPE PLANS AND COVERAGE OF ALL AREAS DELINEATED. THE PLANS ARE TO SUPERSEDE THE PLANT LIST IN ALL CASES.
9. CONTRACTOR IS RESPONSIBLE FOR ALL ESTIMATING AND BIDDING, ALL AREAS, QUANTITIES MATERIALS SHOULD BE FIELD VERIFIED WITH SITE CONDITION.
10. WHERE DISCREPANCIES OCCUR BETWEEN THE LANDSCAPE PLANS AND/OR ARCHITECTURAL AND/OR THE CIVIL DRAWINGS (AND ANY OTHER SITE DRAWINGS) THE DISCREPANCIES MUST BE BROUGHT TO THE LANDSCAPE ARCHITECTS ATTENTION FOR COORDINATION AND RESOLUTION.
11. ALL DISEASED, NOXIOUS OR INAPPROPRIATE MATERIALS SHALL BE REMOVED FROM THE PROPOSED SITE PRIOR TO THE START OF CONSTRUCTION AND DURING THE MAINTENANCE PERIOD.
12. GENERAL CONTRACTOR SHALL LEAVE THE SITE FREE OF CONSTRUCTION DEBRIS.
13. ALL LAWN AND PLANTING AREAS SHALL SLOPE TO DRAIN A MINIMUM OF 2% UNLESS NOTED OTHERWISE AND REVIEWED WITH OWNER'S REPRESENTATIVE FOR FINAL APPROVAL.
14. FINISH GRADES FOR SHRUB AND GROUND COVER AREAS SHALL BE HELD 1" BELOW TOP OF ADJACENT PAVEMENTS AND CURBS, UNLESS NOTED OTHERWISE ON THE PLANS. REFER TO LSP1.2 FOR FURTHER INFORMATION.
15. ALL PERENNIAL, ANNUAL AND GROUND COVER AREAS TO RECEIVE A BLEND OF ORGANIC SOIL AMENDMENTS PRIOR TO PLANTING. TILL THE FOLLOWING MATERIALS INTO EXISTING TOPSOIL TO A DEPTH OF APPROXIMATELY 8". A DEPTH OF 12" IN TREE PITS. PROPORTIONS AND QUANTITIES MAY REQUIRE ADJUSTMENT DEPENDING ON THE CONDITION OF EXISTING SOIL. REFER TO LSP1.2 FOR FURTHER INFORMATION.
    PER EVERY 100 SQUARE FEET ADD: ONE - 2 CUBIC FOOT BALE OF PEAT MOSS, 2 POUNDS OF 5 -10 -5 GARDEN FERTILIZER, 1/4 CUBIC YARD OF COMPOSTED MANURE OR OTHER COMPOSTED, ORGANIC MATERIAL.
16. ALL SHRUBS TO BE POCKET PLANTED WITH A 50/50 MIX OF COMPOSTED, ORGANIC MATERIAL AND EXISTING SOIL. INSTALL TOPSOIL INTO ALL BEDS AS NEEDED TO ACHIEVE PROPER GRADE. REMOVE ALL EXCESSIVE GRAVEL, CLAY AND STONES. REFER TO LSP1.2 FOR FURTHER INFORMATION.
17. PLANT ALL TREES SLIGHTLY HIGHER THAN FINISHED GRADE AT ROOT FLARE. BACK FILL HOLE WITH 2/3 EXISTING TOPSOIL AND ORGANIC SOIL AMENDMENTS SPECIFIED IN NOTE 15. AVOID ANY AIR POCKETS. DISCARD ANY GRAVEL CLAY OR STONES. REFER TO LSP1.2 FOR FURTHER INFORMATION.
18. ALL TREES TO BE INSTALLED, STAKED AND GUYED ACCORDING TO DETAILS. REFER TO ANSI STANDARDS FOR PLANTING 2012 AND DETAILS ON LSP1.2 FOR FURTHER INFORMATION.
19. PROVIDE A 4'-0" - 5'-0" DIAMETER MULCH RING AT THE ROOT BALL FLARE OF ALL LAWN TREES.
20. ALL PLANTINGS TO BE WATERED AT THE TIME OF PLANTING, THROUGHOUT CONSTRUCTION AND UPON COMPLETION OF PROJECT AS REQUIRED.
21. WHERE SPECIFIED, ALL PLANT BEDS, PITS AND TREE RINGS ARE TO RECEIVE A MINIMUM OF 2" - 3" DRESSING OF SHREDDED HARDWOODM OAK BARK MULCH SHAVINGS FREE OF GROWTH, WEEDS, FOREIGN MATTER DETRIMENTAL TO PLANT LIFE OR GERMINATION INHIBITING INGREDIENTS. LANDSCAPE CONTRACTOR TO PROVIDE A SAMPLE TO OWNER FOR APPROVAL. CONTRACTOR TO TAKE CARE WITH INSTALLATION NOT TO DAMAGE OR COVER PLANTS. REFER TO LSP1.2 FOR FURTHER INFORMATION.
22. LAWN INSTALLATION: CONTRACTOR TO FURNISH AND PREPARE TOPSOIL (3" MIN) AND SEED BED (REMOVE ALL STONES 1" OR LARGER), APPLY STARTER FERTILIZER AND SEED UNIFORMLY. PROVIDE A MULCH COVERING SUITABLE TO GERMINATE AND ESTABLISH TURF. EROSION CONTROL MESH SHOULD BE USED IN SWALES AND STEEP GRADES WHERE APPLICABLE. METHODS OF INSTALLATION MAY VARY AT THE DISCRETION OF CONTRACTOR. IT IS HIS/HER RESPONSIBILITY TO ESTABLISH AND GUARANTEE A SMOOTH, UNIFORM, QUALITY TURF. IF STRAW MULCH IS USED AS A COVERING, A TACKIFIER MAY BE NECESSARY TO AVOID WIND DAMAGE.
23. **DELUXE 50 GRASS SEED MIX REINDER'S (800) 785-3301**
    20% KENTUCKY BLUE GRASS
    15% NEWPORT KENTUCKY BLUE GRASS
    15% SR 2100 Kentucky Bluegrass
    25% Creeping Red Fescue
    15% Replicator Perennial Ryegrass
    10% Fiesta 4 Perennial Ryegrass
    APPLY AT A RATE OF 200 POUNDS PER ACRE. REFER TO SUPPLIERS SPECIFICATIONS & INSTALLATION CUT SHEETS FOR FURTHER FORMATION
24. DURING THE INITIAL "30 DAY MAINTENANCE PERIOD" THE LANDSCAPE CONTRACTOR IS REQUIRED TO PROVIDE AND ON-GOING PLEASANT VISUAL ENVIRONMENT WHEREAS ANY PLANT WHICH IS NOT RESPONDING TO TRANSPLANTING OR THRIVING SHALL IMMEDIATELY BE REPLACED. NEW LAWNS SHALL BE WATERED AND REPAIRED AND WEEDS MUST CONSTANTLY BE REMOVED, NO EXCEPTIONS WILL BE GRANTED.
    MAINTENANCE NOTE:
    MAINTENANCE IS THE RESPONSIBILITY OF THE PROPERTY OWNER TO MAINTAIN REQUIRED LANDSCAPING IN ACCORDANCE WITH THE MUNICIPALITY'S PROPERTY MAINTENANCE CODE AND AN APPROVED MAINTENANCE PLAN. THE MAINTENANCE MUST INCLUDE, AT A MINIMUM, METHODS FOR PROVIDING THE FOLLOWING:
    - NECESSARY IRRIGATION (IF REQUIRED)
    - INTEGRATED PEST MANAGEMENT,
    - PROPER FERTILIZATION
    - TREE CARE AND PRUNING, SHRUB TIP CLIPPING AND SHAPING AS REQUIRED
    - REPLACEMENT OF LOST VEGETATION, AND ALL DISEASED, DAMAGED, OR DEAD MATERIAL WILL BE REPLACED BY THE END OF THE FOLLOWING PLANTING SEASON IN PERPETUITY.
    - WEED MANAGEMENT AND BED CARE.
25. ALL NEWLY PLANTED TREES AND SHRUBS ARE TO RECIEVE AN APPLICATION OF AN ANTI-TRANSPIRANT SPRAY THAT WILL EFFECTIVELY REDUCE THE WATER LOSS OF TRANSPIRATION OF PLANT MATERIAL AND REDUCE THE STRESS OF TRANSPLANTATION. IT IS RECOMENDED AS PART OF THE ONGOING MAINTENANCE THAT ANY BROADLEAF EVERGREEN AND CONIFEROUS TREE AND SHRUBS (EXCLUDING ARBORVITAE) RECIEVE AN APPLIATION OF AN ANTI-DESICCANT SPRAY TO REDUCE THE LOSS OF MOISTURE DUE TO WINTER DESICCATION.
26. MAINTENANCE. THE OWNER SHALL TEND AND MAINTAIN ALL PLANT MATERIALS IN A HEALTHY GROWING CONDITION AS PER THE APPROVED PLAN. PLANTINGS SHALL BE REPLACED WHEN NECESSARY AND KEPT FREE FROM REFUSE & DEBRIS. ALL PLANTING MATERIAL WHICH IS DYING OR DAMAGED BEYOND RECOVERY SHALL BE REPLACED WITHIN SIX (6) MONTHS OR BY THE NEXT PLANTING SEASON, WHICHEVER COMES FIRST.
27. LANDSCAPE / SITE DEMOLITION CONTRACTOR TO VERIFY LOCATIONS OF EXISTING TREES AND SHRUBS TO BE SALVAGED AND CLEARLY TAG THEM WITH MARKING TAPE AND CONSTRUCTION FENCE.

Proposed Plant Material Table

Broadleaf Deciduous Tree

Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size	Comments
2	AcpsT		Acer pseudoplatanus 'Tunpetti'	Regal Petticoat Sycamore Maple	2 1/2"-Cal - B&B	1
1	BeniH		Betula Nigra 'Heritage"	Heritage River Birch	2 1/2"-Cal - B&B	
3	GlbiPS		Ginko biloba 'Princeton Sentry'	Princeton Sentry Maidenhair Tree	2 1/2"-Cal - B&B	1, 6
4	GlfrD		Gleditsia triacanthos 'Draves'	Street Keeper Honeylocust	2 1/2"-Cal - B&B	
8	MaRD		Malus 'JFS KW139MX'	Ruby Daze Crabapple	2 1/2"-Cal - B&B	
3	Qupa		Quercus palustris	Pin oak	2 1/2"-Cal - B&B	
3	SyreB		Syringa reticulata 'Baillnce'	Snowdance Japanese Tree Lilac	1 1/2"-Cal - B&B	
2	TicoGS		Tilia cordata 'Green Spire'	Green Spire Linden	2 1/2"-Cal - B&B	
3	Extg		Existing	Existing	Existing	2

Conifer Evergreen Tree

Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size	Comments
7	JuJNSB		Juniperus 'J.N. Select Blue'	Star Power Juniper	6' - B&B	3
14	ThocAB		Thuja occidentalis 'Art Boe'	North Pole Arborvitae	6' - B&B	3

Broadleaf Deciduous Shrub

Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size	Comments
10	HyarIS		Hydrangea arborescens 'Invincibelle Spirit'	Invincibelle Spirit Hydrangea	18" - 24"- Cont	4
4	HyBV		Hypericum 'Blue Velvet'	Blue Velvet St. John's Wort	18" - Cont	4
5	PhopM		Physocarpus opulifolius 'Monlo'	Diabolo Ninebark	18" - 24" - B&B	4
11	SpbeT		Spiraea betulifolia 'Tor'	Tor Birchleaf Spirea	18" - Cont	4
6	VicaSI		Viburnum carlesii 'J.N. Select A"	Spice Island Koreanspice viburnum	18" - 24"- Cont	4
6	VideRS		Viburnum dentatum 'Ralph Senior'	Autumn Jazz Viburnum	30" - 36" - B&B	4
14	WeDNS		Weigela 'Date Night Stunner'	Date Night Stunner Weigela	18" - 24"- Cont	4

Conifer Evergreen Shrub

Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size	Comments
6	JuscM		Juniperus scopulorum 'Medora'	Medora Juniper	4' - B&B	3
9	JupfSG		Juniperus x pfizeriana 'MonSan'	Sea of Gold Juniper	18" - 24" - B&B	4

Perennial Grass

Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size	Comments
11	PaviHR		Panicum virgatum 'Hot Rod'	Hot Rod Switch Grass	1-Gal - Cont	5
25	PaviN		Panicum virgatum 'Northwind'	Northwind Switch Grass	1-Gal - Cont	5
27	SpheT		Sporobolus heterolepis 'Tara'	Tara Prairie Dropseed	1-Gal - Cont	5

Perennial

Quantity	Code Name	Symbol	Scientific Name	Common Name	Planting Size	Comments
12	HeSSD		Hemerocallis 'Storm Shelter' Daylily	Rainbow Rhythm 'Storm Shelter' Daylily	4 1/2" pot	5
19	HeSC		Hemerocallis x 'Sherwood Cheer'	Sherwood Cheer Daylily	4 1/2" pot	5

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www.Diggersholline.com
(800)-242-8511
OR

811 Know what's below. Call before you dig.

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Project:

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Sheet Title:

PROPOSED LANDSCAPE PLAN, GENERAL NOTES, AND PLANT MATERIAL TABLE

Date of Drawing:	06/03/25
Scale:	1" = 16'-0"
Drawn By:	MCD
Job Number:	L25-037
Sheet Number:	LSP1.1

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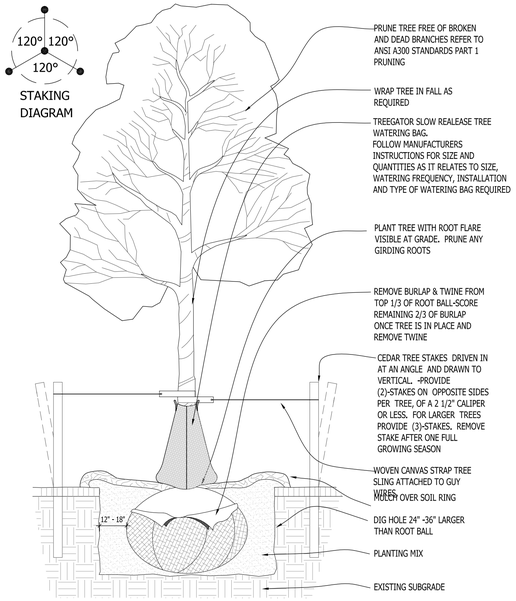
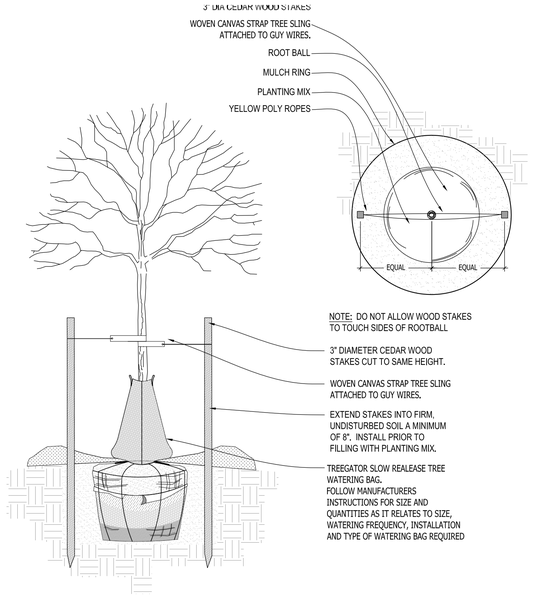


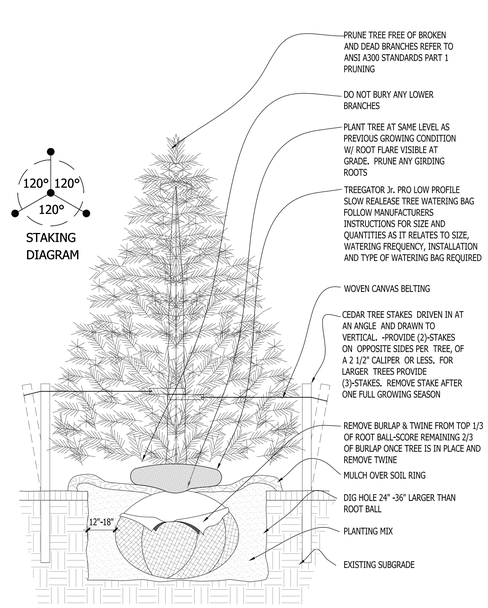
1 DECIDUOUS TREE PLANTING DETAIL

SCALE: NONE



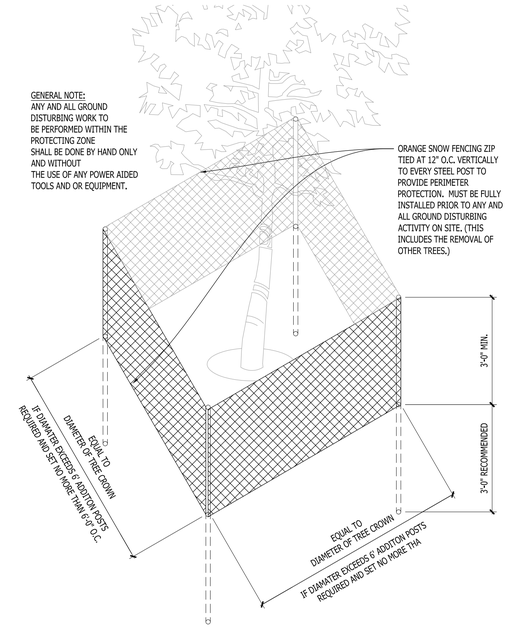
2 DECIDUOUS TREE STAKING
PARKING ISLAND/RESTRICTED AREAS

SCALE: NONE



3 CONIFEROUS TREE PLANTING DETAIL

SCALE: NONE



4 EXISTING TREE PROTECTION DETAIL

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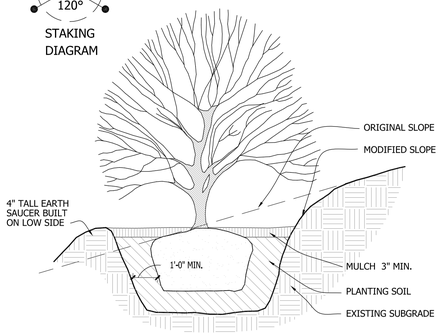
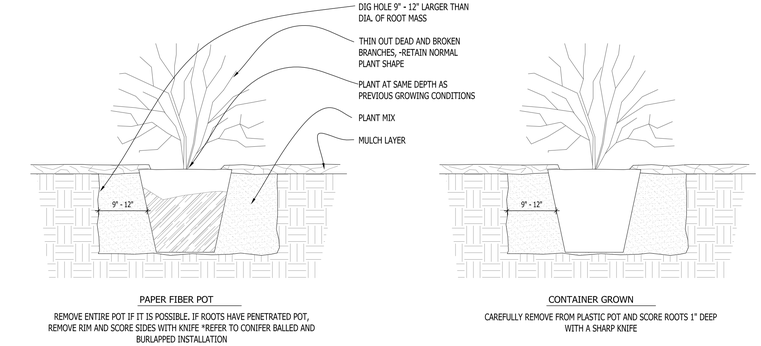


5 SLOPE PLANTING DETAIL

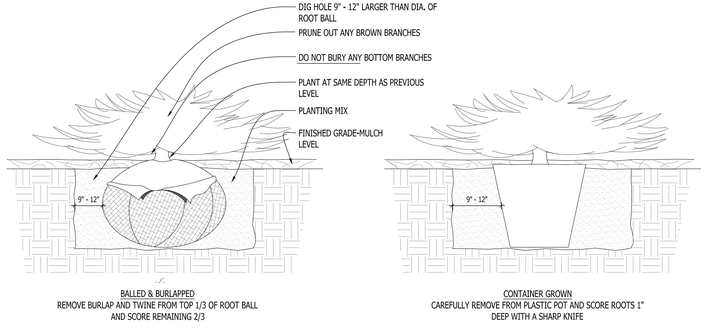
SCALE: NONE

REFER TO TYPICAL DECIDUOUS TREE DETAIL FOR STAKING



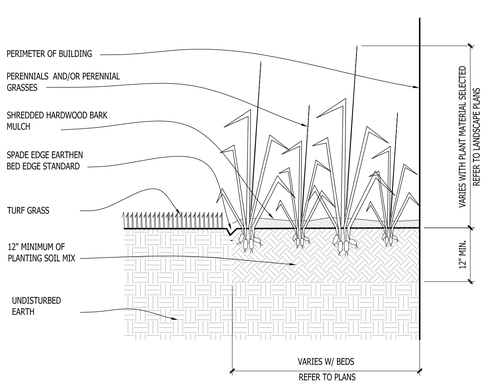
6 DECIDUOUS SHRUB PLANTING DETAIL

SCALE: NONE



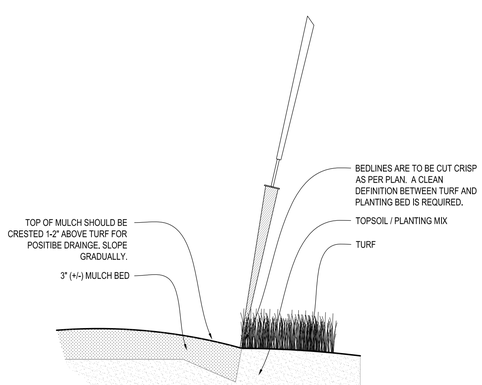
7 CONIFEROUS SHRUB PLANTING DETAIL

SCALE: NONE



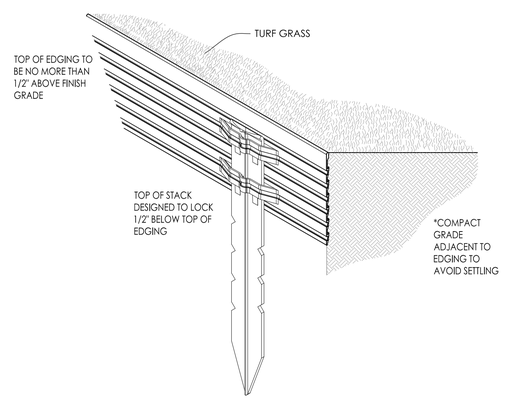
8 PERENNIAL BED PLANTING DETAIL

SCALE: NONE



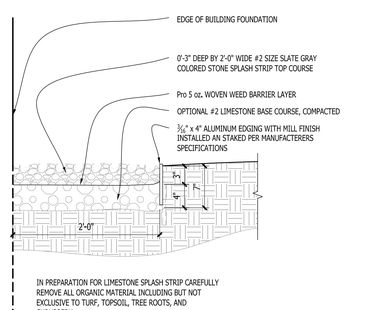
9 SPADE EDGE PLANT BED EDGE DETAIL

SCALE: NONE



10 METAL LANDSCAPE EDGING DETAIL

SCALE: 1/2" = 1'-0"



11 COMPACTED GRAVEL SPLASH STRIP

SCALE: 1" = 1'-0"

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Date of Drawing:	06/02/25
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Job Number:	L25-037
Sheet Number:	LSP1.2

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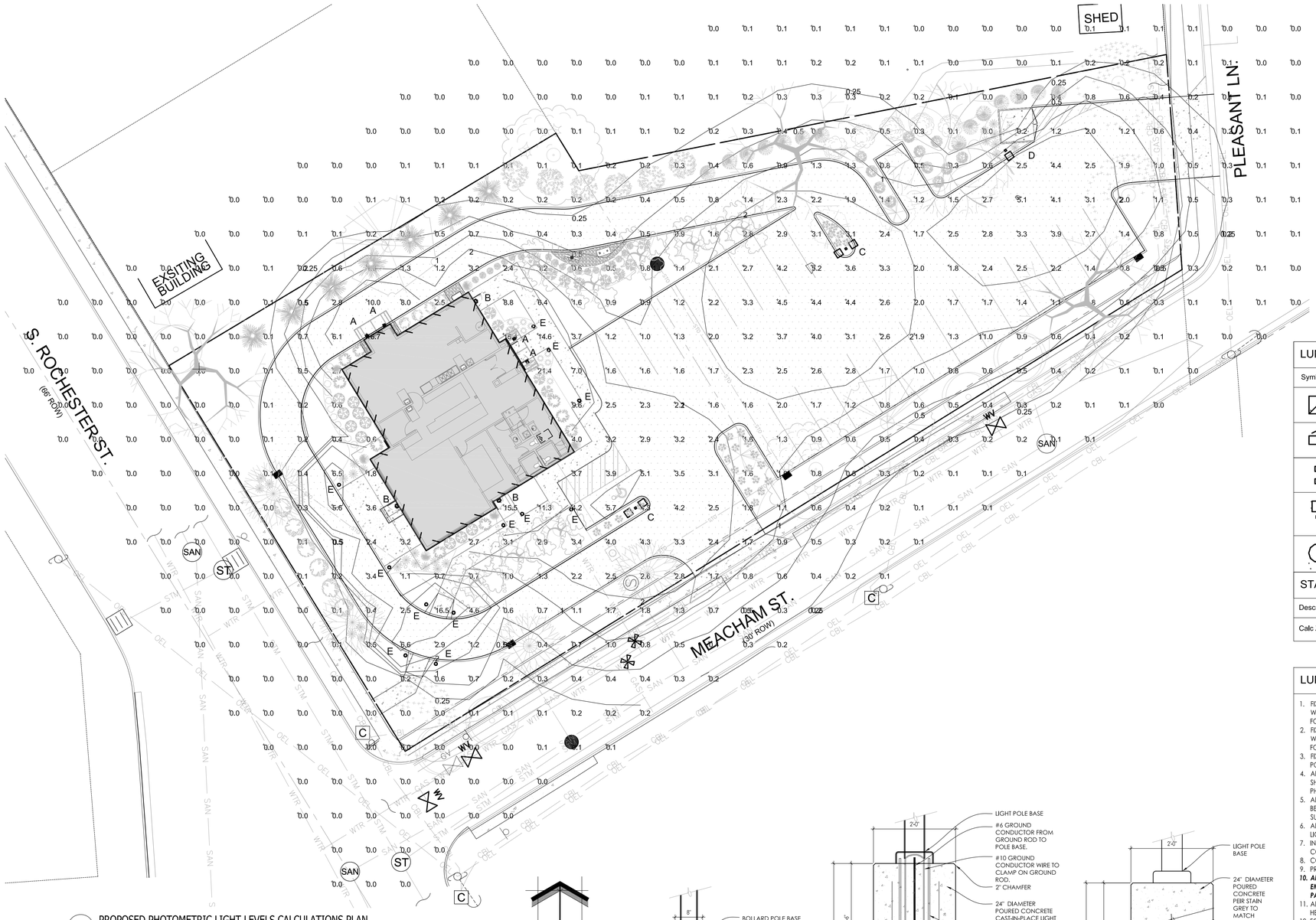


1 PROPOSED PHOTOMETRIC LIGHT LEVELS CALCULATIONS PLAN

SCALE: 1" = 16'-0"

LUMINAIRE SCHEDULE

Symbol	Label	Qty	Catalog Number	Description	Lamp	File	Lumens	LLF	Watts
	A	4	ECLS01_A5SM730___-120-277V	EVOLVE CANOPY LED SOFFIT - ECLS01	LED	ECLS01_A5SM730_____-120-277V.ies	Absolute	1.00	39
	B	3	EWLS02_25AF740___-120-277V	EWLS02 WALL PACK	LEDs	EWLS02_25AF740_____-120-277V.ies	Absolute	1.00	17
	C	2	EACL01_C3AW740_____	EACL AREA LIGHT	LEDs	EACL01_C3AW740_____.ies	Absolute	1.00	110
	D	1	EACL01_D3AW740_____WITH ELS--EAC-ABL-BLCK	EACL AREA LIGHT	LEDs LEDs	EACL01_D3AW740_____-ELS-EAC-ABL-BLCK.ies	Absolute	1.00	73
	E	12	XHYP3-180-LED-16--350-NW-UE	XHYP3	LEDs	XHYP3-180-LED-16-350-NW-UE.IES	Absolute	1.00	20

STATISTICS

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Calc Zone #1	+	1.1 fc	16.7 fc	0.0 fc	N / A	N / A

LUMINAIRE NOTES

1. FIXTURE "C" (2) S A NEW POLE LOCATION w/ NEW FOOTING - NEW FIXTURE (TWIN HEAD AND TENONS) AND IS TO BE FULL CUT OFF WITH HOUSE SIDE SHIELDING) IS TO BE INSTALLED ON A NEW 20'-0" POLE WITH A NEW 2'-6" REINFORCED POURED CONCRETE FOUNDATION. REFER TO DETAILS REFER TO DETAILS 3/PHO1.1 & 4/PHO1.1.
2. FIXTURE "D" (1) S A NEW POLE LOCATION w/ NEW FOOTING - NEW FIXTURE (SINGLE HEAD AND TENON AND IS TO BE FULL CUT OFF WITH HOUSE SIDE SHIELDING) IS TO BE INSTALLED ON A NEW 20'-0" POLE WITH A NEW 2'-6" REINFORCED POURED CONCRETE FOUNDATION. REFER TO DETAILS 3/PHO1.1 & 4/PHO1.1.
3. FIXTURE "E" (10) IS A NEW BOLLARD LOCATION w/ NEW FOOTING. THE BOLLARD IS TO BE INSTALLED ON A NEW 0-6" REINFORCED POURED CONCRETE FOUNDATION. REFER TO DETAIL 2/PHO1.3
4. ALL PROPOSED FIXTURE HEADS ARE TO BE DARK-SKY COMPLIANT AND HAVE HARDWARE WITH IESNA FULL CUTOFF HOUSE SIDE SHIELDING WHERE REQUIRED. NEW PROPOSED POLE MOUNTED FIXTURES (HEADS AND TENONS) w/ BLACK FINISH AND OPTIONAL PHOTOCELL CONTROL.
5. ALL NEW CONCRETE LIGHT POLE BASES ARE TO HAVE ALL EXPOSED FORM MARKS REMOVED, GROUND FLUSH AND THE SURFACE IS TO BE PROPERLY PREPARED TO RECEIVE A HAND TROWELED, MASONRY SKIM COAT OF APPROPRIATE THICKNESS TO ACHIEVE A DURABLE SURFACE AND LONG LASTING AESTHETIC.
6. ALL NEW PROPOSED AREA LIGHT POLES SHALL BE LOCATED 3-0" FROM BACK OF CURB TO THE EDGE OR FACE OF THE REINFORCED LIGHT POLE BASE, UNLESS NOTED OTHERWISE.
7. INSTALLATION CONTRACTOR TO REFER TO ELECTRICAL PLANS FOR CONDUIT ROUTING OF LIGHT POLES AND SIGNAGE LIGHTING CONTROL AND WIRING.
8. CONTRACTOR TO REFER TO REINFORCED LIGHT POLE BASE SECTION AND DETAIL FOR FURTHER INFORMATION.
9. PROPOSED POLE MOUNTED FIXTURES (HEADS AND TENONS) ARE TO HAVE A BLACK FINISH w/ OPTIONAL PHOTOCELL CONTROL.
10. ***ALL EXTERIOR FIXTURES, BOTH BUILDING MOUNTED AND POLE FIXTURES SHALL BE DESIGNED AND INSTALLED SUCH THE THE LIGHT EMITTED FROM THE LUMINARE AT AN ANGLE OF 90 DEGREES ROM VERTICAL (OR MORE) AND NO LIGHT SHALL TRESPASS ACROSS PARCEL BOUNDARIES INTO ADJACENT LOST, BUILDINGS OR STREETS IN EXCESS OF 0.5 FOOT CANDLE OR GREATER.***
11. ALL BUILDING MOUNTED LIGHT FIXTURES ARE TO BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS FOR EXACT MOUNTING HEIGHTS AND LOCATIONS.
12. FOR PURPOSES OF CALCULATING THE SITE POLE LIGHTING AND PHOTOMETRIC OUTPUT LUMINAIRE WERE PLACED AT 22'-0" ABOVE FINISHED FLOOR ELEVATION AND ALL BUILDING MOUNTED FLOOD LIGHTS COORDINATED WITH THE ARCHITECTURAL ELEVATIONS AND PLACED AT HEIGHTS SPECIFIED ON THE BUILDING ELEVATIONS.

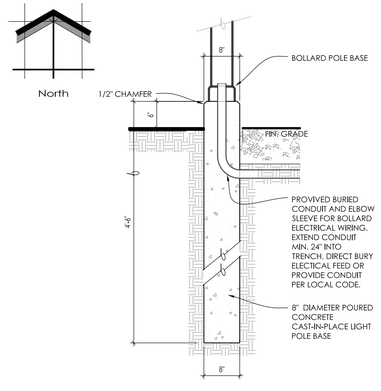
THIS LIGHTING PLAN REPRESENTS ILLUMINATION LEVELS ARE CALCULATED VALUES INCLUDE DIRECT AND INTER-REFLECTED COMPONENT AND ILLUMINATION LEVELS CALCULATED FROM LABORATORY DATA TAKEN UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH THE ILLUMINATING ENGINEERING SOCIETY (IES) APPROVED METHODS. ACTUAL PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRES MAY VARY DUE TO CHANGES IN ELECTRICAL VOLTAGE. TOLERANCE IN LAMPS/LED'S AND OTHER MAY VARY DUE TO CHANGES IN ELECTRICAL VOLTAGE. TOLERANCE IN LAMPS/LED'S AND OTHER VARIABLE FIELD CONDITIONS. CALCULATIONS DO NOT INCLUDE OBSTRUCTIONS SUCH AS BUILDINGS CURBS, LANDSCAPING, OR ANY OTHER ARCHITECTURAL ELEMENTS UNLESS NOTED.

PHOTOMETRIC PLAN GENERAL NOTES

1. BASED ON THE INFORMATION PROVIDED, ALL DIMENSIONS AND LUMINAIRE LOCATIONS SHOWN REPRESENT RECOMMENDED POLE PLACEMENTS AND LUMINAIRE ORIENTATION. THE ENGINEER AND/OR ARCHITECT MUST DETERMINE APPLICABILITY OF THE LAYOUT TO RELEVANT FIELD CONDITIONS.
2. THE DEPICTED ILLUMINATION RESULTS ARE BASED UPON ILLUMINATION MEASUREMENTS AS CALCULATED BY AN INDEPENDENT LABORATORY. LUMINAIRE CHARACTERISTICAL DATA WAS MEASURED UNDER CONTROLLED CONDITIONS IN ACCORDANCE WITH APPROVED ILLUMINATION ENGINEERING SOCIETY METHODS. ACTUAL ON-SITE PERFORMANCE OF ANY MANUFACTURER'S LUMINAIRES MAY VARY FROM LABORATORY TEST RESULTS DUE TO VARIATIONS IN: ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, AND OTHER VARIABLE FIELD CONDITIONS.
3. IF EXISTING LUMINAIRES ARE INCLUDED IN THIS REPORT, THEIR ILLUMINATION CHARACTERISTICS ARE BASED UPON A COMBINATION OF CUSTOMER'S PROVIDED SPECIFICATIONS & OUR BEST ESTIMATION.
4. *ALL EXISTING AND NEW CONCRETE LIGHT POLE BASES ARE TO HAVE ALL FORM MARKS REMOVED, GROUND FLUSH AND THE SURFACE IS TO BE PROPERLY PREPARED TO RECEIVE A HAND TROWELED, MASONRY SKIM COAT OF APPROPRIATE THICKNESS TO ACHIEVE A DURABLE SURFACE AND LONG LASTING AESTHETIC.*

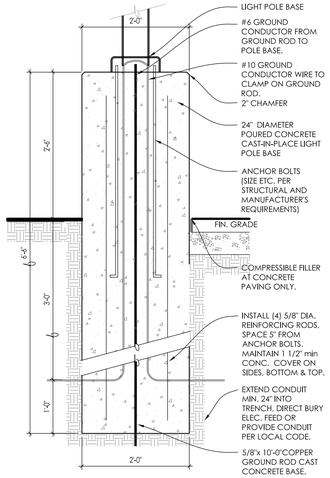
EXISTING CONDITIONS GENERAL NOTES

1. INFORMATION PERTAINING TO EXISTING CONDITIONS GIVEN ON THESE ARCHITECTURAL DRAWINGS REPRESENTS TO THE BEST OF OUR KNOWLEDGE THE ACTUAL EXISTING FIELD CONDITIONS. INSITE LANDSCAPE DESIGN, INC. MAKES NO WARRANTY AS TO THEIR ACCURACY. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS IMPERATIVE TO THEIR NEW WORK. REPORT ANY DISCREPANCIES BETWEEN THE DRAWINGS AND FIELD CONDITIONS TO THE LANDSCAPE ARCHITECT FOR REVIEW. ANY WORK PERFORMED PRIOR TO RESOLUTION OF DISCREPANCIES BY THE LANDSCAPE ARCHITECT IS SUBJECT TO REMOVAL AND REPLACEMENT AT NO ADDITIONAL COST TO THE CONTRACT.
2. VERIFY LOCATION OF ALL EXISTING UNDERGROUND UTILITIES I.E. WATER, SEWER, ELECTRICAL, TELECOMUNICATION AND ACCESS PANELS FOR ALL UTILITIES AND ALL ASSOCIATED EQUIPMENT FOR ACCESSIBILITY OF THOSE ITEMS.
3. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS, AND ALIGNMENT OF WALLS. BRING ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECTS ATTENTION PRIOR TO FABRICATION / CONSTRUCTION BEGINS.



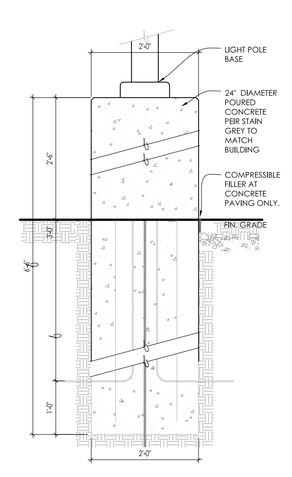
2 BOLLARD BASE - SECTION

SCALE: 3/4"=1'-0"



3 LIGHT POLE BASE - SECTION

SCALE: 3/4"=1'-0"



4 LIGHT POLE BASE - ELEVATION

SCALE: 3/4"=1'-0"

ALL EXISTING AND NEW CONCRETE LIGHT POLE BASES ARE TO HAVE ALL FORM MARKS REMOVED, GROUND FLUSH AND THE SURFACE IS TO BE PROPERLY PREPARED TO RECEIVE A HAND TROWELED, MASONRY SKIM COAT OF APPROPRIATE THICKNESS TO ACHIEVE A DURABLE SURFACE AND LONG LASTING AESTHETIC.

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www.Diggershotline.com
(800)-242-8511
OR

811 Know what's below. Call before you dig.

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Wauwatosa, WI 53226
Tel (414) 476-1204
www.insitedesigninc.com
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Sheet Title:

PROPOSED PHOTOMETRIC LIGHT LEVEL CALCULATIONS PLAN, GENERAL NOTES, AND LIGHT FIXTURE TABLE

Date of Drawing:	06/03/25
Scale:	1" = 20'-0"
Drawn By:	MCD
Job Number:	L25-037
Sheet Number:	PHO1.1

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EVOLVE

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

ECLS Soffit
LED Canopy Light

The Evolve® Canopy LED Soffit (ECLS) offers energy efficiency and quality of light in a sleek low-profile look and style. The ECLS features a diffused aperture which spreads the source lumens for even light distribution and low glare. To be used for sealed deck applications only (enclosed canopy or soffit).

Construction

Housing:	Aluminum die cast enclosure. Integral heat sink for maximum heat transfer
Lens:	Impact resistant tempered glass
Paint:	Corrosion resistant polyester powder paint, minimum 2.0 mil thickness. Standard = Black, Dark Bronze Gray, White (RAL & custom colors available)
Weight:	10 lbs (4.5 kg) - 12.5 lbs (5.7 kg)

Optical System

Lumens:	3,600 - 7,100
Distribution:	Symmetric Medium
Efficacy:	119 - 138 LPW
CCT:	3000K, 4000K, 5000K
CRI:	≥70

Electrical

Input Voltage:	120-277V & 347V
Input Frequency:	50/60Hz
Power Factor:	>90% at rated watts
Total Harmonic Distortion:	<20% at rated watts
Surge Protection:	Standard Surge: 6kV/3kA

*Per ANSI C136.2-

Warranty

☐ 5 Year (Standard)

Lumen Maintenance

Projected Lxx per IES TM-21-11 at

LUMEN CODES	LX(X)K(K) @ HOURS		
	25,000 HR	50,000 HR	60,000 HR
T5	L96	L92	L91
A5	L95	L93	L92
B5	L95	L93	L92

Note: Projected Lxx based on LM80 (± 10,000 hour testing). Accepted industry tolerances apply to initial luminous flux and lumen maintenance measurements.

Luminaire Ambient Temperature Factor

AMBIENT TEMP (°C)	INITIAL FLUX FACTOR	AMBIENT TEMP (°C)	INITIAL FLUX FACTOR
10	1.02	30	0.99
20	1.01	40	0.98
25	1.00	50	0.97

Ratings

Operating Temperature:	-40°C to 50°C
Vibration:	1.5G per Per ANSI C136.31-2010.
LM-79:	Testing in accordance with IESNA Standards

Controls

Dimming:	Standard - 0-10V
Sensors:	Motion with Integrated Photoelectric control, Daintree Compatible

Not all product variations listed on this page are DLC qualified. Visit www.designlights.org/search to confirm qualifications.

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EVOLVE
ECLS Soffit
LED Canopy Light

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

Ordering Information

ECLS 01 SM 7

PROD. ID	GEN	VOLTAGE	OPTIC CODE	DISTRIBUTION[1]	CRI (MIN)	CCT	DIMMING	CONTROLS	MOUNTING	COLOR	OPTIONS
E= Evolve C= Canopy LS = Soffit	01	0 = 120-277V D = 347V	T5 = 3,700 lm A5 = 5,400 lm B5 = 7,100 lm	SM = Symmetric Medium	7 = 70	30 = 3000K 40 = 4000K 50 = 5000K	1 = None Only Controls 'Y' available A = Wired to Control D = External Wired 0-10V/Leads Only Controls 'Y' available	1 = None A = Motion Sensor IR Program[2] B = Daintree Motion Sensor[3]	JM = J-Box Mount PM = Pendant Mount RM = Recessed Mount SM = Surface Mount SB = Surface Mount w/ Beauty Plate	BLCK = Black DKBZ = Dark Bronze GRAY = Gray WHTE = White	SC = Side Conduit Holes XXX = Special Options Y = Coastal Finish[4]

[1] Not Available with Optical Code T5
[2] Requires Dimming Option A
[3] Recommended for installations within 750 feet from coast. Lead time varies, check with factory.

OPTICAL CODE	DIST CODE	TYPICAL LUMENS			TYPICAL SYSTEM WATTAGE	
		3000K	4000K	5000K	120-277V	347-480V
T5	SM	3600	3700	3700	29	N/A
A5		5300	5400	5400	39	43
B5		6900	7100	7100	54	56

For additional information on ECLS IES files, please click the following link: ECLS IES Files

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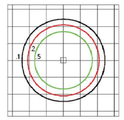
EVOLVE
ECLS Soffit
LED Canopy Light

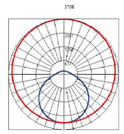
CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

ECLS - Symmetric Medium

7100 lumens, 5000K
ECLS01_B5SM750_.IES



- Mounting Height at 15'
- Initial Footcandle at Grade



— Vertical plane through horizontal angle of Max. Cd at 50°
— Horizontal cone through vertical angle of Max. Cd at 1°

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1 GE EVOLVE ECLS SERIES CANOPY/SOFFIT LUMINARIES

EVOLVE

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

EWLS L Series
LED Wall Pack

The Evolve® LED L Series Wall Pack (EWLS), The Evolve LED L-Series Wall Pack, EWLS, is a designed replacement for 50W to 250W HID, while offering significant energy savings in a long-life LED wall pack. Two-screw housing design enables a fast and simplified installation. The low-watt Egress package is designed to meet recommended illuminance requirements for egress applications such as side and rear exit doors in commercial buildings. Available with Emergency Battery Backup option.

Construction

Housing:	Aluminum die cast enclosure. Integral heat sink for maximum heat transfer
Lens:	Impact resistant tempered glass
Paint:	Corrosion resistant polyester powder paint, minimum 2.0 mil thickness. Color: Black, Dark Bronze, Gray & White (RAL & custom colors available) Optional = Coastal Finish
Weight:	8.6lbs (4 kg)

Optical System

Lumens:	1,700 to 7,000
Distribution:	Asymmetric Forward
Efficacy:	117- 148 LPW
CCT:	2700, 3000K, 4000K, 5000K
CRI:	≥70

Electrical

Input Voltage:	120-277V & 347V
Input Frequency:	50/60Hz
Power Factor:	> 90% at rated watts
Total Harmonic Distortion:	≤ 20% at rated watts

Surge Protection

Surge Protection	10kV/5kA (Standard) 3kV/1.5kA (EMBB)

*Per ANSI C136.2-2015

Emergency Battery Backup

Provides reliable emergency operations when there is a loss to normal power, supported by Independent Secondary Battery.

- Hold-Up Time: 90 minutes @ 1,400 lumens.
- Meet egress light level and uniformity requirements
- Not available in 347V
- Operating Temperature (for EMBB models) 0° to 40°C
- 3kV/1.5kA surge protection for EMBB models.

Not all product variations listed on this page are DLC qualified. Visit www.designlights.org/search to confirm qualifications.

IP65 Optical

Lumen Maintenance

Projected Lxx per IES TM-21-11 at 25°C

LUMEN CODES	DISTRIBUTION	LX(X)K(K) @ HOURS		
		25,000 HR	50,000 HR	60,000 HR
17, 25 & 40	AF	L99	L99	L99
70	AF	L94	L87	L85

Note: Projected Lxx based on LM80 @ 10,000 hour testing). Accepted Industry tolerances apply to initial luminous flux and lumen maintenance measurements.

Luminaire Ambient Temperature Factor

AMBIENT TEMP (°C)	INITIAL FLUX FACTOR	AMBIENT TEMP (°C)	INITIAL FLUX FACTOR
10	1.02	30	0.99
20	1.01	40	0.98
25	1.00	50	0.97

Ratings

Operating Temperature:	-40°C to 50°C
Vibration:	3G per ANSI C136.31-2010
LM-79:	Testing in accordance with IESNA Standards

Controls

Dimming:	Standard - 0-10V
Sensors:	Photo Electric Sensors (PE) available Motion Sensor

Warranty

☐ 5 Year (Standard)

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EVOLVE
EWLS L Series
LED Wall Pack

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

Ordering Information

EWLS 02 0 40 AF 70 40 N 3 CB DKBZ

PROD. ID	GEN	VOLTAGE	OPTIC CODE	DISTRIBUTION	CRI (MIN)	CCT	DIMMING	PE FUNCTION	MOUNTING	COLOR	OPTIONS
E = Evolve W = Wallpack LS = L-Series	02	0 = 120-277V 1 = 120V* 2 = 208V* 3 = 240V* 4 = 277V* 8 = 120-240V*[1] D = 347V*	17 = 1,700 lm[2] 25 = 2,500 lm 40 = 4,000 lm 70 = 7,000 lm	AF = Asymmetric Forward	7 = 70	27 = 2700K[3] 30 = 3000K[3] 40 = 4000K 50 = 5000K	N = No External Dimming Leads[4] D = External Dimming Leads[5]	1 = None 3 = Button PE[6]	CB = Conduit Box Mount[7] FM = Flush Mount	BLCK = Black DKBZ = Dark Bronze GRAY = Gray	FMTB = Emergency Battery Backup[8] M = Motion Sensor (Wallpack only)[9,10,11] XXX = Special Options W = Non-Graphical White Box

[1] Specify single voltage if Button PE option is selected
[2] Optic code 17 - Not offered in 120-277V, use 122-347V
[3] Select 2700K or 3000K CCT for IDA approved units
[4] Must be selected when ordering with Button PE, Motion Sensor, 347V or Emergency Battery Backup
[5] Not available with motion sensor
[6] Not available in 347V
[7] Button PE not available with EMBB. Button PE not available with M Motion Sensor. Motion sensor includes dusk-to-dawn control as well as motion control.
[8] WS FMTB-10U3(cat 19750.6) needed for programming sensor.
[9] Must select Controls "N" with Motion Sensor "M"

OPTIC CODE	DISTRIBUTION	TYPICAL INITIAL LUMENS			TYPICAL SYSTEM WATTAGE		BUG RATINGS 2700K-5000K
		2700K	3000K	4000/5000K	120-277V	347V	B-U-G
17	AF	1400	1600	1700	12	14	B1-U0-G0
25		2200	2400	2500	17	19	B1-U0-G1
40		3500	3800	4000	27	29	B1-U0-G1
70		6100	6700	7000	52	54	B2-U0-G1
EMBB	-	1300	1450	1450	-	-	B1-U0-G0

For additional information on EWLS IES files, please refer to LED.com

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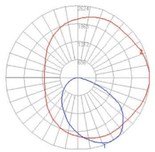
EVOLVE
EWLS L Series
LED Wall Pack

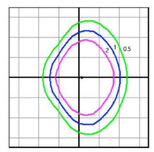
CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

70AF
ASYMMETRIC FORWARD

7000 LUMEN
EWLS02_70AF750__-120-277V.ies



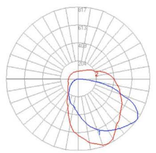
— Vertical plane through horizontal angle of Max. Cd at 0°
— Horizontal cone through vertical angle of Max. Cd at 27°



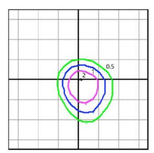
- Mounting Height at 10'
- Initial Footcandle at Grade
- Light Level: 0.5fc, 1fc, 2fc

EMBB Mode
ASYMMETRIC FORWARD

1400 LUMEN
EWLS02_EMBB___.ies



— Vertical plane through horizontal angle of Max. Cd at 295°
— Horizontal cone through vertical angle of Max. Cd at 55°



- Mounting Height at 10'
- Initial Footcandle at Grade
- Light Level: 0.5fc, 1fc, 2fc

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2 GE EVOLVE EWLS SERIES WALL PACK LUMINARIE

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Wauwatosa, WI 53226
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Project:

CAFE BLISS

318 S. Rochester Street
&
112 Meacham Street
Mukwonago, WI 53149

Issuance and Revisions:

Date	Number	Description
06/02/25		Client Review Submittal

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Sheet Title:

PROPOSED BUILDING MOUNTED LIGHT FIXTURES

Date of Drawing: 06/02/25
Scale: NONE
Drawn By: MCD
Job Number: L25-037
Sheet Number:

PHO1.2

EVOLVE

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

EACL® Series
LED Area Light/Compact Low Wattage

Current's EAL Series of Area Light Luminaires offer a wide range of optical patterns, color temperatures, lumen packages, and mounting configurations to optimize area light applications, as well as provide versatility in lighting design within the same form factor.

Construction

Housing:	Die-cast aluminum housing with integral heat sink for maximum heat transfer
Paint:	Corrosion resistant polyester powder paint, minimum 2.0 mil thickness Standard = Black, Dark Bronze Gray, White (RAL & custom colors available) Optional coastal finish available.
Weight:	18 lbs (8.16 kg) Max depending on configuration

Optical System

Lumens:	2,000 - 20,400
Distribution:	Asymmetric Forward Type IV Asymmetric Wide Type III Asymmetric Narrow/Auto Type II
Efficacy:	123 - 143 LPW
CCT:	3000K, 4000K, 5000K
CRI:	≥70

Electrical

Input Voltage:	120-277V & 347-480V
Input Frequency:	50/60Hz
Power Factor:	> 90% at rated watts
Total Harmonic Distortion:	< 20% at rated watts

Surge Protection*

TYPICAL (10 STRIKES)	ENHANCED (40 STRIKES)
☐ 6kV/3kA*	☐ 10kV/5kA*

*Per ANSI C136.2-2015

Warranty

☐ 5 Year (Standard)

Lumen Maintenance

Projected Lxx per IES TM-21-11 at 25°C

LUMEN CODES	LXX(10K) @ HOURS		
	25,000 HR	50,000 HR	60,000 HR
A2, A3, A4, B2, B3, B4, C2, C3, C4D2, D3, D4, E2, E3, E4, F2, F3, F4	L94	L90	L88
H2,H3, H4	L97	L96	L96

Note: Projected Lxx based on LM80 (> 10,000 hour testing). Accepted Industry tolerances apply to initial luminous flux and lumen maintenance measurements.

Luminaire Ambient Temperature Factor

AMBIENT TEMP (°C)	INITIAL FLUX FACTOR	AMBIENT TEMP (°C)	INITIAL FLUX FACTOR
10	1.02	30	0.99
20	1.01	40	0.98
25	1.00	50	0.97

Ratings

Operating Temperature:	-40°C to 50°C
Vibration:	3G vibration per ANSI C136.31-2018
LM-79:	Testing in accordance with IESNA Standards

Controls

Dimming:	Standard - 0-10V ☐ Optional - DALI (Option U) ☐
Sensors:	Photo Electric Sensors (PE) available LightGrid and Daintree Compatible

DLC LISTED

Not all product variations listed on this page are DLC-qualified. Visit www.designlights.org/search to confirm qualifications.

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EVOLVE

EACL® Series
LED Area Light/Compact Low Wattage

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

Ordering Information

EACL	01	0	F4	AF	7	50	N	D	D1	GRAY
PROD. ID	GEN	VOLTAGE	OPTIC CODE	DISTRIBUTION	CRI (MIN.)	CCT	DIMMING[1]	CONTROLS	MOUNTING ARM	COLOR	OPTIONS
E = Evolve AG = Compact Area Light L = Low Voltage	01	0 = 120-277V[2] H = 347-480V[3] 1 = 120V 2 = 208V 3 = 240V 4 = 277V 5 = 480V D = 347V	Asy3000 lm Bwl5000 lm Cas7500 lm Dex10000 lm Dex10000 lm Exc12500 lm Fxc15000 lm Hex20000 lm	AF = Asymmetric Forward AW = Asymmetric Wide AN = Asymmetric Narrow/Auto	7 = 70 4D = 4000C 5D = 5000C	3K = 3000K[4] N = Dimming thru PE receptacle D = External Dimming 1(0)-10% cable X = No External Dimming Leads	1 = None A = ANSI 7-pin PE receptacle (no control) D = ANSI 7-pin PE receptacle with shorting cap provided E = ANSI C136.41 7-pin with Non-Dimming PE Control[5] V = Knuckle Wall Mount[14]	OA = Integral Slip-fitter for 1.25" - 2" Pipe (1.315" OD - 2.375 in OD) D1 = Universal Mounting Arm, fitted for round or square pole mounting[6] K1 = Knuckle Slipfitter for 1.9 in - 2.3in. OD Tenon[14] S1 = Knuckle Slipfitter for 2.3in - 3.0in OD Tenon[14] V1 = Knuckle Wall Mount[14]	GRAY = Gray BLCK = Black BLGK = Black DKBZ = Dark Bronze WHTE = White	F = Fusing HS = Motion Sensor w/ LightGrid MS = Motion Sensor (Daintree)[8] HA = Motion Sensor (Watterson)[9] J = cULCanada L = Tool-Less Entry R= Enhanced Surge Protection (SWXP3kV) U = DALI dimming[7] V = 3-Position Terminal Block Y = Coastal Finish[10] XXX = Special Options

1 Not Available with Fusing, Must Choose a Discrete Voltage with "F" Option Code
2 Wide Standard Dimming is 0-10V
3 PE Control only available for 120-277V, 347V or 480V Discrete Voltage.
4 Supplied with 25 leads
5 Supplied with 15/3 ft Cable
6 Restricted Aiming Angle of 0-45°
7 Compatible with LightGrid Wireless Control Nodes, Not Compatible with Motion Sensor Control
8 H2 Sensor is not available in High Voltage (347V, 480V or 347-480V)
9 Recommended for installations within 750 feet from coast. Lead time varies, check with factory.
10 Select 3000K CCT for IDA approved fixtures.

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EVOLVE

EACL® Series
LED Area Light/Compact Low Wattage

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER

OPTICAL CODE	DIST CODE	CLASSIFICATION	TYPICAL LUMENS		TYPICAL SYSTEM WATTAGE		BUG RATING	
			3000K	4000K &5000K	120-277V	347-480V	3000K	4000K &5000K
A4	AF	TYPE IV	2900	2900	21	23	B1-U0-G1	B1-U0-G1
B4			4900	4900	36	38	B1-U0-G1	B1-U0-G1
C4			7300	7390	55		B1-U0-G2	B2-U0-G2
D4			9800	9900	73		B2-U0-G2	B2-U0-G2
E4			12300	12500	95		B2-U0-G2	B2-U0-G2
F4			14700	14700	122		B2-U0-G2	B2-U0-G2
H4			19600	19600	163		B3-U0-G3	B3-U0-G3
A3	AW	TYPE III	2900	3000	21	23	B1-U0-G1	B1-U0-G1
B3			4900	5100	36	38	B1-U0-G1	B1-U0-G1
C3			7400	7690	55		B1-U0-G2	B1-U0-G2
D3			9900	10200	73		B2-U0-G2	B2-U0-G2
E3			12400	12700	95		B2-U0-G2	B2-U0-G2
F3			14900	15300	122		B2-U0-G2	B2-U0-G2
H3			19300	20400	163		B3-U0-G2	B3-U0-G2
A2	AN	TYPE II	2900	3000	21	23	B1-U0-G1	B1-U0-G1
B2			4900	5100	36	38	B1-U0-G1	B1-U0-G1
C2			7300	7590	55		B2-U0-G1	B2-U0-G2
D2			9800	10150	73		B2-U0-G2	B2-U0-G2
E2			12300	12600	95		B2-U0-G2	B2-U0-G2
F2			14700	15100	122		B3-U0-G2	B3-U0-G3
H2			19600	20300	163		B3-U0-G3	B3-U0-G3

For additional information on Non-Shielded and Shielded EACL IES files, please refer to LED.com

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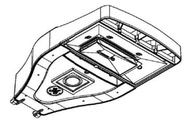
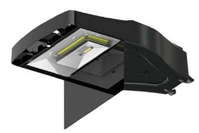
EVOLVE

EACL® Series
LED Area Light/Compact Low Wattage

CUSTOMER NAME
PROJECT NAME
DATE TYPE
CATALOG NUMBER





PE Accessories (To Be Order Separately)

SAP NUMBER	PART NUMBER	DESCRIPTION
91913562	WANS - 277	ANSI 136.41 Dimming PE Daintree Enable, 120-277V
91913553	WANS8 - 480	ANSI 136.41 Dimming PE Daintree Enable, 347-480V
93039237	PED-MV-LED-7	ANSI C136.41 Dimming PE, 120-277V
93039238	PED-347-LED-7	ANSI C136.41 Dimming PE, 347V
93039239	PED-480-LED-7	ANSI C136.41 Dimming PE, 480V

SAP NUMBER	PART NUMBER	DESCRIPTION
28299	PEC07TL	STANDARD 520-277V
28294	PEC07TL	STANDARD 480V
80436	PEC07TL	STANDARD 347V
73251	SOCL-PECTL	Shorting cap

Back Light Shied

SHIELD ORIENTATIONS	CUTOFF DISTANCE	SHIELD ORDER LOGIC
Back	Long	ELS-EACL-RBL-BLCK

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1 GE EVOLVE EACL SERIES AREA LUMINARIES

EVOLVE

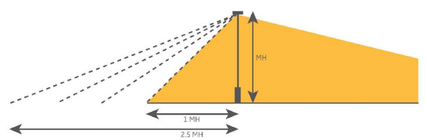
EACL Series Luminaires
Shielding Specification & Ordering Guide

The next evolution of the **Evolve®** LED Area Light delivers even better trespass control. Current's exclusive reflective optical ring design produces superior vertical illuminace and efficiently directs the light without wasteful and unwelcomed light spill into neighboring properties. Due to the extensive variation of parking lot configurations coupled with tightening ordinances,

Current now offers a full array of shielding to accommodate challenging sites.

The shielding options available for the Evolve® Area Light focus on the following applications:

- Left & Right Cutoff
- Front Cutoff
- Backlight Control & B-U-G Improvement



Within each of the shielding families, there are multiple shielding cutoff levels that are categorized in mounting height (MH) increments. Current accommodates cutoff distance from the pole from 1MH to 2.5 MH in 0.5 MH increments. The shields that are listed are for the most common applications. Please contact the manufacturer if your need is not listed.

All shields can be installed easily in the field. The next evolution of the Evolve® LED Area Light and shielding options will help you meet any parking lot challenge.

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2 GE EVOLVE EACL SERIES LUMINARIES SHEILDING

EVOLVE

SSSE Series Poles
Square | Straight | Steel

Project Name
Date Type
Notes

APPLICATIONS
Lighting installations for side and top mounting of luminaires with effective projected area (EPA) not exceeding maximum allowable loading of the specified pole in its installed geographic location.

CONSTRUCTION

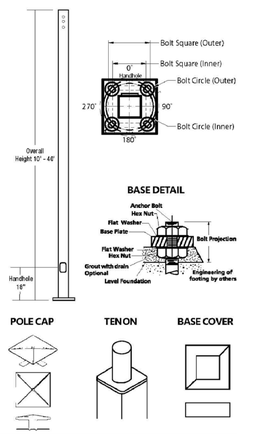
Shaft:	One-piece straight steel with square cross section, flat sides and minimum 0.23" radius on all corners; Minimum yield of 46,000 psi (ASTM-A500, Grade B); Longitudinal weld seam to appear flush with shaft side wall; Steel base plate with axial bolt circle slots welded to pole shaft having minimum yield of 36,000 psi (ASTM A36)
Base Cover:	Two-piece square aluminum base cover included standard
Pole Cap:	Pole shaft supplied with removable cover when applicable; Tenon and post-top configurations also available
Hand Hole:	Rectangular 3x5 steel hand hole frame (2.38" x 4.38" opening); Mounting provisions for grounding lug located behind gasketed cover
Anchor Bolts:	Four galvanized anchor bolts provided per pole with minimum yield of 55,000 psi (ASTM F1554). Galvanized hardware with two washers and two nuts per bolt for leveling
Anchor Bolt Part Numbers:	• 3/4 x 30 x 3 — TAB-30-M38 • 1 x 36 x 4 — TAB-36-M38

FINISH

- Durable thermoset polyester powder coat paint finish with nominal 3.0 mil thickness
- Powder paint prime applied over "white metal" steel substrate cleaned via mechanical shot blast method
- Decorative finish coat available in multiple standard colors; Custom colors available; RAL number preferable

10 DAY - EVOLVE EXPRESS SHIP PROGRAM

- Ships in 10 days
- Limit of 15 poles



BASE DETAIL

POLE CAP

TENON

BASE COVER

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3 GE EVOLVE EACL SERIES LUMINARIES SHEILDING

EVOLVE

SSSE Series Poles
Square | Straight | Steel
Ordering Information

Project Name
Date Type
Notes

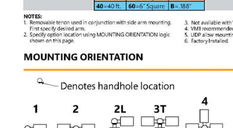
Example: SSSE25-40A-2-E2-DKBZ-UL

SSSE	20	40	B		E2	GRAY	
SERIES	HEIGHT	SHAFT	THICKNESS	MOUNTING	POLE DRILLING	FINISH	OPTIONS
SSSE = Evolve Square Straight Steel Pole	10 - 10 ft. 12 - 12 ft. 14 - 14 ft. 16 - 16 ft. 18 - 18 ft. 20 - 20 ft. 25 - 25 ft. 30 - 30 ft. 35 - 35 ft. 40 - 40 ft.	40 - 4" Square 40 - 4" Square 40 - 4" Square 40 - 4" Square 40 - 4" Square 40 - 4" Square 40 - 4" Square 50 - 5" Square 60 - 6" Square 40 - 4" Square 50 - 5" Square 60 - 6" Square 60 - 6" Square 60 - 6" Square	A = 0.125" A = 0.125" A = 0.125" A = 0.125" A = 0.125" A = 0.125" A = 0.125" B - .188" B - .188" B - .188" B - .188" B - .188" B - .188" B - .188" B - .188" B - .188" B - .188" C - .25" C - .25" C - .25" C - .25"	1 = Single arm mount 2 = Two fixtures at 180° 2L = Two fixtures at 90° 3T = Three fixtures at 90° 3Y = Three fixtures at 120° 4 = Four fixtures at 90° TA[1] = Tenon (2.38" OD x 4" Tall) TB[1] = Tenon (2.88" OD x 4" Tall) TC[1] = Tenon (3.5" OD x 6" Tall) TR[1] = Removable Tenon (2.38" x 4") OT = Open Top (includes pole cap)[2]	E2 = Evolve Square Pole UDP07 = 3/8in HDW range 1.69 - 2.24 UDP03 = 3/8in HDW range 2.25 - 2.99 UDP04 = 1/2in HDW range 2.25 - 2.99 UDP05 = 3/8in HDW range 3.00 - 3.75 UDP06 = 9/16in HDW range 3.00 - 3.75 UDP07 = 3/8in HDW range 3.76 - 4.49 UDP08 = 9/16in HDW range 3.76 - 4.49 UDP09 = 3/8in HDW range 4.50 - 5.49 UDP10 = 9/16in HDW range 4.50 - 5.49 UDP11 = 3/8in HDW range 5.50 - 6.00 UDP12 = 9/16in HDW range 5.50 - 6.00	DKBZ = Dark Bronze BLCK = Black GRAY = Gray *Contact factory for custom color options	GFI = 20 Amp GFCI Receptacle and Cover EHH[3] = Extra Handhole CS5[4] = 0.5" Coupling CS7[4] = 0.75" Coupling CS0[4] = 2" Coupling MPB[5] = Mid-pole Luminaire Bracket VM1 = 1st mode vibration damper VM2[6] = 2nd mode vibration damper LAB = Less Anchor Bolts UL = UL Certified

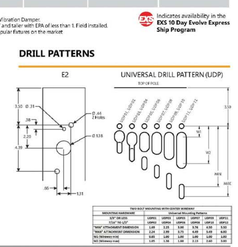
NOTES:
1. Removable tenon used in conjunction with side arm mounting. If not specify desired arm.
2. Specify option location using MOUNTING ORIENTATION logic shown on this page.
3. Not available with VM1 - Mode 1 Vibration Damper
4. VM1 recommended on poles 20' and taller with EPA of less than 1. If field installed.
5. UDP is for mounting of most popular fixtures on the market.
6. Factory installed.

Indicates availability in the **EXS 10 Day Evolve Express Ship Program**

MOUNTING ORIENTATION



DRILL PATTERNS



	UDP03	UDP04	UDP05	UDP06	UDP07	UDP08	UDP09	UDP10	UDP11	UDP12
"MIN" ATTACHMENT DIMENSION	2.25	2.25	3.00	3.00	3.76	3.76	4.50	4.50	5.50	5.50
"MAX" ATTACHMENT DIMENSION	2.99	2.99	3.75	3.75	4.49	4.49	5.49	5.49	6.00	6.00
"A" DIMENSION	1.69	1.69	2.38	2.38	3.13	3.13	3.88	3.88	4.88	4.88
"B" DIMENSION	2.24	2.24	2.88	2.88	3.63	3.63	4.38	4.38	5.38	5.38

ACCESSORIES- ORDER SEPARATELY

CATALOG NUMBER	DESCRIPTION
VM1[1]	1st mode vibration damper
VM2SXX*	2nd mode vibration damper

* XX = 08 for 8', 12 for 12', 15 ft for 16', 20 for 20', and 24 for 24'.
Notes: Field installed through handhole

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4 GE EVOLVE SSSE SERIES POLES

EVOLVE

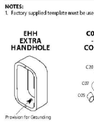
SSSE Series Poles
Square | Straight | Steel
Ordering Information

Project Name
Date Type
Notes

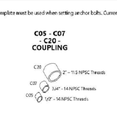
CATALOG NUMBER	HEIGHT		NOMINAL SHAFT DIMENSIONS	WALL THICKNESS	BOLT CIRCLE (SWG/STEPPED)	BOLT CIRCLE (RANGE)	BOLT SQUARE (RANGE)	BASE PLATE SQUARE	ANCHOR BOLT SIZE	BOLT PROJECTION	POLE WEIGHT
	FEET	METERS									
SSSE10-4040	10	3.0	4" square	0.125"	9"	8"-10"	5.66"-7.07"	9"	3/4"x30"x3"	3.5	77
SSSE12-4040	12	3.7	4" square	0.125"	9"	8"-10"	5.66"-7.07"	9"	3/4"x30"x3"	3.5	90
SSSE14-4040	14	4.3	4" square	0.125"	9"	8"-10"	5.66"-7.07"	9"	3/4"x30"x3"	3.5	103
SSSE16-4040	16	4.9	4" square	0.125"	9"	8"-10"	5.66"-7.07"	9"	3/4"x30"x3"	3.5	116
SSSE18-4040	18	5.5	4" square	0.125"	9"	8"-10"	5.66"-7.07"	9"	3/4"x30"x3"	3.5	129
SSSE20-4040	20	6.1	4" square	0.125"	9"	8"-10"	5.66"-7.07"	9"	3/4"x30"x3"	3.5	142
SSSE25-4040	25	7.6	4" square	0.125"	9"	8"-10"	5.66"-7.07"	9"	3/4"x30"x3"	3.5	175
SSSE14-4080	14	4.3	4" square	.188"	11"	10"-12"	7.07"-8.48"	10.50"	3/4"x30"x3"	3.5	152
SSSE16-4080	16	4.9	4" square	.188"	11"	10"-12"	7.07"-8.48"	10.50"	3/4"x30"x3"	3.5	171
SSSE18-4080	18	5.5	4" square	.188"	11"	10"-12"	7.07"-8.48"	10.50"	3/4"x30"x3"	3.5	190
SSSE20-4080	20	6.1	4" square	.188"	11"	10"-12"	7.07"-8.48"	10.50"	3/4"x30"x3"	3.5	209
SSSE25-4080	25	7.6	4" square	.188"	11"	10"-12"	7.07"-8.48"	10.50"	3/4"x30"x3"	3.5	257
SSSE30-4080	30	9.1	4" square	.188"	11"	10"-12"	7.07"-8.48"	10.50"	3/4"x30"x3"	3.5	304
SSSE16-5010	16	4.9	5" square	.188"	11"	10.25"-11.25"	7.25"-9.72"	11.50"	1"x36"x4"	4.5	219
SSSE18-5010	18	5.5	5" square	.188"	11"	10.25"-11.25"	7.25"-9.72"	11.50"	1"x36"x4"	4.5	243
SSSE20-5010	20	6.1	5" square	.188"	11"	10.25"-11.25"	7.25"-9.72"	11.50"	1"x36"x4"	4.5	267
SSSE25-5010	25	7.6	5" square	.188"	11"	10.25"-11.25"	7.25"-9.72"	11.50"	1"x36"x4"	4.5	327
SSSE30-5010	30	9.1	5" square	.188"	11"	10.25"-11.25"	7.25"-9.72"	11.50"	1"x36"x4"	4.5	387
SSSE25-5012	25	7.6	5" square	.25"	11"	10.25"-11.25"	7.25"-9.72"	11.50"	1"x36"x4"	4.5	427
SSSE30-5012	30	9.1	5" square	.25"	11"	10.25"-11.25"	7.25"-9.72"	11.50"	1"x36"x4"	4.5	507
SSSE20-6012	20	6.1	6" square	.188"	12"	11.00"-13.21"	7.81"-9.37"	12.25"	1"x36"x4"	5.0	329
SSSE25-6012	25	7.6	6" square	.188"	12"	11.00"-13.21"	7.81"-9.37"	12.25"	1"x36"x4"	5.0	404
SSSE30-6012	30	9.1	6" square	.188"	12"	11.00"-13.21"	7.81"-9.37"	12.25"	1"x36"x4"	5.0	479
SSSE35-6012	35	10.7	6" square	.188"	12"	11.00"-13.21"	7.81"-9.37"	12.25"	1"x36"x4"	5.0	554
SSSE40-6012	40	12.2	6" square	.188"	12"	11.00"-13.21"	7.81"-9.37"	12.25"	1"x36"x4"	5.0	629

NOTES:
1. Factory supplied template must be used when setting anchor bolts. Current will deny any claims for incorrect anchorage placement resulting from failure to use factory supplied template and anchor bolts.

EHH - EXTRA HANDHOLE



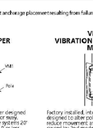
CS5 - CS7 - C20 - COUPLING



VM1 - VIBRATION DAMPER 1ST MODE

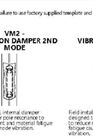
Field Installed Pole Top damper designed to reduce pole top deflection or sway. VM1 is recommended for pole lengths 20' and taller with a total EPA of 1.0 or less.

VM2 - VIBRATION DAMPER 2ND MODE



Factory installed, internal dampner designed to allow pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

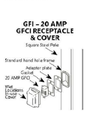
VM2SXX - VIBRATION DAMPER 2ND MODE



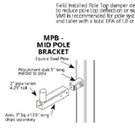
- **VM2508** - 8'
- **VM2512** - 12'
- **VM2516** - 16'
- **VM2520** - 20'
- **VM2524** - 24'

Field installed, internal dampner designed to alter pole resonance to reduce movement and material fatigue caused by 2nd mode vibration.

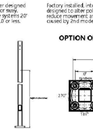
GFI - 20 AMP GFCI RECEPTACLE & COVER



MPB - MID POLE BRACKET



OPTION ORIENTATION



Follow the logic below when ordering location specific options. For each option, indicate its orientation (in degrees) and its height (in feet).
Example:
Option C20 should be ordered as: C20-270-3.5 for a 2" coupling on the handhole same side of pole, 15 feet up from the pole base if 1 spacing is ordered between option. Consult factory for other configurations.

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Project:

CAFE BLISS

318 S. Rochester Street
&
112 Meacham Street
Mukwonago, WI 53149

Issuance and Revisions:

Date	Number	Description
06/02/25		Client Review Submittal

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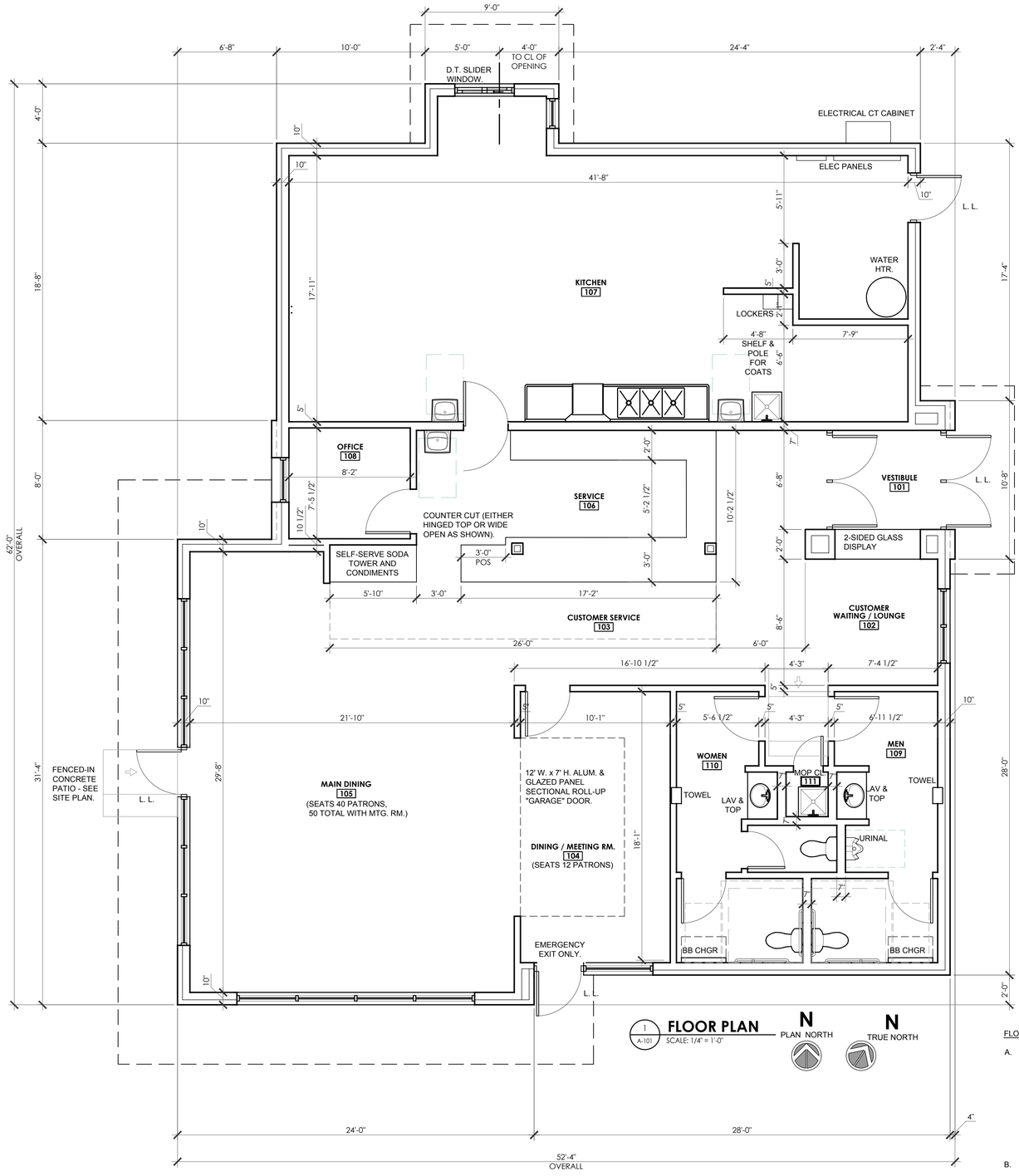
Sheet Title:

PROPOSED SITE LIGHT FIXTURES

Date of Drawing:	06/02/25
Scale:	NONE
Drawn By:	MCD
Job Number:	L25-037
Sheet Number:	PH01.3

L25-037 - CAFE BLISS - 06/02/25



1 A-101 **FLOOR PLAN**
SCALE: 1/4" = 1'-0"

N PLAN NORTH

N TRUE NORTH

FLOOR PLAN GENERAL NOTES:

A. EXTERIOR WALL CONSTRUCTION: (LISTED FROM EXTERIOR TO INTERIOR) EXTERIOR CLADDING (PER ELEVATIONS) OVER 1.5" SOLID BOARD INSULATION (TYPE T.B.D.), AIR BARRIER, 1/2" PLYWOOD, 2x6 STUDS AT 16" O.C. WITH R-21 BATT INSUL., VAPOR BARRIER, 1/2" G.W.B. (DINING & RR's) OR 1/2" PLYWOOD (KITCHEN). WALL SECTIONS (T.B.D.) WILL ILLUSTRATE SOME SPECIAL CONDITIONS NOT LISTED HERE.

B. ALL INTERIOR WALLS TO BE 2x4 AT 16" O.C. EXCEPT WHERE NOTED AS 7" WALLS, WHICH ARE 2x6'S AT 16" O.C. ALL INTERIOR WALLS TO HAVE SOUND BATT INSULATION EXCEPT WALLS BETWEEN ROOMS 104 & 105 AND WALLS WITHIN THE KITCHEN.

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FLOOR PLAN

NEW CAFE
CAFE BLISS
N.E. CORNER OF S. ROCHESTER ST. & MEACHAM ST.
VILLAGE OF MUKWONAGO, WISCONSIN 53149

REVISIONS TO DRAWING SET		
NO.	DATE	DESCRIPTION
1	01-14-25	Schematic plan issued for Owner comment
2	01-22-25	Updated floor plan
3	01-28-25	Owner Approved Floor Plan for Bid
4	03-26-25	Hip Roof Added

DATE:	03-26-25
PROJ. NO:	2501101
DRAWN BY:	SJ
SHEET	

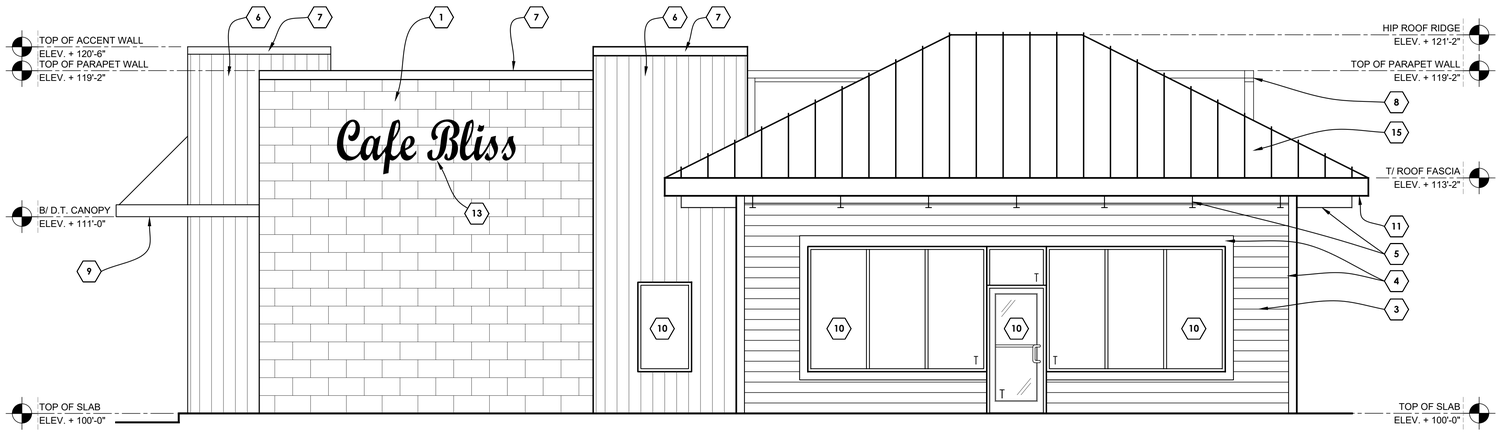
A-101

ELEVATION KEYED NOTES

THE FOLLOWING ELEVATION KEYED NOTES ARE ENCLOSED WITH A (X) SYMBOL ON THE ELEVATIONS.

1. ENGINEERED STONE: CULTURED STONE. SERIES: CAST-FIT. SIZE: 12 x 24. COLOR: PARCHMENT
2. ENGINEED STONE: PRE-CAST BELTLINE (TBD.)
3. ENGINEERED WOOD SIDING: LP SMARSIDE. SERIES: NICKEL GAP. FINISH: BRUSHED SMOOTH. COLOR: MIDNIGHT SHADOW.
4. ENGINEERED WOOD TRIM: LP SMARSIDE. SERIES: 440 SERIES SMOOTH, w/"EXPERTFINISH". COLOR: MIDNIGHT SHADOW. ALL TRIM TO BE 5.5" EXCEPT FOR 7.2" TRIM AT WEST AND SOUTH DINING ROOM WINDOW HEADS AND 9.2" TRIM AT DINING ROOM FASCIA BOARD, JUST BELOW SOFFIT.
5. FIBERGLASS W-BEAMS, 4" x 8" x 1/4" (DECORATIVE), MOUNTED TO BOTTOM SIDE OF SOFFIT TO APPEAR AS SUPPORTS. COLOR: SATIN BLACK.
6. KNOTWOOD VERTICAL CLADDING. (WOOD APPEARANCE, HIGH QUALITY EXTRUDED ALUMINUM PLANKS) COLOR: CHESTNUT.
7. ALUMINUM FASCIA: METAL ERA ANCHOR TITE STANDARDED FASCIA (5.5") FOR SINGLE PLY ROOFING. COLOR: IRON ORE.
8. ALUMINUM FASCIA: METAL ERA ANCHOR TITE EXTENDED FASCIA (11.5" OR 13" TBD) FOR SINGLE PLY ROOFING. COLOR: IRON ORE.
9. ALUMINUM CANOPY: PRE-MANUFACTURED WITH RAIN DIVERSION PANELS TO DRAIN TO DOWNSPOUT (NOT SHOWN).
10. ALUMINUM STOREFRONT WINDOW AND DOOR SYSTEM: (KAWNEER 451T OR EQ.) THERMALLY BROKEN, CENTER GLAZED. COLOR: BLACK ANODIZED. GLASS: 1" LIGHT GRAY TINTED, LOW-E w/ARGON. PROVIDE TEMPERED WHERE INDICATED WITH A "T".
11. SOFFIT AT DINING ROOF OVERHANG. KNOTWOOD ALUMINUM SOFFIT, RUN PARALLEL WITH WALL. COLOR: CHESTNUT.
12. DECORATIVE BRAZILIAN ARTWORK. FINAL IMAGE SELECTED BY OWNER. ARTWORK PURCHASED BY OWNER. (IMAGE SHOWN FROM SHUTTERSTOCK "BRAZILIAN ARTWORK".) OVERSIZE IMAGE GRAPHICALLY PRINTED ON EXTERIOR GRADE MATERIAL WITH UV PROTECTION AND APPLIED TO 1/2" CEMENT BOARD WITH SMOOTH SCRATCH COAT. TRIM WITH LP SMARTSIDE TRIM PER KEYED NOTE 4 ABOVE.
13. BUILDING SIGNAGE - DESIGN BY SUPPLIER TO BE COORDINATED WITH OWNER. SUBMISSION FOR SIGN APPROVAL TO AHJ BY SUPPLIER. SIGN SHOWN IS JUST A PLACEHOLDER TO PROVIDE THE OWNER (AND CITY) WHAT SIZE SIGN COMPLIES WITH ZONING ALLOWANCES.
14. CONTEMPORARY GOOSENECK LIGHTS, QTY. 3 AT ART PANEL.
15. STANDING SEAM METAL ROOF: PAC-CLAD "SNAP-CLAD" OR EQ. COLOR: xxxxxx (STD. xxxxxxx PREMIUM COLOR). PROVIDE COLOR GUARD SNOW RETENTION SYSTEM, NOT SHOWN ON ELEVATIONS., SEE ROOF PLAN FOR LOCATIONS.
16. READY ACCESS SLIDING DRIVE THROUGH WINDOW. ANODIZED COLOR TO MATCH STOREFRONT.

TOTAL MASONRY OF ALL ELEVATIONS EQUALS 34%



1 A-201 **WEST SIDE (ROCHESTER ST.) ELEVATION**

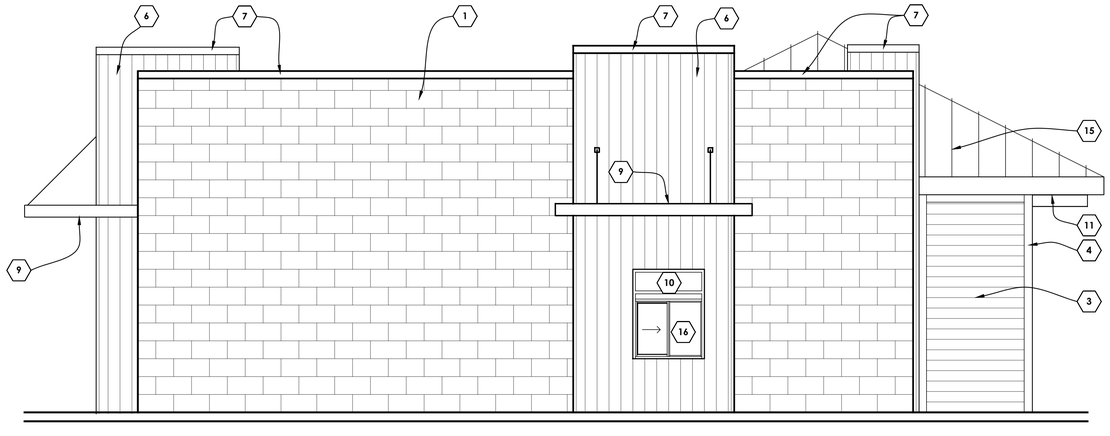
SCALE: 1/4" = 1'-0"

TOTAL MASONRY THIS ELEVATION = 36%

2 A-201 **EAST SIDE (ENTRY / PARKING) ELEVATION**

SCALE: 1/4" = 1'-0"

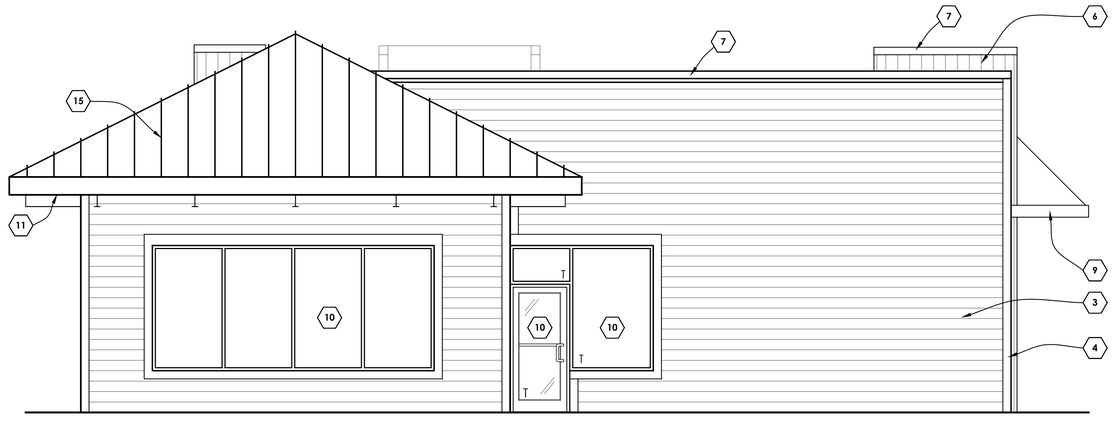
TOTAL MASONRY THIS ELEVATION = 28%



3 A-201 **NORTH SIDE (DRIVE THRU) ELEVATION**

SCALE: 1/4" = 1'-0"

TOTAL MASONRY THIS ELEVATION = 67%



4 A-201 **SOUTH SIDE (MEACHAM ST.) ELEVATION**

SCALE: 1/4" = 1'-0"

TOTAL MASONRY THIS ELEVATION = 0%

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Architecture • Engineering • Interiors
101 East Grand Avenue, Suite 1
Port Washington, Wisconsin 53074
262.268.1200 www.haagmuller.com
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ELEVATIONS

NEW CAFE

CAFE BLISS

N.E. CORNER OF S. ROCHESTER ST. & MEACHAM ST.
VILLAGE OF MUKWONAGO, WISCONSIN 53149

REVISIONS TO DRAWING SET		
NO.	DATE	DESCRIPTION
1	01-14-25	Schematic plan issued for Owner comment
2	01-22-25	Updated floor plan
3	01-28-25	Owner Approved Floor Plan for Bid
4	03-26-25	Hip Roof Added
5	05-27-25	PC Submission Set

DATE:	05-27-25
PROJ. NO:	2501101
DRAWN BY:	SJ
SHEET	

A-201

1 A-201 **WEST ELEVATION (ROCHESTER ST.)**
SCALE: 1/4" = 1'-0"

2 A-201 **EAST ELEVATION**
SCALE: 1/4" = 1'-0"

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RENDERED ELEVATIONS

NEW CAFE
CAFE BLISS
N.E. CORNER OF S. ROCHESTER ST. & MEACHAM ST.
VILLAGE OF MUKWONAGO, WISCONSIN 53149

REVISIONS TO DRAWING SET

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1	01-14-25	Schematic plan issued for Owner comment
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3	01-28-25	Owner Approved Floor Plan for Bid
4	03-26-25	Hip Roof Added
5	05-27-25	PC Submission Set

DATE: 05-27-25
PROJ. NO: 2501101
DRAWN BY: SJ
SHEET

R-201

1 A-202 **SOUTH ELEVATION (MEACHAM ST.)**
SCALE: 1/4" = 1'-0"

2 A-202 **NORTH ELEVATION (DRIVE-THRU SIDE)**
SCALE: 1/4" = 1'-0"

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RENDERED ELEVATIONS

NEW CAFE
CAFE BLISS
N.E. CORNER OF S. ROCHESTER ST. & MEACHAM ST.
VILLAGE OF MUKWONAGO, WISCONSIN 53149

REVISIONS TO DRAWING SET

NO.	DATE	DESCRIPTION
1	01-14-25	Schematic plan issued for Owner comment
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4	03-26-25	Hip Roof Added
5	05-27-25	PC Submission Set

DATE: 05-27-25
PROJ. NO: 2501101
DRAWN BY: XX
SHEET

R-202

CULTURED STONE
Cast-Fit®

Cast-Fit brings understated European luxe to modern design. Muted colors make this a sophisticated choice for commercial and residential projects.
The product colors you see are as accurate as current photography and website or display techniques allow. We suggest visiting your nearest Dealer to look at product samples before selecting colors.
Dimensions (approx): 7.625" H x 15.625" L and 11.625" H x 23.625" L

Features

- Sleek & Sophisticated
- Soft hues bring sophistication to any space
- Two-Toned
- Adds interest with subtle shifts between light and dark tones
- Smooth Surface
- A clean, smooth surface complements a contemporary design
- Large Format
- Its unique scale makes it appropriate for both commercial and residential projects

Foundry Classic 10413TK
Medium Straight Arm Barn Light
IN STOCK - Available to Ship
Decidedly industrious, Foundry is reinventing purposeful lighting. Focused and direct, the sturdy aluminum shade features knurled brass details to offset the Gloss White, Museum Bronze or Textured Black finish while casting a uniform light. The simple, understated form plants a vintage aesthetic for both inside and outside spaces while offering mix and match options that customize the look.

- **Finish:** Textured Black with Brass accents
- **Width:** 16"
- **Height:** 18"
- **Shade:** Metal
- **Material:** Aluminum
- **Brand:** Hinkley
- **Length:** 25.75"

Finish Options

- **Finish:** Textured Black with Brass accents
- **Width:** 16"
- **Height:** 18"
- **Shade:** Metal
- **Light Source:** Socketed
- **Wattage:** 1-14w Med. LED, 100w Equiv.
- **Voltage:** 120v
- **Length:** 25.75"
- **Number of lights:** 1

KNOTWOOD™
ARCHITECTURAL SYSTEMS

SYSTEMS **GUIDE**

KNOTWOOD.COM

WHAT IS **KNOTWOOD?**

Knotwood is a marine-grade aluminum building product that is designed to look like traditional wood panel. Our product is coated with a durable powder and finished with a sublimated woodgrain pattern. Knotwood is sustainable, resilient, high-quality, and low maintenance. Knotwood offers several standardized systems including cladding, soffit, fencing, gate, screens, decking, and pergolas. All Knotwood systems can be installed with standard carpentry tools. **If you can do it with wood, you can do it with Knotwood.**

CORROSION RESISTANT

STAIN & SCRATCH RESISTANT

NON-WARPING

INSECT-PROOF

ECO-FRIENDLY

LIGHTWEIGHT

COLOR STABILITY

FREEZE & FROST RESISTANT

DISSIPATES HEAT

NON-COMBUSTIBLE

SLIP RESISTANT

NON-POROUS

ONE OF THE LARGEST **SUBLIMATED WOODGRAIN** OFFERINGS IN THE INDUSTRY.

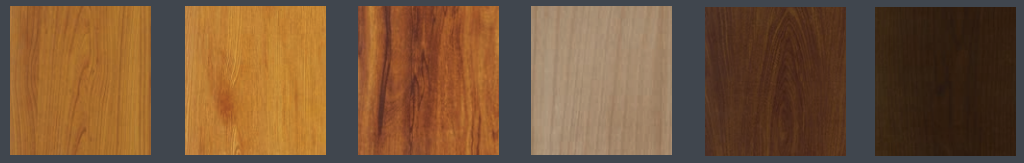
Knotwood combines the natural beauty and timeless appeal of wood with the capabilities of aluminum. All of our aluminum systems and products are available in our extensive range of powder coated and woodgrain colors.

STANDARD COLORS

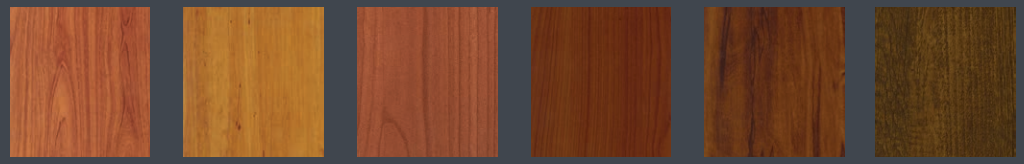
These colors are regularly stocked and have shorter lead times.

WOODGRAIN

HICKORY | ROYAL OAK | IROKO | TASSIE OAK | CHESTNUT | BUSH CHERRY



LIGHT OAK | KNOTTY PINE | SPOTTED GUM | WHITE ASH | KWILA | TEAK BROWN



BLACKBUTT | MAPLE | ATLANTIC CEDAR | WESTERN RED CEDAR | EASTERN MAHOGANY | SAVANNAH OAK

SOLID

MIDNIGHT BLACK | VAPOR GREY

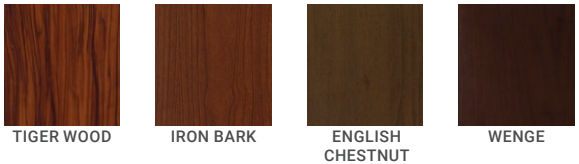
Color availability and selection are subject to change. **Scan the QR code** to visit our website for the most up-to-date list of colors.

NON-STANDARD COLORS

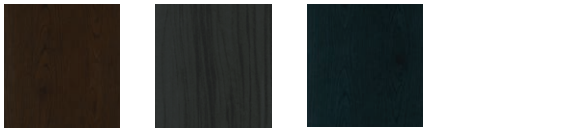
Lead times may be longer for these colors.

WOODGRAIN

CONCRETE | KOA | AUSTRALIAN CEDAR | RED GUM



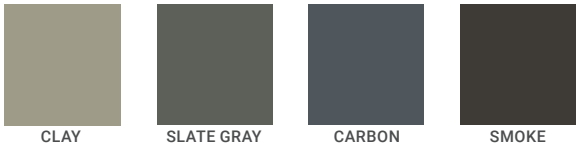
TIGER WOOD | IRON BARK | ENGLISH CHESTNUT | WENGE



BLACK WALNUT | CHARCOAL ASH | BLACK ASH

SOLID

WHITE | MIST | SANDSTONE | STERLING



CLAY | SLATE GRAY | CARBON | SMOKE

ADMIRAL BLUE

CUSTOM SOLID COLORS ARE AVAILABLE FOR LARGER PROJECTS.

Contact your local Knotwood dealer for lead times.

Due to possible batch variations like natural wood, Knotwood will supply all materials for an order from the same batch. We recommend you ensure that there are sufficient materials from the same batch to complete your job, as there are no guarantees that extra product of the same batch (color and shade) can be supplied at a later date.

CLADDING + **SOFFIT**

Knotwood cladding is as beautiful as it is versatile. Our cladding is designed for both internal and external use. Horizontal and vertical applications, combined with our wide range of colors, offer true architectural freedom. Interlocking systems with a top-down installation option simplifies maintenance and repairs. Covered by a limited lifetime warranty and requiring virtually no maintenance, Knotwood provides the benefits of wood without the costly drawbacks.

BOARD SIZES

- 18’ 6” lengths
- 4", 6” and 8" widths

FINISHING TRIMS

Knotwood cladding systems offer a variety of 2-piece finishing trims to suit any condition. Easily trim doors, windows, corners and more. See the installation guide or visit our website for more information.

OUR STYLES

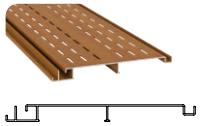
Knotwood cladding is perfect for classic or contemporary styles. Knotwood can perform in both horizontal and vertical applications. Also, with an adjustable reveal feature, styling is functional.

CLADDING + SOFFIT – AUSTRALIAN CEDAR

CLADDING + SOFFIT **PROFILES**

6” CLADDING - KEC150

6” x 5/8” x 18’ 6”
150mm x 16mm x 5650mm

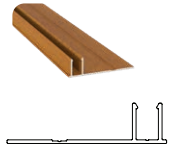


6” VENTED CLADDING - KECV150

6” x 5/8” x 18’ 6”
150mm x 16mm x 5650mm

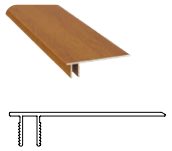
STARTER - KEDSTRADJ

1 5/8” x 5/8” x 18’ 6”
42mm x 16mm x 5650mm



FLASHING BASE - KECFBF

2 3/4” x 5/8” x 18’ 6”
70mm x 16mm x 5650mm

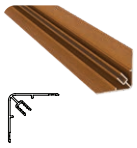


TOP CLIP LARGE - KECFTTLM

2 5/8” x 5/8” x 18’ 6”
65mm x 16mm x 5650mm

CORNER CLIP MALE - KECIECLM

2” x 2” x 18’ 6”
50mm x 50mm x 5650mm

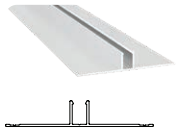


CORNER CLIP FEMALE - KECIECF

1 3/4” x 1 3/4” x 18’ 6”
45mm x 45mm x 5650mm

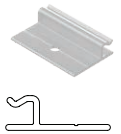
TOP JOINER - KECTJM

2” x 5/8” x 18’ 6”
50mm x 16mm x 5650mm



BOTTOM JOINER - KECJBF

4” x 5/8” x 18’ 6”
100mm x 16mm x 5650mm

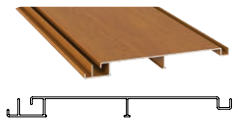


CLADDING CLIP - KAOCC45

Bag of 100
1 3/4” | 45mm

6" SELF-MATING SLAT - KESM15016

6" x 5/8" x 18' 6
150mm x 16mm x 5650mm



8” CLADDING - KEC200

8” x 5/8” x 18’ 6”
200mm x 16mm x 5650mm

NON-STANDARD

4” CLADDING - KEC100

4” x 5/8” x 18’ 6”
100mm x 16mm x 5650mm

NON-STANDARD

4” SELF-MATING SLAT - KESM10016

4” x 5/8” x 18’ 6”
100mm x 16mm x 5650mm

NON-STANDARD

2.5" SELF-MATING SLAT - KESM6516*

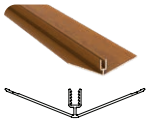
2 9/16” x 5/8” x 18’ 6”
65mm x 16mm x 5650mm

NON-STANDARD

CORNER CLIP 135 DEG MALE - KECIECLM135

4” x 5/8” x 18’ 6”
100mm x 16mm x 5650mm

NON-STANDARD



CORNER CLIP 135 DEG FEMALE - KECIECLF135

4” x 5/8” x 18’ 6”
100mm x 16mm x 5650mm

NON-STANDARD

Non-Standard profiles may be subject to minimum order quantities and/or longer lead times.
*Metric dimensions are exact. Imperial dimensions are approximate.

Our cladding provides the option for top-down installation which is faster, reducing labor time and costs.

Durable and strong design makes care and maintenance a breeze. Bottom-up installation is also optional with our interlocking cladding.

HORIZONTAL REVEAL

HORIZONTAL NO REVEAL

VERTICAL NO REVEAL

VERTICAL REVEAL

Wall Cladding

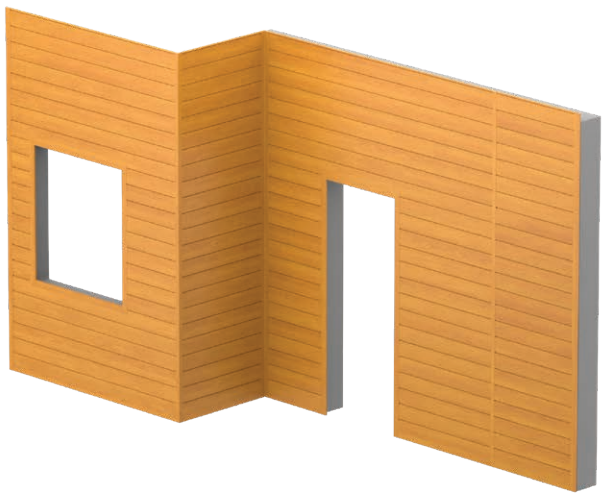
TOP DOWN INSTALLATION

PROFILES

1. KEDSTRADJ – Starter
2. KEC150 – 6" Cladding
3. KECFBF – Flashing Base
4. KECFTTLM – Top Clip Large
5. KECIECF – Corner Clip Female
6. KECIECLM – Corner Clip Male
7. KAOCC45 – Cladding Clip

Finish Shown: Tassie Oak

Wall Cladding | **Assembly View**



CLADDING – AUSTRALIAN CEDAR

SOFFITS – IROKO, TEAK BROWN, KWILA

CLADDING – SPOTTED GUM

SOFFITS – KWILA

KNOTWOOD IS COMMITTED TO MAKING A PRODUCT THAT IS **CLEANER**, **GREENER** AND **BETTER** FOR THE ENVIRONMENT.

Choosing a material with sustainability in mind is paramount. Aluminum is safe, ecologically sensible, lightweight yet extremely strong, and **100% recyclable**. Knotwood uses VOC-free coatings and lead-free finishes, resulting in a smaller environmental footprint. Knotwood is a **LEED-certified green building material** which means lower energy costs. Knotwood remains committed to ecologically responsible production processes.

KNOTWOOD™
ARCHITECTURAL SYSTEMS

LIMITED LIFETIME WARRANTY*

Knotwood is engineered and tested for strength and durability. The coating technologies used on Knotwood products meet recognized standards for gloss retention, color uniformity, weathering durability, humidity resistance, impact resistance and chemical resistance.

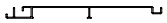
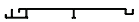
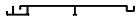
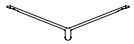
*Knotwood expressly warrants for a limited lifetime that its aluminum products are free from manufacturing defects in material or workmanship when installed according to Knotwood specifications and properly maintained.The warranty provides 15-year coverage for Knotwood finishes, including checking/cracking, chalking, color change, gloss retention and adhesion of finish. Includes checking/cracking, chalking, color change, gloss retention and adhesion of finish.

The full warranty details are provided at www.knotwood.com.

Warranty posted on www.knotwood.com will be in effect as of October, 2018 and will supersede any previous warranty policies or references to the warranty in other printed materials.

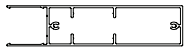
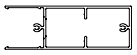
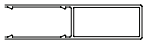
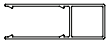
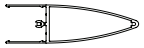
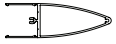
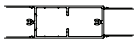
PROFILE INDEX

Cladding + Soffits

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
BOARDS	8"			KEC200	8" x 5/8" x 18' 6"	200mm x 16mm x 5650mm	
	6"			KEC150	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
	6" Vented			KECV150	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
	4"			KEC100	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	
POSTS + SLATS	6" Self-Mating Slat			KESM15016	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
	4" Self-Mating Slat			KESM10016	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	
	2.5" Self-Mating Slat			KESM6516*	2 9/16" x 5/8" x 18' 6"	65mm x 16mm x 5650mm	
STARTER				KEDSTRADJ	1 5/8" x 5/8" x 18' 6"	42mm x 16mm x 5650mm	✓
TRIMS + ACCESSORIES	Flashing Base			KECFBF	2 3/4" x 5/8" x 18' 6"	70mm x 16mm x 5650mm	✓
	Top Clip Large			KECFTTLM	2 5/8" x 5/8" x 18' 6"	65mm x 16mm x 5650mm	✓
	Corner Clip Male			KECIECLM	2" x 2" x 18' 6"	50mm x 50mm x 5650mm	✓
	Corner Clip Female			KECIECF	1 3/4" x 1 3/4" x 18' 6"	45mm x 45mm x 5650mm	✓
	Cladding Clip			KAOCC45	1 3/4"	45mm	✓
	Corner Clip 135 Deg Male			KECIECLM135	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	
	Corner Clip 135 Deg Female			KECIECLF135	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	
JOINERS	Top Joiner			KECTJM	2" x 5/8" x 18' 6"	50mm x 16mm x 5650mm	✓
	Bottom Joiner			KECJBF	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	✓

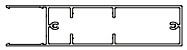
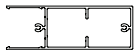
Non-Standard profiles may be subject to minimum order quantities and/or longer lead times. *Metric dimensions are exact. Imperial dimensions are approximate.

Battens

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
BATTENS	2" x 8"			KEB20050F	2" x 8" x 18' 6"	200mm x 50mm x 5650mm	✓
	2" x 6"			KEB15050F	2" x 6" x 18' 6"	150mm x 50mm x 5650mm	✓
	2" x 4"			KEB10050F	2" x 4" x 18' 6"	100mm x 50mm x 5650mm	✓
	2" x 2"			KEB5050F	2" x 2" x 18' 6"	50mm x 50mm x 5650mm	✓
	1" x 6"			KEB15025F	1" x 6" x 18' 6"	25mm x 150mm x 5650mm	
	1" x 4"			KEB10025F	1" x 4" x 18' 6"	25mm x 100mm x 5650mm	
	1" x 3"			KEB7525F	1" x 3" x 18' 6"	25mm x 75mm x 5650mm	
	1" x 2"			KEB5025F	1" x 2" x 18' 6"	25mm x 50mm x 5650mm	
	2" x 8" Elliptical			KEB20050FE	2" x 8" x 18' 6"	50mm x 200mm x 5650mm	
	2" x 6" Elliptical			KEB15050FE	2" x 6" x 18' 6"	50mm x 150mm x 5650mm	
BASES	2"			KEB5050M	2" x 2" x 18' 6"	50mm x 50mm x 5650mm	✓
	1"			KEB5025M	1" x 2" x 18' 6"	22mm x 48mm x 5650mm	
JOINERS	2" x 6"			KEBJ15050	2" x 6" x 18' 6"	50mm x 150mm x 5650mm	
	2" (45 Deg)			KEBJ45D	2" x 2" x 18' 6"	50mm x 50mm x 5650mm	
	2"			KEBJ5050	2" x 2" x 18' 6"	50mm x 50mm x 5650mm	
ENDCAPS	2" x 8" Batten Cap			KAEC20050-R	2" x 8"	50mm x 200mm	✓
	2" x 6" Batten Cap			KAEC15050-R	2" x 6"	50mm x 150mm	✓
	2" x 4" Batten Cap			KAEC10050-R	2" x 4"	50mm x 100mm	✓
	2" x 2" Batten Cap			KAEC5050-R	2" x 2"	50mm x 50mm	✓

Non-Standard profiles may be subject to minimum order quantities and/or longer lead times. *Metric dimensions are exact. Imperial dimensions are approximate.

Fencing + Screens

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
BATTENS	2" x 8"			KEB20050F	2" x 8" x 18' 6"	200mm x 50mm x 5650mm	✓
	2" x 6"			KEB15050F	2" x 6" x 18' 6"	150mm x 50mm x 5650mm	✓
	2" x 4"			KEB10050F	2" x 4" x 18' 6"	100mm x 50mm x 5650mm	✓
	2" x 2"			KEB5050F	2" x 2" x 18' 6"	50mm x 50mm x 5650mm	✓
BASE	2"			KEB5050M	2" x 2" x 18' 6"	50mm x 50mm x 5650mm	✓
POSTS + SLATS	6" Slat			KES15016	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
	4" Slat			KES10016	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	✓
	2.5" Slat			KES6516*	2 9/16" x 5/8" x 18' 6"	65mm x 16mm x 5650mm	✓
	1.5" Slat			KES3816	1 1/2" x 5/8" x 18' 6"	38mm x 16mm x 5650mm	✓
	6" Self-Mating Slat			KESM15016	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
	4" Self-Mating Slat			KESM10016	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	
	2.5" Self-Mating Slat			KESM6516*	2 9/16" x 5/8" x 18' 6"	65mm x 16mm x 5650mm	
	1.5" Self-Mating Slat			KESM3816	1 1/2" x 5/8" x 18' 6"	38mm x 16mm x 5650mm	
	4" x 4" Post			KEGS100100	4" x 4" x 18' 6"	100mm x 100mm x 5650mm	✓
	2 1/2" x 2 1/2" Post			KEGS6565*	2 9/16" x 2 9/16" x 18' 6"	65mm x 65mm x 5650mm	✓
	2-Way Post			KESP2W6565*	2 9/16" x 2 9/16" x 18' 6"	65mm x 65mm x 5650mm	✓
	1-Way Post / Top Rail			KESP1W6525*	2 9/16" x 1" x 18' 6"	65mm x 25mm x 5650mm	✓
	Corner Post			KESP2C6565EF*	2 9/16" x 2 9/16" x 18' 6"	65mm x 65mm x 5650mm	✓

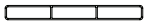
Non-Standard profiles may be subject to minimum order quantities and/or longer lead times. *Metric dimensions are exact. Imperial dimensions are approximate.

Fencing + Screens, cont.

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
JOINERS	2" x 6"			KEBJ15050	2” x 6" x 18’ 6”	50mm x 150mm x 5650mm	
	2" (45 Deg)			KEBJ45D	2” x 2" x 18’ 6”	50mm x 50mm x 5650mm	
	2"			KEBJ5050	2” x 2" x 18’ 6”	50mm x 50mm x 5650mm	
U-CHANNEL				KESP3030	1 ¼” x 1 ¼” x 18’ 6”	30mm x 30mm x 5650mm	✓
SMALL INFILL				KESINFS	¼” x ¾” x 18’ 6”	20mm x 6mm x 5650mm	✓
ENDCAPS	4" End Cap			KAEC100100-R	4” x 4"	100mm x 100mm	✓
	2" x 8" Batten Cap			KAEC20050-R	2” x 8"	50mm x 200mm	✓
	2" x 6" Batten Cap			KAEC15050-R	2” x 6"	50mm x 150mm	✓
	2" x 4" Batten Cap			KAEC10050-R	2” x 4"	50mm x 100mm	✓
	2" x 2" Batten Cap			KAEC5050-R	2” x 2"	50mm x 50mm	✓
	1-Way Post Cap			KAEC6525-R*	2 9/16” x 1"	65mm x 25mm	✓
	2-Way Post Cap			KAEC6565-R*	2 9/16” x 2 9/16”	65mm x 65mm	✓
	3030 U-Channel End Cap			KAEC3030-R	1 ¼” x 1 ¼”	30mm x 30mm	✓
ACCESSORIES	Louvered Slat End Cap			KAECL1-P	Fits 2.5" slat only	Fits 65mm slat only	✓
	Louvered Slat End Cap 2			KAECL2-P	Fits 2.5" slat only	Fits 65mm slat only	✓
	Spacers – 100 pack			8MM - KASP08 16MM - KASP16 24MM - KASP24A	N/A	8MM 16MM 24MM	✓

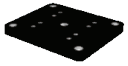
Non-Standard profiles may be subject to minimum order quantities and/or longer lead times. *Metric dimensions are exact. Imperial dimensions are approximate.

Enclosures

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
POSTS + SLATS	6" Slat			KES15016	6” x 5/8” x 18’ 6”	150mm x 16mm x 5650mm	✓
	4" Slat			KES10016	4” x 5/8” x 18’ 6”	100mm x 16mm x 5650mm	✓
	2.5" Slat			KES6516*	2 9/16” x 5/8” x 18’ 6”	65mm x 16mm x 5650mm	✓
	1.5" Slat			KES3816	1 1/2” x 5/8” x 18’ 6”	38mm x 16mm x 5650mm	✓
	4" x 4" Post			KEGS100100	4” x 4” x 18’ 6”	100mm x 100mm x 5650mm	✓
	2 1/2" x 2 1/2" Post			KEGS6565*	2 9/16” x 2 9/16” x 18’ 6”	65mm x 65mm x 5650mm	✓
	2-Way Post			KESP2W6565*	2 9/16” x 2 9/16” x 18’ 6”	65mm x 65mm x 5650mm	✓
	1-Way Post / Top Rail			KESP1W6525*	2 9/16” x 1” x 18’ 6”	65mm x 25mm x 5650mm	✓
	Corner Post			KESP2C6565EF*	2 9/16” x 2 9/16” x 18’ 6”	65mm x 65mm x 5650mm	✓
U-CHANNEL				KESP3030	1 1/4” x 1 1/4” x 18’ 6”	30mm x 30mm x 5650mm	✓
LARGE INFILL				KESINFL	1/4” x 1 1/2” x 18’ 6”	38mm x 6mm x 5650mm	✓
SMALL INFILL				KESINFS	1/4” x 3/4” x 18’ 6”	20mm x 6mm x 5650mm	✓
END CAPS + ACCESSORIES	4" End Cap			KAEC100100-R	4” x 4"	100mm x 100mm	✓
	2-Way Post Cap			KAEC6565-R*	2 9/16" x 2 9/16"	65mm x 65mm	✓
	Large Corner Stake			KAGCSFL	5" x 5" x 2 1/2"	127mm x 127mm x 64mm	✓
	Small Corner Stake			KAGCSFS	3 3/8” x 3 3/8” x 1 11/16”	86mm x 86mm x 43mm	✓
SPACERS PACK OF 100				8MM - KASP08 16MM - KASP16 24MM - KASP24A	N/A	8MM 16MM 24MM	✓

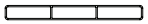
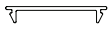
*Metric dimensions are exact. Imperial dimensions are approximate.

Railings

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
POSTS, SLATS + HANDRAILS	6" Slat			KES15016	6” x 5/8” x 18’ 6”	150mm x 16mm x 5650mm	✓
	4" Slat			KES10016	4” x 5/8” x 18’ 6”	100mm x 16mm x 5650mm	✓
	2.5" Slat			KES6516*	2 9/16” x 5/8” x 18’ 6”	65mm x 16mm x 5650mm	✓
	1.5" Slat			KES3816	1 1/2” x 5/8” x 18’ 6”	38mm x 16mm x 5650mm	✓
	Handrail Base			KESBF	2 1/2” x 1” x 18’ 6”	66mm x 27mm x 5650mm	✓
	Handrail Oval			KESBTFO	3” x 1 1/4” x 18’ 6”	75mm x 30mm x 5650mm	✓
	Handrail Rectangular			KESBTFR	3” x 1 1/8” x 18’ 6”	75mm x 30mm x 5650mm	✓
	2-Way Post			KESP2W6565*	2 9/16” x 2 9/16” x 18’ 6”	65mm x 65mm x 5650mm	✓
	1-Way Post / Top Rail			KESP1W6525*	2 9/16” x 1” x 18’ 6”	65mm x 25mm x 5650mm	✓
	Corner Post			KESP2C6565EF*	2 9/16” x 2 9/16” x 18’ 6”	65mm x 65mm x 5650mm	✓
U-CHANNEL				KESP3030	1 1/4” x 1 1/4” x 18’ 6”	30mm x 30mm x 5650mm	✓
SMALL INFILL				KESINFS	1/4” x 3/4” x 18’ 6”	20mm x 6mm x 5650mm	✓
END CAPS + ACCESSORIES	1-Way Post Cap			KAEC6525-R*	2 9/16” x 1"	65mm x 25mm	✓
	2-Way Post Cap			KAEC6565-R*	2 9/16” x 2 9/16”	65mm x 65mm	✓
	Routed Cap - Rectangular			KAEC75RH-R	3” x 1”	75mm x 25mm	✓
	Routed Cap - Oval			KAEC75RO-R	3” x 1”	75mm x 25mm	✓
	Post Base Plate			KAOPBP65	N/A	N/A	✓

*Metric dimensions are exact. Imperial dimensions are approximate.

Gates

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
POSTS + SLATS	6" Slat			KES15016	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
	4" Slat			KES10016	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	✓
	2.5" Slat			KES6516*	2 9/16" x 5/8" x 18' 6"	65mm x 16mm x 5650mm	✓
	1.5" Slat			KES3816	1 1/2" x 5/8" x 18' 6"	38mm x 16mm x 5650mm	✓
	2-Way Gate Connector Post			KESP2W5030	2 1/2" x 1 1/2" x 18' 6"	66mm x 44mm x 5650mm	✓
	4" x 4" Post			KEGS100100	4" x 4" x 18' 6"	100mm x 100mm x 5650mm	✓
	2 1/2" x 2 1/2" Post			KEGS6565*	2 9/16" x 2 9/16" x 18' 6"	65mm x 65mm x 5650mm	✓
	2-Way Post			KESP2W6565*	2 9/16" x 2 9/16" x 18' 6"	65mm x 65mm x 5650mm	✓
	1-Way Post / Top Rail			KESP1W6525*	2 9/16" x 1" x 18' 6"	65mm x 25mm x 5650mm	✓
	Corner Post			KESP2C6565EF*	2 9/16" x 2 9/16" x 18' 6"	65mm x 65mm x 5650mm	✓
LARGE GATE FRAME				KESGF10050	4" x 2" x 18' 6"	100mm x 50mm x 5650mm	✓
SMALL GATE FRAME				KESGF6640	2 1/2" x 1 1/2" x 18' 6"	66mm x 40mm x 5650mm	✓
U-CHANNEL				KESGF6640	2 1/4" x 1 1/4" x 18' 6"	30mm x 30mm x 5650mm	✓
LARGE INFILL				KESINFL	1/4" x 1 1/2" x 18' 6"	38mm x 6mm x 5650mm	✓
SMALL INFILL				KESINFS	1/4" x 3/4" x 18' 6"	20mm x 6mm x 5650mm	✓
END CAPS + ACCESSORIES	4" End Cap			KAEC100100-R	4" x 4"	100mm x 100mm	✓
	2-Way Post Cap			KAEC6565-R*	2 9/16" x 2 9/16"	65mm x 65mm	✓
	Large Corner Stake			KAGCSFL	5" x 5" x 2 1/2"	127mm x 127mm x 64mm	✓
	Small Corner Stake			KAGCSFS	3 3/8" x 3 3/8" x 1 11/16"	86mm x 86mm x 43mm	✓

*Metric dimensions are exact. Imperial dimensions are approximate.

Gates, cont.

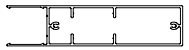
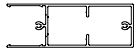
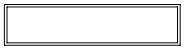
			PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
ACCESSORIES	Sliding Gate Track		KESGT80	4" x 3/4" x 18'	86mm x 86mm x 43mm	✓
	Sliding Gate Pack		KAGSP	N/A	N/A	✓
	Safetech HD Adjustable Gate Hinge (Pair)		KASHH-135LS	N/A	N/A	✓
	Safetech HD Adjustable Tension Gate Hinge (Pair)		KASHG-90	N/A	N/A	✓
	Safetech Viper Gravity Lock		KAGSLV-VIPER	N/A	N/A	✓
	Spacers Pack of 100		8MM - KASP08 16MM - KASP16 24MM - KASP24A	N/A	8MM 16MM 24MM	✓

Decking

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
BOARDS	6" Deck Board			KED150	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
	6" Self-Mating Slat			KESM15016	6" x 5/8" x 18' 6"	150mm x 16mm x 5650mm	✓
STARTER				KEDSTRADJ	1 5/8" x 5/8" x 18' 6"	42mm x 16mm x 5650mm	✓
FIXING ANGLE				KEDFA5050	2" x 2" x 18' 6"	42mm x 50mm x 5650mm	✓
CLIPS + BASES	Top Clip Large			KECFTTLM	2 5/8" x 5/8" x 18' 6"	65mm x 16mm x 5650mm	✓
	Flashing Base			KECFBF	2 3/4" x 5/8" x 18' 6"	70mm x 16mm x 5650mm	✓
SMALL INFILL				KESINFS	1/4" x 3/4" x 18' 6"	20mm x 6mm x 5650mm	✓
JOINERS	Top Joiner			KECTJM	2" x 5/8" x 18' 6"	50mm x 16mm x 5650mm	✓
	Bottom Joiner			KECJBF	4" x 5/8" x 18' 6"	100mm x 16mm x 5650mm	✓

*Metric dimensions are exact. Imperial dimensions are approximate.

Pergolas

				PART NUMBER	DIMENSIONS (in)	DIMENSIONS (mm)	STANDARD PROFILE
BATTENS	2" x 8"			KEB20050F	2” x 8" x 18’ 6”	200mm x 50mm x 5650mm	✓
	2" x 6"			KEB15050F	2” x 6" x 18’ 6”	150mm x 50mm x 5650mm	✓
	2" x 4"			KEB10050F	2” x 4" x 18’ 6”	100mm x 50mm x 5650mm	✓
	2" x 2"			KEB5050F	2” x 2" x 18’ 6”	50mm x 50mm x 5650mm	✓
2" BATTEN BASE				KEB5050M	2” x 2" x 18’ 6”	50mm x 50mm x 5650mm	✓
BEAMS + POSTS	2" x 8" Beam			KEGR20050	2” x 8” x 18’ 6”	200mm x 50mm x 5650mm	✓
	2" x 6" Beam			KEGR15050	2” x 6” x 18’ 6”	150mm x 50mm x 5650mm	
	2" x 4" Beam			KEGR10050	2” x 4” x 18’ 6”	100mm x 50mm x 5650mm	
	4" x 4" Post			KEGS100100	4” x 4” x 18’ 6”	100mm x 100mm x 5650mm	✓
ENDCAPS	4" End Cap			KAEC100100-R	4” x 4"	100mm x 100mm	✓
	2" x 8" Batten Cap			KAEC20050-R	2” x 8"	50mm x 200mm	✓
	2" x 6" Batten Cap			KAEC15050-R	2” x 6"	50mm x 150mm	✓
	2" x 4" Batten Cap			KAEC10050-R	2” x 4"	50mm x 100mm	✓
	2" x 2" Batten Cap			KAEC5050-R	2” x 2"	50mm x 50mm	✓

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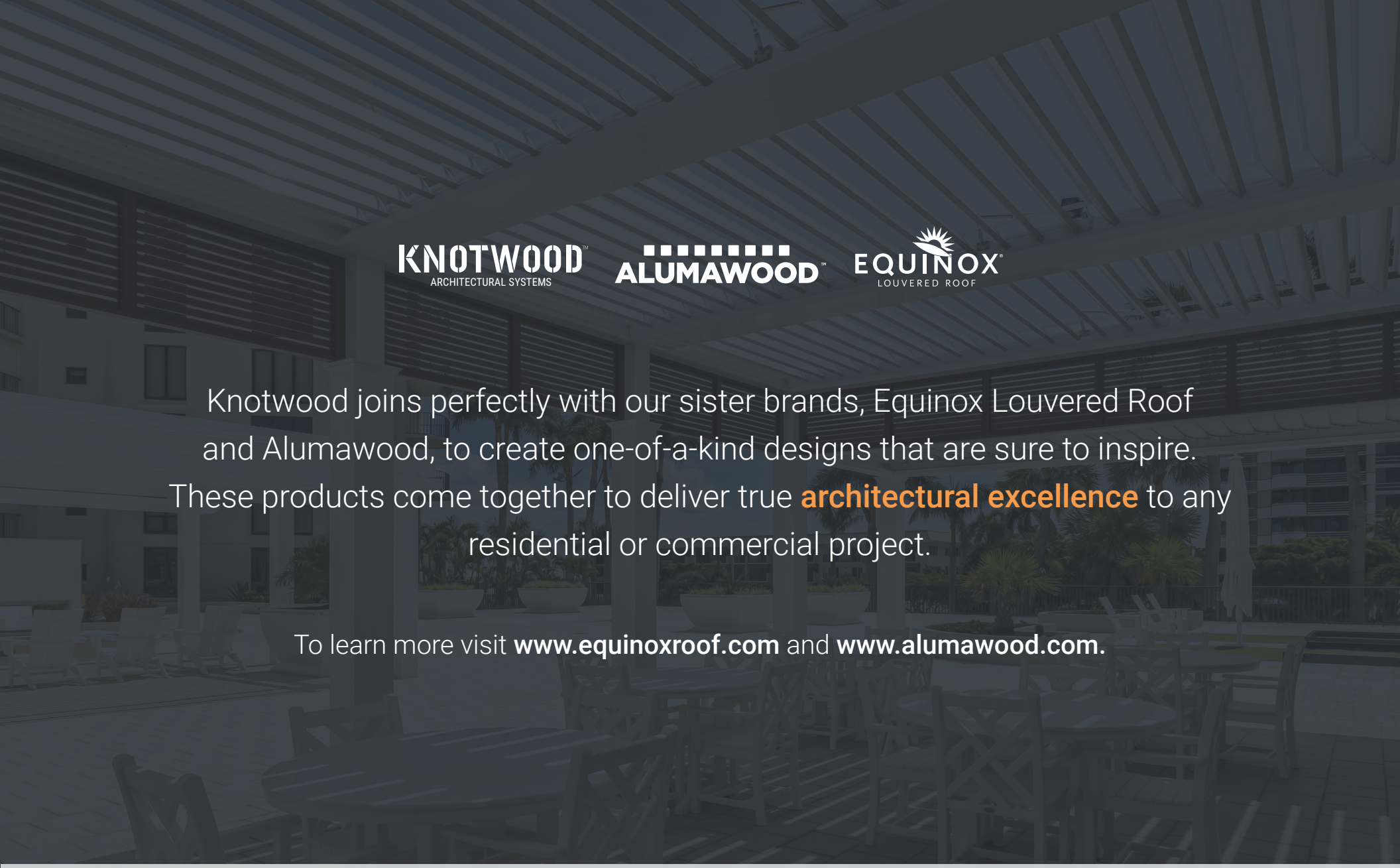

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NEW LP® SMARTSIDE® NICKEL GAP SIDING

LP® SmartSide® Nickel Gap Siding offers a modern profile using SmartGuard technology. Nickel Gap features locking flanges with a fastener groove that hides nails. This also allows for the siding to be stacked and tapped into place creating a gap between the boards about the size of a nickel.

- Features include a nominal 1/2" thickness and 7" reveal.
- Can be installed vertically or horizontally
  - Local/regional building codes should be followed
- Install with LP SmartFlash™ Metal Pan Flashing accessory (100 pieces/box; only available in primed) or comparable alternative to support a complete system
- Backed by an industry-leading 5/50-year limited warranty

DESCRIPTION	LENGTH	NOMINAL WIDTH	NOMINAL THICKNESS	WEIGHT PER PIECE	SQ. FT. PER UNIT	PIECES PER UNIT	PID
LP® SmartSide® Nickel Gap Siding	16’	8”	1/2”	Approx. 16 lbs	1920 ft (surface area)	180	45545
LP SmartFlash™ Metal Pan Flashing	10"	4”	0.024”	-	-	-	46180

LP® SmartSide® 5/50 YEAR LIMITED WARRANTY

LP SmartSide® TRIM & SIDING

For more information, visit LPCorp.com/SmartSide

⚠ WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.

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NEW LP® SMARTSIDE® EXPERTFINISH® NICKEL GAP SIDING

LP® SmartSide® ExpertFinish® Nickel Gap Siding offers a modern profile using SmartGuard technology. Nickel Gap features locking flanges with a fastener groove that hides nails. This also allows for the siding to be stacked and tapped into place creating a gap between the boards about the size of a nickel.

- Available in all 16 LP® SmartSide® ExpertFinish® Trim & Siding colors
- ~~Cedar or~~ brushed smooth texture
- Features a 1/2" thickness and 7" reveal
- Can be installed vertically or horizontally
  - Local/regional building codes should be followed
- Backed by an industry-leading 5/15/50-year limited warranty

DESCRIPTION	LENGTH	NOMINAL WIDTH	NOMINAL THICKNESS	WEIGHT PER PIECE	SQ. FT. PER UNIT	PIECES PER UNIT
LP® SmartSide® ExpertFinish® Nickel Gap Siding	16’	8”	1/2”	Approx. 16.7lbs	768 ft (surface area)	72

LP® SmartSide® ExpertFinish® 5/15/50 YEAR LIMITED WARRANTY

LP SmartSide® ExpertFinish® TRIM & SIDING

For more information, visit LPCorp.com/ExpertFinish

⚠ WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust or use a dust mask or other safeguards for personal protection. For more information go to www.P65Warnings.ca.gov/wood.

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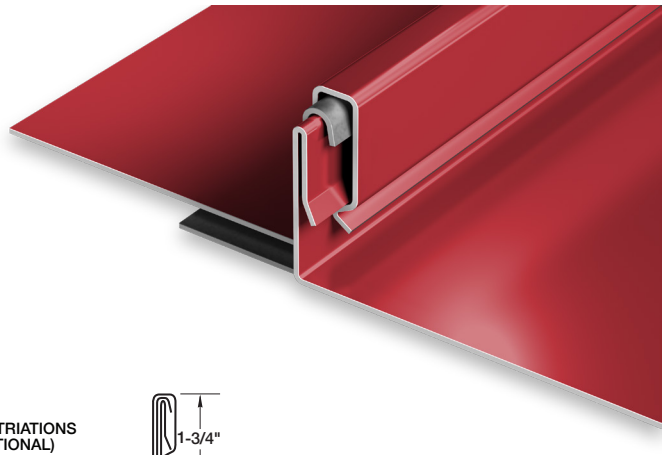
SNAP-CLAD PANEL

MATERIALS

.032 aluminum 24 gauge steel
.040 aluminum 22 gauge steel

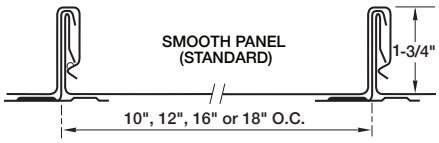
SPECS

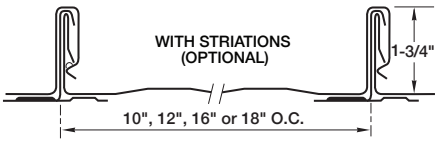
10", 12", 16" or 18" O.C. 1-3/4" High

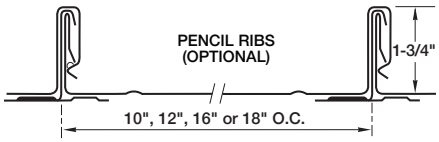


UL-90

ICC ES







PRODUCT FEATURES

- Architectural/structural panel
- Factory-applied sealant available
- Continuous interlock
- Labor-saving one-piece design
- Pencil ribs upon request
- Striations upon request
- Factory eave notching available
- 35-year non-prorated finish warranty
- Maximum factory-produced panel length is 64' (check w/factory for longer lengths)
- Weathertightness warranty available
- 48 stocked colors (24 gauge steel)
- 17 Stocked colors (22 gauge steel)
- 34 stocked colors (.032 aluminum)
- 26 stocked colors (.040 aluminum)
- Panels available in Galvalume Plus

UL CLASSIFICATION

- UL-580 Class 90 wind uplift
- UL-1897 wind uplift
- UL-790 Class A fire rated
- UL-263 fire resistance rated
- UL-2218 impact resistance rated
- UL-90 rated aluminum panel up to 16" O.C.
- UL-90 rated steel panel up to 18" O.C.

ASTM TESTS

- ASTM E1592 tested
- ASTM E283/1680 tested
- ASTM E331/1646 tested

FLORIDA BUILDING & MIAMI-DADE PRODUCT APPROVALS

Please refer to pac-clad.com or your local factory for specific product approval numbers for Snap-Clad.

Note: UL 90 is available on steel panels up to 18" on center, and on aluminum panels up to 16" on center.

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PLAN COMMISSION STAFF REPORT

TO: Village of Mukwonago Plan Commission

FROM: Peter Gesch, P.E., Ruekert & Mielke, Inc.

REPORT DATE: June 30, 2025

MEETING DATE: July 8, 2025, 6:30 P.M.

SUBJECT: Café Bliss – Site Plan & Architectural Review and Conditional Use

BASIC INFORMATION	
Project:	Café Bliss
Applicant:	Campbell Construction & Kevin Bird, authorized representatives for Café Bliss
Consulting Engineer:	Endpoint Solutions
Consulting Architect:	Haag Muller, Inc.
Request:	Site Plan & Architectural Review & Conditional Use
Staff Recommendation:	Approve with Conditions

PARCEL DATA/CHARACTERISTICS	
Tax Key:	MUKV1976146 and MUKV1976143
Acreage:	0.71 Acres Combined
Current Use:	Vacant
Proposed Use:	Restaurant/Cafe w/ Drive-Thru & Outdoor Seating
Reason for Request:	Development of new Restaurant/Café Facility
Land Use Classification:	Business
Zoning Classification:	B-2 – General Business and Multi-Purpose Perimeter

Project Summary & Overview

Café Bliss intends to develop two parcels at the northern corner of S. Rochester Street and Meacham Street. Improvements include a café facility, drive-through, outdoor seating, and on-site parking as required by the municipal zoning code. The café meets the requirements of a permitted use in the B-2 District and Multi-Purpose Perimeter overlay, however outdoor seating and a drive-through are conditional uses.

Staff have been coordinating with Café Bliss representatives for improvements to Meacham Street and Pleasant Lane to facilitate proper public access and orderly development of the surrounding area. There are right-of-way acquisitions and improvements that need to be made prior to construction beginning and the Village is looking into ways to facilitate the improvements in a timely fashion. The site layout is

dependent on the improvements to Meacham Street and Pleasant Lane and temporary access can be coordinated if needed.

The combination of on-site parking and available adjacent street parking is adequate for the proposed dining facility area. Based on the required ordinance section, with the available seating areas and approximately 8-staff members, they would need around 30 parking stalls on-site. They are providing 25-parking spaces on-site and street parking is available on S. Rochester, Jefferson, Meacham to the west, and future improvements on Pleasant Lane. Adequate stacking is provided in the drive-through lane with space for 8-9 vehicles.

Storm water management is not required because the impervious area is less than 0.5 acres.

The approvals include conditions that a CSM be completed and approved prior to construction, which will incorporate potential right-of-way changes.

Conditional Use Request

Attached to this staff report is the justification questions for a Conditional Use Permit that have been answered by the applicant. The Planning Commission shall take these into consideration when making their decisions.

Conditional Use Process / Findings

The established review procedures are that the Plan Commission shall hold a public hearing and make a recommendation to the Village Board whom makes the final decision.

Following the close of the public hearing, the Plan Commission may recommend (1) approval, (2) approval with conditions, or (3) denial.

If approval is recommended, the Plan Commission can recommend conditions deemed necessary to protect public health, safety, and welfare. The Plan Commission, in passing on the matter, will need to make the following determinations consistent with Section 100-354 of Mukwonago's Zoning Regulations:

1. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
2. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
3. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts. In making this determination, the Plan Commission and Village Board must determine whether the petitioner has demonstrated there are no adverse effects on surrounding properties or that potentially adverse effects have been eliminated or reduced to an acceptable level. Approaches that could be employed to mitigate potentially adverse effects will depend on the particular circumstances but may include:
    a. Adjusting the location of the use, or parts thereof, on the subject property;
    b. Limiting hours of operation;
    c. Limiting the size or scope of the use, or parts thereof;
    d. Controlling how the use is managed on an ongoing basis;

e. Providing additional landscaping;
f. Providing additional screening; and
g. Limiting operations conducted out-of-doors, if otherwise allowed

4. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
5. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.
6. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

In addition, the property owner / tenant has shown compliance with the requirements set forth in the Village's zoning regulations for specified use.

The Village Board will carefully review the recommendation of the Plan Commission and concurs with the Plan Commission's findings set forth above, provided the conditional use is operated pursuant to the conditions of approval set forth in this order.

These findings are incorporated into the draft conditional use order which is attached.

The Plan Commission shall approve a conditional use application if the terms and conditions of the zoning regulations are met. However, in the event the terms and conditions of the ordinance are not consented to and complied with by the applicant, the Commission may deny the application. In addition, the Commission may deny the application or place conditions on it if substantial evidence, as defined in §62.23(7) Wis. Stats. is presented. That evidence must demonstrate the inability of the applicant to comply with or meet the conditions of the zoning regulations or that the conditions to be applied by the Plan Commission are necessary to protect the public health, safety or welfare of the community based upon the presentation of substantial evidence. Potential motion for approval to Recommend to the Village Board approval of the project as a conditional use as set forth in the attached conditional use order as drafted, provided the Village Attorney approves the final form of the conditional use order.

Staff Review

Engineering:	Engineering improvements may need minor modifications to be coordinated with ultimate Meacham Street and Pleasant Lane. Any minor modifications will not impact the overall site layout.
Public Works	No comments at this time.
Utilities	Utility connections will need to be coordinated with the ultimate improvements for Meacham Street. Utilities will coordinate with applicant to modify utility connections and possible locations, if needed.
Police	No comments at this time.

Fire:

- A WB-50 turning template should be run through the parking lot area of the site but does not need to be run through the drive-thru due to access of S. Rochester Street.
- Water main loop through Pleasant Lane will help with hydrant spacing around development.
- If occupancy is under 99 persons, no suppression is required.
- Class 1 hood with suppression is required.

Building Inspection: No comments at this time.

Planning:

- All minimum setback requirements are met.
- Adequate landscaping is provided.
- Flat roof requires plan commission approval. Approval of the SPAR resolution renders the necessary approval.
- Drawings indicate peaked roof section will be a green color. B-2 zoning requirements indicate roofs must be gray, black or dark brown.
- Photometric plan shows greater than zero footcandles beyond the northern, eastern, and southern property lines. Lighting plan should be revised to produce zero footcandles at all property lines.
- Max light mounting height is 25-FT.
- Plan Commission should review and make decision on proposed mural on parking lot side of building.

Recommended Action

Conditional Use Permit
Staff recommends the Planning Commission recommend to the Village Board approval of a conditional use permit as set forth in the provided resolution.

To – Grant a Conditional Use Permit for a drive-thru facility with the following on-going conditions deemed necessary to protect the health, safety, and welfare:

1. Ongoing conditions of approval. The following conditions shall constitute an ongoing obligation:
    a. Any modifications to the site, buildings, site improvements, shall require the conditional use application being updated.
2. The following conditions are also true and are consistent with Section 100-354 of Mukwonago's zoning regulations:
    a. The establishment, maintenance or operation of the conditional use will not be detrimental to or endanger the public health, safety or welfare of the Village.
    b. The uses, values and enjoyment of other property in the surrounding neighborhood that are already permitted shall be, in no foreseeable manner, substantially impaired or diminished by the establishment, maintenance or operation of the conditional use.
    c. The establishment, maintenance or operation of the conditional use is compatible with surrounding properties, whether in the same or different zoning districts.

d. The establishment of the conditional use will not impede the normal and ordinary development and improvement of the surrounding property for uses permitted within the district and/or which are consistent with the standards in the Comprehensive Plan.
e. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.
f. Adequate measures have been taken or will be taken providing ingress and egress to minimize traffic congestion on public streets so as not to diminish the level of service of any intersection which is impacted by traffic arising from the conditional use.

Site Plan and Architectural Review
Staff Recommends the Planning Commission Approve a resolution for the Site Plan and Architectural Review, as set forth in the attached resolution.

Attachments

1. Application and Development Information
2. Plans and Site Drawings

VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES

PC RESOLUTION NO. 2025-17

A RESOLUTION FOR A SITE PLAN AND ARCHITECTURAL REVIEW FOR CAFÉ BLISS, PARCEL MUKV1976146 AND MUKV1976143

WHEREAS, pursuant to Section 100-601 of the Zoning Code, an application for a site plan and architectural review has been filed for the approval of Café Bliss with a Drive-Through Facility, which application was filed in the office of the Village Clerk, Village of Mukwonago, Wisconsin, and

WHEREAS, the application has been submitted by Campbell Construction and Kevin Bird, acting as authorized agents for Café Bliss, and

WHEREAS, the use is permitted and the drive-through facility is a conditional use within the B-2 Community Business District – in which the subject property is located, and

WHEREAS, the property is located within the Village Center Overlay Multi-Purpose Perimeter in which the proposed use is an allowable use and subject to additional conditions in the code, and

WHEREAS, improvements to Meachem Street and Pleasant Lane are being coordinated in conjunction with the development to provide proper public access, and

WHEREAS, Café Bliss is proposing on-site parking which will be supplemented by adjacent on-street parking on Pleasant Lane and S. Rochester Street to meet the minimum parking requirements, and

WHEREAS, the proposed layout and design substantially conform to the requirements and intent of the applicable Zoning Code sections.

NOW, THEREFORE, BE IT RESOLVED by the Plan Commission of the Village of Mukwonago, Wisconsin hereby approves the site plan and architectural review for Café Bliss, based upon the plans submitted to the Village.

NOW, THEREFORE, BE IT FURTHER RESOLVED the site plan and architectural review approval shall be subject to the following conditions:

1. Applicant shall draft and get approval of a CSM to combine the two lots that incorporates modifications to Meacham Street Right-of-Way, prior the issuance of permits.
2. Prior to any land disturbing activity, the applicant must submit a complete and final set of site construction plans to the Village and receive approval of said plans prior to issuance of any building permits. Plans shall include but are not limited to grading, utilities, utility calculations, erosion control, landscaping, lighting, building architecture, building materials and other plans as required. All Village department heads must verify in writing whether they have approved the final plans within their purview. Any outstanding

matters must be resolved to staff's satisfaction. Construction shall comply with any conditions of approval issued by staff.

3. A final erosion control plan shall be submitted for review and approval.
4. All required regulatory agency permits shall be received and provided to the Village prior to the start of construction.
5. Prior to any land-disturbing activity, a pre-construction meeting must be held with the applicant's representatives and primary contractors, and Village department heads and representatives. The applicant representative shall coordinate such meeting.
6. The applicant must obtain all required land disturbance permits within twelve months of this date, and start construction within six months of the date of building permit issuance and continue in good faith to completion.
7. Prior to any land-disturbing activity, the applicant must reimburse the Village for any outstanding charges and establish an escrow account with the Village as may be required.
8. The Applicant shall establish an escrow in the value of $10,000 prior to the start of construction.
9. The applicant must obtain all required building permits within twelve months of this date, and start construction within six months of the date of building permit issuance and continue in good faith to completion.
10. All work related to this project must comply with all project plans approved by the Village.
11. The developer must comply with all requirements related to impact fees imposed by the Village.
12. The developer shall comply with all parts of the Municipal Code as it relates to this project.
13. If the approved plans need to be revised to address any of the conditions of approval or to conform to Building and Fire Safety Codes, the Zoning Administrator and the Building Inspectors are authorized to approve minor modifications so long as the overall project elements remain unchanged. If they determine that the revision is substantial, the plans must be submitted to the Plan Commission for review and approval.
14. Trash enclosure shall be constructed per Village standards and plans submitted.
15. Refuse/Recycling Collection shall be contracted privately.
16. All lighting within the parking lot and building lighting shall be full cut off lighting and meet municipal standards. Building lighting shall not be direct light or the appearance of light towards adjoining properties. The Police Department or Zoning Administrator, after completion or any modification to the lighting in the future, may request adjustments. A final photometric lighting plan must be submitted and approved prior to construction.
17. Landscaping shall be installed per Village standards and approved plans.
18. The applicant shall comply with the requirements of the Village Utility Department pertaining to sewer and water services and coordinate connections in conjunction with adjacent public improvements.
19. Any future modification to the site such as modification of parking, lighting, grading, signage, fences, etc. may require Site Plan and Architectural Review.

Passed and adopted by the Village of Mukwonago Plan Commission this 8th day of July, 2025.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Shay Zerfas, Deputy Clerk-Treasurer

PLAN COMMISSION STAFF REPORT

TO:	Village of Mukwonago Plan Commission
FROM:	Peter Gesch, P.E., Ruekert & Mielke, Inc.
REPORT DATE:	June 28, 2025
MEETING DATE:	July 8, 2025, 6:30 P.M.
SUBJECT:	Rezoning Multiple Parcels from R-1 to R-2

Project Summary & Overview

The Village Board approved Ordinance 999 on March 16, 2022 to rezone multiple parcels throughout the Village to better align the Village's zoning map with the Village's Comprehensive Plan and 2035 Land Use map. The intent was also to clean up multiple parcels that had incorrect zoning such as parcels zoned agricultural that had established development.

Several parcels on Eagle Lake Avenue and surrounding neighborhoods were rezoned from R-2 to R-1 because the comprehensive plan called for these parcels to be medium lot single family which is the R-1 zoning district classification as opposed to the R-2 single-family historical lot residential zoning district classification that is shown differently on the comprehensive plan land use map.

The lots in question are narrow and deep lots that have been established in the Village for a long time. Through recent building applications, staff have found discrepancies that make a large majority of these lots non-conforming under the R-1 zoning classification. The R-1 zoning classification requires a minimum lot width of 100-FT and the majority of the lots have a lot between 66-FT and 100-FT which fits the minimum lot width requirement of 66-FT for R-2 zoning. Additionally, the expanded side yard setbacks in the R-1 district limit the ability to feasibly construct while meeting the setback requirements on these lots.

There are some lots that meet the R-1 zoning district minimum lot requirements, however, by not rezoning all of the lots in this area back to R-2, the Village would be creating spot-zoned parcels which is not permitted.

Parcels & Addresses to be rezoned from R-1 to R-2:

1. MUKV1974979001 – 606 Meadowview Court
2. MUKV1974979002 – 612 Meadowview Court
3. MUKV1974979003 – 618 Meadowview Court
4. MUKV1974969 – 512 Bay Street
5. MUKV1974985 – 430 Eagle Lake Avenue
6. MUKV1974984 – 440 Eagle Lake Avenue
7. MUKV1974983 – 450 Eagle Lake Avenue
8. MUKV1974982 – 460 Eagle Lake Avenue
9. MUKV1974981 – 470 Eagle Lake Avenue
10. MUKV1974980 – 490 Eagle Lake Avenue
11. MUKV1974979004 – 500 Eagle Lake Avenue
12. MUKV1974970 – No Address
13. MUKV1974971 – 459 Eagle Lake Avenue
14. MUKV1974972 – 467 Eagle Lake Avenue

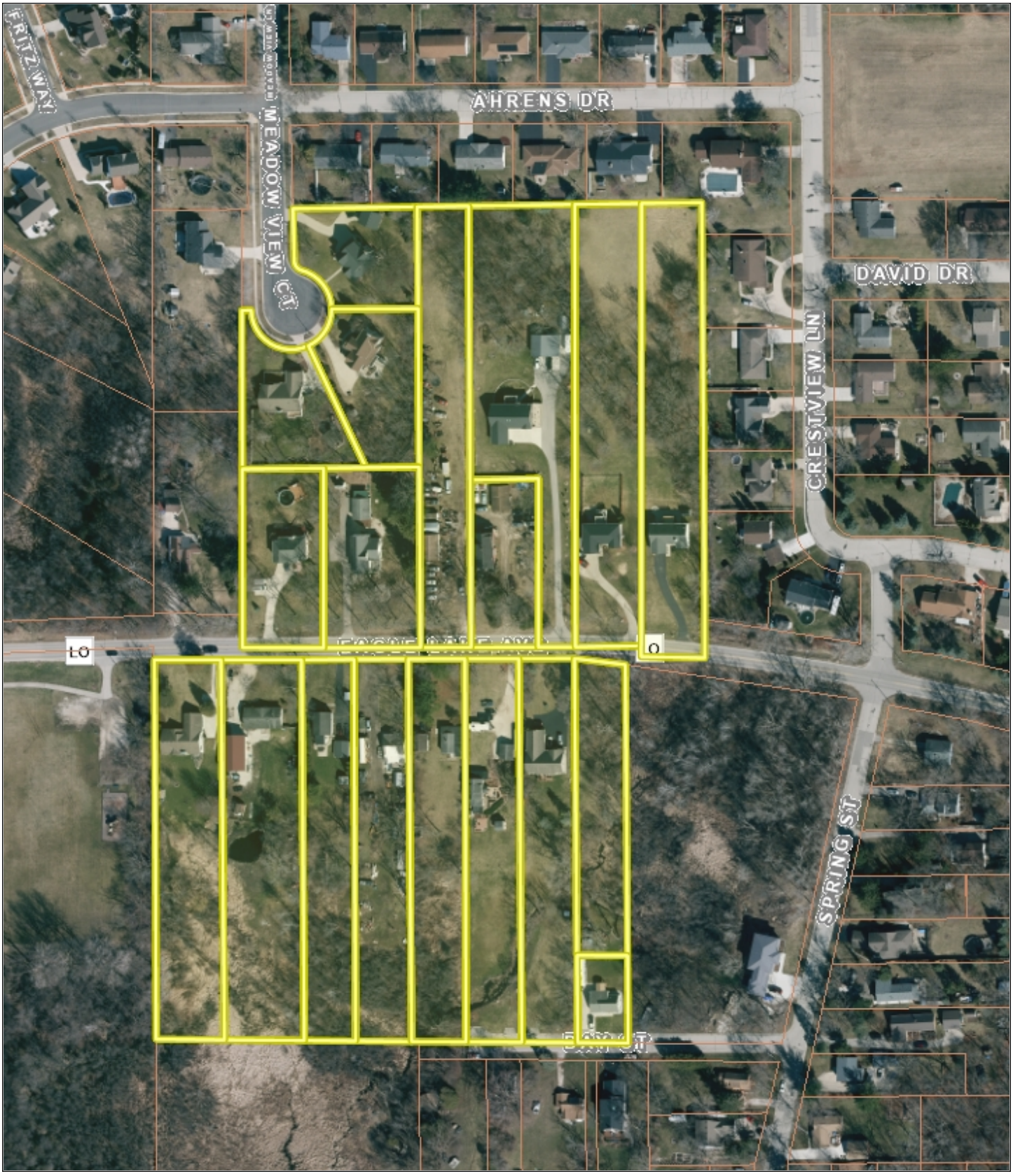
15. MUKV1974973 – 477 Eagle Lake Avenue
16. MUKV1974974 – 487 Eagle Lake Avenue
17. MUKV1974975 – 493 Eagle Lake Avenue
18. MUKV1974976 – 503 Eagle Lake Avenue
19. MUKV1974977 – 511 Eagle Lake Avenue

Recommended Action

Staff recommends that the Village Board rezone all of above-listed lots from R-1 back to R-2 so that they conform to the requirements of the zoning code, as outlined in the provided Ordinance.

Attachments

1. Map showing parcels to be rezoned.



Village of Mukwonago GIS

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" = 200 '

VILLAGE OF MUKWONAGO
440 River Crest Court
PO Box 206
Mukwonago, WI 53149
262-363-6420

Print Date: 6/28/2025

VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES

ORDINANCE NO. 1036

AN ORDINANCE TO AMEND THE ZONING MAP OF THE VILLAGE OF MUKWONAGO ON BEHALF OF THE VILLAGE OF MUKWONAGO FOR MULTIPLE PROPERTIES AND ADDRESSES

THE VILLAGE BOARD of the Village of Mukwonago, Waukesha and Walworth Counties, Wisconsin, do ordain as follows:

SECTION I. Pursuant to the provision of Article XIII and Section 100.856 of the Municipal Code of the Village of Mukwonago, having received the recommendation of the Village Plan Commission, and after a public hearing duly called and held on the 8th day of July, 2025, the following properties are amended on the Village of Mukwonago Zoning District Map as follows:

From R-1 Single-Family Medium Lot Residential to R-2 Single-Family Historical Lot Residential

1. MUKV1974979001 – 606 Meadowview Court
2. MUKV1974979002 – 612 Meadowview Court
3. MUKV1974979003 – 618 Meadowview Court
4. MUKV1974969 – 512 Bay Street
5. MUKV1974985 – 430 Eagle Lake Avenue
6. MUKV1974984 – 440 Eagle Lake Avenue
7. MUKV1974983 – 450 Eagle Lake Avenue
8. MUKV1974982 – 460 Eagle Lake Avenue
9. MUKV1974981 – 470 Eagle Lake Avenue
10. MUKV1974980 – 490 Eagle Lake Avenue
11. MUKV1974979004 – 500 Eagle Lake Avenue
12. MUKV1974970 – No Address
13. MUKV1974971 – 459 Eagle Lake Avenue
14. MUKV1974972 – 467 Eagle Lake Avenue
15. MUKV1974973 – 477 Eagle Lake Avenue
16. MUKV1974974 – 487 Eagle Lake Avenue
17. MUKV1974975 – 493 Eagle Lake Avenue
18. MUKV1974976 – 503 Eagle Lake Avenue
19. MUKV1974977 – 511 Eagle Lake Avenue

SECTION II: The above referenced parcels are graphically shown within the provided map.

SECTION III. All Ordinances or parts of Ordinances contravening the terms and conditions of this Ordinance are hereby to that extent repealed.

SECTION IV. Severability. If any portion of this Ordinance is invalid or unconstitutional, or the application of this Ordinance to any person or circumstances is invalid or unconstitutional, such invalidity or unconstitutionality shall not affect the other provisions or applications of this Ordinance which can be given effect without the invalid or unconstitutional provisions or applications.

SECTION V. Effective Date. This Ordinance shall take effect upon passage and publication as provided by law.

Passed and adopted by the Village of Mukwonago Village Board this 16th day of July, 2025

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Lana Kropf, Village Clerk

PLAN COMMISSION STAFF REPORT

TO: Village of Mukwonago Plan Commission

FROM: Peter Gesch, P.E., Ruekert & Mielke, Inc.

REPORT DATE: June 25, 2025

MEETING DATE: July 8, 2025, 6:30 P.M.

SUBJECT: 807 Main Street – CSM Review

BASIC INFORMATION	
Project:	807 Main Street CSM
Applicant or Owner:	James Farrell
Professional Land Surveyor:	Lynch & Associates
Request:	CSM Application Approval
Staff Recommendation:	Approve subject to addressing comments

PARCEL DATA/CHARACTERISTICS	
Tax Key:	MUKV2009972 and MUKV2009974
Existing Acreage:	0.23 Acres & 0.71 Acres, respectively
Current Use:	Residential/Business
Proposed Use:	Residential/Business
Reason for Request:	CSM Approval
Land Use Classification:	Business
Zoning Classification:	B-1 – Neighborhood Business District

Project Summary & Overview

The property owner for 807 Main Street and 809 Main Street desire to combine the two lots via CSM.

807 Main Street land locked without direct access to a public roadway. By combining the two lots, this eliminates the access issues. The combination of the lots still meets the requirements of the zoning code.

Ruekert & Mielke Professional Land Surveyor has reviewed the proposed CSM for conformance with Village Code Chapter 45, Article IV and has prepared the attached comments that should be addressed prior to recording of the CSM.

Staff Review

Engineering:	See attached CSM review comments from R/M Professional Land Surveyor
Public Works	No comments.
Utilities	No comments.
Police	No comments.
Fire:	No comments.
Building Inspection	No comments.
Planning	No comments.

Recommended Action

Staff recommends the Village Board approve the CSM as outlined in the attached resolution.

Attachments

1. Ruekert & Mielke CSM Review Comments
2. CSM Application
3. Proposed CSM

CSM Review Comments – 807 Main St. Village of Mukwonago
Reviewed by B. Rozite 6/24/2025 (*reviewer's comments in italics*)

Per. Ch. 236, Wis. Stats. And Ch. A-E7, Wis. Admin. Code:
s. 236.34(1m)(c) The map shall be prepared in accordance with ss. 236.16 (4) and 236.20 (2) (a), (b), (c), (e), (f), (g), (h), (i), (j), (k), and (L) and (3) (b), (d), and (e) at a graphic scale of not more than 500 feet to an inch, which shall be shown on each sheet showing layout features. *Add a graphic scale to Sheet 4 of 7*.

s. 236.20(2)(c) Easements not parallel to a boundary or lot line shall be shown by center line distance, bearing, and width or by easement boundary bearings and distances. *On Sheet 4, the existing easements must be dimensioned so that they are retraceable. For clarity, we recommend that the CSM sheet showing easements have layers containing utilities, contours, pavement edges, pavement hatching turned off*.

s. 236.20(2)(g) All shore meander lines for all lakes or navigable streams that are established by the professional land surveyor in accordance with s. 236.15 (1) (d), the distances and bearings thereof, and the distance between the point of intersection of such meander lines with lot lines and the determined or approximated ordinary high water mark. *Add the distance from the southwest meander corner to the ordinary high water mark on Sheet 2*.

s. 236.20(2)(i) A north point properly located thereon identified as referenced to a magnetic, true or other identifiable direction and related to a boundary line of a quarter section, recorded private claim or federal reservation in which the subdivision is located. *A North arrow is missing from Sheet 4*.

s. 236.20(2)(j) The area in square feet of each lot and outlot. *The lot area is missing from Sheet 5*.

s. 236.20(3)(d) The names of adjoining streets, state highways and subdivisions shown in their proper location underscored by a dotted or dashed line. *"Main Street" should also be underscored with a dashed line on Sheets 3 and 4*.

Per Ch. 45 Land Division Ordinance, Village of Mukwonago:
§ 45-93. A preliminary map shall be submitted to the planning commission for all tracts of land proposed to be divided that contain floodlands or shorelands, and shall show all the data required by § 45-44 for preliminary plats. (*see belo*w)

§ 45-44. (a)

(5) The type, width, and elevation of any existing street pavements within the exterior boundaries of the plat or immediately adjacent thereto, together with any legally established centerline elevations, all to mean sea level datum; *Recommend adding the required elevations to only one of the map sheets*.

(6) The location, size, and invert elevation of any existing sanitary or storm sewers, culverts and drain pipes, the location of manholes, catchbasin, hydrants, power and telephone poles, and the location and size of any existing water and gas mains within the exterior boundaries of the plat or immediately adjacent thereto. If no sewers or water mains are located immediately on or immediately adjacent to the tract, the nearest such sewers or water mains which might be extended to serve the tract shall be indicated by their direction and distance from the tract, their size, and their invert elevations; *Since this CSM is not creating new parcels for development, reviewer recommends waiving this requirement*.
(8) The existing zoning on and adjacent to the proposed subdivision;
(9) At least two permanent bench marks shall be placed in the immediate vicinity of the plat. The location of the bench marks shall be indicated on the plat, together with their elevations, referenced to mean sea level datum, and the monumentation of the bench marks clearly and completely described; *Since this CSM is not creating new parcels for development, reviewer recommends waiving this requirement*.
(10) The high-water elevation of all ponds, streams, lakes, flowages, and wetlands, based on mean sea level datum; *Recommend adding the required elevations to only one of the map sheets*.
(11) The water elevations of adjoining lakes and streams, at the date of the survey, based on mean sea level datum; *Recommend adding the required elevations to only one of the map sheets*.
(12) The floodland and shoreland boundaries, and the contour line lying a vertical distance of two feet above the elevation of the 100-year recurrence interval flood or, where such data is not available, five feet above the elevation of the maximum flood of record; *Recommend adding the two foot above floodplain contour to only one of the map sheets*.

General Comments:

1) *The north line of Lot 1 is shown as 169.5'+/- but totals 169.2'. Please verify—this affects Sheets 2-4.*
2) *On Sheets 2-4, we recommend removing the dashed underscore under the label for "Lot 1." The underscore indicates an existing Lot, rather than a proposed Lot.*
3) *We note that the Register of Deeds may reject the CSM document for recording if it shows shading (for the asphalt pavement).*
4) *In the Legend, the symbol sizes do not match the symbol sizes in the map.*
5) *Some of the text may be too small to be legible when recorded, e.g. the bearing reference at the bottom of Sheet 2, the Floodplain note, Zoning information, building offset dimensions on Sheet 5.*
6) *On Sheet 6, a Corporate Owner's Certificate and references to a "corporation" may not be appropriate to use with a limited liability company.*
7) *On Sheet 7, please replace the name "Linda Gordoux" with "Shay Zerfas" in the Plan Commission Approval certificate and replace "Diana Dykstra" with "Lana Kropf" in the Village Board Approval certificate.*

Process Details: PZ25-0015

Property Address: 807 MAIN ST, Mukwonago, WI 53149 | Parcel: MUKV2009972

Property Owner: JAMES FARRELL

Summary Information

> 5 Process Step(s) Found > 0 Inspection(s) Found

This CERTIFIED SURVEY MAP IN VILLAGE was created from an application. Click here to view the application.

Amount Due

Process - CERTIFIED SURVEY MAP IN VILLAGE Total	**$0.00**

Process Information

Filed As	CERTIFIED SURVEY MAP IN VILLAGE	**Application Date**	06/02/2025
Process Name	CERTIFIED SURVEY MAP IN VILLAGE	**Date Process Started**	*No Data to Display*
Process Number	PZ25-0015	**Date Completed**	*No Data to Display*
Status	Preprocess - Hold	**Last Status Change**	06/02/2025
Scope Of Work	Combining 2 parcels		
Conditions	*No Data to Display*		

Process Step Information

Step Number	Step Display Name	Status	Date Step Started	Date Step Completed	Date Step Due	
1	APPLICATION COMPLETENESS REVIEW	Not Started				View
2	STAFF REVIEW	Not Started				View
3	PLAN COMMISSION REVIEW	Not Started				View
4	VILLAGE BOARD APPROVAL	Not Started				View
5	NOTIFY APPLICANT, COUNTY, DOA, & ENGINEER	Not Started				View

Document Summary

Document Title

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1		Not Started			No Attachment

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1		Not Started			No Attachment

CSM (+ ORIGINAL HARD COPIES FOR SIGNATURES TO BE DROPPED OFF)

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	CSM (+ ORIGINAL HARD COPIES FOR SIGNATURES TO BE DROPPED OFF)	Not Started			No Attachment

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Document Title

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	LEGAL DESCRIPTION	Not Started			No Attachment

Preliminary_CSM

[Expand All]

Version	Document Title	Review Status	Received	Completed	
1	Preliminary_CSM	Not Started	5/28/2025		View Document
1	Preliminary_CSM	Not Started	5/28/2025		View Document

Review Comments/Concerns

Show All

[Collapse All]

Title	Type	Comment Type	Corrected	Date Found	Date Corrected	Process Step	Review
No records to display.							

Inspection Information

Inspection Type	Inspector	Status	Scheduled Date	Completed Date	Result
No records to display.					

Fees & Payments

Date	Action	Qty	Description	Billed	Paid
6/2/2025	Invoice Item	1.00	PZE Fees: CERTIFIED SURVEY MAP-2 LOTS/LL ADJ/MERGE (Invoice Number: 00006542)	$220.00	
6/2/2025	Transaction		Transaction Number: 00007396		$220.00

Applicant Information

Address Lynch & Associates
440 Milwaukee Avenue
Burlington, WI 53105

Phone *No Data to Display* **Fax** *No Data to Display*
Mobile *No Data to Display* **Other Phone** *No Data to Display*

Owner Information

Address JAMES FARRELL

Phone *No Data to Display* **Fax** *No Data to Display*
Mobile *No Data to Display* **Other Phone** *No Data to Display*

Surveyor Information

Address Lynch & Associates
440 Milwaukee Avenue
Burlington, WI 53105

Phone *No Data to Display* **Fax** *No Data to Display*
Mobile *No Data to Display* **Other Phone** *No Data to Display*

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Parcel/Land Details

Legal Description	NW 1/4 OF THE NE 1/4	**Notes**	*No Data to Display*
Section	35	**Township**	5

Zoning/Rezoning and Usage

Notes	*No Data to Display*	**Proposed Land Use**	B-1
Zoning	B-1		

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CERTIFIED SURVEY MAP NO. _____

THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN.

SURVEYOR:
RITCHIE P. WENZEL
5482 S. WESTRIDGE DR.
NEW BERLIN, WI 53151
Phone: (262) 402-5040
Email: rwenzel@lynch-engineering.com
Job #22.0001

OWNER/SUBDIVIDER:
Raymond Goodden | Managing Member
FarrellGood 809, LLC,
a Wisconsin limited liability company
5000 S Towne Dr, Ste 100
New Berlin, WI 53151

SURVEYOR'S CERTIFICATE:

I RITCHIE P. WENZEL, PROFESSIONAL LAND SURVEYOR, DO HEREBY CERTIFY:

THAT I HAVE SURVEYED, DIVIDED AND MAPPED A PARCEL OF LAND BEING LOCATED IN THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN, NOW BEING BOUND AND DESCRIBED AS FOLLOWS:

COMMENCING AT THE NORTH 1/4 CORNER OF SAID SECTION, THENCE NORTH 89°35'48" EAST ALONG THE NORTH LINE OF SAID NORTHEAST 1/4, 858.72 FEET; THENCE SOUTH 0°24'12" EAST, 59.83 FEET TO THE POINT OF BEGINNING OF LANDS HEREINAFTER DESCRIBED;

THENCE SOUTH 0°54'02" EAST, 66.00 FEET; THENCE NORTH 89°05'58" EAST, 93.50 FEET TO THE WEST RIGHT OF WAY LINE OF MAIN STREET; THENCE SOUTH 13°43'28" WEST ALONG SAID WEST LINE 188.79 FEET TO A MEANDER LINE; THENCE NORTH 69°56'50" WEST ALONG SAID MEANDER LINE, 116.09 FEET; THENCE NORTH 23°06'00" WEST ALONG THE MEANDER LINE, 223.73 FEET; THENCE NORTH 89°05'58" EAST, 147.04 FEET TO THE POINT OF BEGINNING OF THIS DESCRIPTION.

SAID PARCEL INCLUDES ALL LAND BETWEEN THE ABOVE DESCRIBED MEANDER LINE AND THE ORDINARY HIGH WATER MARK AND THE GROSS AREA OF SAID PARCEL CONTAINS 43,971 SQUARE FEET OR 1.01 ACRES OF LAND, MORE OR LESS.

THAT I HAVE MADE SUCH SURVEY, LAND DIVISION AND MAP BY THE DIRECTION OF RAYMOND GOODDEN | MANAGING MEMBER OF FARRELLGOOD 809, LLC, OWNER OF SAID LAND. THAT SUCH MAP IS A CORRECT REPRESENTATION OF ALL EXTERIOR BOUNDARIES OF LAND SURVEYED AND LAND DIVISION MADE THEREOF. THAT I HAVE FULLY COMPLIED WITH THE PROVISION OF SECTION 236.34 OF THE WISCONSIN STATUTES AND THE LAND DIVISION ORDINANCE OF WAUKESHA COUNTY, AND OF THE VILLAGE OF MUKWONAGO IN SURVEYING, DIVIDING AND MAPPING SAME.

DATED THIS_____ DAY OF _____, 20_____.

_____
RITCHIE P. WENZEL, PLS
PROFESSIONAL LAND SURVEYOR S-4027

PRELIMINARY

SEAL
SIGNATURE
DATE

LYNCH & ASSOCIATES
ENGINEERING CONSULTANTS, LLC
5482 S. WESTRIDGE DRIVE
NEW BERLIN, WI 53151
440 MILWAUKEE AVENUE
BURLINGTON, WI 53105
(262) 402-5040

Date: 5/19/2025
SHEET 1 OF 7

CERTIFIED SURVEY MAP NO. _____

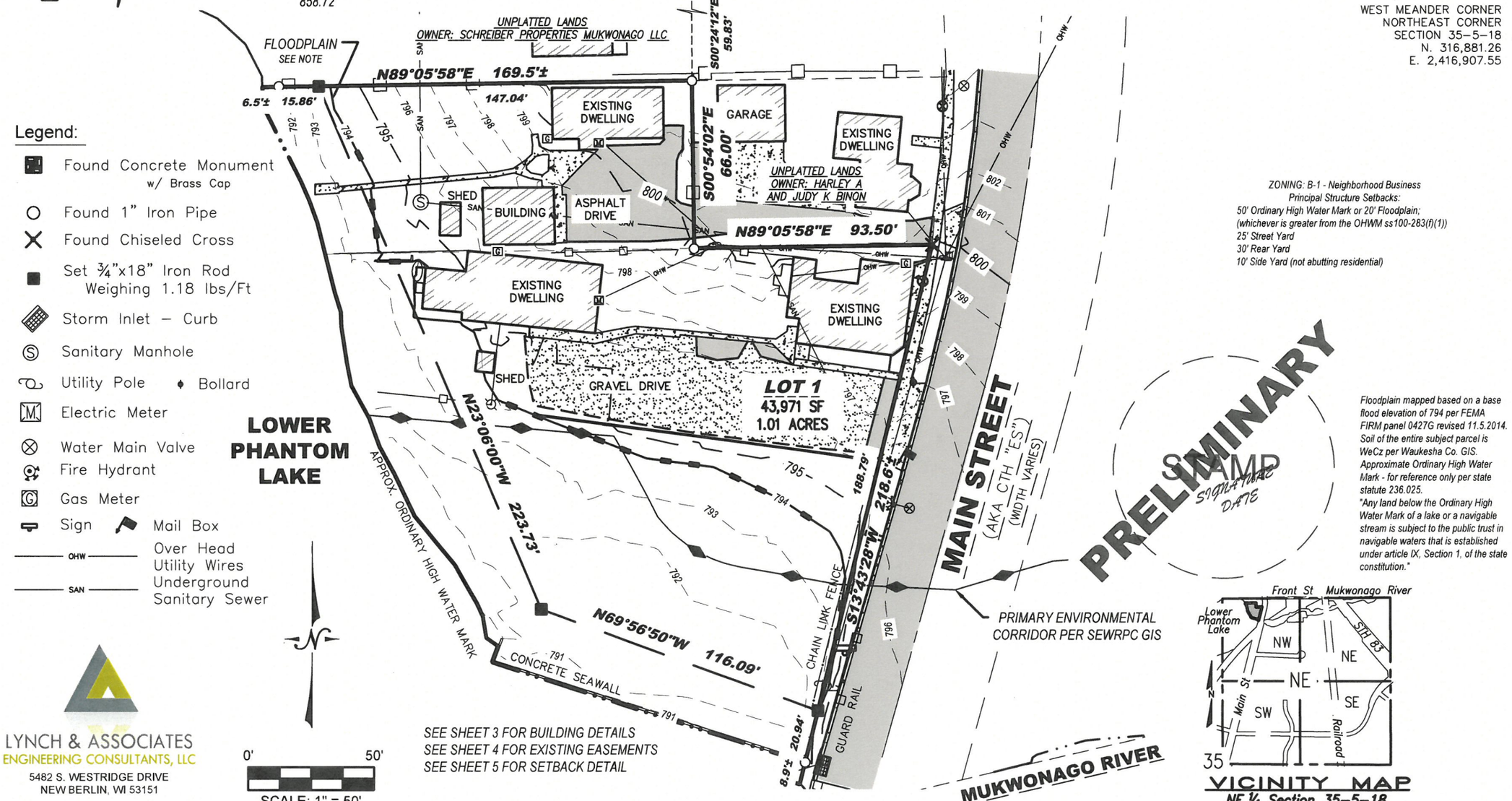
THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN.

NORTH 1/4 CORNER
SECTION 35-5-18
N. 316,865.93
E. 2,414,729.20

N89°35'48"E 2178.52'
858.72'

NORTH LINE OF THE NORTHEAST 1/4 OF SECTION 35-05-18

WEST MEANDER CORNER
NORTHEAST CORNER
SECTION 35-5-18
N. 316,881.26
E. 2,416,907.55



Legend:

- Found Concrete Monument w/ Brass Cap
- Found 1" Iron Pipe
- Found Chiseled Cross
- Set ¾"x18" Iron Rod Weighing 1.18 lbs/Ft
- Storm Inlet – Curb
- Sanitary Manhole
- Utility Pole ♦ Bollard
- Electric Meter
- Water Main Valve
- Fire Hydrant
- Gas Meter
- Sign Mail Box
- OHW Over Head Utility Wires
- SAN Underground Sanitary Sewer

ZONING: B-1 - Neighborhood Business
Principal Structure Setbacks:
50' Ordinary High Water Mark or 20' Floodplain;
(whichever is greater from the OHWM ss100-283(f)(1))
25' Street Yard
30' Rear Yard
10' Side Yard (not abutting residential)

PRELIMINARY

SURVEYOR SIGNATURE DATE

Floodplain mapped based on a base flood elevation of 794 per FEMA FIRM panel 0427G revised 11.5.2014. Soil of the entire subject parcel is WeCz per Waukesha Co. GIS. Approximate Ordinary High Water Mark - for reference only per state statute 236.025.
"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."

PRIMARY ENVIRONMENTAL CORRIDOR PER SEWRPC GIS

VICINITY MAP
NE ¼ Section 35-5-18
SCALE: 1" = 2000'

MUKWONAGO RIVER

SEE SHEET 3 FOR BUILDING DETAILS
SEE SHEET 4 FOR EXISTING EASEMENTS
SEE SHEET 5 FOR SETBACK DETAIL

0' 50'
SCALE: 1" = 50'

LYNCH & ASSOCIATES
ENGINEERING CONSULTANTS, LLC
5482 S. WESTRIDGE DRIVE
NEW BERLIN, WI 53151
440 MILWAUKEE AVENUE
BURLINGTON, WI 53105
(262) 402-5040

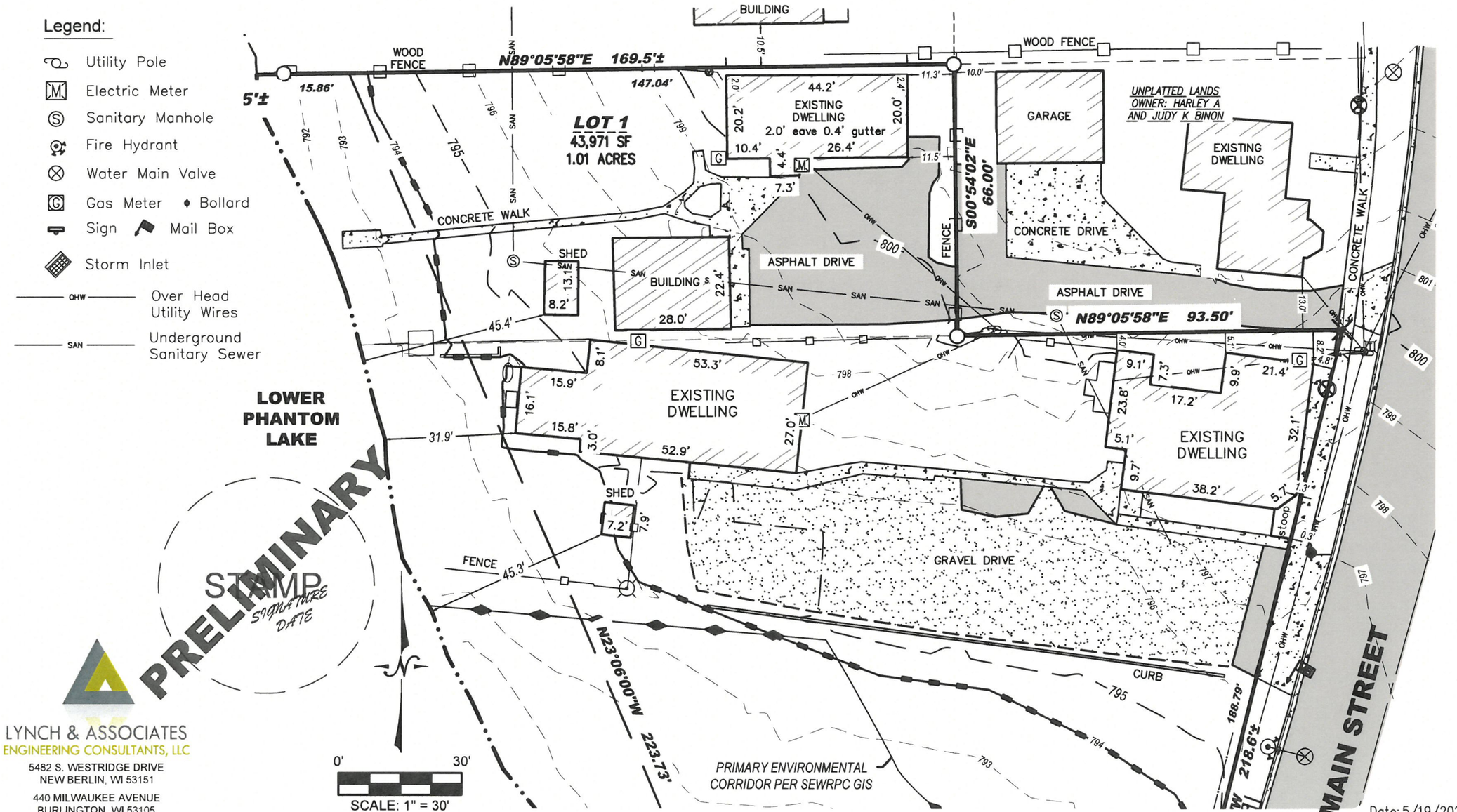
Map bearings refer to Grid North of the Wisconsin State Plane Coordinate System, South Zone, (NAD-83), Vertical Datum NAVD 1988, with the North line of the Northeast 1/4 of Section 35-05-18, having an assumed bearing of North 89°35'48" East.

FIELD WORK COMPLETION DATE: 5/13/2025

Date: 5/19/2025
SHEET 2 OF 7

CERTIFIED SURVEY MAP NO. _____

THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN



LYNCH & ASSOCIATES
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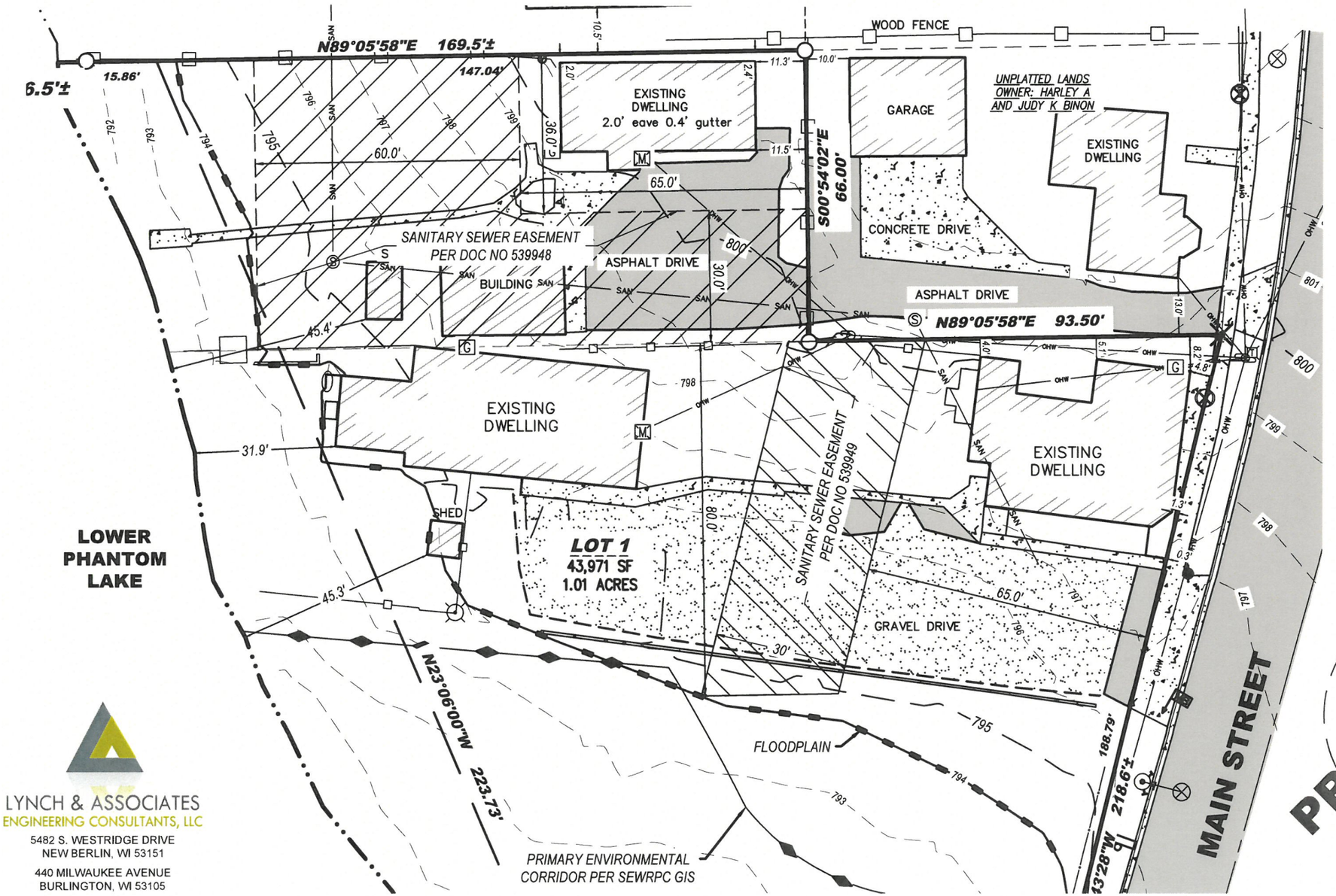
BURLINGTON, WI 53105
(262) 402-5040

Date: 5/19/2025
SHEET 3 OF 7

CERTIFIED SURVEY MAP NO. _____

THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN



PRELIMINARY

SIGNATURE

DATE

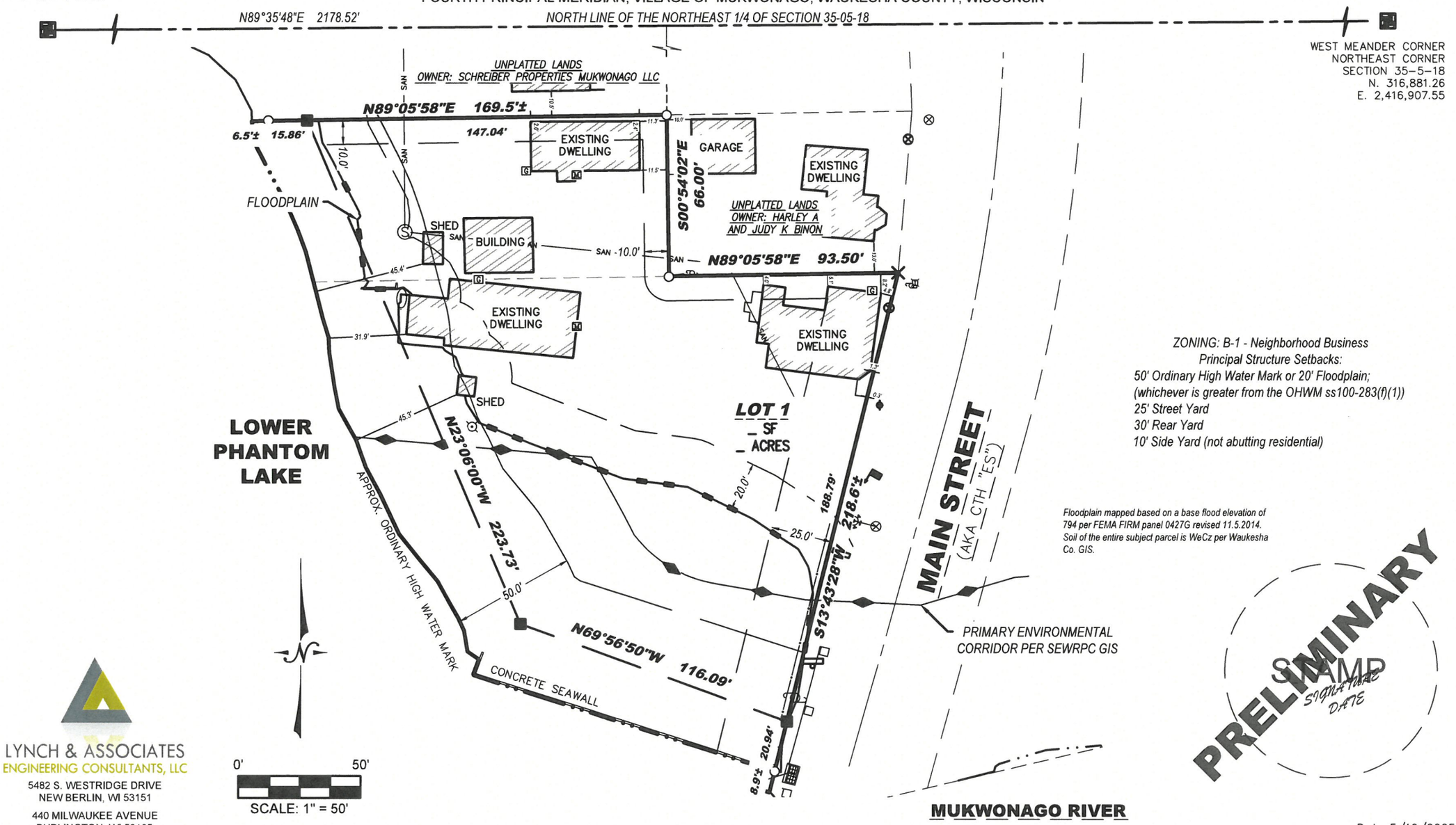
LYNCH & ASSOCIATES
ENGINEERING CONSULTANTS, LLC
5482 S. WESTRIDGE DRIVE
NEW BERLIN, WI 53151
440 MILWAUKEE AVENUE
BURLINGTON, WI 53105
(262) 402-5040

Date: 5/19/2025

NORTH 1/4 CORNER
SECTION 35-5-18
N. 316,865.93
E. 2,414,729.20

CERTIFIED SURVEY MAP NO. _____

THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN



ZONING: B-1 - Neighborhood Business
Principal Structure Setbacks:
50' Ordinary High Water Mark or 20' Floodplain;
(whichever is greater from the OHWM ss100-283(f)(1))
25' Street Yard
30' Rear Yard
10' Side Yard (not abutting residential)

Floodplain mapped based on a base flood elevation of 794 per FEMA FIRM panel 0427G revised 11.5.2014. Soil of the entire subject parcel is WeCz per Waukesha Co. GIS.

PRELIMINARY

SURVEYOR
SIGNATURE
DATE

LYNCH & ASSOCIATES
ENGINEERING CONSULTANTS, LLC
5482 S. WESTRIDGE DRIVE
NEW BERLIN, WI 53151
440 MILWAUKEE AVENUE
BURLINGTON, WI 53105
(262) 402-5040

FIELD WORK COMPLETION DATE:

Date: 5/19/2025
SHEET 5 OF 7

CERTIFIED SURVEY MAP NO. _____

THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST
OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

CORPORATE OWNER'S CERTIFICATE:

FarrellGood 809, LLC, a corporation duly organized and existing under and by virtue of the laws of the State of Wisconsin, as owner, certifies that said corporation caused the land described on this map to be surveyed, divided, mapped, and dedicated as represented on this Certified survey Map.

FarrellGood 809, LLC, does further certify that this Certified Survey Map is required to by Chapter 236 of the Wisconsin State Statutes to be submitted to the Village of Mukwonago and Waukesha County for approval, this _____ day of _____, 20_____.

_____
Raymond Goodden | Managing Member of FarrellGood 809, LLC

STATE OF WISCONSIN) SS
County of)

Personally came before me this_____ day of_____, 20_____, Raymond Goodden | Managing Member of the above named corporation, to me known as the person(s) who executed the foregoing instrument, and to me known to be the Owner of the corporation, and acknowledged that he executed the foregoing instrument and acknowledged the same.

_____
Print Name_____
My Commission Expires: _____

CONSENT OF CORPORATE MORTGAGEE:

Citizens Bank, a corporation duly organized and existing under and by virtue of the laws of the State of Wisconsin, mortgagee of the above described land, consents to the surveying, dividing, and mapping of the land described on this Certified Survey Map, and does hereby consent to the above Corporate Owners Certificate of FarrellGood 809, LLC,.

In Witness of, Citizens Bank, has caused these presents to be signed by {*First Name*_____ *Last Name*_____}, its {*Title*_____}, and {*First Name*_____, *Last Name*_____} its {*Title*_____} in the {*Select One (1) City, Village or Town*} of {*City*_____}, Wisconsin, this_____ day of_____, 20_____ .

In the presence of: Citizens Bank

_____ _____
{*Print - First Name Last Name*} {*Title*} {*Signature*}

_____ _____
{*Print - First Name Last Name*} {*Title*} {*Signature*}

STATE OF WISCONSIN)ss.
County of_____)

Personally came before me this _____day of _____, 20_____, {*First Name*_____ *Last Name*_____} {*Title*_____}and {*First Name*_____ *Last Name*_____} {*Title*_____} of the above named corporation, to me known to be the person(s) who executed the foregoing instrument, and to me known to be the {*Title*_____ and *Title*_____ respectively} of the corporation, and acknowledged that they, he, or she executed the foregoing instrument and acknowledged the same.

_____
Print Name_____
Notary Public, _____ County, WI.
My Commission Expires: _____

LYNCH & ASSOCIATES
ENGINEERING CONSULTANTS, LLC
5482 S. WESTRIDGE DRIVE
NEW BERLIN, WI 53151
440 MILWAUKEE AVENUE
BURLINGTON, WI 53105
(262) 402-5040

PRELIMINARY
SIGNATURE DATE

CERTIFIED SURVEY MAP NO. _____

THE NORTHWEST 1/4 OF THE NORTHEAST 1/4 OF SECTION 35 IN TOWNSHIP 5 NORTH, RANGE 18 EAST OF THE FOURTH PRINCIPAL MERIDIAN, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

VILLAGE OF MUKWONAGO PLAN COMMISSION APPROVAL:

Approved by the Plan Commission of the Village of Mukwonago Plan Commission on this_____ day of _____, 20_____.

_____

Fred Winchowky, Plan Commission Chairman

_____

Linda Gourdoux, Secretary

VILLAGE OF MUKWONAGO VILLAGE BOARD APPROVAL:

Approved by the Village of Mukwonago Village Board on this_____ day of _____, 20_____.

_____

Fred Winchowky, Village President

_____

Diana Dystra, Village Clerk

WAUKESHA COUNTY DEPARTMENT OF PARKS AND LAND USE

The above, which has been filed for approval as required by Chapter 236 of the Wisconsin State Statutes, is hereby approved on this _____ day of _____, 20___.

_____

Dale R. Shaver, Director

PRELIMINARY

STAMP
SIGNATURE
DATE

LYNCH & ASSOCIATES
ENGINEERING CONSULTANTS, LLC
5482 S. WESTRIDGE DRIVE
NEW BERLIN, WI 53151
440 MILWAUKEE AVENUE
BURLINGTON, WI 53105
(262) 402-5040

Date: 5/19/2025
SHEET 7 OF 7

VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES

RESOLUTION NO. 2025-18

A RESOLUTION FOR A CSM REVIEW FOR 807 AND 809 MAIN STREET, PARCEL NUMBERS MUKV2009972 AND MUKV2009974

WHEREAS, pursuant to Section 45, Article IV of the Mukwonago Code of Ordinances, an application for a CSM Review has been submitted, which application was filed in the office of the Village Clerk, Village of Mukwonago, Wisconsin, and

WHEREAS, the application has been submitted by Lynch & Associates on behalf of the property owner James Farrell, and

WHEREAS, the applicant desires to combine the two lots into a single lot, and

WHEREAS, the proposed lot meets the requirements of the B-1 zoning district.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the CSM for 807 and 809 Main Street, based upon the plans submitted to the Village, subject to the conditions listed below:

1. All comments in the review letter by B. Rozite dated 06/24/2025 shall be addressed prior to recording.
2. The CSM shall be recorded with the Waukesha County Register of Deeds within 30 days of its approval.

Passed and adopted by the Village of Mukwonago Village Board this 16th day of July, 2025.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Lana Kropf, Village Clerk

PLAN COMMISSION STAFF REPORT

TO: Village of Mukwonago Plan Commission

FROM: Peter Gesch, P.E., Ruekert & Mielke, Inc.

REPORT DATE: June 27, 2025

MEETING DATE: July 8, 2025, 6:30 P.M.

SUBJECT: Maple Centre Development – PUD Amendment & Final Development Plan Approval

BASIC INFORMATION	
Project:	Maple Centre Development
Applicant:	Family Ventures of Mukwonago, LLC
Consulting Engineer:	Cardinal Engineering, LLC
Request:	Amend Development Agreement Language Amend General Development Plan Amend Phase 1 Final Development Plan Approve Phase 2 Final Development Plan
Staff Recommendation:	Approve with Conditions

PARCEL DATA/CHARACTERISTICS	
Tax Key(s):	MUKV2013999013, MUKV2013999012, MUKV2013999011
Acreage (Total):	47.19 – Total BMU overlay area excluding ROW.
Total Number of Units:	772 Units
Max Density Allowed:	20 dwelling units per acre
Proposed Density:	16.36 dwelling units per acre
Current Use:	Agriculture
Proposed Use:	Business Mixed Use (BMX)
Current Zoning:	B-5 with BMX Overlay
Proposed Zoning:	B-5 with BMX Overlay

Project History & Overview

The Plan Commission held a public hearing on April 9, 2019 for consideration of a General Development Plan for a Business Mixed Use Planned Unit Development for a roughly 50-acre parcel located east of Wolf Run, now known as the Maple Centre Development.

The Village Board approved Resolution 2019-018 for a General Development Plan for Maple Centre at the April 17, 2019 Village Board Meeting. The approving resolution is attached for reference.

The Village Board approved and authorized the Village President to sign a Developer Guaranty Agreement between the Village of Mukwonago and Family Ventures of Mukwonago, LLC for the development of Maple Centre which was executed by the Village on April 21, 2020 and recorded at the Waukesha County Register of Deeds on May 6, 2020 as Document No. 4472474. The recorded DA is attached for reference.

The Village Board approved the Final Development Plan for the first phase (southern half) of the development with conditions via Resolution 2022-38 at the June 15, 2022 Village Board Meeting. The approving resolution is attached for reference.

Construction has not begun partly due to recent negotiations that the Village has been involved with. Family Ventures of Mukwonago, LLC is now looking to begin construction on their entire development with a few requested modifications. They also intend to build both phases of the multi-family residential development consecutively as described in the Developer Guaranty Agreement.

Proposed Amendment

The original development was approved with six 4-story buildings, and four 3-story buildings and a clubhouse for a total of 674 units. The prior approved site plan is included for reference. Family Ventures/Teronomy Builders is proposing to convert the four 3-story buildings with one level of underground parking to 4-story buildings with two levels of underground parking like the other six 4-story buildings in the original plan. This proposal would add 24 more units in each of the four buildings and increase the total residential units by 96 units, to a total of 770 residential units in the ten four story buildings. There are also two on-site units in the club house for the property manager and the maintenance manager. The total on-site residential units for the entire development would be 772 units. The attached narrative provided by Family Ventures/Teronomy Builders provides more specific details on the impact of the requested changes.

Family Ventures is still proposing 154 units dedicated to senior housing as was originally approved in the two eastern-most 4-story buildings.

Density

The maximum density in a Business Mixed Use overlay development is 20 dwelling units per acre. The original approval of the Business Mixed Use Overlay incorporated approximately 51-acres of land prior to dividing off two business lots to the west, the main residential/business lot to the east, and the right-of-way for Donna Drive and the North-South Road. The BMX zoning standards indicate that the density is based on the net acreage of all lands included in the overlay, minus any right-of-way. The net acreage of the overlay area minus the right-of-way for the two roadways is 47.19 acres. Based on 47.19 acres, the original approved 674 units equated to a density of 14.28 dwelling units per acre. The proposed 772 units equates to a density of 16.36 dwelling units per acre.

Parking

The BMX zoning standards require 2.25 parking spaces per unit. Being that a BMX is approved as a PUD and a PUD allows for the modification to the minimum standards for parking if the use, or part of the use, warrants a lower parking requirement, the Village has the authority to lower the minimum requirement. A lower requirement was approved in the General Development Plan. The plan takes into consideration a reduction for the 154 units of senior living in the northeastern corner of the development. The open area across from the easternmost building, building 896, has the ability to add an additional 104 parking spaces compared to what is shown on the plans.

The General Development Plan indicated a requirement for a ratio of 2.2 spaces per unit, however the Final Development Plan that was approved for the first phase was for 2.04 spaces per unit which is a minor change that still substantially conformed to the GDP. The addition of the combined four levels of underground parking adds a combined 220 parking spaces to the site for the added 96 units which equates to a ratio of 2.3 parking spaces per unit added. With the increase of underground parking, there are 1,100 underground parking spaces, 396 surface lot spaces, and room to add an additional 104 spaces if needed. This increase improves the overall site ratio to 2.07 spaces per unit.

The existing on-site parking configuration is not changing with the exception of the additional underground parking. The future parking expansion area is still maintained, which is required to be implemented within 90-days of written notice by the Village if on-site parking is determined to be inadequate. The reduced parking with the ability to expand, if needed, reduces the impact of impervious surface on the site and creates more green space for the residents.

Other Site Items

Storm water, utilities, fire access, landscaping etc. are not affected by the proposed change to the buildings.

Staff Review

Engineering	Remainder of outstanding comments for civil plans and storm water will need to be addressed prior to starting construction.
Public Works	No comments at this time.
Utilities	Must approve final utilities layout with Village Engineer prior to construction starting.
Police	No comments at this time.
Fire	Developer needs to provide final fire flow and suppression/detection information to Fire Chief for review prior to construction.
Building Inspection	No comments at this time.
Planning	Developer must comply with all items in attached resolution and prior resolutions.

Approvals Required & Recommended Action

Several documents have been approved since 2019 that need to be amended so that all parts of the approval process are matching.

Developer Guaranty Agreement
Item 1.c of the agreement specifically states the requirement for not exceeding the maximum allowable density of 20 residential units per acre. The paragraph further goes on to more specifically state a requirement of not exceeding 675 units.

Staff recommends that the Plan Commission recommend to the Village Board that the Village Board direct the Village Attorney to draft and coordinate with staff to execute an amendment or correction instrument for the Developer Guaranty Agreement that removes the maximum unit language or modifies it to match the proposed 772 units. This can be done with a simple motion.

General Development Plan Amendment
The General Development Plan (GDP) is the first step in the PUD approval process that lays the groundwork and outlines the intent of the Development and how it will meet all of the requirements of the Zoning Code and Village Ordinances. The GDP that was approved in 2019 detailed 672 units in the ten buildings and two units in the clubhouse. The GDP more specifically referenced the four 3-story buildings and six 4-story buildings and needs to be revised to match the proposed changed.

Staff recommends passing a resolution to amend the GDP to acknowledge the change in buildings and to be for 770 units in the ten buildings and two units in the clubhouse so that the Final Development Plan approvals align with the General Development Plan. All other conditions of the original approving resolution will still apply unless specifically modified in the proposed resolution.

Final Development Plan – Phase 1
The Final Development Plan (FDP) that was approved was for the southern half of the site and the clubhouse. The first phase approval included two 3-story buildings along the western frontage of the residential parcel that are now proposed to be 4-story buildings. The FDP needs to be amended to recognize the change in the buildings as depicted in the attached Civil Plan set. No other modifications are proposed.

Staff recommends passing a resolution to amend the FDP for Phase 1 to reflect the change in the two buildings. Conditions of approval in the proposed resolution will mimic the conditions set forth in Resolution 2022-38, updated to reflect the current status of the project.

Final Development Plan – Phase 2
Family Ventures of Mukwonago is seeking approval of the Final Development Plan for Phase 2 of the project which is primarily the northern half of the site and the remaining six 4-story buildings. Provided that the General Development Plan is amended to recognize the increase in units on-site and change to the previously proposed 3-story buildings, the plans, as submitted substantially conform to the intent of the GDP.

There are minor items that need to be addressed in the civil plans and storm water management plan that will not substantially change the site layout or intent.

Staff recommends passing a resolution to approve the Final Development Plan for Phase 2 of the Maple Center Development as outlined in the proposed resolution subject to the conditions enumerated within.

Future Approvals

Future submittals for development of the four business/retail lots are required to be reviewed and approved as prescribed in Resolution 2019-018.

Attachments

1. GDP Approving Resolution 2019-018
2. Developer Guaranty Agreement recorded May 6, 2020.
3. Phase 1 Final Development Plan Approving Resolution 2022-38
4. Prior Approved Site Plan Showing 3-Story Buildings.
5. Family Ventures of Mukwonago PUD Amendment Application.
6. Family Ventures of Mukwonago narrative & description of changes.
7. Renderings of the 3-story buildings.
8. Renderings of the 4-story buildings.
9. Renderings of the clubhouse.
10. Progress set of Civil Site Plans for entire development dated June 2, 2025.
11. Proposed Resolutions

VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES

RESOLUTION NO. 2025-21

RESOLUTION APPROVING THE AMENDMENT TO THE GENERAL DEVELOPMENT PLAN FOR THE PUD FOR THE MAPLE CENTRE BUSINESS MIXED USE DEVELOPMENT, FAMILY VENTURES OF MUKWONAGO, LLC

WHEREAS, in accordance with Sections 100-53 and 100-54 of the Mukwonago Municipal Code, a General Development Plan was approved for the Maple Centre Development via Resolution 2019-018 at the April 17, 2019 Village Board Meeting, and

WHEREAS, the approved resolution prescribed conditions for the entirety of the business mixed use overlay area containing two separate business parcels and a parcel containing residential multi-family with two business outlots, and

WHEREAS, more than five (5) years have passed since the approval of the original General Development Plan in 2019, and

WHEREAS, the multi-family portion of the Business Mixed Use development area identified four 3-story buildings with one level of underground parking and six 4-story buildings with two levels of underground parking, and a clubhouse with two on-site units for site managers, totaling 676 units, and

WHEREAS, Family Ventures of Mukwonago, LLC desires to construct all ten buildings as 4-story buildings with two levels of underground parking which will add 96 units, increasing the total on-site residential unit count to 772 units, and

WHEREAS, Family Ventures of Mukwonago, LLC does not intend to change any other on-site features that were already approved, and

WHEREAS, the on-site parking ratio is improved with the addition of more underground parking, and

WHEREAS, the General Development Plan must be amended to reflect the change to the buildings and the increase in residential units on-site, and

WHEREAS, the Planning Commission of the Village of Mukwonago held a public hearing on this matter on July 8, 2025.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the amendment to the General Development Plan for the Maple Centre Development to increase the total residential units to 772 units by changing the originally planned 3-story buildings to 4-story buildings with two levels of underground parking for a total of ten (10) 4-story multi-family residential buildings with two levels of underground parking each.

NOW, THEREFORE, BE IT FURTHER RESOLVED that all other conditions enumerated in Resolution 2019-018 shall apply with the exception of condition 4.f which is modified to require a parking ratio of 2.07 spaces per unit inclusive of the future parking expansion area.

Passed and adopted by the Village of Mukwonago Village Board this 16th day of July, 2025

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Lana Kropf, Village Clerk

VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES

RESOLUTION NO. 2025-22

RESOLUTION APPROVING THE AMENDMENT TO THE FINAL DEVELOPMENT PLAN FOR THE PUD FOR THE FIRST PHASE OF THE MAPLE CENTRE BUSINESS MIXED USE DEVELOPMENT, FAMILY VENTURES OF MUKWONAGO, LLC

WHEREAS, in accordance with Sections 100-53 and 100-54 of the Mukwonago Municipal Code, a General Development Plan was approved for the Maple Centre Development via Resolution 2019-018 at the April 17, 2019 Village Board Meeting, and

WHEREAS, Family Ventures of Mukwonago has proposed to increase the total residential units to 772 units by constructing all ten multi-family residential buildings as 4-story buildings with two levels of underground parking, and

WHEREAS, the Village Board of the Village of Mukwonago approved the General Development Plan amendment via Resolution 2025-21 at the July 16, 2025 Village Board Meeting, and

WHEREAS, the first phase of the Maple Centre Development received a Final Development Plan approval via Resolution 2022-38 at the June 15, 2022 Village Board meeting which contained two 3-story buildings and two 4-story buildings, a clubhouse, a maintenance building, and site amenities and Final Development Plan must be amended to reflect the approved change to the buildings in the General Development Plan amendment, and

WHEREAS, no other modifications to the originally approved plans are proposed.

WHEREAS, the Planning Commission of the Village of Mukwonago held a public hearing on this matter on July 8, 2025.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the amendment to the Final Development Plan for the first phase of Maple Centre Development finding that the proposal conforms to the amended General Development Plan and the standards and criteria for Planned Unit Development approval as specified in Section 100-53 of the Village's zoning regulations.

NOW, THEREFORE, BE IT FURTHER RESOLVED this amendment approval shall be subject to the following terms and conditions which mimic the terms and conditions of Resolution 2022-38, updated to reflect the current status of the project:

1. Nothing in this approval or in the submitted plans shall supersede or void any requirement in the adopted or amended Developer Guaranty Agreement or the Amended General Development Plan.
2. Prior to any land-disturbing activity on the subject property, the developer shall submit all construction plans for public infrastructure to the Village Engineer and obtain approval of the same and comply with all conditions of construction identified in said approvals.

3. Prior to any land-disturbing activity on the subject property, the Developer shall address all outstanding civil plan and storm water management plan comments from the Village Engineer and Department Heads and submit final and complete construction plans and storm water management plan to be approved in writing by the Village Engineer and Department Heads and the Developer shall comply with all conditions of construction identified in said approvals.
4. A final storm water maintenance agreement shall be submitted for approval by the Village Board.
5. Prior to any land-disturbing activity on the subject property, the Fire Chief must approve, in writing, the fire access and turning movements within the project as well as revised fire calculations to reflect the additional underground parking and additional floors of residential units.
6. The Developer understands that fire protection services may be impeded to some extent if the fire truck turning movement analysis shows slight encroachments into parking stalls.
7. The subsequent phases of the PUD development must be reviewed as set forth in the amended General Development Plan, amended Developer Guaranty Agreement, Village of Mukwonago code of ordinances, and all other applicable rules and regulations.
8. Timing for the construction of buildings and site improvements shall comply with paragraph 2(f) of the approved Developer Guaranty Agreement.

Passed and adopted by the Village of Mukwonago Village Board this 16th day of July, 2025

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Lana Kropf, Village Clerk

VILLAGE OF MUKWONAGO
WAUKESHA AND WALWORTH COUNTIES

RESOLUTION NO. 2025-23

RESOLUTION APPROVING THE APPROVAL OF THE FINAL DEVELOPMENT PLAN FOR THE PUD FOR THE SECOND PHASE OF THE MAPLE CENTRE BUSINESS MIXED USE DEVELOPMENT, FAMILY VENTURES OF MUKWONAGO, LLC

WHEREAS, in accordance with Sections 100-53 and 100-54 of the Mukwonago Municipal Code, a General Development Plan was approved for the Maple Centre Development via Resolution 2019-018 at the April 17, 2019 Village Board Meeting and amended via Resolution 2025-21 at the July 16, 2025 Village Board Meeting, and

WHEREAS, the PUD is for a Business Mixed Use Development consisting of ten 4-story multi-family residential buildings with two levels of underground parking, a club house, a maintenance facility, on-site amenities, two business outlots on the parcel containing residential development, and two separate business parcels immediately west of the multi-family residential parcel, and

WHEREAS, Family Ventures of Mukwonago has submitted the required plans and documentation for the Final Development Plan of phase two of the development, generally described as the northern half of the multi-family residential parcel, and

WHEREAS, Family Ventures of Mukwonago intends to develop and construct the entirety of the multi-family residential development as prescribed in the Developer Guaranty Agreement, with buildings and site improvements in phase two being constructed immediately upon completion of the buildings and site improvements in phase one, and

WHEREAS, Village Staff and Department Heads have reviewed the submitted documents and find that they generally conform to the requirements of the PUD, Developer Guaranty Agreement, and Village of Mukwonago Municipal Code with the exception of minor revisions to the construction plans and storm water documents that will not substantially change the layout or improvements presented in the phase two Final Development Plan documents, and

WHEREAS, the Planning Commission of the Village of Mukwonago held a public hearing on this matter on July 8, 2025.

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the Final Development Plan for the second phase of Maple Centre Development finding that the proposal conforms to the amended General Development Plan and the standards and criteria for Planned Unit Development approval as specified in Section 100-53 of the Village's zoning regulations.

NOW, THEREFORE, BE IT FURTHER RESOLVED this approval shall be subject to the following terms and conditions:

1. Nothing in this approval or in the submitted plans shall supersede or void any requirement in the adopted or amended Developer Guaranty Agreement or the Amended General Development Plan.
2. Prior to any land-disturbing activity on the subject property, the developer shall submit all construction plans for public infrastructure to the Village Engineer and obtain approval of the same and comply with all conditions of construction identified in said approvals.
3. Prior to any land-disturbing activity on the subject property, the Developer shall address all outstanding civil plan and storm water management plan comments from the Village Engineer and Department Heads and submit final and complete construction plans and storm water management plan to be approved in writing by the Village Engineer and Department Heads and the developer shall comply with all conditions of construction identified in said approvals.
4. A final storm water maintenance agreement shall be submitted for approval by the Village Board.
5. Prior to any land-disturbing activity on the subject property, the Fire Chief must approve, in writing, the fire access and turning movements within the project as well as revised fire calculations to reflect the additional underground parking and additional floors of residential units.
6. The Developer understands that fire protection services may be impeded to some extent if the fire truck turning movement analysis shows slight encroachments into parking stalls.
7. The subsequent phases of the PUD development, which include the four business/retail lots, must be reviewed as set forth in the amended General Development Plan, amended Developer Guaranty Agreement, Village of Mukwonago code of ordinances, and all other applicable rules and regulations.
8. Timing for the construction of buildings and site improvements shall comply with paragraph 2(f) of the approved Developer Guaranty Agreement.

Passed and adopted by the Village of Mukwonago Village Board this 16th day of July, 2025

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Lana Kropf, Village Clerk

RESOLUTION 2019-018

CONDITIONAL USE PERMIT
TO APPROVE A GENERAL DEVELOPMENT PLAN ALLOWING BUSINESS MIXED USE DEVELOPMENT AND MODIFICATIONS AS A PLANNED UNIT DEVELOPMENT FOR CONSTRUCTION OF APARTMENT UNITS AND IDENTIFICATION OF SITES FOR COMMERCIAL AND/OR BUSINESS DEVELOPMENT
FAMILY VENTURES OF MUKWONAGO, LLC, APPLICANT

WHEREAS, pursuant to Section 100-53 (Planned Unit Development) and Section 100-54 (Business Mixed Use) of the Village of Mukwonago Zoning Code, an application for a Conditional Use Permit has been filed for approval of a Planned Unit Development on about 51 acres approximately 560 feet south of the eastern terminus of Wolf Run and approximately 2,600 feet north of Maple Avenue, and

WHEREAS, the subject site is legally described as follows:
Lot 2 of Certified Survey Map No. 11558, VOL 115/199, Recorded as DOC# 4277810, part of the Northwest ¼ of the Northwest ¼ of Section 31, Town 5 North, Range 19 East, and the Northeast ¼ of the Northeast ¼ of Section 36, Town 5 North, Range 18 East, Village of Mukwonago, Waukesha County, Wisconsin, and

WHEREAS, at time of application the entire legally described site is in common ownership held by the Douglas & Debra DeBack Trust, and the applicant of Family Ventures of Mukwonago, LLC of Elkhorn, Wisconsin, has a contract to purchase the legally described site subject to development approvals from the Village of Mukwonago, and

WHEREAS, precedent to this approval, the applicant, Family Ventures of Mukwonago, LLC, and the Village Board of the Village of Mukwonago has negotiated a Developer Guaranty Agreement stating certain terms for development and responsibilities of both parties toward providing of public infrastructure to the subject site, and

WHEREAS, at the time of application for this approval, the Developer Guaranty Agreement remains in final negotiation between the applicant and Village administrative staff pursuant to direction from the Village Board, and

WHEREAS, Section 100-54 provides standards for Business Mixed Use development, where identified on the Village of Mukwonago 2016 Update to the Comprehensive Plan, and

WHEREAS, the subject property is within the South/Southeast Key Area of said plan, and within the key area the subject property is designated with a Business Park land use and a Business Mixed Use Overlay, and

WHEREAS, the subject site has a base zoning district of B-5, Planned Business and Light Industrial Development District, and

WHEREAS, Section 100-54 states Business Mixed Use approvals shall occur via the Planned Unit Development process of Section 100-53, and

WHEREAS, Section 100-53 allows implementation of Business Mixed Use standards and 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, the applicant, Family Ventures of Mukwonago, LLC, submitted plans and information required for General Development Plan approval to support Business Mixed Use standards and approval of the requested modifications, and

WHEREAS, with submittal of plans for General Development approval, applicant is requesting approval of 674 apartment units within ten buildings and a clubhouse along with associated on-site improvements and amenities on approximately 34 acres within the eastern portion of the subject site, with two of the ten buildings specifically designed and dedicated to housing residents age 55 and over, and

WHEREAS, with submittal of plans for General Development approval, applicant is requesting approval of two identified sites for commercial and/or business within the eastern apartment portion of the development, and approval of two identified sites for commercial and/or business on sites totaling approximately 15 acres within the western portion of the subject site, 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 300 feet of the boundaries of the properties affected, a public hearing was conducted by the Village Plan Commission on April 9, 2019, and

WHEREAS, the General Development Plan and the request for Planned Unit Development modifications as a Conditional Use Permit as submitted by Family Ventures of Mukwonago, LLC 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 Conditional Use Permit for a General Development Plan and allowing modifications as a Planned Unit Development for the construction of 674 apartment units and four sites for future development of commercial/business on the aforementioned legally described site, finding that the proposal conforms to the standards and criteria for Planned Unit Development approval as specified within Section 100-53.

NOW, THEREFORE, BE IT FURTHER RESOLVED this Conditional Use Permit approving a Planned Unit Development General Development Plan with modifications shall be subject to the following conditions:

1. Approval of this Planned Unit Development General Development Plan for (1) 672 apartment units within 10 buildings and two apartment units within the clubhouse, (2) two sites for commercial/business development on each side of the boulevard entrance to the eastern apartment area and (3) two sites for commercial/business development within the western part of the subject site, shall be specifically subject to the following:

a. Signing of the Developer Guaranty Agreement and this resolution by the applicant and Village Officials.
b. Applicant shall provide the Village Attorney with confirmation of purchase of the property from the Douglas and Debra DeBack Trust.
c. Submittal by the applicant and approval by the Village Board of a Certified Survey Map to divide the property and dedicate public right-of-way as stated in the Developer Guaranty Agreement.

All subsequent steps stated within these conditions of approval shall not proceed until all three requirements of this Condition #1 have been achieved.

2. Furthermore, approval shall be subject to the preliminary plans submitted for this Conditional Use Permit under Planned Unit Development, General Development Plan approval, on file in the office of the Village Zoning Administrator.

3. Approved Planned Unit Development modifications that shall be confirmed by approval of the final and detailed development plans include reduced building setbacks of the B-5 zoning district for several apartment buildings from external property lines, as shown on the submitted preliminary site plan, and a reduction of the initially provided full amount of on-site parking spaces as required by Section 100-402, subject to the applicant providing on the detailed plans and information planned areas of where the full amount of parking spaces will be construction should the need arise in the future. Furthermore, the B-5 building and greenspace setbacks were not specifically designed for a Business Mixed Use environment, and exceed setbacks normally found in a mixed use environment. Therefore, when detailed plans are submitted for the commercial and/or business portions of this Business Mixed Use approval, setbacks may be modified under the following criteria:

a. For the commercial and/or business sites within the eastern apartment portion of the site, setback standards of the B-2, General Business District (Section 100-152) may apply.

b. For the commercial and/or business sites within the western portion of the site, setback standards of the B-3, Community Business District (Section 100-154) may apply.

4. Section 100-53 of Municipal Code allows General Development Plan approval of a Planned Unit Development and then submittal of detailed plans and information covering a portion or phase of the project to be constructed. Given the size and extent of the development, there are several aspects of the overall development of the entire subject property to be finalized before submittal of incremental detailed final plans per each phase, to ensure orderly development and consistency of development standards throughout the whole development. Therefore, the following items regarding the eastern multi-family development of the site must be completed and submitted by the applicant for review and approval by Village administrative staff prior to submittal of any detailed plans for final approval by the Village Plan Commission and Village Board.

a. A complete and final storm water management and water quality plan, and grading, along with a final Storm Water Maintenance Agreement for approval by the Village Board.

b. Applicant submittal to and for approval of the Village Engineer and Village Zoning administrator of a complete hydrology and drainage report to fill in and build upon the undesignated and localized floodplain within the eastern half of the multi-family area.

c. Applicant submittal to the Zoning Administrator of Wisconsin Department of Natural Resources approval to fill in wetlands, as shown on the preliminary site plan.

d. Detailed design of the main entrance boulevard, including within at least 150 of the intersection with the public street, a profile matching the design of the public street boulevard

on the opposite side of the main entrance, and for the entire length of the boulevard entrance drive two drive lanes of at least 24 feet in width on each side of the boulevard median.

e A complete plan showing extension of Village sanitary sewer and public water mains extended to the farthest property line as required by Village ordinance and as approved by the Utilities Director.

f. A complete plan showing planned surface parking areas to achieve the a total of 2.2 parking spaces on the entire site as required for multi-family development within the parking regulations of the Village Zoning Ordinance. The planned parking areas shall be placed to achieve future hard surface access surrounding at least 75% of the exterior of each building, as required by the Business Mixed Use regulations of the Village Zoning Ordinance. Should additional parking be needed, the applicant shall install the necessary additional parking spaces, in an amount as needed, within 90 days of written request by the Village of Mukwonago. All additional parking areas shall be constructed with perimeter concrete curb and gutter. The planned surface parking areas shall be included in the impervious surface calculations of the storm water management and water quality plan.

g. A complete plan showing pedestrian and emergency access to all on-site outdoor recreational and passive amenities for approval by the Village Fire Chief, Police Chief and Zoning Administrator, with a trail and/or sidewalk plan surrounding the entire site and linking the amenities. The trails and/or sidewalks shall extend along the boulevard entrance and connect to sidewalks within the adjacent public right-of-way. The complete plan shall identify a phasing schedule of installation of amenities as noted in the Developer Guaranty Agreement.

5. Detailed plans and information may be submitted for approval as required by Planned Unit Development standards of the Village Zoning Ordinance by phases. Information to be submitted shall be the approval requirements of Site Plan and Architectural Review standards of the Village Zoning Ordinance, except applicant's submittal of the building design elevations and floor plans of the ten apartment buildings and the clubhouse for this General Development Plan approval are sufficient for detailed plan approval. Furthermore, with submittal of detailed plans and information for approval per phase, the plans shall include the following:

a. Design of parking lots to allow the largest fire department vehicle to make all turning movements without turning into identified parking spaces.

b. The Village Fire Chief and/or Police Chief may require drive aisles and parking lot aisles to be wider than 24 feet along main interior traffic corridors.

c. Exterior entrance/exits for underground parking garages shall be a minimum of 24 feet wide.

d. A detailed landscape plan providing at least 0.25 deciduous and/or coniferous trees per dwelling unit per phase, and conforming to other landscape standards of the Business Mixed Use standards of the Village Zoning Ordinance.

e. A detailed exterior lighting plan.

During the approval process of detailed plans and information per phase, the Plan Commission and/or the Village Board may include additional development standards, which may include but not limited to utility and fire hydrant locations, temporary large vehicle turnarounds, temporary exterior access points, erosion control plan, temporary and final occupancy standards, and property maintenance standards.

6. Submittal for Plan Commission recommendation and Village Board approval of two commercial/business sites on each side of the boulevard entrance to the apartments, and the two commercial/business sites within the western part of the site shall conform to the Site Plan and Architectural Review standards and process of the Village Zoning Ordinance. The

architectural design of the buildings on the sites on each side of the boulevard entrance shall be designed with the same materials and colors as the apartment exterior renderings submitted and approved as part of this General Development Plan approval. No residential dwelling units shall be allowed within the identified commercial/business sites.

7. Applicant has stated refuse and recycling storage areas will be within the underground parking areas of each apartment building. Should the need ever arise for exterior storage of refuse and recycling, applicant shall gain Plan Commission approval of location of and design of dumpster enclosures.

NOW, THEREFORE, BE IT FURTHER RESOLVED the permittee, upon the granting of this Conditional Use Permit, shall agree to accept the same in writing.

Passed and dated this 17th day of April 2019.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Judy A. Taubert, Village Clerk

LAW OFFICES OF

**HIPPENMEYER, REILLY, BLUM,
SCHMITZER, FABIAN & ENGLISH S.C.**

MARK G. BLUM
THOMAS G. SCHMITZER
LORI J. FABIAN
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RICHARD S. HIPPENMEYER
(1911–1979)

WILLIAM F. REILLY
(1932–2007)

EMAIL: MGBLUM@HRBLAWFIRM.COM

May 19, 2020

Via Email (ddykstra@villageofmukwonago.com) and US Mail
Ms. Diana Dykstra
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Re: Developer Guaranty Agreement w/ Family Ventures of Mukwonago LLC

Dear Diana:

Enclosed is the original Developer Guaranty Agreement with Family Ventures of Mukwonago LLC showing its recording with the Waukesha County Register of Deeds Office on May 6, 2020 as Document No. 4472474.

Please let me know if you have any questions.

Sincerely,

HIPPENMEYER, REILLY, BLUM,
SCHMITZER, FABIAN & ENGLISH, S.C.

Mark G. Blum
Village Attorney

MGB/jb
Enc.

Cc: Attorney Robert Procter (via email)
Mr. Jerad Wegner (via email)
Mr. Ben Kohout (via email)

Developer Guaranty Agreement

Village of Mukwonago and Family Ventures of Mukwonago LLC

Document Number

Title of Document

4472474

REGISTER OF DEEDS
WAUKESHA COUNTY, WI
RECORDED ON

May 06, 2020 12:51 PM
James R Behrend
Register of Deeds
54 PGS
TOTAL FEE:$30.00
TRANS FEE:$0.00

Book Page -

The property affected by this Agreement is legally described on the attached Exhibit A.

Record this document with the Register of Deed.

Name and Return Address
Atty. Mark G. Blum
PO Box 766
Waukesha, WI 53187-0766

(Parcel Identification Number)

Drafted By:
Attorney Mark G. Blum
Hippenmeyer, Reilly, Blum,
Schmitzer, Fabian & English, S.C.
720 Clinton St., PO Box 766
Waukesha, WI 53187-0766
Phone: (262) 549-8181
Email: mgblum@hrblawfirm.com

Mukwonago – Place of the Bear
a Waukesha County blue chip community
www.villageofmukwonago.com
Village of Mukwonago

CERTIFICATION

I, Diana Dykstra, the duly appointed Village Clerk/Treasurer of the Village of Mukwonago, do hereby certify that the attached photos and maps are a true and correct copy of the original and if they are not legible or readable, a copy of the original is available from the Village of Mukwonago Clerk's Office.

Dated this 29th day of April, 2020.

Diana Dykstra,
Village Clerk/Treasurer

This Certification relates to the Developer Guaranty Agreement between the Village of Mukwonago and Family Ventures of Mukwonago, LLC.

DEVELOPER GUARANTY AGREEMENT

This Developer Guaranty Agreement (the "Agreement") is made and entered into this April 15, 2020, by and between the VILLAGE OF MUKWONAGO, a Wisconsin municipal corporation (hereinafter referred to as the "Village") and FAMILY VENTURES OF MUKWONAGO, LLC with its principal office and place of business located at N7152 Bowers Road, Elkhorn, WI 53121, (hereinafter referred to as "Developer").

RECITALS

WHEREAS, the Developer has acquired lands in the Village of Mukwonago, which real estate is more particularly described as Lots 2 of Certified Survey Map No. 11558, as shown on the attached **Exhibit A** (the "Property");

WHEREAS, subject to the Village providing financial assistance as set forth herein, the Developer intends to acquire fee simple title to the Property, to subdivide the Property into a commercial parcel (the "Commercial Property") and a mixed-use residential / commercial parcel (the "Mixed-use Property");

WHEREAS, the Developer plans to build a mixed-use development consisting of multi-family residential facilities and commercial retail facilities (the "Mixed-use Development") on the Mixed-use Property with various amenities as generally shown on the Preliminary Site Plan attached hereto as **Exhibit B** (the development of the Commercial Property and Mixed-use Property is defined as the "Project");

WHEREAS, Wisconsin Statutes grant the Board of Trustees of the Village the power to act for the government and the good order of the Village for its commercial benefit and for the health, safety, welfare and convenience of the public (Wisconsin Statute 61.34 and 62.23(7) with respect to zoning and development matters; Sec. 66.1001 dealing with comprehensive planning; and Chapter 100 of the Village of Mukwonago Municipal Code relative to Village zoning and development);

WHEREAS, the parties wish to set forth certain terms, conditions and agreements regarding the Village's approval of the Developer's project, as hereinafter described in conformance with applicable law;

WHEREAS, the Village, pursuant to Village Board Action dated February 6, 2019 and April 2014, 2020, has approved the terms of this Agreement and authorized the execution of the Agreement by the proper Village Officers on the Village's behalf; and

WHEREAS, it is necessary that the Developer and the Village enter into this Agreement to provide for the manner and method by which the Property will be developed.

AGREEMENT

NOW THEREFORE, in consideration of the mutual covenants and agreements contained in this agreement, the parties agree as follows:

1. Village Obligations. In consideration of the foregoing, the Village agrees as follows:

   a. *Public Improvements - Access Roadway.* The Village will construct a 100' roadway extending from Wolf Run to a line 80' east of the section line of CSM #11997 on the property designated as "100' wide right-of-way" on the CSM attached hereto as **Exhibit C** (the "Access Road"). The Village will extend sewer and water mains ("Sewer and Water") up to 80' east of the section line of CSM #11997 at locations approved by the Village and the Developer. The extension of the Roadway and the Sewer and Water are referred to as the "Village Public Improvements." Developer shall have the right to review and agree to the project specifications and costs for purposes of setting the Guaranteed Tax Payment. Notwithstanding the forgoing the project specifications must be consistent with Village of Mukwonago standards.

   b. *North-South Road.* The Village shall construct the north-south road (the "North-South Road") contemplated under Section 2b at its sole discretion.

   c. *Density.* The Mixed-use Development's density shall conform to the underlying zoning of the Property and shall not exceed the maximum density of twenty (20) residential units per acre. The total Residential Density shall not exceed 675 units.

   d. *Construction Access.* The Village will grant to Developer the right to use the roadway designated as "80' wide public street reservation" on the attached **Exhibit C** extending from Maple Avenue to the Property for the purpose of providing access to the Mixed-use Property during construction of the Mixed-use Development. The terms of said temporary access agreement shall require that the Developer will indemnify the Village against claims arising from said use, and will require that the Developer provide evidence of satisfactory liability insurance coverage naming the Village as an additional insured under terms acceptable to the Village. The roadway will need to be returned to the condition that existed prior to the execution of this Development Agreement upon completion of construction. The Developer shall maintain the construction roadway during the course of construction.

   e. Notwithstanding the foregoing, the Developer acknowledges that the Village has been served with a summons and complaint which makes allegations on behalf of the Greenwald Family Limited Partnership, which objects to the Village's use of its eminent domain authority for the acquisition of the Access Road, despite the fact that the Access Road is already the location of a utility easement and also, the fact that this road extension was established as part of the Village's Comprehensive Planning process.

2. Developer Obligations. In consideration of the foregoing, the Developer agrees as follows:

   a. *Certified Survey Map.* The Developer will prepare the certified survey map necessary to subdivide the Property and submit the same for Village approval.

   b. *Road Dedication.* The parties acknowledge that the Mukwonago Village Code requires the extension of road and utilities to the property boundaries within the Mixed-Use Development. The Developer agrees to dedicate to the Village, an 80' road right of way which shall run approximately along the western boundary of the Mixed-Use Property as shown on Exhibit C. The northerly terminus of said road right of way shall be the extension of the north property line of the Property and the southerly terminus being the dedicated road right of way across the Pro-Health property as show on the attached **Exhibit C** (the "North-South Road"). Said dedication shall occur concurrent with the execution of the developer's agreement between the parties. The Village, at its sole discretion, shall construct the North-South Road on a schedule to be mutually agreed on by the parties and shall construct the utility extension across such dedicated property. The Property shall not be specially assessed for the costs of the construction of the North-South Road.The Developer shall agree to an emergency access from the Northerly Mixed-use Development property line in a location mutually acceptable to the Village and the Developer as shown on the **Exhibit C**. The Village agrees that, as partial consideration for this dedication, the Village will convey, under terms of a separate agreement, lands adjacent to the commercial property pursuant to the terms of the agreement set forth as the attached **Exhibit D**.

   c. The Developer agrees to work in conjunction with the Village to obtain the building use, site and architecture approvals with the Village. Developer agrees to be responsible for obtaining approval from the state of Wisconsin DSPS for its building plans, as well as the State of Wisconsin DNR and any required local permit authorities.

   d. The Developer shall construct a multi-family, mixed use, residential development (Mixed-use Development) on the Property with various amenities as provided for herein, as well as commercial elements as generally shown on the Preliminary Site Plan attached as **Exhibit B**. This mixed use development shall generally be referred to as the Project.

   e. *Planned Unit Development.* The Developer will submit an application for approval of a planned unit development (PUD) in accordance with the Village's ordinances and all necessary documentation including, but not limited to, a General Development Plan and Specific Implementation Plan to complete the Mixed-use Development in phases. The Village's obligations under this Agreement are contingent on the approval of the General Development Plan, Specific Implementation Plan, Site Plan and PUD ordinance.

   f. *First Phase Mixed-use Development.* The first phase of the Mixed-use Development will consist of four (4) multi-family buildings together with the construction of the commercial elements shown as part of those buildings on

Preliminary Site Plan (the "First Phase"). Construction of the first building shall commence no later than six (6) months from the date of completion of the Access Road described in Section 2(a) above; provided, however, that construction may begin prior to the completion of the Access Road but not until required permits have been obtained and only if said work is coordinated with the Village's road construction contractor. Construction of the second building shall commence no later than eighteen (18) months of the completion of the Access Road described in Section 2(a); provided, however, that construction may start prior to the completion of the Access Road but not until required permits have been obtained and only if said work is coordinated with the Village's road construction contractor. The remaining phases of the Mixed-use Development will be constructed according to market demands. The amenities that will be built in the First Phase are the playground, a portion of the walking trails, grills, basketball court, tennis court, a pavilion, multi-purpose field, dog park, and shall all be completed as a condition of granting the occupancy permit for the second building. Notwithstanding the foregoing, occupancy may be granted by the Supervisor of Inspections if substantial progress has been made in the completion of the list of amenities. Construction of a swimming pool and clubhouse to serve the residential portion of the Mixed-use Development will be completed prior to the issuance of an occupancy permit for the third residential building constructed in the Mixed-use Development. Construction of the third building shall commence no later than thirty-six (36) months from the date of completion of the Access Road described in Section 2(a) above; provided, however, that construction may begin prior to the completion of the Access Road but not until required permits have been obtained and only if said work is coordinated with the Village's road construction contractor.

g. *On-Site Sewer and Water*. Developer agrees to extend sewer and water mains across the Property to serve the structures provided for in the Perliminary Site Plan said improvements shall be considered the Developer's Public Improvements. All sewer and water mains serving the Mixed-use Development shall be constructed in accordance with Village specifications and requirements and shall be constructed such that they can be extended to further development that may occur on property adjacent to the Mixed-use Development. Said utilities shall be extended to the lot lines so as to facilitate such future connection in a location acceptable to the Village.

h. *Secondary Access*. The Developer may, at its option, construct a secondary access road, subject to Village specifications and will be all-weather gravel and in a condition suitable for emergency vehicles to access the Property. The Developer will have the right to limit access to the secondary roadway to only its construction vehicles and the vehicles from the Village's emergency, public works, and inspection departments. The Village may require the construction of the Secondary Access if necessary for safety purposes.

i. *Tax Payment*. The Developer shall guaranty that the Village portion of the general real property taxes collected by the Village in each year (the "Collection Year") as the result of general property taxes levied on the Mixed-use Property shall equal or

exceed the "Guaranteed Tax Payment" set forth on the attached **Schedule GTP**. The "Actual Tax Payment" for a Collection Year is the Village portion of the general property taxes levied on the Mixed-use Property and paid to the Village for a given Collection Year minus the amount equal to the Village's portion of the actual general property taxes levied against the Mixed-use Property for 2018 tax year. If the Actual Tax Payment for the Mixed-use Property collected in a Collection Year does not equal or exceed the Mixed-use property taxes for such Collection Year, the Developer shall pay to the Village, no later than July 31 of the Collection Year, an amount equal to the difference between the Mixed-use Guaranteed Tax Payment for such Collection Year and the Actual Tax Payment collected on the Village's portion of the general real property taxes in such Collection Year (the "Mixed-use Developer Obligation").

Notwithstanding any provision to the contrary contained in this Agreement, the obligation of the Developer to pay the Mixed-use Developer Obligation shall only continue until the collected Actual Tax Payments in total equals or exceeds the Mixed-use Debt. When the collected Actual Tax Payments in total equals or exceeds the Mixed-use Debt, the Developer's obligation to provide the Guaranteed Tax Payments shall terminate. The term "Mixed-use Debt" shall equal $2,510,622.50.000.00, which includes interest, capitalized debt service, and other costs the Village is being charged for its financing of this cost for the purpose of construction of the access road as noted in paragraph 2b above. **NOTE**: As set forth on Schedule GTP, the Mixed-use Guaranteed Tax Payment requirement shall commence in the second calendar year following the completion of the Access Road described in Section 2(a) above. For example, if the Access Road is completed in 2020, the first assessment year subject to the Mixed-use Guaranteed Tax Payment is 2022; provided, however, that any Actual Tax Payment collected prior to the commencement of the Mixed-use Guaranteed Tax Payment shall be counted towards the Mixed-use Developer Obligation.Notwithstaning the forgoing the Developer warrants and represents that the Property shall be owned and occupied by entities that are not exempt from real estate taxes and that the "Guaranteed Tax Assessed Value" set forth on Schedule GTP shall be maintained until the date that the Village's note for the construction of the Village Public Improvements are paid (the Expiration Date). It shall be a further condition of this Agreement that ownership or occupancy of any portion of the Property may not be transferred to an entity which is exempt from real estate taxes without the prior written consent of the Village, which consent may be conditioned upon the execution by such new owner or occupant of an agreement to make payments in lieu of taxes in an amount of the then existing nonexempt property tax assessment, multiplied by the applicable tax rate for all taxing jurisdictions. These obligations shall survive and continue until the Expiration date. In the event the Developer receives an exemption from real estate tax prior to said date and /or the Guaranateed Tax Assessed Value is not reached, the Village may exercise its right to impose special assessments or charges for any amount to which it is entitled by virtue of this agreement. Said assessment may be levied without a public hearing. Developer

hereby consents to said assessment and does hereby waive said hearing and agrees that an assessment to recover its lost revenue is reasonable and benefits the Property. Such special assessments shall be collected in the next succeeding tax roll or as other special assessments or charges may be. This provision shall survive the termination of this Agreement.

j. *Surety for Mixed-use Guaranteed Tax Payment.* To secure performance by the Developer under 2i, Developer shall provide a surety acceptable to the Village equal to the Village's actual costs included in the Mixed-use Debt (i.e., the sum of $2,510,622.50). The surety may be in one of the following forms:

   i. Surety Bond or Letter of Credit. A surety bond or letter of credit that shall be renewable on an annual basis, and shall include a demand clause that allows the Village to draw on the bond or letter of credit in case it is non-renewed prior to satisfying the Mixed-use Guaranteed Tax Payment; provided, however, the Village will not make such a demand if the Developer obtains another acceptable surety bond, letter of credit, or escrows at a mutually acceptable bank the funds in an escrow account. At each time of renewal, the amount of the surety bond may be reduced to an amount equal to the remaining portion of the actual costs of the Mixed-use Debt at the time of renewal.

   ii. Mortgage on Commercial Property. A mortgage on the Commercial Property in the form attached as Exhibit G. Upon the sale of a Lot, the Village shall release the Mortgage so long as that the proceeds of said sale are paid into an Escrow Account subject to the terms and conditions of this paragraph. The Escrow Account shall be at a bank mutually acceptable to Developer and the Village, and held in an interest bearing account in the name of the Developer. There shall be an Escrow Agreement that provides: (a) that the funds shall not be disbursed to the Developer unless released by the Village consistent with this Agreement; and (b) that for any year that the Developer does not meet the Annual Guaranteed Tax Payment, the bank shall release to the Village upon demand an amount equal to any shortfall in payment by Developer in the Annual Guaranteed Tax Payment. At the time that the annual obligation of the Guaranteed Tax Payment is met, the amount of any escrowed amounts may be reduced to an amount equal to the remaining portion of the actual remaining costs of the Mixed-use Debt. The Mortgage shall be released by the Village against the Commercial Property if the Developer provides to the Village surety that meets the requirements of Section 2i above.

Prior to making a claim against the surety bond, the letter of credit, or the mortgage, the Village shall deliver notice to Developer specifying: (a) the claim; (b) the action required to cure the claim; and (c) a date, not less than 20 days from the date the notice is delivered to Developer by which date the claim must be cured. At the earlier of the following: (i) the total Actual Tax Payments made to the Village exceeds the Mixed-use Debt, or (ii) the construction of improvements by Developer on the Mixed-use

Property equal or exceed $15,000,000, the Village shall release the surety bond, letter of credit, and / or mortgage.

k. *Special Assessment of Mixed-use Property.* The Village shall not specially assess the Mixed-use Property for the Village Public Improvements that benefit the Mixed-use Property related to the commitments under this Agreement so long as the Mixed-use Developer Obligation is met and provided that the property remains taxable, i.e. not exempt from real estate taxes. If the Mixed-use Developer Obligation is not met and/or if the property becomes exempt from real estate taxes, then the Village may specially assess the Mixed-use Property the shortfall. Should the Village's right to any special assessments or charges arise, special assessment rights hereunder may be exercised pursuant to this paragraph on the Property without a hearing. Developer does hereby waive hearing on such special assessment and agrees that an assessment to cover the Village's lost tax revenue is reasonable and benefits the Property. Such special assessments or charges shall be collected in the next succeeding tax roll or as other special assessments or special charges may be. This paragraph constitutes Developer's waiver of notice and its consent to the special assessment and special charges, which may be required by law to the extent of an amount equal to the then-remaining balance and any shortfall on the actual tax payment due under this Agreement. This provision shall survive this Agreement until the Mixed-use Debt has been paid in full by the total collected from Developer in Actual Tax Increment payments and / or Mixed-use Developer Obligation payments.

l. *Guaranteed Commercial Taxed Assessed Value.* Developer agrees to endeavor to develop the Commercial Property such that the parcel is approved consistent with the Zoning Code and Future Land Use Map of the Village, and such that its improved taxed assessed value is increased from its value as of 1/1/19 by not less than $5,000,000.00 (the "Guaranteed Commercial Taxed Assessed Value") as compared with its tax assessed value as of the date five years after the Access Road is completed (the "Guaranteed Commercial Taxed Assessed Value Date"). In the event that the Commercial Taxed Assessed Value is not achieved by said date, then the Village shall have the option to purchase the remaining portion of the Commercial Property for a price equal to $132,682 per acre (gross acres). The Village shall exercise its right to purchase the remaining portion of the Commercial Property no later than six months after the Guaranteed Commercial Taxed Assessed Value Date by providing written notice to the Developer of its election. The Village agrees that it will not specially assess the Commercial Property for work performed according to this Agreement provided that the Property remains subject to real estate taxes and are not considered exempt for that purpose. In the event the Developer fails to make one or more guaranteed payments under this Agreement as provided for herein, the parties acknowledge that the Village shall have the right, with twenty one (21) days prior written notice, to impose special assessments or charges for any amount to which it is entitled by virtue of this Agreement and otherwise consistent with the special assessment statute, Wis. Stat. § 66.0701 et

seq. Developer's obligation to make guaranty payments hereunder shall terminate on the expiration date provided for herein.

m. *Zoning Approvals.* It is anticipated the Developer will submit an application for approval of a Planned Unit Development ("PUD") in accordance with the Village's Ordinances and all necessary documentation related thereto, including, but not limited to, a General Development Plan and Site Implementation Plan to complete the residential development and commercial development in phases. The terms of this PUD shall be mutually satisfactory to the Village and the Developer. The Village's obligations under this Agreement are contingent on the approval of the Site Plan and PUD ordinance.

n. *Other Village Approvals.* The Developer agrees to work in conjunction with the Village to obtain the building use, site and architecture approvals with the Village. Developer agrees to be responsible for obtaining approval from the State DSPS for its building plans, as well as the DNR, and any required local permit submissions.

o. *Civil Design.* Developer shall be responsible for the complete civil design for all site work contained within the Mixed-use Property.

3. Property Development:

   a. The approval of the Project and all terms and conditions within this Agreement are subject to compliance by the Developer with the conditions imposed by the Village and its approval general development plan and PUD. No other uses shall be permitted on the Property without the approval of the Village and/or an amendment of this Agreement. The Property will be developed in accordance with the aforementioned approved plans subject to the terms of the Planned Unit Development Ordinance and any other terms and conditions of this Agreement.

   b. Approval of this Agreement shall be subject to approval by the Village of a Storm Water Management Plan and a Storm Water Maintenance Agreement for the Property, with the Agreement executed by the Developer. The Storm Water Management Plan and Storm Water Maintenance Agreement shall be in a form satisfactory to the Village, providing flow to the storm water management and water quality facilities and to ensure the maintenance, care and upkeep of the storm water management and water quality facilities within the Project.

   c. The Developer shall be responsible for all costs to complete the public improvements internal to the Mixed-use Property as required by this Agreement. The Developer shall be responsible for all fees incurred by the Village with respect to the inspection of the installation, construction and/or repair of the public improvements within the Mixed-use Property.

4. Surety.

   a. Prior to commencement of any development on the Property, Developer shall provide for the reasonable approval of the Village Engineer, an estimate of the costs of the public improvements that Developer is to build on the Property.

After approval of the cost estimate by the Village Engineer, Developer shall submit to the Village a Letter of Credit or Surety Bond (the "Surety") to ensure the completion of the Developer Public Improvements and repairs to existing public improvements in accordance with the Village's development standards.

b. The Surety shall be in an amount of the cost estimate approved by the Village Engineer plus twenty (20%) percent. The form of the Surety shall be approved by the Village Attorney and no work on the Project shall commence until the approval of the Surety by the Village Attorney.

c. If the Village, in its sole, but reasonable judgment determines the Developer shall have failed to complete the public improvements or complete the repair of the existing public improvements, the Village shall give notice of such fact to the Developer, who shall have not less than 30 days following receipt of the written notice, to cure such default. In the event the Developer is unable to cure such default within such 30-day period, but has, in good faith, commenced such a cure within said 30-day period and reasonably and continuously takes action to complete such care and such care shall be completed within 30 days of the said written notice, the Developer shall not be in default. Except as stated immediately above, if Developer does not accurately complete the required work or the completed work is substandard in accordance with the Village's development standards and other applicable Codes, or if not less than 30 days prior to the expiration of the Surety, the Developer has not provided evidence of the renewal of the Surety, the Village shall be entitled to draw upon the Surety and shall use the full Surety, or portions thereof, to complete the work by Village Staff or through a contractor. If the Developer adequately completes the required public improvements and/or repairs to the public improvements and completion is accepted by the Village Engineer after Final Occupancy Permit, the Village shall reduce the Surety in an amount equal to not more than ten (10%) percent of the completed public improvements for a period not to exceed fourteen (14) months after the date of the public improvements for which the Surety was provided are substantially complete. The Village Board shall approve the reduction and said approval shall not be unreasonably withheld.

d. The Developer remains responsible for the Village required impact fees, plan review fees and charges, as well as Building Permit, Erosion Control Permit and other Municipal Permit fees.

e. The Developer shall be responsible for securing all other required permits from state and local agencies to allow the commencement of the development on the Property or off-property improvements necessary for the Project.

5. Construction Requirements.

a. In addition to the conditions otherwise set forth in this Agreement, Developer shall pay to the Village all required fees and charges, including payments or maintenance of an escrow account in favor of the Village for incurred

professional service charges. Said fees or the creation of an escrow account shall be made prior to the Village being required to issue any permit for the development of the Property.

b. Developer's work on the Property shall start no sooner than 7:00 a.m., Monday through Saturday, during the months of November to February. During the months of March through October, work shall start no sooner than 6:30 a.m. Work shall not extend beyond 7:00 p.m. at any time. Work on the Property shall not occur on Sundays or National Legal Holidays. For purposes of this provision, "work" shall mean the producing of any sound caused by the construction, construction equipment or construction vehicles or material deliveries. The time limitations do not restrict early arrival for staging or after hours cleanup by construction workers. The time limitations do not apply to construction work not controlled by the Developer, such as private or public utilities. However, Developer shall make every effort to maintain compliance with these limitations.

c. Developer shall, at all times, maintain surrounding rights-of-way free from dirt, gravel and construction debris. When construction work occurs within rights-of-way, the rights-of-way shall be free from dirt, gravel and construction debris prior to the end of the construction day. Developer, at all times, shall maintain the property and surrounding properties free from construction debris and employee waste. If Developer does not comply with the requirements of this paragraph, the Village may, after written notice to the Developer and upon Developer's failure to promptly and reasonably take action to cure such matters, utilize Village employees and equipment to maintain the area and charge these expenses to the Developer.

d. Upon the commencement of initial site construction, the Developer shall install a gravel-tracking pad on the Property as soon as reasonably possible. After commencement of the initial site work, Developer shall install on the Property a gravel surface to place construction vehicles, equipment and building materials. Vehicles and equipment entering and existing the Property during the development shall travel only over the tracking pad as referred to above.

e. All construction vehicles and equipment shall be parked on the Property overnight or when construction activity is not occurring. All construction materials shall be stored on the Property. No construction materials shall be placed on adjacent rights-of-way except for temporary transfer from delivery vehicles to the site. Construction equipment and delivery vehicles may park on adjacent rights-of-way during normal working ours, but at all times, not less than a 12' wide traffic lane shall be maintained in each direction. Developer shall take reasonable efforts to minimize the parking of construction vehicles and equipment, and other vehicles associated with the Project, on adjacent rights-of-way. Lack of compliance with the requirements of this section may result in ticketing of the Developer's vehicles with fines as permitted by law.

6. Commencement/Completion. The Developer Public Improvements necessary for each Phase on the Mixed-use Development Property shall be completed by the Developer and its subcontractors within 18 months after commencing construction for the applicable Phase subject to force majeure. For purposes of this Agreement, the term "commencement of construction" shall mean that the Developer has incurred 10% of the cost identified on the Developer Public Improvements schedule, attached hereto. for the public improvements internal to the Mixed-use Development.

7. Additional Conditions.

    a. Storm Drainage. Storm drainage and water quality shall be provided by means of storm sewers, culverts, ditches, detention/retention basins on private property and/or in the public right-of-way or drainage easement where required and as approved by the Village. All such improvements shall be at the Developer's sole expense. All storm water drainage and water quality management shall be completed in conformance with the approved Storm Water Management Plan.

    b. Nothing in this Agreement shall be deemed to limit the Developer's responsibility to adjacent owners for discharged water. Should any claim be made against the Village for increased water discharge or altered drainage patterns from the Project, Developer shall indemnify, defend and hold harmless the Village, paying all costs thereof, including, but not limited to, reasonable attorney fees: and further. indemnifying the Village from any loss or damage based upon a claim arising from water alleged discharged within or from the site.

8. General Conditions.

    a. The Developer agrees to abide by such further orders or directions as may be reasonably given by the Village, as may be necessary to implement and carry out the terms and intent of this Agreement. It is expressly understood and agreed that the terms of this Agreement are covenants running with the land and binding on the Developer, its successors and/or assigns.

    b. Developer shall be responsible for the repair to existing roadways and infrastructure for damage caused as the result of the construction activities or construction on the Property. Areas of the Project that are within the jurisdiction of other governmental agencies, such as Waukesha County, Walworth County or the State of Wisconsin Department of Natural Resources or the State of Wisconsin Department of Transportation shall be developed in accordance with the requirements of those agencies. Costs incurred by the Village from other governmental jurisdictions related to this Project shall be reimbursed by the Developer within 30 days of invoicing.

    c. All work performed under the provisions of this Agreement shall be done in a good and workmanlike manner, and in accordance with all Codes, applicable rules and regulations, governing or affecting the Property.

    d. This Agreement shall be recorded with the Register of Deeds.

e. This Agreement may only be modified in an instrument or writing executed by all parties thereto.

f. The Developer shall save, indemnify and hold harmless the Village, its officers, elected officials, employees, agents and/or assigns as and against any and all liability, demands, costs, expenses and/or judgments incurred by the Village, including, but not limited to, actual attorney fees as the result of any action by any third party against the Village or against the Developer, or both, arising out of the failure of the Developer in the performance of this Agreement, or arising from the Village's approval of this Agreement and/or the operation of this agreement resulting from the intentional acts or negligence of the Developer, its agents or employees. This indemnity shall apply regardless of whether the liability arises, in part, from the negligence of the Village.

g. The Developer, and all contractors working for the Developer, shall maintain, at all times until expiration of the completion of the public improvements, liability insurance coverage in the form and in the amount set forth in the attached Exhibit E. The Village shall be named as an Additional Insured under said policies on a primary and non-contributory basis, with limits of not less than $1 Million per occurrence or $2 Million in the aggregate. Said insurance shall provide that it may not be cancelled absent not less than 30 days notice to the Village of any cancellation or material modification, except in the case of termination in the event of nonpayment of premium in which event the notice shall be not less than ten days. Developer agrees to engage contractors/subcontractors for all construction included in this Agreement, who shall perform work to the standards of the Village and who shall comply with every requirement of the Village Code and standards in performing the work. Developer agrees that the Village shall not be responsible for any costs or charges related to this Project except those specifically enumerated and agreed to in this Agreement.

h. Acceptance of Work. The Village shall review the Developer Public Improvements once completed and if acceptable to the Village Engineer, accept such improvements as being in compliance with the standards and specifications of the Village. Such review and acceptance where appropriate will occur within 60 days of written notice by the Developer that the Developer desires to have the Village inspect and accept the improvements. At the option of the Village, if the ground is frozen, the time for final inspection may be extended as necessary so that final inspection may take place in spring of the following year after vegetation has become established. Before obtaining acceptance of any work or any improvements, the Developer shall present to the Village valid Lien Waivers from all persons providing materials or performing work on the improvements for which approval is sought. Acceptance by the Village does not constitute a waiver by the Village of the right to draw funds under the Letter of Credit because of defects in, or failure of, any improvement that is detected or which occurs following such

acceptance. The Developer agrees that the dedication of the improvements and the required public improvements will not be accepted by the Village until they have been reviewed and inspected for approval by the Village Engineer and furthermore, until all outstanding Village costs, including engineering and construction review charges, have been paid in full and Affidavits and Lien Waivers received by the Village indicating the contractors and suppliers have been paid in full for all work and improvements furnished under this Agreement. Sanitary sewer main and water main, and their respective service laterals, shall not be accepted until a complete breakdown of all construction, engineering and administrative costs incurred by the Developer are submitted to the Village Engineer and Village Clerk respectively. (This is necessary to aid in determining the sewer and water utilities value on the Village's Financial Statements.) In addition, the water system installation shall not be accepted until the Village obtains a bacteriologically safe sample. The Village shall flush the main, obtain the sample and have all tests completed as may be required by the Village at the Developer's cost. Said lines shall be pressure tested and the sewer mains shall be TV'd showing that there are no leaks in the lines and no construction debris within the sewer. The acceptance of the water and sewer mains shall be further subject to the Developer providing a verification that they have been constructed in accordance with the Village Standards and Specifications. Developer needs to maintain and repair all required Developer Public Improvements until the Village formally accepts said improvements. The Developer shall provide the Village with electronic and reproducible copies of all improvement plans. Electronic copies of all improvement plans shall be in the most current version of AutoCAD. The Village Engineer shall prepare record drawings of the improvements at the Developer's sole expense within 30 days of the binder course placement.

i. Warranty. Developer warrants and guarantees that the installation of the sanitary sewer and water mains installed on the Mixed-use Development Property for a period of one year from the date of final acceptance by the Village of all improvements completed by the Developer under this Agreement against defects, in installation or materials. If any defect shall appear during the guaranteed period, the Developer agrees to make the acceptable repairs of the defective work. This includes, but is not limited to the storm water facilities. The guaranteed period shall continue for a period of one year after the acceptance by the Village of the improvements. A Letter of Credit or bond shall remain in full force for the time that any portion of the improvements have yet to be completed, and a portion of the bond is deemed adequate by the Village Engineer, but not to exceed 20% of the original Letter of Credit or bond, shall remain in force for the one year guarantee period.

j. Compliance with Agreement.

    i. Grading, Erosion Control and Barricades. Developer shall furnish, install and maintain during construction, and until the improvements are

accepted by the Village, all barricades and signs as required by the Manual of Uniform Traffic Control Devices, at all points where new rights-of-way extend or intersect existing streets and at all street ending points. Signs and barricades shall be required, furnished and installed to conform to the Manual of Uniform Traffic Control Devices. Developer shall obtain the approval of the Village for erosion and runoff control measures as required by the Village Ordinances prior to grading, utility installation or any other land disturbing activities. The Developer shall adhere to the conditions of the approval, and grants the right-of-way on the Property to designated Staff of the Village to inspect and monitor compliance with these requirements.

ii. Sanitary Sewer Facilities and Laterals. The Developer shall install sanitary sewer mains and laterals on Mixed-use Development Property to serve the Mixed-use Development. In addition to any other approvals required by this Agreement, until all necessary approvals or plans have been obtained from the Village Engineer and the State of Wisconsin DNR, no installation of underground utilities shall commence.

iii. Plans. The Developer shall furnish the Village with reproducible approved plans of the sanitary sewer system, including the location and elevation of laterals at the lot lines prior to the Village's acceptance of dedication.

iv. Standards of Materials. All materials shall conform to the standards and specifications for sewer main construction of the Village.

v. Water Mains and Service Pipes. Developer shall install water mains, including pipes, hydrants, tees, valves, crosses and related appurtenances and water service laterals to serve the development as required by the Plan Specifications and Requirements of the Water Utility as approved by the State of Wisconsin DNR. All water service laterals 2" in diameter and smaller shall be completed with a curb stop and box. All other water service laterals shall be capped and buttressed 10' beyond the right-of-way line with a control value with road box anchored to the main.

vi. Fire Hydrants. All materials and methods of installation used shall conform to the Village's Standards and Specifications for water main construction, and the Village's development requirements. Fire hydrants shall be installed throughout the Mixed-use Development at the Developer's expense. Fire hydrants shall not be installed or permitted within 5' of driveway approaches or other laterals. No Building Permit shall be issued until the Village Engineer has determined that adequate fire hydrants are available.

vii. As Built Plans. Developer shall furnish the Village reproducible, most recent version approved AutoCAD plans of the water system, including

the location and elevation of laterals at the lot lines prior to the Village's acceptance of dedication.

viii. Lateral Setback Requirements. No water or sewer laterals shall be placed closer than 10' from driveway aprons or driveways. This restriction shall be placed upon all construction drawings and in the Development Restrictions.

k. Storm Water Management Structures. The Developer shall install storm water management facilities, including related storm sewers required by the Village Ordinance and the approved Storm Water Management Plan. The Developer shall furnish the Village with reproducible approved plans of the Storm Water System prior to the Village's acceptance of dedication.

l. Developer shall be responsible for the maintenance of all required storm water facilities located inside the Project prior to acceptance of the storm water facilities by the Village. After said acceptance of the storm water facilities, the Developer shall remain responsible for the maintenance of the storm water facilities. This maintenance shall include, but not be limited to, the responsibility of cleaning of storm water facilities, and removal of debris to assure that they perform adequately. The cost of maintenance of the storm water management system shall be borne by the Developer, its successors and assigns, in accordance with the Storm Water Maintenance Agreement. After the Developer has completed the installation of the storm sewer and/or sanitary sewer, the Developer shall televise the storm sewer and sanitary sewer lines upon completion and prior to the acceptance of the improvements, and the Developer shall cause the lines to be cleaned if it is determined to be necessary by the Village. Developer shall cause the lines to be televised with the approval of the Village Engineer and shall provide the video record of such inspection to the Village Engineer for determining whether any lines need to be cleaned.

m. To the extent that standards and/or specifications have not been established by the Village, all work shall be made in accordance with established engineering practices as designated and approved by the Village Engineer.

n. The Developer shall landscape the Project as shown in the Landscape Plan.

o. The Developer acknowledges that the commercial site has been clear cut of trees without the permission of the Village of Mukwonago as required under Village Ordinances. The Developer agrees to submit a reforestation plan for the trees that were removed and in addition, to make a payment in the sum of $25,000.00 to the Village's tree fund within thirty days of the execution of this Agreement

9. Notices. Any written notice or demand hereunder from any party to another party shall be in writing and shall be served by (a) personal delivery, (b) certified mail, return receipt requested or, (c) overnight courier such as Federal Express, United Parcel Service or Express Mart at the following addresses:

To the Village at:

Village of Mukwonago
Attn: Village Clerk
440 River Crest Court
Mukwonago, WI 53149

With a copy to:

Attorney Mark G. Blum
Hippenmeyer, Reilly, Blum
Schmitzer, Fabian & English S.C.
720 Clinton St., P O Box 766
Waukesha, WI 53187-0766

To the Developer at:

Family Ventures of Mukwonago, LLC
Attn: Thomas Larson
N7152 Bowers Road
Elkhorn, WI 53121

With a copy to:
Attorney Robert Procter
Axley Brynelson, LLP
2 East Mifflin St., Suite 200
Madison, WI 53703

Any party may change its address by providing notice in accordance with this provision.

10. Codes. The Village and Developer agree to follow all Village ordinances in regards to their respective obligations set forth herein.

11. Time. Time shall be of the essence for all purposes of this Agreement.

12. Amendments. This Agreement sets forth all the promises, incentives, agreements, conditions and understandings between the parties hereto relative to the subject matter thereof, and there are no promises, agreements, conditions or understandings, either oral or written, expressed or implied, between them, other than this Agreement. Except as herein otherwise provided, no subsequent alteration, amendment, change or addition to this Agreement shall be binding upon the parties hereto unless authorized in accordance with law and reduced in writing and signed by the Village and Developer.

13. Severability. If any section, subsection, sentence, clause, phrase or portion of this Agreement is for any reason held invalid or unconstitutional by any court of competent jurisdiction, such portion shall be deemed a separate and distinct and independent provision and such holding shall not affect the validity of the remaining portions thereof.

14. No Waiver. Neither party shall be excused from complying with any of the terms and conditions of this Agreement by any failure of the other party upon one or more occasion to insist upon or seek compliance with any such terms or conditions.

15. Assignment. Developer may not assign its rights under this Agreement, without the prior written consent of the Village.

16. Remedies. Upon a breach of this Agreement, any party hereto may secure the specific performance of the covenants and agreements herein contained, may be awarded damages for failure of performance or both, or may obtain rescission for repudiation or material failure of performance by an action or proceeding at law or in equity in the Circuit Court of Waukesha County. Notwithstanding the foregoing, before the failure of any party to perform its obligations under this Agreement shall be deemed to be a breach of this Agreement, the party claiming such failure shall notify, in writing, the party alleged to have failed to perform of the alleged failure and shall demand performance. No breach of this Agreement may be found to have occurred if performance has commenced to the satisfaction of the complaining party within thirty (30) days of receipt of such notice. The party awarded judgment shall be entitled to its cost, disbursements, and reasonable attorney fees.

17. Force Majeure. If performance of any covenant to be performed hereunder by any party is delayed as a result of circumstances which are beyond the reasonable control of such party, which circumstances may include, but are not limited to, acts of God, war, acts of civil disobedience, harsh weather, strikes or similar acts, the time for such performance shall be extended by the amount of time of such delay.

18. Governing Law. This Agreement shall be construed, interpreted and enforced in accordance with the laws of the State of Wisconsin. Developer shall at all times observe and comply with all federal, state and local laws, regulations and ordinances which are in effect, as of the date hereof, which may affect the conduct of the work to be accomplished under this Agreement.

19. Default. Failure of the Developer to observe or perform any covenant, condition, obligation or agreement on its part to be observed or performed under this Agreement within thirty (30) days after receipt of written notice of default from the Village specifying such default shall be an event of default, provided that if such default cannot be cured within such thirty (30) day period, such thirty (30) period shall be extended to allow for such cure provided that Developer commences the cure within such thirty (30) day period and diligently pursues the same. In the event that the default is such that immediate harm may result from such default, then the Developer shall be given five (5) days written notice to cure such default.

20. Remedies of Default. Whenever an event of default referred to herein occurs and is continuing, the Village may take any one or more of the following actions:

a. The Village may suspend its performance under this Agreement until it receives assurances from the Developer, deemed reasonably adequate by the Village, that the Developer will cure its default and continue its performance of this Agreement.

b. The Village may take any action, including legal or administrative action in law or equity, which may reasonably be necessary or desirable to enforce performance and the observance of the obligations hereunder.

c. These remedies shall not be deemed to be exclusive and the Village shall have the right to pursue all rights or remedies available to it under applicable Wisconsin law. No delay or omission in pursuing any rights in the event of a default shall impair such right or power or shall be construed to be a waiver thereof. Such rights may be exercised from time to time as may be deemed expedient by the Village.

d. Whenever an event of default occurs and the Village shall employ attorneys or incur other expenses for the collection of payments due or to become due, or for the enforcement or performance or observance of any obligations or agreements on the part of the Developer herein contained, the Developer agrees it shall, on demand thereof, pay the Village the reasonable fees of such attorneys and such other expenses so incurred by the Village.

21. Developer Indemnity. Developer covenants and agrees that the Village, its governing body, members, officers, agents, including independent contractors, consultants, legal counsel, servants and employees, hereinafter collectively referred to as the "Village Indemnified Parties" shall not be liable for and Developer agrees to jointly and severally indemnify and hold harmless the Village Indemnified Parties against any loss or damage to the Property or any injury to or death of any person occurring at or about or resulting from any defect in the improvements constructed by Developer during construction or from any costs or claim, including reasonable attorney fees, which may result from the Developer's default under this Agreement, including but not limited to injuries or damage arising from the construction of the Developer's facility, including construction liens, except for any willful misrepresentation or any willful wanton misconduct of the Village Indemnified Parties, the Developer agrees to protect and defend the Village Indemnified Parties now and forever and further agrees to hold the aforesaid Village Indemnified Parties harmless from any claim, demand, suit, action or other proceedings whatsoever by any person or entity whatsoever arising or purportedly arising from the actions or inactions of the Developer (or other persons acting on its behalf or under its direction or control) under this Agreement or the transactions contemplated hereby or the acquisition, construction, installation, ownership and operation of the project.

22. Village Indemnity. The Village covenants and agrees that the Developer, its members, officers, agents, including independent contractors, consultants, legal counsel, servants and employees, hereinafter collectively referred to as the "Developer Indemnified Parties" shall not be liable for and Village agrees to jointly and severally indemnify and hold harmless the Developer Indemnified Parties against any loss or damage to the Property or any injury to or death of any person occurring at or about or resulting from any defect in the project or from any costs or claim, including reasonable attorney fees, which may result from the Village's default under this Agreement, including but not limited to injuries or damage arising from the construction of the

Industrial Park, including construction liens, except for any willful misrepresentation or any willful wanton misconduct of the Developer Indemnified Parties, the Village agrees to protect and defend the Developer Indemnified Parties now and forever and further agrees to hold the aforesaid Developer Indemnified Parties harmless from any claim, demand, suit, action or other proceedings whatsoever by any person or entity whatsoever arising or purportedly arising from the actions or inactions of the Village (or other persons acting on its behalf or under its direction or control) under this Agreement or the transactions contemplated hereby or the acquisition, construction, installation, ownership and operation of the project. Notwithstanding the foregoing, nothing contained within this Agreement is intended to be a waiver or estoppel of the Village or its insurer to rely upon the limitations, defenses and immunities contained under Wisconsin law, including those set forth in Wisconsin Statute Secs. 893.80, 895.52 and 345.05. To the extent that indemnification is available and enforceable, the Village or its insurer shall not be liable in indemnity or contribution for an amount greater than the limits of liability for municipal claims established under Wisconsin law.

(Signature page to follow)

IN WITNESS WHEREOF, the parties hereto have caused this Agreement to be executed as of the date and year first above written.

VILLAGE OF MUKWONAGO
a Wisconsin municipal corporation

By: Fred Winchowky
Fred Winchowky, President

VILLAGE OF MUKWONAGO
a Wisconsin municipal corporation

By: Diana Dykstra
Diana Dykstra, Clerk/Treasurer

STATE OF WISCONSIN)
) ss.
COUNTY OF WAUKESHA)

Personally came before me, this 21 day of April, 2020, the above-named Fred Winchowky and Diana Dykstra, to me known to be the person who executed the foregoing instrument and acknowledged the same.

NOTARY PUBLIC * Linda A. Gourdoux * STATE OF WISCONSIN

Linda A Gourdoux
Notary Public, State of Wisconsin
My Commission is permanent/expires: May 28, 2021

DEVELOPER
Family Ventures of Mukwonago, LLC

By: Thomas L. Larson
Thomas L. Larson, Member

LINDA J DAVIS NOTARY PUBLIC STATE OF WISCONSIN

STATE OF WISCONSIN)
) ss.
COUNTY OF ~~WAUKESHA~~ Walworth)

Personally came before me, this 20 day of April, 2020, the above-named Thomas L. Larson, to me known to be the person who executed the foregoing instrument and acknowledged the same.

Linda J Davis
Linda J Davis
Notary Public, State of Wisconsin
My Commission is permanent/expires: 12/14/2020

Exhibit A

Legal Description

Attach Existing CSM

EXHIBIT A

LEGAL DESCRIPTION:

Lot 2 of Certified Survey Map No. 11558, recorded as Document 3843057 in the office of the Register of Deeds, Waukesha County, being part of the NE ¼ of the NE ¼ of Section 36, Town 5 North, Range 18 East and part of the NW 14 of the NW ¼ 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 a platted creek. Also including lands between the meander line and the centerline of a platted creek containing 50.95 acres.

4277810

Book 115 Page 199-208

Ex. A, Cont'd.

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11558

Sheet 1 of 8

Part of the SE ¼ and NE ¼ of the NE ¼ of Section 36 and the NE ¼ and NW ¼ of the SE ¼ Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ Section 31, Town 5 North, Range 19 East

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

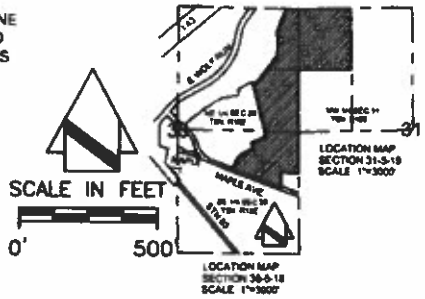
SURVEYOR/ENGINEER:
JOHN R. STIGLER, PLS
JAHNKE & JAHNKE ASSOC., INC.
711 WEST MORELAND BLVD
WAUKESHA, WI. 53188-2479
PHONE: (262) 542-5797

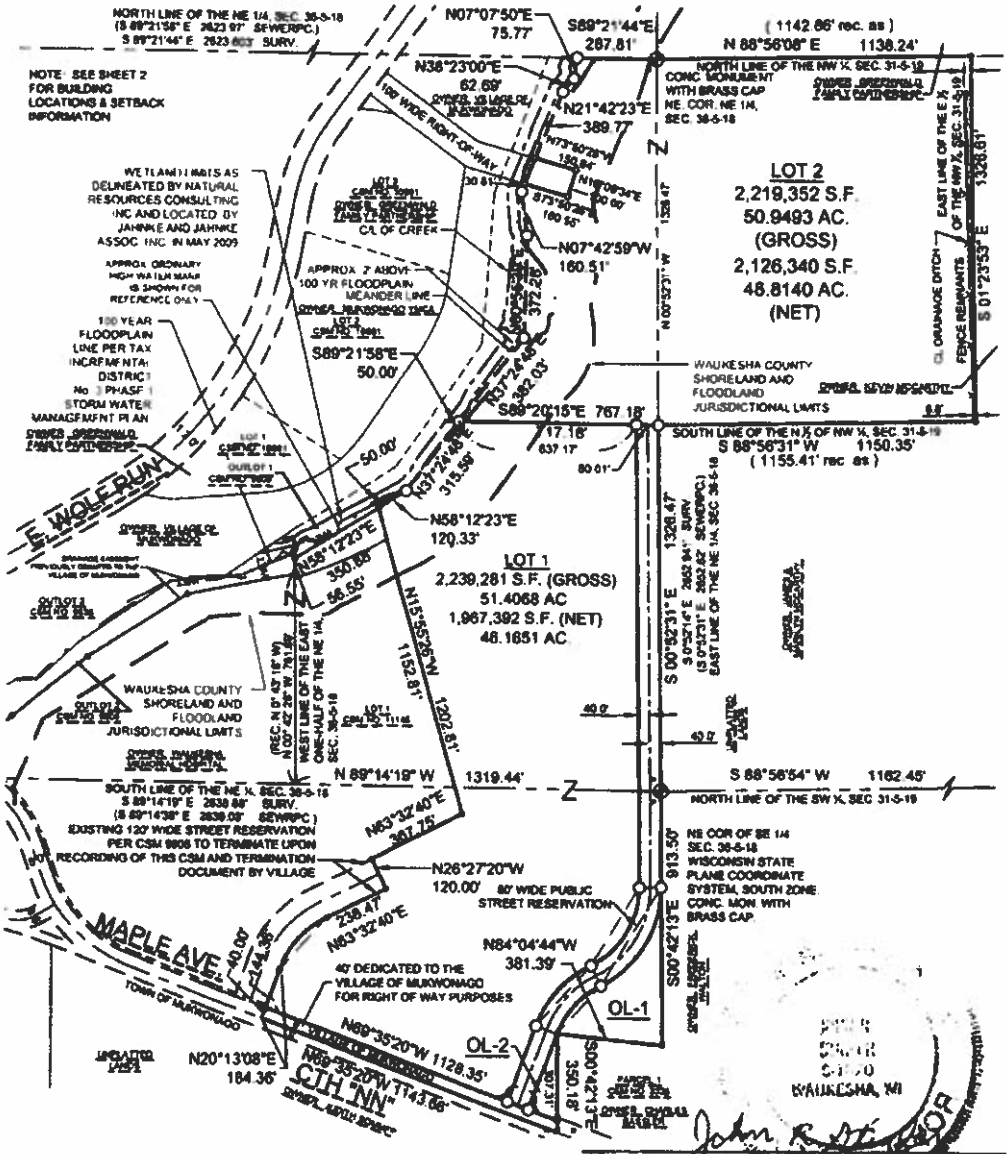
OWNER/SUBDIVIDER:
DOUGLAS & DEBRA DEBACK REVOCABLE TRUST
S108 W28220 MAPLE AVE.
MUKWONAGO, WI 53149

REFERENCE BEARING: THE NORTH LINE OF THE NE 1/4, SEC. 36-5-18 WAS USED AS THE REFERENCE BEARING AND HAS A BEARING OF S89°21'58"E (SOUTH ZONE)

LEGEND:

- O -IRON PIPE 18" x 1" DIA. (PLACED) 1.13+ LBS. PER LIN. FT.
- ● -IRON PIPE/ROD 18" x 1" DIA. (FOUND)
- ⊕ -CONC. MON. (FOUND)





FILE NAME: S8514.DWG
P.S. MUKWONAGO 1057

JOHN R. STIGLER - W.S. REG. NO. S-2820
DATED THIS 3rd DAY OF [illegible] 2017
REVISED THIS 26th DAY OF April, 2017
INSTRUMENT DRAFTED BY JOHN R. STIGLER

1/1

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(262) 542-8200

FORM ARC 101

CERTIFIED SURVEY MAP NO. 11658 Sheet 2 of 8

Part of the SE ¼ and NE ¼ of the NE ¼ of Section 36 and the NE ¼ and NW ¼ of the SE ¼ Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ Section 31, Town 5 North, Range 19 East
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

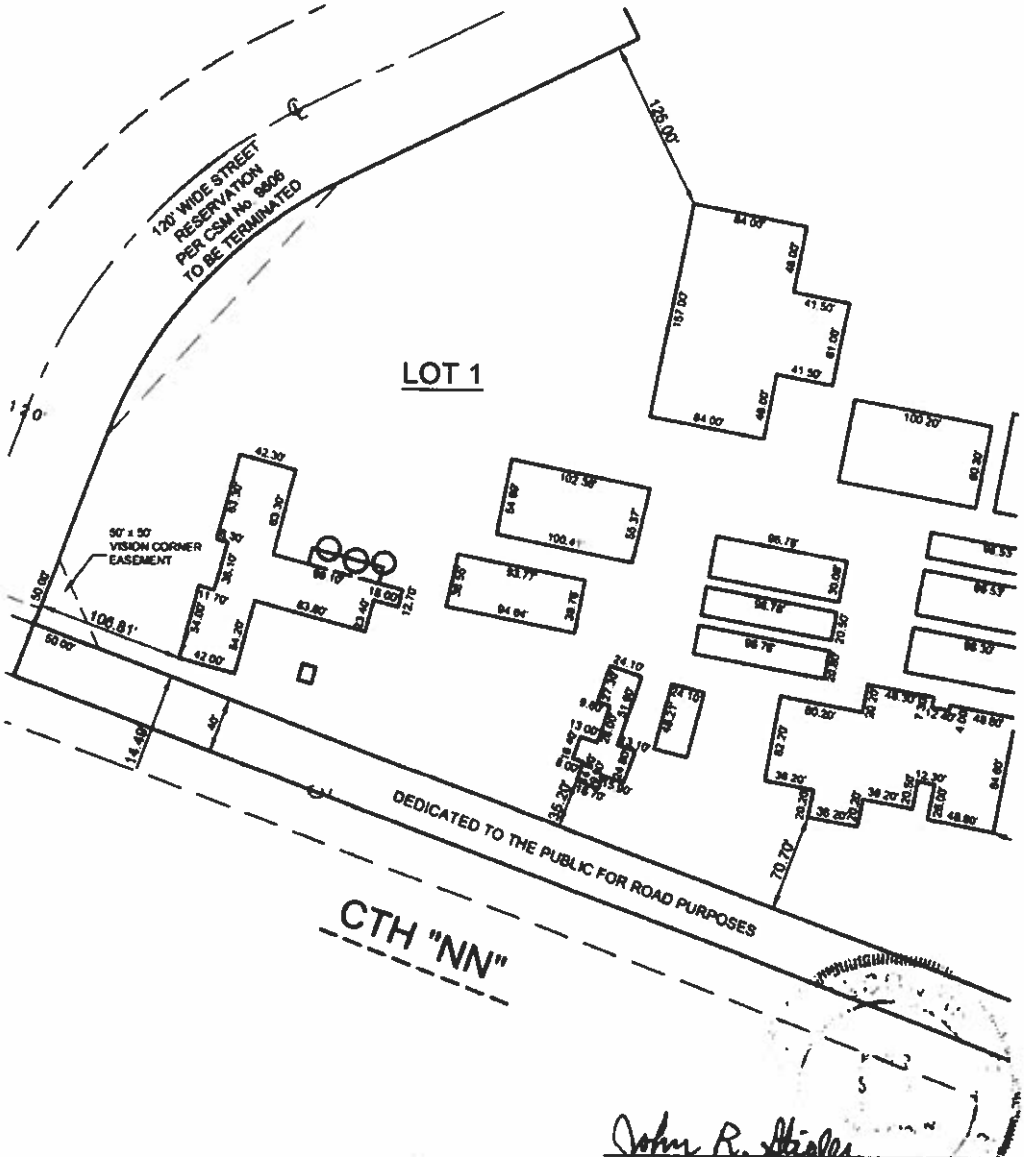
SURVEYOR/ENGINEER:
JOHN R. STIGLER, PLS
JAHNKE & JAHNKE ASSOC., INC.
711 WEST MORELAND BLVD
WAUKESHA, WI. 53188-2479
PHONE: (262) 542-5797

OWNER/SUBDIVIDER:
DOUGLAS & DEBRA DEBACK
REVOCABLE TRUST
S108 W28220 MAPLE AVE.
MUKWONAGO, WI 53149

REFERENCE BEARING: THE NORTH LINE OF THE NE 1/4, SEC. 36-5-18 WAS USED AS THE REFERENCE BEARING AND HAS A BEARING OF S89°21'58"E (SOUTH ZONE)

SCALE IN FEET
0' 100'

BUILDING DETAIL



FILE NAME: S8514.DWG
P.S. MUKWONAGO 1057

John R. Stigler
JOHN R. STIGLER - Wis. Reg. No. S-1820
DATED THIS 3rd DAY OF April, 2017
REVISED THIS 26th DAY OF April, 2017
INSTRUMENT DRAFTED BY JOHN R. STIGLER

200

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(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11558 Sheet 3 of 8

Part of the SE ¼ and NE ¼ of the NE ¼ of Section 36 and the NE ¼ and NW ¼ of the SE ¼ Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ Section 31, Town 5 North, Range 19 East
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

SURVEYOR/ENGINEER:
JOHN R. STIGLER, PLS
JAHNKE & JAHNKE ASSOC., INC.
711 WEST MORELAND BLVD.
WAUKESHA, WI. 53188-2479
PHONE: (262) 542-5797

OWNER/SUBDIVIDER:
DOUGLAS & DEBRA DEBACK
REVOCABLE TRUST
S108 W28220 MAPLE AVE.
MUKWONAGO, WI 53149

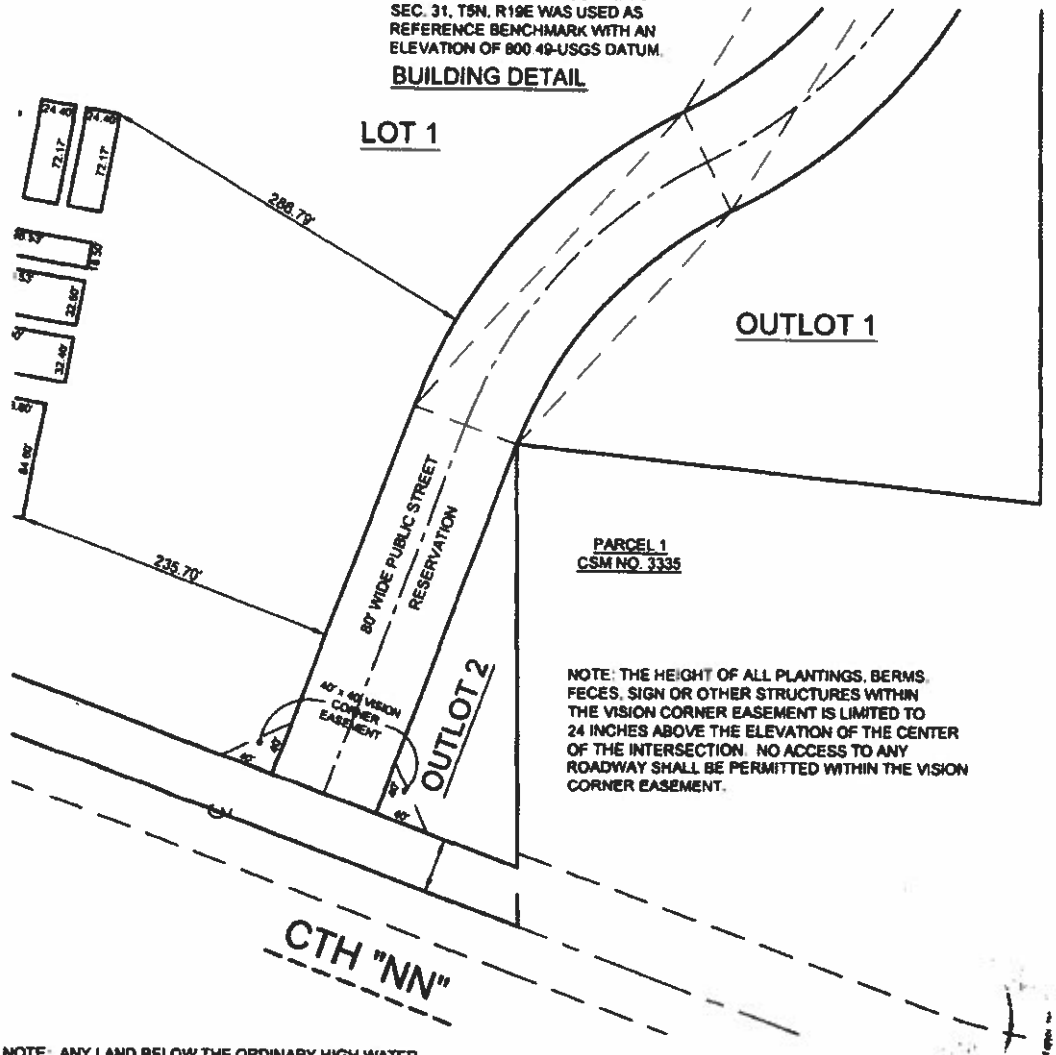
REFERENCE BEARING: THE NORTH LINE OF THE NE 1/4, SEC. 36-5-18 WAS USED AS THE REFERENCE BEARING AND HAS A BEARING OF S89°21'58"E (SOUTH ZONE)

REFERENCE BENCHMARK: THE CONCRETE MONUMENT WITH BRASS CAP MARKING THE WEST QUARTER CORNER OF SEC. 31, T5N, R19E WAS USED AS REFERENCE BENCHMARK WITH AN ELEVATION OF 817.08-USGS DATUM.

REFERENCE BENCHMARK: THE CONCRETE MONUMENT WITH BRASS CAP MARKING THE NW CORNER OF SEC. 31, T5N, R19E WAS USED AS REFERENCE BENCHMARK WITH AN ELEVATION OF 800.49-USGS DATUM.

SCALE IN FEET
0' 100'

BUILDING DETAIL



NOTE: THE HEIGHT OF ALL PLANTINGS, BERMS, FECES, SIGN OR OTHER STRUCTURES WITHIN THE VISION CORNER EASEMENT IS LIMITED TO 24 INCHES ABOVE THE ELEVATION OF THE CENTER OF THE INTERSECTION. NO ACCESS TO ANY ROADWAY SHALL BE PERMITTED WITHIN THE VISION CORNER EASEMENT.

NOTE: ANY LAND BELOW THE ORDINARY HIGH WATER MARK OF A LAKE OR NAVIGABLE STREAM IS SUBJECT TO THE PUBLIC TRUST IN NAVIGABLE WATERS THAT IS ESTABLISHED UNDER ARTICLE IX, SECTION 1, OF THE STATE CONSTITUTION.

FILE NAME: S8514.DWG
P.S. MUKWONAGO 1057

John R. Stigler
JOHN R. STIGLER - Wis. Reg. No. S - 1820
DATED THIS 3rd DAY OF April, 2017
REVISED THIS 26th DAY OF April, 2017
INSTRUMENT DRAFTED BY JOHN R. STIGLER

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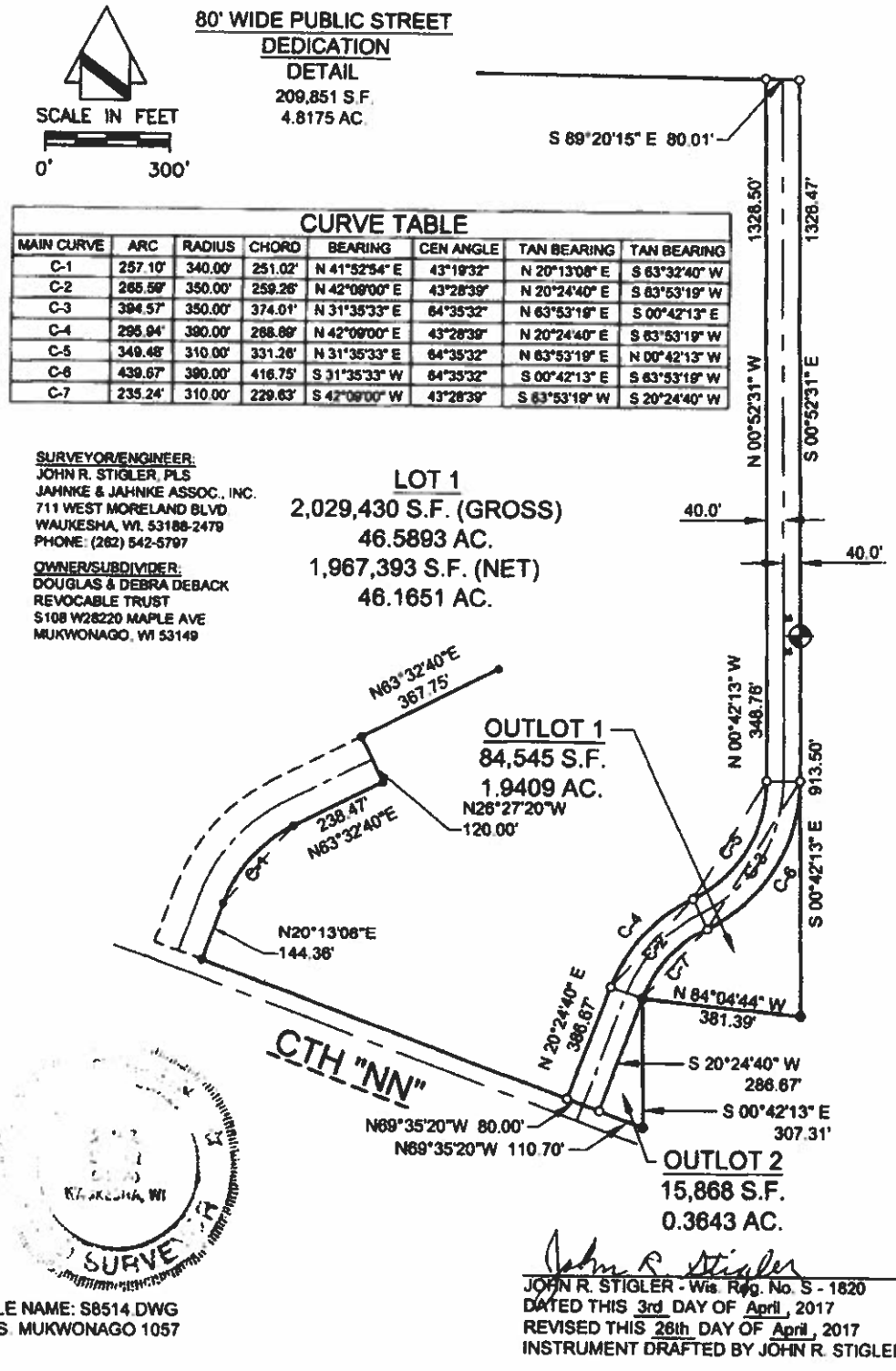
(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11658 Sheet 4 of 8

Part of the SE ¼ and NE ¼ of the NE ¼ of Section 36 and the NE ¼ and NW ¼ of the SE ¼ Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ Section 31,Town 5 North, Range 19 East
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN



SURVEYOR/ENGINEER:
JOHN R. STIGLER, PLS
JAHNKE & JAHNKE ASSOC., INC.
711 WEST MORELAND BLVD
WAUKESHA, WI. 53188-2479
PHONE: (262) 542-5797

OWNER/SUBDIVIDER:
DOUGLAS & DEBRA DEBACK
REVOCABLE TRUST
S108 W28220 MAPLE AVE
MUKWONAGO, WI 53149

FILE NAME: S8514.DWG
P.S. MUKWONAGO 1057

JOHN R. STIGLER - Wis. Reg. No. S - 1620
DATED THIS 3rd DAY OF April, 2017
REVISED THIS 26th DAY OF April, 2017
INSTRUMENT DRAFTED BY JOHN R. STIGLER

202

CURVE TABLE							
MAIN CURVE	ARC	RADIUS	CHORD	BEARING	CEN ANGLE	TAN BEARING	TAN BEARING
C-1	257.10'	340.00'	251.02'	N 41°52'54" E	43°19'32"	N 20°13'08" E	S 63°32'40" W
C-2	265.59'	350.00'	259.26'	N 42°09'00" E	43°28'39"	N 20°24'40" E	S 63°53'19" W
C-3	394.57'	350.00'	374.01'	N 31°35'33" E	64°35'32"	N 63°53'19" E	S 00°42'13" E
C-4	295.94'	390.00'	288.89'	N 42°09'00" E	43°28'39"	N 20°24'40" E	S 63°53'19" W
C-5	349.48'	310.00'	331.26'	N 31°35'33" E	64°35'32"	N 63°53'19" E	N 00°42'13" W
C-6	439.67'	390.00'	416.75'	S 31°35'33" W	64°35'32"	S 00°42'13" E	S 63°53'19" W
C-7	235.24'	310.00'	229.63'	S 42°09'00" W	43°28'39"	S 63°53'19" W	S 20°24'40" W

ARC
(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11558 Sheet 5 of 8

Part of the SE ¼ and NE ¼ of the NE ¼ of Section 36 and the NE ¼ and NW ¼ of the SE ¼ Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ Section 31, Town 5 North, Range 19 East
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

SURVEYOR/ENGINEER:
JOHN R. STIGLER, PLS
JAHNKE & JAHNKE ASSOC., INC.
711 WEST MORELAND BLVD.
WAUKESHA, WI 53188-2479
PHONE: (262) 542-5797

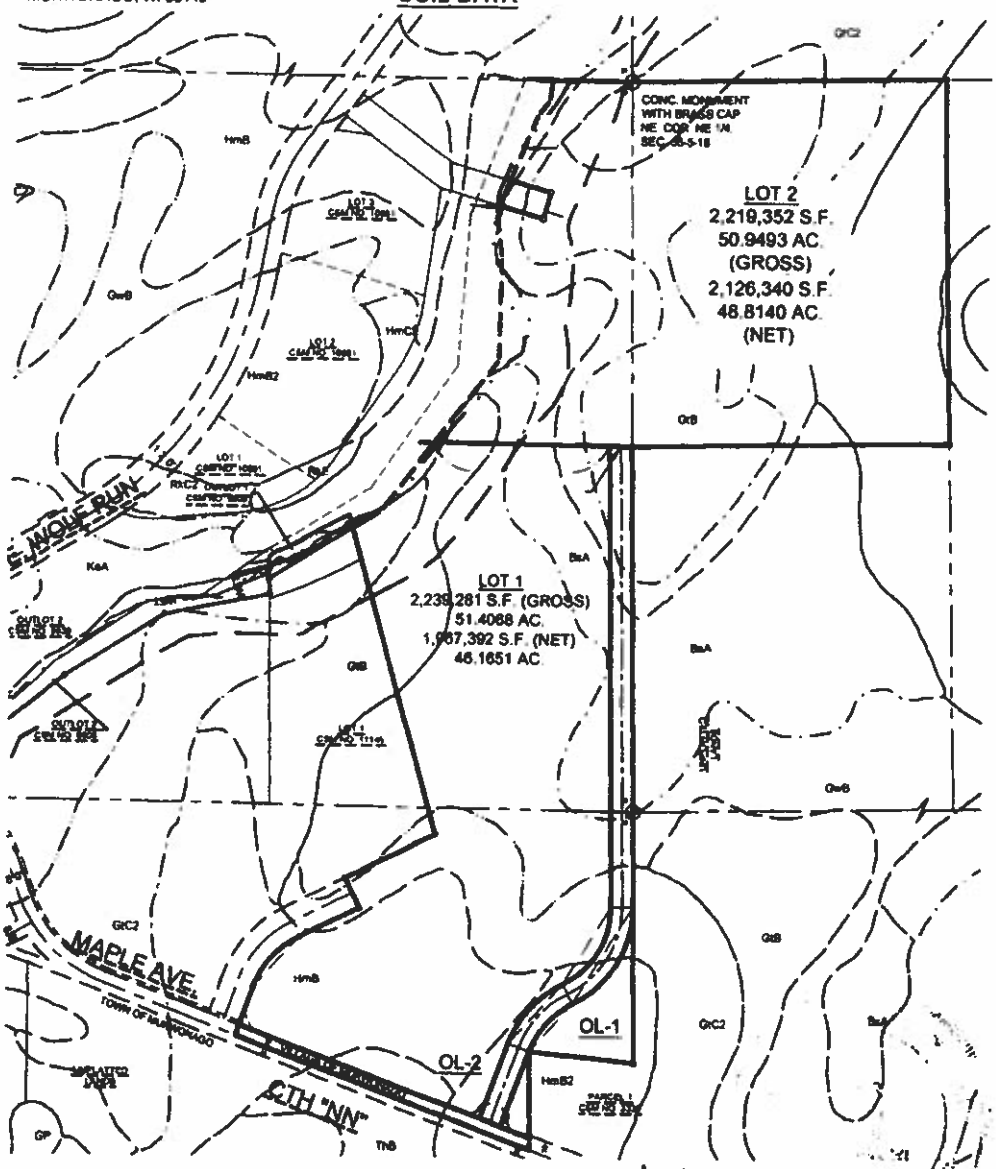
OWNER/SUBDIVIDER:
DOUGLAS & DEBRA DEBACK
REVOCABLE TRUST
S108 W28220 MAPLE AVE.
MUKWONAGO, WI 53149

REFERENCE BEARING: THE NORTH LINE OF THE NE 1/4, SEC. 36-5-18 WAS USED AS THE REFERENCE BEARING AND HAS A BEARING OF S89°21'58"E (SOUTH ZONE)

LEGEND:
- ○ -IRON PIPE 18" x 1" DIA. (PLACED) 1.13+ LBS. PER LIN. FT.
- ● -IRON PIPE/ROD (FOUND)
- ⊕ -CONC. MON. (FOUND)

SCALE IN FEET
0' 500'

SOIL DATA



FILE NAME: S8514.DWG
P.S. MUKWONAGO 1057

JOHN R. STIGLER - Wis. Reg. No. S-1620
DATED THIS 3rd DAY OF April, 2017
REVISED THIS 26th DAY OF April, 2017
INSTRUMENT DRAFTED BY JOHN R. STIGLER

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(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11558 Sheet 6 of 8

Part of the SE ¼ and NE ¼ of the NE ¼ of Section 36 and the NE ¼ and NW ¼ of the SE ¼ Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW ¼ Section 31,Town 5 North, Range 19 East
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

SURVEYOR/ENGINEER:
JOHN R. STIGLER, PLS
JAHNKE & JAHNKE ASSOC., INC.
711 WEST MORELAND BLVD
WAUKESHA, WI. 53188-2479
PHONE: (262) 542-5797

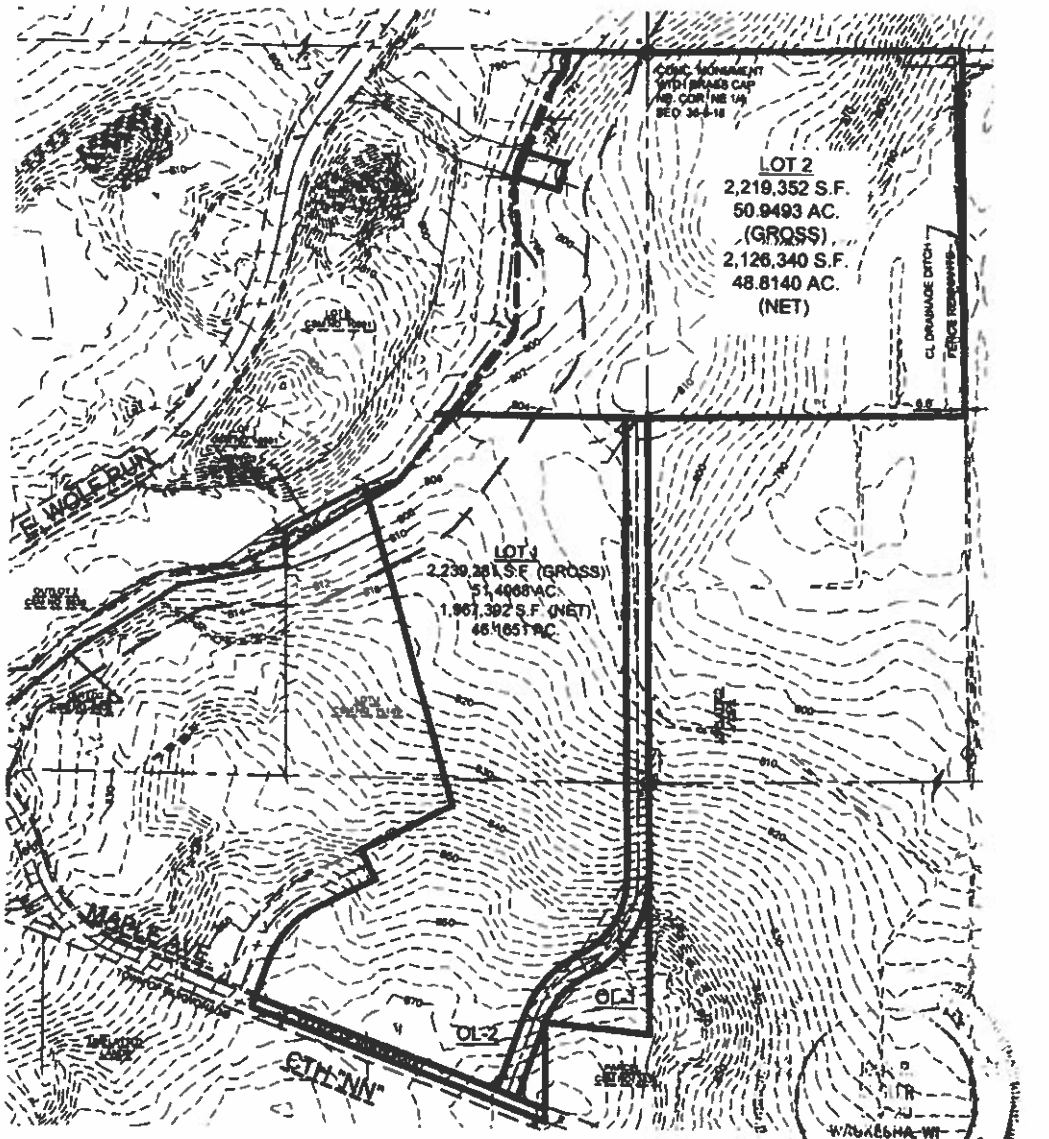
OWNER/SUBDIVIDER:
DOUGLAS & DEBRA DEBACK
REVOCABLE TRUST
S108 W28220 MAPLE AVE.
MUKWONAGO, WI 53149

REFERENCE BEARING: THE NORTH LINE OF THE NE 1/4, SEC. 36-5-18 WAS USED AS THE REFERENCE BEARING AND HAS A BEARING OF S89°21'56"E (SOUTH ZONE)

LEGEND:
- ○ -IRON PIPE 18" x 1" DIA. (PLACED) 1.13+ LBS. PER LIN. FT.
- ● -IRON PIPE/ROD (FOUND)
- ⊕ -CONC. MON. (FOUND)

SCALE IN FEET
0' 500'

TOPOGRAPHIC DATA



JOHN R. STIGLER - Wis. [illegible]
DATED THIS 3rd DAY OF [illegible] 2017
REVISED THIS 26th DAY OF APR. 2017
INSTRUMENT DRAFTED BY JOHN R. STIGLER

FILE NAME: S8514.DWG
P.S. MUKWONAGO 1057

204

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(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11558 Sheet 7 of 8

Part of the SE ¼ and the NE ¼ of the NE ¼ of Section 36 and the NE ¼ AND NW ¼ of the SE ¼
Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW 1/4
Section 31, Town 5 North, Range 19 East
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

SURVEYOR'S CERTIFICATE:

I, John R. Stigler, professional land surveyor, being duly sworn on oath, hereby depose and say that I have surveyed, divided and mapped the following land bounded and described as follows:

Part of the Southeast Quarter (SE ¼) and Northeast Quarter (NE ¼) of the Northeast Quarter (NE ¼) of Section 36 and part of the Northeast Quarter (NE ¼) and Northwest Quarter (NW ¼) of the Southeast Quarter (SE ¼) of Section 36, Town 5 North, Range 18 East and being part of the Northwest Quarter (NW ¼) of the Northwest Quarter (NW ¼) of Section 31, Town 5 North, Range 19 East, Village of Mukwonago, Waukesha County, Wisconsin bounded and described as follows: Commencing at the northeast corner of the Southeast Quarter (SE ¼) of said Section 36 being marked by a concrete monument with brass cap; thence North 89°14'19" West along the north line of said Southeast Quarter (SE ¼) 1319.44 feet which is South 89°14'19" East 1319.44 feet from the northwest corner of said Southeast Quarter (SE ¼); thence North 00°42'26" West 761.69 feet along the east line of the West One-half of the Southeast Quarter (SE ¼) of said Section 36; thence North 00°42'26" West along said line extended 56.55 feet to a point on the meander line of an existing creek; thence North 58°12'23" East along said meander line 350.88 feet to the east line of Certified Survey Map No. 11145 and being along said meander line and the place of beginning of the lands hereinafter described; thence along the following described meander line North 58°12'23" East 120.33 feet; thence North 37°24'48" East 315.59 feet; thence continuing North 37°24'48" East 382.03 feet; thence North 00°55'39" East 372.28 feet; thence North 07°42'59" West 160.51 feet; thence North 21°42'23" East 389.77 feet; thence North 38°23'00" East 62.69 feet; thence North 07°07'50" East 75.77 feet to the north line of the Northeast Quarter (NE ¼) of above said Section 36; thence South 89°21'44" East along said north line 287.81 feet to the east line of said Northeast Quarter (NE ¼) and being the northeast corner of said Northeast Quarter (NE ¼) of Section 36; thence North 88°56'08" East 1138.24 feet along the north line of the Northwest Quarter (NW ¼) of Section 31, Town 5 North, Range 19 East to the northeast corner of said Northwest Quarter (NW ¼) of the Northwest Quarter (NW ¼) being South 88°56'08" West from the north quarter corner of said Section 31; thence South 01°23'53" East 1326.61 feet along the east line of the West One-Half (W ½) of said Northwest Quarter (NW ¼) of Section 31; thence South 88°56'31" West 1150.35 feet along the south line of the North One-Half (N ½) of said Northwest Quarter (NW ¼) of Section 31, to the east line of the Northeast Quarter (NE ¼) of Section 36, Town 5 North, Range 18 East; thence South 00°52'31" East along the east line of said Northeast Quarter (NE ¼) 1326.47 feet to the northeast corner of the Southeast Quarter (SE ¼) of said Section 36; thence South 00°42'13" East 913.50 feet along the east line of the Southeast Quarter (SE ¼) of said Section 36; thence North 84°04'44" West along the north line of Certified Survey Map No. 3335, 381.39 feet; thence South 00°42'13" East 350.18 feet along the west side of Certified Survey Map No. 3335 to the centerline of (CTH "NN") Maple Avenue; thence North 69°35'20" West 1143.66 feet along the centerline of said Maple Avenue; thence North 20°13'08" East 40.00 feet; to the north right-of-way line of Maple Avenue; thence North 20°13'08" East 144.36 feet; thence Northerly 257.10 feet along the arc of a curve of radius 340.00 feet, curve center lies to the east, chord bears North 41°52'54" East 251.02 feet; thence North 63°32'40" East 238.47 feet; thence North 26°27'20" West 120.00 feet; thence North 63°32'40" East 367.75 feet; thence North 15°55'26" West 1152.81 feet along the west line of Lot 1 of Certified Survey Map No. 11145 to the place of beginning. Containing a gross area of 4,559,046 square feet or 104.6613 acres of land including the land lying between the meander line, the north and south property lines and the centerline of the creek.

I further certify that I have made such survey, land division and map by the direction of the owners of said land; that such map is a correct representation of the exterior boundaries of the land surveyed and map thereof made; and that I have fully complied with the provisions of Chapter 236 of the Wisconsin State Statutes pertaining to Certified Survey Maps (Section 236.34), Transportation 233 the regulations of the Village of Mukwonago in surveying, dividing and mapping the same.

John R. Stigler
JOHN R. STIGLER – Wis. Reg. No. S-1820

STATE OF WISCONSIN)ss
WAUKESHA COUNTY)
The above certificate subscribed and sworn to me this 26TH day of APRIL, 2017.

Deborah L. Fenney
DEBORAH L. FENNEY – NOTARY PUBLIC

DEBORAH L. FENNEY NOTARY PUBLIC STATE OF WISCONSIN

My commission expires April 8, 2021.

OWNERS: DOUGLAS & DEBRA DEBACK REVOCABLE TRUST
WAUKESHA MEMORIAL HOSPITAL (WEST RESERVATION)

Instrument drafted by John R. Stigler

P.S. Mukwonago 1057

205

ARC™
(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11558 Sheet 8 of 8

Part of the SE ¼ and the NE ¼ of the NE ¼ of Section 36 and the NE ¼ AND NW ¼ of the SE ¼
Section 36, Town 5 North, Range 18 East and part of the NW ¼ of the NW 1/4
Section 31, Town 5 North, Range 19 East
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

OWNERS' CERTIFICATE

As owners, we hereby certify that we caused the land described on this map to be surveyed, divided, mapped and dedicated as represented on this map. We also certify that this Certified Survey Map is required to be submitted to the following for approval: Village of Mukwonago

DOUGLAS & DEBRA DEBACK REVOCABLE TRUST

Douglas DeBack trustee
DOUGLAS DEBACK – TRUSTEE

Debra DeBack (trustee)
DEBRA DEBACK - TRUSTEE

STATE OF WISCONSIN)ss
COUNTY OF WAUKESHA)

Personally came before me this 10 day of May, 2017, the above named DOUGLAS & DEBRA DEBACK, TRUSTEES OF THE DOUGLAS & DEBRA DEBACK TRUST to me known to be the persons who executed the foregoing instrument and acknowledged the same.

My commission expires May 28, 2017

Linda A Gourdoux
NOTARY PUBLIC - Linda A. Gourdoux

NOTARY PUBLIC * STATE OF WISCONSIN

VILLAGE BOARD APPROVAL

Approved by the Village Board, Village of Mukwonago, this 18th day of April

Fred Winchowsky
FRED WINCHOWSKY - PRESIDENT

STEVEN A. BRAATZ JR - CLERK

Village of Mukwonago * Wisconsin *

JOHN R. STIGLER, P.L.S. No. S-1820
Dated this 28th day of APRIL, 2017

4277810
REGISTER OF DEEDS
WAUKESHA COUNTY, WI
RECORDED ON
May 17, 2017 03:37 PM
James R Behrend
Register of Deeds
8 PGS
TOTAL FEE: $30.00
TRANS FEE: $0.00
Book 115 Page 199-206

OWNERS: DOUGLAS & DEBRA DEBACK REVOCABLE TRUST
WAUKESHA MEMORIAL HOSPITAL (WEST RESERVATION)

Instrument drafted by John R. Stigler

P.S. Mukwonago 1057

206

Exhibit B

Preliminary Site Plan

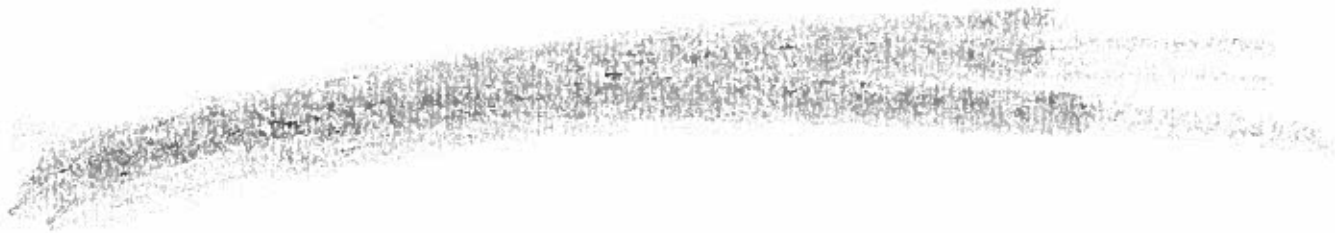
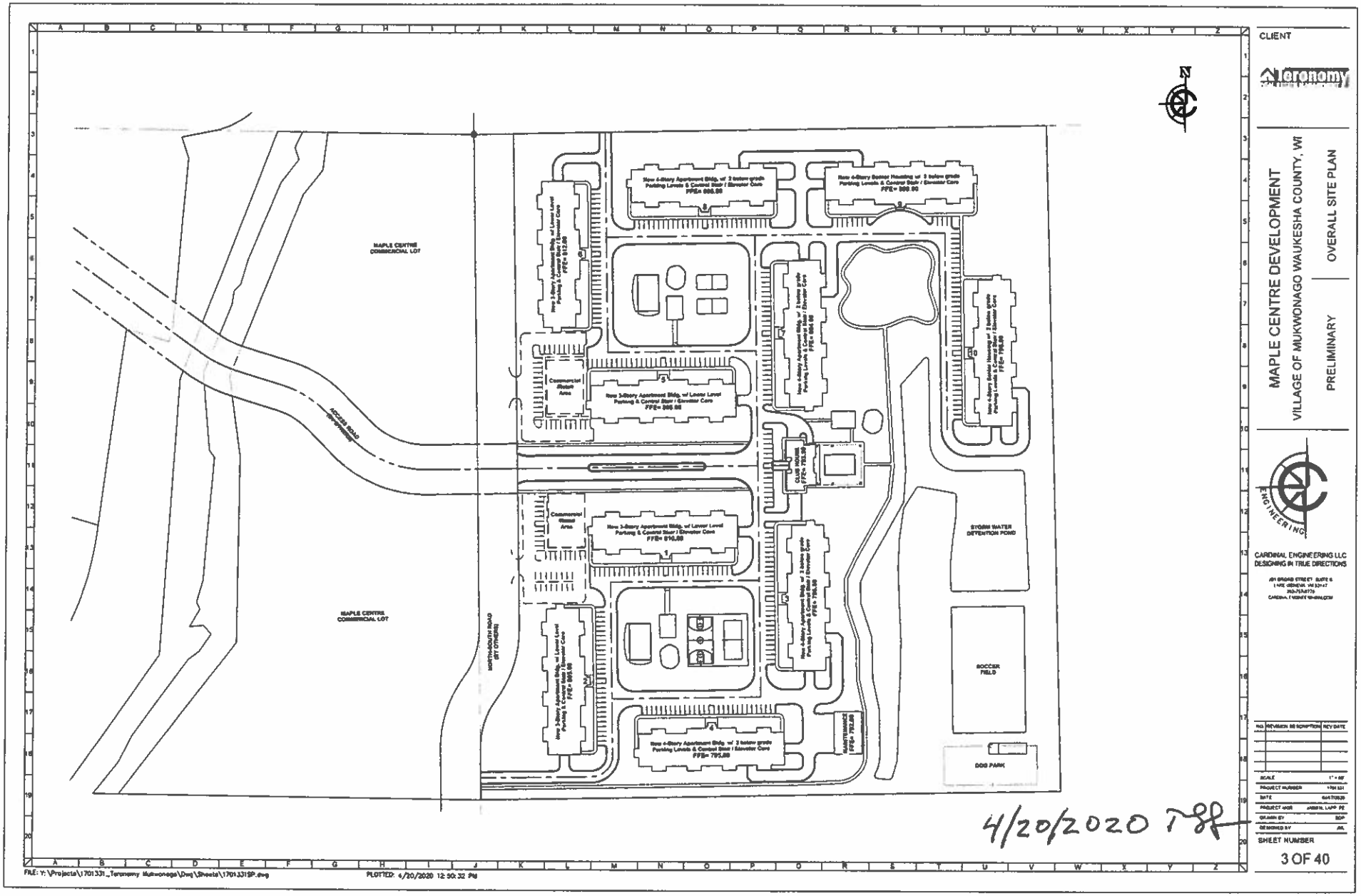


EXHIBIT B



4/20/2020 TSP

FILE: Y:\Projects\1701331_Teramony Mukwonago\Dwg\Sheets\1701331SP.dwg PLOTTED: 4/20/2020 12:50:32 PM

CLIENT

Teramony

MAPLE CENTRE DEVELOPMENT
VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

OVERALL SITE PLAN

PRELIMINARY

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

NO.	REVISION DESCRIPTION	REV DATE

SCALE	1" = 60'
PROJECT NUMBER	1701331
DATE	04/17/2020
PROJECT MGR	ANDREW LAPP PE
DRAWN BY	BDP
DESIGNED BY	AML

SHEET NUMBER
3 OF 40

Exhibit C

CSM

ARC
(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11997

A DIVISION OF 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

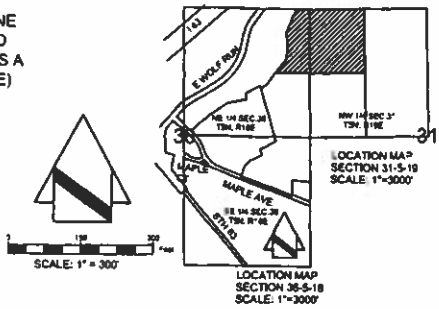
SURVEYOR/ENGINEER:
PAUL H. VAN HENKELUM, PLS
201 BROAD STREET, SUITE B
LAKE GENEVA, WI. 53147
PHONE: (414) 406-3248

OWNER/SUBDIVIDER:
FAMILY VENTURES OF MUKWONAGO, LLC
N7152 BOWERS RD.
ELKHORN, WI 53121

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)

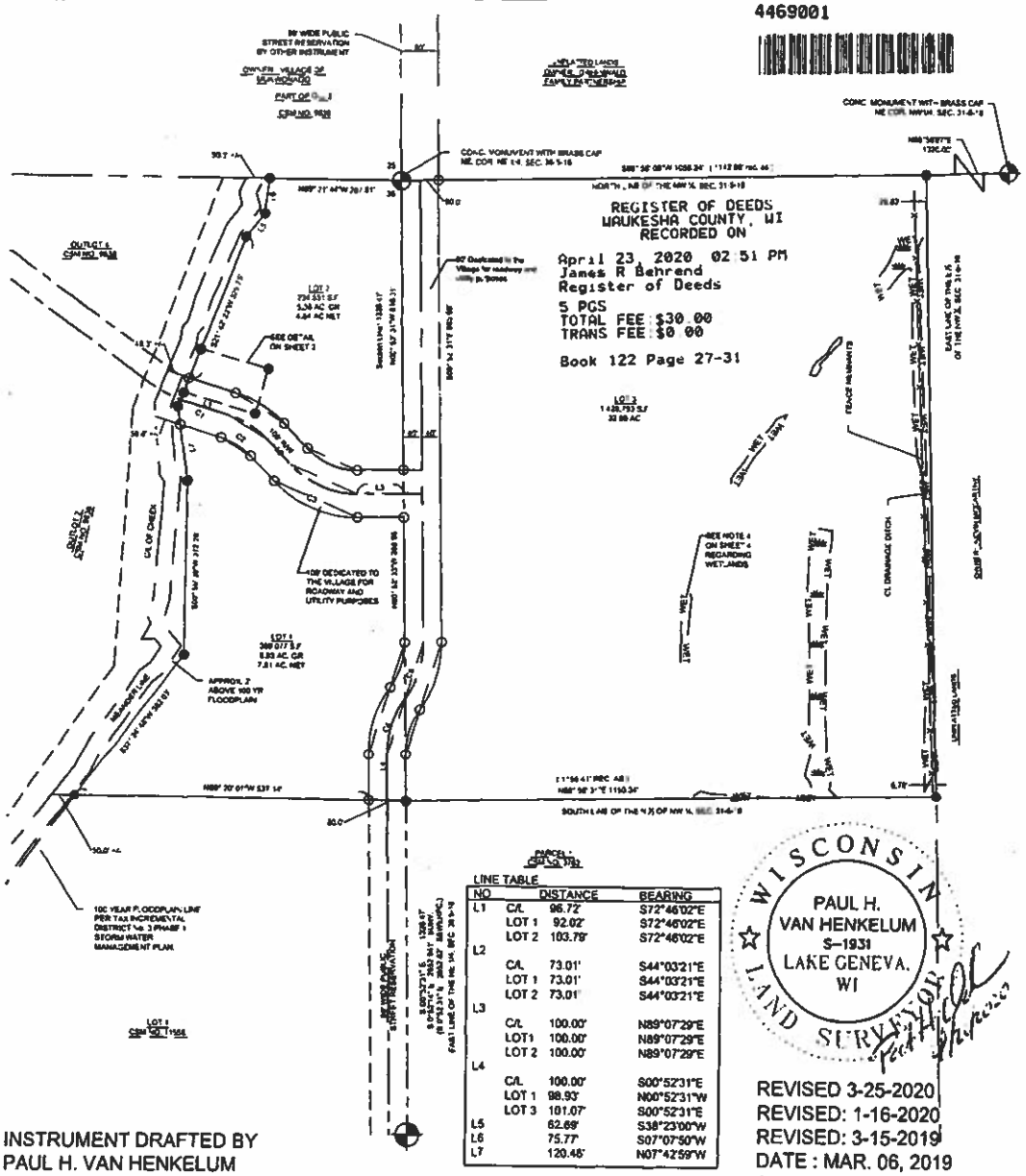
LEGEND:
- ● -IRON PIPE 1" DIA. (FOUND)
- ○ -IRON PIPE 18" x 1" DIA. SET 1.13+ LBS. PER LIN. FT.
- ⊕ -CONCRETE MONUMENT WITH BRASS CAP
- -WETLANDS
- (XX.XX) -PREVIOUSLY RECORDED AS

NOTES:
1. SEE SHEET 2 FOR SOIL INFORMATION.
2. SEE SHEET 3 FOR TOPOGRAPHY AND CURVE INFORMATION.
3. SEE SHEET 4 FOR GENERAL NOTES.



4469001

REGISTER OF DEEDS
WAUKESHA COUNTY, WI
RECORDED ON
April 23, 2020 02:51 PM
James R Behrend
Register of Deeds
5 PGS
TOTAL FEE: $30.00
TRANS FEE: $0.00
Book 122 Page 27-31



LINE TABLE

NO		DISTANCE	BEARING
L1	C/L	96.72'	S72°46'02"E
	LOT 1	92.02'	S72°46'02"E
	LOT 2	103.79'	S72°46'02"E
L2			
	C/L	73.01'	S44°03'21"E
	LOT 1	73.01'	S44°03'21"E
	LOT 2	73.01'	S44°03'21"E
L3			
	C/L	100.00'	N89°07'29"E
	LOT1	100.00'	N89°07'29"E
	LOT 2	100.00'	N89°07'29"E
L4			
	C/L	100.00'	S00°52'31"E
	LOT 1	98.93'	N00°52'31"W
	LOT 3	101.07'	S00°52'31"E
L5		62.69'	S38°23'00"W
L6		75.77'	S07°07'50"W
L7		120.46'	N07°42'59"W

WISCONSIN
PAUL H.
VAN HENKELUM
S-1931
LAKE GENEVA,
WI
LAND SURVEYOR

REVISED 3-25-2020
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

ARC
(262) 542-8200

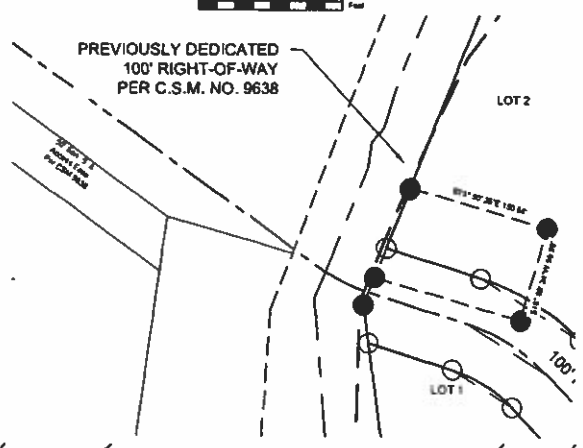
FORM ARC-101

CERTIFIED SURVEY MAP NO. 11097

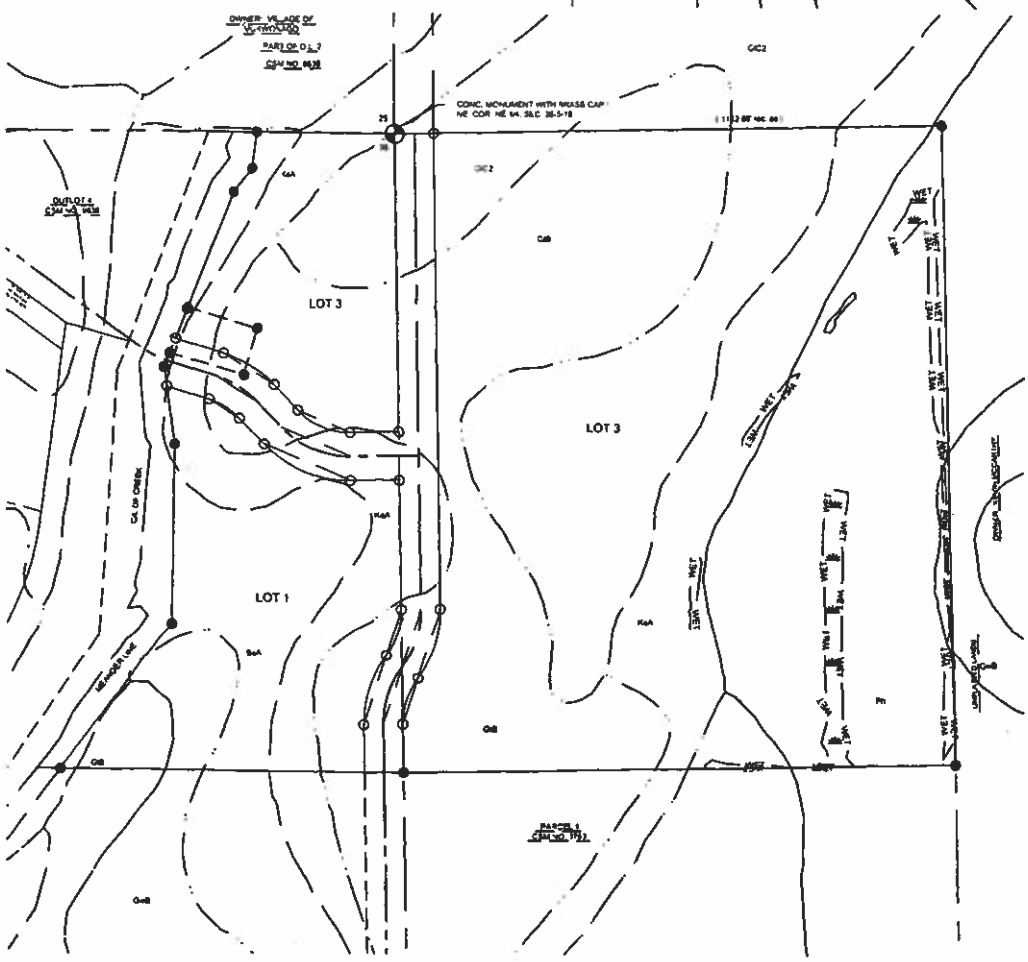
A DIVISION OF LOT 2 OF CSM#11558 BEING PART OF THE NE ¼ OF THE NE ¼ OF SECTION 36 , TOWN 5 NORTH, RANGE 18 EAST AND PART OF THE NW ¼ OF THE NW ¼ OF SECTION 31,TOWN 5 NORTH, RANGE 19 EAST, VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WISCONSIN

WISCONSIN
PAUL H.
VAN HENKELUM
S-1931
LAKE GENEVA,
WI
LAND SURVEYOR

DETAIL OF PREVIOUSLY DEDICATED 100' R/W



SOIL DATA



REVISED 3-25-2020
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

ARC
(262) 542-8200

FORM ARC-101

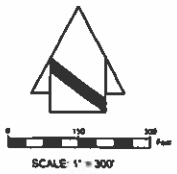
CERTIFIED SURVEY MAP NO. 11997

A DIVISION OF 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

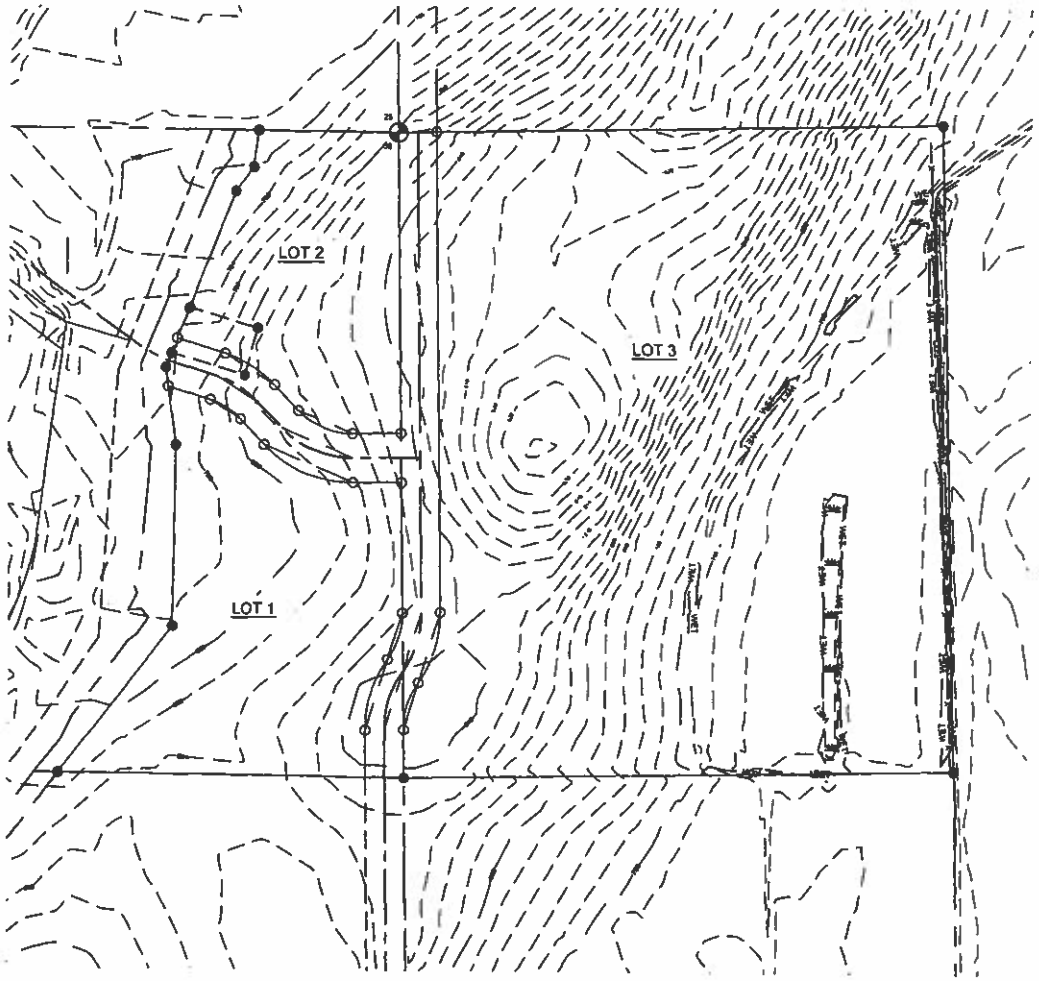
WISCONSIN
PAUL H.
VAN HENKELUM
S-1931
LAKE GENEVA,
WI
LAND SURVEYOR

CURVE TABLE

NO.	ARC	RADIUS	CHORD	BEARING	CEN. ANGLE	TAN. IN	TAN. OUT
C1 c/l	82.35'	250.00'	81.98'	S63°19'49"E	19°00'00"	S53°53'37"E	S72°46'02"E
Lot 2	7.58'	200.00	7.58'	N71°40'55"W	02°10'13"	N72°46'02"W	N70°35'48"W
C2 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'	N58°24'41"W	28°42'41"	N44°03'21"W	N72°46'02"W
C3 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'	N67°27'56"W	46°49'10"	S89°07'29"W	N44°00'21"W
C4 c/l	128.70'	200.00'	126.49'	S17°33'35"W	36°52'12"	S35°59'41"W	S00°52'31"E
Lot 1	154.44'	240.00'	151.79'	S17°33'35"W	36°52'12"	S35°59'41"W	S00°52'31"E
Lot 3	102.96'	160.00'	101.19'	N17°33'35"E	36°52'12"	N00°52'20"W	N35°59'41"E
C5 c/l	128.70'	200.00'	126.49'	S17°33'35"W	36°52'12"	S00°52'31"E	S35°59'41"W
Lot 1	102.96'	160.00'	101.19'	S17°33'35"W	36°52'12"	S00°52'31"E	S35°59'41"W
Lot 3	154.44'	240.00'	151.79'	N17°33'35"E	36°52'12"	N35°59'41"E	N00°52'31"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

ARC
(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11941

A DIVISION OF 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 16th DAY OF Apr. 1, 2020.

PAUL H. VAN HENKELUM,
PROFESSIONAL LAND SURVEYOR

WISCONSIN
PAUL H.
VAN HENKELUM
S-1931
LAKE GENEVA,
WI
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. 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 3-25-2020
REVISED: 1-16-2020
REVISED: 3-15-2019
DATE : MAR. 06, 2019
SHEET 4 OF 5

ARC
(262) 542-8200

FORM ARC-101

CERTIFIED SURVEY MAP NO. 11997

A DIVISION OF 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 16 DAY OF April, 2020.

Thomas L Larson

THOMAS L. LARSON, MANAGING MEMBER

NOTARY PUBLIC SHERRI L. CURZI STATE OF WISCONSIN

STATE OF Wisconsin) SS
COUNTY OF Waukesha)

PERSONALLY CAME BEFORE ME THIS 16 DAY OF April, 2020
THE ABOVE NAMED THOMAS L. LARSON, TO ME KNOWN TO BE THE PERSON WHO EXECUTED THE FOREGOING INSTRUMENT AND ACKNOWLEDGED THE SAME.

NOTARY PUBLIC

MY COMMISSION EXPIRES 5/15/2021

CERTIFICATE OF PLAN COMMISSION APPROVAL:

APPROVED BY THE PLAN COMMISSION OF THE VILLAGE OF MUKWONAGO
ON THIS 18th DAY OF March, 2020.

FRED WINCHOWKY, CHAIRPERSON

DIANA DYKSTRA, VILLAGE CLERK

CERTIFICATE OF VILLAGE BOARD APPROVAL:

APPROVED BY THE VILLAGE BOARD OF THE VILLAGE OF MUKWONAGO
ON THIS 18th DAY OF March, 2020.

FRED WINCHOWKY, PRESIDENT

DIANA DYKSTRA, VILLAGE CLERK

WISCONSIN PAUL H. VAN HENKELUM S-1931 LAKE GENEVA, WI LAND SURVEYOR

REVISED 3-25-2020
REVISED: 1-16-2020
REVISED: 3-15-2019
DATE : MAR. 06, 2019
SHEET 5 OF 5

INSTRUMENT DRAFTED BY PAUL H. VAN HENKELUM
DWG: 1701331 CSM

STATE OF WISCONSIN)
COUNTY OF WAUKESHA) REGISTER OF DEEDS)

CERTIFICATE NO. 179855

THE UNDERSIGNED HEREBY CERTIFIES THAT THIS IS A TRUE AND CORRECT COPY OF THE ORIGINAL ON FILE OF RECORD IN THE REGISTER OF DEEDS OFFICE.
WITNESS MY HAND AND SEAL.

4/23/20
DATE

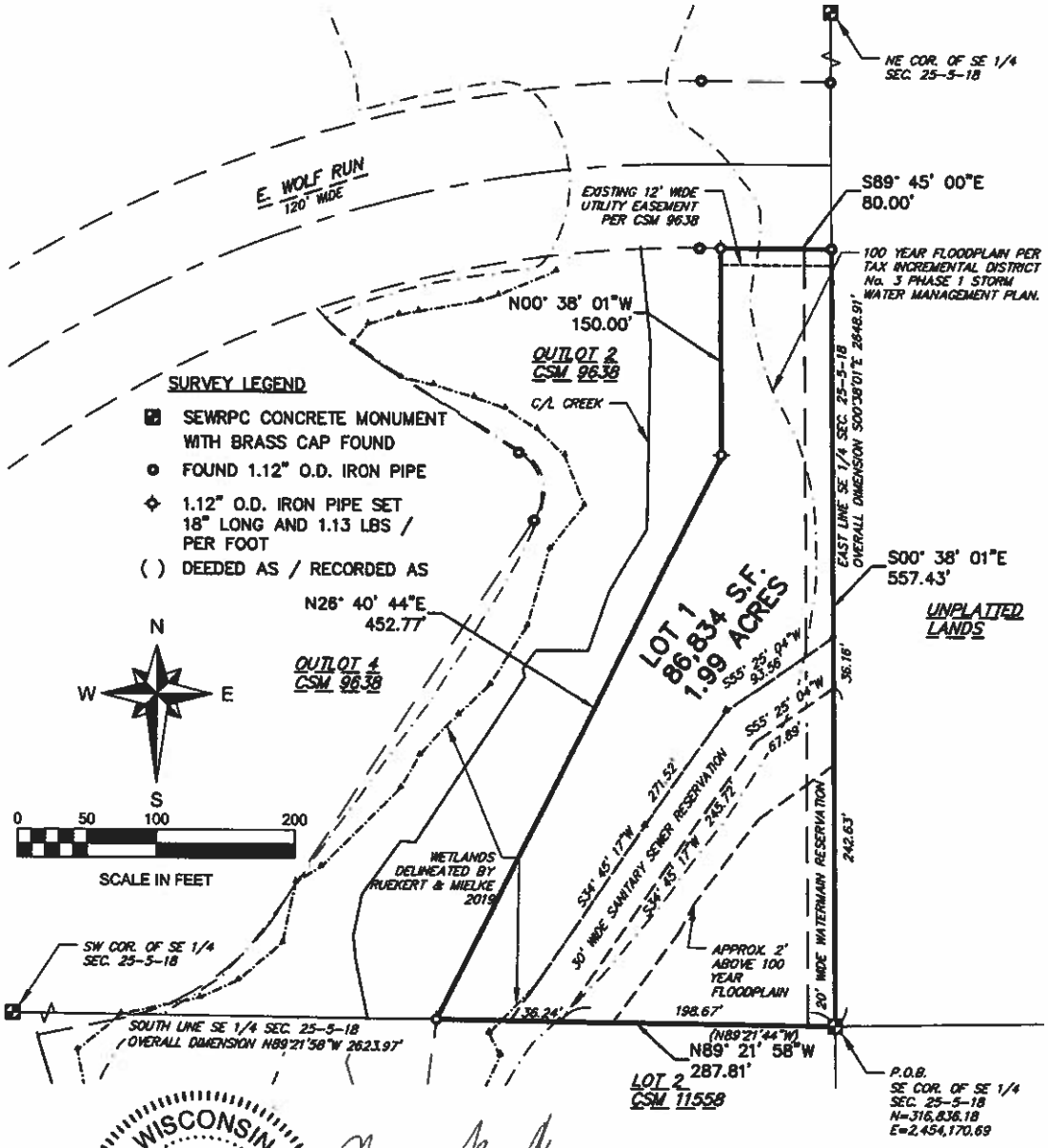
[illegible]

Exhibit D

Land Village to Convey Adjacent To Commerial Property

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)

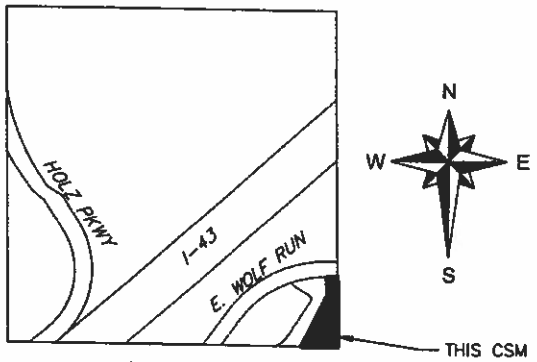
SHEET 1 OF 4

G:\CSD_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.

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.
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www.ruekertmielke.com

THIS INSTRUMENT WAS DRAFTED BY CHRIS RUETTEN, P.L.S.
CHECKED BY: JOHN SCHULZ (3/2/20)

G:\C30_2018\12_Village of Mukwonago\100981\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:\C30_2018\12_Village of Mukwonago\10086\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 18th day of March, 2020.

In the presence of:

Signed: _____
Fred Winchowky, Village President

Countersigned: _____
Diana Dykstra, Village Clerk

STATE OF WISCONSIN)SS
COUNTY OF Waukesha

Personally came before me this 18 day of March, 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, Waukesha County, Wisconsin

My Commission Expires May 28, 2021

NOTARY PUBLIC * STATE OF WISCONSIN * Linda A. Gourdoux

VILLAGE BOARD CERTIFICATE

Resolved, that this Certified Survey Map, in the Village of Mukwonago, is hereby approved by the Village Board.

Dated this 18 day of March, 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

Exhibit E

Village Insurance Requirements

v. 12/9/19, Mukwonago Village Hall, Zoning Office

EXHIBIT
E.

Village of Mukwonago Liability Insurance Minimum Limits

A. **Commercial & General Liability** – Coverage at least as broad as the insurance services offices commercial general liability form, including coverage for products liability, completed operations, contractual liability and explosion, collapse and underground coverage and shall have the following limits in coverage.

1. Each occurrence limit – One Million Dollars ($1,000,000).
2. Personal and advertising insurance limit – One Million Dollars ($1,000,000).
3. General aggregate limit per project – Two Million Dollars ($2,000,000).
4. Products completed operations aggregate - Two Million Dollars ($2,000,000).
5. Fire damage limit, any one fire – Fifty Thousand Dollars ($50,000).
6. Medical expense limit per person – Five Thousand Dollars ($5,000).
7. Products completed operations coverage must be carried for two (2) years after acceptance of the completed work.
8. The Village of Mukwonago, as well its consultants, architects, engineers, contractors and subcontractors will be added as named insureds to the policy.

B. **Automobile Liability** – Coverage at least as broad as the insurance services office business automobile form with limits of One Million Dollars ($1,000,000) combined single limit per accident for bodily injury and property damage.

C. **Workers Compensation** – As required by the State of Wisconsin, an employer's liability insurance with sufficient limits to meet underlying umbrella liability insurance requirements.

D. **Umbrella Liability** – Providing coverage at least as broad as the underlying commercial general liability, watercraft liability, if required, automobile liability and employer's liability with a minimum limit of Two Million Dollars ($2,000,000) each occurrence and

Two Million Dollars ($2,000,000) in the aggregate and a maximum self insured retention of Ten Thousand Dollars ($10,000).

E. Property Insurance Coverage

1. The property insurance amount must be at least equal to the bid amount plus or minus any change orders. It also must include the value of engineering or architect fees related to the property.

2. Covered property will include property on the project worksites, property in transit and property stored off the project work sites.

3. All coverage will be on a replacement cost basis.

4. The Village of Mukwonago, as well its consultants, architects, engineers, contractors and subcontractors will be added as named insureds to the policy.

5. Coverage must be written on a special perils or risk perils basis.

6. Coverage must include coverage for water damages including but not limited to, flood, surface water, hydrostatic pressure and earth movement.

7. Coverage must be included for testing and startup.

8. If exposure exists, coverage must include boiler and machinery coverage.

9. Coverage must include coverage for engineers and architects fees.

10. Policy must allow partial utilization by the owner.

11. Coverage must include a waiver of subrogation against any named insureds or additional insureds.

12. Contractor will be responsible for all deductibles and co-insurance penalties.

F. Insurance Requirements for Subcontractors – All subcontractors shall be required to obtain commercial general liability insurance, automobile liability, workers compensation and employers liability. This insurance shall be as broad and with the same limits as those required per the contractor's requirements, excluding umbrella liability contained in Section 1 above.

G. **Subcontractor's Coverage** – The following must be named as additional insureds on all liability policies for liability arising out of the project work: The Village of Mukwonago and its officers, council members, agents, employees and authorized volunteers. On the commercial general liability policy, the additional insured coverage must also include products – completed operations equivalent to ISO Form CG2037 for a minimum of two (2) years after acceptance of this work. This does not apply to workers compensation policies. Certificates of insurance acceptable to the Village of Mukwonago shall be submitted prior to commencement of the work to the applicable department. The Certificates shall contain a provision that coverage afforded under the policies will not be cancelled or non-renewed unless and until at least 30 days prior written notice has been given to the Village.

Exhibit F

Schedule GTP

EXHIBIT
F

SCHEDULE GTP

VILLAGE OF MUKWONAGO, WISCONSIN
FAMILY VENTURES OF MUKWONAGO, LLC

Mixed-use Debt = $2,510,622.50			
Annual Increment To Cover Mixed Use Debt			
Year	Projected Year*	Annual Guaranteed Tax Payment (Year of Collection)	Total Guaranteed Tax Increment (Running Total)
Completion of Access Road	2020		
1	2021		
2	2022	$ 21,990.00	$ 21,990.00
3	2023	$ 21,990.00	$ 43,980.00
4	2024	$ 54,975.00	$ 98,955.00
5	2025	$ 87,960.00	$ 186,915.00
6	2026	$ 135,605.00	$ 322,520.00
7	2027	$ 135,605.00	$ 458,125.00
8	2028	$ 135,605.00	$ 593,730.00
9	2029	$ 135,605.00	$ 729,335.00
10	2030	$ 135,605.00	$ 864,940.00
11	2031	$ 135,605.00	$ 1,000,545.00
12	2032	$ 135,605.00	$ 1,136,150.00
13	2033	$ 135,605.00	$ 1,271,755.00
14	2034	$ 135,605.00	$ 1,407,360.00
15	2035	$ 135,605.00	$ 1,542,965.00
16	2036	$ 135,605.00	$ 1,678,570.00
17	2037	$ 135,605.00	$ 1,814,175.00
18	2038	$ 135,605.00	$ 1,949,780.00
19	2039	$ 135,605.00	$ 2,085,385.00
20	2040	$ 135,605.00	$ 2,220,990.00
21	2041	$ 135,605.00	$ 2,356,595.00
22	2042	$ 154,027.50	$ 2,510,622.50
TOTALS		$ 2,510,622.50	

*Guaranteed Payment starts second year after completion of access Road.

TRR

Exhibit G

Mortgage

MORTGAGE

Family Ventures of Mukwonago, LLC ("Mortgagor") mortgages to the Village of Mukwonago ("Mortgagee") to secure payment of its obligations under Section 2(i) and 2(j) of Developer Guaranty Agreement dated April ___, 2020 (the "Obligation"), the following property (the "Property"), together with all rights and interests appurtenant to it in law or equity, all rents, issue and profits arising therefrom, including insurance proceeds and condemnation awards, all structures, improvements and fixtures located thereon:

Lots 1 and 2 of Certified Survey Map # ____, as recorded as Document No. _____ _____ on April ___, 2020, in the Office of the Register of Deeds, Waukesha County, Wisconsin.

Name and Return Address

Parcel Identification Number (PIN)

1. MORTGAGOR'S COVENANTS.

a. **COVENANT OF TITLE.** Mortgagor warrants title to the Property, except restrictions and easements of record.

b. **FIXTURES.** Any property which has been affixed to the Property and is used in connection with it is intended to become a fixture. Mortgagor waives any right to remove such fixture from the Property which is subject to this Mortgage.

c. **TAXES.** Mortgagor promises to pay when due all taxes and assessments levied on the Property or upon Mortgagee's interest in it and to deliver to Mortgagee on demand receipts showing such payment.

d. **INSURANCE.** Mortgagor shall keep the improvements on the Property insured against loss or damage occasioned by fire, extended coverage perils and such other hazards as Mortgagee may require, without co-insurance, through insurers approved by Mortgagee, in the amount of the full replacement value of the improvements on the Property. Mortgagor shall pay the insurance premiums when due. The policies shall contain the standard mortgage clause in favor of Mortgagee, and evidence of all policies covering the Property shall be provided to Mortgagee. Mortgagor shall promptly give notice of loss to insurance companies and Mortgagee. Unless Mortgagor and Mortgagee otherwise agree in writing, insurance proceeds shall be applied to restoration or repair of the Property damaged, provided Mortgagee deems the restoration or repair to be economically feasible.

e. **OTHER COVENANTS.** Mortgagor covenants not to commit waste nor suffer waste to be committed on the Property, to keep the Property in good condition and repair, to keep the Property free from future liens superior to the lien of this Mortgage and to comply with all laws, ordinances and regulations affecting the Property.

2. DEFAULT AND REMEDIES. In the event of default, Mortgagee may, at its option, declare the whole amount of the unpaid Guaranteed Tax Payment set forth in the Obligation, and collect it in a suit at law or by foreclosure of this Mortgage or by the exercise of any other remedy available at law or equity.

3. NOTICE. Prior to exercising its rights under this Mortgage, Mortgagee shall mail notice to Mortgagor specifying: (a) the default; (b) the action required to cure the default; (c) a date, not less than 20 days from the date the notice is mailed to Mortgagor by which date the default must be cured; and (d) that failure to cure the default on or before the date specified in the notice may result in a default.

4. EXPENSES AND ATTORNEY FEES. In case of default, whether abated or not, all costs and expenses, including, but not limited to, reasonable attorney fees, to the extent not prohibited by law shall be added to the

outstanding amounts owed under the Obligation, become due as incurred, and in the event of foreclosure be included in the judgment.

5. **FORECLOSURE WITHOUT DEFICIENCY**. Mortgagor agrees to the provisions of Sections 846.103, Wis. Stats., as may apply to the Property and as may be amended, permitting Mortgagee in the event of foreclosure to waive the right to judgment for deficiency and hold the foreclosure sale within the time provided in such applicable Section.

6. **RECEIVER**. Upon default or during the pendency of any action to foreclose this Mortgage, Mortgagor consents to the appointment of a receiver of the Property, including homestead interest, to collect the rents, issues and profits of the Property during the pendency of such an action, and such rents, issues and profits when so collected shall be held and applied as the court shall direct.

7. **WAIVER**. Mortgagee may waive any default without waiving any other subsequent or prior default by Mortgagor.

8. **MORTGAGEE MAY CURE DEFAULTS**. In the event of any default by Mortgagor of any kind under this Mortgage or any Obligation secured by this Mortgage, Mortgagee may cure the default and all sums paid by Mortgagee for such purpose shall immediately be repaid by Mortgagor with interest at the rate then in effect under the Obligation secured by this Mortgage and shall constitute a lien upon the Property.

9. **SECURITY INTEREST ON FIXTURES**. To further secure the payment and performance of the Obligation, Mortgagor hereby grants to Mortgagee a security interest in all fixtures and personal property located on or related to the operations of the Property whether now owned or hereafter acquired. This Mortgage shall constitute a security agreement within the meaning of the Uniform Commercial Code with respect to those parts of the Property that are fixtures. This Mortgage constitutes a fixture filing and financing statement as those terms are used in the Uniform Commercial Code. This Mortgage is to be filed and recorded in the real estate records of the county in which the Property is located, and the following information is included: (1) Mortgagor shall be deemed the "debtor"; (2) Mortgagee shall be deemed to be the "secured party" and shall have all of the rights of a secured party under the Uniform Commercial Code; (3) this Mortgage covers goods which are or are to become fixtures; and (4) the name of the record owner of the land is the debtor.

10. **SINGULAR; PLURAL**. As used herein, the singular shall include the plural and any gender shall include all genders.

11. **JOINT AND SEVERAL/LIMITATION ON PERSONAL LIABILITY**. The covenants of this Mortgage set forth herein shall be deemed joint and several among Mortgagors, if more than one. Unless a Mortgagor is obligated on the Obligation secured by this Mortgage, Mortgagor shall not be liable for any breach of covenants contained in this Mortgage.

12. **INVALIDITY**. In the event any provision or portion of this instrument is held to be invalid or unenforceable, this shall not impair or preclude the enforcement of the remainder of the instrument.

13. **CAPITALIZED TERMS**. Any capitalized terms in this Mortgage that are not defined herein, shall have the meeting set forth in the Obligation (Developer Guaranty Agreement).

[SIGNATURE AND ACKNOWLEDGEMENT ON FOLLOWING PAGE]

RESOLUTION 2022-38

TO APPROVE A FINAL DEVELOPMENT PLAN FOR THE FIRST PHASE OF MAPLE CENTER PUD; FAMILY VENTURES OF MUKWONAGO, LLC, DEVELOPER

WHEREAS, Family Ventures of Mukwonago, LLC (developer) submitted a General Development Plan for a Planned Unit Development on about 51 acres approximately 560 feet south of the eastern terminus of Wolf Run and approximately 2,600 feet north of Maple Avenue; and

WHEREAS, the General Development Plan includes 674 apartment units within ten buildings and a clubhouse along with associated on-site improvements and amenities on approximately 34 acres within the eastern portion of the subject site, with two of the ten buildings specifically designed and dedicated to housing residents age 55 and over; and

WHEREAS, the Village Board approved the General Development Plan for the 34-acre site as more fully described in Resolution 2019-018; and

WHEREAS, the developer has submitted a Final Development Plan for the first phase of the project; and

WHEREAS, the first phase consists of four apartment buildings (260 total DUs), along with a clubhouse, maintenance building, and site amenities; and

WHEREAS, the Village Plan Commission reviewed the proposed Final Development Plan for the first phase plans on June 14, 2022, and recommended approval subject to various terms and conditions; and

NOW, THEREFORE, BE IT RESOLVED by the Village Board of the Village of Mukwonago, Wisconsin hereby approves the Final Development Plan for the first phase of Maple Center PUD finding that the proposal conforms to the standards and criteria for Planned Unit Development approval as specified in Section 100-53 of the Village's zoning regulations.

NOW, THEREFORE, BE IT FURTHER RESOLVED this approval shall be subject to the following terms and conditions:

1. Nothing in this approval or in the submitted plans shall supersede or void any requirement in the adopted Developer Guaranty Agreement or the General Development Plan.
2. Prior to any land-disturbing activity on the subject property, the Village and developer shall amend the existing Developer Guaranty Agreement to address access to the subject property.
3. There shall be no land-disturbing activity on the subject property until such time as the developer provides documentation satisfactory to the Village that all pertinent requirements of the Developer Guaranty Agreement have been satisfied or will be satisfied.
4. Prior to any land-disturbing activity on the subject property, the developer shall submit all construction plans for public infrastructure to the Village engineer and obtain approval of the same.

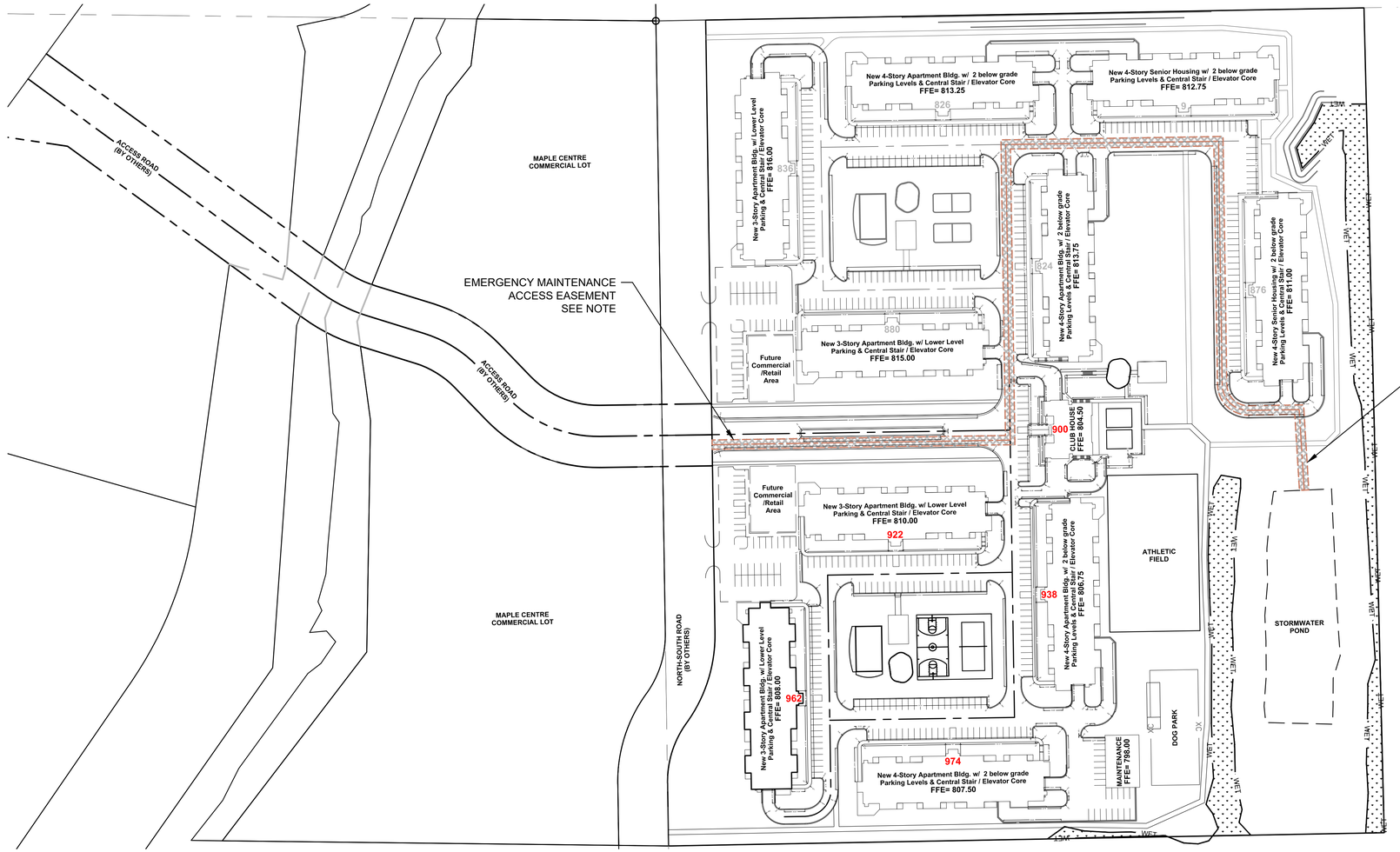
5. Prior to any land-disturbing activity on the subject property, the Village Engineer shall verify the plans address any outstanding issues related to public utilities.
6. Prior to any land-disturbing activity on the subject property, a complete a final storm water management and water quality plan, and grading plan, along with a final Storm Water Maintenance Agreement must be approved by the Village Board.
7. Prior to any land-disturbing activity on the subject property, the developer shall submit an erosion control plan to the Village Engineer and obtain approval of the same.
8. Prior to any land-disturbing activity on the subject property, the Fire Chief must approve the fire access within the project, including turning movements.
9. The Village Engineer must verify that the sanitary sewer and public water mains have extended to the farthest property line as required by Village ordinance and as approved by the Utilities Director.
10. The subsequent phases of the PUD development must be reviewed as set forth in the General Development Plan, Developer Guaranty Agreement, and all other applicable rules and regulations.
11. Timing for the construction of buildings and site improvements shall comply with paragraph 2(f) of the approved Developer Guaranty Agreement.
12. The developer understands that the turning movement analysis submitted by the developer shows slight encroachments into parking stalls and that such encroachments may impede fire protection services to some extent.

Passed and adopted by the Village of Mukwonago Village Board this 15th day of June 2022.

VILLAGE OF MUKWONAGO

By: _____
Fred Winchowky, Village President

Attest: _____
Diana Dykstra, Village Clerk



EMERGENCY MAINTENANCE ACCESS EASEMENT:

ACCESS EASEMENT, UNDER SEPARATE EASEMENT LEGAL DOCUMENT, GRANTED TO THE VILLAGE OF MUKWONAGO FOR EMERGENCY MAINTENANCE OR REPAIRS AS AUTHORIZED IN THE STORMWATER MAINTENANCE AGREEMENT. EASEMENT AUTHORIZES VILLAGE TO MAKE SUCH IMPROVEMENTS NECESSARY TO THE SITE TO GAIN REQUIRED ACCESS ACROSS AREAS NOT ALREADY IMPROVED FOR VEHICLES AND HEAVY EQUIPMENT FOR REQUIRED MAINTENANCE AND REPAIRS

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

OVERALL SITE PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

NO.	REVISION DESCRIPTION	REV DATE
04	PLAN UPDATES	01/19/2021
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021

SCALE	1" = 100'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	PAUL VAN HENKELUM, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

3 OF 55

VILLAGE OF MUKWONAGO
SITE PLAN, ARCHITECTURAL, AND PLANNED UNIT DEVELOPMENT (PUD) APPLICATION
Application Fee: Below

Date Submitted: _____

FEES

(Please check one)

- ☐ Minor Site Plan (No Building): $160.00
- ☐ Major Site Plan; New Building/Addition (> 600 sq. ft.): $475.00 plus $.02 per sq. ft.
- ☐ Planned Unit Development (PUD) Review: $225.00 plus ~~$50.00/unit~~
- ☒ Other (See Current Fee Schedule) PUD Amendment

CONTACTS

Building Department
Contact: Supervisor of Inspections
Tim Rutenbeck
Phone: (262) 363-6419 Option 1
Fax: (262) 363-6425
Email: trutenbeck@villageofmukwonago.gov

Zoning and Planning
Contact: Village Planner
Peter Gesch
Phone: (262) 542-5733
Fax: (262) 363-6425
Email: pgesch@ruekert-mielke.com

GUIDELINES

The undersigned petition is to consider a request, as stated herein, for the specified parcel(s) of land and will be reviewed by the Plan Commission and Village Board of the Village of Mukwonago. The application packet must be filed with the Village Clerk **at least 30 days prior to the meeting** of the Planning Commission at which action is desired. The Plan Commission meets on the second Tuesday of each month at 6:30 p.m.

Materials listed below must be provided to the Village of Mukwonago in accordance with Village Municipal Code Chapter 100 Article IX. Section 100-601(f) and other pertinent sections of Village ordinances, and, as necessary, to permit review that is consistent with proper planning practice. The Village will strive to accommodate reasonable requests for informal preliminary staff review, however the Village shall not place any items on the agenda for Plan Commission consideration until such time as the application is complete in accordance with all requirements specified on this and other attached application forms.

Mail completed applications to:	Village Planner 440 River Crest Ct Mukwonago, WI 53149
Deliver to:	Village Clerk's Office 440 River Crest Ct
Email to:	trutenbeck@villageofmukwonago.gov

Complete, accurate and specific information must be entered. Please Print.

APPLICANT *(Full Legal Name)*

Name: Family Ventures of Mukwonago LLC
Company: _____
Address: N7152 Bowers Rd **City:** Elkhorn **State:** WI **Zip:** 53121
Daytime Phone: [redacted] **Fax:** _____
E-Mail: tommy@teronomy.com

APPLICANT IS REPRESENTED BY *(Full Legal Name)*

Name: _____

Company: _____

Address: _____ City: _____ State: ____ Zip: _____

Daytime Phone: _____ Fax: _____

E-Mail: _____

ARCHITECT

Name: _____

Company: _____

Address: _____ City: _____ State: ____ Zip: _____

Daytime Phone: _____ Fax: _____

E-Mail: _____

PROFESSIONAL ENGINEER

Name: Paul Van Henkelum

Company: _____

Address: N7152 Bowers Rd City: Elkhorn State: WI Zip: 53121

Daytime Phone: 414-406-3248 Fax: _____

E-Mail: paul@teronomy.com

REGISTERED SURVEYOR

Name: Paul Van Henkelum

Company: _____

Address: N7152 Bowers Rd City: Elkhorn State: WI Zip: 53121

Daytime Phone: 414-406-3248 Fax: _____

E-Mail: paul@teronomy.com

CONTRACTOR

Name: Tony Larson

Company: Teronomy Builders

Address: N7152 Bowers Rd City: Elkhorn State: WI Zip: 53121

Daytime Phone: [redacted] Fax: _____

E-Mail: tony@teronomy.com

PROPERTY INFORMATION

Property Owner (s) *(if different from applicant)*: _____

Address: _____ **City:** _____ **State:** _____ **Zip:** _____

Daytime Phone: _____ **Fax:** _____

E-Mail: _____

Present Zoning: _____ **Tax Key No(s).:** MUKV 2013 999012, MUKV 2013999011, MUKV 2013995013

Location/Address: _____

Present Use: _____ **Intended Use:** _____

PROCEDURAL CHECKLIST FOR SITE PLAN/ARCHITECTURAL PLAN/PUD REVIEW AND APPROVAL

Submittals for review must include and be accompanied by the following:

Application:

- ❑ Completed application form including the procedural checklist.
- ❑ Application fee: See page 1.
- ❑ Agreement for Reimbursable Services (separate application).

Other Documents:

- ❑ One(1) complete set of Application and materials, in addition to the original, for Village of Mukwonago review.
- ❑ Project Summary: Please attach a statement detailing the reasons and background for this request including: details of proposal, services provided, wares sold, plans and hours of operation, number of employees, frequency of customer visits, frequency of deliveries to site, description of any interior/exterior modifications or additions to be made to property, any outside storage (dumpsters, trucks, materials...), number of parking stalls, screening/buffer type, any other information available. ***PLEASE EXPLAIN IN DETAIL.***
- ❑ **Electronic Submittals are required.** Email (or CD ROM) with all plans and submittal materials in Adobe PDF to trutenbeck@villageofmukwonago.gov .
- ❑ Any additional information as determined by Village staff.

- **Upon receipt of a complete submittal, staff review will be conducted within ten business days.**
- **All Site Plan, Architectural, and Planned Unit Development review requests require Plan Commission review and Village Board approval.**

CERTIFICATION

Applicant hereby certifies that:

1. All of the above statements and other information submitted as part of this application are true and correct to the best of his or her knowledge.
2. Affirms that no Village of Mukwonago elected or appointed official or employee has a proprietary interest in the above referenced property for which this applications being filed (except as stated below under "Exceptions").
3. None of the above referenced individuals has been promised or given any contract for consultation, planning or construction in relation to this project (except as stated below under "Exceptions").
4. Applicant has read and understands all information in this packet.

Applicant further understands the policies of the Village regarding change of zonings and property development. Conditions of the resolution regarding all approvals are strictly followed. Certificates of Occupancy are not given until all conditions of approval have been met

By the execution of this application, applicant hereby authorizes the Village of Mukwonago or its agents to enter upon the property during the hours of 7:00 am to 7:00 pm daily for the purpose of inspection. Applicant grants this authorization to enter even if this land has been posted against trespassing pursuant to Section 943.13 WI Stats.

(The applicant's signature must be from a Managing Member if the business is an LLC, or from the President or Vice President if the business is a corporation. A signed applicant's authorization letter may be provided in lieu of the applicant's signature below, and a signed property owner's authorization letter may be provided in lieu of the property owner's signature[s] below. If more than one, all of the owners of the property must sign this Application).

Signature - Property Owner	Signature - Applicant
Name & Title (PRINT)	Name & Title (PRINT)
Date	Date
Signature - Property Owner	Signature – Applicant's Representative
Name & Title (PRINT)	Name & Title (PRINT)
Date	Date

FOR OFFICE USE ONLY	
Date Paid	**Receipt #**
Plan Commission Date(s)	**Village Board Date(s)**
Escrow Required? ☐ Yes ☐No	**Escrow Amount**
Plan Commission Disposition	
Village Board Disposition	

Maple Centre: PUD Modification Approval Request

Family Ventures of Mukwonago and Teronomy Builders are excited to finally bring the Maple Centre development to life. It has been some time since the original approvals, and our entire team, including our family of employees and many local subcontractor partners, is looking forward to working on this great project and contributing to the Mukwonago community.

Family Ventures of Mukwonago is requesting approval of a proposed modification to the density provisions outlined in the previously approved GDP and SIP for the Maple Centre development.

Summary of Proposed Change

- Converting four 3-story buildings (53 units, 1 underground level) to 4-story buildings (77 units, 2 underground levels)
- The original plan already included six 4-story buildings. This revision creates a consistent 4-story layout across all ten buildings with expanded underground parking
- Adding 220 underground parking stalls by incorporating a second underground level that provides 55 additional stalls in each of the four revised 4-story buildings.
- Two of the 4-story buildings will remain designated as senior housing, totaling 154 units or 20 percent of the total unit count

This modification improves design efficiency, increases the tax base, and better meets Mukwonago's housing needs while keeping the same building footprint and preserving green space of the development.

Teronomy Builders, a locally owned and family-operated company known for developing high-end apartment communities throughout Southeast Wisconsin, has determined that 3-story buildings with a single level of underground parking no longer meet current market demands. Teronomy now exclusively builds 4-story buildings with two levels of underground parking, offering more secure parking and reducing the need for surface or detached garages.

Parking Improvements

• All buildings will include two levels of underground heated parking
• The revision adds 220 underground stalls, increasing the parking ratio to 2.11 stalls per unit
• Reduces reliance on surface parking and better meets resident demand for secure, covered spaces

Tax Base and Community Fees

• The revision increases the project's assessed value by 16 million dollars
• At current Village mill rates, this adds over $210,000 dollars in annual property tax revenue

• Total project value now estimated at 122 million dollars, generating $1.6M annually
• 725,160 dollars in additional impact fees will support local water, sewer, police, fire, park, and library services

Community, Resident, and Senior Amenities

When completed, the development will include 616 residential units and 154 senior housing units, totaling 770 units. Construction will begin later this year and take place in multiple phases over an estimated 8 to 10 years, allowing the community to grow in step with market demand. All residences will feature high-end finishes, open layouts, and private balconies or patios. Senior units will be located in two dedicated buildings designed for comfort, accessibility, and independence.

• Clubhouse with in-ground pool, yoga studio, theater room, party rooms, and lounge areas
• Clubhouse will also be available for community events such as graduations & family reunions
• State-of-the-art fitness center
• 24-hour on-site management and maintenance staff
• Sand volleyball, bocce ball, basketball, tennis, and pickleball courts
• Multi-purpose playing fields and over 3,000 linear feet of walking trails
• Dog park, playgrounds, and community garden areas
• ADA-compliant units and elevator access in all buildings
• Secure entries with cameras and modern mail centers
• Trash chutes with underground storage to eliminate exterior dumpsters
• Pet grooming stations, game rooms, and shared resident lounges
• Preservation of 17 acres of green space and wetlands

Conclusion

Even though this project has seen delays over the past five years, Teronomy Builders and Family Ventures of Mukwonago have stayed committed to making Maple Centre a reality. With rising interest rates, higher construction costs, and a changing housing market, we have adjusted the plan to better fit today's needs.

Maple Centre is meant to be more than just a housing development. It is a place where families can stay close. Grandparents can downsize without leaving the area. Young adults, like recent college graduates, can find their first apartment nearby. Couples can start new families in a community built to grow with them. We want to build a neighborhood that supports all stages of life.

The updated plan keeps the green space and wellness-focused design in place while improving efficiency and long-term value. Shared amenities, bulletin boards, and resident activities will help bring people together across generations. The senior housing remains a key part of the community, making up 20 percent of the total units.

Teronomy is a locally owned and family-run company. We employ more than 50 people and work with many subcontractors in the area. We are proud to invest in Mukwonago and are committed to building a high-quality neighborhood that fits the Village's goals.

JENDUSA
DESIGN & ENGINEERING INC
ARCHITECTS & ENGINEERS
4615 Vettelson Rd Ste 200
Hartland, WI 53029
P262-264-6340
F866-326-1552
Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

53 Units Total

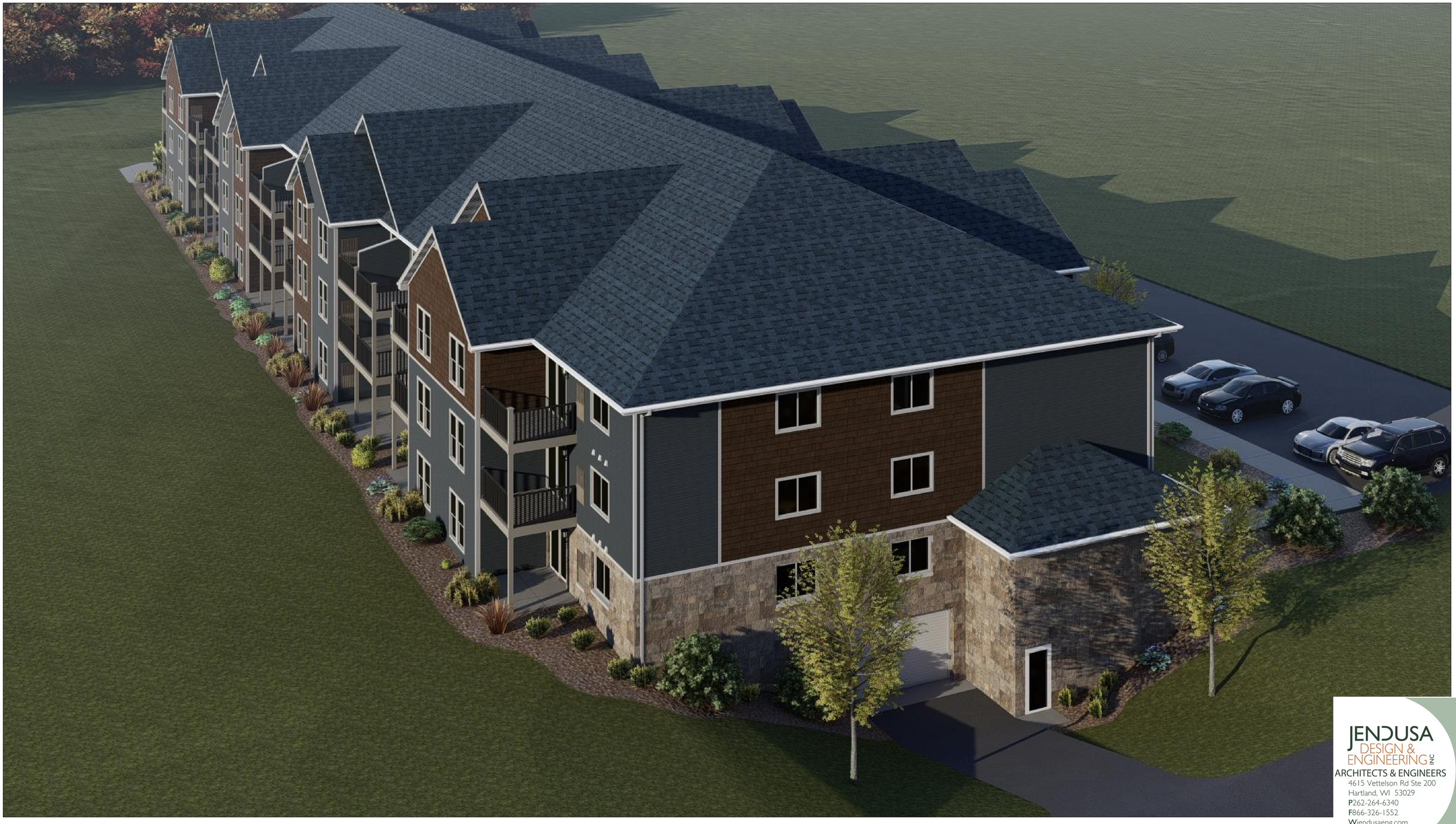
3-Story Apartment Building

Patios and Decks

Maple Centre
Development

Mukwonago, Wisconsin

11-19-2021



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Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

53 Units Total

3-Story Apartment Building

Drone View Garage Side

Maple Centre
Development

Mukwonago, Wisconsin

11-19-2021

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Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

53 Units Total

3-Story Apartment Building

Gables at Front Elevation

Maple Centre Development

Mukwonago, Wisconsin

11-19-2021

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Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

53 Units Total

3-Story Apartment Building

Front Entry

Maple Centre Development

Mukwonago, Wisconsin

11-19-2021

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Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

53 Units Total

3-Story Apartment Building

Front Elevation at Exit Stair

Maple Centre
Development

Mukwonago, Wisconsin
11-19-2021

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Teronomy
DEVELOPERS · BUILDERS · REALTORS

53 Units Total

3-Story Apartment Building

Side Elevation at Exit Stair

Maple Centre
Development

Mukwonago, Wisconsin
11-19-2021

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Teronomy
DEVELOPERS • BUILDERS • REALTORS

77 Units Total

4-Story Apartment Building

Rear Elevation Garage Side

Maple Centre Development

Mukwonago, Wisconsin

11-19-2021

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Teronomy
DEVELOPERS • BUILDERS • REALTORS

77 Units Total

4-Story Apartment Building

Drone View Garage Side

Maple Centre
Development

Mukwonago, Wisconsin

11-19-2021

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ARCHITECTS & ENGINEERS
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F866-326-1552
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Teronomy
DEVELOPERS • BUILDERS • REALTORS

77 Units Total

4-Story Apartment Building

Gables at Front Elevation

Maple Centre Development

Mukwonago, Wisconsin

11-19-2021

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F866-326-1552
Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

77 Units Total

4-Story Apartment Building

Front Entry

Maple Centre Development

Mukwonago, Wisconsin

11-19-2021

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ARCHITECTS & ENGINEERS
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F866-326-1552
Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

77 Units Total

4-Story Apartment Building

Front Elevation at Exit Stair

Maple Centre
Development

Mukwonago, Wisconsin
11-19-2021

JENDUSA
DESIGN & ENGINEERING INC
ARCHITECTS & ENGINEERS
4615 Vettelson Rd Ste 200
Hartland, WI 53029
P262-264-6340
F866-326-1552
Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

77 Units Total

4-Story Apartment Building

Side Elevation at Exit Stair

Maple Centre Development

Mukwonago, Wisconsin

11-19-2021

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ARCHITECTS & ENGINEERS
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Hartland, WI 53029
P262-264-6340
F866-326-1552
Wjendusaeng.com

Teronomy
DEVELOPERS · BUILDERS · REALTORS

77 Units Total

4-Story Apartment Building

Side Elevation at Garage Entry

Maple Centre
Development

Mukwonago, Wisconsin

11-19-2021

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Teronomy
DEVELOPERS · BUILDERS · REALTORS

Pavilion

North Elevation

Maple Centre
Development

Mukwonago, Wisconsin
11-19-2021

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ARCHITECTS & ENGINEERS
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Hartland, WI 53029
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F866-326-1552
Wjendusaeng.com

Teronomy
DEVELOPERS • BUILDERS • REALTORS

Pavilion

East Elevation

Maple Centre
Development

Mukwonago, Wisconsin

11-19-2021

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ARCHITECTS & ENGINEERS
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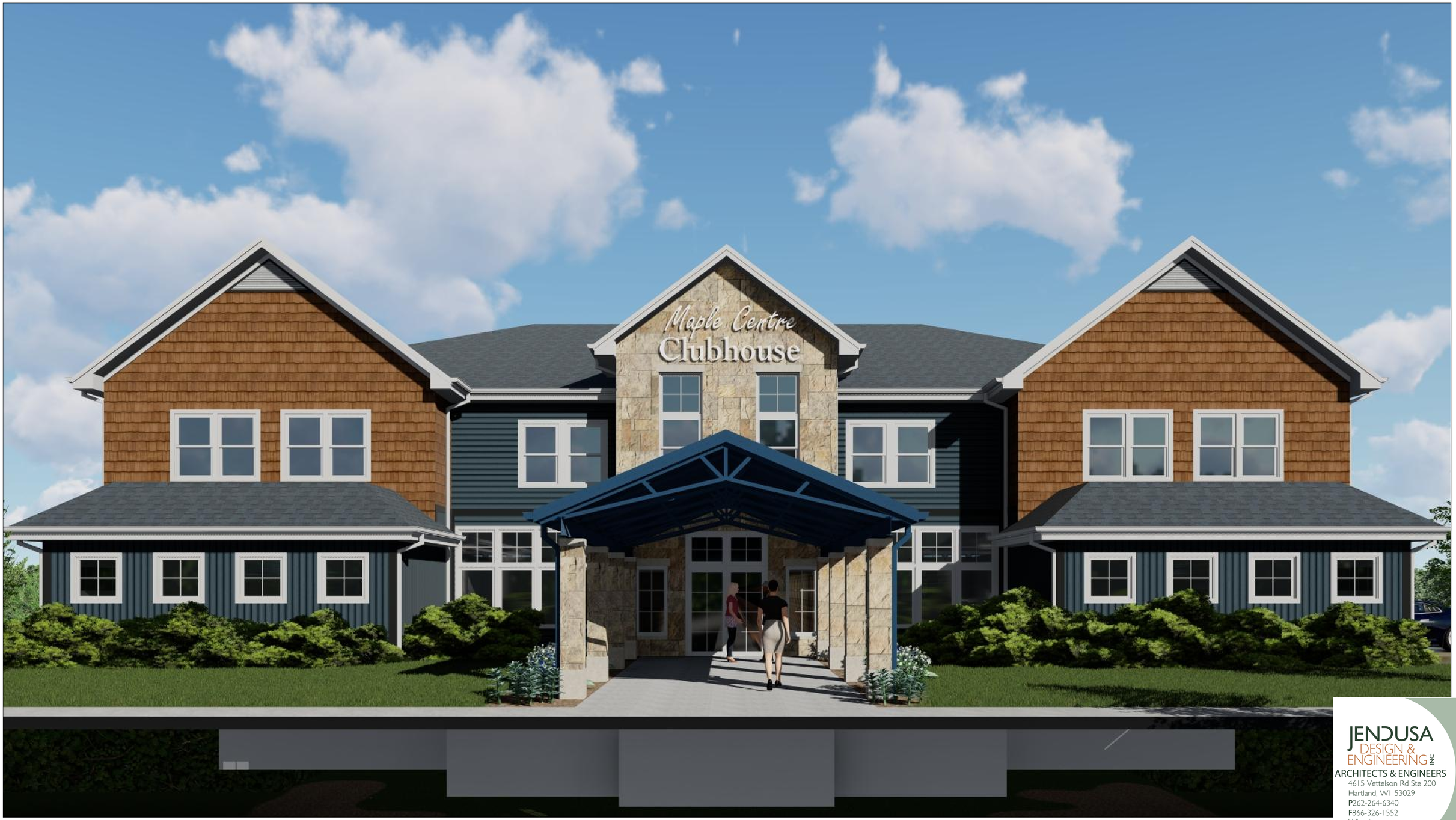
Teronomy
DEVELOPERS • BUILDERS • REALTORS

Maintenance Building

Front View

Maple Centre
Development

Mukwonago, Wisconsin
11-19-2021



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Teronomy
DEVELOPERS • BUILDERS • REALTORS

Clubhouse

Front View

Maple Centre
Development

Mukwonago, Wisconsin

11-19-2021

JENDUSA
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ARCHITECTS & ENGINEERS
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F866-326-1552
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Teronomy
DEVELOPERS • BUILDERS • REALTORS

Clubhouse
Pool Side

Maple Centre
Development

Mukwonago, Wisconsin
11-19-2021

JENDUSA
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Teronomy
DEVELOPERS • BUILDERS • REALTORS

Clubhouse

Drone View

Maple Centre
Development

Mukwonago, Wisconsin

11-19-2021

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Teronomy
DEVELOPERS • BUILDERS • REALTORS

Clubhouse
North Side

Maple Centre Development

Mukwonago, Wisconsin
11-19-2021

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Teronomy
DEVELOPERS • BUILDERS • REALTORS

Clubhouse

View of Decks

Maple Centre Development

Mukwonago, Wisconsin

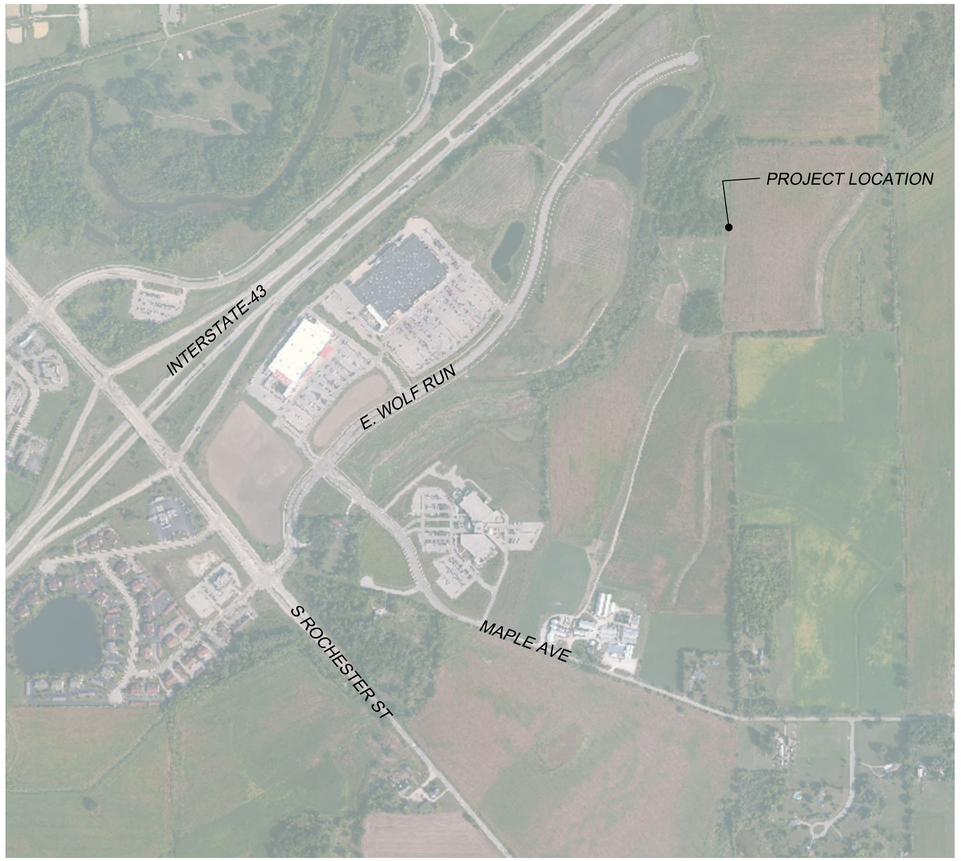
11-19-2021

MAPLE CENTRE DEVELOPMENT

CIVIL DESIGN PLANS
SEPTEMBER 30, 2021
(REV DATE): JUNE 2, 2025

CIVIL DRAWING INDEX

1 OF 55	*TITLE SHEET*
2 OF 55	*EXISTING CONDITIONS PLAN*
3 OF 55	*SITE PLAN*
4 OF 55	*TRUCK TURN PLAN*
5–11 OF 55	*DETAILED SITE PLAN*
12 OF 55	*PHASE 1 PLAN*
13 OF 55	*PHASE 2 PLAN*
14 OF 55	*INITIAL GRADING PLAN*
15 OF 55	*OVERALL GRADING PLAN*
16–22 OF 55	*DETAILED GRADING PLAN*
23–26 OF 55	*UTILITY PLAN*
27–50 OF 55	*PLAN AND PROFILE*
51–55 OF 55	*CONSTRUCTION DETAILS*



ALL SPECIFICATIONS SHALL FOLLOW THE VILLAGE OF MUKWONAGO STANDARD SPECIFICATIONS AND DETAIL DRAWINGS.

ALL SPECIFICATIONS ARE REFERENCED TO THE WISCONSIN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION.

DETAILS UNDER CARDINAL ENGINEERING LLC TITLE BLOCK TAKE PRECEDENCE.

ALL SPECIFICATIONS FOR STANDARD SEWER AND WATER CONSTRUCTION IN WISCONSIN SHALL ALSO BE FOLLOWED, IF NOT DIRECTLY REFERENCED UNDER THIS TITLE BLOCK.

CONTACT INFORMATION:

OWNER: *FAMILY VENTURES OF MUKWONAGO, LLC*
N7152 BOWERS RD
ELKHORN, WI 53121

ENGINEER: *PAUL VAN HENKELUM, PE, PLS*
CARDINAL ENGINEERING, LLC
1200 LA SALLE ST
LAKE GENEVA, WI 53147
PHONE: 262–757–8776

NOT FOR CONSTRUCTION

DIGGERS HOTLINE
Dial 811 or (800)242-8511
www.DiggersHotline.com

CARDINAL ENGINEERING LLC ASSUMES NO RESPONSIBILITY FOR DAMAGES, LIABILITY OR COSTS RESULTING FROM CHANGES OR ALTERATIONS MADE TO THIS PLAN WITHOUT THE EXPRESSED WRITTEN CONSENT OF CARDINAL ENGINEERING LLC.

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

TITLE SHEET

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1 = 500'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	EJO
DESIGNED BY	RWC

SHEET NUMBER

1 OF 55

FILE: G:\Shared drives\2016–2020 Projects\2017\1701331_Teronomy Mukwonago\Dwg\Sheets\1701331TS_reduced.dwg PLOTTED: 6/2/2025 4:40:16 PM

LEGEND

- PROPOSED TRACKING PAD
- PROPOSED EROSION MATTING
- USLE LINE
- DISTURBANCE LIMITS
- SF — SILT FENCE
- INLET PROTECTION
- DITCH CHECKS

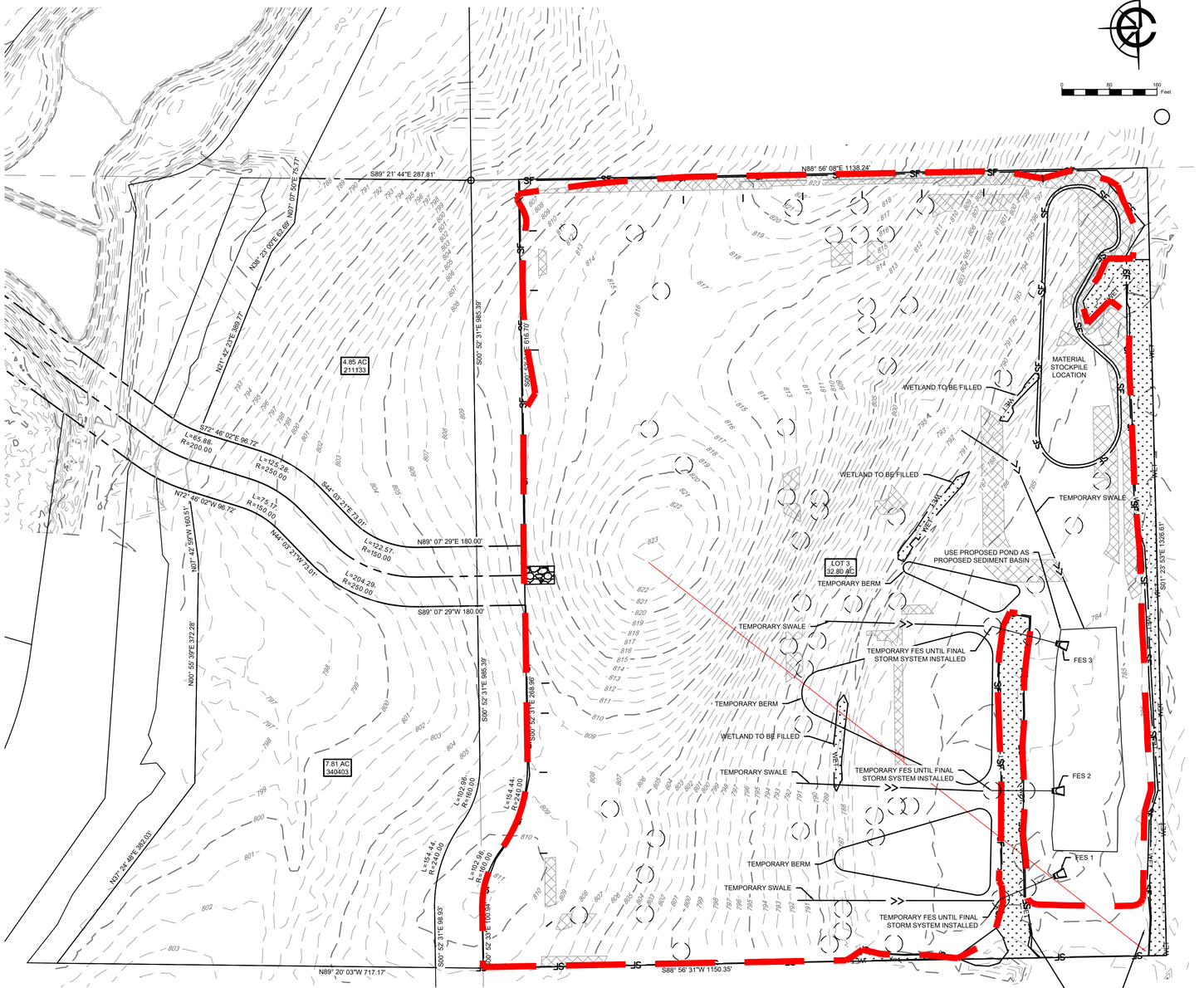
RESTORATION NOTES:

1. MINIMUM 4" TOPSOIL REQUIRED IN ALL LAWN AREAS.
2. UTILIZE WISDOT SEED MIXTURE No 40 OR AS RECOMMENDED BY LANDSCAPER PER LOCAL SOIL TEST.
3. UTILIZE WISDOT TYPE A FERTILIZER.
4. USE CLASS 1, URBAN, TYPE A ON ALL DISTURBED AREAS UNLESS SPECIFIED OTHERWISE.
5. UTILIZE TYPE B MATTING OF SAME CLASS 1 ALONG CENTERLINE OF SWALE AND UP MINIMUM 2FT VERTICAL OF SIDE SLOPES.
6. PROPERLY ANCHORED MULCH REQUIRED IN ALL AREA NOT STABILIZED WITH EROSION MATTING.
7. FOLLOW ALL EROSION CONTROL SEQUENCING, TRACKING PAD, SILT FENCE, DUST CONTROL, SEEDING, AND MATTING.

GENERAL NOTES:

1. NO DEWATERING IS EXPECTED. IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION AND DEWATERING BECOMES NECESSARY, THE CONTRACTOR MUST STOP WORK AND PREPARE A DEWATERING PLAN TO SUBMIT TO DESIGN ENGINEER FOR VILLAGE AND DNR APPROVAL. MUST COMPLY WITH WISCONSIN DNR TECHNICAL STANDARD 1061. CONTRACTOR MAY ALSO SUBMIT DEWATERING PLAN DURING PRECONSTRUCTION SUBMITTAL REVIEW PROCESS TO HAVE PLAN ACCEPTED FOR SCHEDULING PURPOSES IN CASE GROUNDWATER IS ENCOUNTERED.

2. CONTRACTOR MUST SUBMIT SPILLS AND LEAK CONTAINMENT PLAN FOR REVIEW AND APPROVAL DURING PRECONSTRUCTION PROCESS PRIOR TO BEGINNING ANY WORK. SPECIFIC ATTENTION SHALL BE ADDRESSED TO WORK WITHIN THE VICINITY OF THE WETLANDS.



SEQUENCING MUST FOLLOW

1. CONSTRUCT PERMANENT WET POND
2. INSTALL STORM PIPES SHOWN ON THIS SHEET.
3. INSTALL BERMS/ SWALES SHOWN TO BE USED THROUGH DURATION OF CONSTRUCTION.
4. SWALES/ BERMS MAY BE REMOVED AS GRADING IS COMPLETED AS LONG AS ALL RUNOFF IS DIRECTED TO POND AND NOT WETLANDS AT ALL TIMES DURING CONSTRUCTION.

PROTECT WETLANDS FROM ANY GROUND DISTURBANCE OR INADVERTENT FILL WITH SILT FENCE AND ORANGE CONSTRUCTION FENCING

Soil Loss & Sediment Discharge Calculation Tool

for use on Construction Sites in the State of Wisconsin

WDNR Version 2.0 (06-29-2017)

YEAR 1

Developer: Teronomy Real Estate Management
Project: Maple Centre Development
Date: 09/24/21
County: Waukesha

Version 1.0

Activity (1)	Begin Date (2)	End Date (3)	Period % R (4)	Annual R Factor (5)	Sub Soil Texture (6)	Soil Erodibility K Factor (7)	Slope (%) (8)	Slope Length (ft) (9)	LS Factor (10)	Land Cover C Factor (11)	Soil loss A (tons/acre) (12)	SDF (13)	Sediment Control Practice (14)	Sediment Discharge (t/ac) (15)
Bare Ground	06/01/22	06/14/22	7.4%	130	Silt Loam	0.43	3.6%	1062	0.91	1.00	3.8	1.198	Silt Fence	2.7
Seed with Mulch or Er	06/14/22	11/01/22	69.6%	130	Silt Loam	0.43	3.6%	1062	0.91	0.10	3.5	1.198	Sediment Bas in	0.9
End	11/01/22	-----	-----	-----	--------	-----	3.6%	1062	0.91	-----	-----	0.000		0.0
		-----	-----	-----	--------	-----	3.6%	1062	0.91	-----	-----	0.000		0.0
		-----	-----	-----	--------	-----	3.6%	0	-----	-----	-----	0.000		0.0
		-----	-----	-----	--------	-----	0.0%	0	-----	-----	-----	0.000		0.0
										TOTAL	7.3		TOTAL	3.6
													% Reduction Required	NONE

Notes:
See Help Page for further descriptions of variables and items in drop-down boxes.
The last land disturbing activity on each sheet must be 'End'. This is either 12 months from the start of construction or final stabilization.
For periods of construction that exceed 12 months, please demonstrate that 5 tons/acre/year is not exceeded in any given 12 month period.

Recommended Permanent Seeding Dates:

4/1-5/15 and 8/7-8/29 Turf, introduced grasses and legumes
Thaw-6/30 Native Grasses, forbs, and legumes

NOTE: THIS TOOL ONLY ADDRESSED SOIL EROSION DUE TO SHEET FLOW. MEASURES TO CONTROL CHANNEL EROSION MAY ALSO BE REQUIRED TO MEET SEDIMENT DISCHARGE REQUIREMENTS.

Designed By:	Cardinal Engineering LLC
Date	9/24/2021

CLIENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

EXISTING CONDITIONS/ EROSION CONTROL

CIVIL DESIGN PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
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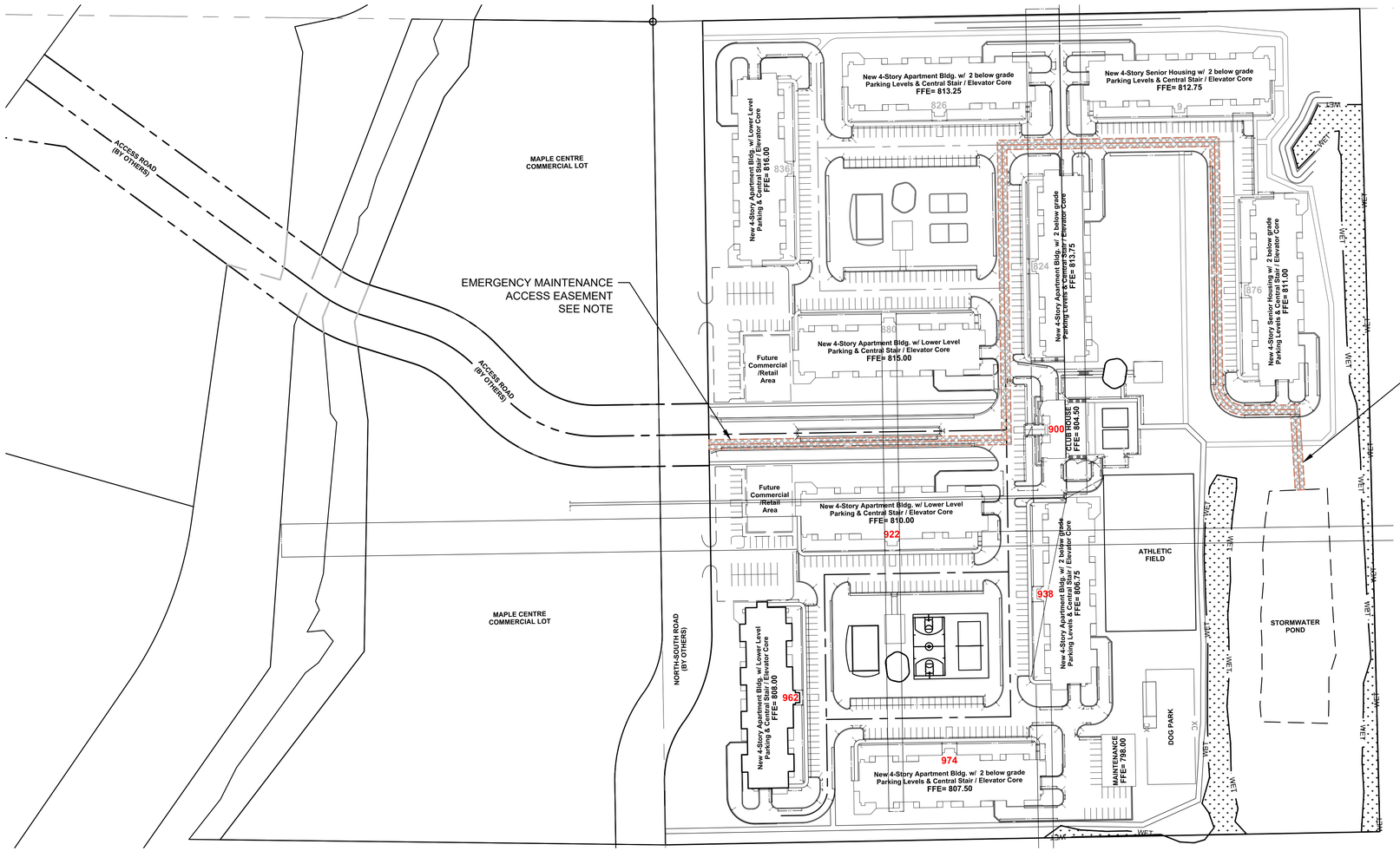
SHEET NUMBER

2 OF 55



EMERGENCY MAINTENANCE ACCESS EASEMENT:

ACCESS EASEMENT, UNDER SEPARATE EASEMENT LEGAL DOCUMENT, GRANTED TO THE VILLAGE OF MUKWONAGO FOR EMERGENCY MAINTENANCE OR REPAIRS AS AUTHORIZED IN THE STORMWATER MAINTENANCE AGREEMENT. EASEMENT AUTHORIZES VILLAGE TO MAKE SUCH IMPROVEMENTS NECESSARY TO THE SITE TO GAIN REQUIRED ACCESS ACROSS AREAS NOT ALREADY IMPROVED FOR VEHICLES AND HEAVY EQUIPMENT FOR REQUIRED MAINTENANCE AND REPAIRS

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

OVERALL SITE PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

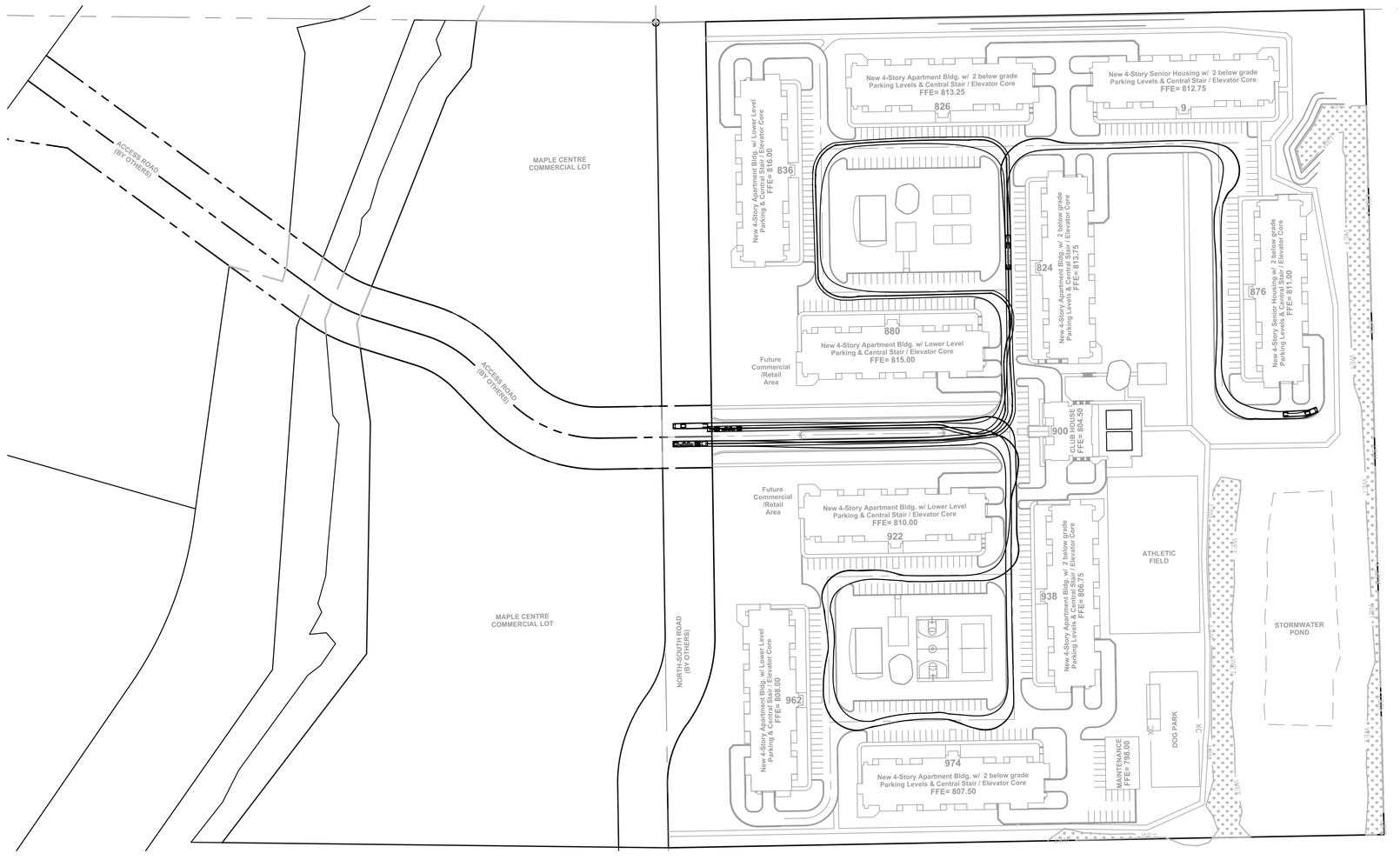
1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1" = 100'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

3 OF 55

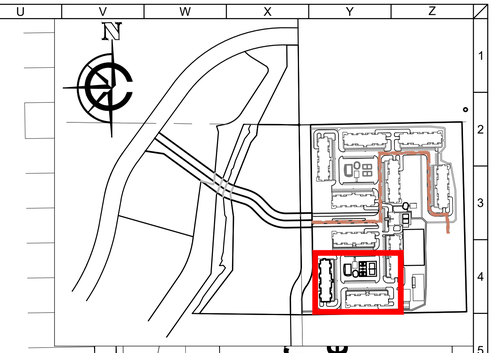

ACCESS ROAD (BY OTHERS)
ACCESS ROAD (BY OTHERS)
MAPLE CENTRE COMMERCIAL LOT
MAPLE CENTRE COMMERCIAL LOT
NORTH-SOUTH ROAD (BY OTHERS)
New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 815.00
836
New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 813.25
826
New 4-Story Senior Housing w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 812.75
9
624
New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 813.75
876
New 4-Story Senior Housing w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 811.00
880
New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 815.00
Future Commercial /Retail Area
900
CLUB HOUSE FFE= 804.50
Future Commercial /Retail Area
New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 810.00
922
938
New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 806.75
ATHLETIC FIELD
STORMWATER POND
962
New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 808.00
974
New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 807.50
MAINTENANCE FFE= 798.00
DOG PARK
PARKING
PARKING
PARKING

New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 808.00

962

New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 807.50

974



CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

CIVIL DESIGN PLAN | DETAILED SITE PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
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07	VILLAGE COMMENTS	04/25/2021
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SCALE	1" = 20'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

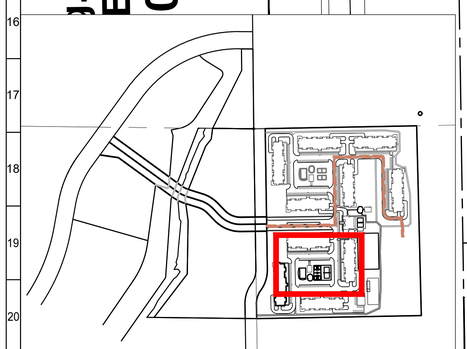
5 OF 55

New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 810.00

922

938

New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 806.75



CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

CIVIL DESIGN PLANS | DETAILED SITE PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

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05	VILLAGE COMMENTS	02/22/2021
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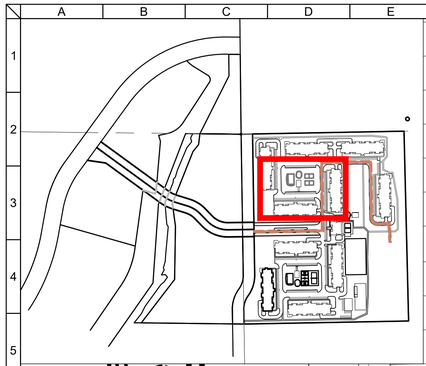
SCALE	1" = 20'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

6 OF 55



New 4-Story Apa
Parking & Ce
F

New 4-Story Apartment Bldg. w/ Lower Level
Parking & Central Stair / Elevator Core
FFE= 815.00

New 4-Story Apartment Bldg. w/ 2 below grade
Parking Levels & Central Stair / Elevator Core
FFE= 813.75

880

824

POND EMERGENCY
MAINTENANCE ACCESS
EASEMENT

CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

CIVIL DESIGN PLANS | DETAILED SITE PLAN

ENGINEERING

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

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05	VILLAGE COMMENTS	02/22/2021
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07	VILLAGE COMMENTS	04/25/2021
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PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

7 OF 55

New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 816.00

836

New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 813.25

826

POND EMERGENCY MAINTENANCE ACCESS EASEMENT

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

DETAILED SITE PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
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PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

8 OF 55

FILE: G:\Shared drives\2016-2020 Projects\2017\1701331_Teronomy Mukwonago\Dwg\Sheets\1701331SP_revised.dwg PLOTTED: 6/2/2025 4:40:28 PM

/ 2 below grade
/ Elevator Core

New 4-Story Senior Housing w/ 2 below grade
Parking Levels & Central Stair / Elevator Core
FFE= 812.75

9

824

artment Bldg. w/ 2 below grade
& Central Stair / Elevator Core
FFE= 813.75

876

using w/ 2 below grade
ral Stair / Elevator Core
811.00

POND EMERGENCY
MAINTENANCE ACCESS
EASEMENT

CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

CIVIL DESIGN PLAN | DETAILED SITE PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
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07	VILLAGE COMMENTS	04/25/2021
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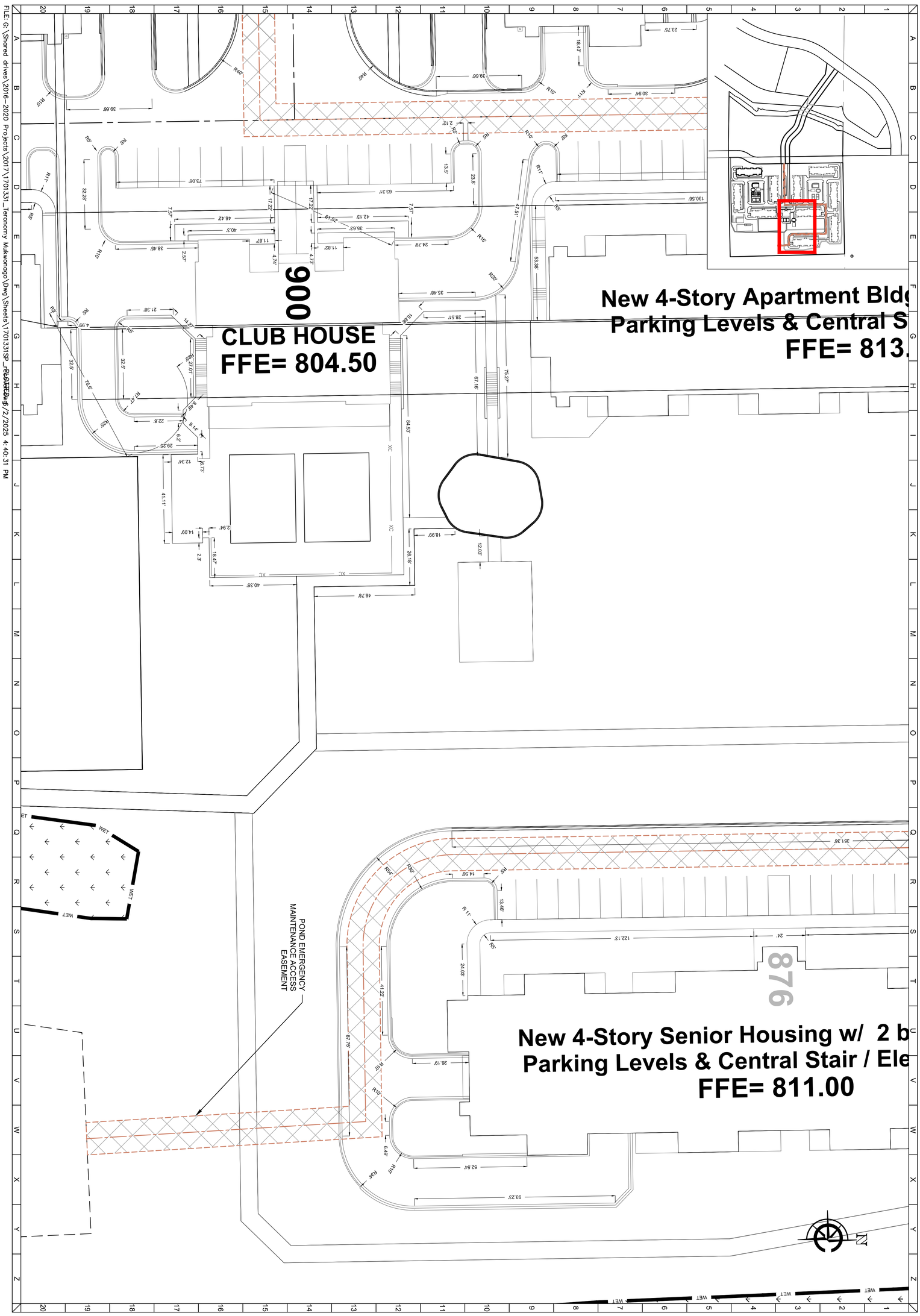
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER
9 OF 55



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CLIENT

Teronomy
REAL ESTATE INVESTMENT

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

CIVIL DESIGN PLANS | DETAILED SITE PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262.903.7791
CARDINALENGINEERING@GMAIL.COM

NO.	REVISION DESCRIPTION	REV. DATE
05	VILLAGE COMMENTS	05/20/2021
06	VILLAGE COMMENTS	06/01/2021
07	VILLAGE COMMENTS	06/25/2021
08	SUBMITTAL	06/02/2025

SCALE: 1" = 20'

PROJECT NUMBER: 1701331

DATE: 06/30/2021

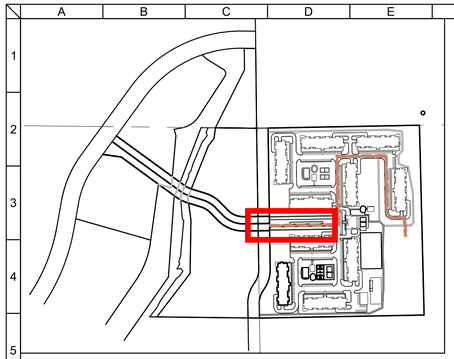
PROJECT MGR: RYAN CARDINAL, PE

DRAWN BY: BDP

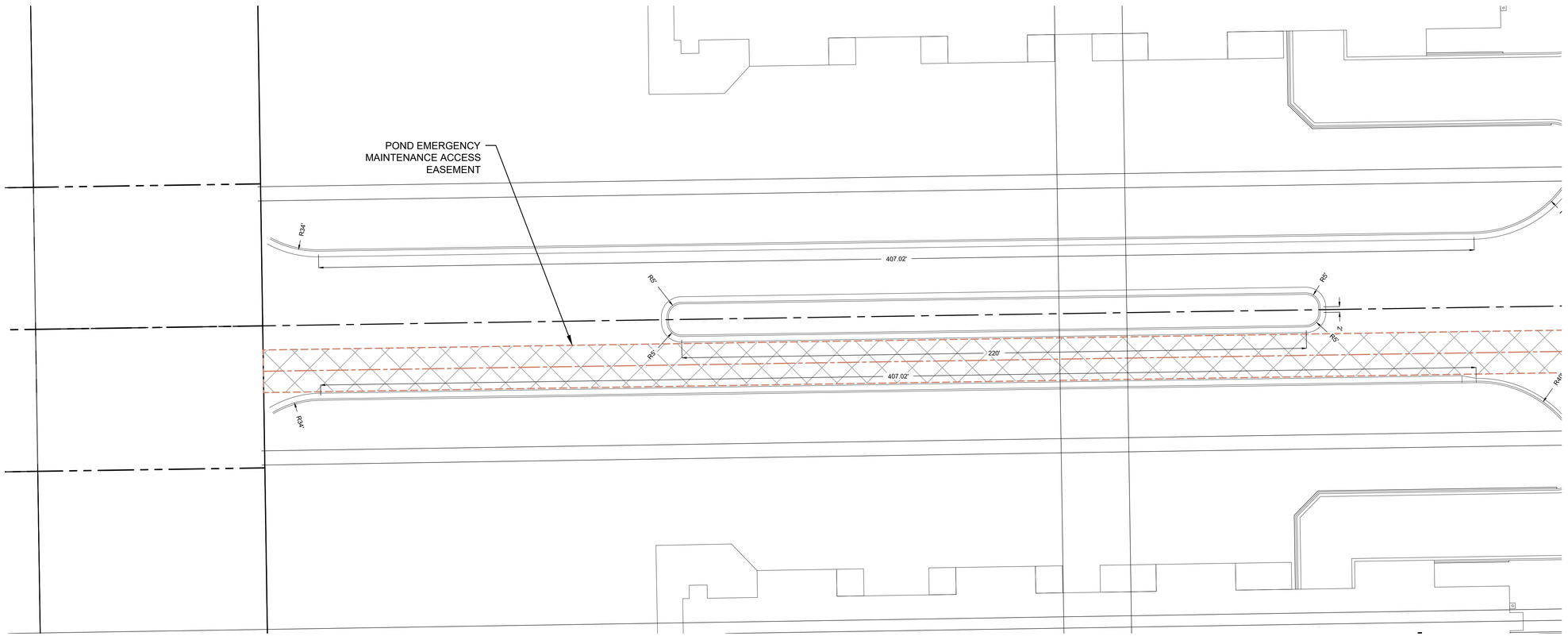
DESIGNED BY: RWC

SHEET NUMBER
10 OF 55

0 20 40 Feet



0 500 1000 Feet



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CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

DETAILED SITE PLAN

CIVIL DESIGN PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

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05	VILLAGE COMMENTS	02/22/2021
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PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

11 OF 55

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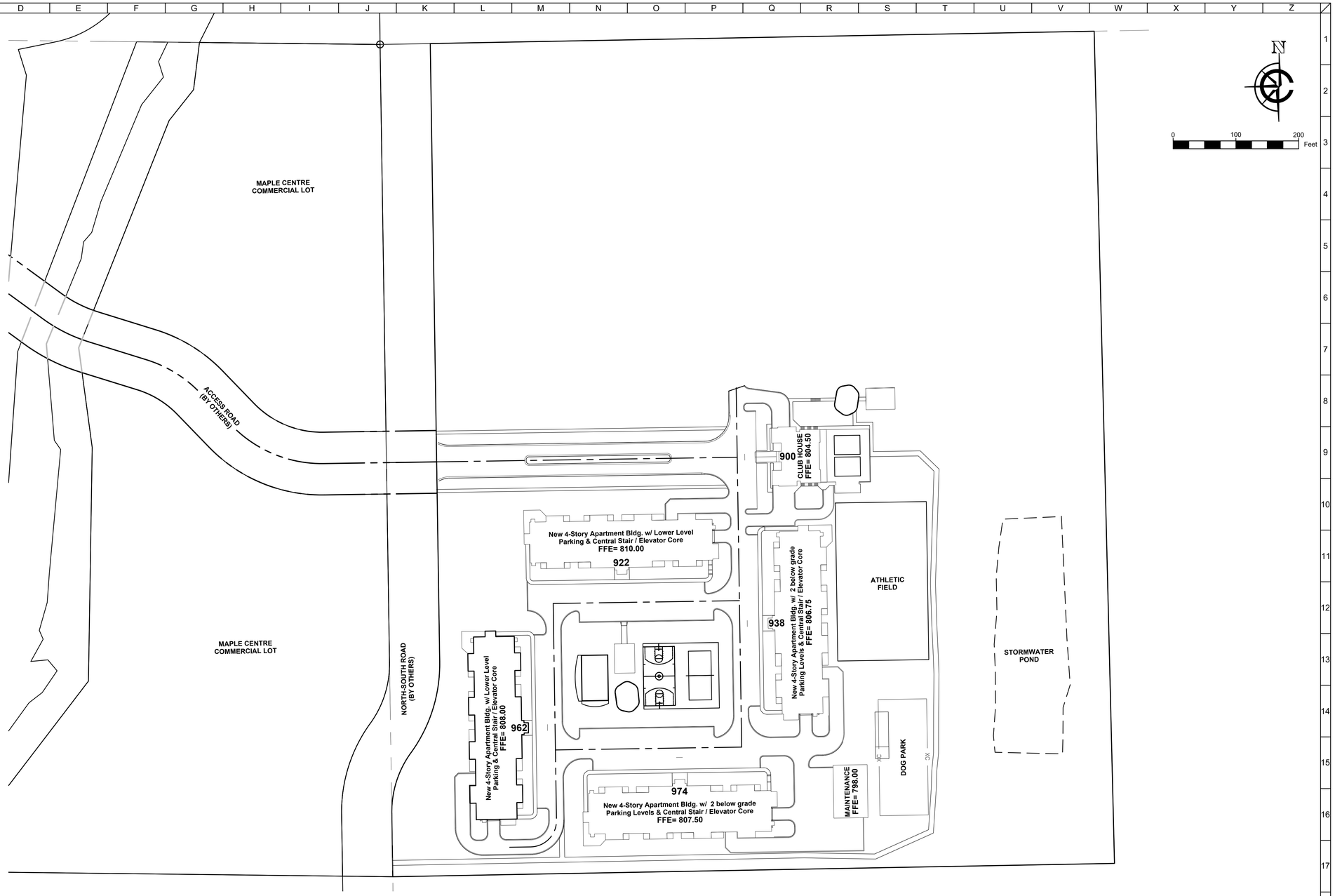


CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

PHASE 1

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

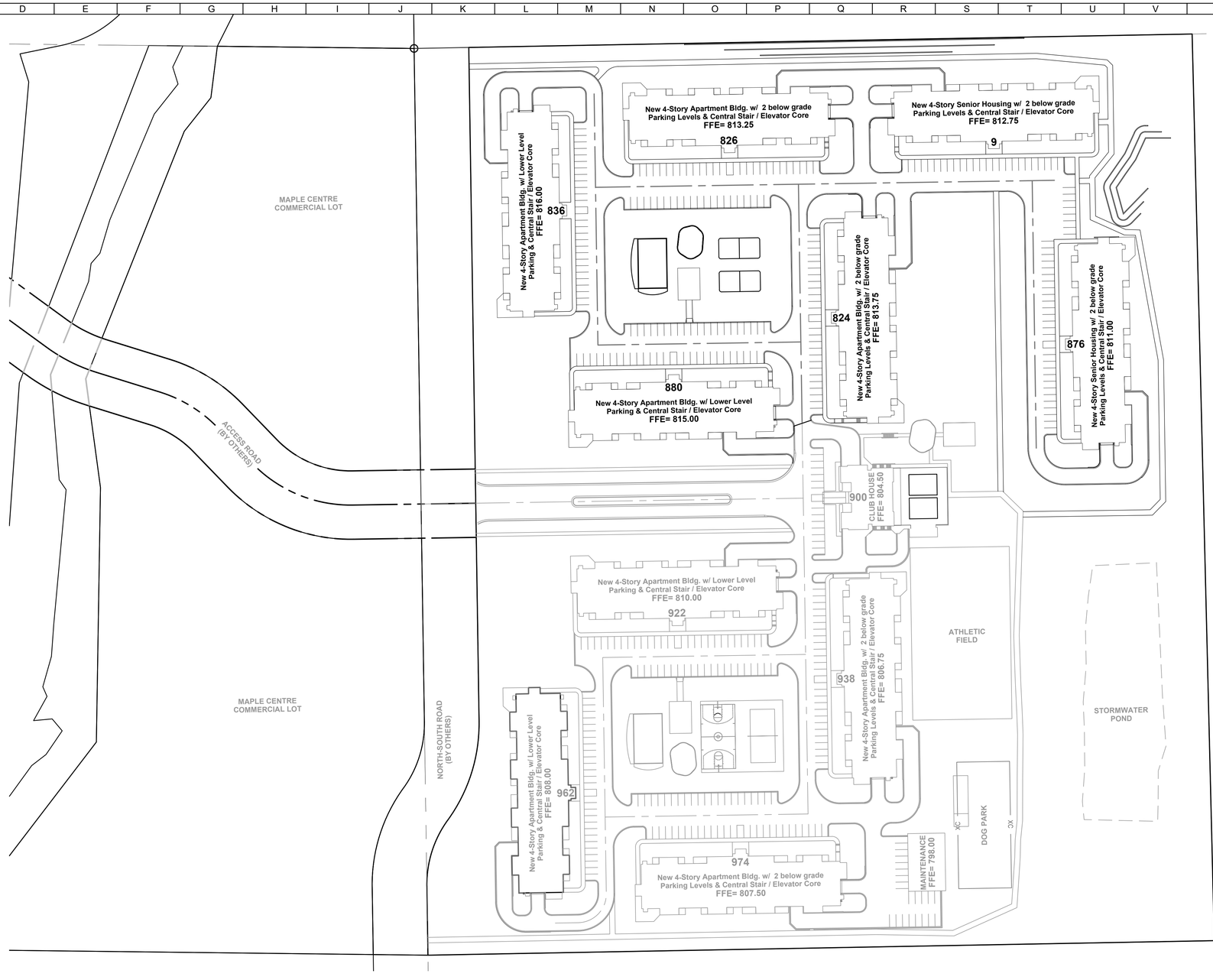
1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1 IN:80 FT
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

12 OF 55



CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

PHASE 2 PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

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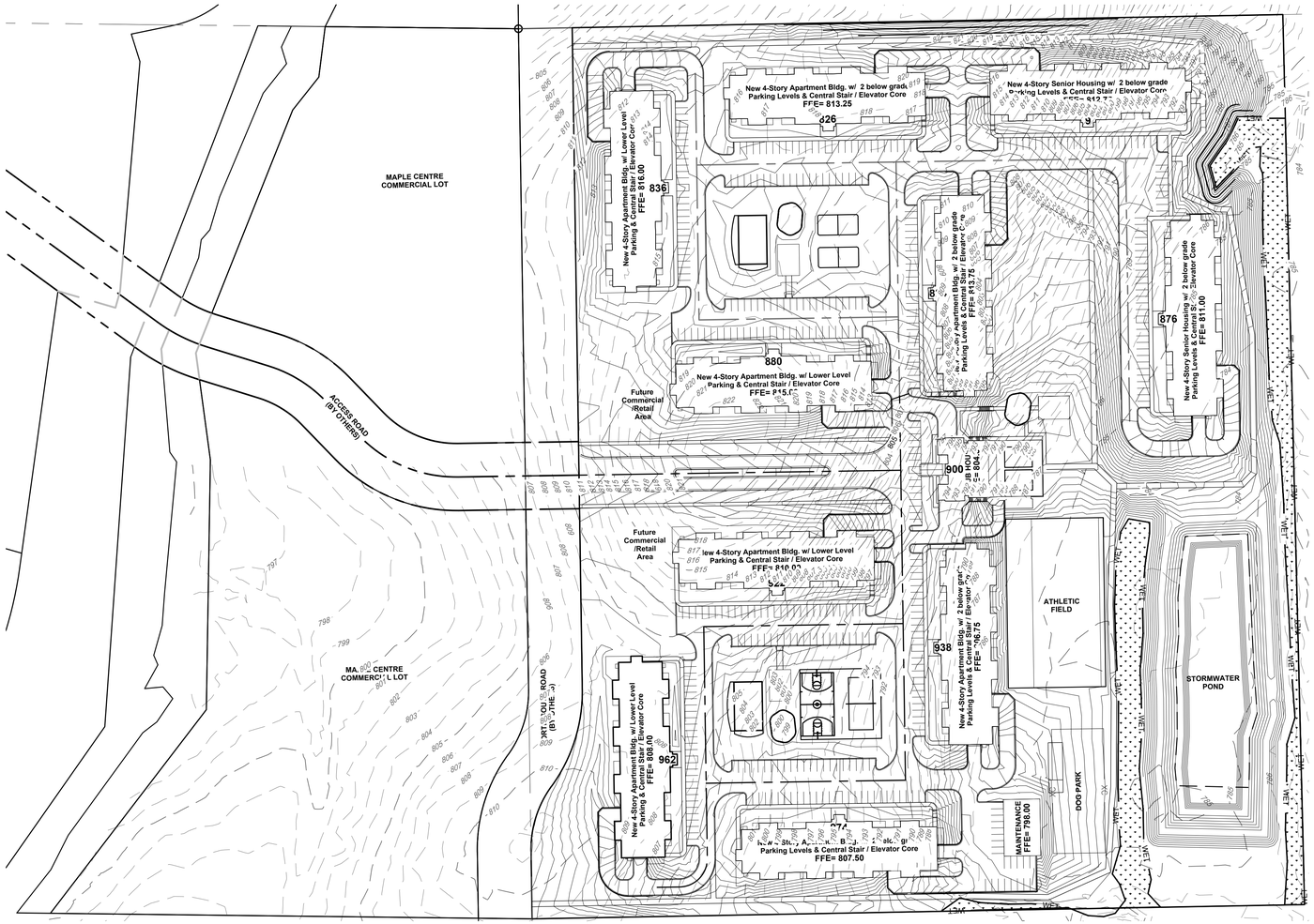
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1 IN:80 FT
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

13 OF 55



GENERAL NOTE:

ALL GRADING TO BE DONE DURING PHASE 1.

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

CIVIL DESIGN PLANS | INITIAL GRADING PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 100 200 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
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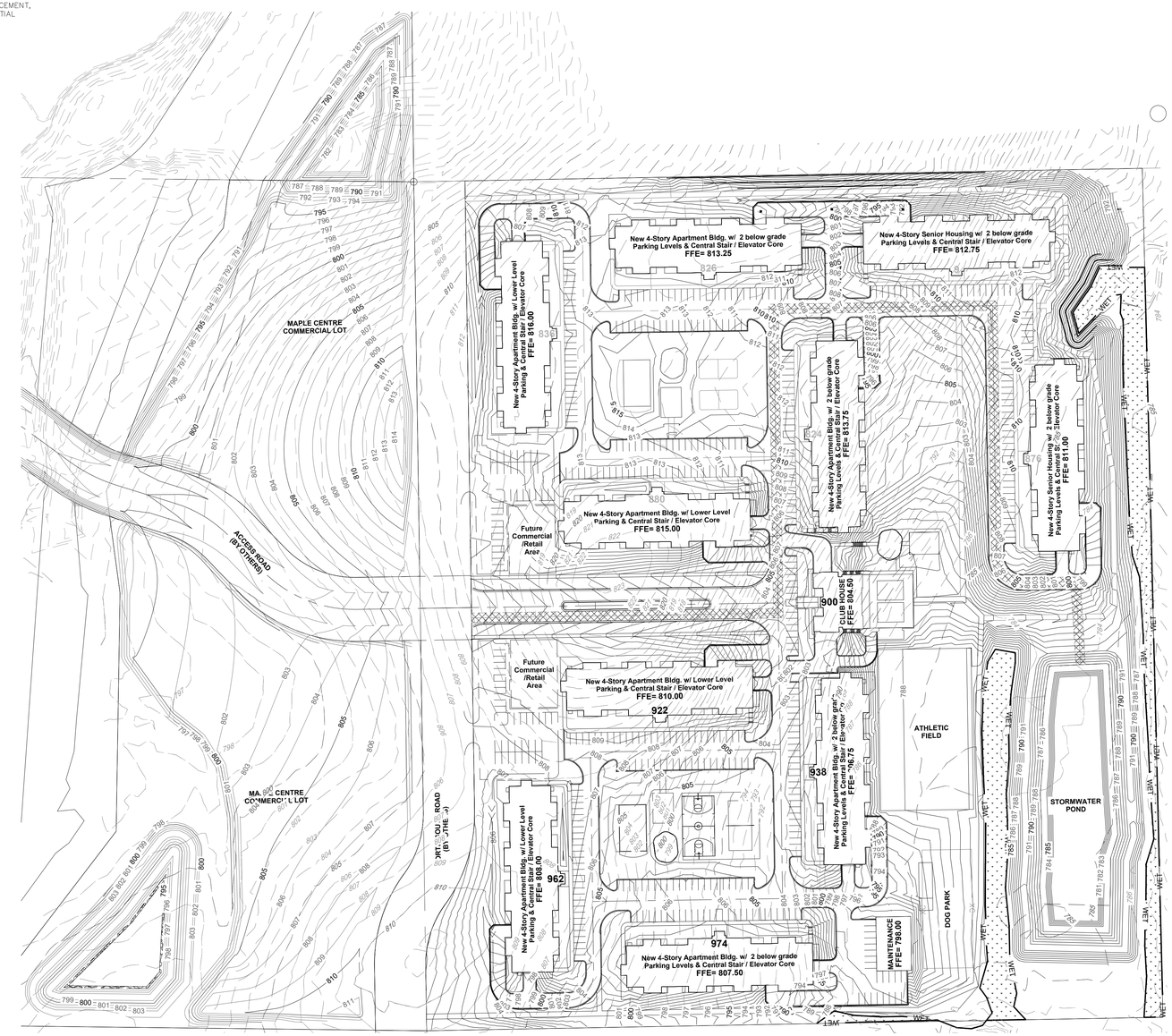
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1" = 100'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

14 OF 55

NOTES:
1. SEE CONSTRUCTION DETAILS AND EROSION CONTROL PROJECT NOTES.
2. EROSION MATTING SHALL BE INSTALLED ON ALL SLOPES 4:1 OR GREATER, SEE DETAIL.
3. USE CLASS 1, URBAN, TYPE A ON ALL DISTURBED AREAS, UNLESS SPECIFIED OTHERWISE.
4. ALL SITE WORK, PER WISDOT STANDARD SPECIFICATIONS. UTILIZE SEED MIX APPROVED BY WISDOT STANDARD SPECIFICATIONS, WDNR TECHNICAL STANDARDS, AND THE PRODUCT ACCEPTABILITY LIST.
5. FOLLOW ALL EROSION CONTROL SEQUENCING, TRACKING PAD, SILT FENCE, DUST CONTROL, SEEDING, AND MATTING.
6. MINIMUM 4" TOPSOIL REQUIRED IN ALL LAWN AREAS.
7. UTILIZE WISDOT SEED MIXTURE NO 40 OR AS RECOMMENDED BY LANDSCAPER PER LOCAL SOIL TEST.
8. UTILIZE WISDOT TYPE A FERTILIZER.
9. PROPERLY ANCHORED MULCH REQUIRED IN ALL AREAS NOT STABILIZED WITH EROSION MATTING.
10. FOR INTERIOR POND SLOPES, UTILIZE HEAVY DUTY SYNTHETIC TURF REINFORCEMENT, WISDOT CLASS III TYPE B OR C. TYPE A MUST ALSO BE INSTALLED FOR INITIAL EROSION PROTECTION.
11. YARD GRADE TO BE 6" BELOW FIRST FLOOR ELEVATION.



CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

OVERALL GRADING PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

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LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 100 200 Feet

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DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

15 OF 55

New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core FFE= 808.00

962

New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core FFE= 807.50

974

New 4-Parkir

N

CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

DETAILED GRADING PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

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DRAWN BY	BDP
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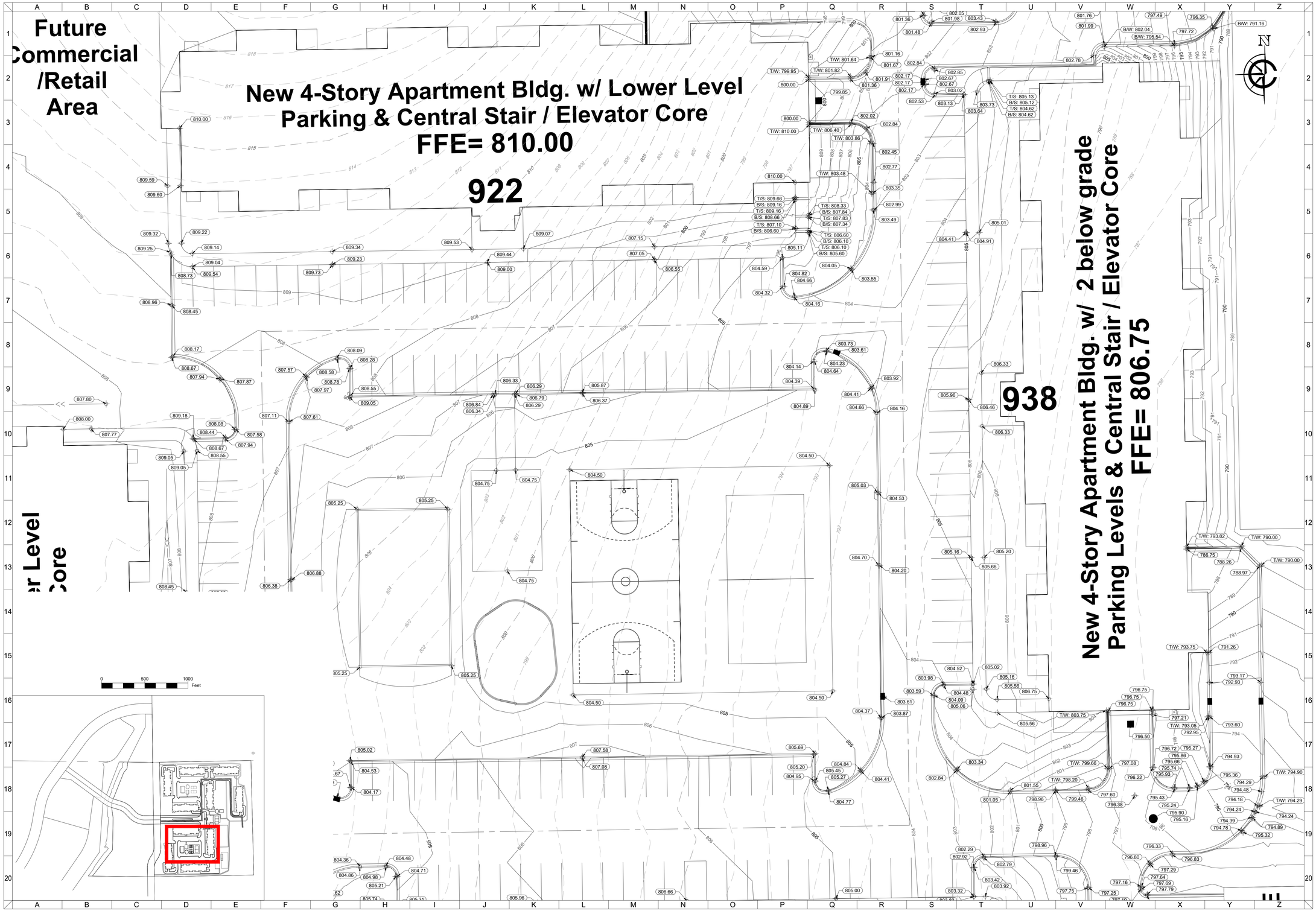
SHEET NUMBER

16 OF 55



CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

DETAILED GRADING PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
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262-757-8776
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0 20 40 Feet

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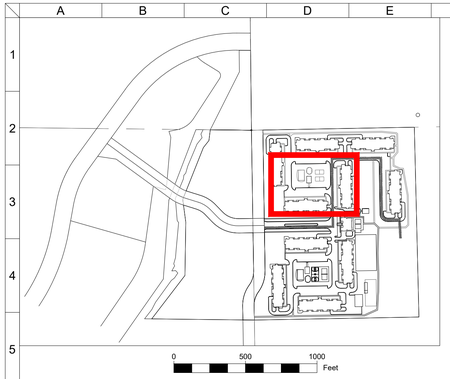
17 OF 55



New 4-Sto
Parkin

New 4-Story Apartment Bldg. w/ Lower Level
Parking & Central Stair / Elevator Core
FFE= 815.00

880

New 4-Story Apartment Bldg. w/ 2 below grade
Parking Levels & Central Stair / Elevator Core
FFE= 813.75

824

Future
Commercial
/Retail
Area

N

CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

DETAILED GRADING PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1" = 20'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

18 OF 55

New 4-Story Apartment Bldg. w/ 2 below grade Parking Levels & Central Stair / Elevator Core
FFE= 813.25

826

New 4-Story Apartment Bldg. w/ Lower Level Parking & Central Stair / Elevator Core
FFE= 816.00

836

0 500 1000 Feet

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

DETAILED GRADING PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 20 40 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
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DRAWN BY	BDP
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SHEET NUMBER

19 OF 55

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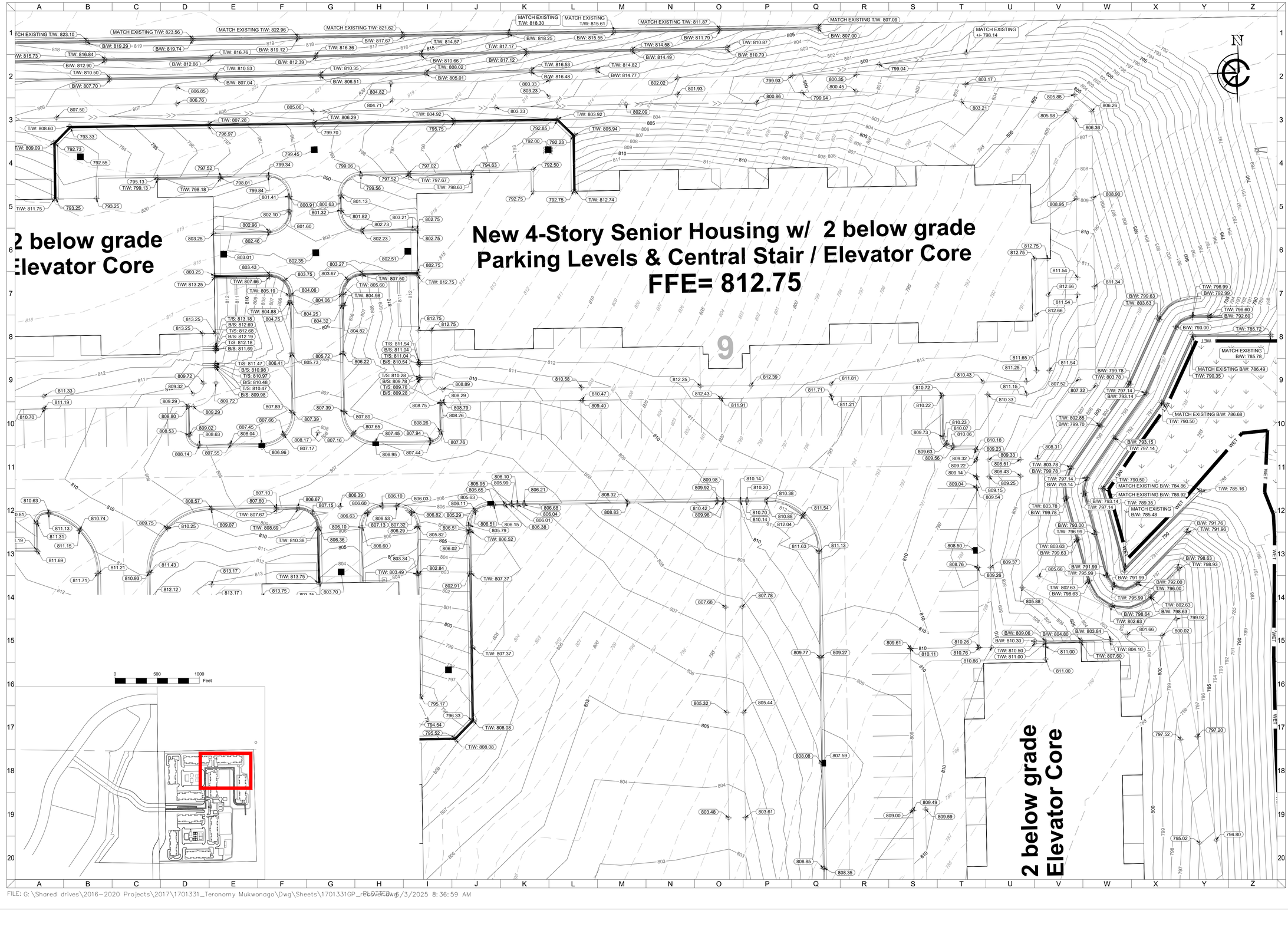

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REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

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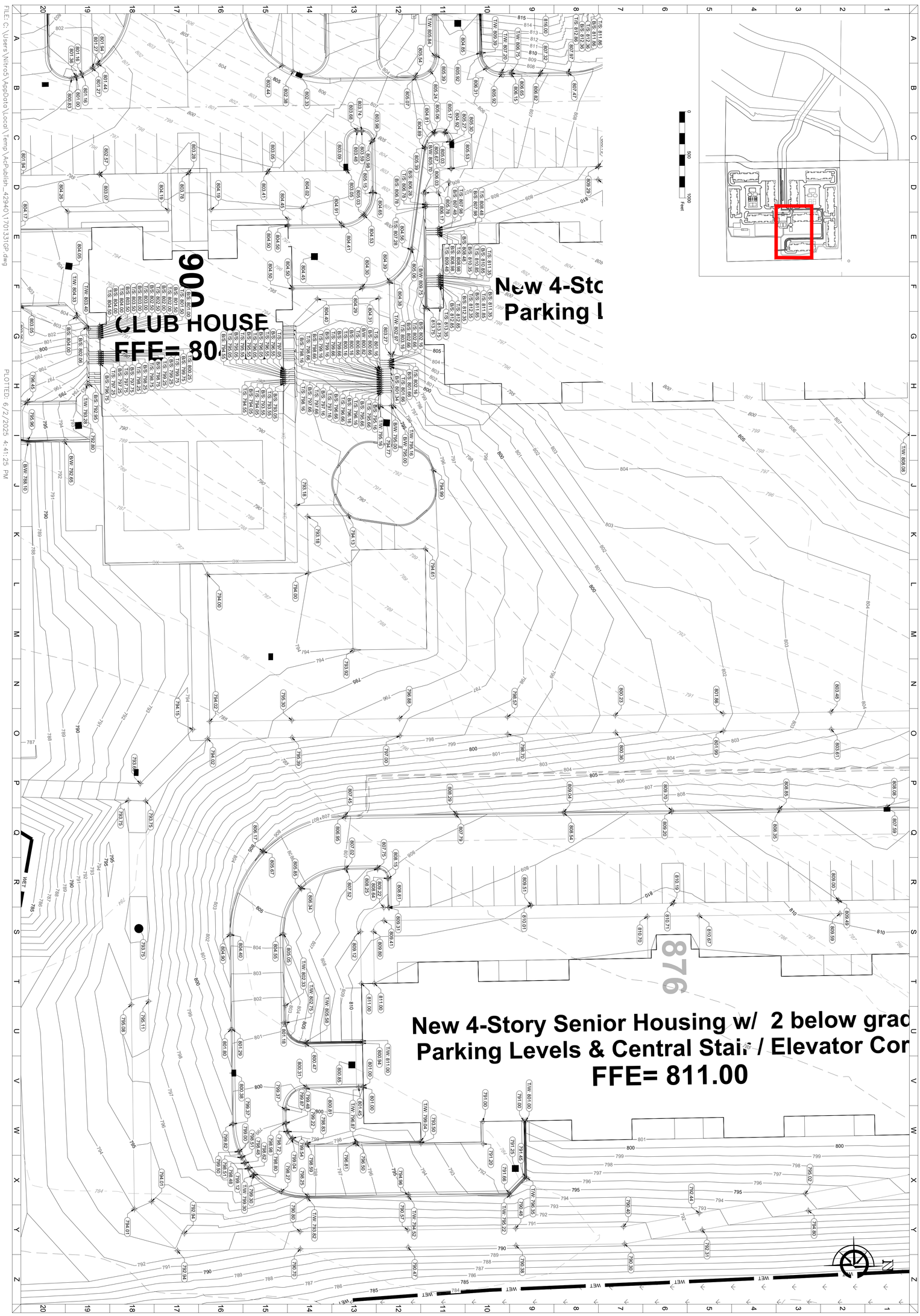
20 OF 55



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CLIENT

Greenway

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

CIVIL DESIGN PLANS

DETAILED GRADING PLAN

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
PHONE: 262-903-7479
CARDINALENGINEERING@GMAIL.COM

NO.	REVISION DESCRIPTION	REV. DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/23/2021
08	SUBMITTAL	06/02/2025

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DRAWN BY	BDP
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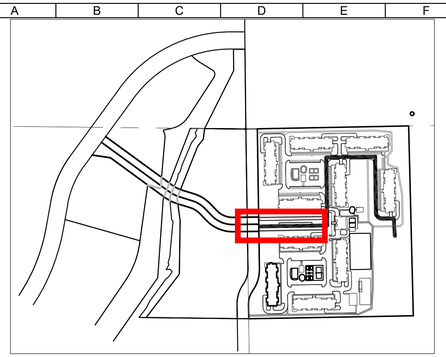
SHEET NUMBER

21 OF 55



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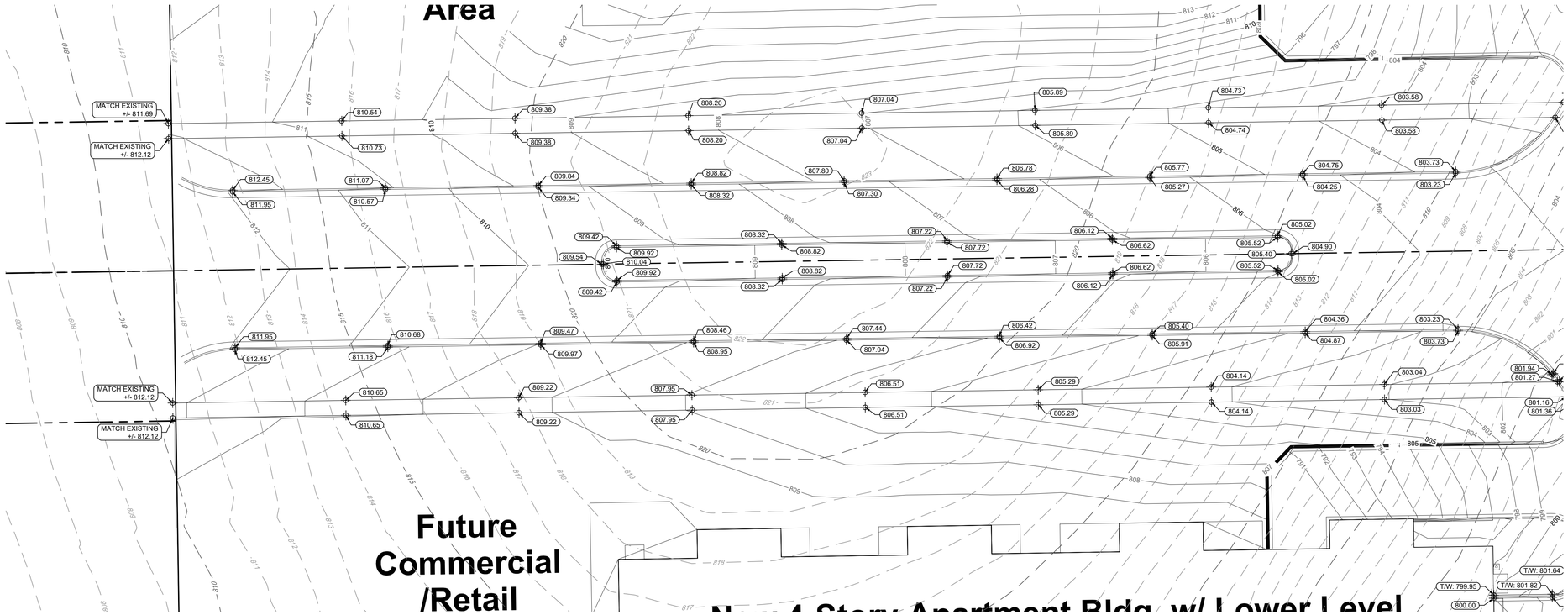

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Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTER DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

DETAILED GRADING PLAN

CIVIL DESIGN PLANS

ENGINEERING

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

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LAKE GENEVA, WI 53147
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0 20 40 Feet

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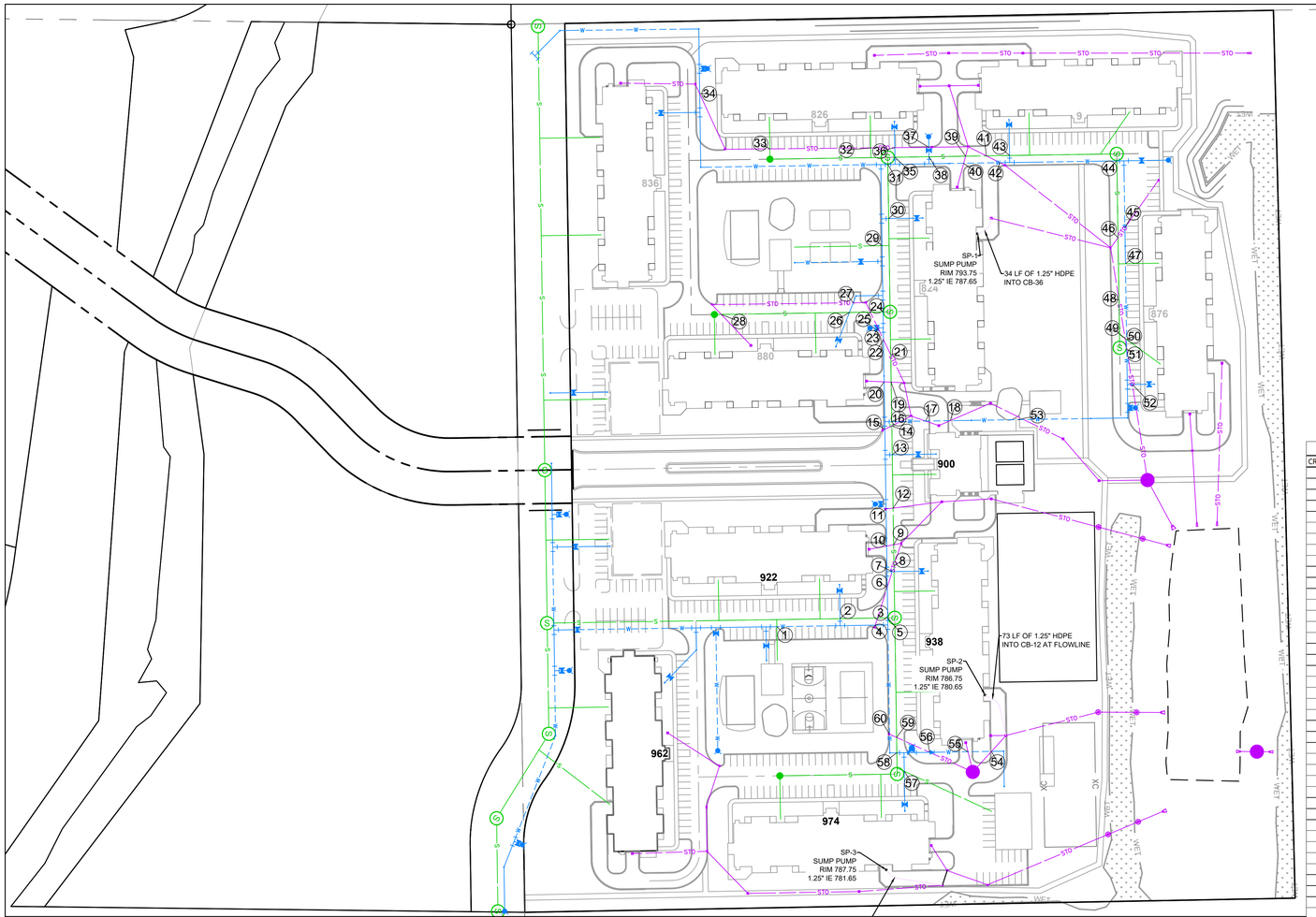
22 OF 55



GENERAL UTILITY NOTES:

1. *CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.*
2. *ALL PIPE LENGTHS ARE TO CENTER OF EXISTING OR PROPOSED STRUCTURE.*
3. *ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE VILLAGE OF MUKWONAGO SPECIFICATIONS, THE STANDARD SPECIFICATIONS FOR SEWER & WATER CONSTRUCTION IN WISCONSIN AND THE WISCONSIN DSPS CODE, LATEST EDITIONS.*
4. *THE CONTRACTOR SHALL COORDINATE UTILITY INSTALLATION WITH THE OWNER'S REPRESENTATIVE.*
5. *SEE DETAILS AND NOTES SHEETS.*
6. *VERTICAL CROSSINGS OF WATER AND SEWER MAINS SHALL COMPLY WITH NR181, ONE FULL LENGTH OF WATER PIPE SHALL BE CENTERED ABOVE OR BELOW THE SEWER SO THAT BOTH JOINTS WILL BE AS FAR FROM THE SEWER AS POSSIBLE.*
7. *CONTRACTOR MAY SUBMIT PLAN TO ENGINEER FOR APPROVAL OF SERVICE LINE THAT GOES OVER STORM SEWER (CROSSING 15) THAT MAINTAINS APPROPRIATE SEPARATIONS AND INSULATION.*

PIPE CROSSING TABLE

CROSSING I.D.	BOTTOM OF TOP PIPE			TOP OF BOTTOM PIPE			SEPARATION (FT)	REQUIREMENT (FT)
1	WAT	DI 8"	800.45	SAN	PVC 6"	788.60	11.85	0.50
2	WAT	DI 6"	798.74	SAN	PVC 12"	788.39	10.35	0.50
3	STO	RCP 12"	799.97	SAN	PVC 12"	788.49	11.47	MEP
4	STO	RCP 12"	800.37	WAT	DI 8"	798.20	2.17	1.50
5	WAT	DI 8"	797.26	SAN	PVC 12"	788.51	8.75	0.50
6	STO	RCP 12"	798.19	WAT	DI 8"	796.51	1.68	1.50
7	STO	RCP 12"	797.29	WAT	DI 6"	795.79	1.51	1.50
8	STO	RCP 12"	796.97	SAN	PVC 10"	790.29	6.68	MEP
9	STO	RCP 12"	795.87	SAN	PVC 10"	790.39	5.48	MEP
10	STO	RCP 12"	796.10	WAT	DI 8"	794.58	1.52	1.50
11	STO	RCP 18"	797.60	WAT	DI 8"	795.11	2.49	1.50
12	STO	RCP 18"	797.07	SAN	PVC 10"	790.57	6.50	MEP
13	WAT	DI 6"	795.98	SAN	PVC 10"	790.82	5.16	0.50
14	STO	RCP 15"	798.82	SAN	PVC 10"	790.96	7.86	MEP
15	STO	RCP 15"	798.96	WAT	DI 8"	796.53	2.43	1.50
16	WAT	DI 8"	795.11	SAN	PVC 10"	790.98	4.12	0.50
17	STO	RCP 24"	797.28	WAT	DI 8"	792.15	5.13	1.50
18	STO	RCP 24"	795.62	WAT	DI 8"	789.49	6.13	1.50
19	STO	RCP 18"	801.33	SAN	PVC 10"	791.17	10.15	MEP
20	STO	RCP 18"	801.42	WAT	DI 8"	799.28	2.14	1.50
21	STO	RCP 15"	802.82	SAN	PVC 10"	791.31	11.52	MEP
22	STO	RCP 15"	803.85	WAT	DI 8"	802.19	1.66	1.50
23	STO	RCP 15"	804.64	WAT	DI 6"	801.92	2.72	1.50
24	WAT	DI 8"	803.13	SAN	PVC 6"	791.55	11.59	0.50
25	STO	RCP 15"	805.71	SAN	PVC 6"	791.93	13.79	MEP
26	WAT	DI 6"	805.51	SAN	PVC 6"	792.55	12.96	0.50
27	STO	RCP 12"	806.73	WAT	DI 6"	805.21	1.53	1.50
28	STO	RCP 12"	808.58	SAN	PVC 6"	796.37	12.21	MEP
29	WAT	DI 8"	805.01	SAN	PVC 6"	792.69	12.31	0.50
30	WAT	DI 6"	805.54	SAN	PVC 10"	792.12	13.41	0.50
31	WAT	DI 8"	802.48	SAN	PVC 10"	792.38	10.09	0.50
32	STO	RCP 18"	797.60	SAN	PVC 6"	795.39	2.21	MEP
33	STO	RCP 18"	799.17	SAN	PVC 6"	797.10	2.07	MEP
34	WAT	PVC 6"	807.30	STO	RCP 18"	802.72	4.57	0.50
35	WAT	PVC 6"	803.07	SAN	PVC 8"	792.47	10.61	0.50
36	WAT	PVC 6"	804.06	STO	RCP 18"	799.15	4.92	0.50
37	WAT	PVC 6"	800.65	STO	RCP 18"	798.62	2.03	0.50
38	WAT	PVC 6"	800.65	SAN	PVC 8"	792.69	7.95	0.50
39	STO	RCP 12"	796.66	SAN	PVC 8"	791.89	4.77	MEP
40	WAT	PVC 8"	799.72	STO	RCP 12"	798.22	1.50	0.50
41	STO	RCP 24"	794.34	SAN	PVC 8"	793.66	0.69	MEP
42	WAT	PVC 8"	799.66	STO	RCP 24"	796.66	2.99	0.50
43	WAT	PVC 6"	800.79	SAN	PVC 8"	793.23	7.56	0.50
44	WAT	PVC 8"	803.60	SAN	PVC 8"	798.92	4.68	0.50
45	WAT	PVC 8"	801.61	STO	RCP 12"	798.31	3.30	0.50
46	SAN	PVC 8"	798.73	STO	RCP 12"	796.61	2.12	MEP
47	WAT	PVC 8"	801.03	SAN	PVC 6"	799.87	1.15	0.50
48	SAN	PVC 8"	799.15	STO	RCP 30"	794.34	4.81	MEP
49	SAN	PVC 6"	799.68	STO	RCP 30"	793.82	5.86	MEP
50	WAT	PVC 8"	801.20	SAN	PVC 6"	800.27	0.93	0.50
51	WAT	PVC 8"	801.22	STO	RCP 30"	793.68	7.54	0.50
52	WAT	PVC 6"	801.38	STO	RCP 30"	793.17	8.20	0.50
53	STO	RCP 24"	790.49	WAT	PVC 8"	787.19	3.30	0.50
54	STO	RCP 24"	789.82	WAT	HDPE 1.5"	788.29	1.53	1.50
55	STO	RCP 12"	792.94	WAT	HDPE 1.5"	790.77	2.17	1.50
56	STO	RCP 15"	796.09	WAT	PVC 8"	794.47	1.62	1.50
57	WAT	PVC 6"	798.01	SAN	PVC 4"	789.00	9.01	0.50
58	WAT	PVC 8"	796.47	SAN	PVC 8"	789.39	7.07	0.50
59	STO	RCP 15"	799.45	SAN	PVC 8"	789.29	10.16	MEP
60	STO	RCP 15"	800.17	WAT	PVC 8"	797.65	2.52	1.50

*MEP = MAXIMUM EXENT PRCATICABLE

**<0.50' WHEN SEPARATION IS LESS THAN 6" ON MEP CROSSINGS, A CONCRETE CRADLE IS REQIRED. SEE DETAIL.

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REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

OVERALL UTILITY PLAN

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 100 200 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
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07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1" = 100'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

23 OF 55

SANITARY NOTES:
1. *CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.*
2. *FOR INFORMATION REGARDING STORM SEWER DESIGN, REFER TO STORM SEWER PLAN SHEET.*
3. *SANITARY SEWER AND ASSOCIATED STRUCTURES ARE TO CONFORM TO THE VILLAGE OF MUKWONAGO SPECIFICATIONS AND THE STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN.*

INSTALL PER ALIGNMENT AND GRADES SHOWN ON PLAN UNLESS AUTHORIZED BY ENGINEER AND LOCAL JURISDICTIONAL AUTHORITIES.

VILLAGE OF MUKWONAGO SPECIFICATIONS:

SANITARY SEWER CONSTRUCTION
Prior to construction, the Contractor shall provide and install a bulkhead and/or plug at the point of connection to the existing sewer. The plug shall conform to the requirements of SWS 3.2.25. This plug shall remain in place until final acceptance by the Village.

All components shall be American made.

Connections to Existing Sewers and/or Manholes
1. *Contractor shall make the connection to existing sewers, force mains, and/or manholes as shown on the Drawings, in conformance with SWS 3.2.27. The Contractor shall verify alignment and grade of existing sewers in existing manholes and replace and/or restore bench as necessary.*
2. *Drain line connections to existing manholes shall be made in accordance with SWS 3.5.7. Field tapped holes for connecting sewer pipe to manholes shall be made by coring the manhole except that connections to brick or block manholes may be made by punching out the opening. Flexible pipe connections shall be made with flexible watertight connectors, Kor-N-Seal, Link-Seal or equal. All clamps, bolts, etc. of pipe to manhole seals shall be stainless steel. If Link-Seal connectors are used, the bolt heads shall be placed on the inside of manholes.*

Sanitary Sewer Televising
1. *All newly installed sanitary sewers shall be televised prior to acceptance. Following SWS 7.1.2 and 02955, perform televising after manhole benches are installed, surfacing has been restored, and the pipe has been successfully tested. Prior to televising, clean water shall be flushed through lines to prove there are no possible sags in line.*
2. *The Contractor shall ensure that all lines are flushed and clean prior to video recording.*
3. *Video records which show debris in lines will not be accepted. In the event a sewer span is not accepted, cleaning and re-video may be required.*
4. *The cost of cleaning and video recording shall be paid for by the Developer or his Contractor.*
5. *In a new development, the sewer plug and/or bulkhead as defined in (first paragraph) shall remain in place throughout the cleaning and video recording process and until final acceptance of the project.*
6. *In a rehabilitation project, the sewer plug and/or bulkhead as defined in (first paragraph)*
   a. *Shall remain in place throughout the cleaning and video recording process and until final acceptance of the project or approval of the Village.*
   b. *Or, Contractor may bypass pumps during the day but flumes to flow to the sewer overnight.*
6. *Televising shall only be performed by The Expediters, Inc., 400 N. Summit Drive, Oconomowoc, WI 53066. (800) 657-0879.*

Sanitary Sewer Pipe
Sanitary sewer pipe material shall be polyvinyl chloride (PVC), reinforced concrete, ductile iron, prestressed concrete pressure pipe or HDPE pipe for drilling or other if approved, as shown on the drawings, and conforming to the following:
1. *Polyvinyl chloride (PVC) sewer pipe, 4 inch through 15 inch diameter, meeting the requirements of ASTM D-3034, SDR-35, with integral bell type flexible elastomeric joints meeting the requirements of ASTM D-3212. Sampling, test reports, and markings per SWS 8.3.0 and 8.10.0.*
2. *Polyvinyl chloride (PVC) large diameter solid wall sewer pipe, 18 inch through 27 inch diameter, meeting the requirements of ASTM F-679, Type T-1, with a minimum pipe stiffness of 46 psi and having integral bell type flexible elastomeric joints meeting the requirements of ASTM D-3212. Lateral pipe material shall conform to the requirements of line 1.*
3. *Polyvinyl chloride (PVC) pressure pipe, 4 inch through 12 inch diameter, meeting the requirements of AWWA C900 SDR18 or less.*
4. *Polyvinyl chloride (PVC) pressure pipe 14 inch through 20 inch diameter, meeting the requirements of AWWA C905 SDR18 or less.*
5. *Fittings for PVC and ductile iron pipe shall follow SWS 8.22.0 and: Shall be ductile iron Class 52 wall thickness with interior and exterior bituminous coating per ANSI/AWWA C110/A21.10. Fittings for buried applications shall be mechanical joint type and fittings within structures shall be flanged type. Full body fittings shall have a pressure rating of 250 psi, compact fittings shall have a pressure rating of 350 psi.*
6. *Reinforced concrete sanitary sewer pipe (RCP) 12 inches and larger, meeting the requirements of ASTM C-76, wall thickness C, with R-4 rubber gasket joints conforming to ASTM C-361.*
7. *Ductile iron pipe meeting the requirements of AWWA Standard C-151 (ANSI 21.51), Class 52 equal to Tyton gasket joint pipe, cement mortar lined with internal and external bituminous coating and furnished with push-on rubber gasket joints.*
8. *Ductile iron pipe shall be wrapped with polyethylene wrap meeting the requirements of AWWA Standard C-105 (ANSI A21.5) and SWS 8.21.0 using Class C (black) polyethylene material and shall be installed as specified in SWS 4.4.4.*
9. *Sanitary sewer lateral and riser pipe material shall be the same as selected for the main sanitary sewer, and the riser pipe. Lateral pipe material shall be 6 inch PVC. Follow SWS 5.3.10 and SWS 5.3.11, SDR 35 pipe. Install test tee with plugs and connect to main with tees or wyes.*

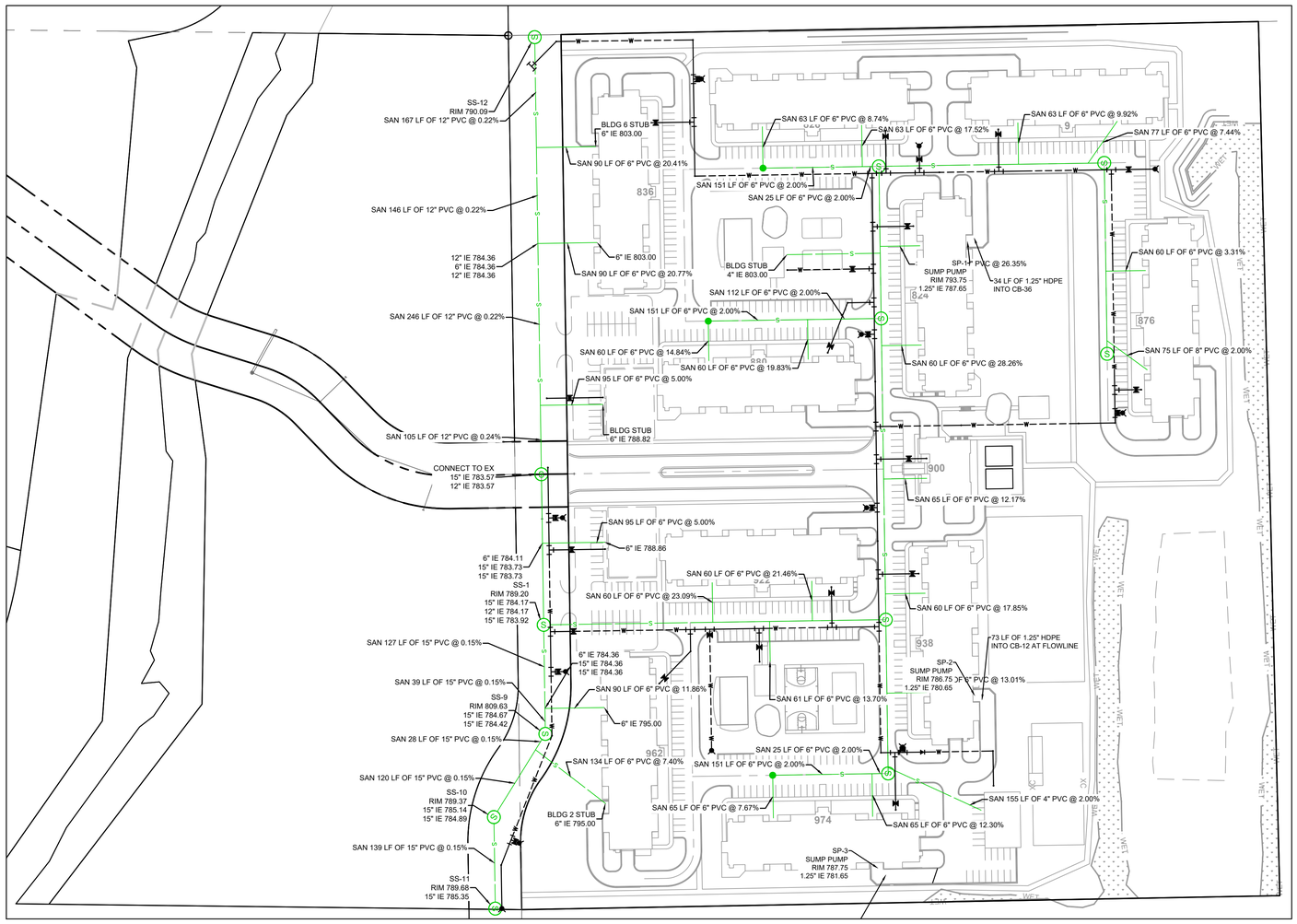
Laterals
1. *Building sewer lateral connections to the main sewer shall be made with wyes. All laterals shall be a minimum of 6 inch. The ends of laterals shall be plugged in accordance with SWS 3.2.25(a). Laterals shall be normally installed at a slope of ¼ (2%) inch per foot and not less than 1/8 (1%) inch per foot from the sewer main to the lot line.*
2. *Laterals shall be placed a minimum of 10 feet from an existing or proposed driveway location.*
3. *The Contractor shall furnish and install a marker stake over the end of each lateral installed. The marker shall be a minimum 2"x6"x12' hardwood plank. The stake shall extend a minimum of 3 feet above finish grade and to bottom of service.*
4. *Risers for sewers shall be constructed as required by SWS 3.2.26 and SWS Drawing File No. 10A and 10E as determined by the sewer main and lateral material.*
5. *For new construction, no laterals may be connected at or within 5 feet of a manhole.*
6. *For sewer lateral rehabilitation or cut-ins Romac Industries CB Sewer Saddles shall be installed per manufacturer's instructions.*
7. *For relays, when possible, laterals should be relayed and tied directly into sewer main, not manholes. A trough shall be constructed with material consistent with the size of the lateral, and be constructed within the bench where laterals come into manholes.*
8. *Laterals in manholes shall be subject to requirements of visible beam lampling to identify uniformity of bore and must be air tested. Provide test tee at end of lateral.*
9. *All sanitary laterals shall have a maximum depth of 13 feet at the property line, while still providing basement drainage.*
10. *All unused laterals shall be eliminated by cured-in place liner and/or capped, and grouted solid at the mainline sewer. At the discretion of which procedure to be used shall be designated by Village Designee.*

Bedding and Cover Material
1. *Sanitary sewer bedding and cover material shall conform to the appropriate sections of the "Standard Specifications", SWS 8.43.0 and as specified and/or modified below:*
   a. *PVC pipe-SWS 3.2.6(b) and 3.2.6(i). Use Class "B" bedding conforming to the Standard Specifications.*
   b. *Reinforced concrete, ductile iron, pre-stressed concrete and non-reinforced concrete pipe Class "C" Bedding conforming to SWS 3.2.6(a) and SWS Drawing File No.3 Class "B" Bedding conforming to SWS 3.2.6(b) and SWS Drawing File No.4 Class "A" Bedding conforming to SWS 3.2.6(c) and SWS Drawing File No. 5 (concrete cradle) of SWS 3.2.6(d) and SWS Drawing File No.6 (concrete cap). Unless specified otherwise on the Drawings, Class "C" Bedding may be used.*

Deflection Testing
1. *Polyvinyl chloride (PVC) sewer pipe shall be deflection tested with an approved go-no-go acceptance testing device. The test shall not be conducted until after all backfill has been placed and consolidated and after riser pipes and sewer laterals have been installed before binder course. The entire length of sewer pipe shall be tested*
2. *PVC pipe shall be deflection tested in accordance with SWS 3.2.6(i)4.*
3. *Go-no-go mandrels shall conform to the requirements of SWS Drawing File No.30.*

Leakage Testing
1. *Sanitary sewers shall be tested for leakage using the low pressure air test. The length of laterals included in the test section shall be included in determining the test time.*

Insulation
1. *Sewer lines shall be insulated where noted on the Drawings and wherever the depth of cover is less than five (5) feet. Insulation shall be in accordance with Wisconsin Administrative Code 82.30(11)(c)3.*
2. *SWS 8.50.0 and SWS 8.43.7 for graded aggregate insulation.*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RIM 790.00
SAN 167 LF OF 12" PVC @ 0.22%
BLDG 6 STUB
6" IE 803.00
SAN 90 LF OF 6" PVC @ 20.41%
SAN 63 LF OF 6" PVC @ 8.74%
SAN 63 LF OF 6" PVC @ 17.52%
SAN 63 LF OF 6" PVC @ 9.92%
SAN 77 LF OF 6" PVC @ 7.44%
SAN 151 LF OF 6" PVC @ 2.00%
SAN 25 LF OF 6" PVC @ 2.00%
836
SAN 146 LF OF 12" PVC @ 0.22%
12" IE 784.36
6" IE 784.36
12" IE 784.36
6" IE 803.00
SAN 90 LF OF 6" PVC @ 20.77%
BLDG STUB
4" IE 803.00
SP-1
RIM 793.75
1.25" IE 787.65
SAN 112 LF OF 6" PVC @ 2.00%
SAN 151 LF OF 6" PVC @ 2.00%
SAN 246 LF OF 12" PVC @ 0.22%
SAN 60 LF OF 6" PVC @ 14.84%
SAN 60 LF OF 6" PVC @ 19.83%
SAN 95 LF OF 6" PVC @ 5.00%
SAN 60 LF OF 6" PVC @ 3.31%
SAN 75 LF OF 8" PVC @ 2.00%
SAN 60 LF OF 6" PVC @ 28.26%
876
824
SAN 105 LF OF 12" PVC @ 0.24%
BLDG STUB
6" IE 788.82
CONNECT TO EX
15" IE 783.57
12" IE 783.57
900
SAN 65 LF OF 6" PVC @ 12.17%
SAN 95 LF OF 6" PVC @ 5.00%
6" IE 788.86
6" IE 784.11
15" IE 783.73
15" IE 783.73
SS-1
RIM 789.20
15" IE 784.17
12" IE 784.17
15" IE 783.92
SAN 60 LF OF 6" PVC @ 21.46%
SAN 60 LF OF 6" PVC @ 23.09%
SAN 60 LF OF 6" PVC @ 17.85%
938
SAN 127 LF OF 15" PVC @ 0.15%
6" IE 784.36
15" IE 784.36
15" IE 784.36
73 LF OF 1.25" HDPE
INTO CB-12 AT FLOWLINE
SP-2
SUMP PUMP
RIM 786.75
1.25" IE 780.65
SAN 39 LF OF 15" PVC @ 0.15%
SS-9
RIM 809.63
15" IE 784.67
15" IE 784.42
SAN 90 LF OF 6" PVC @ 11.86%
SAN 61 LF OF 6" PVC @ 13.70%
SAN 28 LF OF 15" PVC @ 0.15%
6" IE 795.00
962
SAN 25 LF OF 6" PVC @ 2.00%
SAN 134 LF OF 6" PVC @ 7.40%
SAN 151 LF OF 6" PVC @ 2.00%
SAN 120 LF OF 15" PVC @ 0.15%
SS-10
RIM 789.37
15" IE 785.14
15" IE 784.89
BLDG 2 STUB
6" IE 795.00
SAN 65 LF OF 6" PVC @ 7.67%
SAN 155 LF OF 4" PVC @ 2.00%
SAN 65 LF OF 6" PVC @ 12.30%
974
SAN 139 LF OF 15" PVC @ 0.15%
SP-3
SUMP PUMP
RIM 787.75
1.25" IE 781.65
SS-11
RIM 789.68
15" IE 785.35
WET
WET
WET

VILLAGE OF MUKWONAGO SPECIFICATIONS:

WATER MAIN CONSTRUCTION

All components in the water main design and construction shall be lead free.

All components shall be American made.

Follow SWS Part IV and DR 501, 505, 506, 510, 530, 540, 550, and except that bedding and cover material shall be crushed stone chips.

Pipe
1. *All 6 through 12 inch PVC pipe for water main shall be AWWA C900, Class 150 PVC pressure pipe, DR 18 or less.*
2. *All 14 through 36 inch PVC pipe for water main shall be AWWA C905 CIOD pressure pipe, 235 PSI, DR 18 or less.*
3. *All PVC pipe shall have integral elastomeric bell and spigot joints.*
4. *Standard or compact mechanical joint cast iron fittings shall be used.*
5. *All water main will have detector wire attached to pipe.*

Pipe–Waterway Crossings
1. *Polyethylene pipe may be used for waterway crossings with no taps when approved by the Village.*
2. *Water main fittings shall conform to SWS 8.22.0.*
3. *Buried joints shall be mechanically fastened, while joints in structures shall be flanged.*
4. *Full body fittings shall have a pressure rating of 250 PSI, and compact fittings shall have a rating of 350 PSI.*
5. *Ductile iron fittings shall have a Class 52 wall thickness with a bituminous exterior coating per ANSI/AWWA C110/A21.10.*
6. *Interior of fittings shall be cement lined and bituminous coated per ANSI/AWWA C104/A21.4.*
7. *Use standard steel bolts for fastening.*
8. *Remove beveled pipe end at connections to mechanical joint or flanged fittings.*
9. *Buttress concrete shall be Class F, SWS 8.35.3, ready–mixed.*

Tapping Sleeve
1. *Use tapping sleeves with gate valves 24–inches and under. Use Smith Blair 662 or Ford Fast–Tap with stainless steel bolts and a carbon steel flange.*

Valves
Resilient–Seated Gate Valves
1. *Follow AWWA C–509 and SWS 8.27.0. All valves less than 16 inches shall be Mueller or Waterous resilient seat gate valves. Valves shall have non–rising stems, O–ring stem seals, epoxy coating per ANSI/AWWA C550, stainless steel bolts, mechanical joint ends, turn counterclockwise to open, and a 2˝ square operating nut.*

Butterfly Valves
1. *Follow AWWA C–504 and SWS 8.28.0. All valves 16 inch or larger shall be butterfly valves manufactured by M&H (450), Pratt (Groundhog HP250), Clow (2810–F5365). Valves shall have nonrising stems, epoxy coating, stainless steel bolts, mechanical joint ends, turn counterclockwise to open, and a 2˝ square operating nut.*

Air Release Assemblies
1. *Need verification from DNR, to allow below–grade vent(s) for our location(s).*
2. *For assemblies placed in valve boxes, follow SWS 4.12.0.*
3. *For assemblies placed in valve vaults, follow SWS 4.11.0, except provide HS20 load–rated flat top slab.*

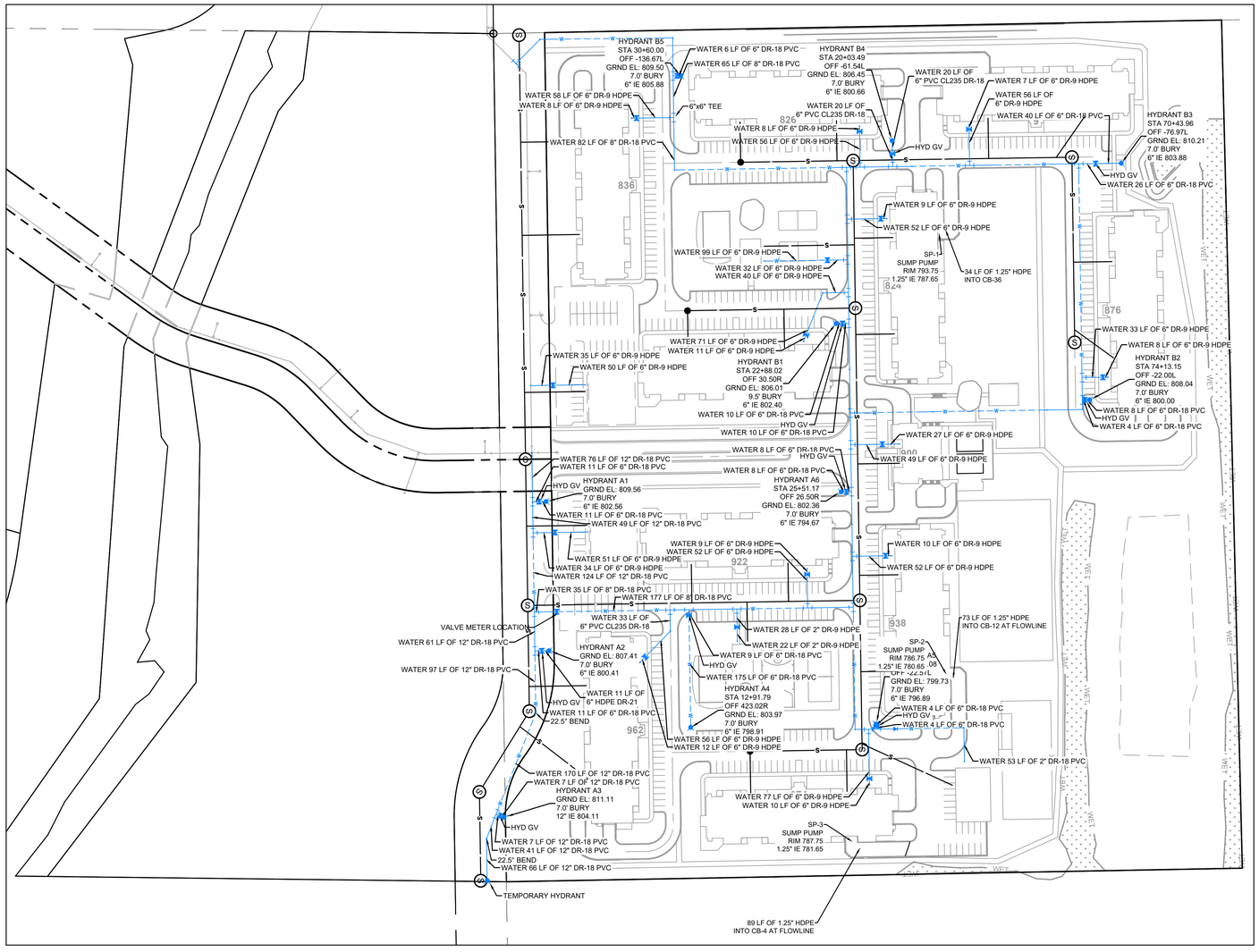
Valve Boxes
1. *Follow SWS 8.29.0. Valve boxes shall be Tyler, Model 6860S, Model DD, with a cover marked "WATER".*
2. *Extension sections shall be furnished if valve is greater than 8 feet in depth.*
3. *All water valves and valve box (s) shall be polywrapped.*
4. *Valve boxes shall be furnished for the depth of trench shown on the Drawings with the cover placed at the proposed grade or to the elevation shown on the Drawings. Water valve boxes shall be set ½˝ to below asphaltic binder course grade upon initial installation.*
5. *Valve stem extender shall be furnished if valve depth is greater than 8 feet. Extend to 4 feet (plus or minus 3 inches) below finish grade. Stem extender shall be stainless steel or epoxy coated iron. Stem extenders 6 feet or longer shall be a solid shaft. Stem shall have a spacer ring at 3 inches below operating nut and be furnished with stainless steel pins and bolts.*
6. *All valve boxes shall be installed using a valve box adaptor. Adaptors shall be those manufactured by Adaptors, Inc. or equal.*
7. *At the time of asphaltic surface course placement, the valve boxes shall be turned up to ½˝ to ¾˝ below the surface course elevation. If the valves cannot be turned up a, Rite Hite or riser rings will be allowed to make the adjustment.*
8. *8. Valve boxes shall not be asphalt ramped.*

Hydrants
Standard Hydrant
1. *Mueller Centurion A–423.*
2. *Shall be new, manufactured within 24 months of construction and stored properly.*
3. *Shall have a mechanical joint connection, turn left to open, and have a 6 foot 6 inch trench depth.*
4. *Shall be break–flange type, 5 ½ inch main valve opening, shall have 2 National Standard 2 ½ inch hose nozzles.*
5. *Shall have 5 inch Storz pumper nozzle.*
6. *Public hydrants shall be painted factory red.*
7. *Private hydrant shall be painted factory yellow.*
8. *All hydrants shall have hydrant markers. Markers shall be spring mounted 5 foot reinforced fiberglass shafts with alternating red and white reflectorized coloring.*

Barrel Extensions
1. *Shall be used where necessary to set the hydrant to the required elevation.*
2. *Only one (1) hydrant extension per hydrant.*
3. *Shall be compatible with hydrant barrel and stem extensions.*
4. *The distance from finish grade to the centerline of the lowest nozzle shall be from 18 to 21 inches.*

Hydrant Leads and Anchoring Tee
1. *Leads shall be six (6) inch PVC AWWA C900 Pressure Class 150.*
2. *Hydrant leads shall use two (2) Mega–lugs. One on the hydrant and one on the hydrant valve.*
3. *Mega–lugs shall be of the type corresponding to the pipe, ABAA Iron, Inc.*
4. *Provide Clow F1217 or Tyler C–153 anchoring tee which shall be secured to the hydrant.*
5. *At least one (1) continuous length of pipe shall be used between hydrant and valve. If length between valve and hydrant is greater than 20 feet, all joints shall be restrained in manner approved by the Village of Mukwonago Utilities Department.*
6. *All barrels shall be polyethylene wrapped with tape.*

Hydrant Placement
1. *Shall be located a minimum distance away from buildings of 1.5 times the height of nearest building wall.*
2. *Shall be located 350 feet apart (residential districts) and 300 feet apart in (commercial, industrial and multi–family districts) or other approved distances by the Utility.*
3. *Shall be located a minimum horizontal distance of 10 feet from all driveway approaches and street lights, utility poles, and pedestals.*
4. *If hydrant shoe is below water table, provide hydrant with plugged weep holes.*
5. *Hydrants shall be supported upon a precast concrete or hardwood block.*
6. *Each hydrant shall be braced against the far end of the trench by a poured concrete buttress. Do not block/cover weep hole.*
7. *Where a hydrant is set in soil that allows drainage, drainage shall be provided at the bases of the hydrant by placing crushed stone from the bottom of the trench to at least six (6) inches above waste opening in the hydrant and to a distance of one (1) foot around the base elbow.*
8. *Where a hydrant is set in clay, rock, or other impervious soil, a drainage pit two (2) feet in diameter and three (3) feet deep shall be excavated below each hydrant base and filled with compacted crushed stone. Stone shall be placed under and around the elbow and concrete base to a level of six (6) inches above the waste opening. No drainage system shall be connected to a sanitary sewer.*



VILLAGE OF MUKWONAGO SPECIFICATIONS CONTINUED:

Water Services
1. *All services two (2) inch or smaller shall be DR9 HDPE (CTS) with a minimum inside diameter of 1 ¼ inch.*
2. *Corporation stops, use Mueller B–25008 or Ford FB1001, shall withstand a 150 PSI pressure test.*
3. *Curb valves, use Mueller H15155 or Ford B44–M, shall withstand a 150 PSI pressure test.*
4. *Compression fittings with stainless steel stiffeners shall be used for corporation stops and curb valves.*
5. *For 2 ½ inch and larger services, follow SWS Part IV and V. Provide tee connection with anchor valve mega lugged to it. Provide plug and buttress.*
6. *Use Teflon tape of Teflon paste on threaded joints.*

Curb Boxes
1. *Shall be Tyler 101F with four (4) foot heavy–duty rod with guide ring and stainless steel bolts*
2. *Shall be screw–on style.*
3. *Use valve stem extenders.*
4. *Shall be placed on the right of way line in lawn area, not in an existing or proposed driveway approach.*
5. *All curb stops, laterals, and hydrants shall be a minimum of 10 feet from the approach.*

Installation and Placement
1. *No water service shall be laid through any trench having cinders, rubbish, rock, or any other material which may cause injury to or disintegration of the service pipe, unless adequate means of protection are provided by sand filling or such other insulation as may be approved by the Village.*
2. *Service pipes passing through curb or retaining walls shall be adequately safeguarded by provision of channel space or pipe casing, not less than twice the diameter of the service connection. The space between the service pipe and channel or pipe casing, shall be filled and lightly caulked with oakum, mastic cement, or other resilient material, and made impervious to moisture.*
3. *Pressure test water main sections before installing services two (2) inch and smaller, following SWS 4.15.0*
4. *All water services shall be wet tapped under normal operating system pressure. Use double–strap PVC tapping saddle for service lines two (2) inch and smaller. Use Ford FS202 or 303, or Smith–Blair 377 or 372.*
5. *All services shall be installed a minimum of ten (10) feet from existing or future driveway locations.*
6. *All new services shall extend ten (10) feet beyond right of way line.*
7. *All water services are to be centered on the lot as close as practical (within five (5) feet of center).*
8. *All services shall be staked prior to construction.*
9. *Provide a two (2) by six (6) inch hardwood marker at end of service from invert of service to two (2) feet above finished grade.*
10. *All unused water services shall have the corporation stop turned off and the service (and all appurtenances) removed to the corporation stop.*
11. *Test services following SWS 5.5.18.*

Cover Depth
1. *The minimum depth of cover between finish grad and the top of the water main pipe shall be 6 feet.*
2. *No water main shall be installed with more than 8 feet of cover below finish grade.*

Bedding and Cover Material
1. *No water service or water main shall be laid through any trench having cinders, rubbish, rock, or any other material which may cause injury or disintegration of the pipe.*
2. *Water main bedding and cover material shall be crushed stone or sand. Water valve bonnets shall be set in stone on wood blocking.*
3. *If a wet trench condition exists, the water main bedding and cover material shall be supported by 3˝of crushed limestone chips or crushed limestone screenings, conforming to Chapter 8.43.0, Tables 32 and 33 of the "SS" and placed as shown on File No. 36 of the "Standard Specifications".*

Testing
1. *Hydrostatic testing shall be performed as specified in Chapter 4.15.0 of the "SWS"…..A Village Representative must be present at all times during the testing process.*
2. *In a new development the contractor has the option to test the entire new water main, including corporation valves, as one continuous test section or in segments including corps per his discretion.*
3. *In a rehabilitation project, the contractor has the option to test the entire new water main, including corporation valves, as one continuous test section or in segments including corps per his discretion.*
4. *The contractor shall furnish all labor, equipment and material to complete all testing.*

Disinfection
1. *Water main shall be disinfected in accordance with SWS 4.3.12 and SWS 4.16.0.*
2. *Contractor shall furnish and bond chlorine tablets to the inside spigot and top of each pipe as it is installed in the ground.*
3. *All piping installed outside of the water main segments shall be disinfected by swabbing with a five (5)% hypochlorite solution and thoroughly flushed. The entire interior surfaces of all pipes and fittings shall be thoroughly swabbed.*
4. *Contractor shall use extreme care to insure the cleanliness of all water main materials used*
5. *All cost of sterilization work, including re–chlorination if necessary, flushing, sampling and processing of bacteriological samples shall be paid for by the Developer or Contractor.*

Safe Samples
1. *A safe sample must be obtained from each of the segments hydrostatically tested.*
2. *Samples shall also be taken from connection to intersecting mains to check effectiveness of the disinfection procedure.*
3. *Samples must be proven safe by a Wisconsin DNR–certified independent laboratory.*
4. *Village of Mukwonago Utility shall receive a copy of the bacteriological test before water main will be placed in service.*
5. *If a test is proving unsatisfactory, the water main shall be sterilized by the Contractor by such methods as he deems necessary and samples taken until acceptable results are obtained.*

Flushing/Filling Water Main
1. *Water for testing and flushing of mains will be made available by the Mukwonago Utility subject to its requirements and charges.*
2. *Contractor shall notify the Utility of flushing/filling schedule, and obtain a meter to be used.*
3. *All flushing/filling of new mains shall be completed by Contractor.*

Water Discharge
1. *Provisions shall be made to convey water used for flushing or testing to a suitable discharge point without causing damage or erosion to properties.*
2. *Water wasted from pipeline, well, and/or tower that may reach bodies of surface water may not contain any substances in concentrations that adversely affect the water as determined by NR 105 and NR 106.*
3. *For chlorine, no total residual chlorine may be measured in water being discharged to surface water.*
4. *Water with residual chlorine may be discharged to the sanitary sewer with prior approval of the Utilities Director.*
5. *If chlorinated water is contained by a dike or berm and allowed to seep into the ground, or discharged to an area at a rate where it will seep into the ground prior to reaching a surface water, then no chlorine neutralization is required.*

CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT
VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

WATERMAIN PLAN

CIVIL DESIGN PLANS

ENGINEERING

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 100 200 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

SCALE	1" = 100'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

25 OF 55

CE Report

Page 1

Line No.	DnStm Ln No	Line ID	Line Size (in)	Line Length (ft)	Line Slope (%)	Drng Area (ac)	Total Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Tc (min)	i Sys (in/hr)	Flow Rate (cfs)	Vel Ave (ft/s)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)
1	Outfall	CB-51 to FES 9	12	335.392	0.31	0.12	0.26	0.78	6.0	10.4	5.18	1.06	2.54	788.00	789.05	788.55	789.55	789.17	792.00
2	1	CB-52 to CB-51	12	110.919	0.48	0.02	0.14	0.90	6.0	8.4	5.73	0.64	2.09	789.05	789.58	789.61	789.92	792.00	799.45
3	2	CB-53 to CB-52	12	110.922	0.42	0.12	0.12	0.78	6.0	6.0	6.58	0.62	2.43	789.58	790.05	789.97	790.38	799.45	792.72
4	Outfall	CB-23 to FES 4	36	77.732	0.64	0.12	11.18	0.39	6.0	15.8	4.20	29.40	5.60	788.16	788.66	790.89	790.41	788.79	793.78
5	4	CB-24 to CB-23	30	72.363	0.19	0.10	6.13	0.36	6.0	15.4	4.25	13.47	4.03	789.16	789.30	790.77	790.91	793.78	793.60
6	5	CB-25 to CB-24	30	82.298	0.27	1.79	6.03	0.35	6.0	15.0	4.31	13.51	3.49	789.30	789.52	791.21	791.29	793.60	793.80
7	6	CB-26 to CB-25	24	120.846	0.82	0.04	4.24	0.41	6.0	14.5	4.39	10.99	5.14	790.02	791.01	791.43	792.20 j	793.80	794.77
8	7	CB-27 to CB-26	24	83.983	7.41	0.16	4.20	0.76	6.0	14.2	4.44	11.04	5.67	791.01	797.23	792.20	798.42	794.77	804.41
9	8	CB-28 to CB-27	24	43.774	1.44	0.05	4.04	0.57	6.0	14.0	4.47	10.57	5.50	797.23	797.86	798.42	799.02 j	804.41	802.61
10	9	CB-30 to CB-28	15	51.023	4.88	0.08	2.16	0.50	6.0	13.9	4.49	6.38	8.63	798.61	801.10	799.20	802.12	802.61	805.35
11	10	CB-32 to CB-30	15	132.552	4.09	0.81	1.56	0.51	6.0	13.4	4.57	4.18	4.38	801.10	806.52	802.12	807.35 j	805.35	809.79
12	11	CB-33 to CB-32	12	229.710	0.76	0.68	0.75	0.70	6.0	12.5	4.74	2.38	4.34	806.77	808.51	807.43	809.17	809.79	811.83
13	12	CB-34 to CB-33	12	84.204	1.29	0.07	0.07	0.37	6.0	6.0	6.58	0.17	1.13	808.51	809.60	809.17	809.77 j	811.83	813.10
14	4	CB-35 to CB-23	30	351.236	0.90	0.29	4.93	0.77	6.0	11.1	5.03	19.01	6.78	789.10	792.25	790.41	793.73	793.78	807.60
15	14	CB-38 to CB-35	24	200.864	0.80	0.43	4.28	0.70	6.0	9.7	5.36	17.58	7.08	792.75	794.36	794.19	795.87	807.60	805.65
16	15	CB-39 to CB-38	24	61.016	1.95	0.01	3.85	0.52	6.0	9.5	5.41	16.12	6.48	794.36	795.55	795.87	797.00 j	805.65	806.94
17	16	CB-44 to CB-39	24	54.020	1.50	0.85	2.18	0.63	6.0	9.1	5.50	8.46	4.31	795.55	796.36	797.00	797.40 j	806.94	806.98
18	17	CB-45 to CB-44	18	308.759	1.04	0.59	1.33	0.67	6.0	7.7	5.95	5.96	5.66	796.86	800.07	797.66	801.01	806.98	811.34
19	18	CB-46 to CB-45	18	107.243	1.04	0.01	0.74	0.78	6.0	6.8	6.25	3.79	3.79	800.07	801.18	801.01	801.92 j	811.34	812.68
20	19	CB-47 to CB-46	18	111.492	1.05	0.73	0.73	0.82	6.0	6.0	6.58	3.94	4.45	801.18	802.35	801.92	803.11	812.68	805.85
21	10	CB-31 to CB-30	12	56.264	0.89	0.52	0.52	0.90	6.0	6.0	6.58	3.08	4.80	801.35	801.85	802.12	802.60	805.35	804.85
22	16	CB-41 to CB-39	24	95.306	2.64	0.14	1.14	0.48	6.0	6.2	6.50	6.29	3.63	795.55	798.07	797.00	798.96 j	806.94	802.35
23	22	CB-42 to CB-41	12	43.681	1.01	0.50	0.50	0.90	6.0	6.0	6.58	2.96	4.93	799.07	799.51	799.76	800.25	802.35	802.51

Project File: Storm Rev.stm | Number of lines: 59 | Date: 5/2/2022

NOTES: Intensity = 31.59 / (Inlet time + 4.30) ^ 0.67 -- Return period = 10 Yrs. ; ** Critical depth

Storm Sewers

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CE Report

Line No.	DnStm Ln No	Line ID	Line Size (in)	Line Length (ft)	Line Slope (%)	Drng Area (ac)	Total Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Tc (min)	i Sys (in/hr)	Flow Rate (cfs)	Vel Ave (ft/s)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)
24	22	CB-43 to CB-41	12	43.662	2.15	0.50	0.50	0.90	6.0	6.0	6.58	2.96	5.82	799.07	800.01	799.61	800.75	802.35	803.01
25	9	CB-29 to CB-28	15	47.488	1.20	1.83	1.83	0.50	6.0	6.0	6.58	6.02	6.12	798.61	799.18	799.50	800.17	802.61	802.51
26	16	CB-40 to CB-39	12	62.622	6.63	0.52	0.52	0.90	6.0	6.0	6.58	3.08	6.98	796.55	800.70	797.00	801.45	806.94	803.70
27	14	CB-37 to CB-35	12	123.501	9.51	0.26	0.26	0.80	6.0	6.0	6.58	1.37	6.53	793.75	805.50	793.99	805.99	807.60	808.52
28	14	CB-36 to CB-35	12	183.695	0.49	0.10	0.10	0.72	6.0	6.0	6.58	0.47	2.44	793.75	794.65	794.05	794.95	807.60	797.57
29	Outfall	RISER 1 to FES-1	30	39.660	-17.57	0.01	5.08	0.30	6.0	14.3	4.43	13.82	3.46	788.66	781.69	790.28	790.48	788.25	791.50
30	29	RISER 2 to RISER 1	30	48.769	-0.14	0.02	5.07	0.30	6.0	14.0	4.47	13.93	2.84	781.69	781.62	790.54	790.60	791.50	791.50
31	30	CB-1 to RISER 2	30	194.988	3.66	0.20	5.05	0.90	6.0	13.0	4.63	14.42	3.10	781.62	788.75	790.66	790.87	791.50	796.05
32	31	CB-2 to CB-1	30	63.939	0.23	0.53	4.85	0.74	6.0	12.7	4.69	13.76	2.96	788.75	788.90	791.05	791.10	796.05	793.99
33	32	CB-4 to CB-2	30	22.987	0.22	0.10	3.82	0.90	6.0	12.6	4.73	9.88	2.04	788.90	788.95	791.31	791.32	793.99	794.03
34	33	CB-5 to CB-4	30	124.695	0.35	0.19	3.72	0.44	6.0	11.6	4.90	9.81	2.13	788.95	789.39	791.41	791.46	794.03	793.98
35	34	CB-6 to CB-5	24	166.293	0.79	0.15	3.53	0.53	6.0	10.9	5.07	9.71	4.49	789.89	791.20	791.50	792.31 j	793.98	798.95
36	35	CB-7 to CB-6	24	87.500	1.14	0.01	3.38	0.65	6.0	10.5	5.16	9.48	5.32	791.20	792.20	792.31	793.30 j	798.95	804.68
37	36	CB-9 to CB-7	12	66.004	9.80	0.50	1.10	0.68	6.0	10.3	5.21	3.97	9.31	793.20	799.67	793.61	800.51	804.68	803.96
38	37	CB-10 to CB-9	12	64.327	2.01	0.51	0.60	0.74	6.0	10.0	5.28	2.24	3.69	799.67	800.96	800.51	801.60 j	803.96	804.04
39	38	CB-11 to CB-10	12	91.828	2.00	0.09	0.09	0.51	6.0	6.0	6.58	0.30	1.42	800.96	802.80	801.60	803.03 j	804.04	805.80
40	36	CB-8 to CB-7	18	111.512	1.35	2.27	2.27	0.47	6.0	6.0	6.58	7.02	6.30	792.70	794.20	793.52	795.23	804.68	797.75
41	32	CB-3 to CB-2	12	44.383	8.67	0.50	0.50	0.90	6.0	6.0	6.58	2.96	4.36	790.40	794.25	791.31	794.99 j	793.99	797.25
42	Outfall	CB-48 to FES 5	15	108.457	7.19	0.38	0.88	0.71	6.0	6.2	6.48	4.66	5.31	788.66	796.46	789.47	797.33	787.17	800.37
43	42	CB-49 to CB-48	12	54.481	2.00	0.50	0.50	0.90	6.0	6.0	6.58	2.96	5.25	796.71	797.80	797.33	798.54	800.37	800.85
44	Outfall	RISER 5 to FES 3	30	37.172	-18.83	0.01	2.77	0.30	6.0	9.4	5.43	10.70	2.93	788.66	781.66	790.09	790.27	788.25	791.50
45	44	RISER 6 to RISER 5	30	68.201	2.65	0.01	2.76	0.30	6.0	8.9	5.56	10.95	2.23	781.66	783.47	790.31	790.36	791.50	791.50
46	45	CB-17 to RISER 6	30	165.675	2.92	0.14	2.75	0.75	6.0	7.8	5.92	11.63	2.45	783.47	788.30	790.40	790.51	791.50	792.80

Project File: Storm Rev.stm | Number of lines: 59 | Date: 5/2/2022

NOTES: Intensity = 31.59 / (Inlet time + 4.30) ^ 0.67 -- Return period = 10 Yrs. ; ** Critical depth

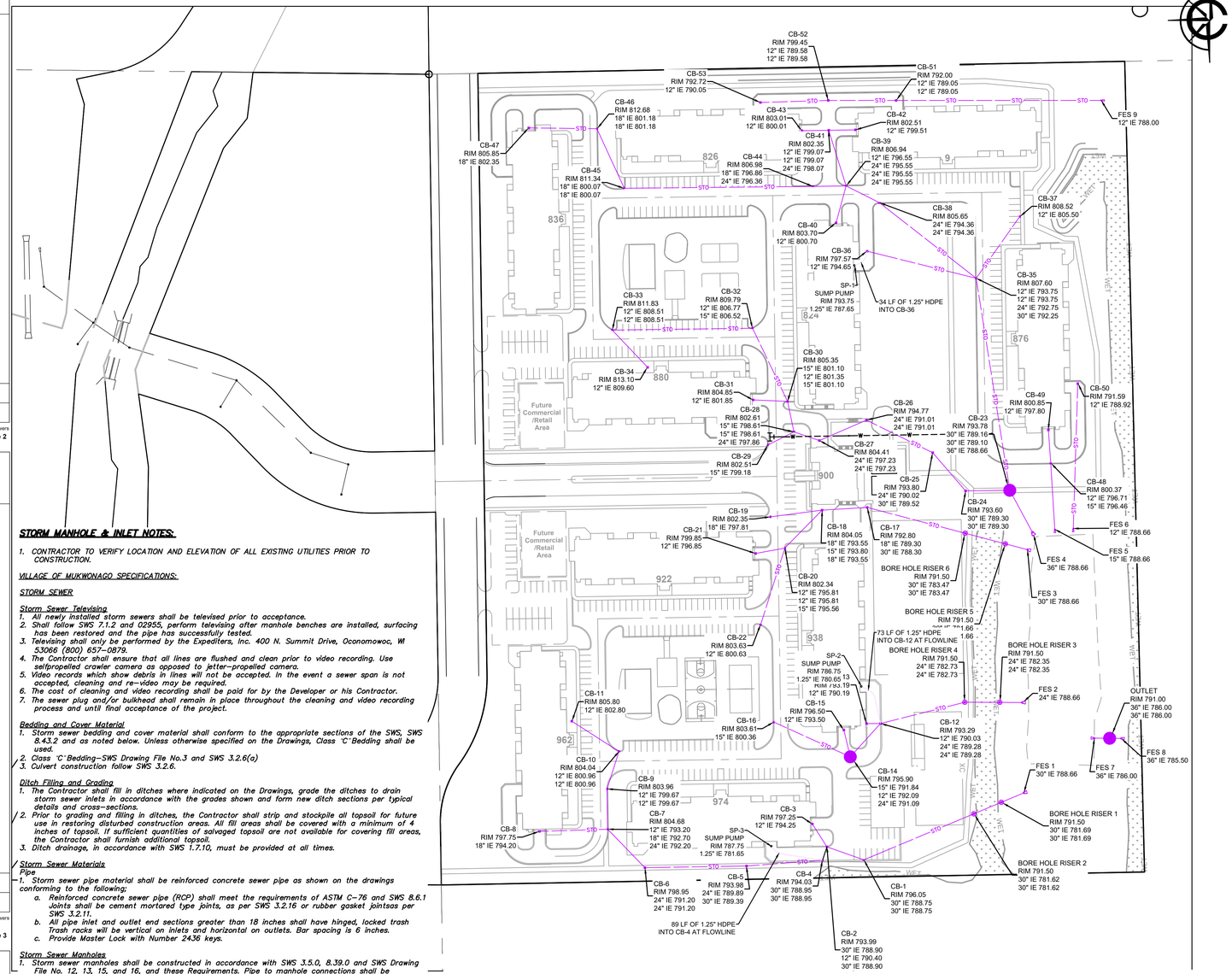
Storm Sewers

Page 3

CE Report

Line No.	DnStm Ln No	Line ID	Line Size (in)	Line Length (ft)	Line Slope (%)	Drng Area (ac)	Total Area (ac)	Runoff Coeff (C)	Inlet Time (min)	Tc (min)	i Sys (in/hr)	Flow Rate (cfs)	Vel Ave (ft/s)	Invert Dn (ft)	Invert Up (ft)	HGL Dn (ft)	HGL Up (ft)	Gnd/Rim El Dn (ft)	Gnd/Rim El Up (ft)
47	46	CB-18 to CB-17	18	73.966	5.75	0.30	2.61	0.90	6.0	7.6	5.98	11.13	6.97	789.30	793.55	790.57	794.83	792.80	804.05
48	47	CB-20 to CB-18	15	86.942	2.02	0.03	0.81	0.46	6.0	7.2	6.12	4.32	4.46	793.80	795.56	794.83	796.40 j	804.05	802.34
49	48	CB-22 to CB-20	12	131.162	3.67	0.26	0.26	0.86	6.0	6.0	6.58	1.47	3.33	795.81	800.63	796.40	801.14 j	802.34	803.63
50	48	CB-21 to CB-20	12	48.698	2.14	0.52	0.52	0.90	6.0	6.0	6.58	3.08	5.62	795.81	796.85	796.40	797.60	802.34	799.85
51	47	CB-19 to CB-18	18	84.569	5.04	1.50	1.50	0.59	6.0	6.0	6.58	5.82	4.35	793.55	797.81	794.83	798.74 j	804.05	802.35
52	Outfall	RISER 3 to FES 2	24	36.351	-17.36	0.01	2.38	0.30	6.0	8.0	5.85	10.02	3.70	788.66	782.35	790.08	790.28	788.79	791.50
53	52	RISER 4 to RISER 3	24	57.271	0.66	0.01	2.37	0.30	6.0	7.7	5.95	10.17	3.24	782.35	782.73	790.36	790.48	791.50	791.50
54	53	CB-12 to RISER 4	24	142.165	4.61	0.08	2.36	0.90	6.0	7.0	6.20	10.58	3.74	782.73	789.28	790.56	790.81	791.50	793.29
55	54	CB-14 to CB-12	24	73.560	2.46	0.50	2.21	0.75	6.0	6.6	6.35	10.01	4.43	789.28	791.09	791.06	792.22 j	793.29	795.90
56	55	CB-15 to CB-14	12	45.065	3.13	0.51	0.51	0.90	6.0	6.0	6.58	3.02	6.37	792.09	793.50	792.58	794.24	795.90	796.50
57	55	CB-16 to CB-14	15	137.259	6.21	1.20	1.20	0.62	6.0	6.0	6.58	4.90	8.35	791.84	800.36	792.31	801.26	795.90	803.61
58	54	CB-13 to CB-12	12	22.877	0.70	0.07	0.07	0.82	6.0	6.0	6.58	0.38	0.50	790.03	790.19	791.06	791.06	793.29	793.19
59	Outfall	CB-50 to FES 6	12	237.156	0.11	0.14	0.14	0.80	6.0	6.0	6.58	0.74	1.81	788.66	788.92	789.10	789.56	787.17	791.59

SEE SHEET 55 FOR DETAILED STORM SEWER STRUCTURE INFORMATION



STORM MANHOLE & INLET NOTES:

1. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.

VILLAGE OF MUKWONAGO SPECIFICATIONS:

STORM SEWER

Storm Sewer Televising

1. All newly installed storm sewers shall be televised prior to acceptance.
2. Shall follow SWS 7.1.2 and 02955, perform televising after manhole benches are installed, surfacing has been restored and the pipe has successfully tested.
3. Televising shall only be performed by the Expediters, Inc. 400 N. Summit Drive, Oconomowoc, WI 53066 (800) 657-0879.
4. The Contractor shall ensure that all lines are flushed and clean prior to video recording. Use self-propelled crawler camera as opposed to jetter-propelled camera.
5. Video record which show debris in lines will not be accepted. In the event a sewer span is not accepted, cleaning and re-video may be required.
6. The cost of cleaning and video recording shall be paid for by the Developer or his Contractor.
7. The sewer plug and/or bulkhead shall remain in place throughout the cleaning and video recording process and until final acceptance of the project.

Bedding and Cover Material

1. Storm sewer bedding and cover material shall conform to the appropriate sections of the SWS, SWS 8.43.2 and as noted below. Unless otherwise specified on the Drawings, Class 'C' Bedding shall be used.
2. Class 'C' Bedding–SWS Drawing File No.3 and SWS 3.2.6(a)
3. Culvert construction follow SWS 3.2.6.

Ditch Filling and Grading

1. The Contractor shall fill in ditches where indicated on the Drawings, grade the ditches to drain storm sewer inlets in accordance with the grades shown and form new ditch sections per typical details and cross–sections.
2. Prior to grading and filling in ditches, the Contractor shall strip and stockpile all topsoil for future use in restoring disturbed construction areas. All fill areas shall be covered with a minimum of 4 inches of topsoil. If sufficient quantities of salvaged topsoil are not available for covering fill areas, the Contractor shall furnish additional topsoil.
3. Ditch drainage, in accordance with SWS 1.7.10, must be provided at all times.

Storm Sewer Materials

Pipe

1. Storm sewer pipe material shall be reinforced concrete sewer pipe as shown on the drawings conforming to the following:
   a. Reinforced concrete sewer pipe (RCP) shall meet the requirements of ASTM C–76 and SWS 8.6.1 Joints shall be cement mortared type joints, as per SWS 3.2.16 or rubber gasket jointsas per SWS 3.2.11.
   b. All pipe inlet and outlet end sections greater than 18 inches shall have hinged, locked trash Trash racks will be vertical on inlets and horizontal on outlets. Bar spacing is 6 inches.
   c. Provide Master Lock with Number 2436 keys.

Storm Sewer Manholes

1. Storm sewer manholes shall be constructed in accordance with SWS 3.5.0, 8.39.0 and SWS Drawing File No. 12, 13, 15, and 16, and these Requirements. Pipe to manhole connections shall be mortared.
2. For storm sewer 42 inch and greater, manholes shall be 48" precast manhole tees with eccentric cones. All other manholes shall be 48 inch or larger inside diameter. When manhole tees are used, Contractor shall supply 2 foot and 4 foot bell and spigot lengths of pipe to allow required positioning of manholes. Miter pipe may be used for bends immediately upstream and downstream of Tee Manholes for bends shown at Manholes unless noted on the Drawings.
3. Flat top slabs with offset openings may be used for shallow manholes where there is not sufficient depth to install cones or on deeper manholes with the approval of the Village.
4. A minimum of 6 inches to a maximum of 15 inches of adjusting rings shall be furnished for each manhole.
5. Manhole depths shown on the Drawings are approximate only. Final manhole rim grades shall be adjusted within ½ to ¼ inch below the existing and proposed pavement grades after the curb and gutter is completed.
6. Manholes shall be initially set to ½–3/4 inch below binder pavement grade. Neenah R–1979 series adjusting rings shall be used when adjusting manhole rims from binder grade to within ½ to ¾ inch below surface pavement grade, per SWS 8.39.11. Wood shims are not permitted.
7. Plastic manhole steps shall be provided in accordance with SWS 3.5.4(g).
8. Manholes less than 4 feet deep do not require steps.

Manhole Joints

1. The manhole chimney rings, only CRETEX Pro–ring shall be allowed for adjustment rings and be installed per manufacturer's specifications and shall not be bonded to the frame.
2. Joints for precast manhole riser sections shall be made with rubber 'O'–ring gaskets or two continuous rings of butyl rubber sealant (Ex–Stik or Kent Seal in rope form) or equal. The butyl sealant shall be 1 inch diameter equivalent or as recommended by the manhole manufacturer.
3. The interior and exterior dimensions at the top of the cone section and adjusting rings shall be equal and these surfaces shall be constructed flush with each other.

Sewer Stubs

4. 1. Sewer stubs shall be bulk headed in accordance with SWS 3.2.25(a).

Storm Water Catch Basins

Catch basins shall be constructed in accordance with SWS 3.6.0 for precast using WisDOT SDD in dimensions shown on plans.

a. Catch basins, with the exception of catch basins at sumps, shall be precast concrete and shall be installed to match surface pavement grade. At sump locations, dual catch basins shall be installed with a 10 foot separation and no summit between inlets. Pitch sump lines to catch basin or manhole and bed and cover PVC following SWS 3.2.6.i. Catch basins at sump locations shall be initially installed to match binder pavement grade, leaving out a five (5) foot section of curb on each side of the basin and the entire curb between the inlets. In place of the curb, a temporary asphalt flume shall be constructed to direct runoff into the catch basins. Prior to completion of the surface course, the catch basin shall be adjusted to match surface grade, the flume shall be removed, and the granular backfill shall be compacted in six (8) inch lifts or thoroughly flushed, as specified. Slurry may be used in place of compacted or flushed Then new concrete curb and gutter shall be installed adjacent to the existing curb. Inlet and catch basin mortar shall comply with State Specifications 519.2.3. Concrete block used shall follow State Specifications 519.2.2 (salt–resistant pink block).
b. The depths of catch basins shown on the Drawings are measured from the invert of the lead to the flow line of the grate. Catch basin grates shall be placed to match the gutter grade or at the elevation indicated on the Drawings.
c. The Utility Contractor shall construct catch basin chimneys using CRETEX Pro–ring adjustment rings per manufacturer's specifications to a height just below the base casting elevation. The Paving Contractor will set the casting as part of their curb and gutter installation. Chimney adjustments made with anything other than CRETEX Pro–rings shall not be allowed.
d. Catch basins greater than four (4) feet in depth, shall be provided with plastic steps in accordance with SWS 3.5.4(g).
e. The Contractor shall install geotextile fabric under all lids of storm manholes, to prevent siltation of the storm sewer system during construction. The fabric shall be placed as storm sewer is constructed and removed upon completion of the project as directed by the Village. The Contractor shall remove sediment from this fabric after each rainfall.
e. The Contractor shall provide and install Ultratech ultra drain guard curb–inlet style (or equal) in all catch basins at the time of construction. The Contractor shall remove sediment from drain guard after each rainfall.
f. The storm sewer outlets shall be lined with geotextile fabric and covered with medium rip–rap. (6"–12" limestone) 18" deep. See State Specifications Sections 520 through 525 for apron end walls using same material as pipe. Geotextile fabric shall follow State Specifications 645.2, Type R.
g. Storm sewer catch basin and outlet end sections follow culvert sections.
h. Storm sewer catch basins shall be located a minimum distance of 8 feet from hydrants.
i. Storm sewer catch basins shall be located at lot lines, to the maximum extent practicable.

Outside Village Street

1. Reinforced concrete sewer pipe (RCP) shall meet the requirements of ASTM C76 and SWS 8.6.0. Joints shall be cement mortar following SWS 3.2.16 or rubber gasket joints as per SWS 3.2.11. ASTM C–443 for joints.
2. Reinforced concrete horizontal elliptical pipe (RCHEP), follow ASTM C–507 and SWS 8.6.0.
3. Corrugated steel culvert pipe, follow SWS Chapter 8.14.0. Minimum WisDOT gauge.
4. Corrugated aluminum culvert pipe, follow SWS 8.15.0.
5. All culverts shall have inlet and outlet section of the same material of the culvert.
6. All end sections shall be provided with bar grates or trash racks.
7. All end sections greater than 18 inches in diameter shall have locked, hinged trash racks. See detail on Drawings.
8. Sump lines and sump line cleanouts, follow SWS 8.10.0. Use PVC SDR35 sumps and Neenah R1977 cleanout frost sleeves.

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Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

STORM PLAN

CIVIL DESIGN PLANS

ENGINEERING

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

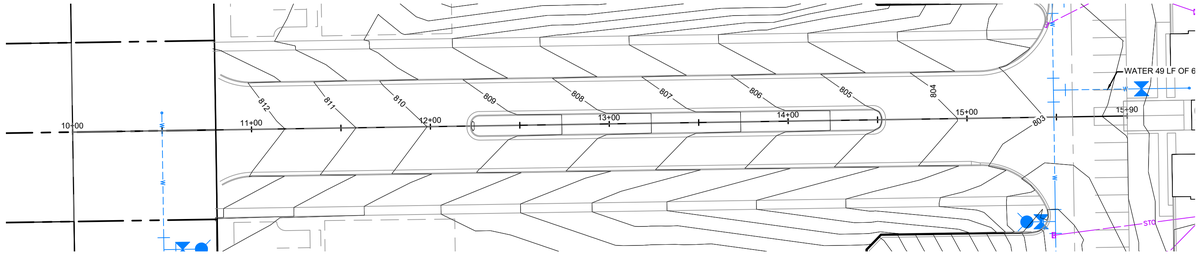
1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

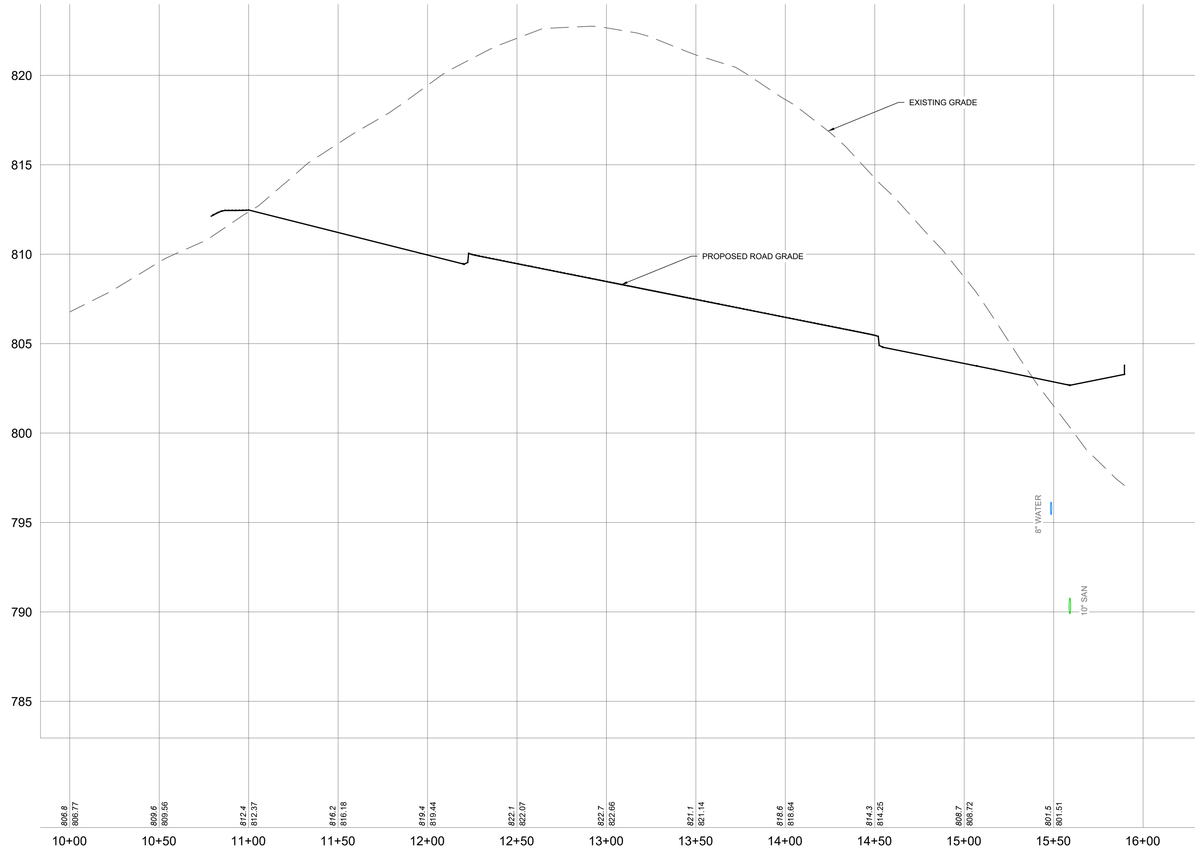
NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

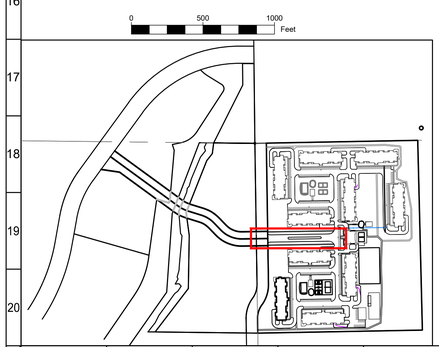
SCALE	1" = 100'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

26 OF 55







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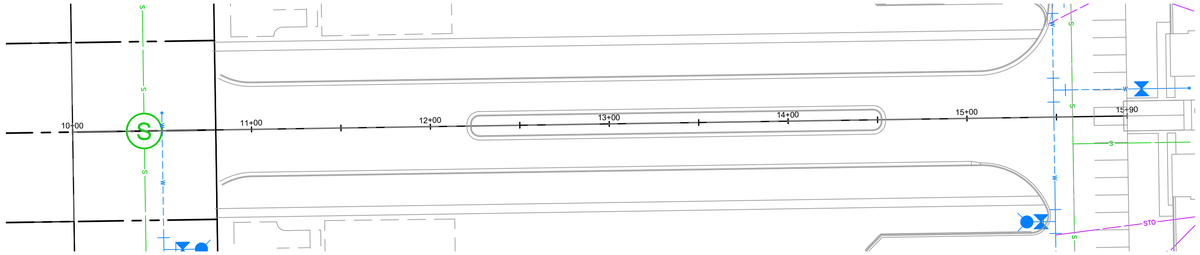
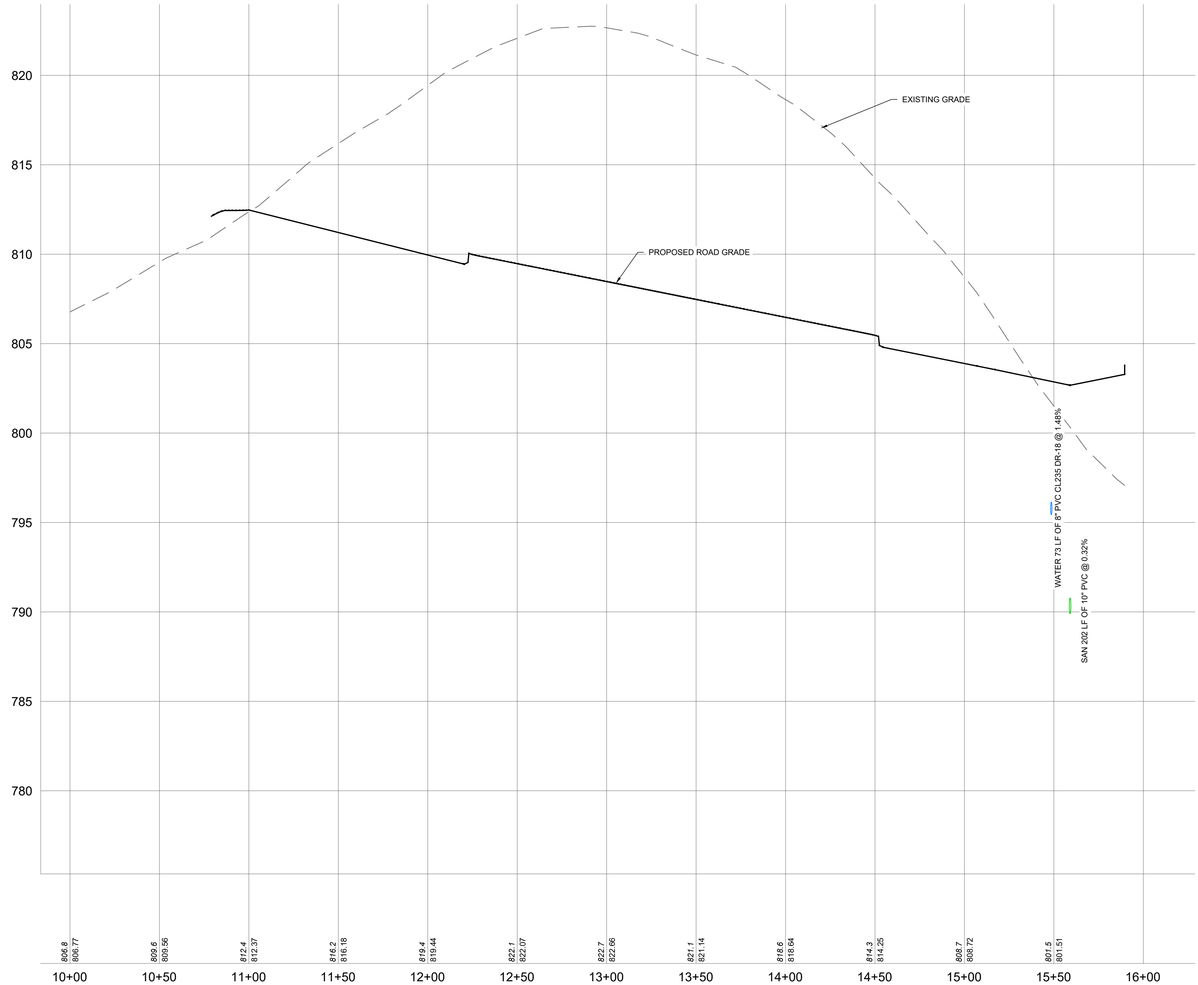
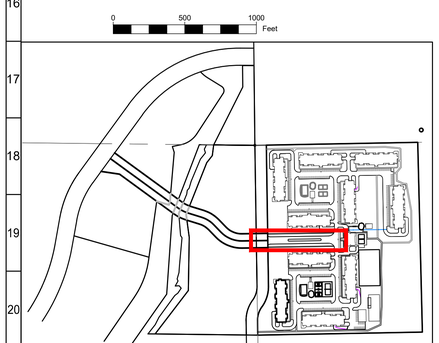
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	BDP

SHEET NUMBER

27 OF 55







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DESIGNED BY	BDP

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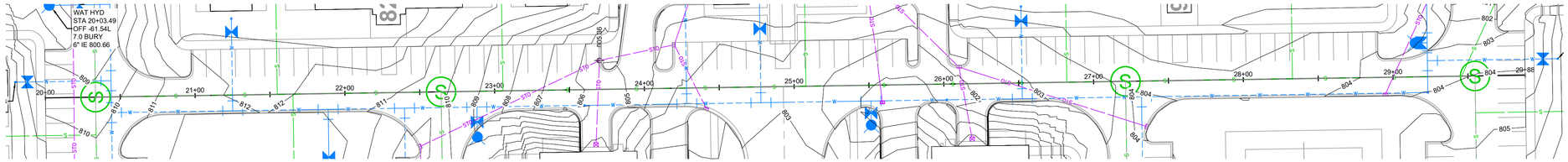
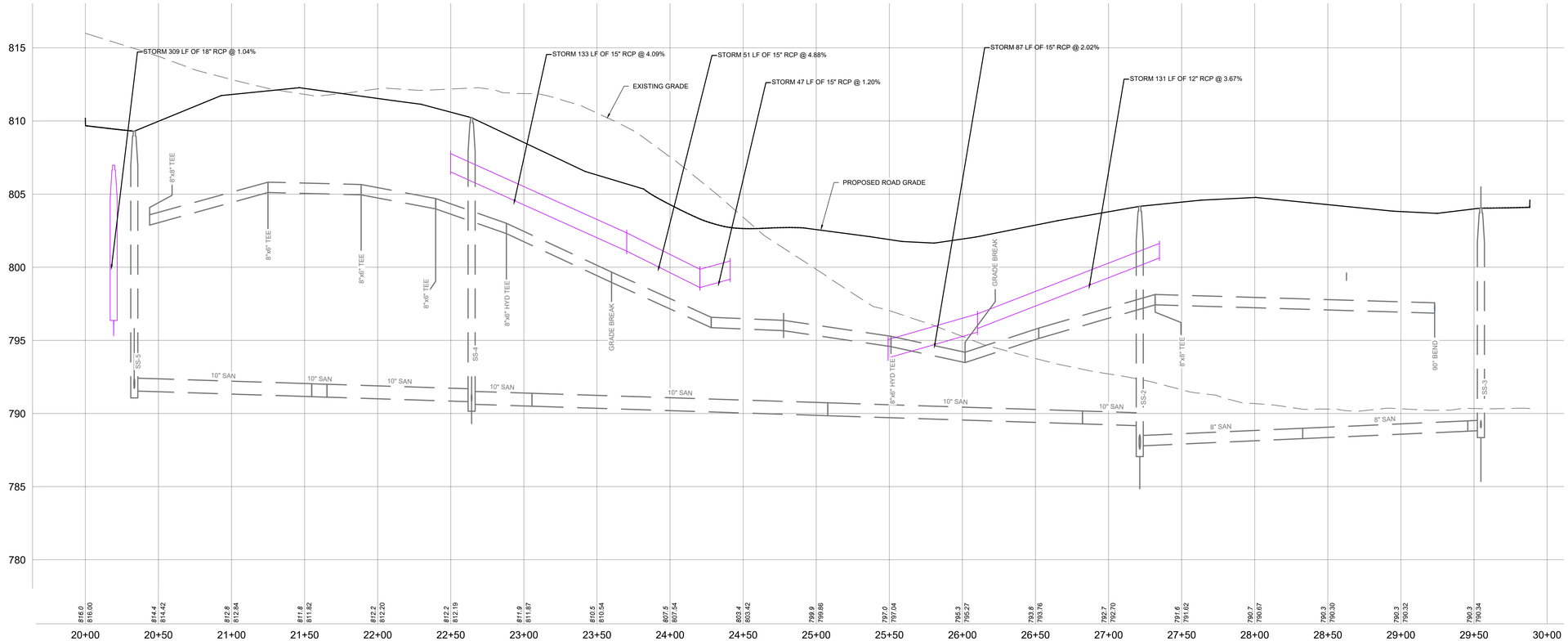
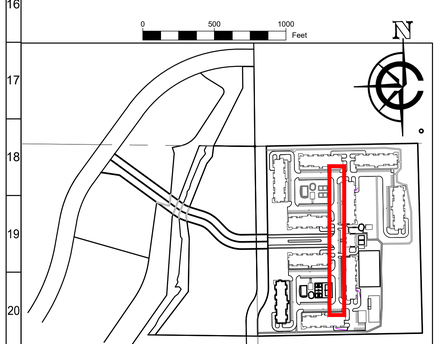
28 OF 55







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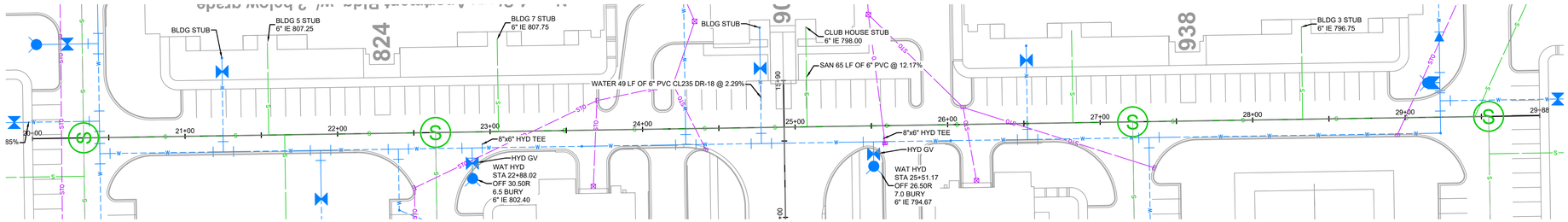

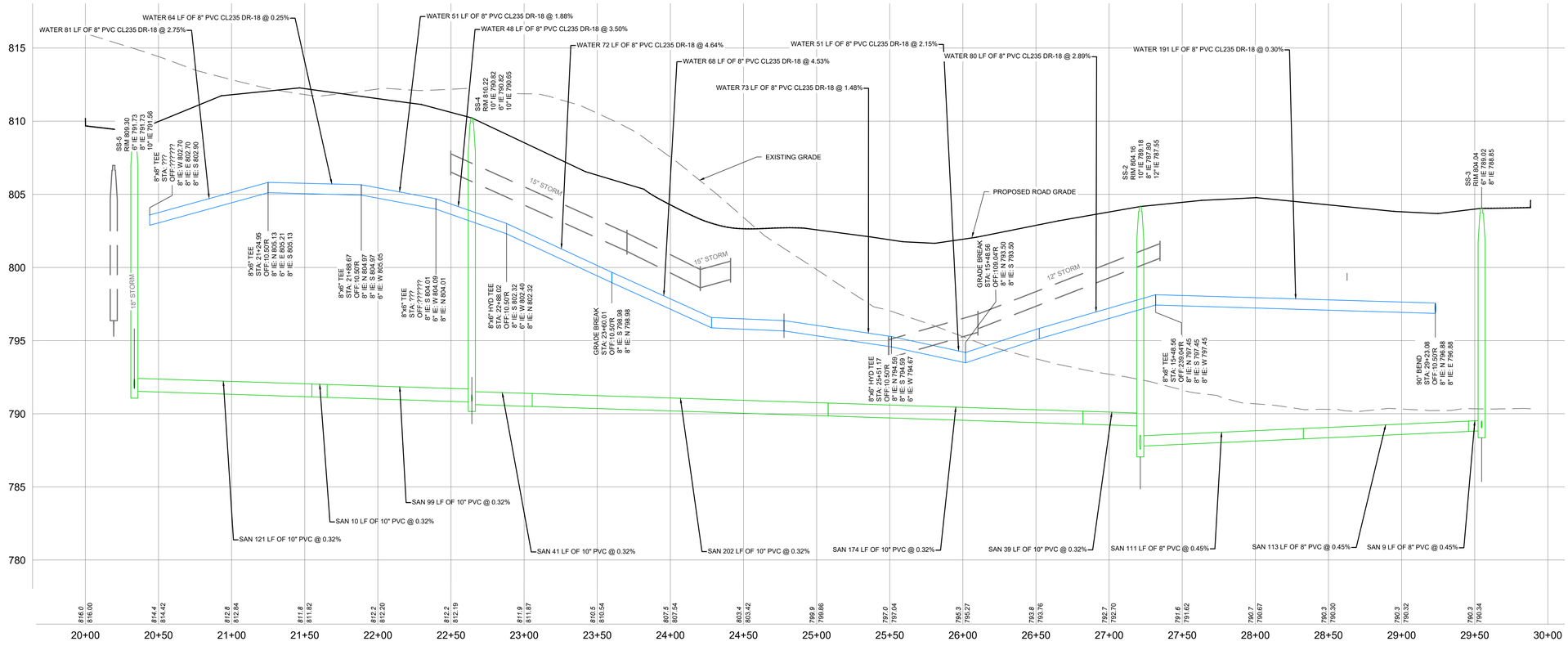

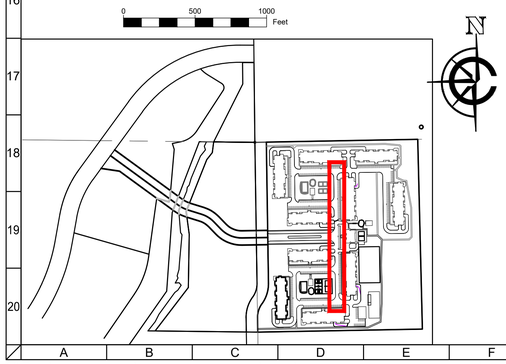

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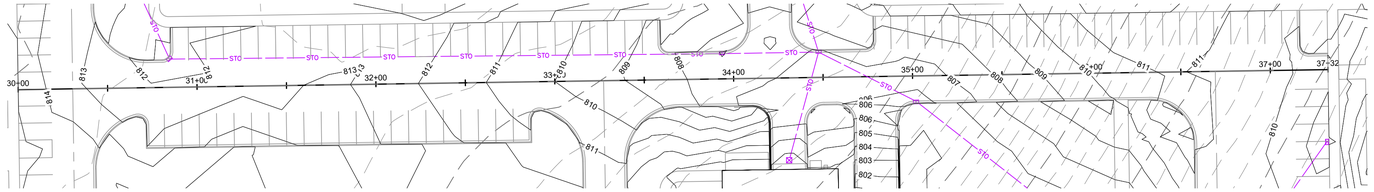

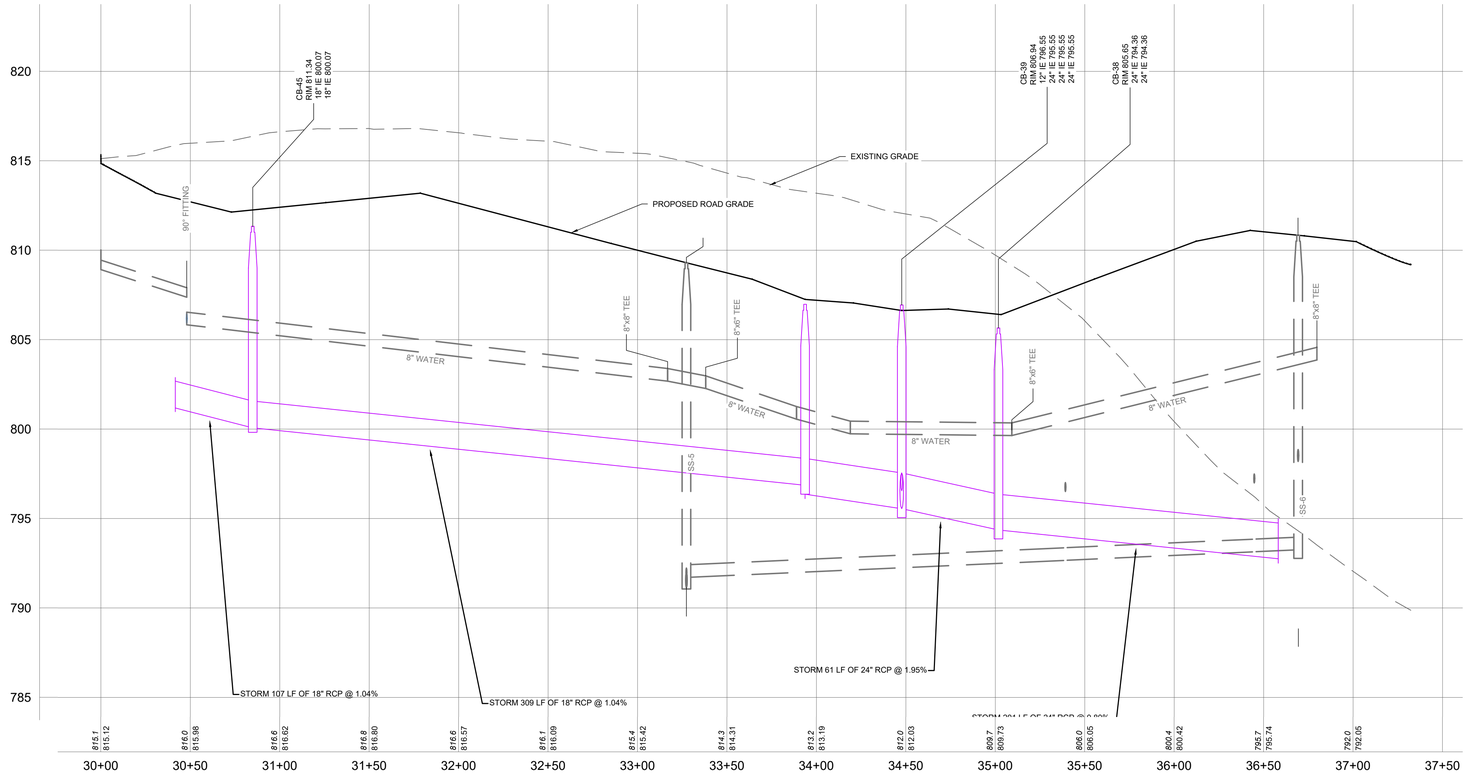

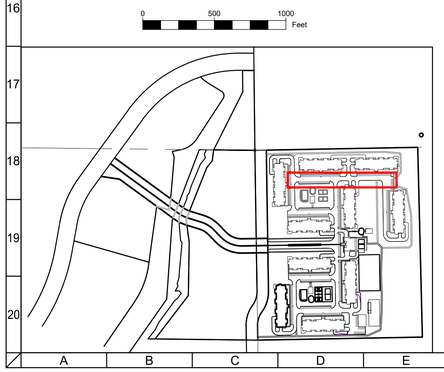

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CARDINALENGINEERINGWI.COM

0 40 80 Feet

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
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08	SUBMITTAL	06/02/2025

SCALE	1" = 40'
PROJECT NUMBER	1701331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

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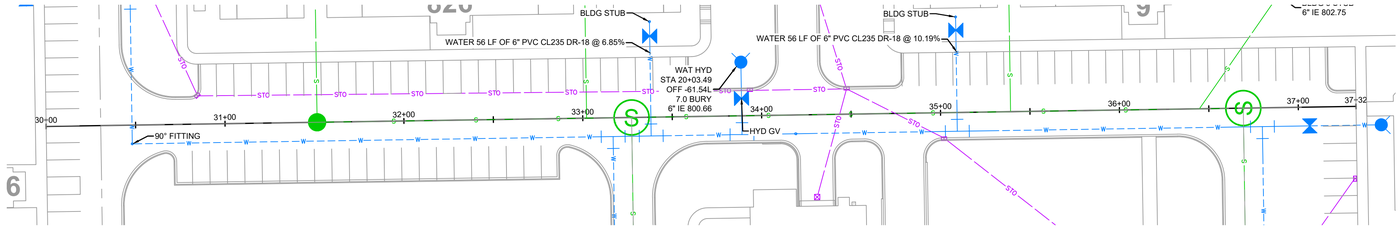

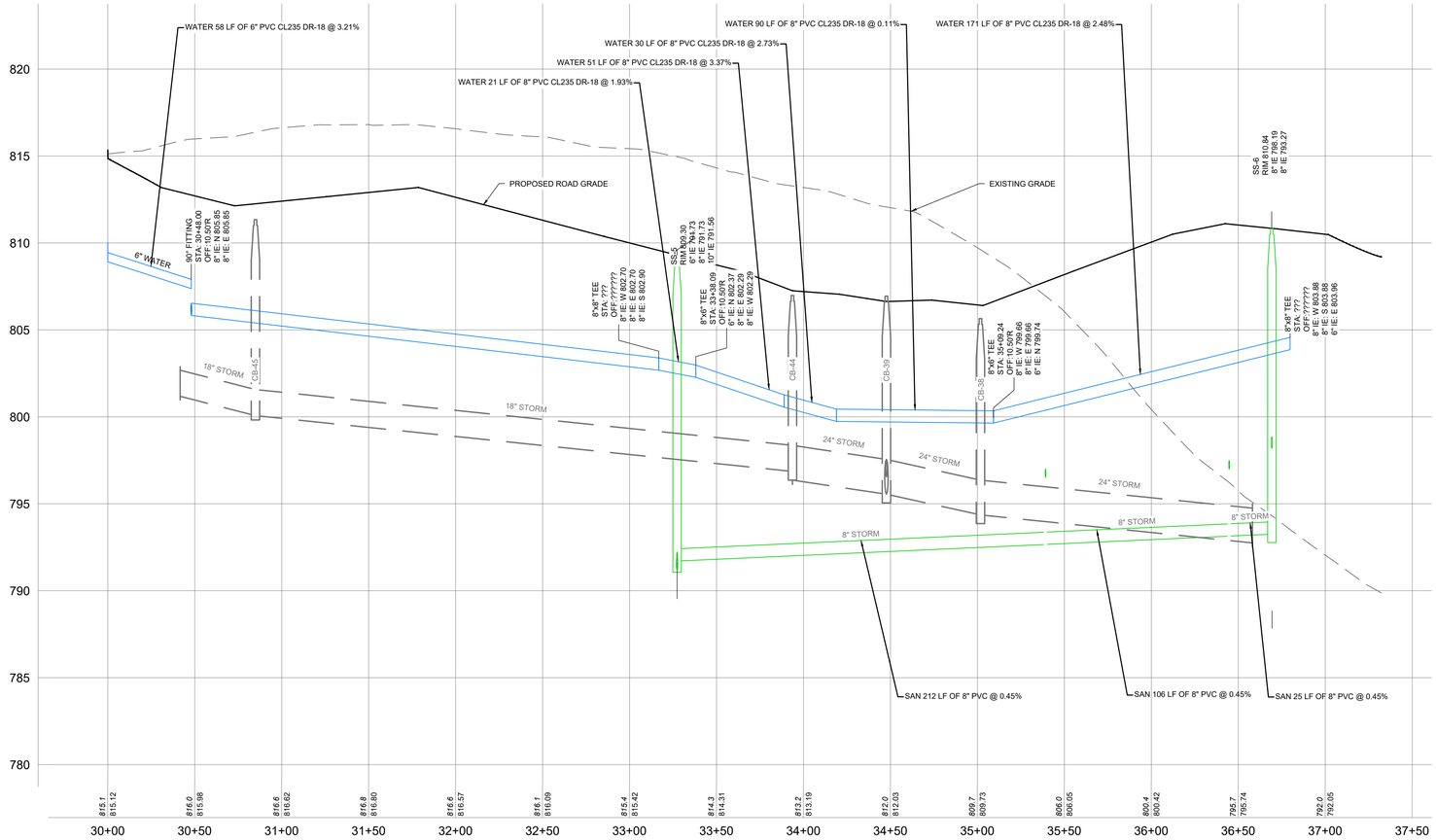

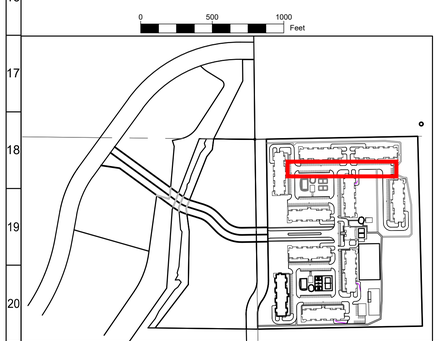

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MAPLE CENTRE DEVELOPMENT

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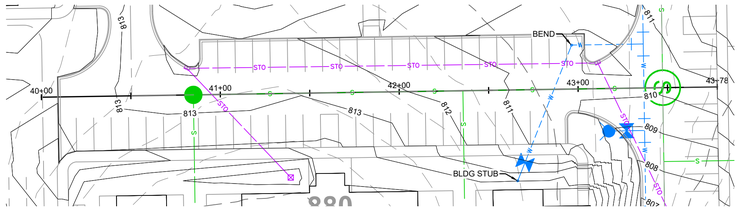

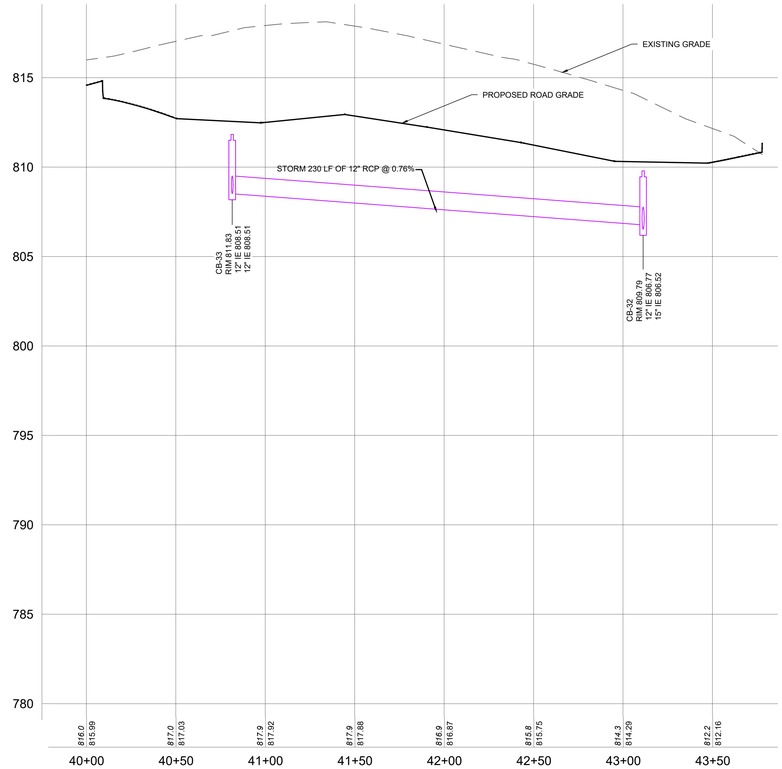

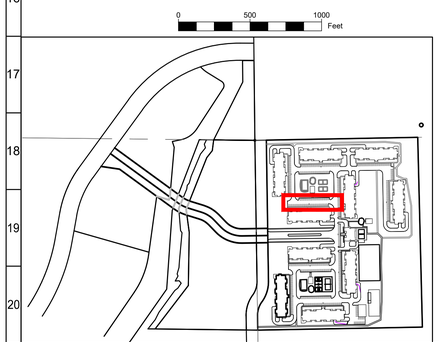

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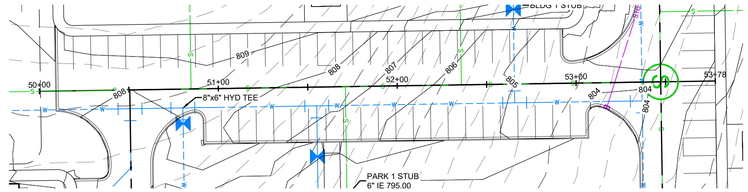

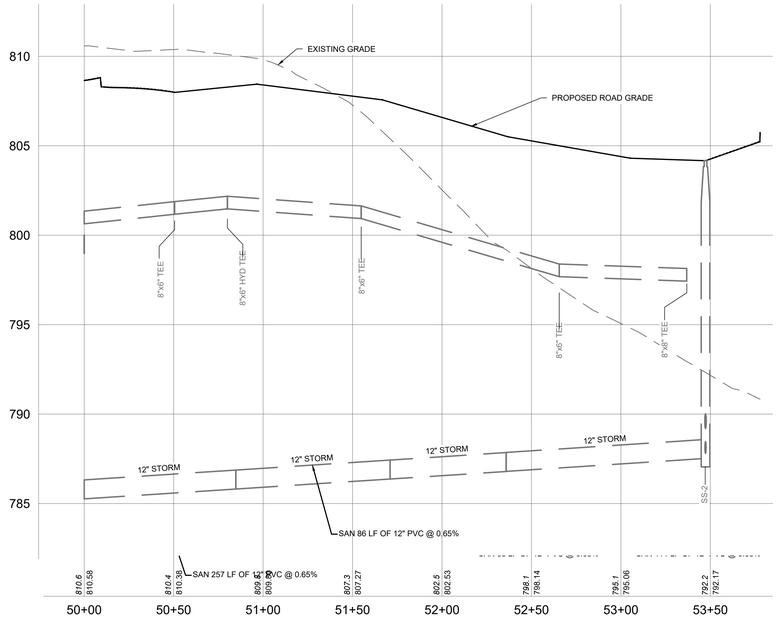

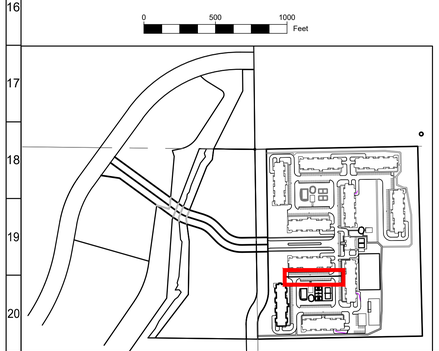

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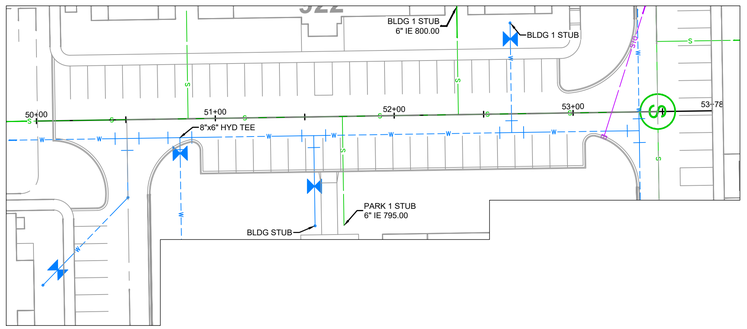

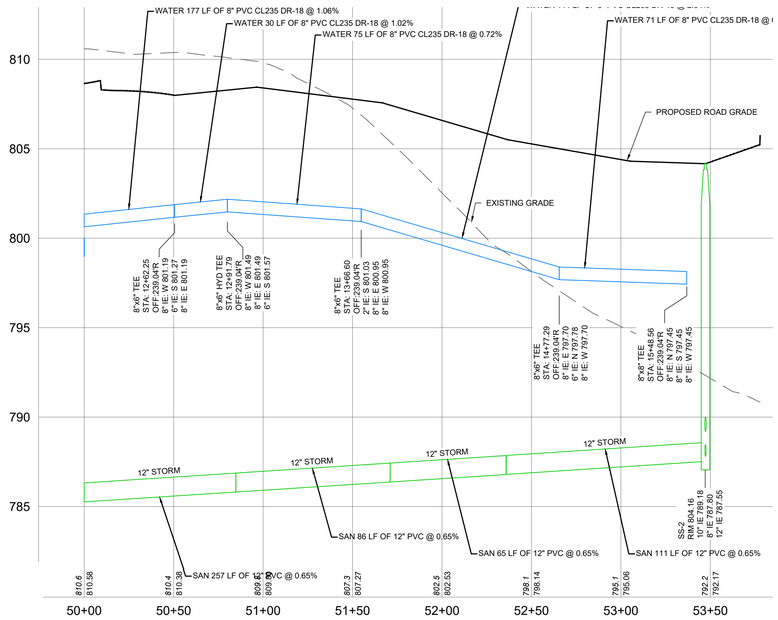

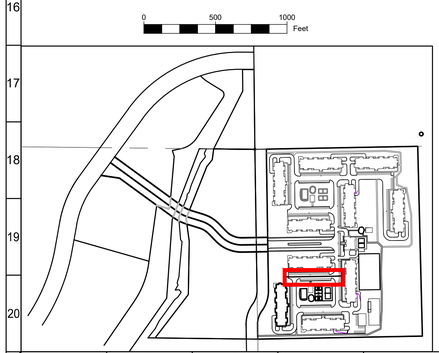

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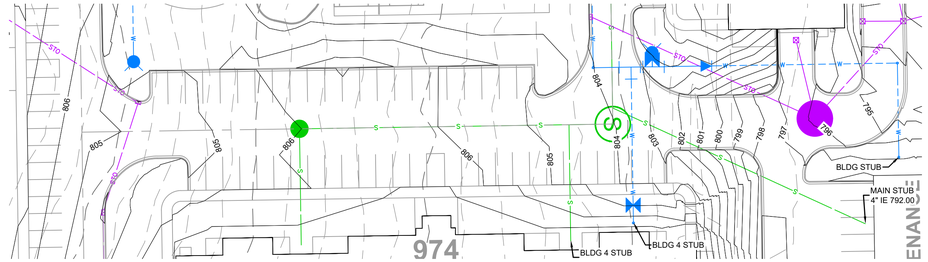

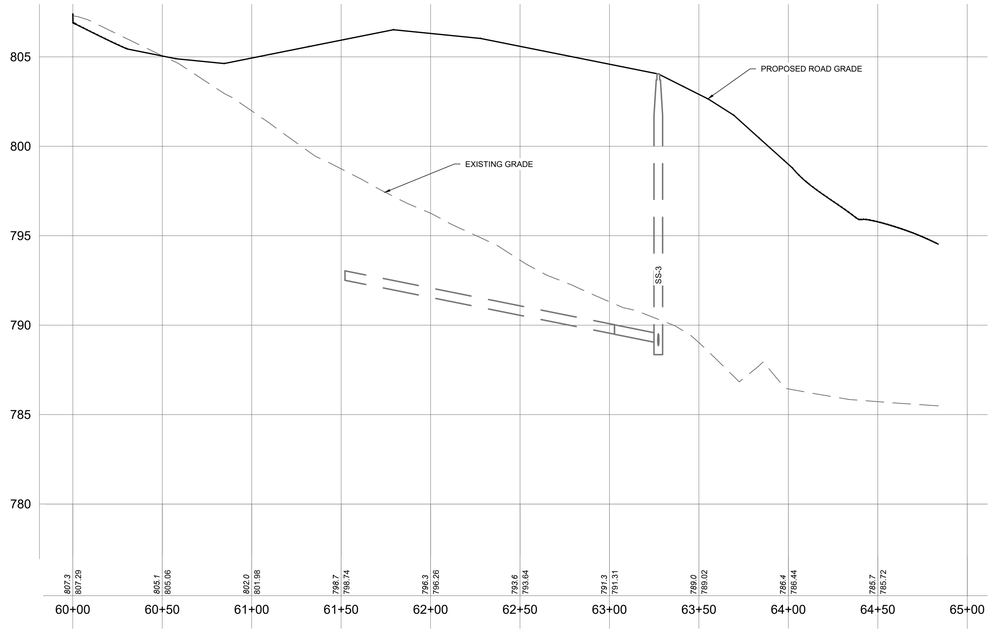

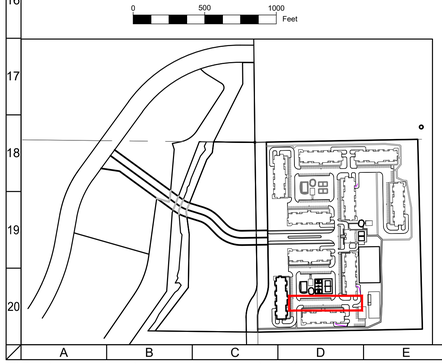

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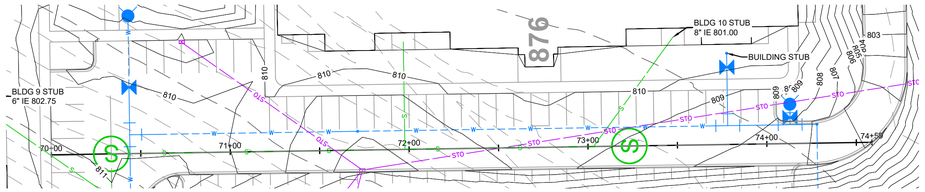

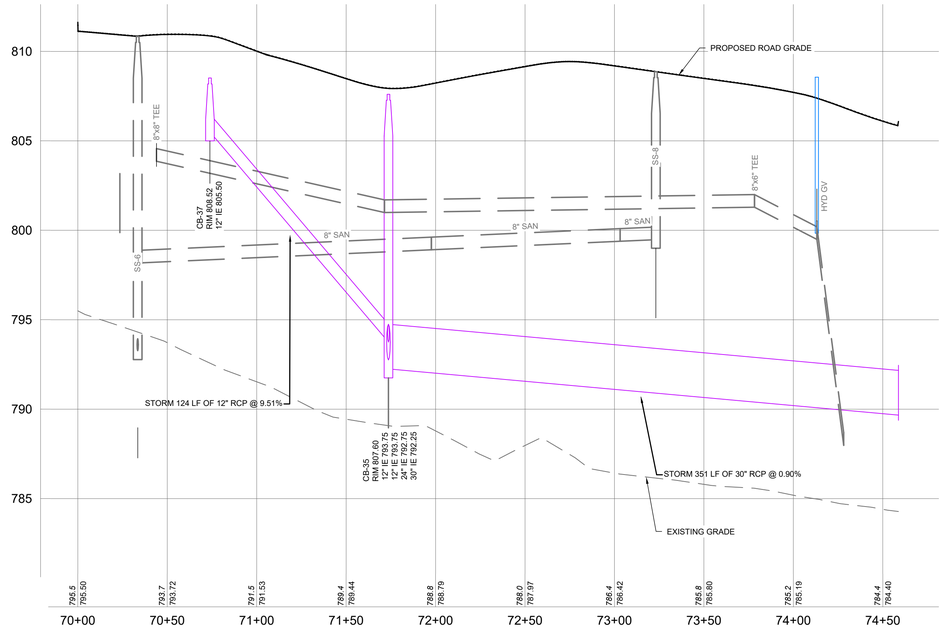

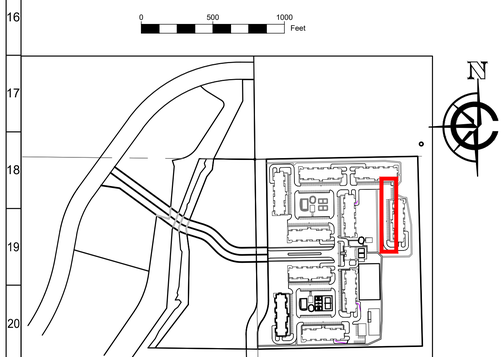

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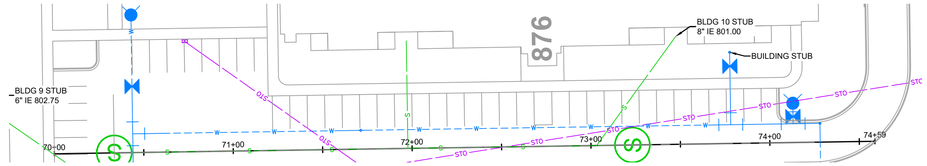

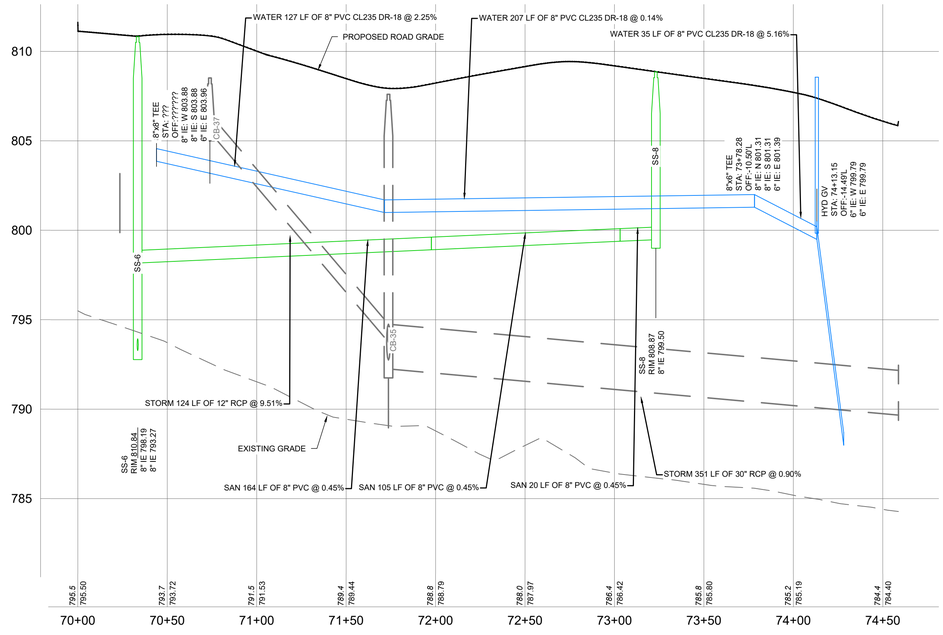

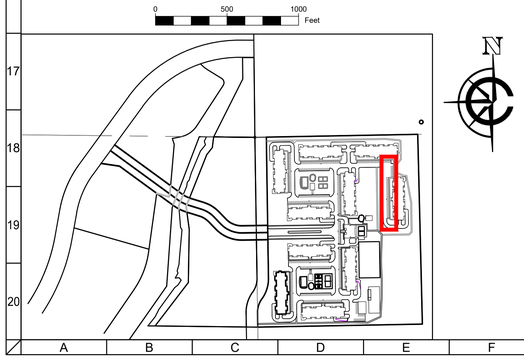

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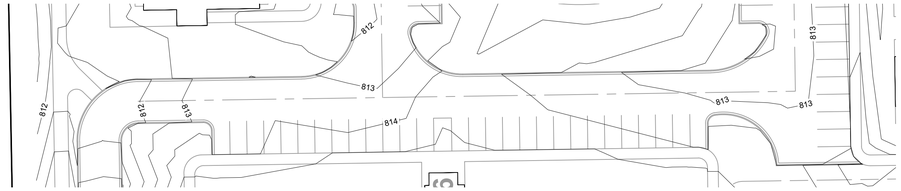

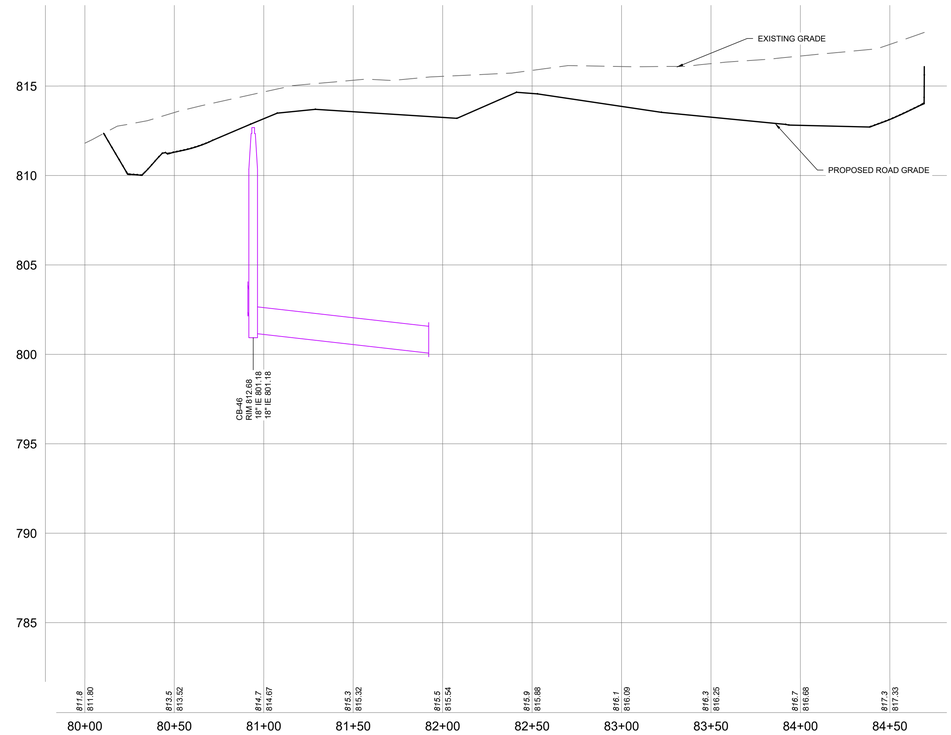

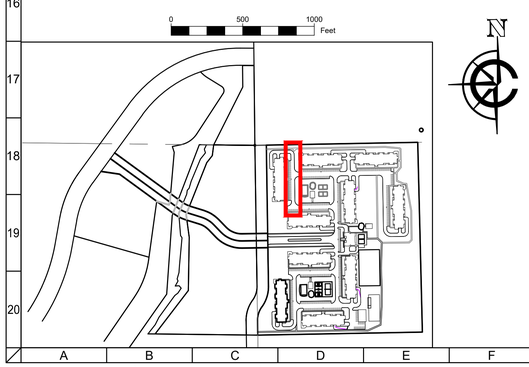

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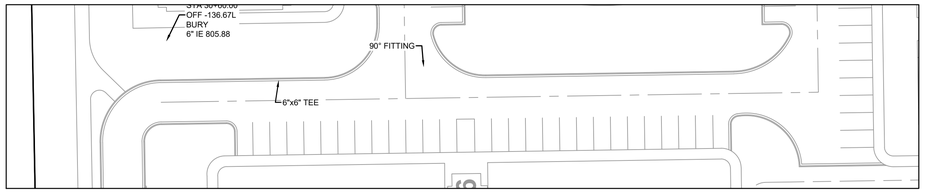

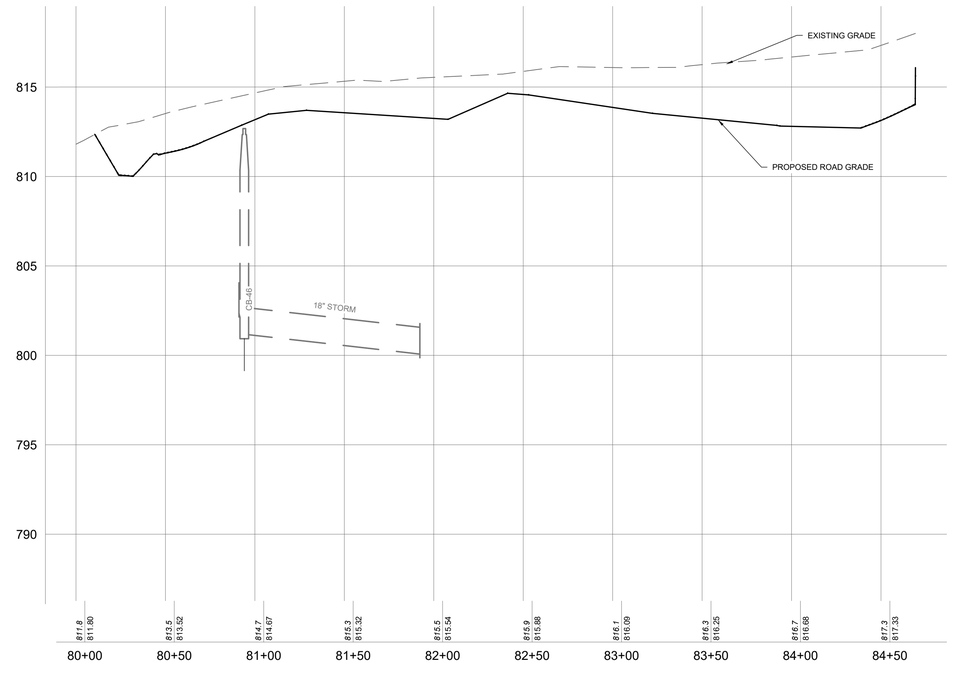

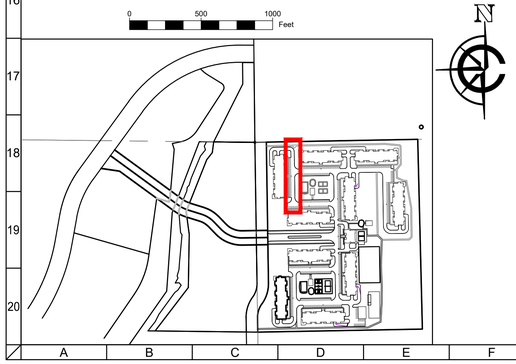

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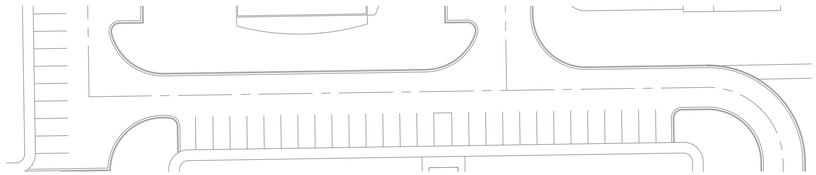

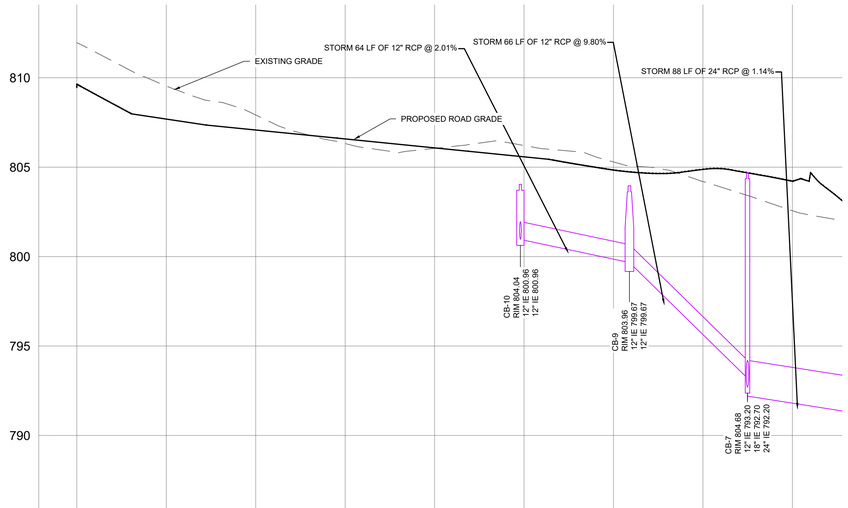

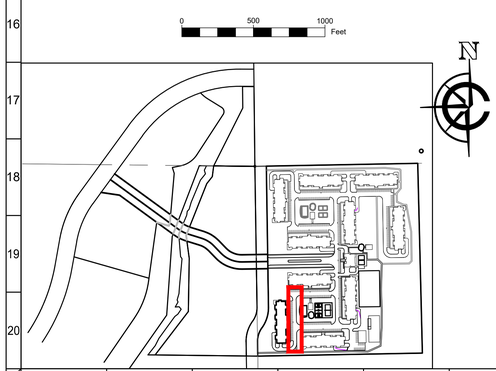

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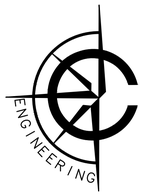

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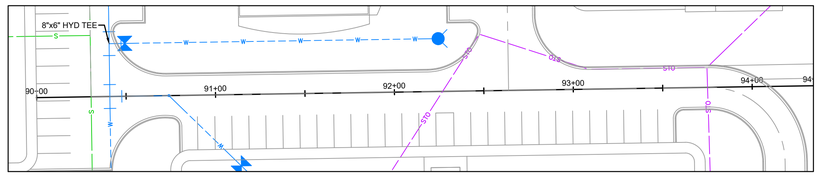

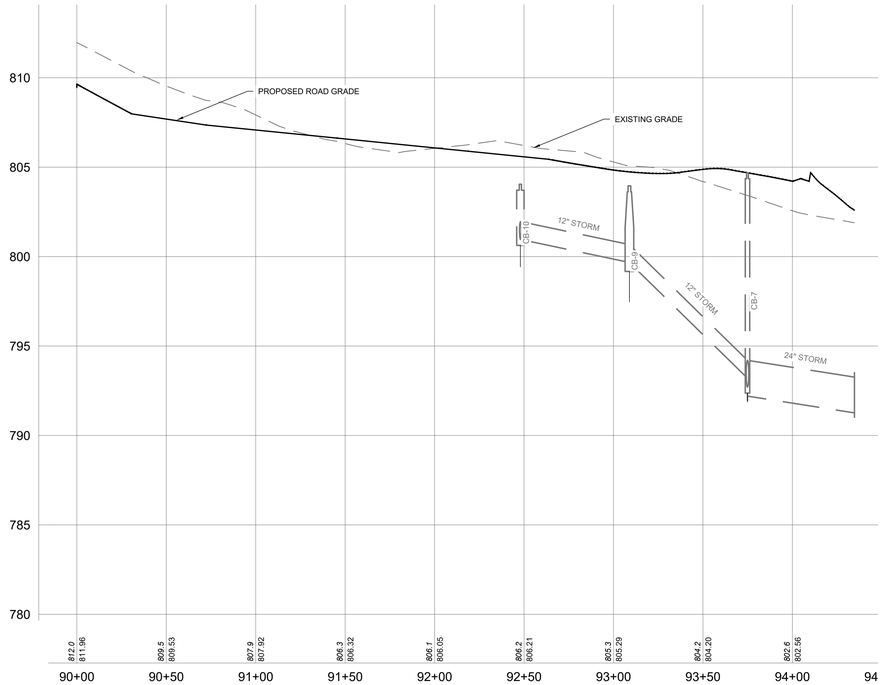

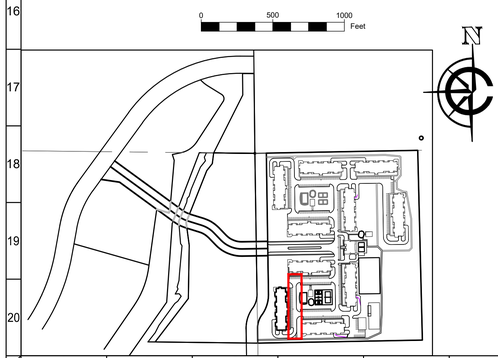

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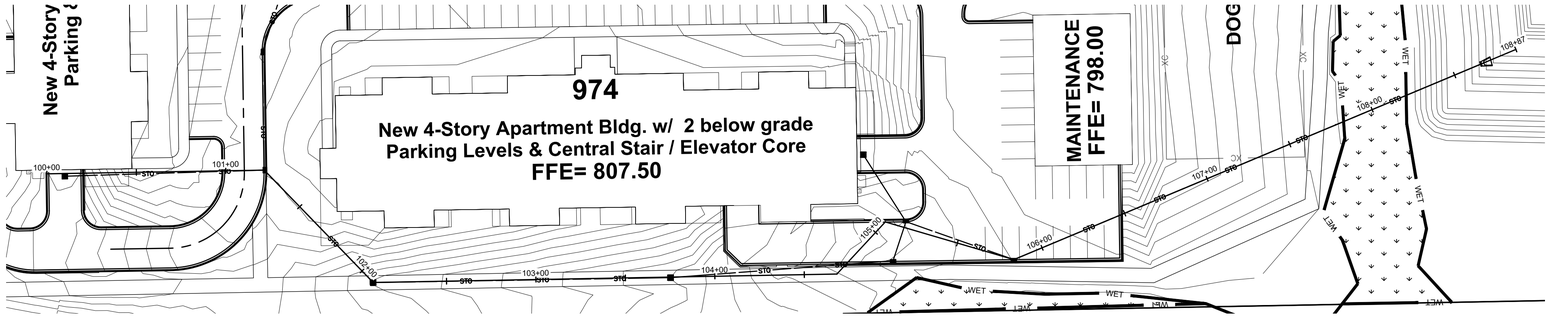
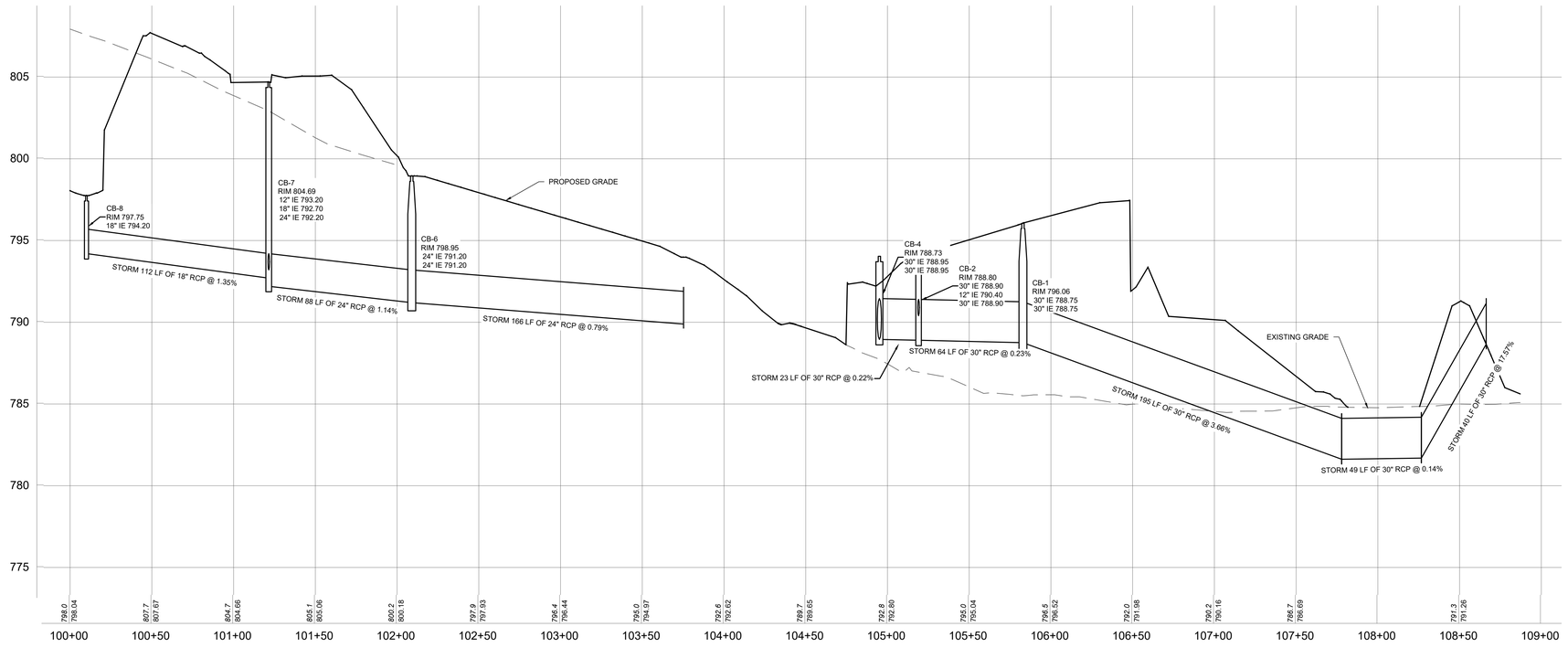
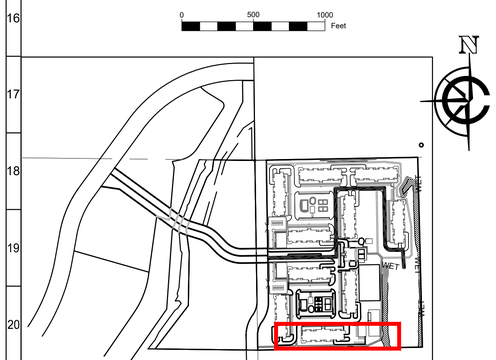
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	BDP
DESIGNED BY	RWC

SHEET NUMBER

42 OF 55







CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO, WAUKESHA COUNTY, WI

PLAN AND PROFILE

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

0 40 80 Feet

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07	VILLAGE COMMENTS	04/25/2021
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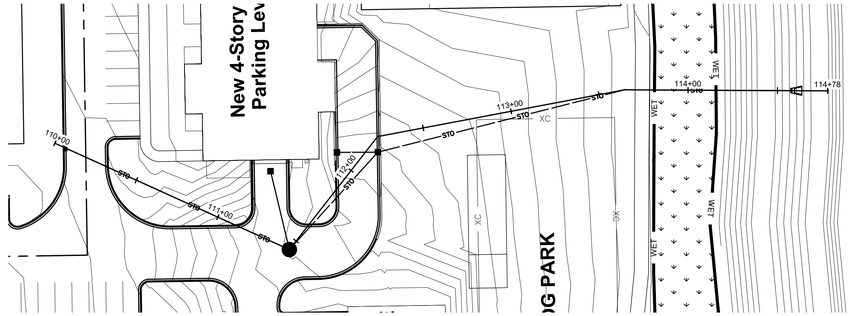

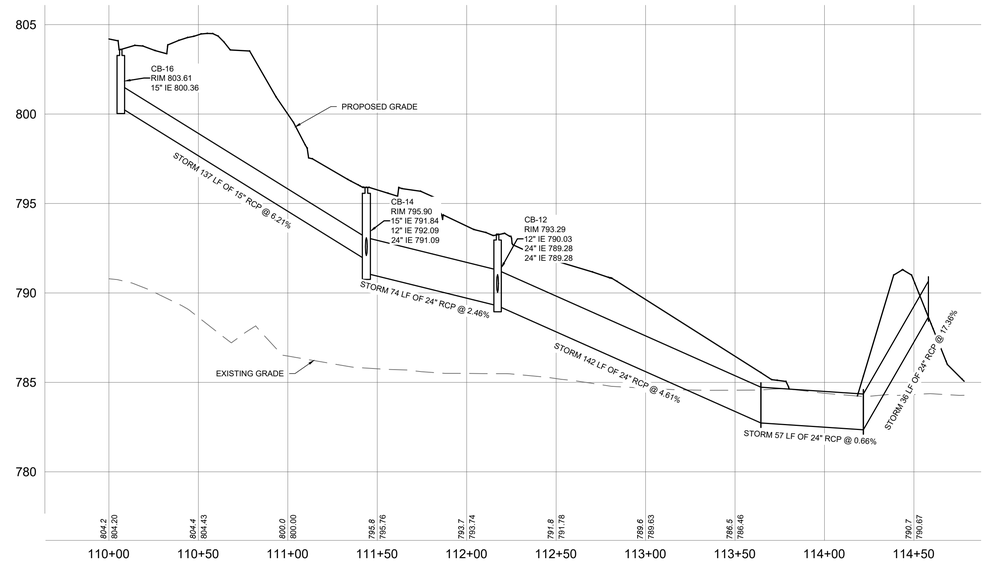

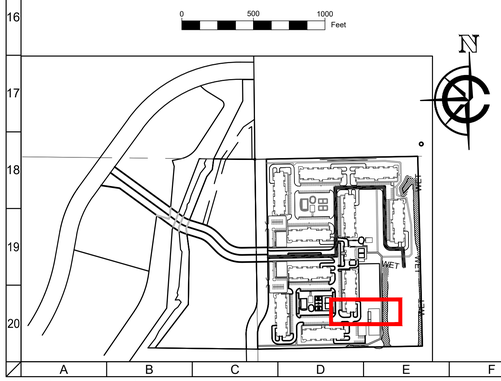

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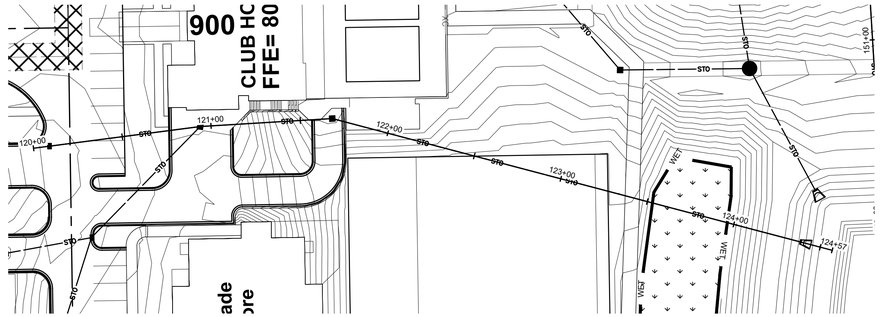

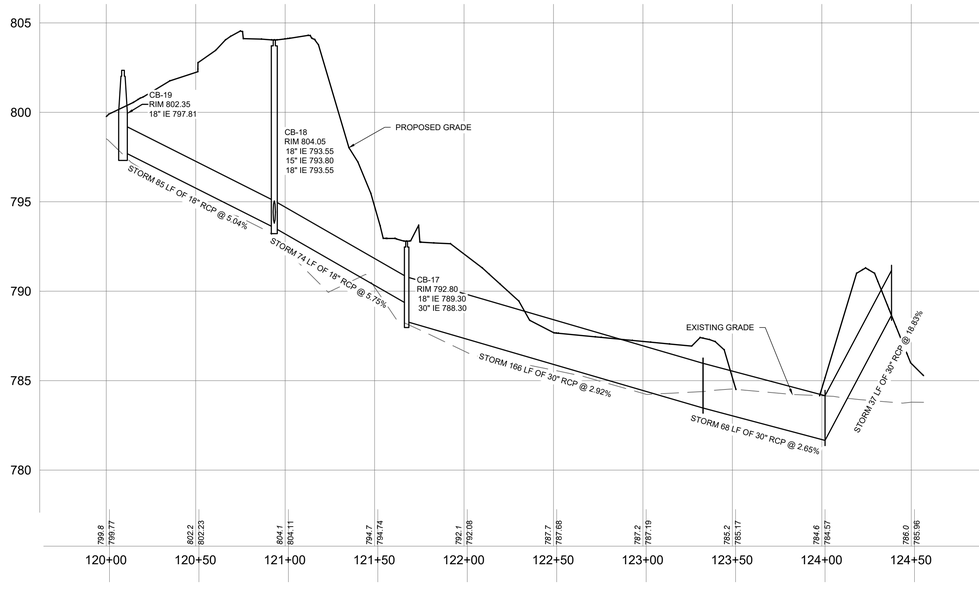

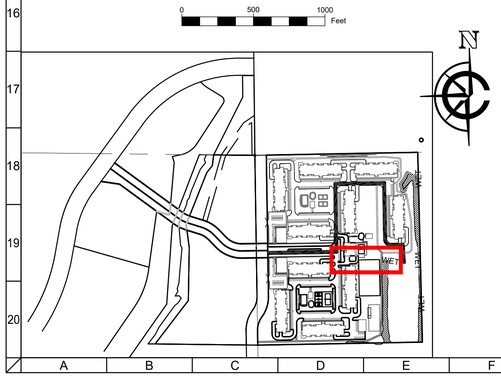

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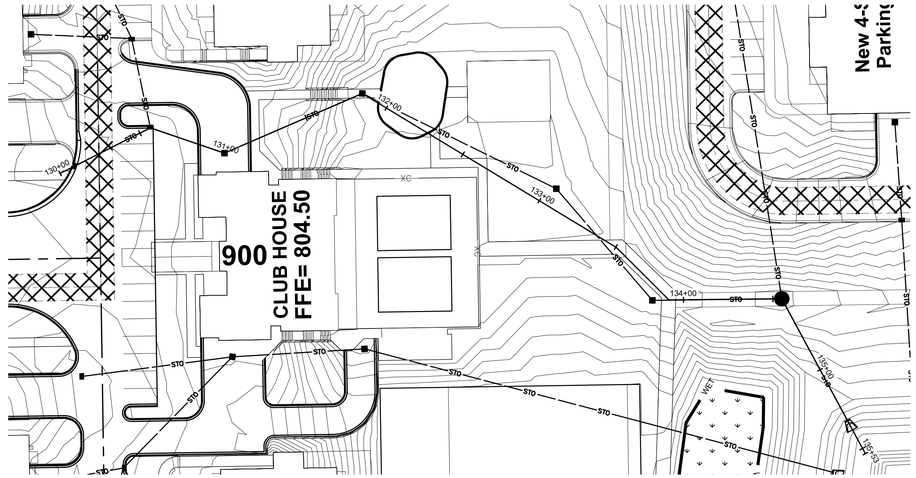

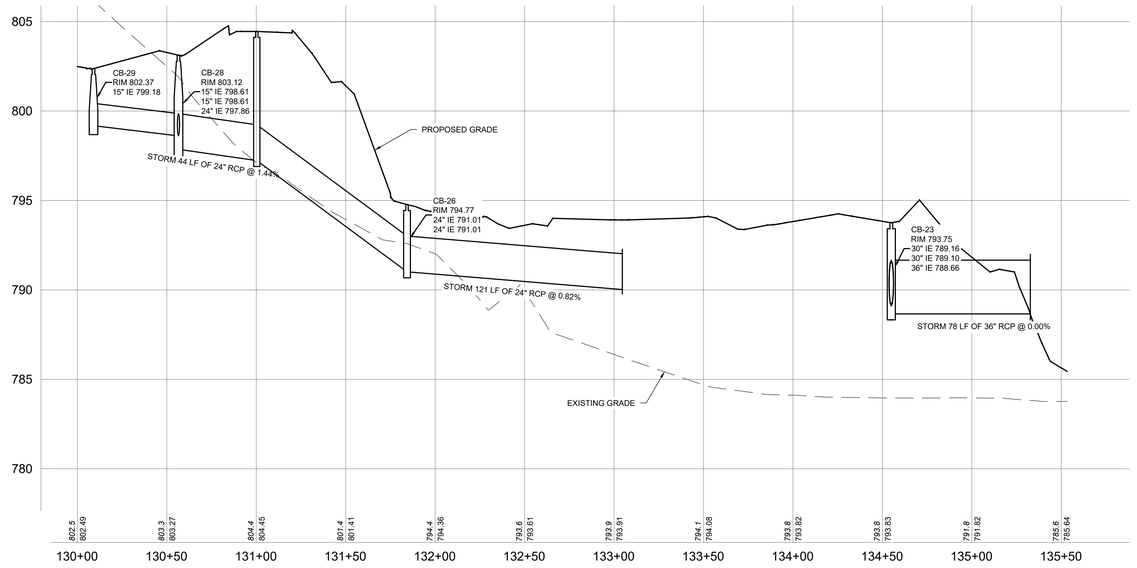

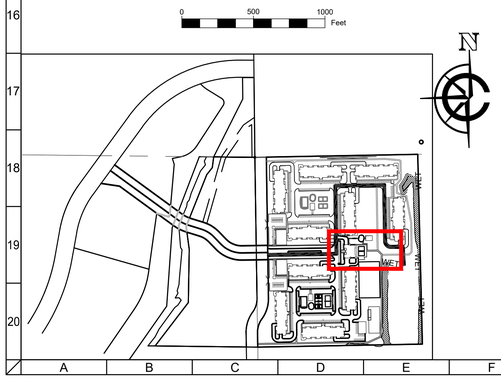

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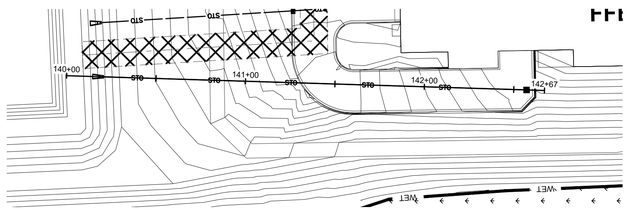

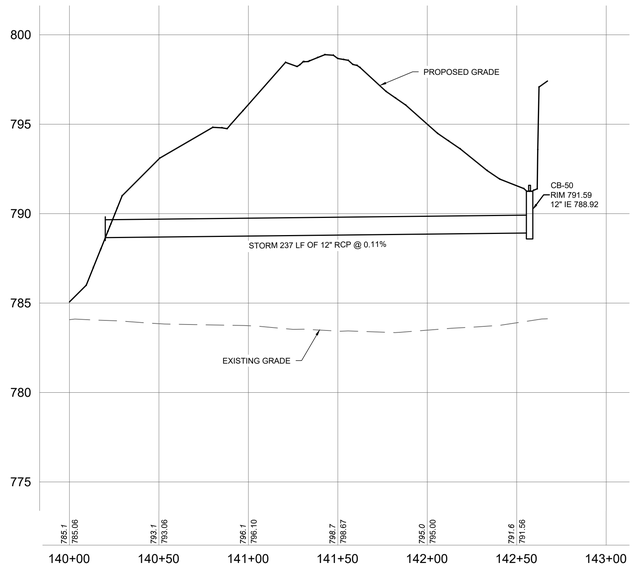

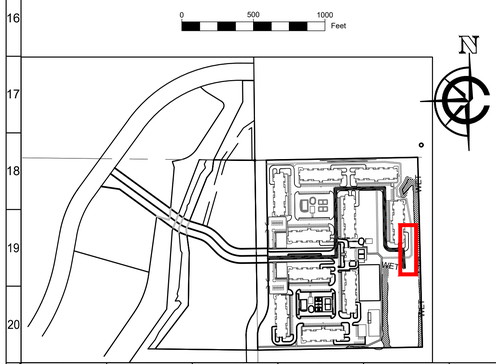

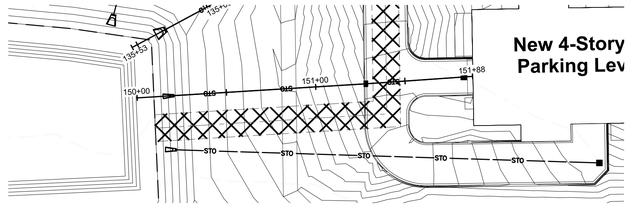

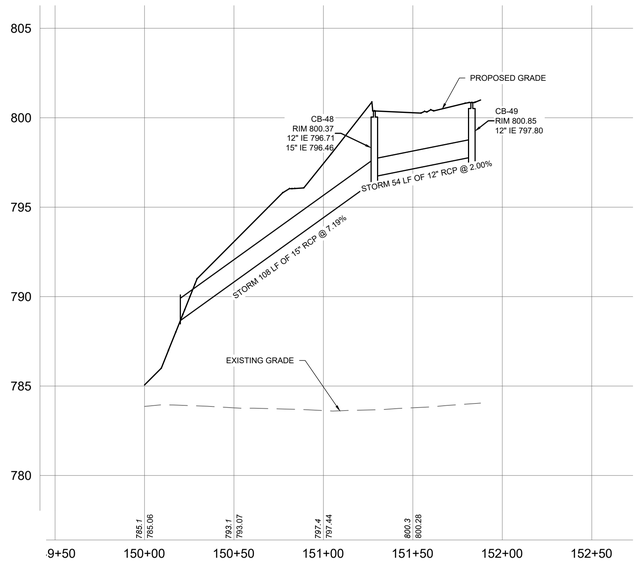

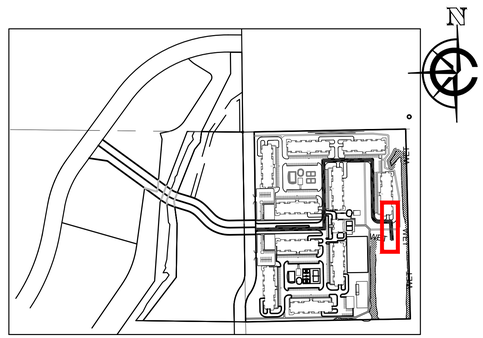

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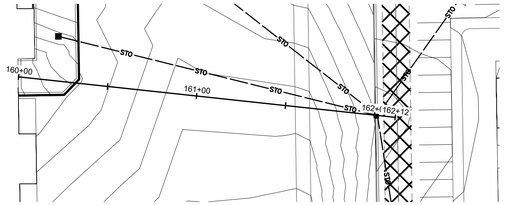
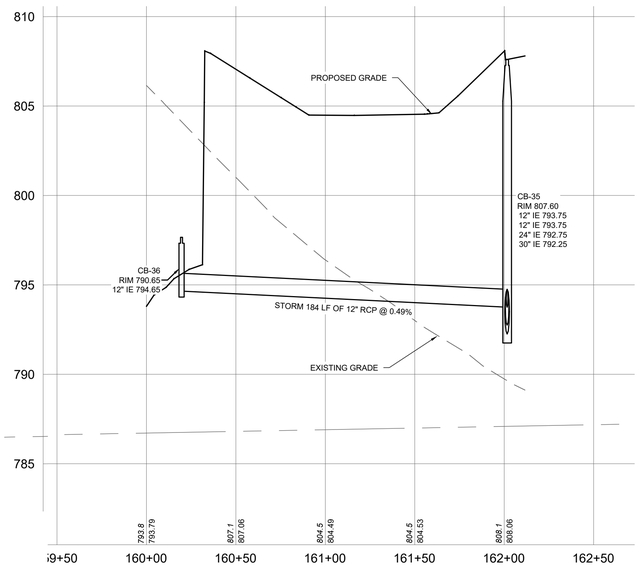
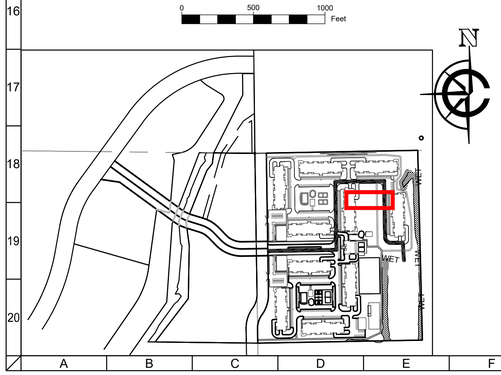
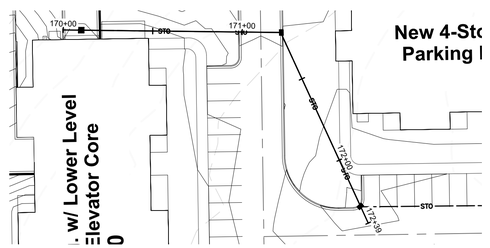
dg. w/ 2 below grade
Stair / Elevator Core
3.75



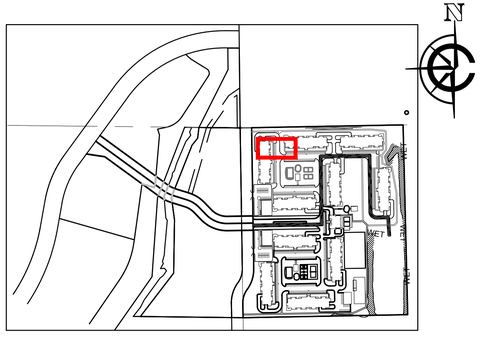






New 4-Sto
Parking

w/ Lower Level
Elevator Core
0



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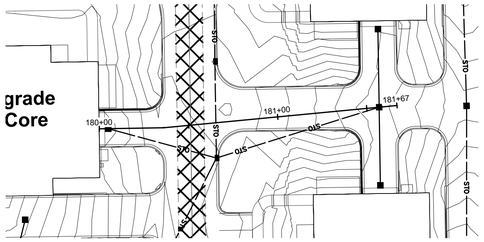

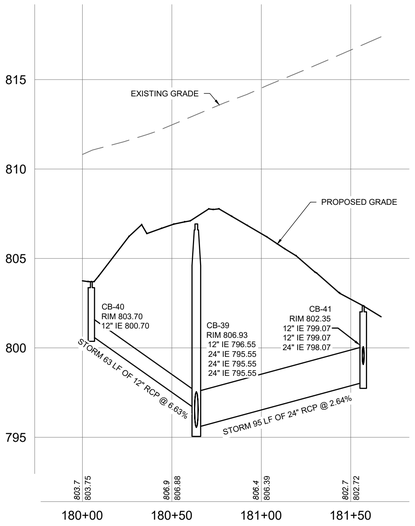

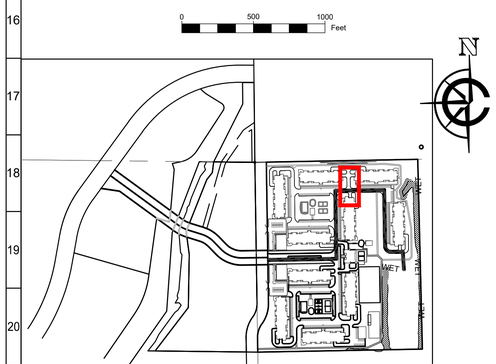

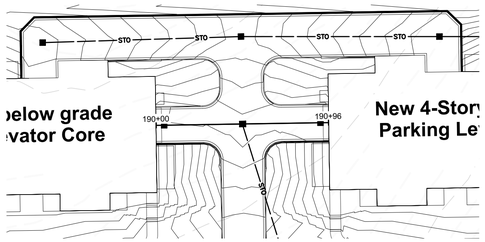

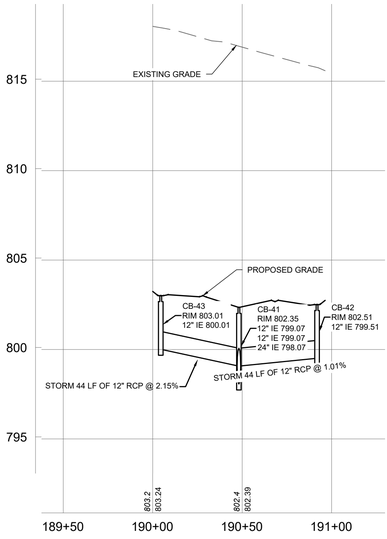

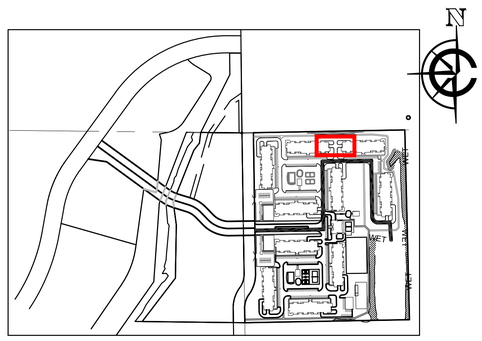

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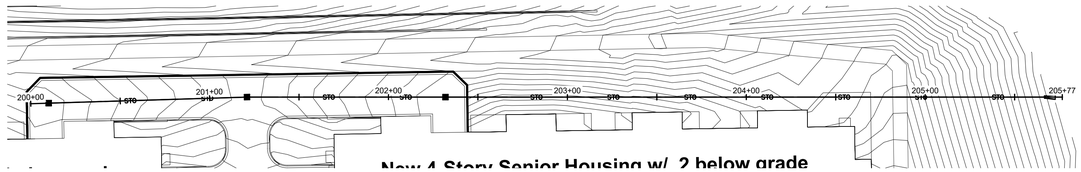

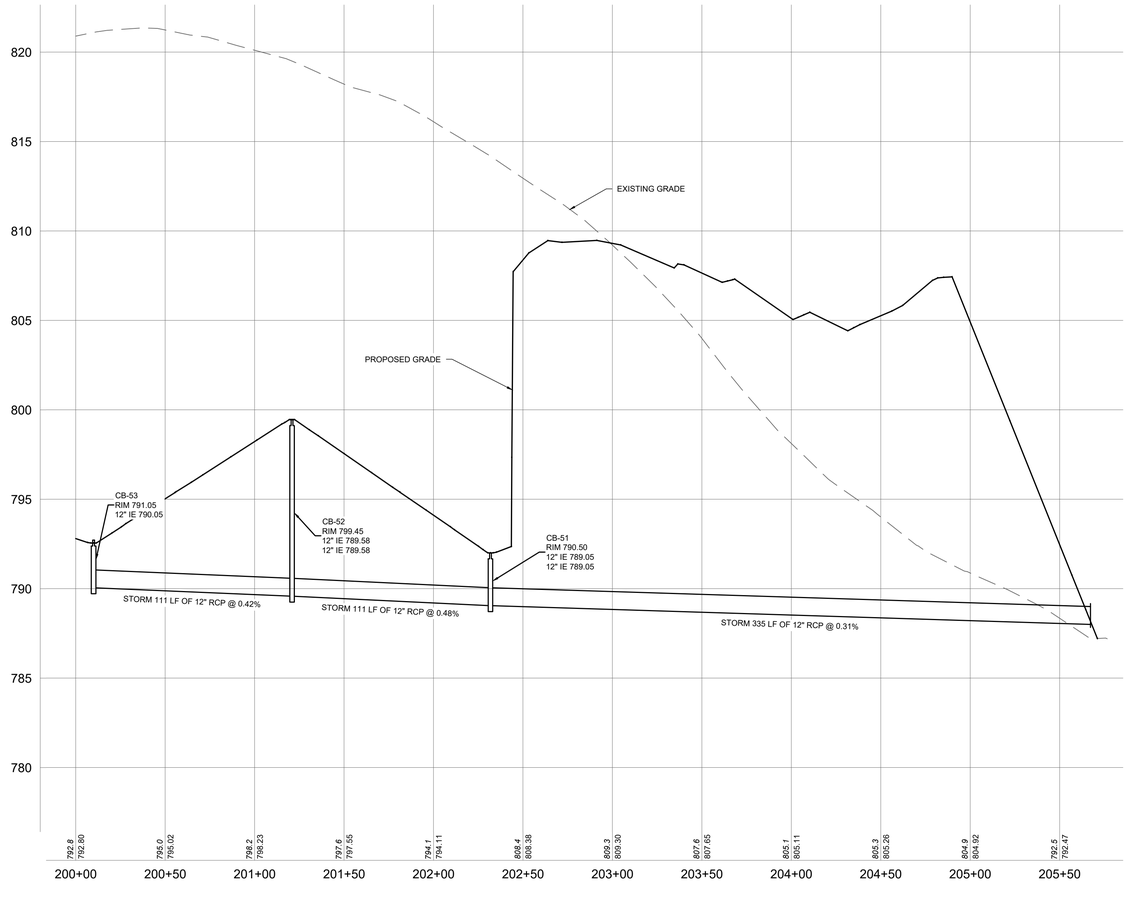

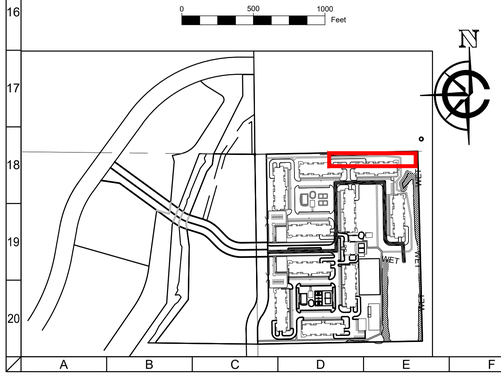

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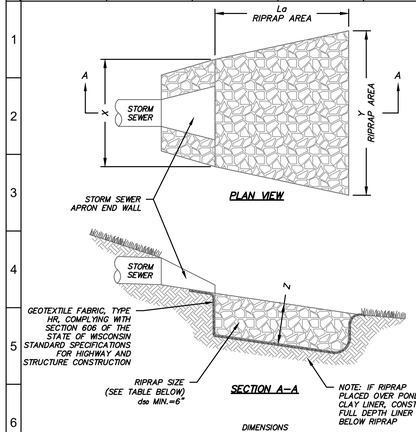


PLAN VIEW

SECTION A–A

DIMENSIONS

OUTLET	La	X	Y	dso	Z
POND INLET 100	11'	5'	9'	MED	1.5'
POND INLET 200	24'	5'	14'	MED	1.5'
POND OUTLET	10'	5'	10'	MED	1.5'

RIPRAP SHALL COMPLY WITH THE SECTION 606 OF THE STATE OF WISCONSIN STANDARD FOR HIGHWAY AND STRUCTURE CONSTRUCTION.

PLAN VIEW CONTOURS AND GRADES REPRESENT PROPOSED TOP OF FIELD STONE ELEVATIONS.

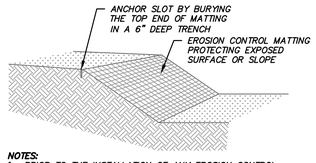
RIPRAP DETAIL

NOTES:

1. SILT FENCE INSTALLATION AND MATERIALS SHALL CONFORM TO WDNR CONSERVATION STANDARD 1056
2. SILT FENCE SHALL BE PLACED ON THE CONTOUR AND NOT PERPENDICULAR TO THE CONTOUR. THE ENDS SHALL BE EXTENDED UPSLOPE TO PREVENT WATER FROM FLOWING AROUND THE ENDS OF THE FENCE.
3. WHEN SILT FENCE IS INSTALLED ON A SLOPE, THE PARALLEL SPACING SHALL NOT EXCEED THE REQUIREMENTS IN THE TABLE BELOW:

SLOPE	FENCE SPACING
< 2%	100 FEET
2 TO 5%	75 FEET
5 TO 10%	50 FEET
10 TO 33%	25 FEET
> 33%	20 FEET

4. INSTALLED SILT FENCES SHALL BE MINIMUM 14 INCHES HIGH AND A MAXIMUM OF 28 INCHES IN HEIGHT MEASURED FROM THE INSTALLED GROUND ELEVATION.
5. A MINIMUM OF 20 INCHES OF THE POST SHALL EXTEND INTO THE GROUND AFTER INSTALLATION.
6. SILT FENCE SHALL BE ANCHORED BY SPREADING AT LEAST 8 INCHES OF THE FABRIC IN A 4–INCH TRENCH WIDE BY 6–INCH DEEP TRENCH, OR 6–INCH V–TRENCH ON THE UPSLOPE SIDE OF THE FENCE. TRENCH SHALL BE BACKFILLED AND COMPACTED. TRENCHES SHALL NOT BE EXCAVATED WIDER THAN NECESSARY FOR PROPER INSTALLATION.
7. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS:
   A) TWIST METHOD---OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES.
   B) HOOK METHOD---HOOK THE END OF EACH SILT FENCE LENGTH.
8. SILT FENCE SHALL AT A MINIMUM BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EACH PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24–HOUR PERIOD.
9. DAMAGED OR DECOMPOSED FENCES, UNDERCUTTING, OR FLOW CHANNELS AROUND THE END OF BARRIERS SHALL BE REPAIRED OR CORRECTED.
10. SEDIMENT SHALL BE PROPERLY DISPOSED OF ONCE THE DEPOSITS REACH ONE HALF THE HEIGHT OF THE FENCE.
11. SILT FENCES SHALL BE REMOVED ONCE THE DISTURBED AREA IS PERMANENTLY STABILIZED AND IS NO LONGER SUSCEPTIBLE TO EROSION.

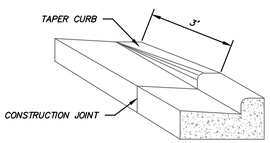


NOTES:

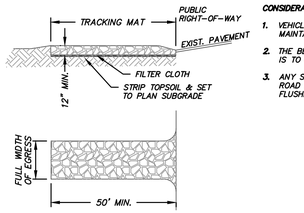
1. PRIOR TO THE INSTALLATION OF ANY EROSION CONTROL MATTING, ALL ROCKS, DIRT CLODS, STUMPS, ROOTS, TRASH AND ANY OTHER OBSTRUCTIONS WHICH WOULD PREVENT THE MAT FROM LAYING IN DIRECT CONTACT WITH THE SOIL SHALL BE REMOVED.
2. EROSION CONTROL MATTING SHALL BE INSTALLED IN ACCORDANCE WITH SECTION 628 OF THE WISCONSIN DOT STANDARD SPECIFICATIONS, DNR TECHNICAL STANDARD 1052 (NON CHANNEL APPLICATIONS), DNR TECHNICAL STANDARD 1053 (CHANNEL APPLICATIONS), AND LATEST MANUFACTURER SPECIFICATIONS, ESPECIALLY NOTING REQUIRED STAPLE PATTERNS AND ANCHOR TRENCH REQUIREMENTS.
3. INSTALLATION PROCEDURES MUST INSURE THAT THE MAT WILL REMAIN IN CONTACT WITH THE SOIL.
4. THE MATTING SHALL BE ANCHORED PER MANUFACTURER REQUIREMENTS.
5. THE MATTING SHALL BE ANCHORED TO THE GROUND PER MANUFACTURER REQUIREMENTS.
6. TEMPORARY EROSION CONTROL MATTING SHALL BE WisDOT PAL CLASS I, TYPE A AND PERMANENT EROSION CONTROL MATTING SHALL BE WisDOT PAL CLASS III, TYPE A.
7. MATTED AREAS MUST BE INSPECTED ON A WEEKLY BASIS, AND AFTER EACH SIGNIFICANT RAINFALL. BARE SPOTS, MISSING OR LOOSENED MATTING MUST BE IMMEDIATELY REPLACED AND/OR RE–ANCHORED.
8. FOR CHANNEL APPLICATIONS, EXTEND MAT UPSLOPE ONE–FOOT MINIMUM VERTICALLY FROM DITCH BOTTOM OR SIX–INCHES HIGHER THAN DESIGN FLOW, WHICHEVER IS GREATER.

EROSION CONTROL MATTING DETAIL

NOTE: INSTALL ON ALL SLOPES OF 4:1 OR GREATER



DETAIL OF CURB & GUTTER TERMINI



CONSIDERATIONS:

1. VEHICLES TRAVELING ACROSS THE TRACKING PAD SHOULD MAINTAIN A SLOW CONSTANT SPEED.
2. THE BEST APPROACH TO PREVENTING OFF–SITE TRACKING IS TO RESTRICT VEHICLES TO STABILIZED AREAS.
3. ANY SEDIMENT TRACKED ONTO A PUBLIC OR PRIVATE ROAD SHOULD BE REMOVED BY STREET CLEANING, NOT FLUSHING, BEFORE THE END OF EACH WORKING DAY.

NOTES:

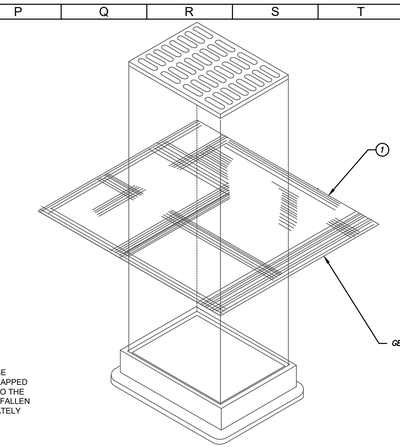
A. TRACKING PAD:

1. TRACKING PAD TO CONFORM TO WDNR CONSERVATION PRACTICE STANDARD 1057.
2. THE TRACKING PAD SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE.
3. THE AGGREGATE FOR TRACKING PADS SHALL BE 3"– 6" CLEAR OR WASHED STONE. ALL MATERIAL SHALL BE RETAINED ON A 3–INCH SIEVE.
4. THE AGGREGATE SHALL BE PLACED IN A LAYER AT LEAST 12 INCHES THICK. ON SITES WITH A HIGH WATER TABLE, OR WHERE SATURATED CONDITIONS ARE EXPECTED DURING THE LIFE OF THE PRACTICE, STONE TRACKING PADS SHALL BE UNDERLAIN WITH A WISDOT TYPE R GEOTEXTILE FABRIC TO PREVENT MIGRATION OF UNDERLYING SOIL INTO THE STONE.
5. THE TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT. THE TRACKING PAD SHALL BE A MINIMUM OF 50 FEET LONG.
6. SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY FROM TRACKING PADS OR CONVEYED UNDER AND AROUND THEM BY USING A VARIETY OF PRACTICES, SUCH AS CULVERTS, WATER BARS, OR OTHER SIMILAR PRACTICES.

B. MAINTENANCE

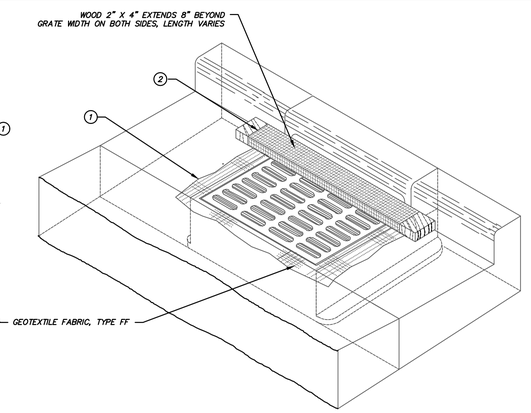
1. ROCKS LODGED BETWEEN THE TIRES IF DUAL WHEEL VEHICLES SHALL BE REMOVED PRIOR TO LEAVING THE CONSTRUCTION SITE.
2. TRACKING PADS AND TIRE WASHING STATIONS SHALL, AT AT MINIMUM, BE INSPECTED WEEKLY AND WITHIN 24 HOURS AFTER EVERY PRECIPITATION EVENT THAT PRODUCES 0.5 INCHES OF RAIN OR MORE DURING A 24–HOUR PERIOD.
3. THE TRACKING PAD PERFORMANCE SHALL BE MAINTAINED BY SCRAPING OR TOP–DRESSING WITH ADDITIONAL AGGREGATE.
4. A MINIMUM 12–INCH THICK PAD SHALL BE MAINTAINED.

STONE TRACKING PAD DETAIL



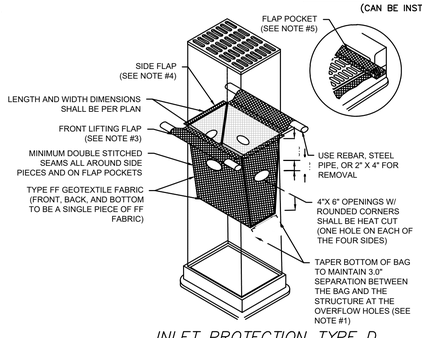
MAINTENANCE NOTES:

INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED IN THE FABRIC DOES NOT FALL INTO THE STRUCTURE. MATERIAL THAT HAS FALLEN INTO THE INLET SHALL BE IMMEDIATELY REMOVED.



INLET PROTECTION, TYPE B (WITHOUT CURB BOX)

(CAN BE INSTALLED ON ANY INLET TYPE)



INLET PROTECTION TYPE D

NOTE: CAN BE INSTALLED IN INLETS WITH OR WITHOUT CURB BOXES

1. FABRIC SIZE SHALL BE 8" (MIN) GREATER ON ALL SIDES OF THE INLET COVER TO PROVIDE A HAND HOLD WHEN MAINTENANCE OR REMOVAL IS REQUIRED.
2. FOR INLET PROTECTION, TYPE C, WITH A CURB BOX, AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX.

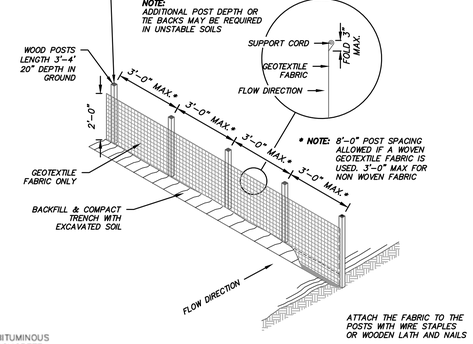
INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES:

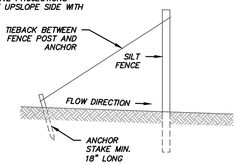
FABRIC SHALL BE REPLACED AT THE ENGINEERS DISCRETION.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED FOR THE INLET PROTECTION TYPE SPECIFIED.

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

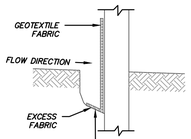


SILT FENCE DETAIL



SILT FENCE TIE BACK

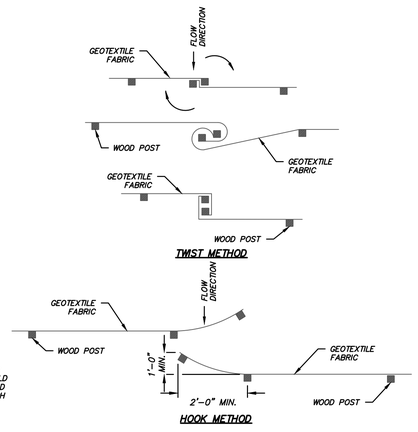
(WHEN ADDITIONAL SUPPORT IS REQUIRED)



TRENCH DETAIL

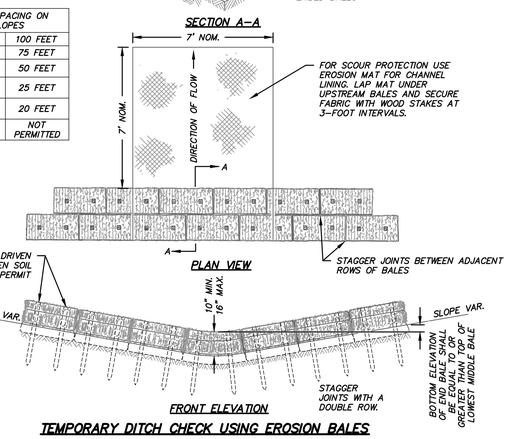
NOTES:

1. TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.



JOINING TWO LENGTHS OF SILT FENCE

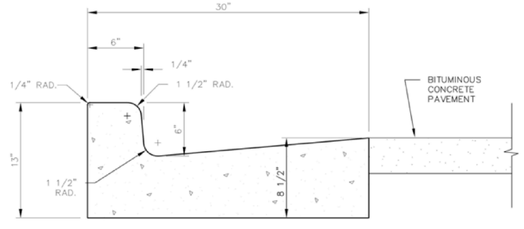
BALE SPACING ON SLOPES	
< 2%	100 FEET
2 TO 5%	75 FEET
5 TO 10%	50 FEET
10 TO 33%	25 FEET
33% TO 50%	20 FEET
> 50%	NOT PERMITTED



TEMPORARY DITCH CHECK USING EROSION BALES

NOTES:

1. DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE WISDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND STRUCTURE CONSTRUCTION AND WDNR TECHNICAL STANDARD 1062.
2. TEMPORARY DITCH CHECKS OF A SINGLE ROW OF EROSION BALES ARE NOT PERMITTED.
3. SEDIMENT BALE BARRIERS 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.
4. DAMAGED OR DECOMPOSED SEDIMENT BALE BARRIERS, AND UNDERCUTTING, OR FLOW CHANNELS AROUND THE END OF THE SEDIMENT BALE BARRIERS SHALL BE REPAIRED.
5. SEDIMENT SHALL BE PROPERLY DISPOSED OF ONCE THE DEPOSITS REACH ONE–HALF THE HEIGHT OF THE SEDIMENT BALE BARRIER.
6. SEDIMENT BALE BARRIERS AND ANCHORING DEVICES SHALL BE REMOVED AND PROPERLY DISPOSED OF WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED.
7. ANY SEDIMENT DEPOSITS REMAINING IN PLACE AFTER THE SEDIMENT BALE BARRIER IS NO LONGER REQUIRED SHALL BE DRESSED TO CONFORM TO THE EXISTING GRADE, PREPARED AND SEEDED.
8. EFFECTIVENESS OF BALES IS LESS THAN 3 MONTHS.

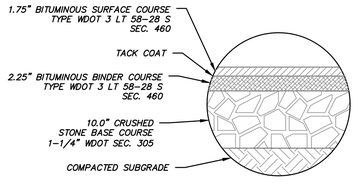


TYPICAL 30" CURB & GUTTER DETAIL

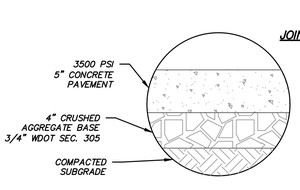
VILLAGE OF MUKWONAGO

NOT TO SCALE

XCOLSEC 1



BITUMINOUS PAVEMENT (STANDARD DUTY)



CONCRETE SIDEWALK SECTION

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

SITE DETAILS

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

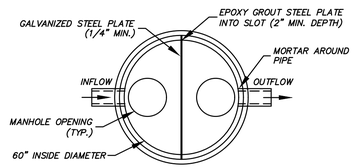
1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

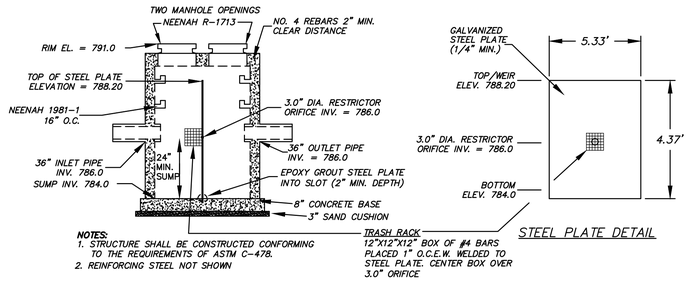
SCALE	
PROJECT NUMBER	1707331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	EJO
DESIGNED BY	RWC

SHEET NUMBER

51 OF 55



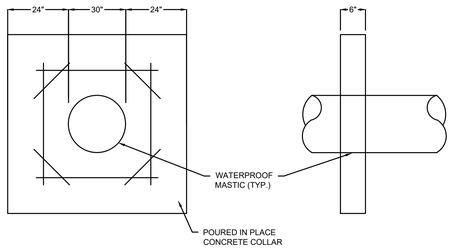
TOP VIEW



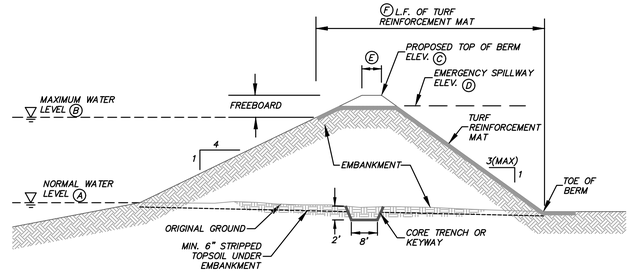
NOTES:
1. STRUCTURE SHALL BE CONSTRUCTED CONFORMING TO THE REQUIREMENTS OF ASTM C-478.
2. REINFORCING STEEL NOT SHOWN

STEEL PLATE DETAIL

NW WET DETENTION POND OUTLET CONTROL STRUCTURE DETAIL
N.T.S.

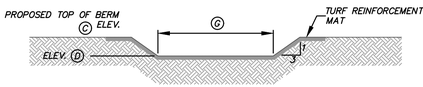


ANTI-SEEP COLLAR DETAIL
N.T.S.

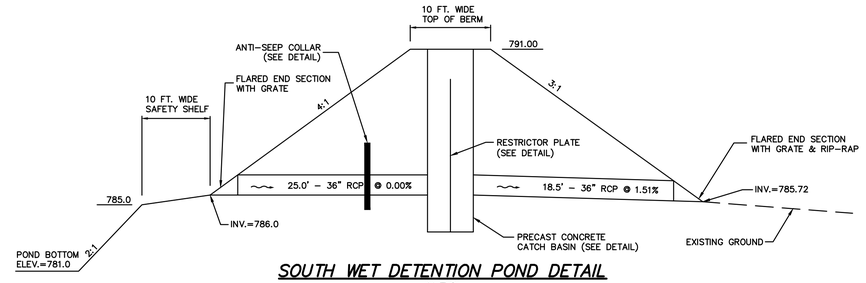


PROPOSED EMERGENCY SPILLWAY DIMENSIONS

	A	B	C	D	E	F	G
DETENTION POND	786.0	789.95	791.00	79000	10'	26'	60'



PROPOSED EMERGENCY SPILLWAY



SOUTH WET DETENTION POND DETAIL
N.T.S.

Note: SEE WDNR TECHNICAL STANDARD 1001 FOR TYPE C LINER SPECIFICATIONS TO MINIMIZE POTENTIAL FOR GROUNDWATER POLLUTION.

VILLAGE OF MUKWONAGO SPECIFICATIONS:

BACKFILLING-EXISITING
1. The Contractor shall dispose of surplus excavated material as directed by the Developer or his Engineer.
2. Existing roads that are cut open shall have slurry backfill.
3. Where called for on the Drawings or where required by permit, slurry backfill conforming to SWS 8.43.8 and the following mix shall be used:
   a. 1350 lbs. Sand
   b. 775 lbs. #1 Stone
   c. 1150 lbs. #2 Stone
   d. 25 gals. (0-0.5 gal.) Water per C.Y.
4. No additional water will be allowed. The above weights are damp weights. This material shall be thoroughly mixed just prior to installation.

BACKFILLING-NEW DEVELOPMENT
1. The Contractor shall dispose of surplus excavated material as directed by the Developer or his Engineer.
2. All granular backfill shall be compacted in six (6) inch lifts or thoroughly flushed, as specified under SWS 2.6.14, Flooding, of the Standard Specification. Water for flooding will be furnished by the Village at the Contractor's expense. The Contractor shall contact the Utilities Department to make arrangements for water meter. Mechanically compact trench backfill following SWS 2.6.14(b), except Contractor shall furnish and pay for compaction testing services.

Excavated Material Backfill
1. Excavated material, in accordance with SWS 8.43.5, may be used to backfill trenches except through future and existing paved or graveled surfaces, such as driveways, parking areas, shoulders, curb and gutter, sidewalks; and in future streets, or within 5 feet of such surface shall be backfilled with granular material.

Granular Backfill
1. Granular backfill, in accordance with Table 37 of SWS 8.43.4, shall be used to backfill trenches as stated above
2. Granular backfill placed within state highway right-of-ways shall conform to Section 209 of the "State Specifications".

Slurry Backfill
1. Where called for on the Drawings or where required by permit, slurry backfill conforming to SWS 8.43.8 and the following mix shall be used:
   a. 1350 lbs. Sand
   b. 775 lbs. #1 Stone
   c. 1150 lbs. #2 Stone
   d. 25 gals. (0-0.5 gal.) Water per C.Y.
2. No additional water will be allowed. The above weights are damp weights. This material shall be thoroughly mixed just prior to installation.

SURFACE PLACEMENT

General Placement
1. No street construction or surface restoration work may begin until the alignment and grade of Village utilities has been accepted by the Village
2. The provisions of SWS 2.6.11 and SWS 2.7.2 are modified as follows:
   a. The Contractor shall replace or restore to its original condition, unless specified otherwise, any sidewalk, driveway, curb, gutter, shoulder, pavement, culvert, drain tile, lawn, ditch, fence, sign, mailbox, or other property damaged by him during his work operations at his own cost. SWS 2.7.3.
   b. Restoration of pavements damaged by normal truck hauling operations; i.e., hauling within approved weight and speed limits and exercising reasonable care while starting, stopping, or turning vehicles, will not be the responsibility of the Contractor. This provision does not apply to pavement damaged during loading or unloading operations.

Pavement Protection
1. The Contractor shall take all precautions necessary to protect road pavements, including shoulders, from being damaged. Sheathing and bracing or the use of a portable trench box, if required, shall be in accordance with SWS 2.3.0 and SWS 2.3.6.
2. Backfill or excavated material spilled or tracked onto pavements or shoulders shall be removed at the completion of each working day or more often if needed as directed by the Village. Any such materials interfering with traffic shall immediately be swept off with power brooming equipment.

Pavement Replacement
1. Damaged shoulder, road pavement and driveway areas shall be replace "in kind" with the following exceptions:
   a. Road Shoulder
      i. A minimum of 8 inches of crushed aggregate base course shall be placed over road shoulder areas.
   b. Road Pavements
      i. A minimum of 8 inches of crushed aggregate base course, 2.5 inches of binder course and 1.5 inches of asphaltic concrete pavement (hot mix) shall be placed over trenches within paved areas of local streets. All pavement joints including the curb flange on the final lift of asphalt shall be sealed with CRAFCO Pavement joint adhesive (34524) per manufactures specifications.
      ii. A minimum of 10 inches of crushed aggregate base course, 3 inches of binder course and 1.5 inches of asphaltic concrete pavement (hot mix) shall be placed over trenches within paved areas of collector streets. All pavement joints including the curb flange on the final lift of asphalt shall be sealed with CRAFCO Pavement joint adhesive (34524) per manufactures specifications.
   c. Driveways and Parking Areas
      i. A minimum of 6 inches of crushed aggregate base course shall be placed over existing gravel driveways and parking areas, in addition to a minimum of 2 inches of asphaltic concrete pavement (hot mix, surface course) over existing paved drives and parking areas.

Utilities
1. The Contractor shall contact all utility companies prior to the commencement of construction and shall arrange to have those existing utilities located and staked or marked in the field that are in the construction area.

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT
VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

STORMWATER DETAILS

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
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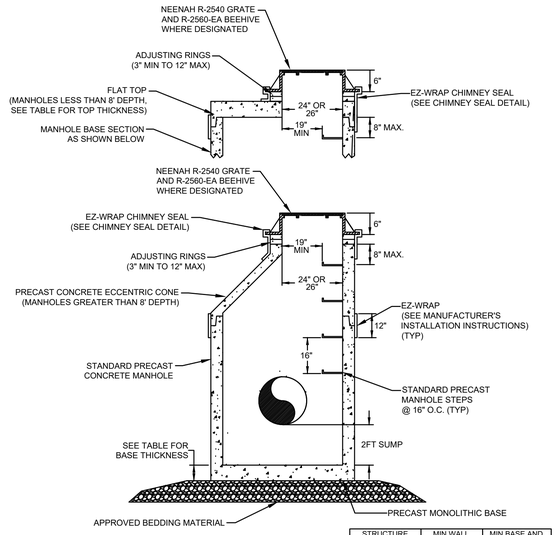
SCALE	
PROJECT NUMBER	1707331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	EJO
DESIGNED BY	RWC

SHEET NUMBER

52 OF 55



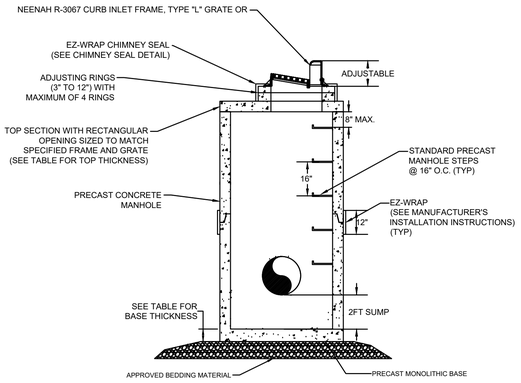
NOTE:

REFER TO VILLAGE STANDARD SPECIFICATIONS FOR STORM SEWER.

STRUCTURE DIAMETER	MIN WALL THICKNESS*	MIN BASE AND TOP THICKNESS*
4'	5"	6"
5'	6"	8"
6'	7"	8"
7'	8"	8"
8' AND GREATER	9"	8"

* MINIMUM THICKNESS SHALL NOT BE LESS THAN THAT REQUIRED TO MEET AASHTO H-20 LOADINGS

STANDARD STORM MANHOLE



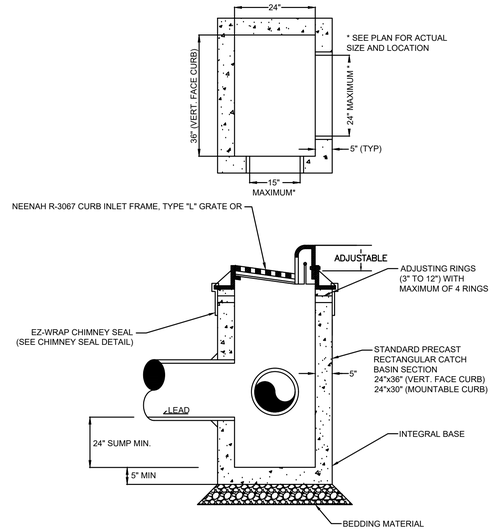
NOTE:

REFER TO VILLAGE STANDARD SPECIFICATIONS FOR STORM SEWER.

STRUCTURE DIAMETER	MIN WALL THICKNESS*	MIN BASE AND TOP THICKNESS*
4'	5"	6"
5'	6"	8"
6'	7"	8"
7'	8"	8"
8' AND GREATER	9"	8"

* MINIMUM THICKNESS SHALL NOT BE LESS THAN THAT REQUIRED TO MEET AASHTO H-20 LOADINGS

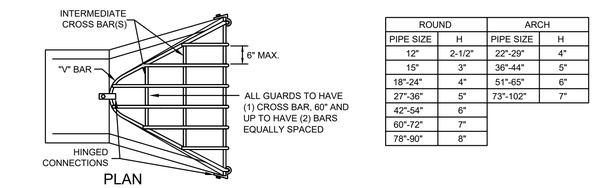
STANDARD STORM MANHOLE WITH CURB INLET



NOTE:

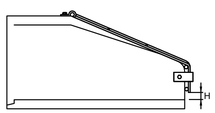
1. REFER TO VILLAGE STANDARD SPECIFICATIONS FOR STORM SEWER

PRECAST RECTANGULAR CATCH BASIN

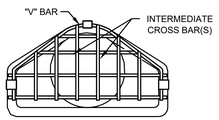


PLAN

ROUND		ARCH	
PIPE SIZE	H	PIPE SIZE	H
12"	2-1/2"	22"-29"	4"
15"	3"	36"-44"	5"
18"-24"	4"	51"-65"	6"
27"-36"	5"	73"-102"	7"
42"-54"	6"		
60"-72"	7"		
78"-90"	8"		



PROFILE



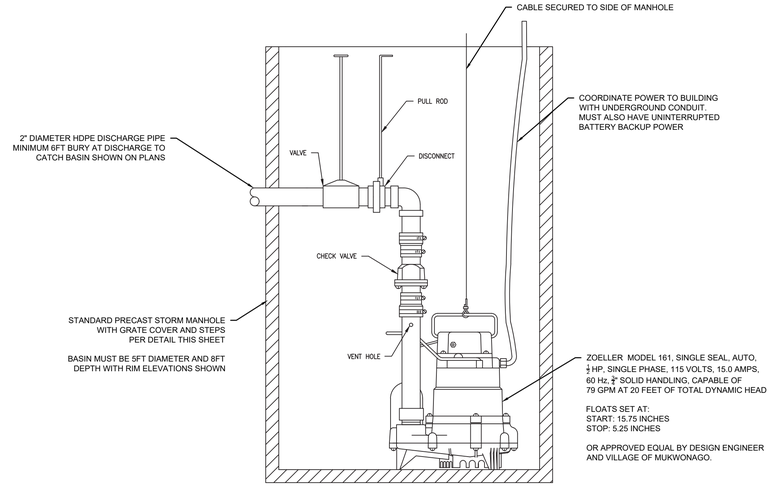
FRONT

NOTE:

1. REFER TO VILLAGE STANDARD SPECIFICATIONS FOR STORM SEWER.
2. SECURE THE LAST TWO PIPE SECTIONS, INCLUDING END SECTIONS, USING JOINT TIES.

	PIPE SIZE	BOLT DIA.	BAR DIA.
ROUND	12"-24"	5/8"	3/4"
	27"-48"	3/4"	1"
	54"-90"	1"	1-1/4"
ARCH	22"-29"	5/8"	3/4"
	36"-59"	3/4"	1"
	65"-88"	1"	1-1/4"
ELLIPTICAL	14"-23"	5/8"	3/4"
	19"-30"	5/8"	3/4"
	24"-38"	3/4"	3/4"
	29"-45"	3/4"	3/4"
	34"-53"	3/4"	3/4"
	38"-60"	3/4"	3/4"
	43"-68"	1"	1"
	48"-76"	1"	1"
	53"-83"	1"	1"

STANDARD ENDWALL GRATE



EXTERIOR SUMP PUMP DETAIL

CLIENT

Teronomy
REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT

VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

STORM SEWER DETAILS

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

NO.	REVISION DESCRIPTION	REV DATE
05	VILLAGE COMMENTS	02/22/2021
06	VILLAGE COMMENTS	04/01/2021
07	VILLAGE COMMENTS	04/25/2021
08	SUBMITTAL	06/02/2025

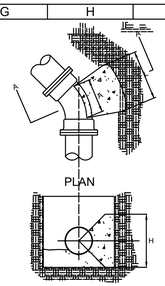
SCALE	
PROJECT NUMBER	1707331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	EJO
DESIGNED BY	RWC

SHEET NUMBER

53 OF 55

NOTES:

1. L (WATER)DIMENSIONS IN THE TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI, AN EARTH RESISTANCE OF 2 TONS PER SQ. FT., A FACTOR OF SAFETY OF 1.5 AND IS TO BE USED FOR STANDARD WATER MAINS AND WATER SERVICES.
2. L (FIRE)DIMENSIONS IN THE TABLE ARE BASED ON A WATER PRESSURE OF 200 PSI, AN EARTH RESISTANCE OF 2 TONS PER SQ. FT., A FACTOR OF SAFETY OF 1.5 AND IS TO BE USED FOR FIRE LINES AND COMBINATION FIRE / WATER SERVICES.
3. DIMENSION (A) SHOULD BE AS LARGE AS POSSIBLE WITHOUT INTERFERING WITH MECHANICAL JOINT BOLTS.
4. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH AND SURFACE AREA (H x L) MATCHES THAT LISTED IN THE TABLE.
5. IF IN-SITU SOILS HAVE AN EARTH RESISTANCE OF LESS THAN 2 TONS PER SQ. FT. THE BUTTRESS AREA SHALL BE INCREASED PROPORTIONALLY.
6. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.
7. REFER TO VILLAGE STANDARD SPECIFICATIONS FOR WATER MAIN.



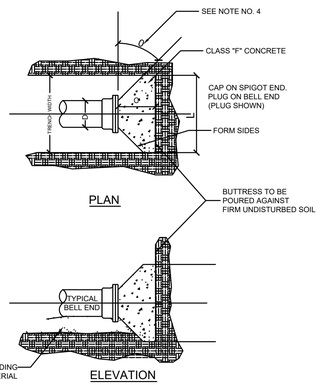
BUTTRESS DIMENSIONS

PIPE	11¼ DEG. BEND			22½ DEG. BEND			45 DEG. BEND			90 DEG. BEND		
SIZE	H	L (WATER)	L (FIRE)	H	L (WATER)	L (FIRE)	H	L (WATER)	L (FIRE)	H	L (WATER)	L (FIRE)
4"	0'-8"	0'-5"	0'-5"	1'-1"	0'-6"	0'-6"	1'-3"	0'-10"	0'-10"	1'-4"	1'-6"	1'-6"
6"	1'-2"	0'-6"	0'-6"	1'-6"	0'-9"	0'-9"	1'-8"	1'-4"	1'-4"	1'-10"	2'-2"	2'-2"
8"	1'-3"	0'-9"	0'-9"	2'-0"	1'-0"	1'-0"	2'-0"	1'-11"	1'-11"	2'-4"	3'-0"	3'-0"
10"	1'-3"	0'-10"	1'-2"	2'-0"	1'-1"	1'-5"	2'-0"	2'-1"	2'-9"	2'-4"	3'-4"	4'-5"
12"	1'-4"	1'-2"	1'-6"	2'-6"	1'-2"	1'-7"	2'-6"	2'-4"	3'-2"	2'-8"	4'-1"	5'-5"
14"	1'-6"	1'-4"	1'-10"	3'-0"	1'-4"	1'-10"	3'-0"	2'-8"	3'-6"	3'-0"	4'-11"	6'-6"
16"	2'-0"	1'-4"	1'-9"	3'-0"	1'-9"	2'-4"	3'-0"	3'-5"	4'-7"	3'-0"	6'-4"	8'-5"
18"	2'-6"	1'-4"	1'-9"	3'-6"	1'-10"	2'-6"	3'-6"	3'-8"	4'-11"	3'-6"	6'-9"	9'-1"
20"	2'-9"	1'-6"	2'-0"	3'-9"	2'-2"	2'-10"	3'-9"	4'-2"	5'-7"	3'-9"	7'-9"	10'-4"
24"	3'-0"	1'-11"	2'-7"	4'-3"	2'-8"	3'-7"	4'-3"	5'-4"	7'-1"	4'-4"	9'-7"	12'-10"

BUTTESS FOR BENDS DETAIL
N.T.S.

NOTES:

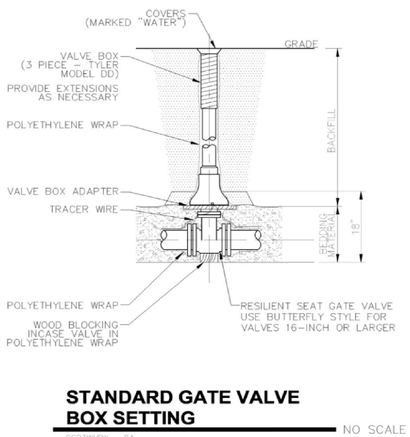
1. L (WATER)DIMENSIONS IN THE TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI, AN EARTH RESISTANCE OF 2 TONS PER SQ. FT., A FACTOR OF SAFETY OF 1.5 AND IS TO BE USED FOR STANDARD WATER MAINS AND WATER SERVICES.
2. L (FIRE)DIMENSIONS IN THE TABLE ARE BASED ON A WATER PRESSURE OF 200 PSI, AN EARTH RESISTANCE OF 2 TONS PER SQ. FT., A FACTOR OF SAFETY OF 1.5 AND IS TO BE USED FOR FIRE LINES AND COMBINATION FIRE / WATER SERVICES.
3. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH AND SURFACE AREA (H x L) MATCHES THAT LISTED IN THE TABLE.
4. DIMENSION "C" SHOULD BE LARGE ENOUGH TO MAKE ANGLE "0" EQUAL TO OR LARGER THAN 45 DEG.
5. DIMENSION "D" EQUALS APPROX. I.D. OF PIPE LESS 2", AN EFFORT SHOULD BE MADE TO PREVENT CONCRETE FROM COVERING THE MECHANICAL JOINT BOLTS.
6. WHERE BUTTRESSES ARE NOT POSSIBLE BECAUSE OF POOR SOIL CONDITIONS OR LACK OF ROOM, STRAPPING SHALL BE PERMITTED IF APPROVED BY THE VILLAGE.
7. IF IN-SITU SOILS HAVE AN EARTH RESISTANCE OF LESS THAN 2 TONS PER SQ. FT. THE BUTTRESS AREA SHALL BE INCREASED PROPORTIONALLY.
8. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.
9. REFER TO VILLAGE STANDARD SPECIFICATIONS FOR WATER MAIN.



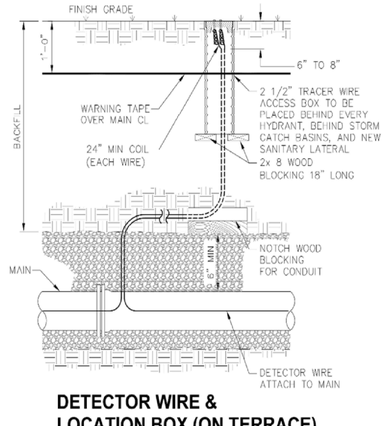
BUTTRESS DIMENSIONS

PIPE	DEAD ENDS		
SIZE	H	L (WATER)	L (FIRE)
4"	1'-6"	1'-0"	1'-0"
6"	1'-8"	1'-9"	1'-9"
8"	2'-4"	2'-0"	2'-1"
10"	2'-4"	2'-4"	3'-1"
12"	2'-7"	3'-0"	4'-0"
14"	2'-10"	3'-8"	4'-10"
16"	2'-10"	4'-9"	6'-4"
18"	3'-6"	4'-10"	6'-5"
20"	3'-10"	5'-5"	7'-2"
24"	4'-8"	6'-2"	8'-3"

BUTTESS FOR DEAD ENDS DETAIL
N.T.S.



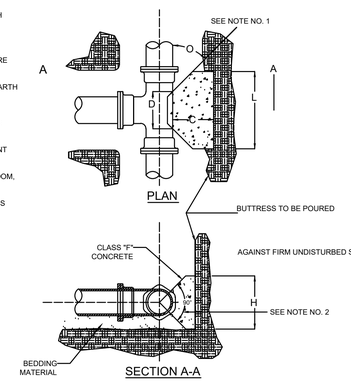
STANDARD GATE VALVE BOX SETTING NO SCALE
CGDTWVBX 24



DETECTOR WIRE & LOCATION BOX (ON TERRACE) NO SCALE
02530LOCT 16

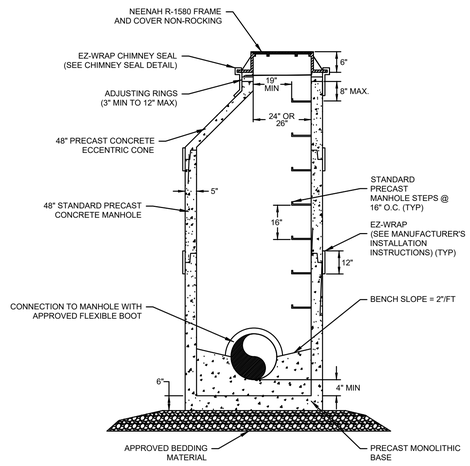
NOTES:

1. L (WATER)DIMENSIONS IN THE TABLE ARE BASED ON A WATER PRESSURE OF 150 PSI, AN EARTH RESISTANCE OF 2 TONS PER SQ. FT., A FACTOR OF SAFETY OF 1.5 AND IS TO BE USED FOR STANDARD WATER MAINS AND WATER SERVICES.
2. L (FIRE)DIMENSIONS IN THE TABLE ARE BASED ON A WATER PRESSURE OF 200 PSI, AN EARTH RESISTANCE OF 2 TONS PER SQ. FT., A FACTOR OF SAFETY OF 1.5 AND IS TO BE USED FOR FIRE LINES AND COMBINATION FIRE / WATER SERVICES.
3. SHAPE OF BACK OF BUTTRESS MAY VARY AS LONG AS POUR IS AGAINST FIRM UNDISTURBED EARTH AND SURFACE AREA (H x L) MATCHES THAT LISTED IN THE TABLE. CONCRETE SHALL BEAR ON FITTINGS AS SHOWN.
4. DIMENSION "C" SHOULD BE LARGE ENOUGH TO MAKE ANGLE "0" EQUAL TO OR LARGER THAN 45 DEG.
5. DIMENSION "D" EQUALS APPROX. I.D. OF PIPE LESS 2", AN EFFORT SHOULD BE MADE TO PREVENT CONCRETE FROM COVERING THE MECHANICAL JOINT BOLTS.
6. WHERE BUTTRESSES ARE NOT POSSIBLE BECAUSE OF POOR SOIL CONDITIONS OR LACK OF ROOM, STRAPPING SHALL BE PERMITTED IF APPROVED BY THE VILLAGE.
7. IF IN-SITU SOILS HAVE AN EARTH RESISTANCE OF LESS THAN 2 TONS PER SQ. FT. THE BUTTRESS AREA SHALL BE INCREASED PROPORTIONALLY.
8. ALL DUCTILE IRON PIPE AND FITTINGS SHALL BE WRAPPED IN POLYETHYLENE.
9. REFER TO VILLAGE STANDARD SPECIFICATIONS FOR WATER MAIN.



PIPE	TEE		
SIZE	H	L (WATER)	L (FIRE)
4"	1'-8"	1'-0"	1'-0"
6"	1'-8"	1'-9"	1'-9"
8"	2'-4"	2'-0"	2'-1"
10"	2'-4"	2'-4"	3'-1"
12"	2'-7"	3'-0"	4'-0"
14"	2'-10"	3'-8"	4'-10"
16"	2'-10"	4'-9"	6'-4"
18"	3'-6"	4'-10"	6'-5"
20"	3'-10"	5'-5"	7'-2"
24"	4'-8"	6'-2"	8'-3"

BUTTESS FOR TEES DETAIL
N.T.S.



STANDARD SANITARY MANHOLE DETAIL
N.T.S.

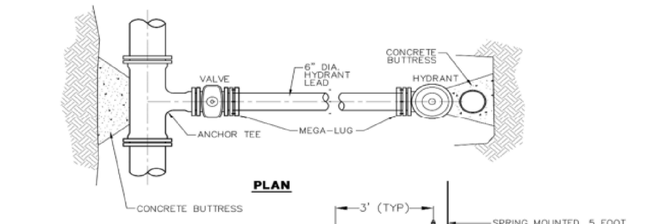
VILLAGE OF MUKWONAGO SPECIFICATIONS:

LOCATION AIDS
1. Contractor shall provide and install warning tape 18 inches above pipe.
2. Contractor shall provide and attach detector wire with tape at a maximum of 6 inches directly above.
3. Warning tape and detector wire shall be provided for the following:
   a. Force Mains
   b. Water mains and services
   c. Sanitary sewers and laterals
   d. Pressure sewers and laterals
   e. Storm sewer and laterals
4. Contractor shall demonstrate continuity of detector wires to the Mukwonago Utilities.
5. Provide a temporary above-ground wire between adjacent marker posts, and location boxes. Connect ohm meter in a series loop with detector wire and above ground wire. Circuit resistance shall not exceed 5 ohms. Demonstration shall occur prior to placement of base course in paved areas and restoration in lawn areas.
6. Do not splice between marker posts and location boxes without Village's approval except at laterals and services. Follow SWS 4.3.14.
7. Provide and install one-pound anode a minimum of 1 foot to the side of termination of main or service/lateral where detector wire end is buried.
8. Location of water, sanitary sewer, force main, and storm sewer in utility easements shall be marked at all change of direction and every 400 feet with fiberglass marker posts.

Warning Tape
1. Use TERRA TAPE EXTRA STRENGTH 540, by Reed Industries, Inc or Shieldtec by Empire Level Manufacturing Corporation.
2. Tape width 3 inches.
3. Contractor shall follow State Statutes 182.0157 and ANSI Standards 253.1.
4. Tape color and verbiage:
   a. Water: Blue. "CAUTION: WATER LINE BELOW".
   b. Sanitary: Green.
      i. Gravity: "CAUTION-SANITARY LINE BURIED BELOW".
      ii. Pressure sewer or force main: "CAUTION-BURIED PRESSURE SEWAGE FORCE MAIN".
   c. Storm: Brown. "CAUTION-BURIED STORM LINE DRAIN".
   d. Non-potable Water: Purple.

Detector Wire
1. Contractor shall follow SWS 4.3.14 for detector wire.
2. For open cut construction, Contractor shall provide and install direct-burial-rated insulated AWG #10 copper conductor wire.
3. For trenchless installation, Contractor shall provide and install aircraft cable, nylon-coated stainlesssteel, 3/8 inch diameter wire.
4. Splices shall follow SWS Drawing File No.24B.
5. Connections can be made with gel caps. Copperhead Drycon or comparable approved by Village Engineer and Utility Director shall be used.

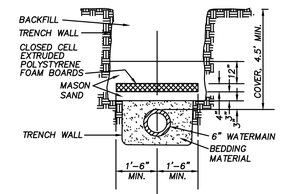
Location Boxes and Marker Posts
1. Contractor shall provide and install water system location boxes behind each hydrant. The location box shall not exceed the bottom flange of hydrant.
2. Contractor shall provide and install water system location boxes at each curb stop and at a maximum spacing of 500 feet.
3. Contractor shall provide and install location boxes at the right of way line for all laterals.
4. Contractor shall provide and install force main and pressure sewer marker posts and location boxes at 500 foot maximum spacing and at all changes in horizontal alignment. Marker posts are not required in paved areas.
5. Contractor shall provide and install location boxes where a sewer lateral and water lateral are installed in a common trench, terminate sewer and water detector wire in a common location box at curb box.
6. Sanitary sewer and storm sewer location boxes shall be top section valve box, size DD, 26 inch length, with cover marked "SEWER" and hardwood blocking.
7. Water, sanitary sewer and storm sewer lateral location boxes shall be tracer wire access box (Valvco, Inc.) with cover marked "SEWER" for sewer and "WATER" for water, Include hardwood blocking.
8. Sanitary sewer and storm sewer marker posts shall be "Rib Bak" U-channeled by Marion Steel Company, Marion, Ohio. Marker posts shall have hot-dipped galvanized finish and weigh 3 pounds per foot.



NOTE :
REFER TO FILE NO. 38 OF THE "STANDARD SPECIFICATIONS FOR SEWER AND WATER CONSTRUCTION IN WISCONSIN" FOR FURTHER INFORMATION

HYDRANT LEADS SHALL BE RESTRAINED

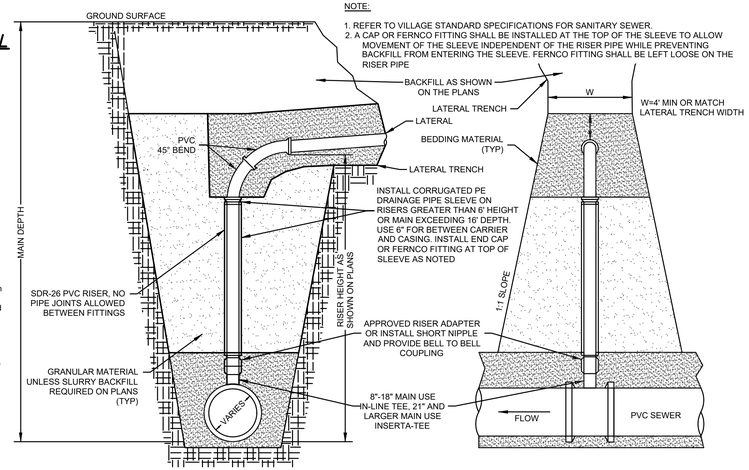
HYDRANT SETTING DETAIL NO SCALE
CGDTHYD 24



WATER INSULATION DETAIL

CONSTRUCTION SHALL CONFORM TO SEWER AND WATER SPECIFICATIONS IN WISCONSIN SECTIONS 8.50, 5.5.20, & 4.17

NOTE:
1. REFER TO VILLAGE STANDARD SPECIFICATIONS FOR SANITARY SEWER.
2. A CAP OR FERNCO FITTING SHALL BE INSTALLED AT THE TOP OF THE SLEEVE TO ALLOW MOVEMENT OF THE SLEEVE INDEPENDENT OF THE RISER PIPE WHILE PREVENTING BACKFILL FROM ENTERING THE SLEEVE. FERNCO FITTING SHALL BE LEFT LOOSE ON THE RISER PIPE



SANITARY RISER DETAIL
N.T.S.

CLIENT

Teronomy REAL ESTATE MANAGEMENT

MAPLE CENTRE DEVELOPMENT
VILLAGE OF MUKWONAGO WAUKESHA COUNTY, WI

UTILITY DETAIL

CIVIL DESIGN PLANS

CARDINAL ENGINEERING LLC
DESIGNING IN TRUE DIRECTIONS

1200 LA SALLE STREET
LAKE GENEVA, WI 53147
262-757-8776
CARDINALENGINEERINGWI.COM

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SCALE	
PROJECT NUMBER	1707331
DATE	09/30/2021
PROJECT MGR	RYAN CARDINAL, PE
DRAWN BY	EJO
DESIGNED BY	RWC

SHEET NUMBER
54 OF 55

CONSTRUCTION NOTES

1. THE LANDOWNER OR THEIR AUTHORIZED AGENT SHALL KEEP APPROVED PLAN AND EROSION CONTROL INSPECTION RECORDS ONSITE AT ALL TIMES UNTIL THE SITE IS STABILIZED AND NOTICE OF TERMINATION FILED.
2. CHANGES TO THIS PLAN MUST BE APPROVED BY VILLAGE OF MUKWONAGO AND ENGINEER, PRIOR TO IMPLEMENTATION.
3. AT A MINIMUM, CONSTRUCTION SITE EROSION CONTROL INSPECTIONS SHALL BE CONDUCTED WEEKLY, AND WITHIN 24 HOURS OF AFTER A PRECIPITATION EVENT OF 0.5 INCH OR GREATER. A PRECIPITATION EVENT MAY BE CONSIDERED TO BE THE TOTAL AMOUNT OF PRECIPITATION IN ANY CONTINUOUS 24–HOUR PERIOD. CONTINUE THROUGH STABILIZATION.
4. MAINTAIN INSPECTION RECORDS WITH FORM 3400–017, CURRENT REVISION, OR DOCUMENT WITH EQUIVALENT INFORMATION AS PER NR 216.48(4)(c). RECORDS SHALL BE KEPT ONSITE AND AVAILABLE UPON REQUEST.
5. ALL EQUIPMENT USED FOR THE PROJECT SHALL BE DE–CONTAMINATED FOR INVASIVE AND EXOTIC VIRUSES AND SPECIES PRIOR TO AND AFTER USE. FOLLOW MOST RECENT DEPARTMENT APPROVED WASHING AND DISINFECTION PROTOCOLS AND DEPARTMENT APPROVED BEST MANAGEMENT PRACTICES.
6. WHEN POSSIBLE: PRESERVE EXISTING VEGETATION (ESPECIALLY ADJACENT TO SURFACE WATERS), MINIMIZE LAND–DISTURBING CONSTRUCTION ACTIVITY ON SLOPES OF 20% OR MORE, MINIMIZE SOIL COMPACTION, AND PRESERVE TOPSOIL.
7. IN THE EVENT DEWATERING BECOMES NECESSARY, NOTIFY ENGINEER IMMEDIATELY, AND OBTAIN APPROPRIATE PERMITS PRIOR TO CONTINUING WORK.
8. IMMEDIATELY STABILIZE STOCKPILES AND SURROUND STOCKPILES AS NEEDED WITH SILT FENCE OR OTHER PERIMETER CONTROL IF STOCKPILES WILL REMAIN INACTIVE FOR 7 DAYS OR LONGER.
9. IMMEDIATELY STABILIZE ALL DISTURBED AREAS THAT WILL REMAIN INACTIVE FOR 14 DAYS OR LONGER. BETWEEN SEPTEMBER 15 AND OCTOBER 15: STABILIZE WITH MULCH, TACKIFIER, AND A PERENNIAL SEED WITH WINTER WHEAT, ANNUAL OATS, OR ANNUAL RYE, AS APPROPRIATE FOR REGION AND SOIL TYPE. OCTOBER 15 THROUGH COLD WEATHER: STABILIZE WITH A POLYMER AND DORMANT SEED MIX, AS APPROPRIATE FOR REGION AND SOIL TYPE.
10. STABILIZE AREAS OF FINAL GRADING WITHIN 7 DAYS OF REACHING FINAL GRADE. MONITOR FOR ONE YEAR AFTER PROJECT COMPLETION. DURING MONITORING PERIOD, THE GRADING SITE SHALL BE INSPECTED REGULARLY, AND ANY AREAS REQUIRING ADDITIONAL STABILIZATION OR REVEGETATION SHALL BE ADDRESSED TO ENSURE FINAL STABILIZATION.
11. EROSION CONTROL MEASURES SHALL BE REMOVED ONCE THE AREAS THEY SERVE HAVE ACHIEVED 70% GROWTH AND THAT THE CONTRACTOR MUST SEEK APPROVAL FROM THE ENGINEER AND THE VILLAGE OF MUKWONAGO, PRIOR TO REMOVING THE MEASURES.
12. ONE YEAR AFTER PROJECT COMPLETION, A REPORT AND PHOTOGRAPHS SHALL BE SUBMITTED TO THE DEPARTMENT TO DEMONSTRATE THAT THE GRADING SITE IS STABILIZED. IF AFTER ONE YEAR, FINAL STABILIZATION HAS NOT BEEN ACHIEVED OR MAINTAINED, THE DEPARTMENT MAY REQUIRE THE LANDOWNER TO SUBMIT A REVISED VEGETATION PLAN TO THE DEPARTMENT, AND IMPLEMENT THE REVISED PLAN.
13. SWEEP/CLEAN UP ALL SEDIMENT/TRASH THAT MOVES OFF–SITE DUE TO CONSTRUCTION ACTIVITY OR STORM EVENTS BEFORE THE END OF THE SAME WORKDAY OR AS DIRECTED BY THE VILLAGE OF MUKWONAGO. SEPARATE SWEPT MATERIALS (SOILS AND TRASH) AND DISPOSE OF APPROPRIATELY.
14. PROPERLY DISPOSE OF ALL WASTE AND UNUSED BUILDING MATERIALS (INCLUDING GARBAGE, DEBRIS, CLEANING WASTES, OR OTHER CONSTRUCTION MATERIALS) AND DO NOT ALLOW THESE MATERIALS TO BE CARRIED BY RUNOFF INTO RECEIVING CHANNEL.
15. MAKE PROVISIONS FOR WATERING THE FIRST 8 WEEKS FOLLOWING SEEDING OR PLANTING OF DISTURBED AREAS WHENEVER MORE THAN 7 CONSECUTIVE DAYS OF DRY WEATHER OCCUR.
16. INSTALL ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES AS NEEDED (SUCH AS TEMPORARY SEDIMENT BASINS, DITCH CHECKS, EROSION CONTROL MATTING, SILT FENCING, FILTER SOCKS, WATTLES, SWALES, ETC.), OR AS DIRECTED BY THE ENGINEER OR VILLAGE OF MUKWONAGO, OR WAUKESHA COUNTY.
17. NO DEWATERING IS EXPECTED.IF GROUNDWATER IS ENCOUNTERED DURING CONSTRUCTION AND DEWATERING BECOMES NECESSARY, THE CONTRACTOR MUST STOP WORK AND PREPARE A DEWATERING PLAN TO SUBMIT TO DESIGN ENGINEER FOR VILLAGE AND DNR APPROVAL. MUST COMPLY WITH WISCONSIN DNR TECHNICAL STANDARD 1061. CONTRACTOR MAY ALSO SUBMIT DEWATERING PLAN DURING PRECONSTRUCTION SUBMITTAL REVIEW PROCESS TO HAVE PLAN ACCEPTED FOR SCHEDULING PURPOSES IN CASE GROUNDWATER IS ENCOUNTERED.
18. CONTRACTOR MUST SUBMIT SPILLS AND LEAK CONTAINMENT PLAN FOR REVIEW AND APPROVAL DURING PRECONSTRUCTION PROCESS PRIOR TO BEGINNING ANY WORK. SPECIFIC ATTENTION SHALL BE ADDRESSED TO WORK WITHIN THE VICINITY OF THE WETLANDS.
19. SEE SHEET 2 FOR CONSTRUCTION AND EROSION CONTROL SEQUENCING.

EROSION CONTROL NOTES

THE FOLLOWING EROSION CONTROL SPECIFICATIONS SHALL BE FOLLOWED FOR THIS PROJECT.

1. THESE BEST MANAGEMENT PRACTICES SHALL BE INSTALLED PRIOR TO ANY LAND DISTURBANCE ACTIVITIES.

1.1. SILT FENCE: SEE TECHNICAL STANDARD 1056 FOR FURTHER GUIDANCE.

1.1.A. SILT FENCE SHALL BE PLACED ON THE CONTOUR, NOT PERPENDICULAR TO THE CONTOUR.
1.1.B. THE ENDS OF THE FENCE SHALL BE EXTENDED UPSLOPE TO PREVENT WATER FROM FLOWING AROUND THE ENDS OF THE FENCE.
1.1.C. INSTALLED SILT FENCE SHALL BE MINIMUM 14 INCHES HIGH AND SHALL NOT EXCEED 28 INCHES IN HEIGHT MEASURED FROM THE INSTALLED GROUND ELEVATION.
1.1.D. SILT FENCES SHALL BE SUPPORTED BY WOOD SUPPORTS. FOR STEEL SUPPORTS, SEE FURTHER GUIDANCE IN WDNR TECHNICAL STANDARD 1056. THE FULL HEIGHT SHALL BE SUPPORTED BY 1–1/8" BY 1–1/8" AIR OR KILN DRIED POSTS OF HICKORY OR OAK.
1.1.E. THE FABRIC SHALL BE STAPLED, USING AT LEAST 0.5–INCH STAPLES, TO THE UPSLOPE SIDE OF THE POSTS IN AT LEAST 3 PLACES. THE POSTS SHALL BE A MINIMUM 3 FEET LONG FOR 24–INCH SILT FENCE AND 4 FEET FOR 36–INCH SILT FENCE FABRIC.
1.1.F. THE SILT FENCE SHALL BE ANCHORED BY SPREADING AT LEAST 8 INCHES OF THE FABRIC IN A 4–INCH WIDE BY 6–INCH DEEP TRENCH, OR A S 6–INCH DEEP V–TRENCH ON THE UPSLOPE SIDE OF THE FENCE. THE TRENCH SHALL BE BACKFILLED AND COMPACTED. TRENCHES SHALL NOT BE EXCAVATED WIDER AND DEEPER THAN NECESSARY FOR PROPER INSTALLATION. ON THE TERMINAL ENDS OF SILT FENCE, THE FABRIC SHALL BE WRAPPED AROUND THE POST SUCH THAT THE STAPLES ARE NOT VISIBLE.
1.1.G. THE GEOTEXTILE FABRIC SHALL BE LISTED ON THE WSDOT PAL, OR AS DETAILED ON WDNR TECHNICAL STANDARD 1056.
1.1.H. SILT FENCES SHALL BE REMOVED ONCE THE DISTURBED AREA IS PERMANENTLY STABILIZED AND NO LONGER SUSCEPTIBLE TO EROSION.

1.2. TRACKING PAD: SEE TECHNICAL STANDARD 1057 FOR FURTHER GUIDANCE

1.2.A. THE TRACKING PAD SHALL BE INSTALLED PRIOR TO ANY TRAFFIC LEAVING THE SITE.
1.2.B. THE AGGREGATE FOR TRACKING PADS SHALL BE 3 TO 6 INCH CLEAR OR WASHED STONE. ALL MATERIAL TO BE RETAINED ON A 3–INCH SIEVE.
1.2.C. THE AGGREGATE SHALL BE PLACED IN A LAYER AT LEAST 12 INCHES THICK. ON SITES WITH A HIGH WATER TABLE, OR WHERE SATURATED CONDITIONS ARE EXPECTED DURING THE LIFE OF THE PRACTICE, STONE TRACKING PADS SHALL BE UNDERLAIN WITH A WSDOT TYPE R GEOTEXTILE FABRIC TO PREVENT MIGRATION OF UNDERLYING SOIL INTO THE STONE.
1.2.D. THE TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT. THE TRACKING PAD SHALL BE AT A MINIMUM 50 FEET LONG.
1.2.E. SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY FROM TRACKING PADS OR CONVEYED UNDER AND AROUND THEM BY USING A VARIETY OF PRACTICES, SUCH AS CULVERTS, WATER BARS, OR OTHER SIMILAR PRACTICES.
1.2.F. IF CONDITIONS ON THE SITE ARE SUCH THAT THE SEDIMENT IS NOT REMOVED FROM VEHICLE TIRES BY THE TRACKING PAD, THEN TIRES SHALL BE WASHED UTILIZING PRESSURIZED WATER BEFORE ENTERING A PUBLIC ROADS.
1.2.G. THE WASHING STATION SHALL BE LOCATED ON–SITE IN AN AREA THAT IS STABILIZED AND DRAINS INTO SUITABLE SEDIMENT TRAPPING OR SETTLING DEVICE.
1.2.H. THE WASH RACK SHALL CONSIST OF A HEAVY GRATING OVER A LOWERED AREA. THE RACK SHALL BE STRONG ENOUGH TO SUPPORT THE VEHICLES THAT WILL CROSS IT.
1.2.I. ROCKS LODGED BETWEEN THE TIRES OF DUAL WHEEL VEHICLES SHALL BE REMOVED PRIOR TO LEAVING THE CONSTRUCTION SITE.

2. THE FOLLOWING MEASURES SHALL BE FOLLOWED DURING ALL LAND DISTURBING OPERATIONS.

2.1. DUST CONTROL: SEE TECHNICAL STANDARD 1068 FOR FURTHER GUIDANCE.

2.1.A. THE IMPLEMENTATION OF DUST CONTROL SHALL LIMIT THE AREA EXPOSED FOR DUST GENERATION.
2.1.B. ASPHALT AND PETROLEUM BASED PRODUCTS CANNOT BE USED FOR DUST CONTROL.
2.1.C. MUCH AND VEGETATION – MUCH OR SEED AND MULCH MAY BE APPLIED TO PROTECT EXPOSED SOIL FROM BOTH THE WIND AND WATER EROSION, PER APPROPRIATE TECHNICAL STANDARDS.
2.1.D. WATER – WATER UNTIL THE SURFACE IS WET AND REPEAT AS NEEDED. WATER SHALL BE APPLIED AT RATES SO THAT RUNOFF DOES NOT OCCUR. TREATED SOIL SURFACES THAT RECEIVE VEHICLE TRAFFIC REQUIRE A STONE TRACKING PAD OR TIRE WASHING AT ALL POINTS OF ACCESS.
2.1.E. TILLAGE – A CONTROL MEASURE PERFORMED WITH CHISEL TYPE PLOWS ON EXPOSED SOILS. TILLAGE SHALL BEGIN ON THE WINDWARD SIDE OF THE SITE. TILLAGE IS ONLY APPLICABLE TO FLAT AREAS.
2.1.F. POLYMERS – POLYMERS CAN BE AN EFFECTIVE PRACTICE FOR AREAS THAT DO NOT RECEIVE VEHICLE TRAFFIC. DRY APPLIED POLYMERS MUST BE INITIALLY WATERED FOR ACTIVATION TO BE EFFECTIVE FOR DUST CONTROL.
2.1.G. TACKIFIERS AND SOIL STABILIZERS TYPE A – PRODUCTS MUST BE SELECTED FROM AND INSTALLED AT RATES CONFORMING TO THE WSDOT EROSION CONTROL PAL.
2.1.H. CHLORIDES – CHLORIDES SHALL BE APPLIED ACCORDING TO THE MOST RECENT VERSION OF THE WSDOT STANDARD SPECIFICATIONS FOR HIGHWAY AND BRIDGE CONSTRUCTION.
2.1.I. BARRIERS – BARRIERS SHALL BE PLACED AT RIGHT ANGLES TO PREVAILING WIND CURRENTS AT INTERVALS OF ABOUT 15 TIMES THE BARRIER HEIGHT. SOLID BOARD FENCES, SNOW FENCES, BURLAP FENCES, CRATE WALLS, BALES OF HAY AND SIMILAR MATERIAL CAN BE USED TO CONTROL AIR CURRENTS AND BLOWN SOIL.

3. THE FOLLOWING MEASURES SHALL BE FOLLOWED UPON TEMPORARY AND FINAL SITE RESTORATION

3.1. SITE SEEDING: SEE TECHNICAL STANDARD 1059 FOR FURTHER GUIDANCE.

3.1.A. TEMPORARY SEEDING REQUIRES A SEEDBED OF LOOSE SOIL TO A MINIMUM DEPTH OF 2–INCHES.
3.1.B. FERTILIZER APPLICATION IS NOT GENERALLY REQUIRED FOR TEMPORARY SEEDING. HOWEVER, ANY APPLICATION OF FERTILIZER OR LIME SHALL BE BASED ON SOIL TESTING RESULTS.
3.1.C. THE SOIL SHALL HAVE A pH RANGE OF 5.5 TO 8.0
3.1.D. TOPSOIL INSTALLATION SHALL BE COMPLETED PRIOR TO PERMANENT SEEDING
3.1.E. PERMANENT SEEDING REQUIRES A SEEDBED OF LOOSE TOPSOIL TO A MINIMUM DEPTH OF 4–INCHES WITH THE ABILITY TO SUPPORT A DENSE VEGETATIVE COVER.
3.1.F. APPLICATION RATES OF FERTILIZER OR LIME SHALL BE BASED ON SOIL TESTING RESULTS.
3.1.G. PREPARE A TILLED, FINE BUT FIRM SEEDBED. REMOVE ROCKS, TWIGS, FOREIGN MATERIAL AND CLODS OVER TWO INCHES THAT CANNOT BE BROKEN DOWN.
3.1.H. THE SOIL SHALL HAVE A pH RANGE OF 5.5 TO 8.0
3.1.I. SEE MIXTURES THAT WILL PRODUCE DENSE VEGETATION SHALL BE SELECTED BASED ON SOIL AND SITE CONDITIONS AND INTENDED FINAL USE.
3.1.J. SEED MIXTURES THAT CONTAIN POTENTIALLY INVASIVE SPECIES OR SPECIES THAT MAY BE HARMFUL TO NATIVE PLANT COMMUNITIES SHALL BE AVOIDED.
3.1.K. SEED SHALL NOT BE USED LATER THAN ONE YEAR AFTER THE TEST DATE THAT APPEARS ON THE LABEL.
3.1.L. SEED RATES, INOCULATION, AND SOWING, SHALL ALL CONFORM TO THE TECHNICAL STANDARD, MANUFACTURERS RECOMMENDATIONS, AND THE WSDOT PAL.

3.2. NON–CHANNEL EROSION MAT: SEE TECHNICAL STANDARD 1052 FOR FURTHER GUIDANCE.

3.2.A. ONLY WSDOT PAL APPROVED MATS WILL BE ACCEPTED FOR THIS PROJECT. SEE THE PAL FOR ACCEPTABLE SLOPE AND SLOPE LENGTH APPLICATIONS. TO DIFFERENTIATE APPLICATIONS, EROSION MATS ARE ORGANIZED INTO THREE CLASSES OF MATS, WHICH ARE FURTHER BROKEN DOWN INTO VARIOUS TYPES. FOLLOW THE INFORMATION CALLED FOR IN THE PLANS AND SPECIFICATIONS PROVIDED HEREIN AND IN THE WSDOT PAL.
3.2.B. ECRM'S SHALL BE INSTALLED AFTER ALL TOPSOILING, FERTILIZING, LIMING, AND SEEDING IS COMPLETE.
3.2.C. THE MAT SHALL BE IN FIRM AND INTIMATE CONTACT WITH THE SOIL. IT SHALL BE INSTALLED AND ANCHORED PER THE MANUFACTURER'S RECOMMENDATION.
3.2.D. TRM SHALL BE INSTALLED IN CONJUNCTION WITH THE TOPSOILING OPERATION AND SHALL BE FOLLOWED BY ECRM INSTALLATION.
3.2.E. AT TIME OF INSTALLATION, DOCUMENT THE MANUFACTURER AND MAT TYPE BY RETENTION OF MATERIAL LABELS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS. RETAIN THIS DOCUMENTATION UNTIL THE SITE HAS BEEN STABILIZED.

STRUCTURE INFORMATION								PIPE INFORMATION					
NAME	STRUCTURE	FRAME AND GRATE STYLE	NEENAH COVER	RIM ELEVATION	SUMP ELEVATION	TOTAL STRUCTURE HEIGHT (FT)	RIM TO HIGHEST CROWN (FT)	PIPE DIAMETER (INCHES)	DIRECTION	FLOW DIRECTION	INVERT ELEVATION	CROWN	MATERIAL
CB-11	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	805.80	800.80	5.00	2.00	12	SE	OUT	802.80	803.80	RCP
CB-10	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	804.03	798.96	5.07	2.07	12	NW	IN	800.96	801.96	RCP
								12	S	OUT	800.96	801.96	RCP
CB-9	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	803.94	797.67	6.27	3.27	12	NW	IN	799.67	800.67	RCP
								12	S	OUT	799.67	800.67	RCP
CB-7	48" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	804.69	790.70	13.99	10.49	12	N	IN	793.20	794.20	RCP
								18	W	IN	792.70	794.20	RCP
								18	SE	OUT	792.70	794.20	RCP
CB-8	48" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	797.75	792.20	5.55	2.05	18	E	OUT	794.20	795.70	RCP
CB-6	48" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	798.95	789.20	9.75	5.75	18	NW	IN	791.70	793.20	RCP
								24	E	OUT	791.20	793.20	RCP
CB-5	48" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	793.98	787.89	6.09	2.09	24	W	IN	789.89	791.89	RCP
								24	E	OUT	789.89	791.89	RCP
CB-4	60" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	794.04	787.45	6.59	2.59	24	W	IN	789.45	791.45	RCP
								24	N	OUT	789.45	791.45	RCP
SP-3	60" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	787.75	779.75	8.00	6.00	1.25	E	OUT	781.65	781.75	HDPE
CB-2	60" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	794.02	786.90	7.12	2.62	24	S	IN	789.60	791.60	RCP
								12	NW	IN	790.40	791.40	RCP
								30	E	OUT	788.90	791.40	RCP
CB-3	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	797.25	786.90	10.35	2.00	12	SE	OUT	794.25	795.25	RCP
CB-1	60" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	796.06	786.75	9.31	4.81	30	W	IN	788.75	791.25	RCP
								30	NE	OUT	788.75	791.25	RCP
RISER-2	60" DIAMTER - 24" DIA. COVER OPENING	BEEHIVE	R-2560-EA	790.00	779.62	10.38	5.88	30	SW	IN	781.62	784.12	RCP
								30	NE	OUT	781.62	784.12	RCP
RISER-1	60" DIAMTER - 24" DIA. COVER OPENING	BEEHIVE	R-2560-EA	790.00	779.69	10.31	5.81	30	SW	IN	781.69	784.19	RCP
								30	NE	OUT	781.69	784.19	RCP
FES-1	FLARED END SECTION	NONE	NONE	NONE	NONE	NONE	NONE	30	SW	IN	788.60	791.10	RCP

STRUCTURE INFORMATION								PIPE INFORMATION					
NAME	STRUCTURE	FRAME AND GRATE STYLE	NEENAH COVER	RIM ELEVATION	SUMP ELEVATION	TOTAL STRUCTURE HEIGHT (FT)	RIM TO HIGHEST CROWN (FT)	PIPE DIAMETER (INCHES)	DIRECTION	FLOW DIRECTION	INVERT ELEVATION	CROWN	MATERIAL
CB-16	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	803.61	798.36	5.25	2.00	15	SE	OUT	800.36	801.61	RCP
CB-14	60" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	795.90	789.59	6.31	2.81	15	NW	IN	791.84	793.09	RCP
								12	N	IN	792.09	793.09	RCP
								18	NE	OUT	791.59	793.09	RCP
CB-15	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	796.50	791.50	5.00	2.00	12	S	OUT	793.50	794.50	RCP
CB-12	60" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	793.29	787.78	5.51	2.01	12	W	IN	790.03	791.03	RCP
								18	SW	IN	789.78	791.28	RCP
								18	E	OUT	789.78	791.28	RCP
CB-13	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	793.19	788.19	5.00	2.00	12	E	OUT	790.19	791.19	RCP
SP-2	72" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	786.75	774.75	12.00	6.00	1.25	E	OUT	780.65	780.75	HDPE
RISER-4	48" DIAMTER - 24" DIA. COVER OPENING	BEEHIVE	R-2560-EA	790.00	781.23	8.77	5.27	18	W	IN	783.23	784.73	RCP
								18	E	OUT	783.23	784.73	RCP
RISER-3	48" DIAMTER - 24" DIA. COVER OPENING	BEEHIVE	R-2560-EA	790.00	780.85	9.15	5.65	18	W	IN	782.85	784.35	RCP
								18	E	OUT	782.85	784.35	RCP
FES-2	FLARED END SECTION	NONE	NONE	NONE	NONE	NONE	NONE	18	N	IN	788.60	790.10	RCP

STRUCTURE INFORMATION								PIPE INFORMATION					
NAME	STRUCTURE	FRAME AND GRATE STYLE	NEENAH COVER	RIM ELEVATION	SUMP ELEVATION	TOTAL STRUCTURE HEIGHT (FT)	RIM TO HIGHEST CROWN (FT)	PIPE DIAMETER (INCHES)	DIRECTION	FLOW DIRECTION	INVERT ELEVATION	CROWN	MATERIAL
CB-22	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	803.61	798.63	4.98	1.98	12	N	OUT	800.63	801.63	RCP
CB-20	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	802.33	793.56	8.77	5.52	12	W	IN	795.81	796.81	RCP
								12	S	IN	795.81	796.81	RCP
								15	NE	OUT	795.56	796.81	RCP
CB-21	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	799.85	794.85	5.00	2.00	12	E	OUT	796.85	797.85	RCP
CB-18	72" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	804.05	791.55	12.50	9.00	18	W	IN	793.55	795.05	RCP
								15	SW	IN	793.80	795.05	RCP
								18	E	OUT	793.55	795.05	RCP
CB-19	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	802.35	795.81	6.54	3.04	18	E	OUT	797.81	799.31	RCP
CB-17	48" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	792.80	787.05	5.75	2.25	18	W	IN	789.05	790.55	RCP
								24	E	OUT	789.05	791.05	RCP
RISER-6	48" DIAMETER - 24" DIA. COVER OPENING	BEEHIVE	R-2560-EA	790.00	781.97	8.03	4.03	24	W	IN	783.97	785.97	RCP
								24	E	OUT	783.97	785.97	RCP
RISER-5	48" DIAMETER - 24" DIA. COVER OPENING	BEEHIVE	R-2560-EA	790.00	780.16	9.84	5.84	24	W	IN	782.16	784.16	RCP
								24	E	OUT	782.16	784.16	RCP
FES-3	FLARED END SECTION	NONE	NONE	NONE	NONE	NONE	NONE	24	N	IN	788.60	790.60	RCP

STRUCTURE INFORMATION								PIPE INFORMATION					
NAME	STRUCTURE	FRAME AND GRATE STYLE	NEENAH COVER	RIM ELEVATION	SUMP ELEVATION	TOTAL STRUCTURE HEIGHT (FT)	RIM TO HIGHEST CROWN (FT)	PIPE DIAMETER (INCHES)	DIRECTION	FLOW DIRECTION	INVERT ELEVATION	CROWN	MATERIAL
CB-49	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	800.85	795.80	5.05	2.05	12	E	OUT	797.80	798.80	RCP
CB-48	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	800.37	794.46	5.91	2.66	12	N	IN	796.71	797.71	RCP
								15	S	OUT	796.46	797.71	RCP
FES-5	FLARED END SECTION	NONE	NONE	NONE	NONE	NONE	NONE	15	N	IN	788.60	789.85	RCP

STRUCTURE INFORMATION								PIPE INFORMATION					
NAME	STRUCTURE	FRAME AND GRATE STYLE	NEENAH COVER	RIM ELEVATION	SUMP ELEVATION	TOTAL STRUCTURE HEIGHT (FT)	RIM TO HIGHEST CROWN (FT)	PIPE DIAMETER (INCHES)	DIRECTION	FLOW DIRECTION	INVERT ELEVATION	CROWN	MATERIAL
CB-50	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	791.59	786.92	4.67	1.67	12	E	OUT	788.92	789.92	RCP
FES-6	FLARED END SECTION	NONE	NONE	NONE	NONE	NONE	NONE	15	N	IN	788.60	789.85	RCP

STRUCTURE INFORMATION								PIPE INFORMATION					
NAME	STRUCTURE	FRAME AND GRATE STYLE	NEENAH COVER	RIM ELEVATION	SUMP ELEVATION	TOTAL STRUCTURE HEIGHT (FT)	RIM TO HIGHEST CROWN (FT)	PIPE DIAMETER (INCHES)	DIRECTION	FLOW DIRECTION	INVERT ELEVATION	CROWN	MATERIAL
CB-53	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	792.72	788.05	4.67	1.67	12	E	OUT	790.05	791.05	RCP
CB-52	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	799.45	787.58	11.87	8.87	12	W	IN	789.58	790.58	RCP
								12	E	OUT	789.58	790.58	RCP
CB-51	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	792.00	787.05	4.95	1.95	12	W	IN	789.05	790.05	RCP
								12	E	OUT	789.05	790.05	RCP
FES-9	FLARED END SECTION	NONE	NONE	NONE	NONE	NONE	NONE	12	W	IN	788.00	789.00	RCP

STORM SEWER STRUCTURE DETAILS

POND OUTLET STRUCTURE NOT INCLUDED

STRUCTURE INFORMATION								PIPE INFORMATION					
NAME	STRUCTURE	FRAME AND GRATE STYLE	NEENAH COVER	RIM ELEVATION	SUMP ELEVATION	TOTAL STRUCTURE HEIGHT (FT)	RIM TO HIGHEST CROWN (FT)	PIPE DIAMETER (INCHES)	DIRECTION	FLOW DIRECTION	INVERT ELEVATION	CROWN	MATERIAL
CB-47	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	805.85	800.85	5.00	2.00	12	E	OUT	802.85	803.85	RCP
CB-46	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	812.68	799.43	13.25	10.00	12	W	IN	801.68	802.68	RCP
								15	SE	OUT	801.43	802.68	RCP
CB-45	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	811.31	798.32	12.99	9.74	15	NW	IN	800.32	801.57	RCP
								15	E	OUT	800.32	801.57	RCP
CB-44	24" X 36" RECTANGULAR - DIRECT CASTING	CURB INLET	R-3067	806.97	794.86	12.11	8.61	15	W	IN	797.11	798.36	RCP
								18	E	OUT	796.86	798.36	RCP
CB-39	60" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	806.93	794.30	12.63	9.38	12	S	IN	796.55	797.55	RCP
								15	N	IN	796.30	797.55	RCP
								18	W	IN	796.05	797.55	RCP
								24	SE	OUT	795.55	797.55	RCP
CB-43	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	803.01	798.01	5.00	2.00	12	E	OUT	800.01	801.01	RCP
CB-42	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	802.51	797.51	5.00	2.00	12	E	OUT	799.51	800.51	RCP
CB-41	48" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	802.35	796.82	5.53	2.28	12	W	IN	799.07	800.07	RCP
								12	E	IN	799.07	800.07	RCP
								15	S	OUT	798.82	800.07	RCP
CB-40	36" DIAMETER - 24" DIA. COVER OPENING	GRATE	R-2540	803.70	798.70	5.00	2.00	12	N	OUT	800.70	801.70	RCP
CB-38	48" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	805.65	792.36	13.29	9.29	24	NW	IN	794.36	796.36	RCP
								24	SE	OUT	794.36	796.36	RCP
CB-35	120" DIAMETER - 24" X 36" COVER OPENING	CURB INLET	R-3067	807.60	790.25	17.35	12.85