

Village of Mukwonago
Notice of Meeting and Agenda

SPECIAL VILLAGE BOARD MEETING
Wednesday, June 5, 2024

Time: **7:00 pm**

Place: **Mukwonago Municipal Building, 440 River Crest Ct., Mukwonago, WI 53149**

***** This meeting is scheduled for 7:00pm or immediately following the Committee of the Whole. *****

1. Call To Order

2. Roll Call

3. New Business

- 3.1 Discussion and possible action to approve **Resolution 2024-30** a Conditional Use Resolution and Prescribing Conditions for a new Senior Care Facility on Parcel MUKV1962996009, from Azura Living, LLC (applicant)
[RESOLUTION 2024-30 - Azura CUP](#)
[Staff Report-20240504-Azura Senior Living-SPAR and CU](#)
[Combined Docs Azura](#)
[Letter re Access to CFB Parcels MUKT1962992](#)
[WIS 83 Chapman Blvd SW Quad Greenwald Parcels Access \(240522\)](#)

4. Closed Session

Closed session pursuant to **Wis. Stats § 19.85 (1) (g)** (Conferring with legal counsel who either orally or in writing will advise governmental body on strategy to be adopted with respect to current or likely litigation) concerning Poblocki Signs and GFLP v Village of Mukwonago;
and pursuant to **Wis. Stats. § 19.85(1)(e)** (Deliberating or negotiating the purchasing of public properties, the investing of public funds, or conducting other specified public business, whenever competitive or bargaining reasons require a closed session) for negotiation with the Kiwanis Club and St. James Parish.

5. Open Session

Motion to reconvene into open session pursuant to Wis. Stats. §19.85(2) for possible discussion and/or action concerning any matter discussed in closed session

6. Adjournment

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

RESOLUTION 2024-30

Village of Mukwonago Order Granting a Conditional Use and Prescribing Conditions for a new Senior Care Facility on Parcel MUKV1962996009, Mukwonago, WI

WHEREAS, AZURA LIVING, LLC (hereinafter "property owner") owns the property identified MUKV1962996009, (hereinafter "subject property") in the Village of Mukwonago, more particularly described as follows:

LOT 2 CSM #11714 VOL 117/275 REC AS DOC #4340958 PT SW1/4 NW1/4 SEC 23 T5N R18E

WHEREAS, the property owner has, consistent with the Village of Mukwonago's zoning regulations, submitted a conditional use application for a new Senior Care Facility 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 May 14, 2024, 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.

Return to:

Diana Dykstra, Clerk-Treasurer
Village of Mukwonago
440 River Crest Court
Mukwonago, WI 53149

Parcel Number: MUKV 1962996009

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 Senior Care Facility.
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 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 15th day of May, 2024.

BY THE VILLAGE BOARD OF THE VILLAGE OF MUKWONAGO

Fred Winchowky, Village President

Attest:

Diana Dykstra, Village Clerk-Treasurer

STATE OF WISCONSIN, WAUKESHA/WALWORTH COUNTY

Personally came before me this ____ day of _____ 2024, the persons described above, Fred Winchowky, Village President, and Diana Dykstra, 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 _____, 2024.

NOTARY PUBLIC

My Commission Expires:

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Acceptance by Property Owner

I, _____ verify that I am an authorized agent for AZURA LIVING, LLC accepts the terms stated herein.

Dated this _____ day of _____, 2024

_____, agent

STATE OF WISCONSIN, WAUKESHA

Personally, came before me this _____ day of _____, 2024, 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.

PLAN COMMISSION STAFF REPORT

TO: Village of Mukwonago Plan Commission

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

REPORT DATE: May 4, 2024

MEETING DATE: May 14, 2024, 6:30 P.M.

SUBJECT: Azura Senior Living – Site Plan & Architectural Review and Conditional Use

BASIC INFORMATION	
Project:	Azura Senior Living
Applicant:	Matt Lyons - Azura
Consulting Engineer:	Pinnacle Engineering
Request:	Site Plan & Architectural Review & Conditional Use
Staff Recommendation:	Approve with Conditions

PARCEL DATA/CHARACTERISTICS	
Tax Key:	MUKV1962996009
Acreage:	6.37 Acres
Current Use:	Agricultural
Proposed Use:	Senior Care Facility
Reason for Request:	Development of new Senior Living Facility Campus
Land Use Classification:	Business
Zoning Classification:	B-3 – Community Business District

Project Summary & Overview

Azura, LLC is planning to construct a senior care and memory care facility campus on parcel MUKV1962996009 located on the south side of Chapman Farm Boulevard, west of STH 83. The campus will feature three separate “households” that have 24-units each as well as a central barn building and community gardens that are instrumental to their day-to-day operations.

The Village of Mukwonago Comprehensive Plan 2035 identified a need for senior housing and a goal to retain and attract locally owned business. Azura and this project fit within these goals of the comprehensive plan.

Additional information on Azura and the project can be found on the attached submittal documents.

Staff Report – SPAR & Conditional Use
Azura Senior Living
May 4, 2024
Page 2

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 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 / 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:	Preliminary storm water review indicates that the applicant can meet the requirements of the Village Ordinance. An in-depth review is being finalized and comments will be provided to the applicant. No major site modifications will be necessary as part of the revisions.
Public Works	No comments at this time.
Utilities	Meeting was held with Fire Department, Utilities, Planning/Engineering to review utility connection requirements and on-site fire protection modifications. Utilities will review and provide final approval with updated and revised plans that are submitted. Do not construct structures within utility easement on west side of property – Utilities not responsible for repairing pavement within easement.
Police	No comments at this time.
Fire:	Same comments as Utilities and final location of FDC, Knox Boxes, and on-site hydrants will need to be coordinated with Fire Chief. Applicant shall coordinate final suppression and detection with Fire Chief.
Building Inspection	No Comments at this time. The buildings shall have exterior entrances to the sprinkler riser rooms that need to be shown on the final building plans.
Planning	Barn structure is being considered principal structure as it is instrumental to their principal operations as part of the overall campus. No other concerns at this time.

Adjoining Property Owner Comments

The Property Owner for Parcels MUKT1963997, MUKT1962992, and MUKT1962991, located in the Town of Mukwonago and abutting the subject property to the south and east, respectively, received the Public Hearing Notice via mail and inquired about future access to said parcels. The specific details of the inquiry are that the two parcels to the east would become landlocked if the Azura development is approved as proposed as there would be no possibility for new future access. Additionally, a concern was raised about access to the 21-acre parcel located to the south of the subject property and that the only access is off of STH 83 and another access should be provided to Chapman Farm Blvd.

Azura is not required to provide access to the aforementioned parcels as all parcels have frontage to existing roadways and the 21-acre parcel to the south has a dead-end cul-de-sac (Westlawn Ave) that could be extended on the western side. The aforementioned parcels are included in the Village's Comprehensive Plan, however, it is not practical to require Azura to provide access through their property to the surrounding parcels, since no commitment is being made for the redevelopment and annexation of

~Mukwonago, Village of > 12-10217 > Staff Report-20240504-Azura Senior Living-SPAR and Conditional Use~

these properties to the Village of Mukwonago. Subjecting the Azura development to this request would cause detriment to the proposed development which could result in the project no longer being feasible. Access to the aforementioned parcels can be provided with the land division and/or development of those parcels.

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 Senior Care 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 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.
 - d. Adequate utilities, access roads, drainage and other necessary site improvements have been or are being made to accommodate the use.
 - e. 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



Matthew Lyons
Director of Development
Azura, LLC
1233 N Mayfair Road, Suite 301
Milwaukee, Wisconsin 53226

April 2, 2024

Ms. Diana Dykstra
Village of Mukwonago
440 River Crest Ct
Mukwonago, Wisconsin 53149

Dear Ms. Dykstra:

Azura is pleased to submit our application for a conditional use permit and site plan approval for the Azura at Mukwonago Development. Azura is currently under contract to purchase the property located along the south side of Chapman Boulevard in Mukwonago and plans to develop a Memory Care and Assisted Living community consisting of a total of 72 resident rooms and up to 100 licensed beds.

Azura at Mukwonago will serve the significant existing need for memory care and assisted living within Mukwonago, as well as the surrounding communities. The project will be licensed as a Community Based Residential Facility ("CBRF") and will be a top Memory Care and Assisted Living Community within the state of Wisconsin. The building will include three separate households (each with 24 units) that create smaller household environments for our residents as well as common community amenities and generous outdoor living spaces including a barn and community gardens.

Azura is a premier provider of memory care services and programs throughout the state of Wisconsin. From homelike settings to transformational programming, our memory care and assisted living communities provide a safe and nurturing place for the elderly who need to some assistance with daily living as well as those with Alzheimer's disease and other forms of dementia. Recognized as Wisconsin's Dementia Care Experts, our team provides advanced education in dementia care through our proprietary MOSAIC training and engagement programming. In addition to the care provided within our homes, Azura strives to become an active member of the communities in which we are located. Azura hosts annual dementia conferences, support groups and Memory Cafés, and Azura provides education on Alzheimer's and the various forms of dementia.

We look forward to the opportunity to present Azura at Mukwonago to you, and the Plan Commission and we are excited to be a part of the Mukwonago community. Thank you in advance for your consideration of our development project.

Sincerely,

Matthew Lyons
Director of Development



AT

Mukwonago

Submittal for Conditional Use Permit,
and Site Plan Approval
Village of Mukwonago

About Azura

Azura was founded in 2009 with the mission to “transform the culture of care”. Since then, Azura has become a trusted provider of innovative memory care and assisted living services and programs. From household settings to transformational programming, our communities provide a safe and nurturing place for the aging and those with Alzheimer’s disease and dementia. Azura has a team of Quality-Of-Life specialists who have developed a holistic programming plan for each community. Our MOSAIC programming provides insight into the disease process, while teaching advanced dementia communication, approach and engagement techniques to stimulate and elevate the quality of life.

MISSION

TO TRANSFORM THE CULTURE OF CARE

CORE VALUES

We are **COMMITTED** to the care of our residents and team members

We **LOVE** what we do and who we do it with

We encourage **INNOVATION** and creativity

We treat our residents with the utmost **COMPASSION**

We treat everyone with **KINDNESS** dignity and respect

MOSAIC

MOSAIC is training and programming which ensures that our team provides not just high-quality care, but exceptional personalized engagements that result in magical MOSAIC Moments and radiant smiles.

MOSAIC DREAMS

What would be your best day be? It’s a simple question that we ask our residents at Azura Memory Care as part of our MOSAIC Dreams initiative. MOSAIC Dreams by Azura is a program that seeks to make the dreams and special personalized moments of joy for our residents come true.

“Just play Golf again”



“Graduate from College”

“Meet Vince Gill”



About Azura *(continued)*

Azura, headquartered in Milwaukee, currently operates 14 communities throughout the state of Wisconsin. All Azura communities have a focus on serving those with Alzheimer's and dementia (Memory Care) as well as those with the need for assistance in carrying out their daily living. Through the operation of these existing Memory Care and Assisted Living Communities, in addition to extensive research, Azura has developed a design concept that helps optimize the care we provide for those with Alzheimer's and dementia and a need for assisted living.

Recent developments include memory care and assisted living communities in Oconomowoc, Wisconsin (opened in June 2016), Oak Creek, Wisconsin (opened in August 2017), Eau Claire, Wisconsin (opened in May 2019) and Brookfield and Fox Point, Wisconsin (both opened in November 2020). Additionally, Azura is currently under construction on a new community in Verona, WI. All of these developments have utilized Azura's household design concept and have been extremely well received within the communities that they are located.

Additionally, Azura strives to be a partner within the communities where we are located. Azura provides events to help educate and inform the community about various aspects of Alzheimer's and dementia and Azura also facilitates support groups and other resources to assist family members who may be caring for aging loved ones, themselves.



Image from Azura Brookfield

Azura Locations

Azura currently operates 14 communities throughout the state of Wisconsin.

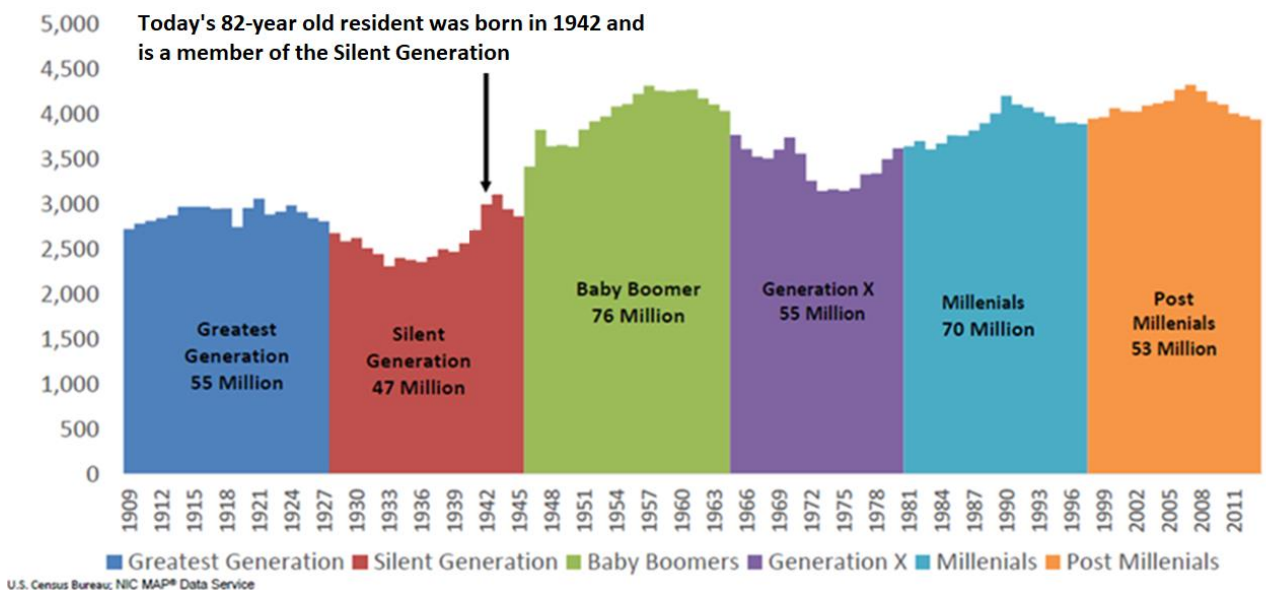


Demand for Assisted Living

Within the primary market area of the proposed Azura at Mukwonago development, the population over the age of 65 is 9,478 or 17.0% of the population and over the age of 75 is 2,953 or 5.3%. Additionally, based on the statistical prevalence of Alzheimer's and other forms of dementia, it is likely that as many as 1,200 people within this area are affected by some form of Alzheimer's or dementia.

Based on demographic trends, these populations are expected to grow dramatically. The average age of residents in memory care and assisted living is 82 years. The chart below shows the number of live births per year since 1909 and an arrow showing the birth year of current residents aged 82. This chart shows that there will be a paradigm shift in the Assisted Living Population within the next 5 years and that future populations will be sustained at a similar level indicating long term need for this product.

Number of Live Births (1909 to 2013, 000s)



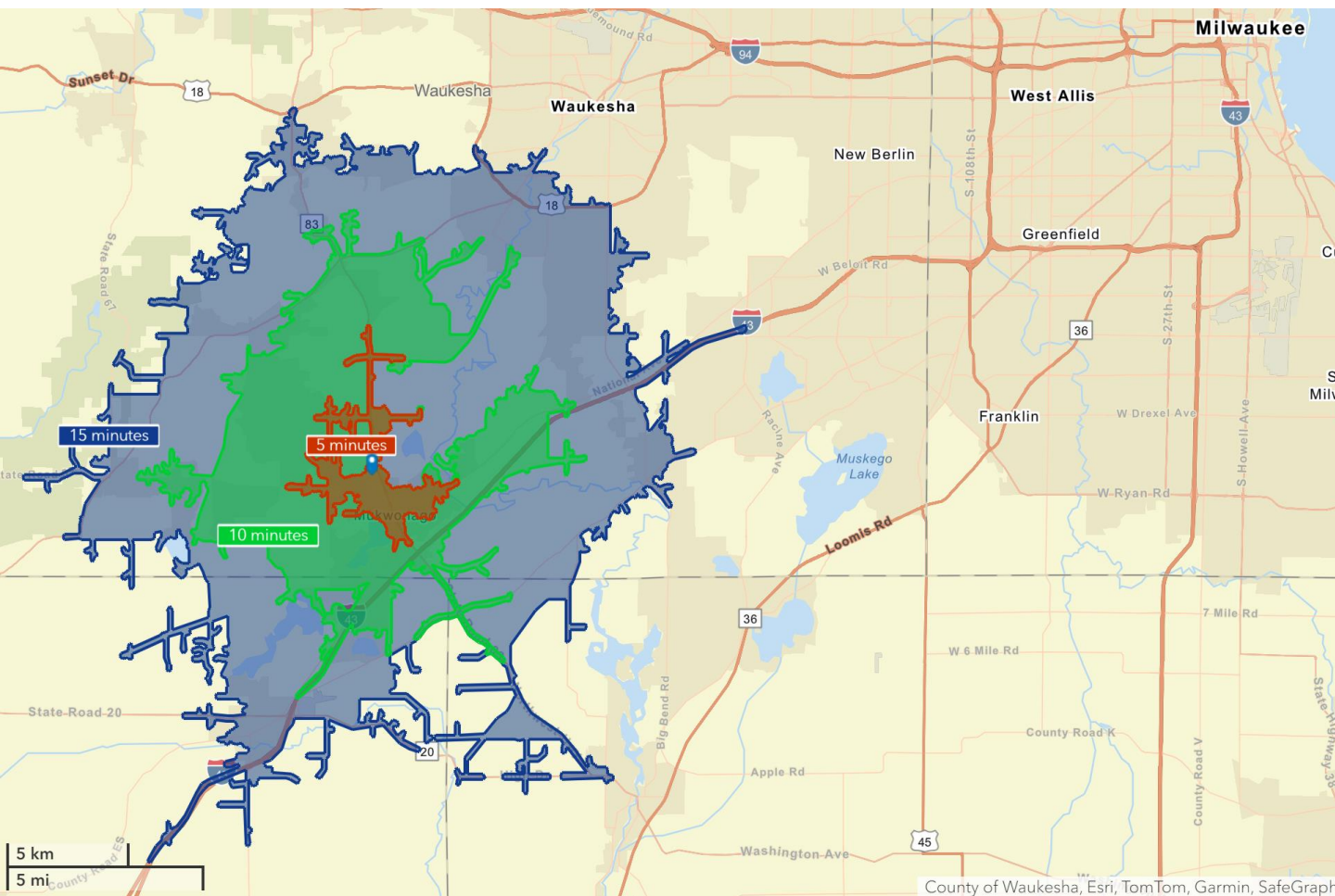
There are currently over 6.1 million Americans living with Alzheimer's. By 2050, there is projected to be 12.7 million people age 65+ with Alzheimer's dementia.

12.7 million people age 65 and older are projected to have Alzheimer's dementia by 2050.

55% of primary care physicians caring for people living with Alzheimer's report there are not enough dementia care specialists in their communities to meet patient demands.

Market for Assisted Living

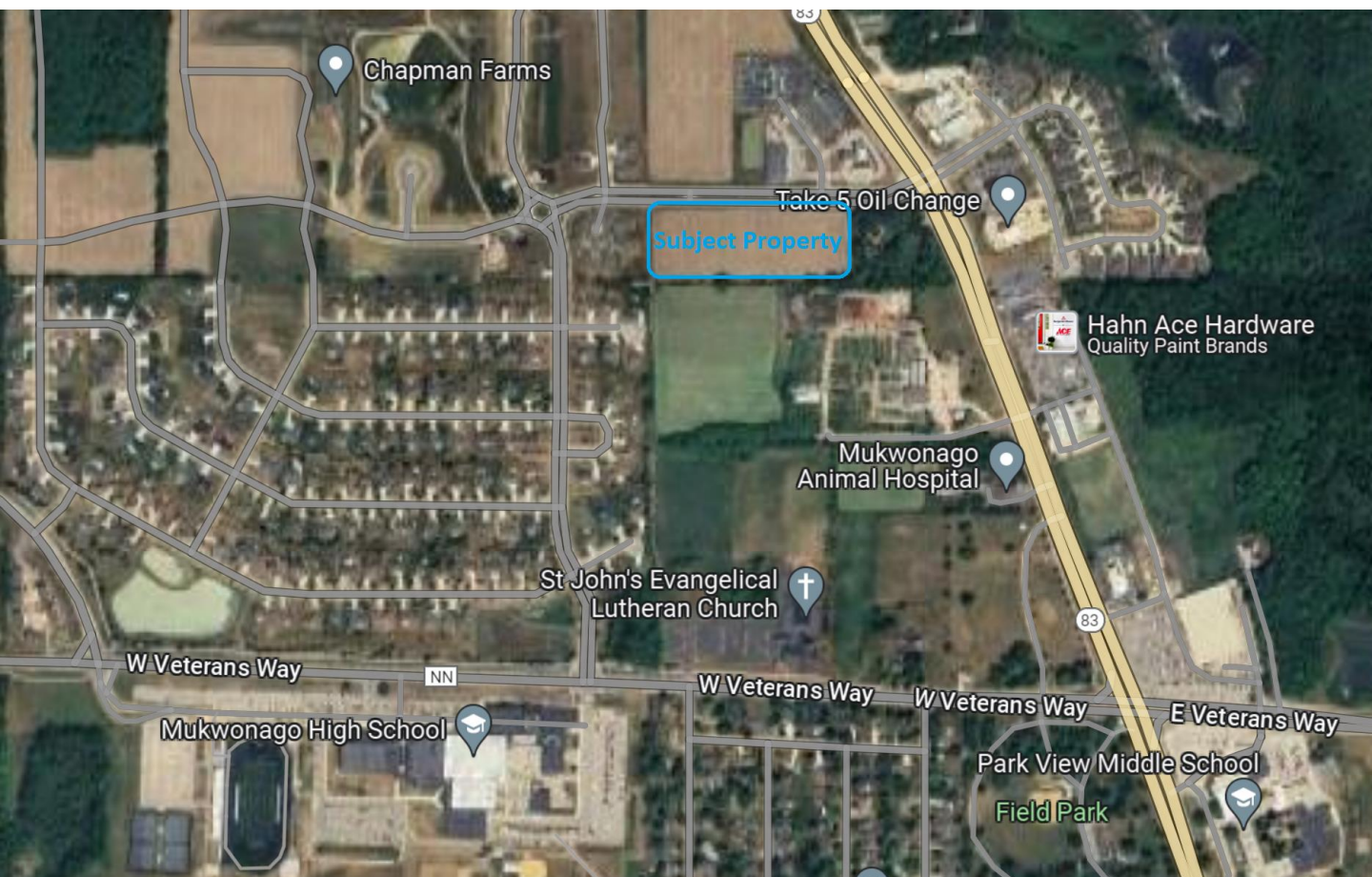
Within the Primary Market Area (15-minute drive) of the proposed Azura at Mukwonago development, there are currently only 105 licensed assisted living beds and 52 licensed Memory Care beds. The average age of the existing supply is over 16 years old.



Azura at Mukwonago

Azura is under contract to purchase 6.37 acre parcel of land located along the south side of Chapman Boulevard in Mukwonago. The parcel currently consists of vacant land with primarily flat topography. Azura plans to develop a memory care and assisted living community on this site that would contain 72 total units (24 Memory Care and 48 Assisted Living) that would help to serve the unmet demand within this market.

The subject property is located west of Highway 83 on the south side of Chapman Farm Boulevard. To the north of the property is Kids Connection and Aurora Urgent Care with additional retail uses to the east and southeast. To the west of the property are townhomes which transition into the Bielinski Homes at Chapman Farms residential neighborhood.



Azura at Mukwonago

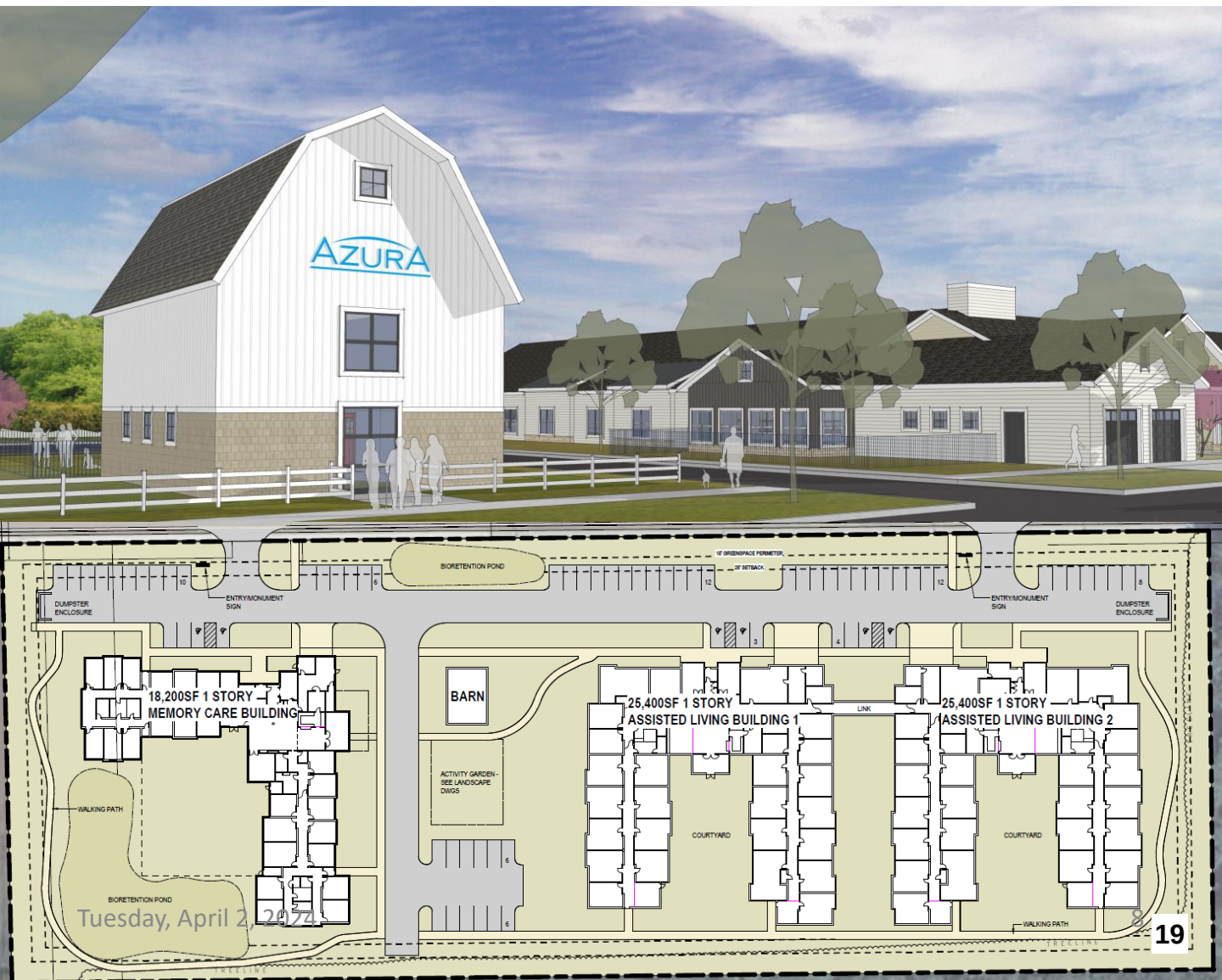
Barn, Community Gardens, and Walking Paths

Azura's site plan includes a barn accessory building that will be a focal point of the project. The barn is planned to be utilized for storage and accessory use to the surrounding gardens. The barn will be approximately 1,200 square feet and is proposed to be 35' high. Additionally, the barn will include an Azura logo facing Chapman Farm Boulevard.

Adjacent to the barn will be a large activity garden that will include raised planter beds, shade trees, and outdoor seating. This area will be utilized for horticulture therapy as well as a supplement to Azura's dining with the use of seasonal herbs and vegetables.

The site will include nearly 1/3 mile of walking paths that surround the entire site.

Other site amenities include generous courtyards at each building including various amenities including raised garden beds, putting greens, bocce ball courts and ample outdoor seating.



Azura at Mukwonago

Memory Care

Azura at Mukwonago will include one memory care household consisting of 24 units and 28 beds. The memory care building will consist of 18,200 square feet and will be licensed as a Community Based Residential Facility.

The Memory Care Building will include kitchen, dining, and living areas typical in a residential home and 24 units.



Image from Azura Brookfield

Azura at Mukwonago

Memory Care – Floor Plan



Azura at Mukwonago

Assisted Living

Azura at Mukwonago will include two Assisted Living Households consisting of 48 total units and up to 72 licensed beds. The assisted living building will consist of two 25,400 square foot buildings that are connected by a hallway that allows team members and residents to access both homes.

The Assisted Living Buildings will each include a kitchen, dining, and living areas typical in a residential home and 24 units.



Image from Azura Brookfield

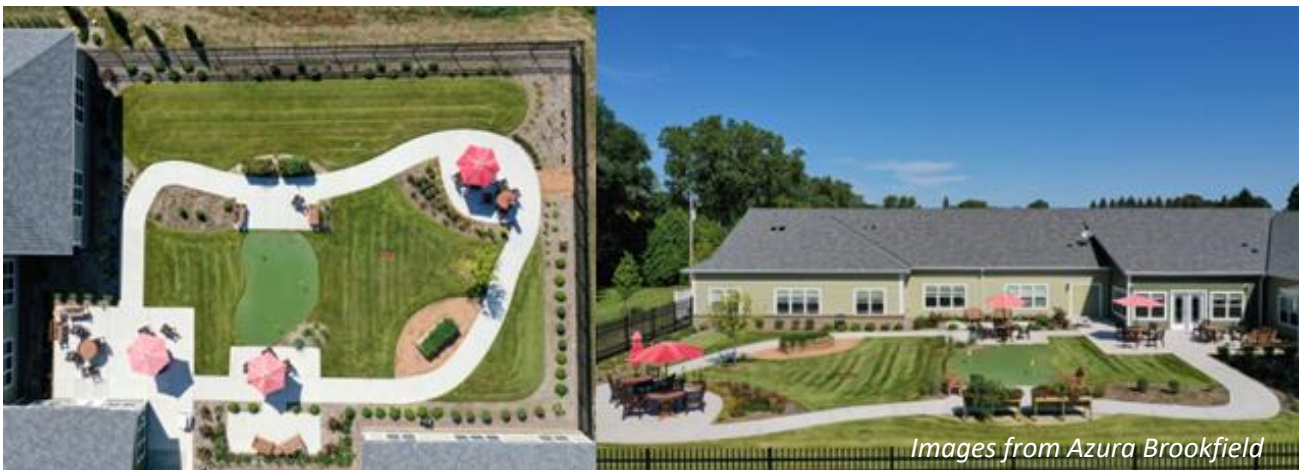
Azura at Mukwonago

Azura at Mukwonago will be the latest iteration of the Azura Household Model. Each household has 24 units which is based on the ideal balance of small residential environments along with optimal staffing ratios. Our homes have a residential design with spaces that you would find at home blended with adaptations and technology to provide the optimal environment to support our residents. In addition, our homes incorporate outdoor living spaces that include raised gardens, patio, grilling areas and much more.



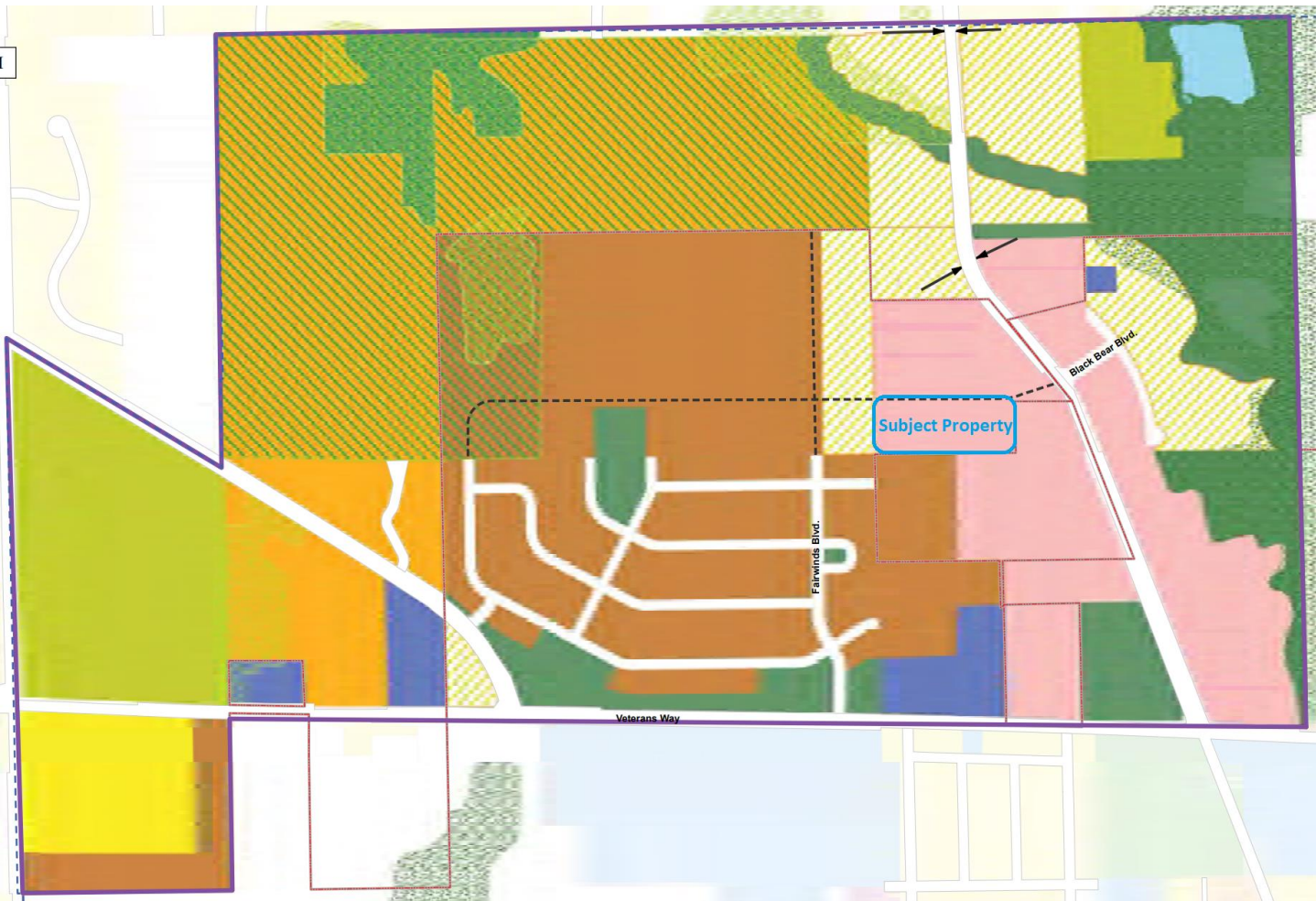
Azura at Mukwonago Attributes:

- Two 24-Unit Assisted Living Households; 48 units (up to 72 beds) licensed as CBRF
- One 24-Unit Memory Care Household; 24 units (up to 28 beds) licensed as CBRF
- Outdoor living areas and amenities (patio seating, walking paths, putting greens, raised garden beds)
- Accessory Barn Structure along with community gardens and outdoor activity area as well as walking paths surrounding the entire property.



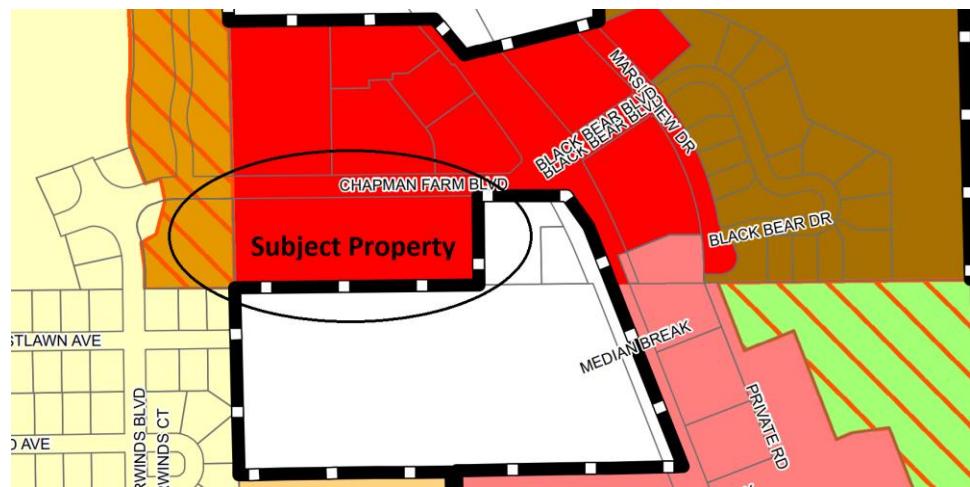
Comprehensive Plan

The Village of Mukwonago Comprehensive Plan 2035 identified the need for senior housing and a goal to retain and attract locally owned business. Azura at Mukwonago meets these goals of the Village comprehensive plan.



The planned development will serve a growing segment of the Mukwonago population. It is currently projected that 14.7% of the population within the market area is over the age of 65, and this population is expected to grow 21% by 2028.

Zoning



The subject parcel is currently zoned B3 – Community Business District. The B3 Zone allows for Senior Care Facility as a Conditional Use.

Azura’s proposed project will have 48 units of Assisted Living (licensed as CBRF) and will also includes 24 units of Memory Care (licensed as CBRF) which falls under the Senior Care Facility definition and is allowed as a Conditional Use within the Village Zoning Code.

Azura is requesting a Conditional Use Permit within the B3 Zoning District as well as Site Plan Approval to allow for the proposed Senior Care Facility. In addition, Azura is requesting a variance to allow for a 35’ tall barn structure on the site.

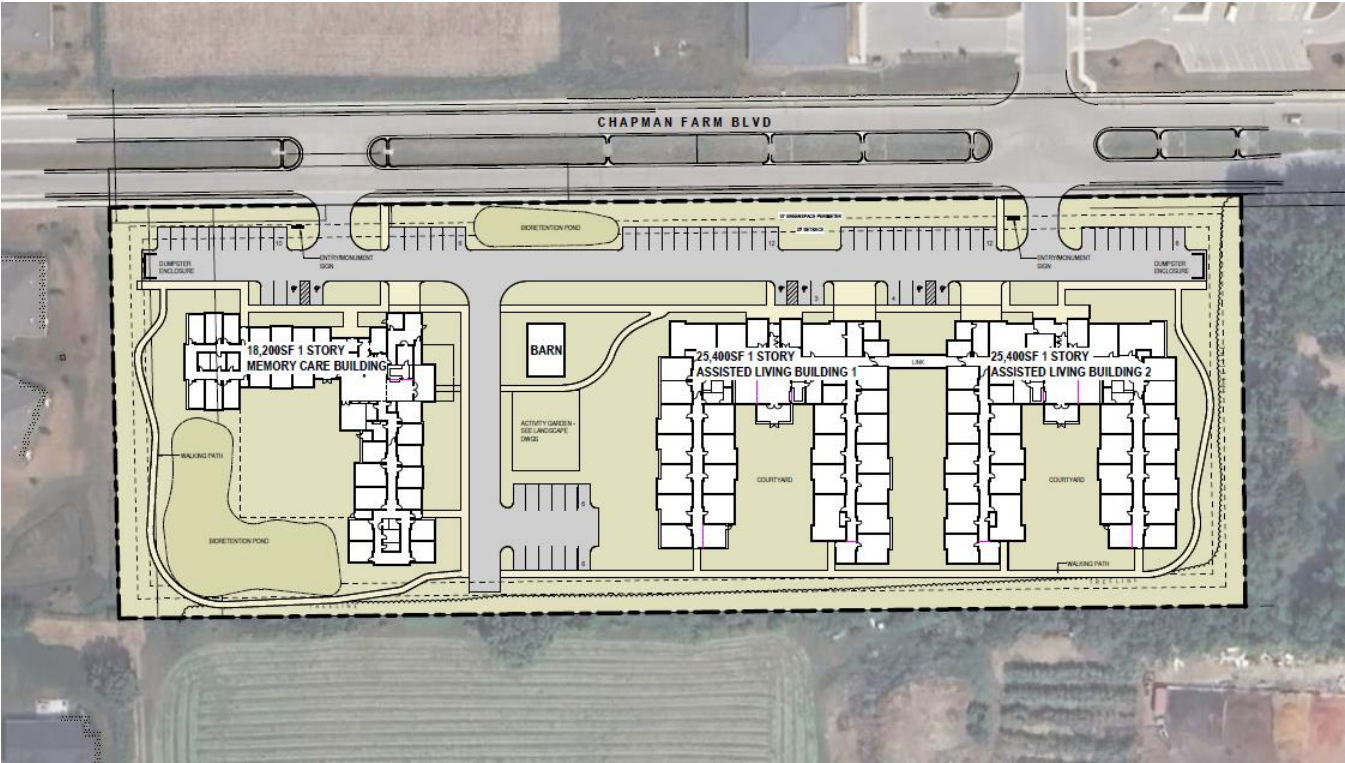
§ 100-157 Permitted and conditional uses of business districts.						
Use	B-1	BFD-1/2	B-2	B-3	B-4	B-5
Family foster home						
Group home or group foster home						
Small foster home						
Shelter Care Facilities						
Community living arrangement						
Family shelter care facility						
Large group shelter care facility						
Senior care facility				C		

Site Plan

The proposed site plan meets or exceeds the requirements under the proposed B3 Zoning Code.

However, Azura is requesting a variance to allow the proposed barn height to be 35 feet.

Bulk and Dimensional Standards		
Standard	Zone B3	Azura Planned
Lot Standards (Minimum)		
Lot Area	40,000 sf	279,100 SF
Lot Width	150 ft	875 ft
Setbacks (Minimum)		
Green Space Perimeter	15 ft	>= 15 ft
Building Set Backs		
Street Yard	25 ft	>83 ft
Interior Side Yard	25 ft	>50 ft
Rear Yard	25 ft	>35 ft
Building Standards		
Building Coverage (Principal Buildings Only) - <i>Maximum % of Total Lot Size</i>	35%	25%
Lot Coverage (all buildings and impervious surfaces) - <i>Maximum % of Total Lot Size</i>	75%	44%
Building Height, Principal Building	2 stories, 35 ft	1 story, 28 ft
Building Height, Accessory Building	20 ft	35 ft



Parking

Azura’s operation requires parking at a ratio of 1 stall per 3 resident rooms for memory care and 1 stall per 2 resident rooms for Assisted Living. Azura’s requirements are greater than the Mukwonago Requirements of 1 per 3 residents for Senior Assisted Living. With 24 resident rooms of memory care and 48 resident rooms of assisted living at Azura at Mukwonago, Azura’s parking requirement will be 32 stalls. As Azura’s residents do not typically drive, these stalls will primarily be used by residents’ visitors.

The peak shift of employees at Azura at Mukwonago is expected to be 25 employees. An employee parking ratio of 1 stall per 1 employee would require 25 parking stalls. Azura’s requirement of 1 stall per employee on peak shift is equal to the Mukwonago requirement of 1 stall per employee for Community Living and Senior Living.

The total calculated parking need for the development is projected to be 57 parking stalls.

Actual planned parking for the development is 71 total surface parking stalls including 65 standard stalls and 6 handicap stalls.

Traffic

A traffic analysis of a similarly sized Azura development (80 total units) was completed previously by Traffic Analysis & Design, Inc. (TADI). The purpose of this analysis was to determine the traffic impact of the proposed development. Expected trips were analyzed for both AM Peak and PM Peak hours.

The proposed development was expected to generate 15 new trips (10 in / 5 out) during a typical weekday AM peak hour and 20 new trips (10 in / 10 out) during typical weekday PM peak hour.

Table 2. Azura Living Trip Generation Table – Scenario Two

Land Use	ITE Code	Proposed Size	Weekday Daily	AM Peak			PM Peak		
				In	Out	Total	In	Out	Total
Assisted Living	254	48 Beds	130 (2.66)	5 (65%)	0 (35%)	5 (0.14)	5 (44%)	5 (58%)	10 (0.22)
Nursing Home	620	48 Beds	130 (2.74)	5 (65%)	5 (35%)	10 (0.17)	5 (33%)	5 (67%)	10 (0.22)
Total New Trips			260	10	5	15	10	10	20

Azura’s total traffic impact of 15 cars at the AM Peak and 20 cars at the PM peak is substantially less than what would be anticipated from a commercial use at this site location. This will likely be a favorable impact in relation to the other surrounding uses.

Awards

- Azura was honored with awards from Argentum and Milwaukee Business Journal (among others) for recent development projects in Brookfield and Fox Point, Wisconsin.
- Each of Azura's 14 locations have been awarded the Best of Senior Living Award and Azura homes have received the award a total of 87 times since 2017.
- Azura has been certified as a Great Place to Work every year since ____



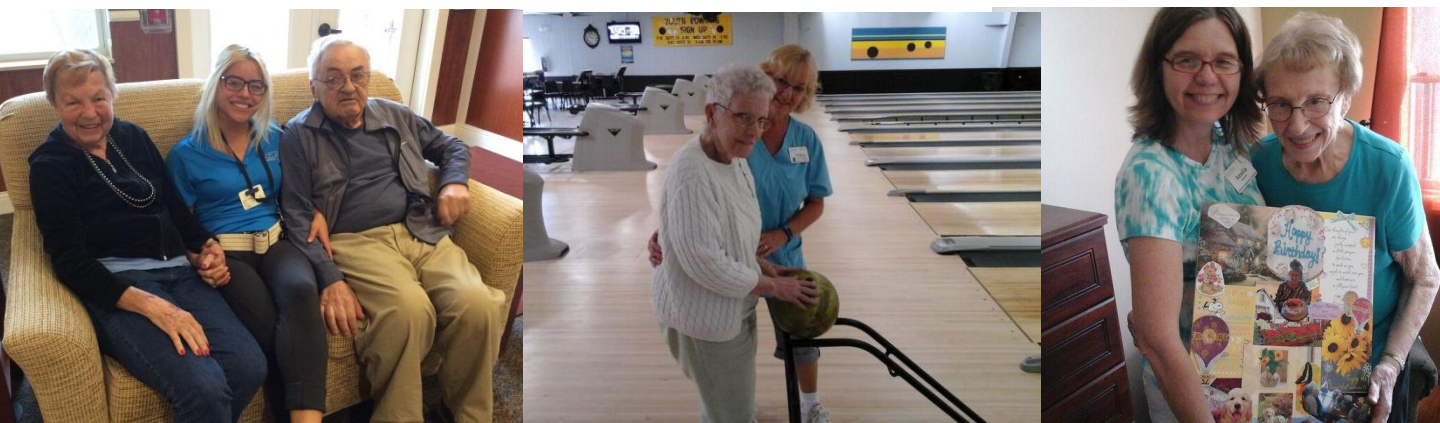
Azura Team



Azura strives to hire and retain the finest people. Azura anticipates hiring over 80 new team members at Azura at Mukwonago.

Azura has strict internal processes to ensure that we hire the finest team members who will align with our mission to transform the culture of care. As a part of these processes, all employees undergo state and federal background checks as well as an extensive interview process.

Once hired, Azura team members receive over 110 hours of training within their first year including our proprietary MOSAIC training which ensures every team member has an enhanced understanding of memory loss and recognizes how to properly communicate and engage those within our family of care.



Andrew S.



"I was introduced to Azura by a friend when my mom needed additional care and support. The facility was immaculate and the staff were really friendly. We're so happy that we chose Azura, which was a great fit for my mom."

Annette V.



"We toured Azura Brookfield and it was impressive. Great staff and the amenities felt homely! We really enjoyed the activity schedule, and the homes were very clean and spacious. All of the residents seemed to be in high spirits!"

Mallory G.



"I was very surprised to see what a smooth transition my grandma had into a memory care. The Azura staff went above and beyond to add personal touches to her room, and really make it feel like home for her."

Renee V.



"I visited this facility and was amazed at how far care homes have come! Everyone was so friendly and it felt like living at an upscale hotel. The residents seemed as engaged as they wanted to be and I observed the caretakers interacting like family!"

AZURA®

MEMORY CARE • ASSISTED LIVING

Voted a Best of Senior Living community 8 years in a row!



Sharon T.



"The Azura team's compassion towards their residents is what really sticks out the most about this facility. All of the rooms here are private rooms. I would absolutely recommend Azura Memory Care to others."

Kim L.



"Azura has been our safe harbor in this stormy world of dementia. After trying to manage the care of my parent with dementia on my own for the last three years, it became apparent that we needed more help. The Azura team was there when we needed it the most."

Jill R.



"The Azura community is beautiful with a comfortable and intuitive layout for Memory Care. The leadership is dedicated to ensuring that the residents wellbeing and highest level of independence is the number one priority."

Great Place To Work®

Certified
MAR 2022–MAR 2023
USA



Contact Information

Azura, LLC

Matthew Lyons, Director of Development

1233 N Mayfair Road, Suite 301

Milwaukee, Wisconsin 53226

Matt@AzuraLiving.com

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

VILLAGE OF MUKWONAGO
SITE PLAN, ARCHITECTURAL, AND PLANNED
UNIT DEVELOPMENT (PUD) APPLICATION
Application Fee: Below

Date Submitted: 04.02.2024

FEES

(Please check one)

☐ Major Site Plan; New Building/Addition	\$475.00 plus \$.02 per Sq. Ft. of Building Area	_____
☐ Minor Site Plan (No Building)	\$160.00	_____
☐ Planned Unit Development Review	\$225.00 plus \$50.00/Unit	_____
☐ Other (See Current Fee Schedule)		_____

Zoning and Planning Department

Contact: Planner
Phone: (262) 363-6420 ex 2111
Fax: (262) 363-6425
Email: planner@villageofmukwonago.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: planner@villageofmukwonago.com

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

APPLICANT (Full Legal Name)

Name: Matthew Lyons
Company: Azura, LLC
Address: 1233 N Mayfair Road, Suite 301 City: Milwaukee State: WI zip: 53226
Daytime Phone: 720.291.4838 Fax: _____
E-Mail: matt@azuraliving.com

APPLICANT IS REPRESENTED BY (Full Legal Name)

Name: _____
Company: _____
Address: _____ City: _____ State: _____ Zip: _____
Daytime Phone: _____ Fax: _____
E-Mail: _____

ARCHITECT

Name: Dan Schindhelm
Company: EUA
Address: _____ City: _____ State: _____ Zip: _____
Daytime Phone: 608.442.6692 Fax: _____
E-Mail: dans@eua.com

PROFESSIONAL ENGINEER

Name: Aaron Koch
Company: Pinnacle Engineering
Address: _____ City: _____ State: _____ Zip: _____
Daytime Phone: 262.754.8888 Fax: _____
E-Mail: aekoch@pinnacle-engr.com

REGISTERED SURVEYOR

Name: Don Chaput
Company: Chaput Land Surveys
Address: _____ City: _____ State: _____ Zip: _____
Daytime Phone: 414.292.1311 Fax: _____
E-Mail: don@chaputlandsurveys.com

CONTRACTOR

Name: TBD
Company: _____
Address: _____ City: _____ State: _____ Zip: _____
Daytime Phone: _____ Fax: _____
E-Mail: _____

PROPERTY INFORMATION

Property Owner (s) *(if different from applicant):* Michael A Chapman Descendants Trust and Laurie G Chapman Descendants Trust

Address: W299S8915 Hwy 83 **city:** Mukwonago **State:** WI **zip:** 53149

Daytime Phone: _____ **Fax:** _____

E-Mail: _____

Present Zoning: B3 **Tax Key No(s):** MUKV1962996009

Location/Address: Not assigned

Present Use: Agriculture **Intended Use:** Senior Living

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

- ☐ Application fee: [current fee schedule](#)
- ☐ Agreement for Reimbursable Services Acknowledgement

Required site drawings:

- ☐ Survey of the property
- ☐ Landscape plan
- ☐ Parking plan (including parking computations)
- ☐ Lighting plan (including photo metrics and cut sheets)
- ☐ Proposed location and connection to the sanitary sewer and water mains
- ☐ Preliminary Stormwater Management plan (if applicable)
- ☐ All building elevations (color renderings)
- ☐ Building Material Cut Sheets
- ☐ Floor plans
- ☐ Signage proposed (additional permit and approvals required under Ch. 64)

Other Documents:

- ☐ Plan of operation/proposal
- ☐ Electronic Submittals are required. All documents need to be uploaded into the BS&A Software.
- ☐ Any additional information as determined by Village Staff.
- ☐ Any Licenses from the Village Clerk.

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

Name & Title (PRINT)

Date



Signature - Applicant

Matthew Lyons - Director of Development

Name & Title (PRINT)

04.02.2024

Date

Signature - Property Owner

Name & Title (PRINT)

Date

Signature – Applicant's Representative

Name & Title (PRINT)

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	

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 sheet 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?
- The “Update to Comprehensive Plan 2035” specifically references a need for focused senior housing and senior and flexible housing.
 - Senior Facilities are only allowed as a Conditional Use under the zoning code.
- B. How is the proposed conditional use, in its specific 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?
- The “Update to Comprehensive Plan 2035” specifically references a need for focused senior housing and senior and flexible housing.
 - The subject property is located within the North Key Area defined within the Comprehensive Plan. The specific property is identified as having a recommended land use of Low Intensity Commercial / Business.
 - The subject property is currently zoned B-3 Community Business District. This zoning district allows for Senior Facility as a Conditional Use. The proposed Azura development meets or exceeds all of the requirements set forth within the B-3 district.
- 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?
- The proposed conditional use will not result in any substantial or undue adverse impact.
 - The proposed project as a Senior Facility will be a quiet neighbor and is not anticipated to have any adverse impact on nearby properties.
 - The neighborhood currently consists of business uses (Aurora Clinic, Bank, general retail, day care) to the east of the subject property along Chapman Boulevard near Highway 83. There is multi-unit residential units directly to the west of the property along Chapman Boulevard and a single-family residential neighborhood further to the

west. The proposed Senior Facility will consist of the three buildings that are designed with a single-family residential aesthetic and are an ideal transition from the higher intensity retail and business uses to the east and the residential uses to the west and the residential aesthetic was intentionally designed to fit within the character of the neighborhood.

- Traffic generated by the proposed conditional use will be significantly less than traffic that could be generated by many of the uses that are already approved for the property.
- All parking will be accommodated on site and the conditional use will not generate any off-site parking needs.
- The proposed conditional use is not expected to result in any substantial adverse impacts relating to public improvements, public property or rights-of-way, or other matters affecting the public health, safety, or general welfare.

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?

- The proposed Senior Facility will consist of the three buildings that are designed with a single-family residential aesthetic and are an ideal transition from the higher intensity retail and business uses to the east and the residential uses to the west and the residential aesthetic was intentionally designed to fit within the character of the neighborhood.
- The proposed conditional use is within the set of uses anticipated by this site by the Comprehensive Plan and the Zoning Code.

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 provide by public agencies serving the subject property?

- The proposed conditional use will be adequately served and will not impose an undue burden on any of the improvements, facilities, utilities, or services provide by public agencies serving the subject property.

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?

- The proposed conditional use fills a need for senior housing that was identified within the Comprehensive Plan.
- Assisted Living and Memory Care demand is currently unmet within the Village of Mukwonago and the development of the proposed use will allow residents with needs for these services to remain within the community instead of having to leave the community to fulfill these needs.
 - o Azura is an industry leader within the state of Wisconsin and provides additional community services in the communities which we are located. These services include:

- Caregiver support groups
- Memory cafes
- Virtual Dementia Tour training (Azura has offered this training to the community at large as well as police and fire departments within the communities we serve)
- Monthly webinars

Agreement for Reimbursable Services Petitioner/Applicant/Property Owner

In accordance with Village Ordinance 70-15, the Village may retain the services of professional consultants (including planners, engineers, architects, attorneys, environmental specialists, recreation specialists, and other experts) to assist in its review of a proposal coming before the Plan Commission/Board of Building and Zoning Appeals. The Village reserves the right to apply the charges for these services as well as for staff time expended in the administration, investigation and processing of applications to the Applicant.

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. The submittal of a development proposal application or petition shall be construed as an agreement to pay for such professional review services applicable to the proposal. The Village may delay acceptance of the application or petition as complete, or may delay final approval of the proposal, until such fees are paid by the Applicant. The Property Owner acknowledges that review fees which are applied to an Applicant, but which are not paid by such Applicant, may be charged by the Village as an assessment against the subject property for current services provided the property.

Note: Consultant services (e.g. engineering, planning, surveying, legal, etc.) and Village administrative time may be charged in addition to the normal costs payable by the Applicant/Petitioner/Property Owner (e.g. application filing fees, permit fees, publication expenses, recording fees, impact fees, etc.)

Azura at Mukwonago

(Project Name/Nature of Application)

MUKV1962996009

(Property Tax Key Numbers Involved in Project)

Azura, LLC - Matthew Lyons

(Print Name of Applicant/Petitioner)



(Signature of Applicant/Petitioner)

04.02.2024

(Date)

(Print Name of Property Owner)

(Signature of Property Owner)

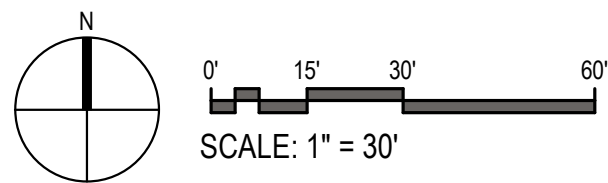
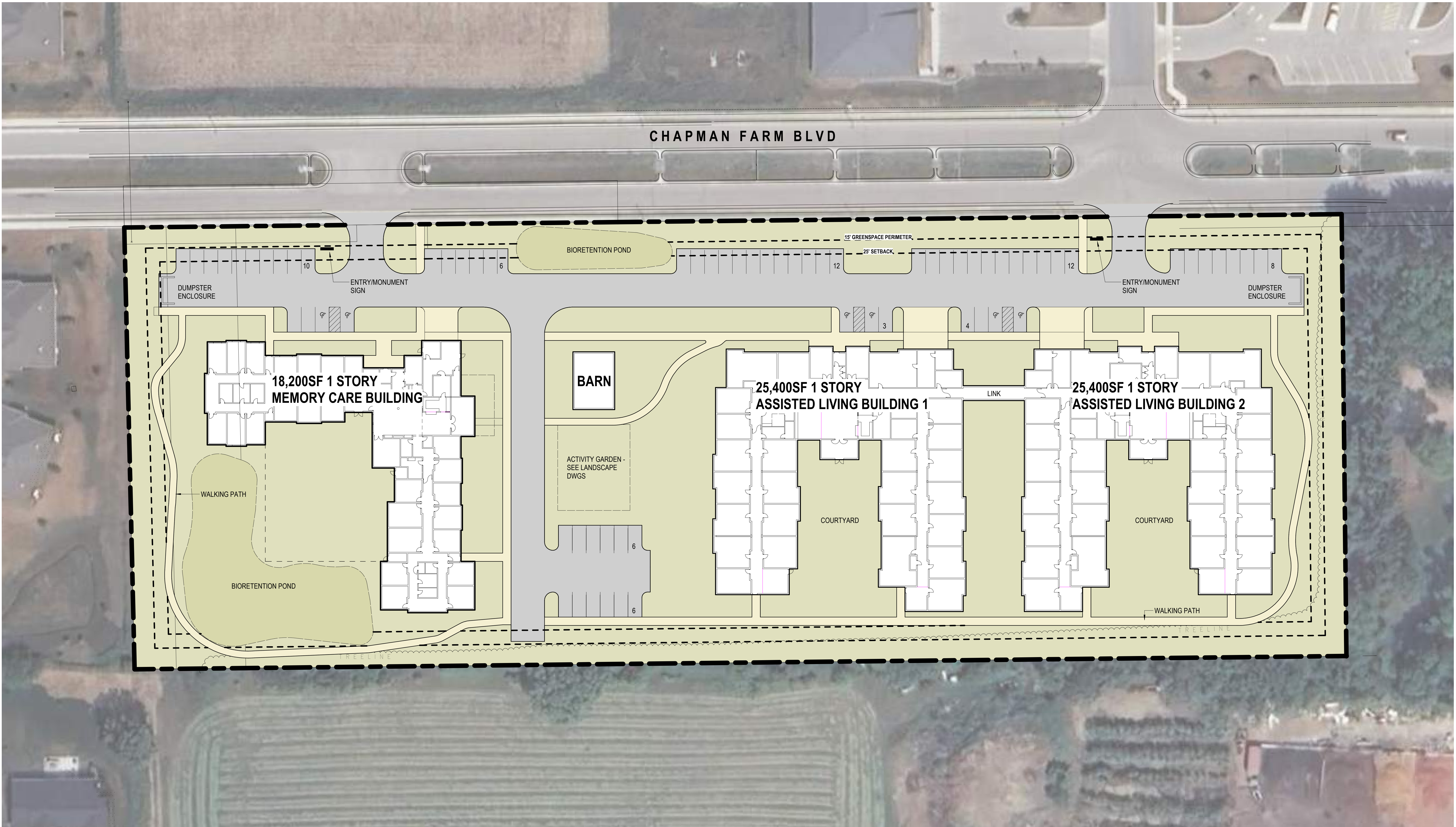
(Date)

1233 N Mayfair Road, Suite 301

(Billing Mailing Address)

Milwaukee, WI 53226

(Billing City, ST Zip)



ARCHITECTURAL SITE PLAN



1 MEMORY CARE FLOOR PLAN
3/32" = 1'-0"

0' 4' 8' 16' 24'
SCALE: 3/32" = 1'-0"

MEMORY CARE BUILDING FLOOR PLAN



1 ASSISTED LIVING 1 FLOOR PLAN
3/32" = 1'-0"

0' 4' 8' 16' 24'
SCALE: 3/32" = 1'-0"

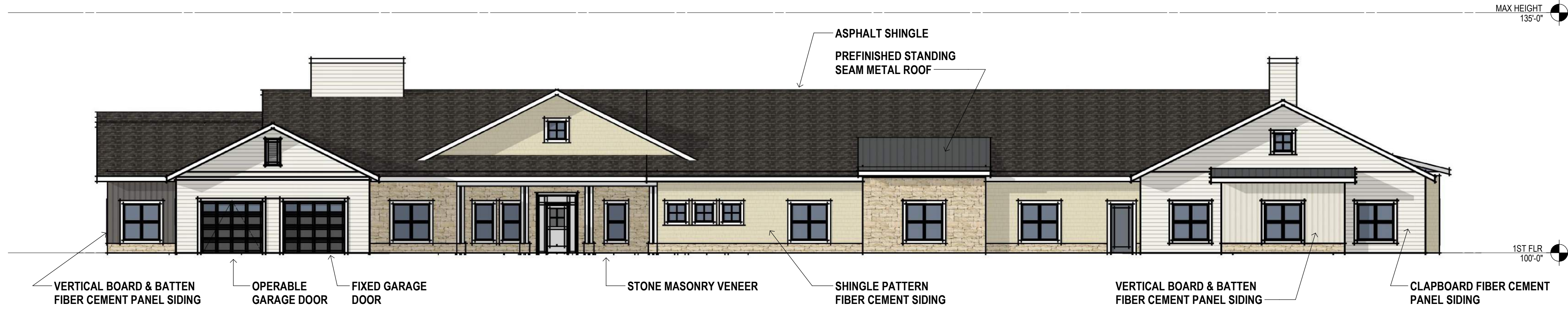
ASSISTED LIVING BUILDING 1 FLOOR PLAN



1 ASSISTED LIVING 2 FLOOR PLAN
3/32" = 1'-0"

0' 4' 8' 16' 24'
SCALE: 3/32" = 1'-0"

ASSISTED LIVING BUILDING 2 FLOOR PLAN



1 MEMORY CARE NORTH ELEVATION
1" = 10'-0"



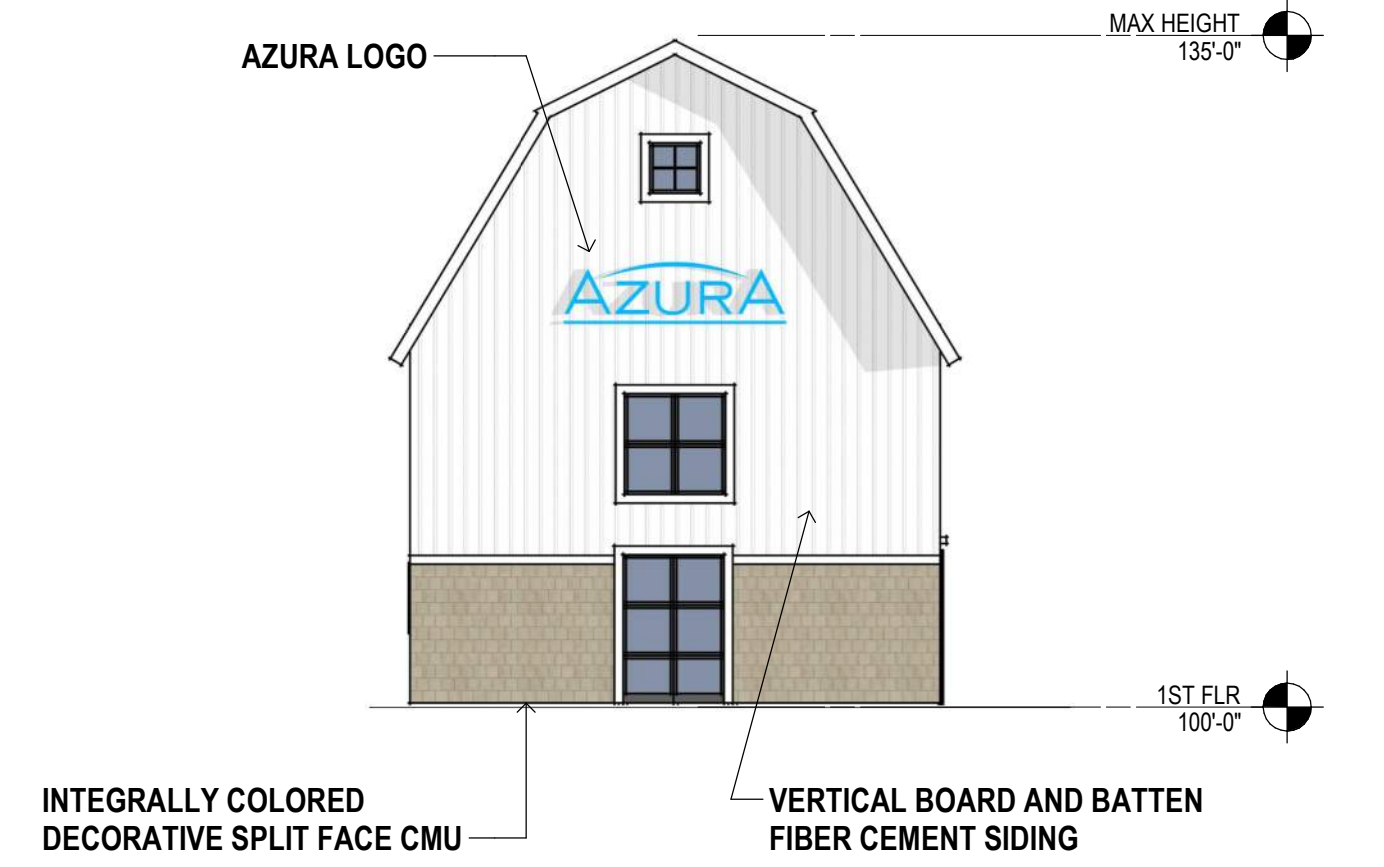
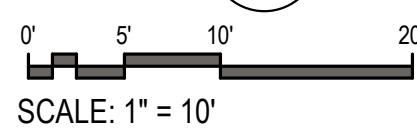
2 MEMORY CARE WEST ELEVATION
1" = 10'-0"



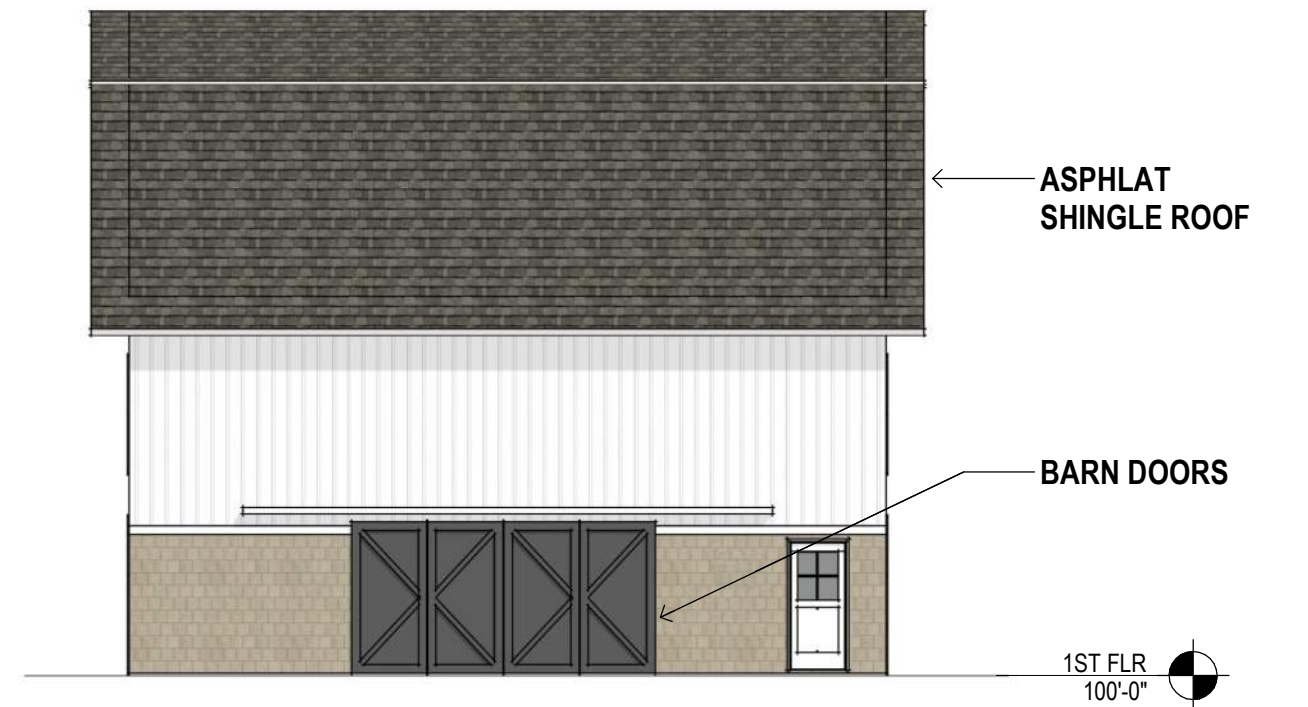
3 MEMORY CARE SOUTH ELEVATION
1" = 10'-0"



4 MEMORY CARE EAST ELEVATION
1" = 10'-0"



5 BARN NORTH ELEVATION
1" = 10'-0"



6 BARN WEST ELEVATION
1" = 10'-0"

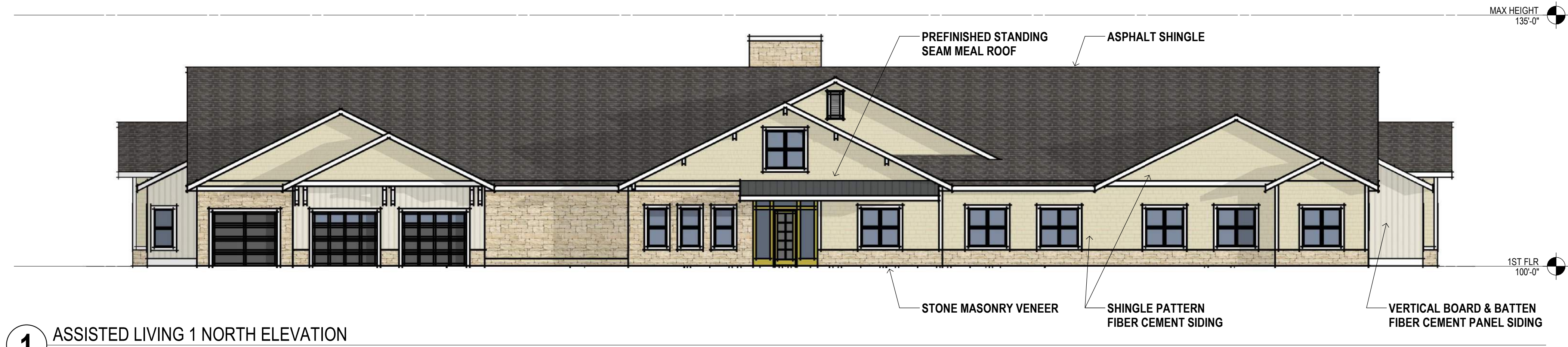


7 BARN SOUTH ELEVATION
1" = 10'-0"



8 BARN EAST ELEVATION
1" = 10'-0"

MEMORY CARE BUILDING and BARN



1 ASSISTED LIVING 1 NORTH ELEVATION
1" = 10'-0"



2 ASSISTED LIVING 1 WEST ELEVATION
1" = 10'-0"



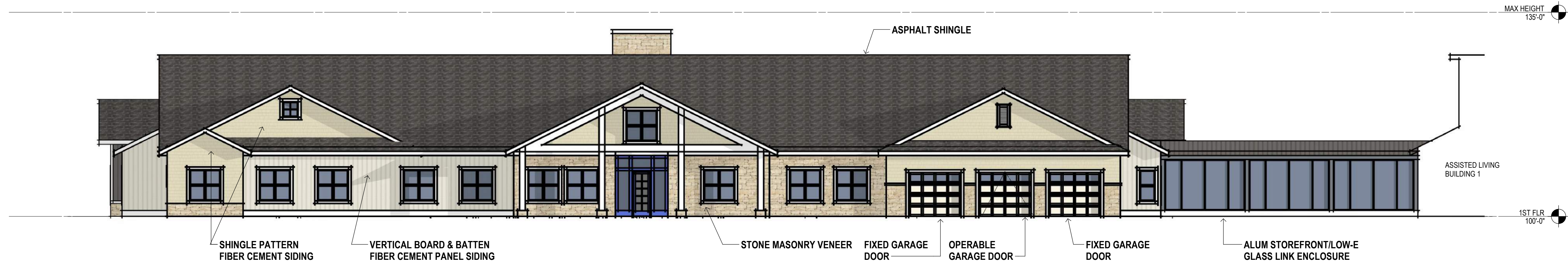
3 ASSISTED LIVING 1 SOUTH ELEVATION
1" = 10'-0"



4 ASSISTED LIVING 1 EAST ELEVATION
1" = 10'-0"

0' 5' 10' 20'
SCALE: 1" = 10'

ASSISTED LIVING BUILDING 1



1 ASSISTED LIVING 2 NORTH ELEVATION
1" = 10'-0"



2 ASSISTED LIVING 2 WEST ELEVATION
1" = 10'-0"



3 ASSISTED LIVING 2 SOUTH ELEVATION
1" = 10'-0"



4 ASSISTED LIVING 2 EAST ELEVATION
1" = 10'-0"

0' 5' 10' 20'
SCALE: 1" = 10'

ASSISTED LIVING BUILDING 2



MEMORY CARE BUILDING



ASSISTED LIVING BUILDING 1



ASSISTED LIVING BUILDING 2



DECORATIVE SPLIT FACE MASONRY –
OLDCASTLE, BEST BLOCK, OR SIMILAR



ASPHALT SHINGLE – GAF TIMBERLINE
SHADOWLINE SERIES, OWENS
CORNING, OR SIMILAR



CEMENT FIBER BOARD AND BATTEN
SIDING – JAMES HARDIE, LP SMART
SIDING, OR SIMILAR



CEMENT FIBER LAP SIDING– JAMES
HARDIE, LP SMART SIDING, OR
SIMILAR



STONE MASONRY VENEER – ASHLAR
LIMSETONE, ARRISCRAFT CAST
STONE, OR SIMILAR



CEMENT FIBER STRAIGHT EDGE
SHINGLE SIDING – JAMES HARDIE, LP
SMART SIDING, OR SIMILAR

EXTERIOR MATERIAL PALETTE – MEMORY CARE BUILDING AND BARN



ASPHALT SHINGLE – GAF TIMBERLINE SHADOWLINE SERIES, OWENS CORNING, OR SIMILAR



STANDING SEAM METAL ROOF – PAC CLAD, UNA-CLAD, OR SIMILAR



STONE MASONRY VENEER – ASHLAR LIMSETONE, ARRISCRAFT CAST STONE, OR SIMILAR



CEMENT FIBER BOARD AND BATTEN SIDING – JAMES HARDIE, LP SMART SIDING, OR SIMILAR



CEMENT FIBER STRAIGHT EDGE SHINGLE SIDING – JAMES HARDIE, LP SMART SIDING, OR SIMILAR

EXTERIOR MATERIAL PALETTE – ASSISTED LIVING BUILDINGS

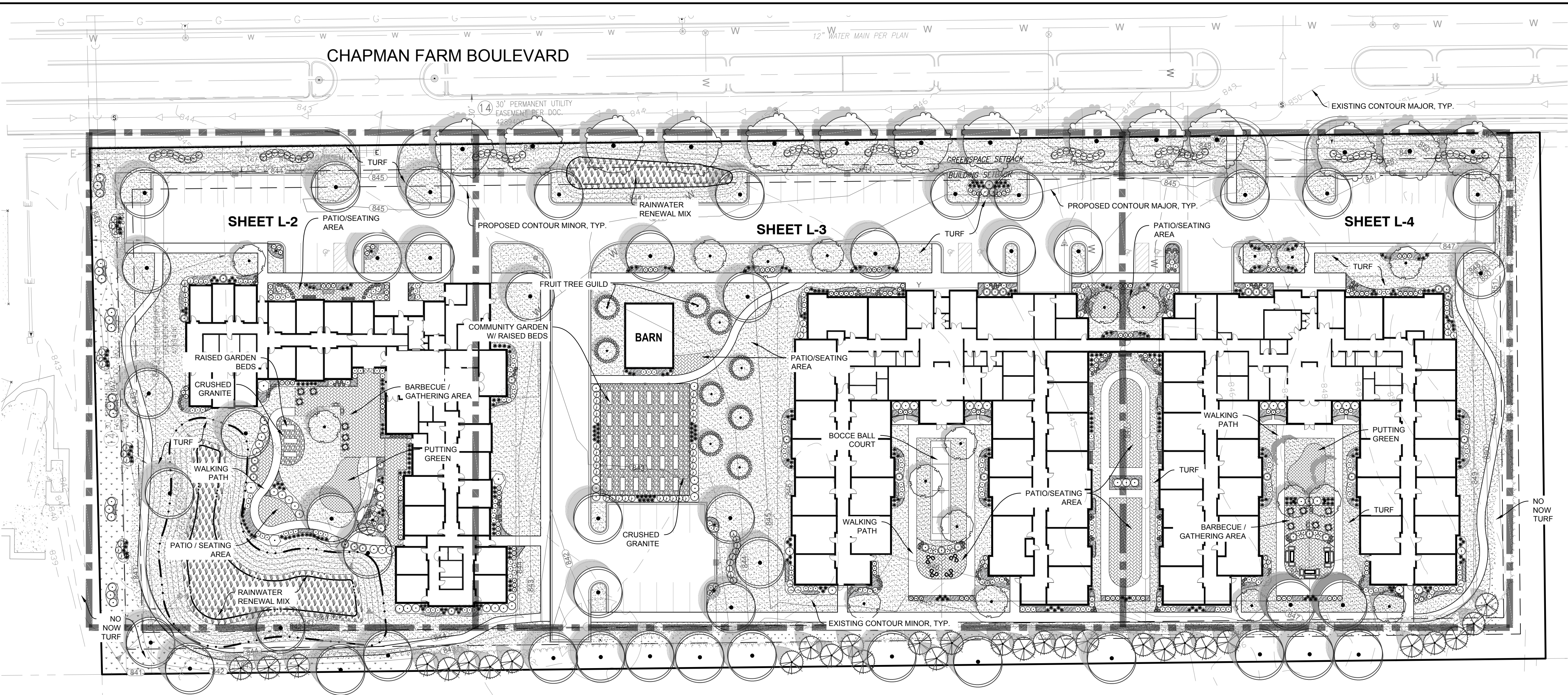


 PINNACLE ENGINEERING GROUP ENGINEERING NATURAL RESOURCES SURVEYING	PLAN DESIGN DELIVER www.pinnacle-engr.com WISCONSIN OFFICE: 20725 WATERTOWN ROAD, SUITE 100 BROOKFIELD, WI 53186 (262) 754-8886 CHICAGO MILWAUKEE NATIONWIDE	AZURA - MUKWONAGO MUKWONAGO, WI	EXISTING CONDITIONS	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: center; padding: 5px;">REVISIONS</th> </tr> </thead> <tbody> <tr><td style="height: 20px;"> </td><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td><td style="height: 20px;"> </td></tr> <tr><td style="height: 20px;"> </td><td style="height: 20px;"> </td></tr> </tbody> </table>	REVISIONS										EG JOB No. 5172.00 EG PM JAEK START DATE 02/29/24 SCALE 1" = 30'	SHEET C-1 C-4
REVISIONS																





THESE PLANS AND DESIGNS ARE COPYRIGHT PROTECTED AND MAY NOT BE USED IN WHOLE OR IN PART WITHOUT THE WRITTEN CONSENT OF PINNACLE ENGINEERING GROUP, LLC. REVIEWER: DUB DESIGNED: SAT DRAFTED: SAT



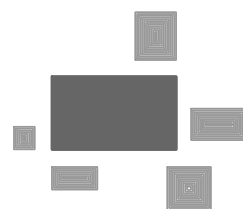
GRAPHICAL SCALE (FEET)

0 1" = 40' 80'

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
SHRUB AREAS					
	2,582 sf	PERENNIALS			
		Allium x 'Millenium'	Millenium Ornamental Onion	4.5' Cont.	15' T x 12' W
		Aster novae-angliae 'Purple Dome'	Purple Dome New England Aster	4.5' Cont.	18' T x 24' W
		Brunnera macrophylla 'Jack Frost'	Jack Frost Siberian Bugloss	4.5' Cont.	18' T x 18' W
		Coreopsis grandiflora 'Sunburst'	Sunburst Tickseed	4.5' Cont.	12' T x 18' W
		Dianthus gratianopolitanus 'Firewitch'	Firewitch Cheddar Pink	4.5' Cont.	6' T x 12' W
		Echinacea x 'Balsomemym' TM	Sombrero Lemon Yellow Improved Coneflower	4.5' cont.	28' T x 28' W
		Eupatorium dubium 'Little Joe'	Joe-Pye Weed	4.5' Cont.	48' T x 36' W
		Heuchera x 'Pink Panther'	Pink Panther Coral Bells	---	---
		Hosta x 'Rainforest Sunrise'	Rainforest Sunrise Hosta	4.5' Cont.	12' T x 18' W
		Ligularia x 'Little Rocket'	Little Rocket Ligularia	---	---
		Nepeta racemosa 'Snowflake'	Snowflake White Catmint	4.5' Cont.	12' T x 16' W
		Perovskia atriplicifolia 'Little Spire' TM	Little Spire Russian Sage	4.5' Cont.	24' T x 24' W
		Phlox paniculata 'Glamour Girl'	Glamour Girl Garden Phlox	4.5' Cont.	24' T x 24' W
		Sedum x 'Autumn Fire'	Autumn Fire Sedum	4.5' Cont.	24' T x 18' W

SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	REMARKS
GROUND COVERS				
	6,160 sf	RAIN WATER RENEWAL MIX		
	99,318 sf	TURF		
	8,508 sf	NO MOW TURF		

CONCEPT PLANT SCHEDULE					
SYMBOL	QTY	BOTANICAL NAME	COMMON NAME	SIZE	REMARKS
TREES					
	48	DECIDUOUS TREES			
		Aesculus hippocastanum 'Baumannii'	Horse Chestnut	2.5' Cal.	60' T x 45' W
		Betula nigra 'Heritage'	Heritage River Birch Multi-Stem	2.5' Cal.	50' T x 50' W
		Liriodendron tulipifera 'Emerald City'	Emerald City Tulip Tree	2.5' Cal.	55' T x 25' W
	18	ORNAMENTAL TREES			
		Acer griseum	Paperbark Maple	1.5' Cal.	25' T x 20' W
		Amelanchier x grandiflora 'Princess Diana'	Princess Diana Serviceberry	1.5' Cal.	18' T x 14' W
		Carpinus caroliniana 'JN Strain'	Fire King Musclemwood	1.5' Cal.	30' T x 30' W
		Chionanthus virginicus	White Fringetree	1.5' Cal.	20' T x 15' W
		Cornus alternifolia	Pagoda Dogwood	1.5' Cal.	20' T x 25' W
		Heptacodium miconioides	Seven Sons Flower	5' Ht.	15' T x 10' W
		Malus x 'Purple Prince'	Purple Prince Crabapple	1.5' Cal.	20' T x 20' W
	31	EVERGREEN TREES			
		Abies koreana 'Aurea'	Golden Korean Fir	4' Ht.	25' T x 15' W
		Picea abies	Norway Spruce	4' Ht.	60' T x 25' W
		Pinus bungeana	Lacebark Pine	4' Ht.	40' T x 30' W
	14	STREET TREES			
		Acer x freemianii 'Sienna'	Sienna Glen Maple	2.5' Cal.	50' T x 35' W
		Tilia americana 'Redmond'	Redmond American Linden	2.5' Cal.	50' T x 35' W
		Ulmus x 'Morton Glossy'	Triumph Elm	2.5' Cal.	55' T x 40' W
	9	FRUIT TREES			
		Malus x domestica 'CandyCrisp'	CandyCrisp Apple	4' Ht.	12' T x 12' W
		Malus x domestica 'Red Rome'	Red Rome Apple	4' Ht.	15' T x 15' W
		Malus x domestica 'Stark Golden Delicious'	Stark Golden Delicious Apple	4' Ht.	15' T x 15' W
		Prunus avium 'Lapins'	Lapins Sweet Cherry	4' Ht.	12' T x 12' W
		Prunus avium 'Napoleon'	Napoleon Sweet Cherry	4' Ht.	12' T x 12' W
		Prunus persica 'Belle of Georgia'	Belle of Georgia Peach	4' Ht.	12' T x 12' W
		Prunus persica 'Canadian Harmony'	Canadian Harmony Peach	4' Ht.	12' T x 12' W
		Pyrus communis 'Moonglow'	Moonglow European Pear	4' Ht.	15' T x 10' W
		Pyrus communis 'Seckel'	Seckel European Pear	4' Ht.	15' T x 10' W
SHRUBS					
	151	UPRIGHT EVERGREEN SHRUB			
		Juniperus chinensis 'Trautman'	Trautman Juniper	4' Ht.	12' T x 4' W
		Juniperus chinensis 'J.N. Select Blue'	Star Power Juniper	4' Ht.	16' T x 8' W
		Taxus x media 'SMNTHDC'	Stonehenge® Anglo-Japanese Yew	4' Ht.	10' T x 4' W
		Thuja occidentalis 'Holmstrup'	Holmstrup Cedar	4' Ht.	14' T x 4' W
	5	LARGE DECIDUOUS SHRUB			
		Cotinus coggygia 'Royal Purple'	Royal Purple Smokebush	36" Ht.	12' T x 12' W
		Hamamelis vernalis 'Kohankie Red'	Kohankie Red Ozark Witchazel	36" Ht.	9' T x 10' W
		Magnolia stellata	Star Magnolia	36" Ht.	15' T x 10' W
		Physocarpus opulifolius 'Center Glow'	Center Glow Ninebark	36" Ht.	8' T x 8' W
		Syringa vulgaris 'Beauty of Moscow'	Beauty of Moscow Common Lilac	36" Ht.	8' T x 7' W
	32	MEDIUM EVERGREEN SHRUB			
		Juniperus chinensis 'Mint Julep'	Mint Julep Juniper	24" Ht.	6' T x 7' W
		Picea abies 'Nidiformis'	Nest Spruce	24" Ht.	4' T x 5' W
		Pinus cembra 'Chalet'	Chalet Swiss Stone Pine	24" Ht.	8' T x 4' W
		Taxus x media 'Densiformis'	Dense Yew	24" Ht.	5' T x 6' W
	150	SMALL EVERGREEN SHRUB			
		Juniperus chinensis 'Pfizeriana Kallays'	Kallay Compact Juniper	18" W	3' T x 7' W
		Juniperus horizontalis 'Blue Forest'	Blue Forest Creeping Juniper	18" W	1' T x 4' W
		Juniperus squamata 'Blue Star'	Blue Star Juniper	18" W	3' T x 4' W
		Pinus mugo 'Slowmound'	Mugo Pine	18" Ht.	3' T x 3' W
		Pinus strobus 'Blue Shag'	Blue Shag White Pine	18" Ht.	4' T x 3' W
		Taxus x media 'SMNTHDB'	Stonehenge Dark Druid® Yew	18" Ht.	3' T x 3' W
		Thuja occidentalis 'Hetz Midget'	Hetz Midget Arborvitae	18" W	3' T x 3' W
		Tsuga canadensis 'Jeddelloh'	Jeddelloh Canadian Hemlock	18" Ht.	2' T x 4' W
	363	TALL ORNAMENTAL GRASS			
		Calamagrostis x acutiflora 'Karl Foerster'	Feather Reed Grass	1 gal.	4' T x 2' W
		Deschampsia cespitosa 'Schottland'	Schottland Tufted Hair Grass	1 gal.	4' T x 2' W
		Miscanthus sinensis 'Oktoberfest'	Oktoberfest Miscanthus	1 gal.	4' T x 3' W
		Panicum virgatum 'Heavy Metal'	Blue Switch Grass	1 gal.	4' T x 3' W
		Schizachyrium scoparium 'Standing Ovation'	Standing Ovation Little Bluestem	1 gal.	40" T x 18" W
	168	SHORT ORNAMENTAL GRASS			
		Deschampsia cespitosa 'Bronze Veil'	Bronze Veil Tufted Hair Grass	1 gal.	18" T x 24" W
		Hakonechloa macra 'Aureola'	Golden Variegated Forest Grass	1 gal.	18" T x 24" W
		Miscanthus sinensis 'Little Kitten'	Little Kitten Eulalia Grass	1 gal.	24" T x 15" W
		Pennisetum alopecuroides 'Little Bunny'	Little Bunny Fountain Grass	1 gal.	18" T x 18" W
	221	SMALL DECIDUOUS SHRUB			
		Cornus sanguinea 'Cato'	Arctic Sun Bloodtwig Dogwood	18" Ht.	3' T x 3' W
		Diervilla x 'G2X88544'	Kodiak Orange Diervilla	18" Ht.	4' T x 4' W
		Hydrangea paniculata 'Bobo'	Bobo Hydrangea	18" Ht.	3' T x 4' W
		Itea virginica 'Bailteane'	Love Child® Sweetspire	18" Ht.	3' T x 3' W
		Physocarpus opulifolius 'Nanus'	Dwarf Ninebark	18" Ht.	2' T x 3' W
		Rosa x 'Coral Cove'	Coral Cove Rose	18" Ht.	3' T x 3' W
		Syringa x 'SMNJRP1'	Blooming Dwarf Pink Lilac	18" Ht.	4' T x 3' W
		Weigela florida 'Bokraspiw'	Spilled Wine Weigela	18" Ht.	3' T x 3' W
	79	MEDIUM DECIDUOUS SHRUB			
		Cephalanthus occidentalis 'SMCOSS'	Sugar Shack® Buttonbush	24" Ht.	5' T x 5' W
		Cornus sericea 'Bergeson's Compact'	Bergeson's Red Twig Dogwood	24" Ht.	5' T x 5' W
		Cotinus coggygia 'Lilla'	Lilla Dwarf Smoke Tree	24" Ht.	4' T x 4' W
		Hydrangea p 'Vanilla Strawberry'	Vanilla Strawberry Hydrangea	24" Ht.	6' T x 5' W
		Philadelphus coronarius 'Aureus'	Golden Mockorange	24" Ht.	6' T x 5' W
		Physocarpus opulifolius 'Amber Jubilee' TF	Amber Jubilee Ninebark TF	24" Ht.	6' T x 5' W



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20725 WATERTOWN ROAD, SUITE 100
BROOKFIELD, WI 53186
(262) 754-8888

AZURA - MUKWONAGO

MUKWONAGO, WI

LANDSCAPE OVERVIEW

REVISIONS

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REG JOB No. - \$172.00
REG PM - AEL
START DATE - 02/29/24
SCALE - 1" = 40'

SHEET

L-1

L-6

LANDSCAPE OVERVIEW

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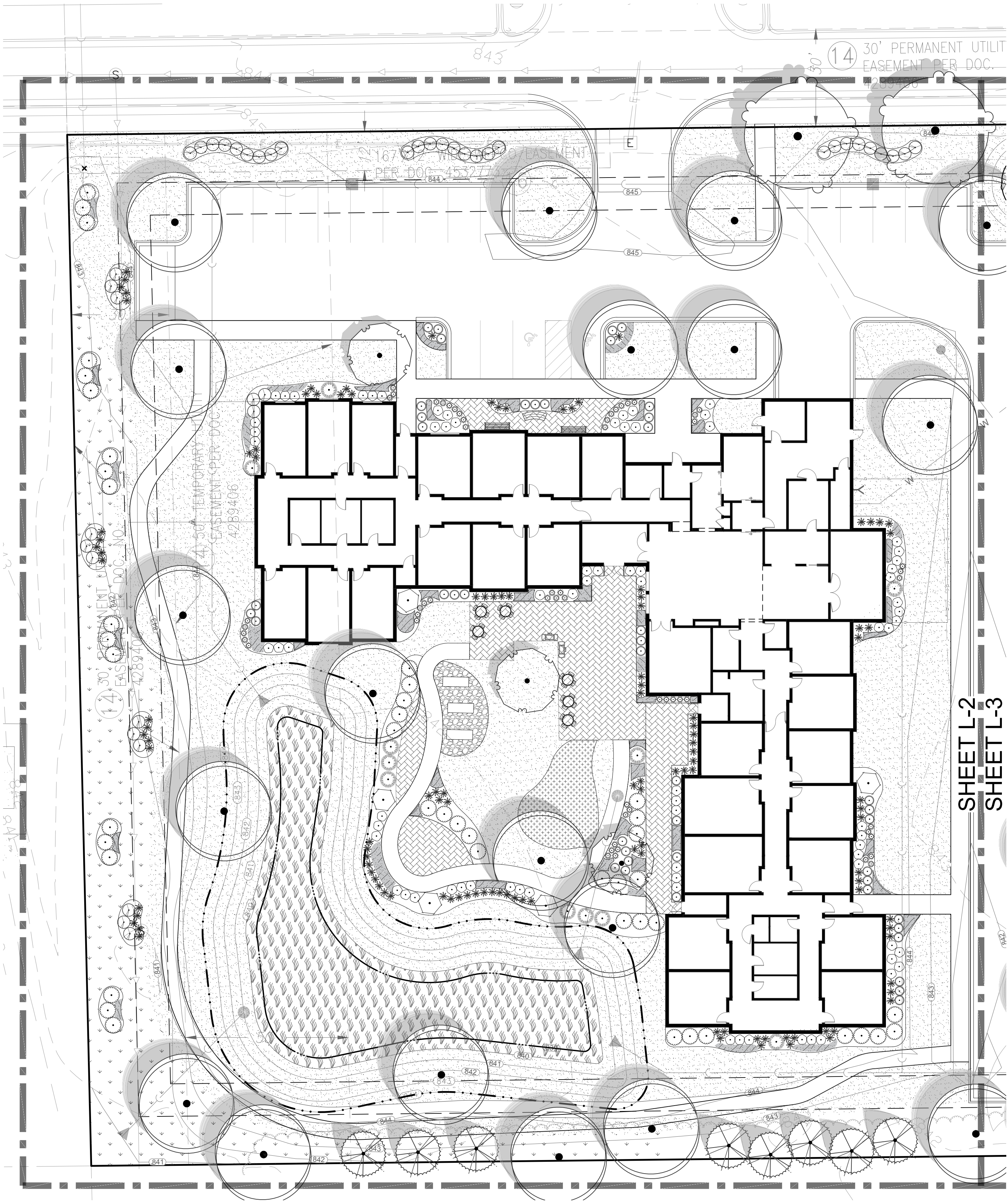
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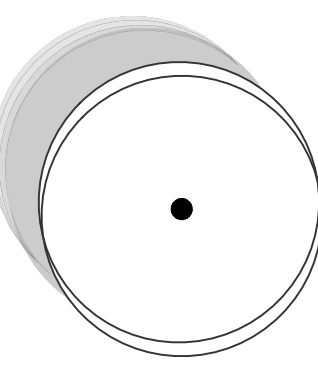
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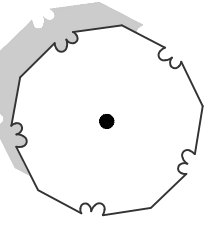
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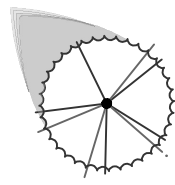


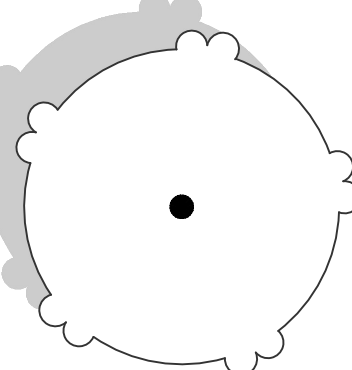
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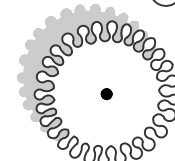
CONCEPT PLANT KEY

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DECIDUOUS TREES
Aesculus hippocastanum 'Baumannii' / Horse Chestnut
Betula nigra 'Heritage' / Heritage River Birch Multi-Stem
Liriodendron tulipifera 'Emerald City' / Emerald City Tulip Tree
- 

ORNAMENTAL TREES
Acer griseum / Paperbark Maple
Amelanchier x grandiflora 'Princess Diana' / Princess Diana Serviceberry
Carpinus caroliniana 'JN Strain' / Fire King Muscledwood
Chionanthus virginicus / White Fringetree
Cornus alternifolia / Pagoda Dogwood
Heptacodium miconioides / Seven Sons Flower
Malus x 'Purple Prince' / Purple Prince Crabapple
- 

EVERGREEN TREES
Abies koreana 'Aurea' / Golden Korean Fir
Picea abies / Norway Spruce
Pinus bungeana / Lacebark Pine
- 

STREET TREES
Acer x freemanii 'Sienna' / Sienna Glen Maple
Tilia americana 'Redmond' / Redmond American Linden
Ulmus x Morton Glossy / Triumph Elm
- 

FRUIT TREES
Malus x domestica 'CandyCrisp' / CandyCrisp Apple
Malus x domestica 'Red Rome' / Red Rome Apple
Malus x domestica 'Stark Golden Delicious' / Stark Golden Delicious Apple
Prunus avium 'Lapins' / Lapins Sweet Cherry
Prunus avium 'Napoleon' / Napoleon Sweet Cherry
Prunus persica 'Belle of Georgia' / Belle of Georgia Peach
Prunus persica 'Canadian Harmony' / Canadian Harmony Peach
Pyrus communis 'Moonglow' / Moonglow European Pear
Pyrus communis 'Seckel' / Seckel European Pear
- 

UPRIGHT EVERGREEN SHRUB
Juniperus chinensis 'Trautman' / Trautman Juniper
Juniperus chinensis 'J.N. Select Blue' / Star Power Juniper
Taxus x media 'SMNTHDC' / Stonehenge® Anglo-Japanese Yew
Thuja occidentalis 'Holmstrup' / Holmstrup Cedar
- 

LARGE DECIDUOUS SHRUB
Cotinus coggygia 'Royal Purple' / Royal Purple Smokebush
Hamamelis vernalis 'Kohankie Red' / Kohankie Red Ozark Witchazel
Magnolia stellata / Star Magnolia
Physocarpus opulifolius 'Center Glow' / Center Glow Ninebark
Syringa vulgaris 'Beauty of Moscow' / Beauty of Moscow Common Lilac
- 

MEDIUM EVERGREEN SHRUB
Juniperus chinensis 'Mint Julep' / Mint Julep Juniper
Picea abies 'Nidiformis' / Nest Spruce
Pinus cembra 'Chalet' / Chalet Swiss Stone Pine
Taxus x media 'Densiformis' / Dense Yew
- 

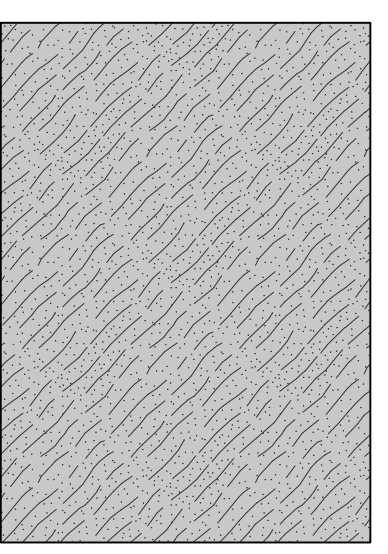
MEDIUM DECIDUOUS SHRUB
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Philadelphus coronarius 'Aureus' / Golden Mockorange
Physocarpus opulifolius 'Amber Jubilee' TF / Amber Jubilee Ninebark TF
- 

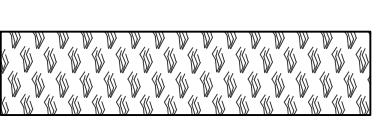
SMALL EVERGREEN SHRUB
Juniperus chinensis 'Pfitzeriana Kallays' / Kallay Compact Juniper
Juniperus horizontalis 'Blue Forest' / Blue Forest Creeping Juniper
Juniperus squamata 'Blue Star' / Blue Star Juniper
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Thuja occidentalis 'Hetz Midget' / Hetz Midget Arborvitae
Tsuga canadensis 'Jeddlohn' / Jeddlohn Canadian Hemlock

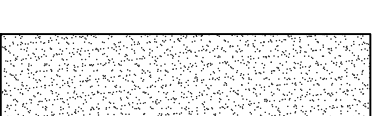
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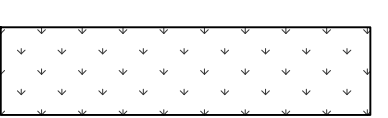
SMALL DECIDUOUS SHRUB
Cornus sanguinea 'Cato' / Arctic Sun Bloodtwig Dogwood
Diervilla x 'G2X88544' / Kodiak Orange Diervilla
Hydrangea paniculata 'Bobo' / Bobo Hydrangea
Itea virginica 'Bailleteone' / Love Child® Sweetpire
Physocarpus opulifolius 'Nanus' / Dwarf Ninebark
Rosa x 'Coral Cove' / Coral Cove Rose
Syringa x 'SMNJRPI' / Bloomerang Dwarf Pink Lilac
Weigela florida 'Bokraspiwi' / Spilled Wine Weigela
- 

SHORT ORNAMENTAL GRASS
Deschampsia cespitosa 'Bronze Veil' / Bronze Veil Tufted Hair Grass
Hakonechloa macra 'Aureola' / Golden Variegated Forest Grass
Miscanthus sinensis 'Little Kitten' / Little Kitten Eulalia Grass
Pennisetum alopecuroides 'Little Bunny' / Little Bunny Fountain Grass
- 

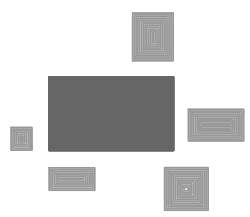
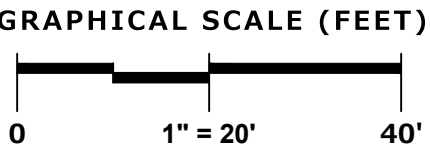
TALL ORNAMENTAL GRASS
Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass
Deschampsia cespitosa 'Schottland' / Schottland Tufted Hair Grass
Miscanthus sinensis 'Oktoberfest' / Oktoberfest Miscanthus
Panicum virgatum 'Heavy Metal' / Blue Switch Grass
Schizachyrium scoparium 'Standing Ovation' / Standing Ovation Little Bluestem
- 

PERENNIALS
Allium x 'Millenium' / Millenium Ornamental Onion
Aster novae-angliae 'Purple Dome' / Purple Dome New England Aster
Brunnera macrophylla 'Jack Frost' / Jack Frost Siberian Bugloss
Coreopsis grandiflora 'Sunburst' / Sunburst Tickseed
Dianthus gratianopolitanus 'Firewitch' / Firewitch Cheddar Pink
Echinacea x 'Balsomemyim' TM / Sombroero Lemon Yellow Improved Coneflower
Eupatorium dubium 'Little Joe' / Joe-Pye Weed
Heuchera x 'Pink Panther' / Pink Panther Coral Bells
Hosta x 'Rainforest Sunrise' / Rainforest Sunrise Hosta
Ligularia x 'Little Rocket' / Little Rocket Ligularia
Nepeta racemosa 'Snowflake' / Snowflake White Catmint
Perovskia atriplicifolia 'Little Spire' TM / Little Spire Russian Sage
Phlox paniculata 'Glamour Girl' / Glamour Girl Garden Phlox
Sedum x 'Autumn Fire' / Autumn Fire Sedum
- 

RAIN WATER RENEWAL MIX
- 

TURF
- 

NO MOW TURF



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MUKWONAGO, WI

LANDSCAPE ENLARGEMENT

REVISIONS

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PEC JOB No. **5172.00**
PEC PW **AELK**
START DATE **02/29/24**
SCALE **1" = 20'**

SHEET
L-2
L-6

LANDSCAPE ENLARGEMENT

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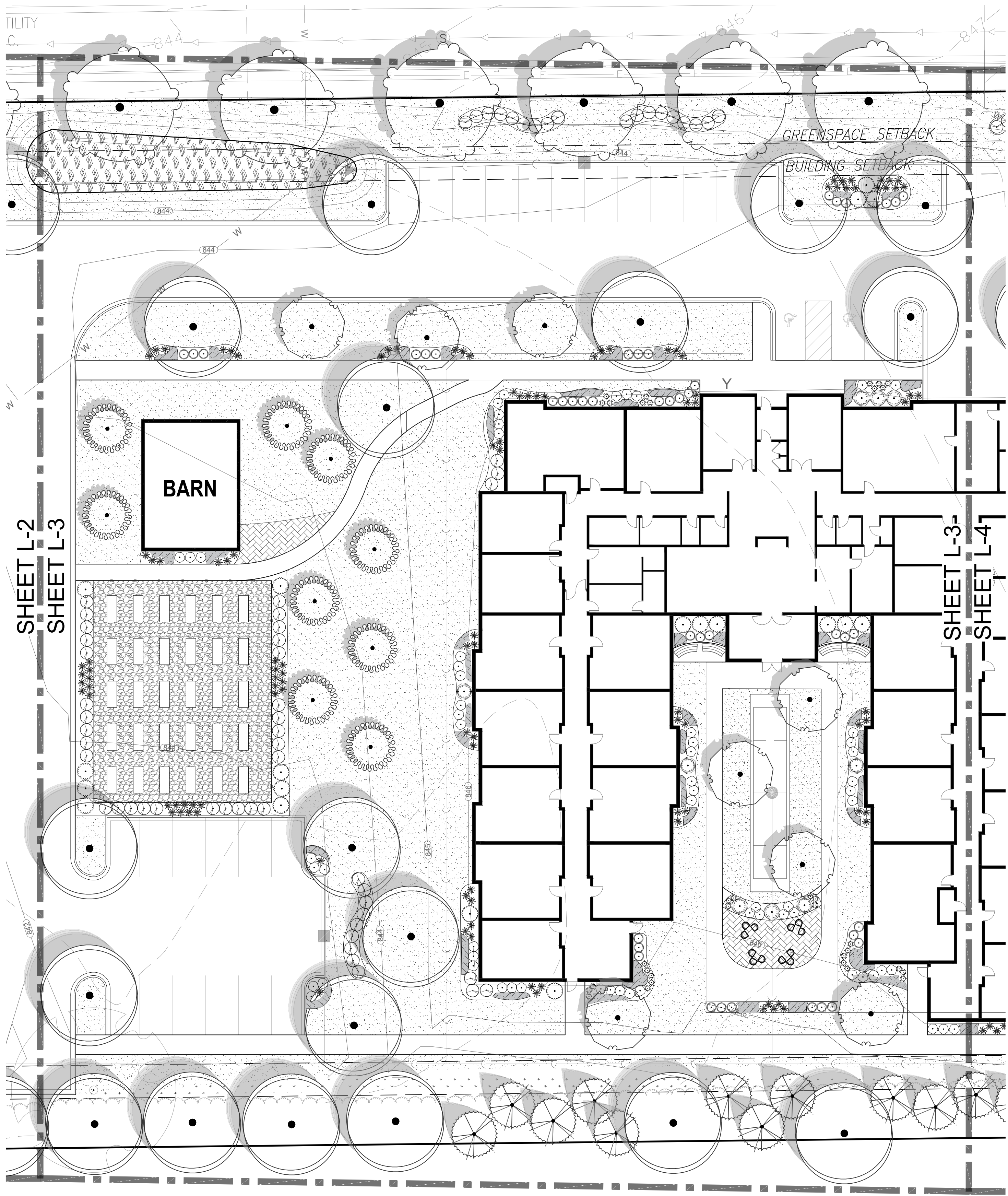
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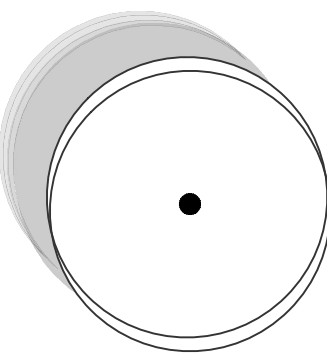
DESIGNED: SAT

DRAFTED: SAT

REVIEWED: DJB



CONCEPT PLANT KEY



DECIDUOUS TREES

Aesculus hippocastanum 'Baumannii' / Horse Chestnut
Betula nigra 'Heritage' / Heritage River Birch Multi-Stem
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Prunus persica 'Canadian Harmony' / Canadian Harmony Peach
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Syringa vulgaris 'Beauty of Moscow' / Beauty of Moscow Common Lilac

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Juniperus chinensis 'Mint Julep' / Mint Julep Juniper
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Pinus cembra 'Chalet' / Chalet Swiss Stone Pine
Taxus x media 'Densiformis' / Dense Yew

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Hydrangea p 'Vanilla Strawberry' / Vanilla Strawberry Hydrangea
Philadelphus coronarius 'Aureus' / Golden Mockorange
Physocarpus opulifolius 'Amber Jubilee' TF / Amber Jubilee Ninebark TF

SMALL EVERGREEN SHRUB

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Juniperus horizontalis 'Blue Forest' / Blue Forest Creeping Juniper
Juniperus squamata 'Blue Star' / Blue Star Juniper
Pinus mugo 'Slowmound' / Mugo Pine
Pinus strobus 'Blue Shag' / Blue Shag White Pine
Taxus x media 'SMNTHDB' / Stonehenge Dark Druid® Yew
Thuja occidentalis 'Hetz Midget' / Hetz Midget Arborvitae
Tsuga canadensis 'Jeddleloh' / Jeddleloh Canadian Hemlock

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Pennisetum alopecuroides 'Little Bunny' / Little Bunny Fountain Grass

TALL ORNAMENTAL GRASS

Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass
Deschampsia cespitosa 'Schottland' / Schottland Tufted Hair Grass
Miscanthus sinensis 'Oktoberfest' / Oktoberfest Miscanthus
Panicum virgatum 'Heavy Metal' / Blue Switch Grass
Schizachyrium scoparium 'Standing Ovation' / Standing Ovation Little Bluestem

PERENNIALS

Allium x 'Millenium' / Millenium Ornamental Onion
Aster novae-angliae 'Purple Dome' / Purple Dome New England Aster
Brunnera macrophylla 'Jack Frost' / Jack Frost Siberian Bugloss
Coreopsis grandiflora 'Sunburst' / Sunburst Tickseed
Dianthus gratianopolitanus 'Firewitch' / Firewitch Cheddar Pink
Echinacea x 'Balsomemym' TM / Sombbrero Lemon Yellow Improved Coneflower
Eupatorium dubium 'Little Joe' / Joe-Pye Weed
Heuchera x 'Pink Panther' / Pink Panther Coral Bells
Hosta x 'Rainforest Sunrise' / Rainforest Sunrise Hosta
Ligularia x 'Little Rocket' / Little Rocket Ligularia
Nepeta racemosa 'Snowflake' / Snowflake White Catmint
Perovskia atriplicifolia 'Little Spire' TM / Little Spire Russian Sage
Phlox paniculata 'Glamour Girl' / Glamour Girl Garden Phlox
Sedum x 'Autumn Fire' / Autumn Fire Sedum

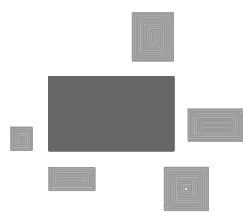
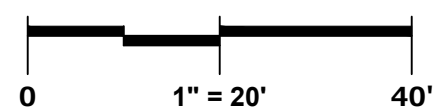
RAIN WATER RENEWAL MIX

TURF

NO MOW TURF



GRAPHICAL SCALE (FEET)



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MUKWONAGO, WI

LANDSCAPE ENLARGEMENT

REVISIONS

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PEC JOB No. 5172.00
PEC PM AELK
START DATE 02/29/24
SCALE 1" = 20'

SHEET
L-3
L-6

LANDSCAPE ENLARGEMENT

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CONCEPT PLANT KEY

DECIDUOUS TREES

Aesculus hippocastanum 'Baumannii' / Horse Chestnut
Betula nigra 'Heritage' / Heritage River Birch Muti-Stem
Liriodendron tulipifera 'Emerald City' / Emerald City Tulip Tree

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 Aesculus hippocastanum 'Baumannii' / Horse Chestnut
 Betula nigra 'Heritage' / Heritage River Birch Muti-Stem
 Liriodendron tulipifera 'Emerald City' / Emerald City Tulip Tree

ORNAMENTAL TREES

Acer griseum / Paperbark Maple
Amelanchier x grandiflora 'Princess Diana' / Princess Diana Serviceberry
Carpinus caroliniana 'JN Strain' / Fire King Musclewood
Chionanthus virginicus / White Fringetree
Cornus alternifolia / Pagoda Dogwood
Heptacodium miconioides / Seven Sons Flower
Malus x 'Purple Prince' / Purple Prince Crabapple

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 Cornus alternifolia / Pagoda Dogwood
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 Malus x 'Purple Prince' / Purple Prince Crabapple

EVERGREEN TREES
Abies koreana 'Aurea' / Golden Korean Fir
Picea abies / Norway Spruce
Pinus bungeana / Lacebark Pine

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Abies koreana 'Aurea' / Golden Korean Fir
Picea abies / Norway Spruce
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STREET TREES

Acer x freemanii 'Sienna' / Sienna Glen Maple
Tilia americana 'Redmond' / Redmond American Linden
Ulmus x 'Morton Glossy' / Triumph Elm

STREET TREES
Acer x freemanii 'Sienna' / Sienna Glen Maple
Tilia americana 'Redmond' / Redmond American Linden
Ulmus x 'Morton Glossy' / Triumph Elm

FRUIT TREES

- Malus x domestica 'CandyCrisp' / CandyCrisp Apple
- Malus x domestica 'Red Rome' / Red Rome Apple
- Malus x domestica 'Stark Golden Delicious' / Stark Golden Delicious Apple
- Prunus avium 'Lapins' / Lapins Sweet Cherry
- Prunus avium 'Napoleon' / Napoleon Sweet Cherry
- Prunus persica 'Belle of Georgia' / Belle of Georgia Peach
- Prunus persica 'Canadian Harmony' / Canadian Harmony Peach
- Pyrus communis 'Moonglow' / Moonglow European Pear
- Pyrus communis 'Seckel' / Seckel European Pear

Malus x domestica 'CandyCrisp' / CandyCrisp Apple
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UPRIGHT EVERGREEN SHRUB
 Juniperus chinensis 'Trautman' / Trautman Juniper
 Juniperus chinensis 'J.N. Select Blue' / Star Power Juniper
 Taxus x media 'SMNTHDC' / Stonehenge® Anglo-Japanese Yew
 Thuja occidentalis 'Holmstrup' / Holmstrup Cedar

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Juniperus chinensis 'Trautman' / Trautman Juniper
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Taxus x media 'SMNTHDC' / Stonehenge® Anglo-Japanese Yew
Thuja occidentalis 'Holmstrup' / Holmstrup Cedar

LARGE DECIDUOUS SHRUB
 Cotinus coggogryia 'Royal Purple' / Royal Purple Smokebush
 Hamamelis vernalis 'Kohankie Red' / Kohankie Red Ozark Witchazel
 Magnolia stellata / Star Magnolia
 Physocarpus opulifolius 'Center Glow' / Center Glow Ninebark
 Syringa vulgaris 'Beauty of Moscow' / Beauty of Moscow Common Lilac

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MEDIUM EVERGREEN SHRUB
 Juniperus chinensis 'Mint Julep' / Mint Julep Juniper
 Picea abies 'Nidiformis' / Nest Spruce
 Pinus cembra 'Chalet' / Chalet Swiss Stone Pine
 Taxus x media 'Densiformis' / Dense Yew

MEDIUM EVERGREEN SHRUB
Juniperus chinensis 'Mint Julep' / Mint Julep Juniper
Picea abies 'Nidiformis' / Nest Spruce
Pinus cembra 'Chalet' / Chalet Swiss Stone Pine
Taxus x media 'Densiformis' / Dense Yew

MEDIUM DECIDUOUS SHRUB
 Cephalanthus occidentalis 'SMCOSS' / Sugar Shack® Buttonbush
 Cornus sericea 'Bergeson's Compact' / Bergeson's Red Twig Dogwood
 Cotinus coggygria 'Lilla' / Lilla Dwarf Smoke Tree
 Hydrangea p 'Vanilla Strawberry' / Vanilla Strawberry Hydrangea
 Philadelphus coronarius 'Aureus' / Golden Mockorange
 Physocarpus opulifolius 'Amber Jubilee' TF / Amber Jubilee Ninebark TF

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 Philadelphus coronarius 'Aureus' / Golden Mockorange
 Physocarpus opulifolius 'Amber Jubilee' / TF Amber Jubilee Ninebark TF

SMALL EVERGREEN SHRUB
 Juniperus chinensis 'Platizeriana Kallays' / Kallay Compact Juniper
 Juniperus horizontalis 'Blue Forest' / Blue Forest Creeping Juniper
 Juniperus squamata 'Blue Star' / Blue Star Juniper
 Pinus mugo 'Slowmound' / Mugo Pine
 Pinus strobus 'Blue Shag' / Blue Shag White Pine
 Taxus x media 'SMNTHDB' / Stonehenge Dark Druid® Yew
 Thuja occidentalis 'Hetz Midget' / Hetz Midget Arborvitae
 Tsuga canadensis 'Jeddelloh' / Jeddelloh Canadian Hemlock

SMALL EVERGREEN SHRUB
Juniperus chinensis 'Pfitzeriana Kallays' / Kallay Compact Juniper
Juniperus horizontalis 'Blue Forest' / Blue Forest Creeping Juniper
Juniperus squamata 'Blue Star' / Blue Star Juniper
Pinus mugo 'Slowmound' / Mugo Pine
Pinus strobus 'Blue Shag' / Blue Shag White Pine
Taxus x media 'SMNTHDB' / Stonehenge Dark Druid® Yew
Thuja occidentalis 'Hetz Midgelt' / Hetz Midgelt Arborvitae
Tsuga canadensis 'Jeddledoh' / Jeddledoh Canadian Hemlock

SMALL DECIDUOUS SHRUB
 Cornus sanguinea 'Cato' / Arctic Sun Bloodtwig Dogwood
 Diervilla x 'G2X88544' / Kodiak Orange Diervilla
 Hydrangea paniculata 'Bobo' / Bobo Hydrangea
 Itea virginica 'Bailethane' / Love Child® Sweetspire
 Physocarpus opulifolius 'Nanus' / Dwarf Ninebark
 Rosa x 'Coral Cove' / Coral Cove Rose
 Syringa x 'SMNJRP' / Bloomingar Dwarf Pink Lilac
 Weigela florida 'Bokraspiwi' / Spilled Wine Weigela

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SHORT ORNAMENTAL GRASS

Deschampsia cespitosa 'Bronze Veil' / Bronze Veil Tufted Hair Grass
 Hakonechloa macra 'Aureola' / Golden Variegated Forest Grass
 Miscanthus sinensis 'Little Kitten' / Little Kitten Eulalia Grass
 Pennisetum alopecuroides 'Little Bunny' / Little Bunny Fountain Grass

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TALL ORNAMENTAL GRASS
 Calamagrostis x acutiflora `Karl Foerster' / Feather Reed Grass
 Deschampsia cespitosa `Schottland' / Schottland Tufted Hair Grass
 Miscanthus sinensis `Oktoberfest' / Oktoberfest Miscanthus
 Panicum virgatum `Heavy Metal' / Blue Switch Grass
 Schizachyrium scoparium `Standing Ovation' / Standing Ovation Little Bluestem

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 Calamagrostis x acutiflora 'Karl Foerster' / Feather Reed Grass
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PERENNIALS

- Allium x 'Millenium' / Millennium Ornamental Onion
- Aster novae-angliae 'Purple Dome' / Purple Dome New England Aster
- Brunnera macrophylla 'Jack Frost' / Jack Frost Siberian Bugloss
- Ceropepis grandiflora 'Sunburst' / Sunburst Tickseed
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- Echinacea x 'Balsomemymint' TM / Sombrore Lemon Yellow Improved Coneflower
- Eupatorium dubium 'Little Joe' / Joe-Pye Weed
- Heuchera x 'Pink Panther' / Pink Panther Coral Bells
- Hosta x 'Rainforest Sunrise' / Rainforest Sunrise Hosta
- Ligularia x 'Little Rocket' / Little Rocket Ligularia
- Nepeta racemosa 'Snowflake' / Snowflake White Catmint
- Perovskia atriplicifolia 'Little Spire' TM / Little Spire Russian Sage
- Phlox paniculata 'Glamour Girl' / Glamour Girl Garden Phlox
- Sedum x 'Autumn Fire' / Autumn Fire Sedum

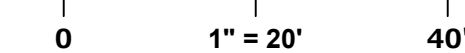
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RAIN WATER RENEWAL MIX

TURF

NO MOW TURF



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5172.00	REG 108 No
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REG PM AEK
START DATE 02/29/24

SHEET
L-4
L-6

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DESIGNED: SAT
DRAFTED: SAT
REVIEWED: DJB

GENERAL PLANTING NOTES

1. THE LAYOUT OF ALL PLANTING BEDS AND INDIVIDUAL TREES AND SHRUBS SHALL BE STAKED BY THE CONTRACTOR IN ADVANCE OF INSTALLATION. FLAGGING, STAKES, OR PAINT MAY BE USED TO DELINEATE LOCATIONS AS SCALED FROM THE PLANS. AN APPROVED REPRESENTATIVE WILL REVIEW THESE LOCATIONS WITH THE CONTRACTOR AND MAKE MINOR ADJUSTMENTS AS NECESSARY. BED LAYOUT SHALL ALSO INCLUDE PERENNIAL GROUPINGS BY SPECIES.

2. THE CONTRACTOR IS RESPONSIBLE FOR INDEPENDENTLY DETERMINING THE PLANT MATERIAL QUANTITIES REQUIRED BY THE LANDSCAPE PLANS. REPORT ANY DISCREPANCIES TO THE LANDSCAPE ARCHITECT.

3. NO PLANT MATERIAL OR PLANT SIZE SUBSTITUTIONS WILL BE ACCEPTED WITHOUT APPROVAL BY THE LANDSCAPE ARCHITECT. ANY CHANGES SHALL BE SUBMITTED TO THE LANDSCAPE ARCHITECT IN WRITING PRIOR TO INSTALLATION.

4. ALL BNB STOCK SHALL BE NURSERY GROWN IN A CLAY LOAM SOIL FOR A MINIMUM OF THREE GROWING SEASONS WITHIN 200 MILES OF PROJECT LOCATION, IN A ZONE COMPATIBLE WITH USDA HARDINESS ZONE 5A. SEED SHALL BE PROVIDED FROM A NURSERY (WITHIN 200 MILES) WITH A SIMILAR PLANT HARDINESS ZONE AS PROJECT LOCATION. EXISTING SOIL SHALL BE AMENDED PER SOIL ANALYSIS REPORT TO ENSURE A PROPER GROWING MEDIUM IS ACHIEVED.

5. ALL PLANT MATERIAL SHALL COMPLY WITH STANDARDS DESCRIBED IN AMERICAN STANDARD OF NURSERY STOCK - Z60.1 ANSI. LANDSCAPE ARCHITECT OR OWNERS AUTHORIZED REPRESENTATIVE RESERVES THE RIGHT TO INSPECT AND POTENTIALLY REJECT ANY PLANT MATERIAL DEEMED TO NOT MEET THE REQUIRED STANDARDS.

6. ALL STOCK SHALL BE FREE OF DISEASES AND HARMFUL INSECTS, DAMAGE, DISORDERS AND DEFORMITIES.

7. TREES SHALL HAVE SINGLE, STRAIGHT TRUNKS AND WELL BALANCED BRANCH SYSTEMS. MUTLI-STEM TREES SHALL HAVE 3-4 STRAIGHT TRUNKS AND WELL BALANCED BRANCH SYSTEMS. HEIGHT-TO-CALIPER RATIOS SHALL BE CONSISTENT WITH THE LATEST EDITION OF ANSI Z60.1.

8. ROOT SYSTEMS SHALL BE LARGE ENOUGH TO ALLOW FOR FULL RECOVERY OF THE TREE, AND SHALL CONFORM TO STANDARDS AS THEY APPEAR IN THE MOST CURRENT REVISION OF THE AMERICAN ASSOCIATION OF NURSERYMEN'S AMERICAN STANDARD OF NURSERY STOCK ANSI Z60.1.

9. BNB TREES SHALL BE DUG WITH A BALL OF SOIL, NOT SOFT BALLED OR POTTED AND SHALL BE FIRM IN THEIR ROOTBALL. ROOT BALL SHALL BE WRAPPED (WITH BIODEGRADABLE MATERIAL). THE TREE ROOT FLARE, OR COLLAR, SHALL BE AT OR WITHIN THE TOP THREE INCHES OF GRADE.

10. ALL SPRING TREES MUST BE FRESHLY DUG IN THE MOST RECENT SPRING.

11. ALL AUTUMN TREES MUST BE FRESHLY DUG IN THE MOST RECENT AUTUMN.

12. TREES SHALL BE ALIVE, HEALTHY AND APPROPRIATELY MOIST, AT TIME OF DELIVERY. TREES SHALL BE SUBJECT TO INSPECTION FOR CONFORMITY TO SPECIFICATION REQUIREMENTS AND APPROVAL BY THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE. THE LANDSCAPE ARCHITECT OR OWNERS REPRESENTATIVE RESERVES THE RIGHT TO REJECT ANY TREES THAT DO NOT MEET THE SPECIFICATIONS OR THAT HAVE BEEN DAMAGED DURING SHIPMENT. THE LANDSCAPE INSTALLER MUST RECEIVE APPROVAL FROM LANDSCAPE ARCHITECT FOR ANY SUBSTITUTIONS OR ALTERATIONS.

13. ALL PLANT MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH PLANTING DETAILS.

14. ALL PLANTING BEDS SHALL HAVE A MINIMUM 10" DEPTH OF PREPARED SOIL. WITH APPROVAL, EXISTING SOIL MAY BE UTILIZED PROVIDED THE PROPER SOIL AMENDMENTS ARE TILLED THOROUGHLY INTO THE TOP 10" OF SOIL. REFER TO SOIL PLACEMENT NOTES.

15. WHILE PLANTING TREES AND SHRUBS, BACKFILL ¾ OF PLANTING HOLE AND WATER TREE THOROUGHLY BEFORE INSTALLING THE REMAINDER OF SOIL MIXTURE. AFTER ALL SOIL HAS BEEN PLACED INTO THE PLANTING HOLE WATER THOROUGHLY AGAIN.

16. THE CONTRACTOR MUST LABEL ALL TREES WITH THE COMMON AND BOTANICAL NAMES PRIOR TO FINAL INSPECTION.

17. ALL PLANTING BEDS SHALL BE MULCHED WITH 3" DEEP SHREDDED HARDWOOD MULCH, AND ALL TREES PLANTED IN TURF AREAS SHALL RECEIVE A 3" DEEP SHREDDED HARDWOOD MULCHED RING AS SHOWN IN PLANTING DETAILS.

18. ALL PLANTING BEDS AND TREE RINGS SHALL HAVE A 4" DEEP TRENCHED BED EDGE CREATED BY EITHER A FLAT LANDSCAPE SPADE OR MECHANICAL EDGER. BED EDGES ARE TO BE CUT CLEAN AND SMOOTH AS SHOWN ON LANDSCAPE PLANS WITH A CLEAR DEFINITION BETWEEN TURF AND PLANTING AREAS.

19. ALL TURF SEED AREAS SHALL RECEIVE A MINIMUM OF 6" DEPTH OF TOPSOIL. WITH APPROVAL, EXISTING SOIL MAY BE UTILIZED PROVIDED THE PROPER SOIL AMENDMENTS ARE TILLED THOROUGHLY INTO THE TOP 6" OF SOIL AS INDICATED IN THE SOIL PLACEMENT NOTES. REQUIRED AMENDMENTS SHALL BE DETERMINED BASED ON A SOIL ANALYSIS TO BE PERFORMED. ALL TOPSOIL AMENDMENT SHALL BE AGED WEED FREE MANURE OR CLASS 1 ORGANIC MATTER.

20. FOR LAWN SEEDING, APPLY A STARTER FERTILIZER AND SEED UNIFORMLY AT THE RATE RECOMMENDED BY MANUFACTURER, AND PROVIDE A MULCH COVERING THAT IS SUITABLE TO PROMOTE SEED GERMINATION AND TURF ESTABLISHMENT. CONTRACTOR TO PROVIDE FERTILIZER, SEED, AND MULCH SPECIFICATIONS TO THE LANDSCAPE ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION. EROSION CONTROL MEASURES ARE TO BE INSTALLED IN THOSE AREAS REQUIRING STABILIZATION (SWALES, SLOPES EXCEEDING 1:3, AND THOSE LOCATIONS INDICATED IN CIVIL DRAWINGS).

21. THE CONTRACTOR TO ENSURE A SMOOTH, UNIFORM QUALITY TURF IS ACHIEVED WITH NO BARE SPOTS LARGER THAN 6" X 6". ANY BARE SPOTS LARGER THAN 6" X6" AT THE END OF ESTABLISHMENT PERIOD SHALL BE RESEEDDED AT THE CONTRACTORS EXPENSE TO OBTAIN A DENSE, UNIFORM LAWN.

22. ALL FINISH GRADING AND LAWN AREAS TO BE INSTALLED BY LANDSCAPE CONTRACTOR.

23. ALL DISTURBED AREAS WITHIN THE PROJECT SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION.

24. ALL DISTURBED AREAS OUTSIDE THE LIMITS OF WORK SHALL BE RESTORED TO ORIGINAL OR BETTER CONDITION AT NO ADDITIONAL COST TO THE OWNER.

25. THE CONTRACTOR SHALL VERIFY ALL EXISTING UTILITIES, INCLUDING ANY IRRIGATION LINES, PRIOR TO DIGGING. CONSULT DIGGERS HOTLINE.
26. TREES SHALL BE INSTALLED NO CLOSER THAN:
-10 FEET FROM ANY FIRE HYDRANT
- 7 FEET FROM STORM SEWER, SANITARY SEWER LATERALS, DRIVEWAYS, AND WATER SERVICE

27. THE CONTRACTOR SHALL ENSURE THAT SOIL CONDITIONS AND COMPACTION ARE ADEQUATE TO ALLOW FOR PROPER DRAINAGE AROUND THE CONSTRUCTION SITE. UNDESIRABLE CONDITIONS SHALL BE BROUGHT TO THE ATTENTION OF THE LANDSCAPE ARCHITECT PRIOR TO BEGINNING OF WORK. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO ENSURE PROPER SURFACE AND SUBSURFACE DRAINAGE IN ALL AREAS

28. THE CONTRACTOR IS RESPONSIBLE FOR ALL PERMITS, FEES, AND LICENSES NECESSARY FOR THE INSTALLATION OF THIS PLAN.

29. THE CONTRACTOR IS TO REVIEW ALL SITE ENGINEERING DOCUMENTS PRIOR TO INSTALLATION. ANY CONFLICTS MUST BE REPORTED TO THE LANDSCAPE ARCHITECT. THESE LANDSCAPE DRAWINGS ARE FOR THE INSTALLATION OF PLANT MATERIALS ONLY UNLESS OTHERWISE STATED.

30. THE CONTRACTOR SHALL PROVIDE WATERING AND MAINTENANCE SERVICES FOR A PERIOD OF 60 DAYS TO ENSURE VEGETATIVE ESTABLISHMENT. UPON COMPLETION OF THE PROJECT, CONTRACTOR SHALL SUPPLY THE OWNER IN WRITING WITH ONGOING WATERING AND MAINTENANCE INSTRUCTIONS.

31. PLANT MATERIALS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM TIME OF OWNER ACCEPTANCE. ONLY ONE REPLACEMENT PER PLANT WILL BE REQUIRED DURING THE WARRANTY PERIOD EXCEPT IN THE EVENT OF FAILURE TO COMPLY WITH THE SPECIFIED REQUIREMENTS.

32. THE CONTRACTOR IS RESPONSIBLE TO CONDUCT A FINAL WALK THROUGH WITH THE LANDSCAPE ARCHITECT AND OR OWNERS REPRESENTATIVE TO ANSWER QUESTIONS, PROVIDE INSTRUCTIONS, AND ENSURE THAT PROJECT REQUIREMENTS HAVE BEEN MET.

SOIL PLACEMENT NOTES

1. LOOSEN SUBGRADE TO A MINIMUM DEPTH INDICATED IN PLANTING NOTES USING A CULTI-MULCHER OR SIMILAR EQUIPMENT, AND REMOVE STONES MEASURING OVER 1-1/2 INCHES IN ANY DIMENSION, STICKS, RUBBISH AND OTHER EXTRANEOUS MATTER. AREAS ADJACENT TO WALKS AND PAVEMENT SHALL BE FREE OF EXCESS STONE AND PAVING MATERIALS SO AS TO PROVIDE AN UNINTERRUPTED CROSS SECTION OF SOIL. INTERNAL PARKING ISLANDS SHALL BE LOOSENED TO A DEPTH OF 30".

2. THOROUGHLY BLEND PLANTING SOIL MIX FOR PLANTING BED AREAS. (1 PART EXISTING SOIL, 1 PART TOPSOIL, 1 PART ORGANIC SOIL AMENDMENT, 2.9 POUNDS PER CUBIC YARD OF 4-4-4 ANALYSIS SLOW-RELEASE FERTILIZER)

3. TREE AND SHRUB HOLES SHALL BE FILLED WITH A PREPARED PLANTING MIXTURE OF 1 PART TOPSOIL, 2 PARTS PLANTING SOIL MIX.

4. SPREAD SOIL AND SOIL AMENDMENTS TO DEPTH INDICATED ON DRAWINGS, BUT NOT LESS THAN REQUIRED TO MEET FINISH GRADES AFTER NATURAL SETTLEMENT. (FINISH GRADE OF PLANTING BEDS SHALL BE 3" BELOW ALL ADJACENT SURFACES. FINISH GRADE OF TURF SEEDING AREAS SHALL BE 1" BELOW ALL ADJACENT HARD SURFACES, WALKS, AND CURBS.)

5. PLACE APPROXIMATELY 1/2 OF TOTAL AMOUNT OF SOIL REQUIRED. WORK INTO TOP OF LOOSENED SUBGRADE TO CREATE A TRANSITION LAYER, THEN PLACE REMAINDER OF THE SOIL. SOIL TRANSITION LAYER SHALL BE TILLED TO A MINIMUM DEPTH OF 6" BELOW THE DEPTH OF NEWLY PLACED SOIL. PARKING LOT ISLANDS SHALL BE CROWNED TO A HEIGHT OF 6" TO PROVIDE PROPER DRAINAGE UNLESS OTHERWISE NOTED.

6. DO NOT SPREAD IF PLANTING SOIL OR SUBGRADE IS FROZEN, MUDDY, OR EXCESSIVELY WET.

7. FINISH GRADING: GRADE SOIL TO A SMOOTH, UNIFORM SURFACE PLANE WITH A LOOSE, UNIFORMLY FINE TEXTURE.

8. ROLL AND RAKE, REMOVE RIDGES, AND FILL DEPRESSIONS TO MEET FINISH GRADES.

9. RESTORE PLANTING BEDS IF ERODED OR OTHERWISE DISTURBED AFTER FINISH GRADING AND BEFORE PLANTING.

NATIVE SEEDING

ESTABLISHMENT OF A VIABLE VEGETATION COMMUNITY WITHIN THE BIO INFILTRATION BASINS WILL BE COMPLETED BY HAND-BROADCASTING OF PRE-DESIGNED SEED MIXES TO CREATE A DYNAMIC PLANTING.

PRIOR TO SEEDING:

- A. ALL WEEDS AND EXISTING VEGETATION SHALL BE REMOVED. EXISTING VEGETATION SHALL BE TREATED WITH GLYPHOSATE OR SIMILAR HERBICIDE BY A LICENSED PROFESSIONAL. TREATMENT SHALL OCCUR A MINIMUM OF 10 DAYS PRIOR TO SEEDING/PLANTING. VEGETATION STILL ALIVE AFTER INITIAL HERBICIDE TREATMENT SHALL BE TREATED A SECOND TIME PRIOR TO TILLING INTO THE SOIL. TREATED VEGETATION SHALL BE TILLED INTO THE SOIL NO EARLIER THAN 1 DAY PRIOR TO SEEDING.

B. PREPARATION OF SOIL PRIOR TO SEEDING

1. REFER TO CIVIL PLANS FOR SOIL MIXTURE.

2. ALL FOREIGN MATERIALS LARGER THAN 1-INCH SHALL BE REMOVED FROM THE SOIL PRIOR TO SEEDING OR PLANTING.

3. AREA SHOULD BE FREE FROM UNSIGHTLY VARIATIONS, RIDGES, AND DEPRESSIONS.

4. AVOID DRIVING OVER THE SPECIFIED AREA WITH MACHINERY.
- SPECIFICATIONS FOR HAND BROADCASTING:
- SEEDING SHALL BE CONDUCTED IN LATE FALL (SEPTEMBER 1- SOIL FREEZE) SO THAT SEEDS MAY LIE DORMANT DURING THE WINTER, ALLOWING FOR STRATIFICATION, OR SPRING (MARCH 1-JUNE 1) TO ALLOW A COMPLETE GROWING SEASON TO BECOME ESTABLISHED.
- A. COVER CROP
1. ANNUAL RYE SHALL BE SPREAD AT A DENSITY OF 20 POUNDS PER ACRE DURING THE PLANTING OR SEEDING OF THE NATIVE PLANT SPECIES TO STABILIZE THE SOIL AND REDUCE THE GROWTH OF UNWANTED VEGETATION. THIS ANNUAL GRASS GROWS RAPIDLY WITHOUT COMPETING WITH THE WILDFLOWERS AND GRASSES THAT ARE PLANTED IN THE TARGET AREAS.

2. WINTER WHEAT OR PERENNIAL RYE SHALL NOT BE USED AS A COVER CROP. THESE GRASSES MAY OUT COMPETE PRAIRIE SEEDLINGS, LEADING TO A REDUCTION IN THE SUCCESS OF THE PLANTINGS.
- B. SEED MIX:
1. MIX ALL NATIVE SEED WITH VERMICULITE ACCORDING TO AGRECOL RECOMMENDATIONS AND INSTALLATION GUIDELINES.

2. BROADCAST HALF THE SEED OVER THE ENTIRE SITE OR TARGET AREA.

3. BROADCAST THE OTHER HALF OF SEED PERPENDICULAR TO THE DIRECTION THAT THE FIRST HALF OF THE SEED WAS BROADCAST.

4. COVER SEED WITH ¼ -INCH TO ½ -INCH OF SOIL (USE ANY EXCESS SOIL FROM THE SITE) WITH RAKE OR DRAG.

5. ROLL SITE TO ENSURE FIRM SEED-TO-GROUND CONTACT.

6. KEEP SEED CONSTANTLY WET THROUGH GERMINATION PERIOD. GENERALLY 3 WEEKS.
- ALL SEEDING SHALL BE COVERED WITH 1-INCH OF CLEAN, NON-INVASIVE STRAW (NO MARSH HAY, OR REED CANARY GRASS) WITHOUT SEEDS, WITHIN SEVEN DAYS. WHEAT, RYE, OATS, OR BARLEY ARE ACCEPTABLE FORMS OF STRAW. THOSE AREAS OF SLOPES STEEPER THAN 8:1 (EIGHT FEET HORIZONTAL TO ONE FOOT VERTICAL) SHALL BE PLANTED NO LATER THAN OCTOBER 1 AND STAKED WITH AN EROSION CONTROL BLANKET TO PREVENT EROSION.
- NATIVE PLANTINGS:
- WEED SUPPRESSION MEASURES:
- 1st YEAR** - PERFORM SPOT SPRAY WITH HERBICIDE TO SUPPRESS WEEDS. THIS SHOULD OCCUR APPROXIMATELY EVERY MONTH OF THE GROWING SEASON AFTER NATIVE PLANTINGS HAVE BEEN ROUGH GRADED.
- 2nd YEAR** - IN MAY/JUNE MOW NATIVE PLANTINGS AT 6" HEIGHT TO SUPPRESS THE WEEDS. PERFORM SPOT SPRAY WITH HERBICIDE TO SUPPRESS WEEDS. HAVE PROFESSIONAL ASSESS PLANTINGS. REPEAT MOWING NATIVE PLANTINGS AND SPOT-SPRAY IN EARLY JULY.
- 3rd YEAR** - IN MAY/JUNE MOW NATIVE PLANTINGS AT 8" HEIGHT TO SUPPRESS THE WEEDS. PERFORM SPOT SPRAY WITH HERBICIDE TO SUPPRESS WEEDS.
- 4th YEAR** - IN MAY PERFORM A PRESCRIBED BURN. IN JUNE HAVE A QUALIFIED PROFESSIONAL ASSESS PLANTINGS. IF A PRESCRIBED BURN CAN NOT BE UTILIZED, NATIVE PLANTINGS SHALL BE CUT TO THE GROUND AND ALL CUT MATERIAL SHALL BE REMOVED AND DISPOSED OF OFF SITE.
-
- PINNACLE ENGINEERING GROUP
- ENGINEERING | NATURAL RESOURCES | SURVEYING
- PLAN | DESIGN | DELIVER
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| — | — | — | — |
- REC JOB No. 5172.00
- REC PM AEK
- START DATE 02/29/24
- SCALE N/A
- SHEET
- L-5
- L-6
- © COPYRIGHT 2019
- LANDSCAPE NOTES & DETAILS
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- Z:\PROJECTS\2023\5172.00-WI\CAD\SHEETS\5172.00 LANDSCAPE PLAN.DWG

STORMWATER MANAGEMENT PLAN

Azura Mukwonago

Village of Mukwonago, Wisconsin

PEG Project Number: 5172.00-WI

March 29, 2024

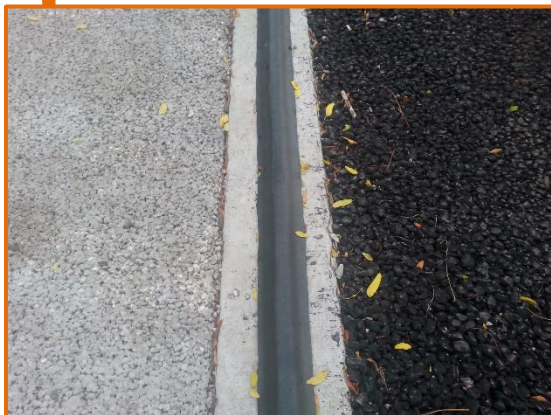


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EXISTING CONDITIONS	2
PROPOSED DEVELOPMENT CONDITIONS	3
ANALYSIS METHODS	3
SUMMARY OF RESULTS	3
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Runoff Water Quality	4
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APPENDICIES

APPENDIX 1 – MAPS

- Vicinity Map
- USDA SCS Soils Map

APPENDIX 2 – PRE-DEVELOPMENT CONDITIONS INFORMATION

- Hydrology Exhibit – Existing Conditions
- Hydrographs

APPENDIX 3 – POST-DEVELOPMENT CONDITIONS (RATE ATTENUATION)

- Hydrology Exhibit – Proposed Conditions
- Hydrographs

APPENDIX 4 – POST-DEVELOPMENT CONDITIONS (WATER QUALITY & INFILTRATION)

- WinSLAMM Modeling Input Data & Output Computations

APPENDIX 5 – GEOTECHNICAL STUDY RESULTS

Questions and comments can be directed to:

Aaron E. Koch, P.E.

Principal

Phone: 262.754.8888 | Fax: 262.754.8850

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INTRODUCTION

The proposed project will consist of a 6.4 acre development for two senior living facilities. The improvements to the existing site will disturb more than 1 acre and thus will require stormwater management. The Village of Mukwonago and Wisconsin Department of Natural Resources have jurisdiction on the site with regards to stormwater requirements. Pinnacle Engineering Group has prepared a plan to meet these requirements.

DESIGN CRITERIA

Village of Mukwonago:Division 4 of the Village Municipal Code

Wisconsin Department of Natural Resources: NR 216 & NR 151

Water Quantity: Village ordinance requires peak flow reduction such that the peak flows from post construction 1- year storm does not exceed the 1-year pre-development peak discharge, the post 2-year does not exceed the pre 2-year, the post 10-year does not exceed the pre 2-year, and the post 100-year does not exceed the pre 10-year storm peak discharge volumes in 24 hour storm events.

Water Quality: The Village and DNR requirements are to remove 80% of the total suspended solids (TSS) load on an average annual basis from the runoff. The Village requires the pollutant loading data for phosphorous to be included in the stormwater management plan but does not require a specific removal rate.

Infiltration: The site category falls under medium impervious and thus the County and DNR requirements are to infiltrate 75% of the average annual pre-development infiltration volume if soils are suitable.

Protective Areas: The Village and DNR require protective areas where impervious areas are adjacent to and drain into wetlands.

EXISTING CONDITIONS

The existing drainage area is 5.92 acres and is comprised of cropland. The site generally slopes from northeast to southwest and ultimately drains to the south/southwest end of the site to an existing channel. Soils on the site are predominantly brown gravelly sand or sand and gravel which are classified as hydrologic group B soils. There are no wetlands or floodplain on this parcel (see **Appendix 2**). Soil testing indicates that there is 8-12" of dark brown clayey topsoil above native brown lean and sandy clay. See the Geotech Report in **Appendix 5** for more information. A curve number of 69 is used in existing conditions analysis per Village standards.

POST-DEVELOPMENT CONDITIONS

The proposed site consists of two senior living facilities with associated parking, utilities, and a barn. The site drainage is divided into three proposed drainage areas, one that drains to Pond 1, one that drains to Pond 2, and a small amount of undetained drainage area (see **Appendix 3**). Pond 2, located on the northern side of the site, connects to Pond 1, located at the southwest corner of site, via the proposed storm sewer system. Pond 1 will treat the runoff and then discharge to the southwestern corner of the site and will follow the same discharge flow path as the existing conditions. The pond is designed to provide the necessary peak flow reductions, water quality treatment, and infiltration requirements.

ANALYSIS METHODS

HydroCAD® (Version 10.00) software has been used to analyze stormwater characteristics for this stormwater management plan. HydroCAD uses the accepted TR-55 methodology for determining peak discharge runoff rates. Rainfall depths for the 1-year, 2-year, 10-year, and 100-year storm events are 2.40, 2.70, 3.81, and 6.18 inches in accordance with Village ordinances.

TSS reduction characteristics for the proposed water quality facilities were determined using WinSLAMM® (Version 10.4.1) Source Loading and Management Model.

SUMMARY OF RESULTS

Existing Flows

Area	Area (ac)	CN	Tc (min)	Peak Flows 1-year (cfs)	Peak Flows 2-year (cfs)	Peak Flows 10-year (cfs)	Peak Flows 100-year (cfs)
Existing Site	5.92	69	6.0*	4.38	6.41	15.37	38.72

Proposed Flows

Area	Area (ac)	CN	Tc (min)	Peak Flows 1-year (cfs)	Peak Flows 2-year (cfs)	Peak Flows 10-year (cfs)	Peak Flows 100-year (cfs)
Area to Pond 1	4.60	79	6.0*	8.08	10.27	19.07	39.46
Area to Pond 2	1.04	81	6.0*	2.08	2.60	4.65	9.32
Undetained	0.28	61	6.0*	0.05	0.11	0.42	1.36
Pond 1 Release	---	---	---	0.00	0.26	3.62	10.96
Pond 2 Release	---	---	---	1.01	1.22	1.71	2.44
Total Site Discharge	5.92	---	---	0.05	0.28	3.71	11.37

*A Tc of 6.0 min is used as it is the minimum allowed for TR55.

Basin Data

Pond	Bottom Elev.	Elev. 1-year	Elev. 2-year	<u>Peak W.S.</u>		Spillway Elev.	Top of Berm Elev.
				Elev. 10-year	Elev. 100-year		
Pond 1	839.0	840.89	841.29	842.14	843.78	---	844.0
Pond 2	841.0	841.69	841.86	842.54	843.88	---	---

The modeling indicated that each pond will adequately store and detain the runoff for the 1 though 100-year events.

Runoff Water Quality

Post-development water quality will be obtained in the ponds.

Water Quality Summary

Area/Pond	Pounds of TSS Incoming	Pounds of TSS Remaining	Percent Removal
Pond 2	356.4	230.3	35.38%
Pond 1	1035	0	100%
Undetained	4.247	4.247	0%
Total Site with Undetained	1166	4.247	99.64%

Area/Pond	Pounds of Phosphorous Incoming	Pounds of Phosphorous Remaining	Percent Removal
Total Site	2.474	0.01916	99.23%

The stormwater devices will exceed the minimum TSS removal requirements for the Village and DNR.

Infiltration

Stormwater infiltration has been incorporated into this stormwater management due to the Type B soils and sandy loam present onsite.

Infiltration Volume Summary

	Area (ac)	Total Rain Volume (ac-ft)	Runoff Volume (ac-ft)	Infiltration Volume (ac-ft)
Existing	5.92	14.27	0.33	13.94
Proposed	5.92	14.27	0.007	14.26

The required post-development infiltration volume is 75% of the pre-development infiltration volume which is $13.94 \text{ ac-ft} \times 0.75 = 10.46 \text{ ac-ft}$. The post-development infiltration volume exceeds the minimum required by 3.80 ac-ft.

Protective Areas

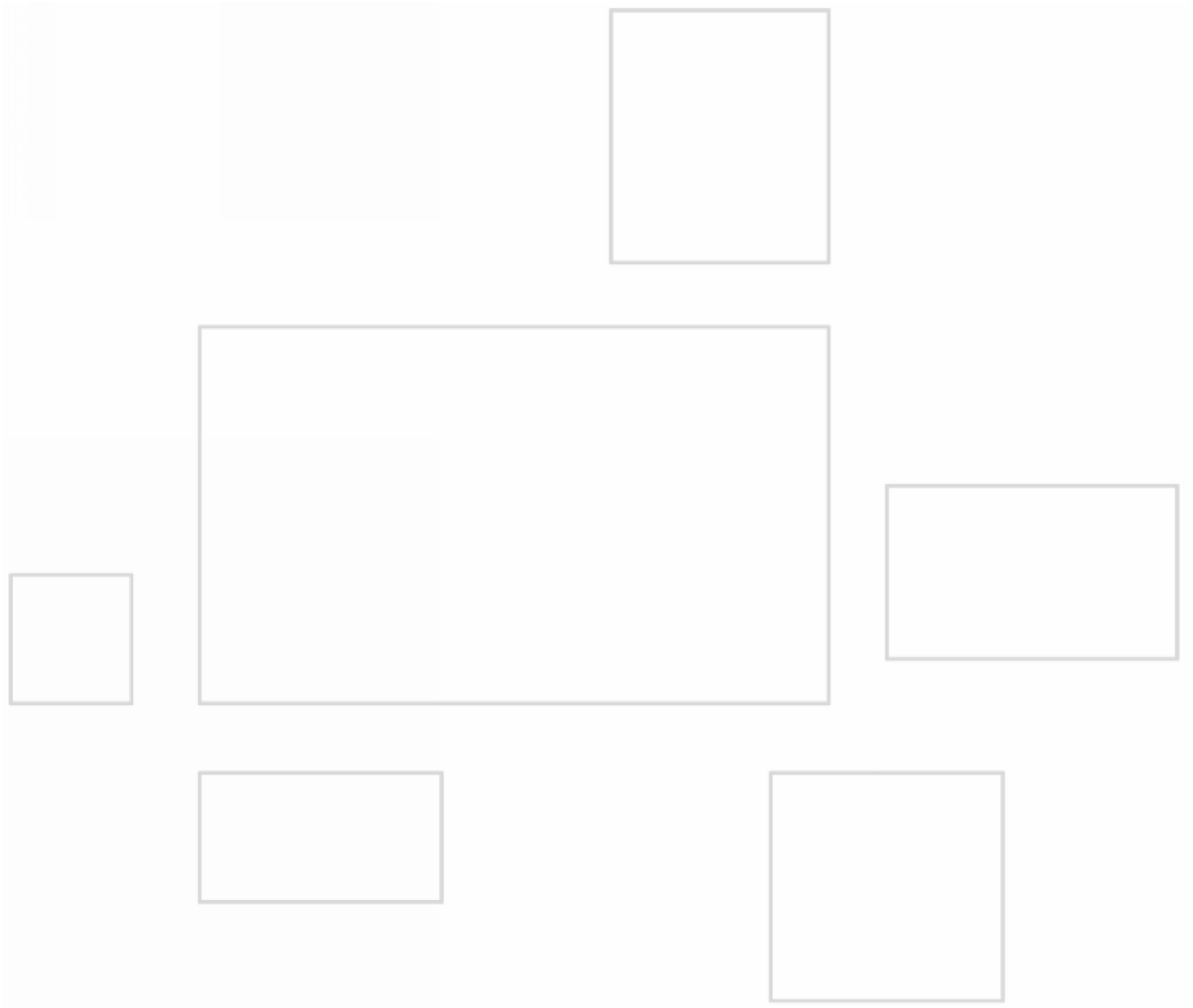
There are no wetlands on or adjacent to the site. Therefore, protective areas do not apply to this design.

CONCLUSION

The stormwater management features for the development have been designed to comply with the requirements of the Village of Mukwonago and the WDNR. This includes peak flow reduction, water quality, and infiltration. The proposed series of ponds will serve to meet all these goals. Maintenance is expected to occur on a regular basis. A maintenance agreement will be executed to ensure this occurs.

APPENDIX 1

MAPS





- Legend**
- Municipal Boundary_2K
 - Parcel_Dimension_2K
 - Note_Text_2K
 - Lots_2K
 - Lot
 - Unit
 - General Common Element
 - Outlot
 - SimultaneousConveyance
 - Assessor Plat
 - CSM
 - Condominium
 - Subdivision
 - Cartoline_2K
 - EA-Easement_Line
 - PL-DA
 - PL-Extended_Tie_line
 - PL-Meander_Line
 - PL-Note
 - PL-Tie
 - PL-Tie_Line
 - <all other values>
 - Railroad_2K

0 400.00 Feet

The information and depictions herein are for informational purposes and Waukesha County specifically disclaims accuracy in this reproduction and specifically admonishes and advises that if specific and precise accuracy is required, the same should be determined by procurement of certified maps, surveys, plats, Flood Insurance Studies, or other official means. Waukesha County will not be responsible for any damages which result from third party use of the information and depictions herein, or for use which ignores this warning.

Notes:

Printed: 3/29/2024



Soil Map—Milwaukee and Waukesha Counties, Wisconsin



**Natural Resources
Conservation Service**

Web Soil Survey
National Cooperative Soil Survey

2/29/2024
Page 1 of 3

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features



Blowout



Borrow Pit



Clay Spot



Closed Depression



Gravel Pit



Gravelly Spot



Landfill



Lava Flow



Marsh or swamp



Mine or Quarry



Miscellaneous Water



Perennial Water



Rock Outcrop



Saline Spot



Sandy Spot



Severely Eroded Spot



Sinkhole



Slide or Slip



Sodic Spot



Spoil Area



Stony Spot



Very Stony Spot



Wet Spot



Other



Special Line Features

Water Features



Streams and Canals

Transportation



Rails



Interstate Highways



US Routes



Major Roads



Local Roads

Background



Aerial Photography

MAP INFORMATION

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

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

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

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

Source of Map: Natural Resources Conservation Service

Web Soil Survey URL:

Coordinate System: Web Mercator (EPSG:3857)

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

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

Soil Survey Area: Milwaukee and Waukesha Counties, Wisconsin

Survey Area Data: Version 19, Sep 8, 2023

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

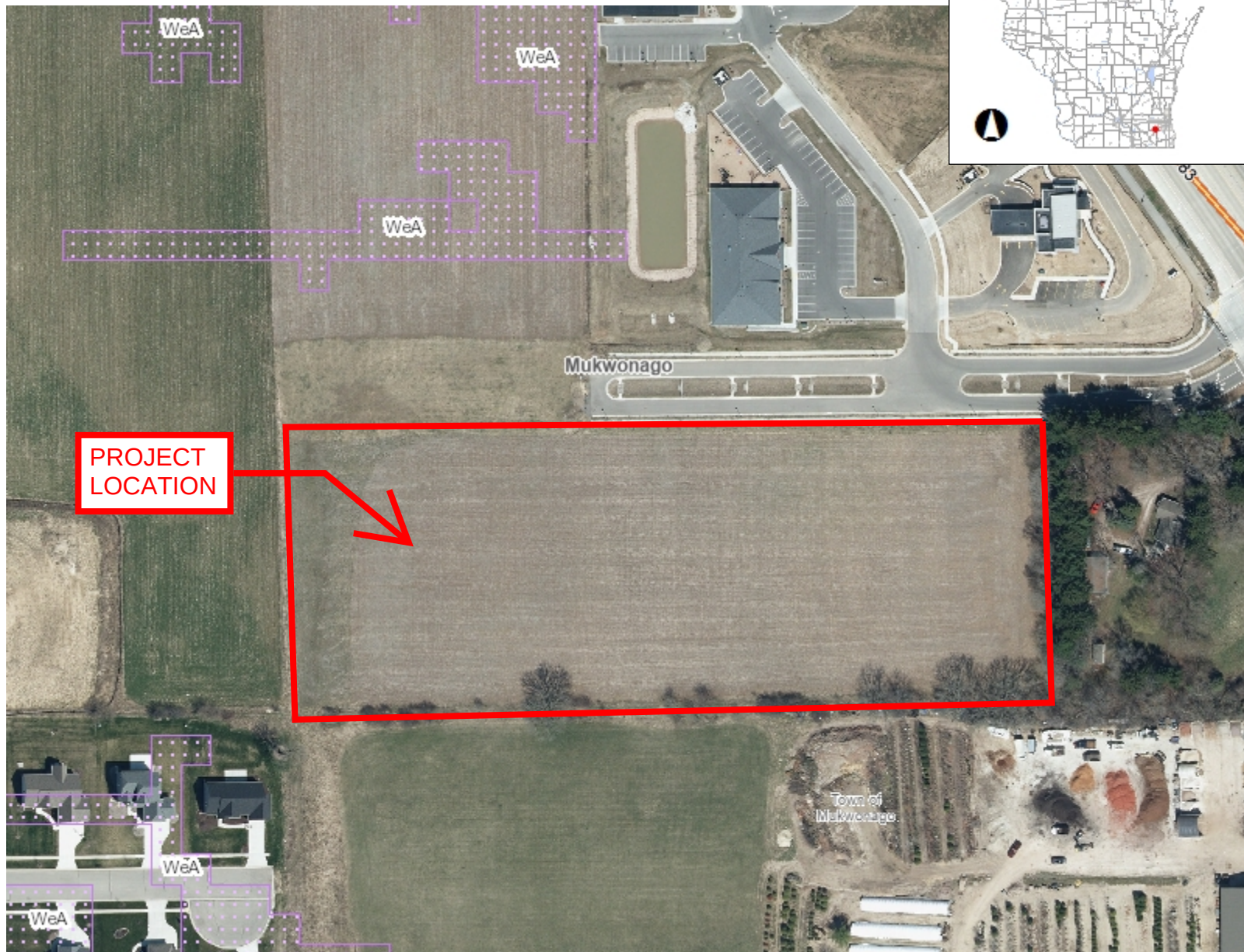
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MxB	Miami loam, sandy loam substratum, 2 to 6 percent slopes	3.2	56.4%
WeA	Warsaw loam, 0 to 2 percent slopes	2.5	43.6%
Totals for Area of Interest		5.7	100.0%



Surface Water Data Viewer Map



Legend

- Wetland Indicators
- Lake Class Areas
- Riverine/ditch Class Areas
- Wetland Class Areas
- Wetland Class Points
 - Dammed pond
 - Excavated pond
 - Filled/draind wetland
 - Wetland too small to delineate
 - Filled excavated pond
- Filled Points
- Wetland Class Areas
- Filled Areas
- Wetland Identifications and Confirmations
- NRCS Wetspots
- Railroads

Notes

0.1 0 0.03 0.1 Miles

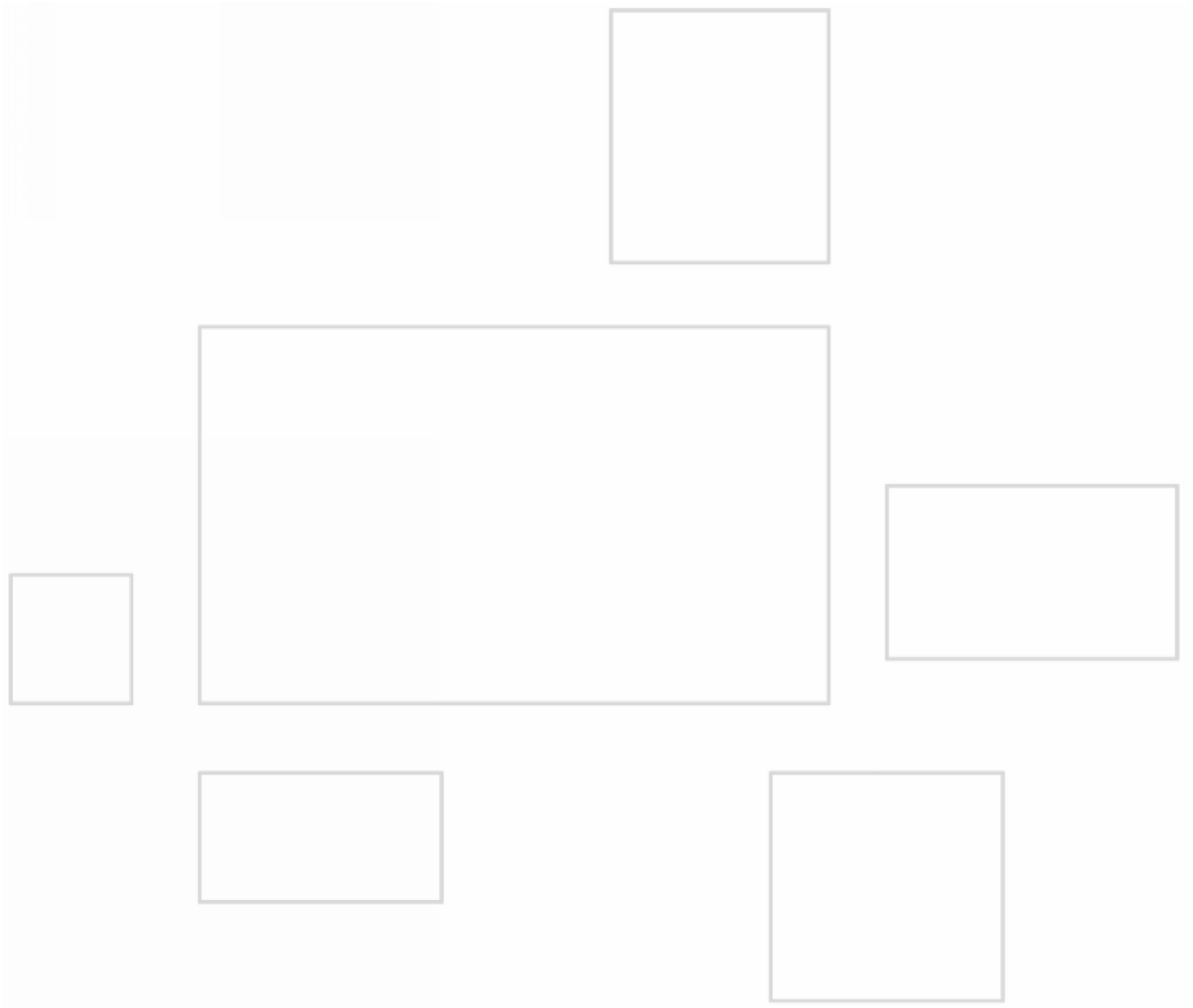
NAD_1983_HARN_Wisconsin_TM

1: 1,980

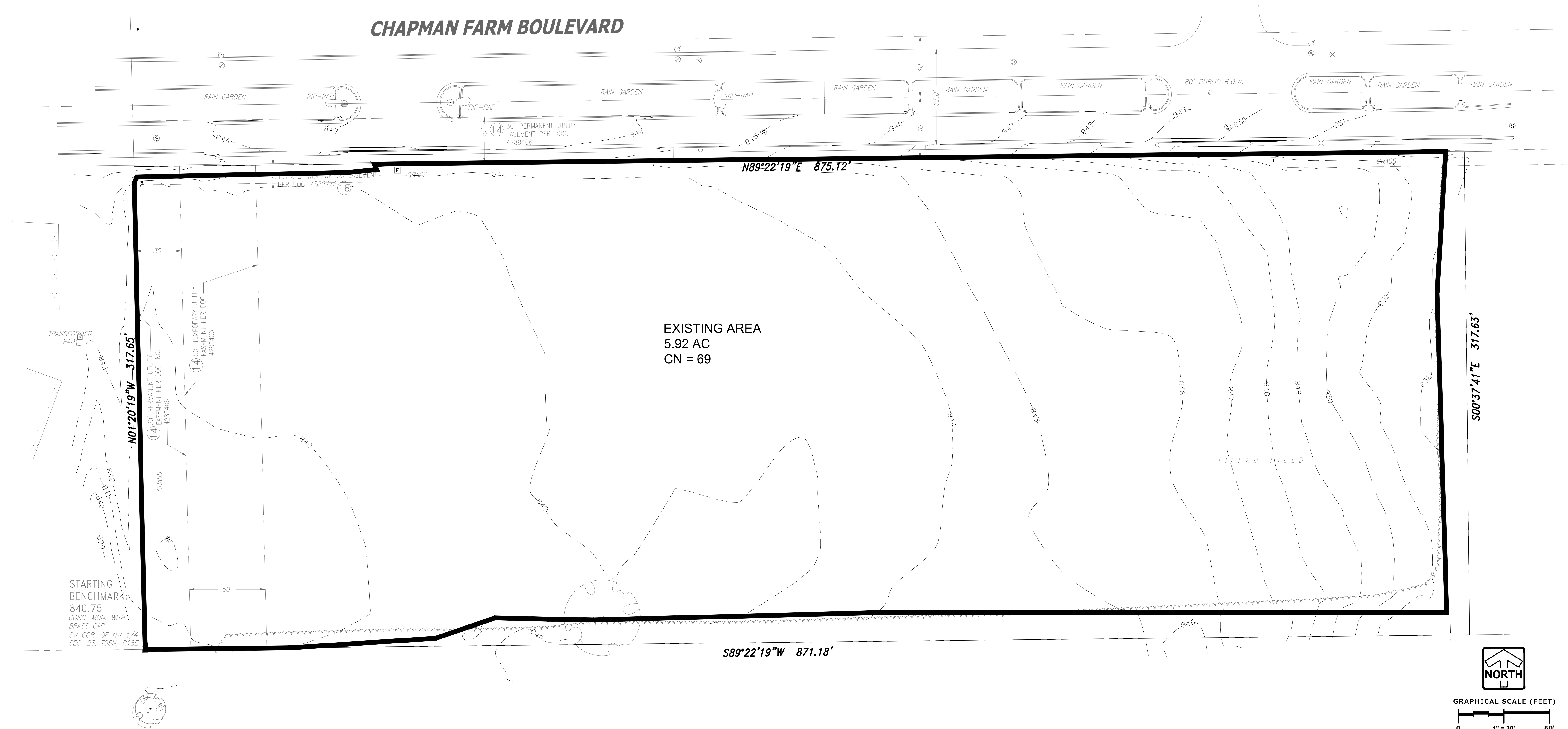
DISCLAIMER: The information shown on these maps has been obtained from various sources, and are of varying age, reliability and resolution. These maps are not intended to be used for navigation, nor are these maps an authoritative source of information about legal land ownership or public access. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map. For more information, see the DNR Legal Notices web page: <http://dnr.wi.gov/legal/>

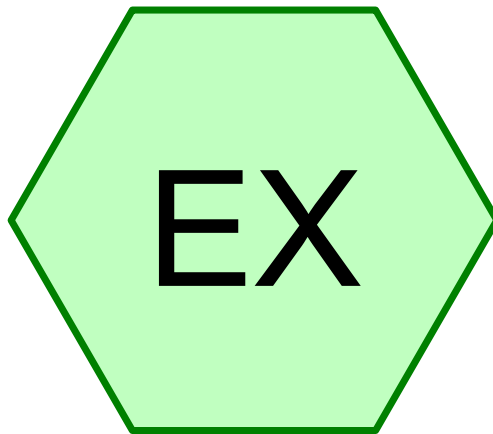
APPENDIX 2

PRE DEVELOPMENT CONDITIONS

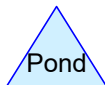
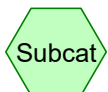


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EXISTING DRAINAGE AREA



Routing Diagram for 2024-03-20 5172 AZURA MUKWONAGO
Prepared by PINNACLE ENGINEERING GROUP, Printed 3/29/2024
HydroCAD® 10.00-22 s/n 07894 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment EX: EXISTING DRAINAGE AREA

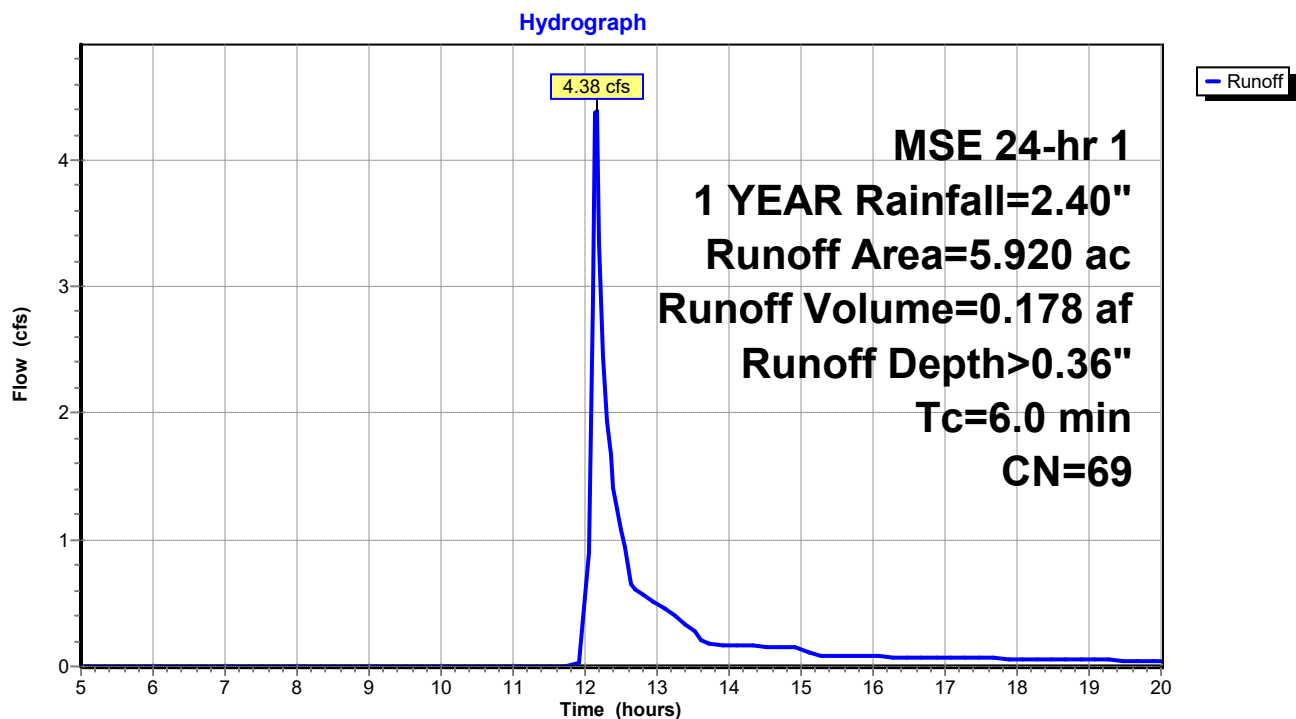
Runoff = 4.38 cfs @ 12.15 hrs, Volume= 0.178 af, Depth> 0.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 1 YEAR Rainfall=2.40"

Area (ac)	CN	Description
* 5.920	69	Per NR 151 Max CN for AG land with Bsoil
5.920		100.00% Pervious Area

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

Subcatchment EX: EXISTING DRAINAGE AREA



Summary for Subcatchment EX: EXISTING DRAINAGE AREA

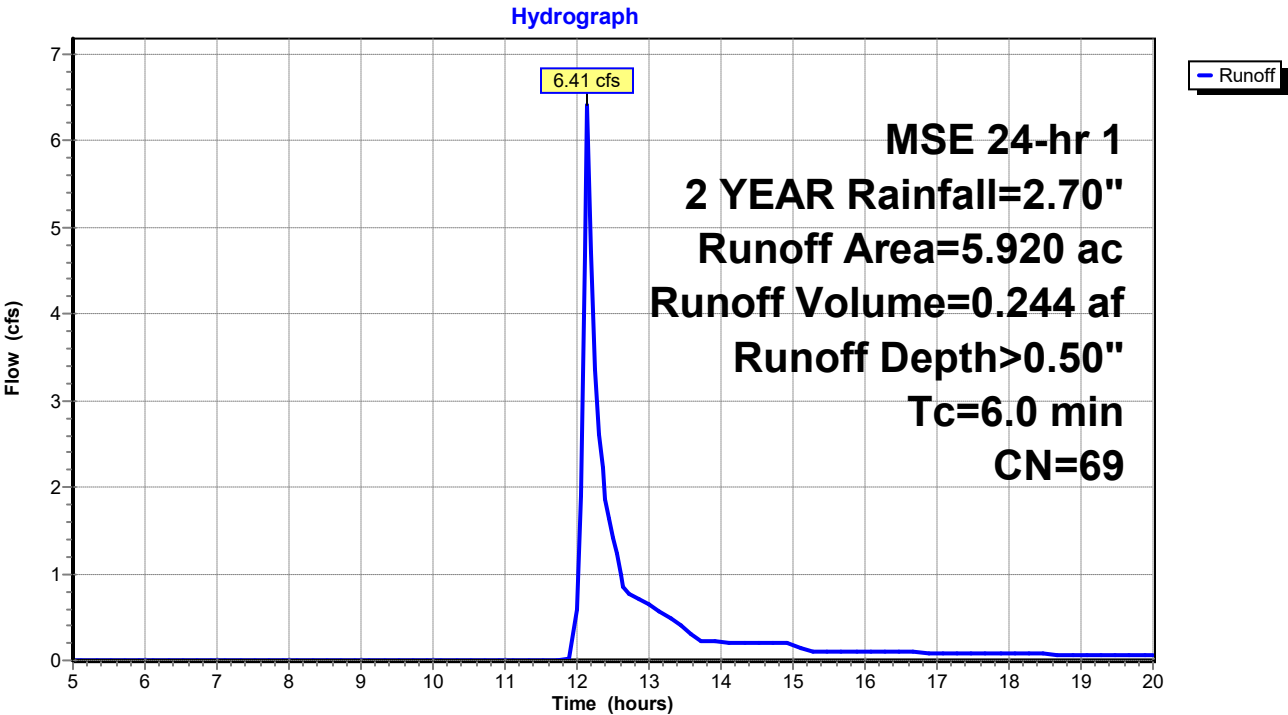
Runoff = 6.41 cfs @ 12.15 hrs, Volume= 0.244 af, Depth> 0.50"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 2 YEAR Rainfall=2.70"

Area (ac)	CN	Description
* 5.920	69	Per NR 151 Max CN for AG land with Bsoil
5.920		100.00% Pervious Area

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

Subcatchment EX: EXISTING DRAINAGE AREA



Summary for Subcatchment EX: EXISTING DRAINAGE AREA

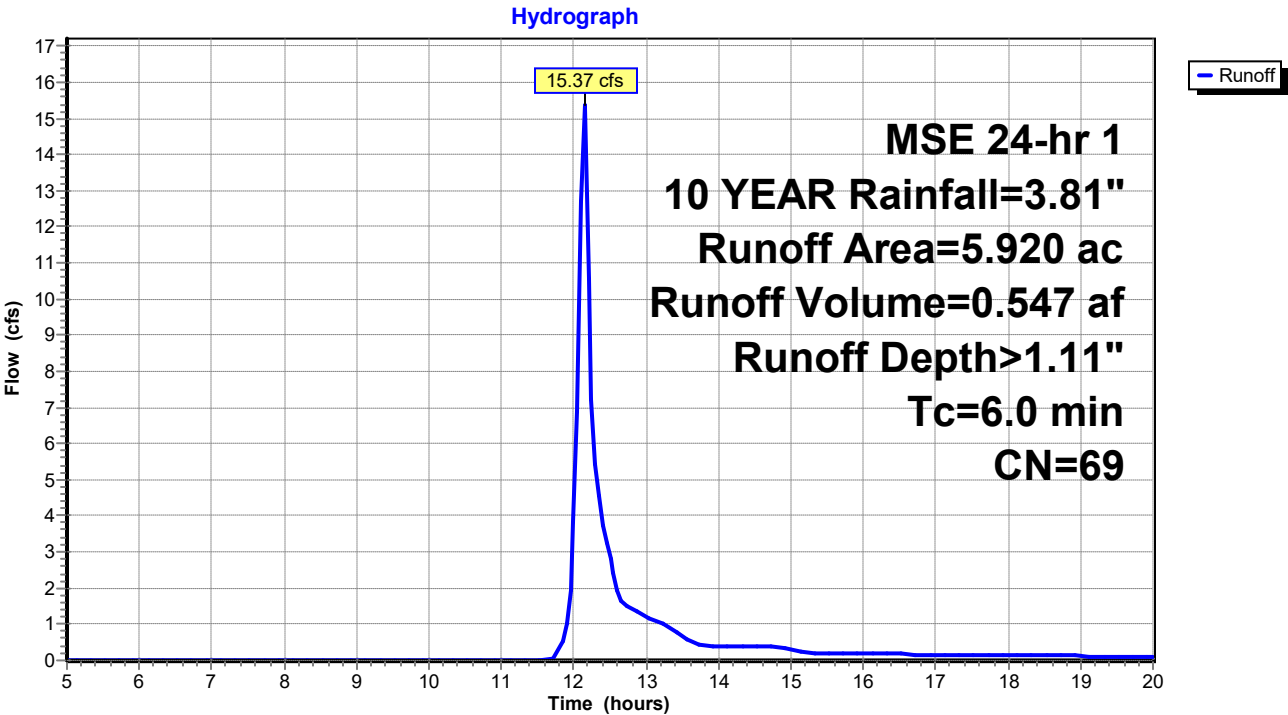
Runoff = 15.37 cfs @ 12.14 hrs, Volume= 0.547 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 10 YEAR Rainfall=3.81"

Area (ac)	CN	Description
* 5.920	69	Per NR 151 Max CN for AG land with Bsoil
5.920		100.00% Pervious Area

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

Subcatchment EX: EXISTING DRAINAGE AREA



Summary for Subcatchment EX: EXISTING DRAINAGE AREA

Runoff = 38.72 cfs @ 12.14 hrs, Volume= 1.371 af, Depth> 2.78"

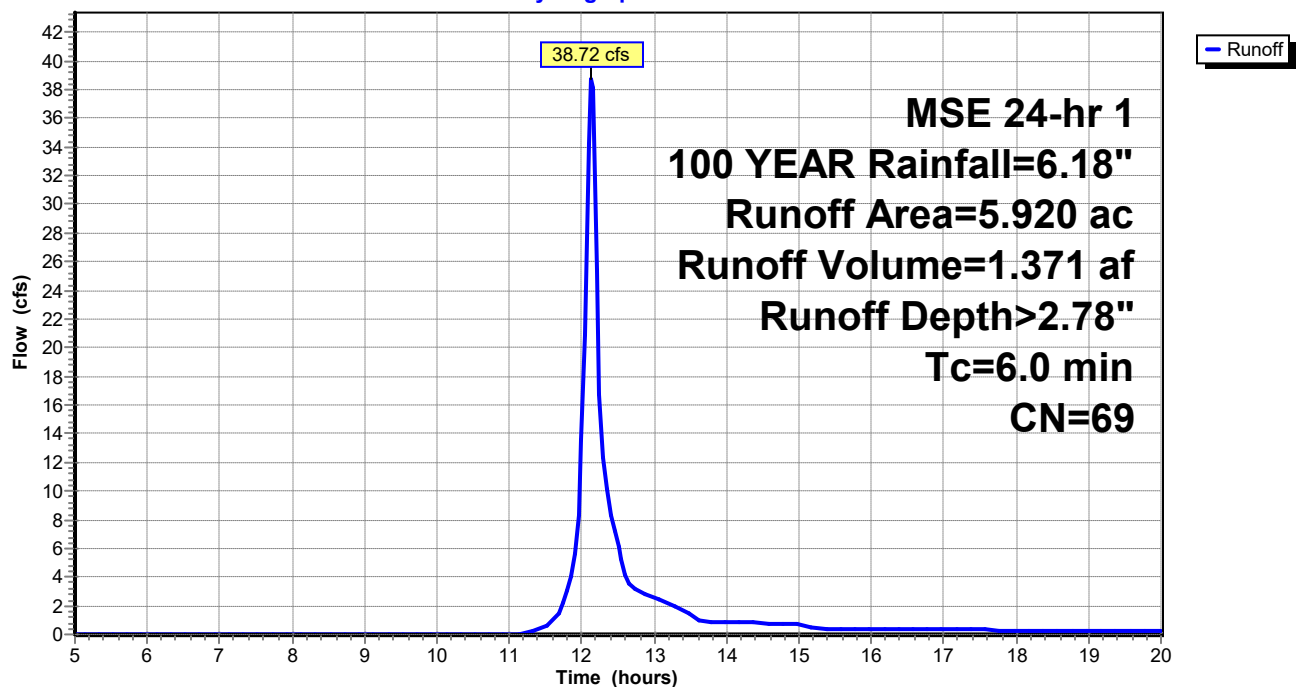
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 100 YEAR Rainfall=6.18"

Area (ac)	CN	Description
* 5.920	69	Per NR 151 Max CN for AG land with Bsoil
5.920		100.00% Pervious Area

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

Subcatchment EX: EXISTING DRAINAGE AREA

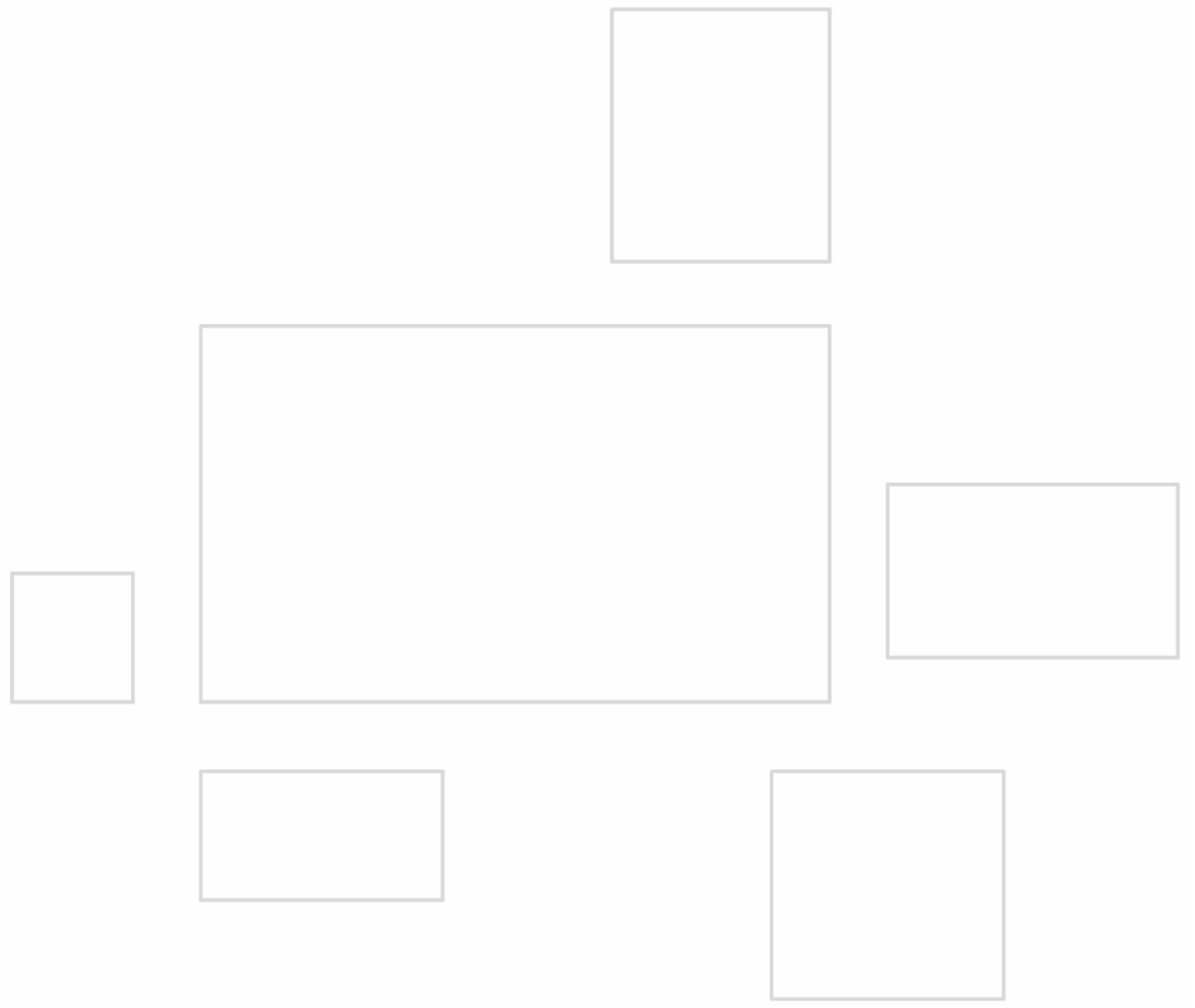
Hydrograph



APPENDIX 3

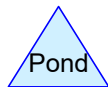
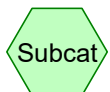
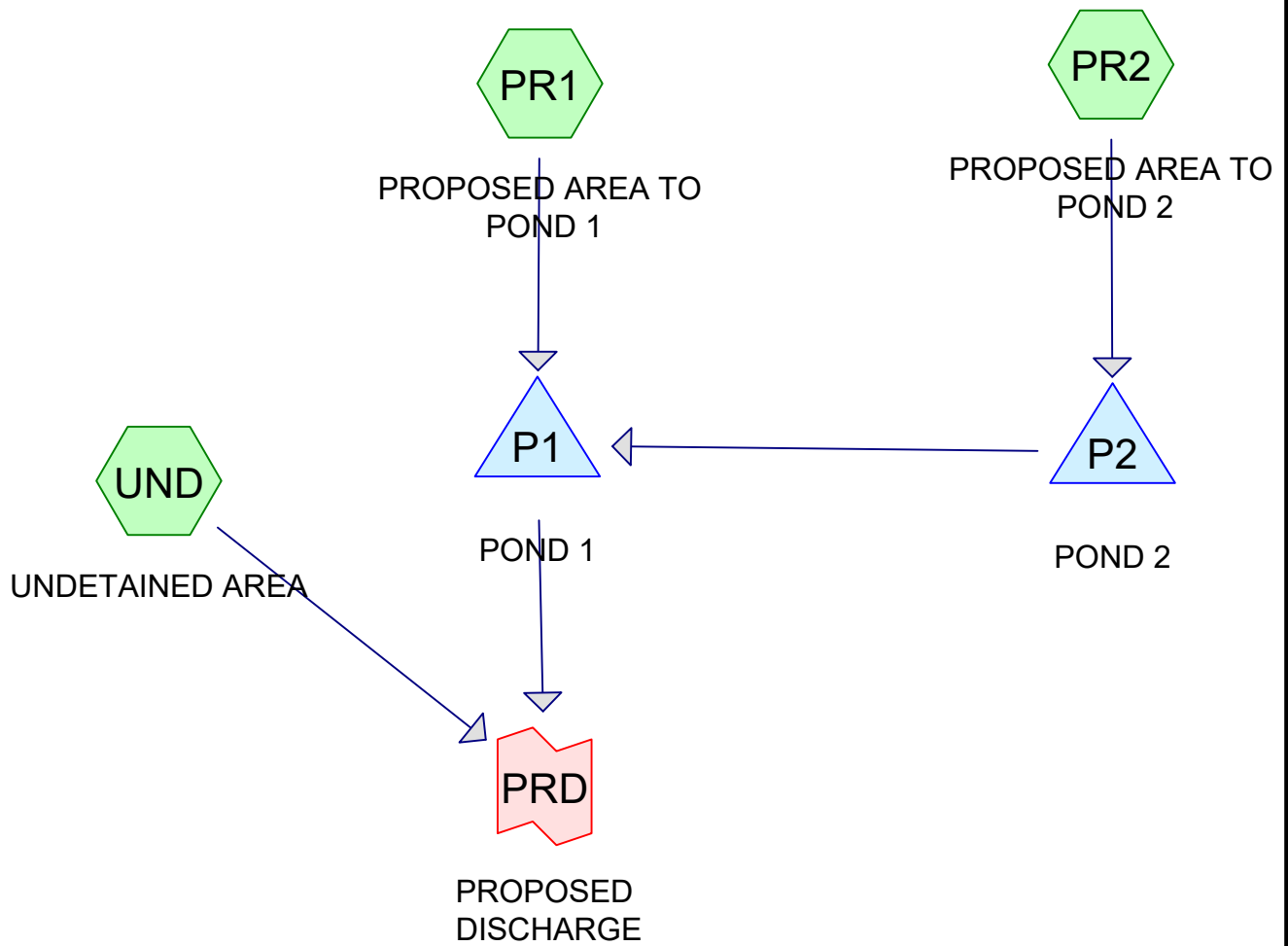
POST DEVELOPMENT CONDITIONS

RATE ATTENUATION





0 1" = 30' 60'



Routing Diagram for 2024-03-20 5172 AZURA MUKWONAGO
 Prepared by PINNACLE ENGINEERING GROUP, Printed 3/29/2024
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Summary for Subcatchment PR1: PROPOSED AREA TO POND 1

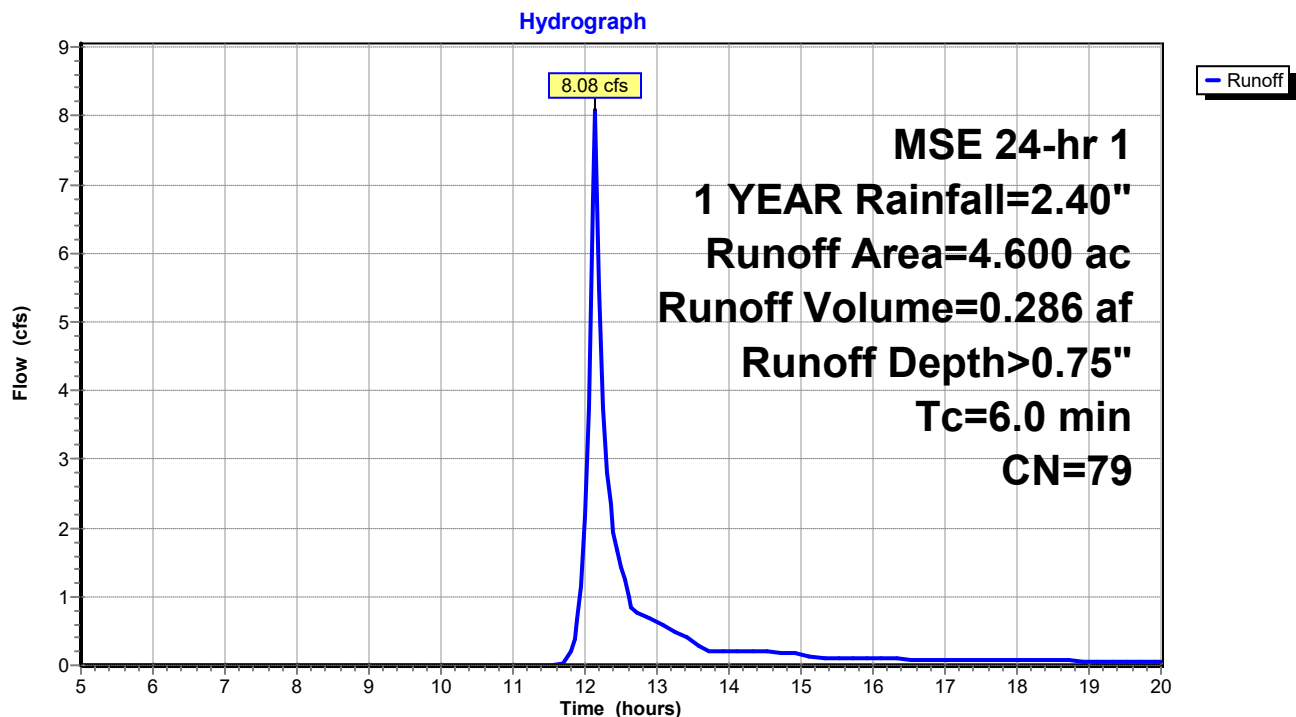
Runoff = 8.08 cfs @ 12.14 hrs, Volume= 0.286 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 1 YEAR Rainfall=2.40"

Area (ac)	CN	Description
* 1.600	98	ROOF
* 0.660	98	PAVEMENT
2.340	61	>75% Grass cover, Good, HSG B
4.600	79	Weighted Average
2.340		50.87% Pervious Area
2.260		49.13% Impervious Area

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

Subcatchment PR1: PROPOSED AREA TO POND 1



Summary for Subcatchment PR2: PROPOSED AREA TO POND 2

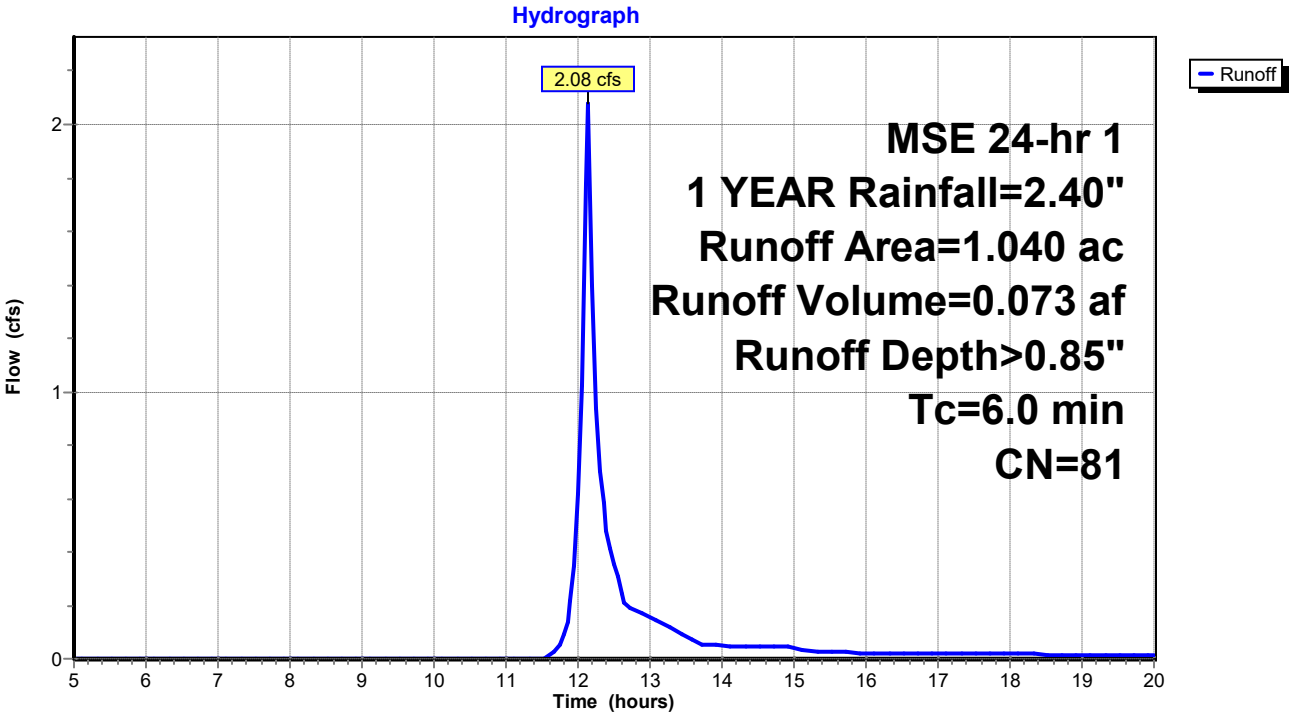
Runoff = 2.08 cfs @ 12.14 hrs, Volume= 0.073 af, Depth> 0.85"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 1 YEAR Rainfall=2.40"

Area (ac)	CN	Description
0.560	98	Paved parking, HSG A
0.480	61	>75% Grass cover, Good, HSG B
1.040	81	Weighted Average
0.480		46.15% Pervious Area
0.560		53.85% Impervious Area

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

Subcatchment PR2: PROPOSED AREA TO POND 2



Summary for Subcatchment UND: UNDETAINED AREA

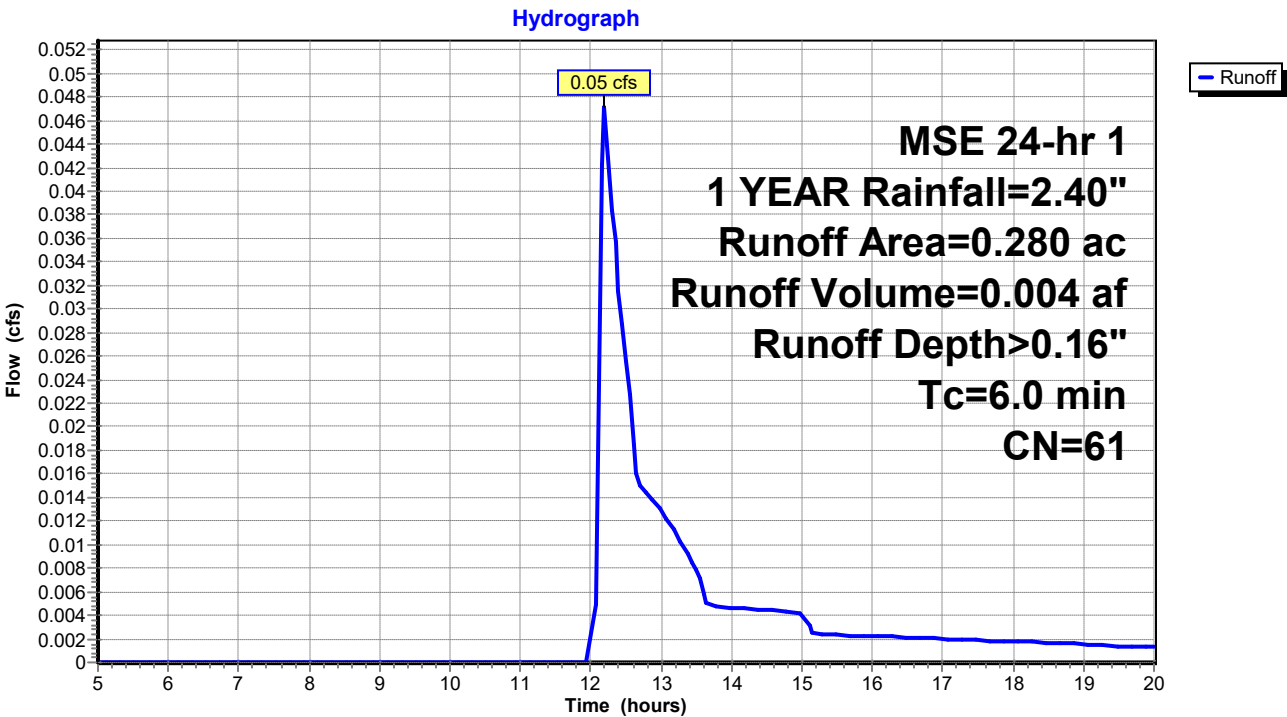
Runoff = 0.05 cfs @ 12.20 hrs, Volume= 0.004 af, Depth> 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 1 YEAR Rainfall=2.40"

Area (ac)	CN	Description
0.280	61	>75% Grass cover, Good, HSG B
0.280		100.00% Pervious Area

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

Subcatchment UND: UNDETAINED AREA



Summary for Pond P1: POND 1

Inflow Area = 5.640 ac, 50.00% Impervious, Inflow Depth > 0.71" for 1 YEAR event
 Inflow = 8.89 cfs @ 12.15 hrs, Volume= 0.332 af
 Outflow = 0.57 cfs @ 13.25 hrs, Volume= 0.311 af, Atten= 94%, Lag= 66.5 min
 Discarded = 0.57 cfs @ 13.25 hrs, Volume= 0.311 af
 Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 840.89' @ 13.25 hrs Surf.Area= 0.137 ac Storage= 0.205 af

Plug-Flow detention time= 179.2 min calculated for 0.310 af (93% of inflow)
 Center-of-Mass det. time= 158.9 min (938.3 - 779.4)

Volume	Invert	Avail.Storage	Storage Description
#1	839.00'	0.795 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
839.00	0.080	0.000	0.000
840.00	0.110	0.095	0.095
841.00	0.140	0.125	0.220
842.00	0.170	0.155	0.375
843.00	0.210	0.190	0.565
844.00	0.250	0.230	0.795

Device	Routing	Invert	Outlet Devices
#1	Primary	841.00'	18.0" Round Culvert L= 48.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.86' S= 0.0029 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Discarded	839.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 829.00'

Discarded OutFlow Max=0.57 cfs @ 13.25 hrs HW=840.89' (Free Discharge)

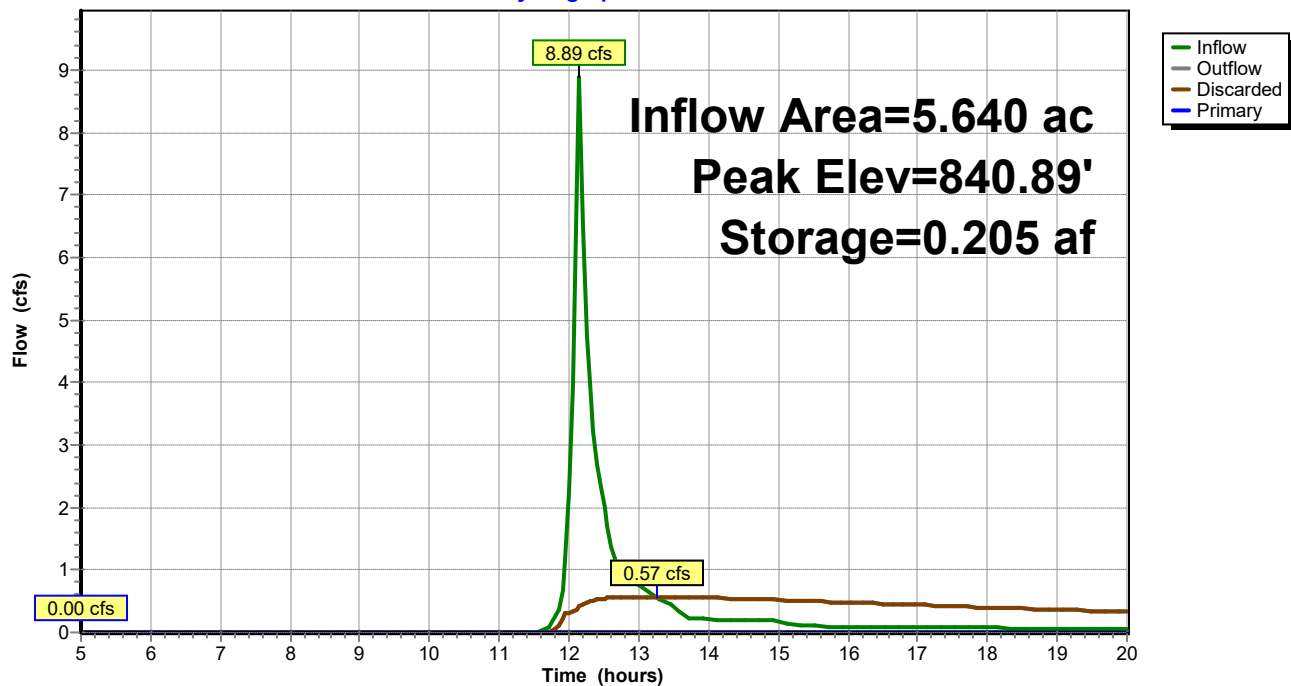
↑ **2=Exfiltration** (Controls 0.57 cfs)

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=839.00' (Free Discharge)

↑ **1=Culvert** (Controls 0.00 cfs)

Pond P1: POND 1

Hydrograph



Summary for Pond P2: POND 2

Inflow Area = 1.040 ac, 53.85% Impervious, Inflow Depth > 0.85" for 1 YEAR event
 Inflow = 2.08 cfs @ 12.14 hrs, Volume= 0.073 af
 Outflow = 1.13 cfs @ 12.23 hrs, Volume= 0.073 af, Atten= 46%, Lag= 5.6 min
 Discarded = 0.12 cfs @ 12.23 hrs, Volume= 0.028 af
 Primary = 1.01 cfs @ 12.23 hrs, Volume= 0.045 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 841.69' @ 12.23 hrs Surf.Area= 0.030 ac Storage= 0.017 af

Plug-Flow detention time= 10.9 min calculated for 0.073 af (100% of inflow)
 Center-of-Mass det. time= 10.4 min (791.1 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.130 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.020	0.000	0.000
842.00	0.035	0.028	0.028
843.00	0.050	0.042	0.070
844.00	0.070	0.060	0.130

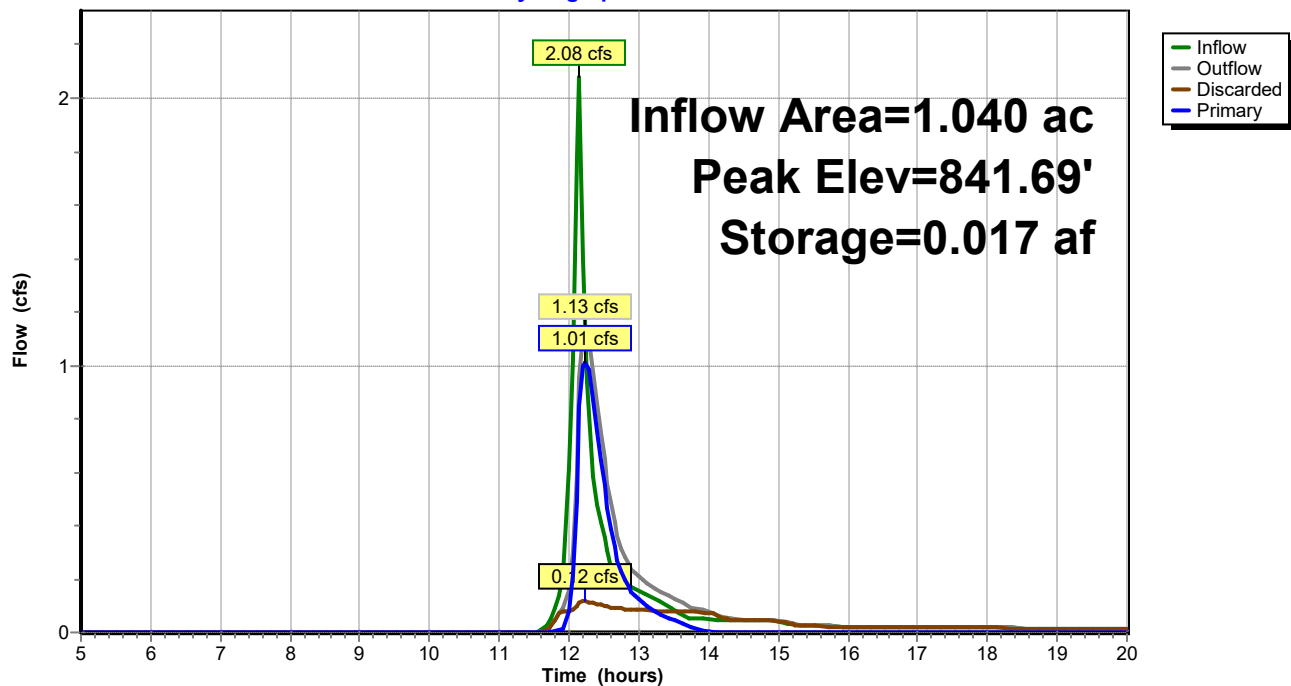
Device	Routing	Invert	Outlet Devices
#1	Primary	841.00'	8.0" Round Culvert L= 43.0' Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.57' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Discarded	841.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 830.00'

Discarded OutFlow Max=0.12 cfs @ 12.23 hrs HW=841.69' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.12 cfs)

Primary OutFlow Max=1.00 cfs @ 12.23 hrs HW=841.69' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 1.00 cfs @ 2.87 fps)

Pond P2: POND 2

Hydrograph

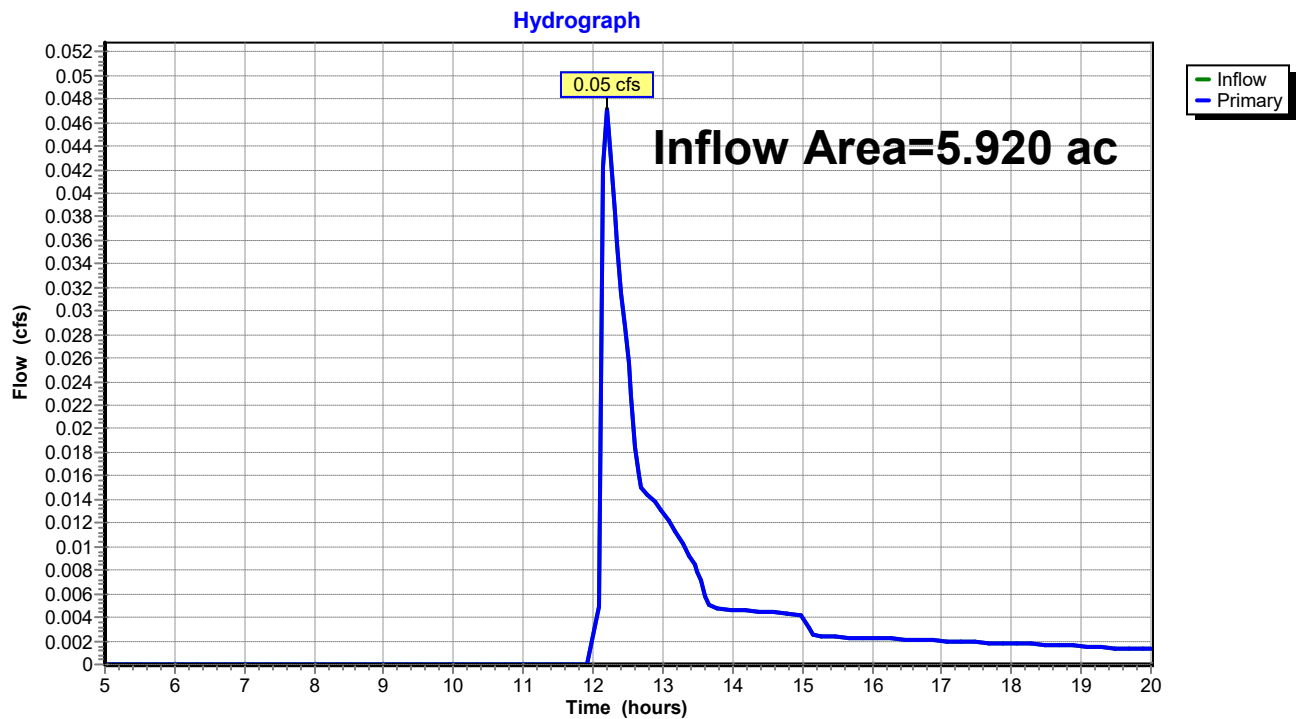


Summary for Link PRD: PROPOSED DISCHARGE

Inflow Area = 5.920 ac, 47.64% Impervious, Inflow Depth > 0.01" for 1 YEAR event
 Inflow = 0.05 cfs @ 12.20 hrs, Volume= 0.004 af
 Primary = 0.05 cfs @ 12.20 hrs, Volume= 0.004 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PRD: PROPOSED DISCHARGE



Summary for Subcatchment PR1: PROPOSED AREA TO POND 1

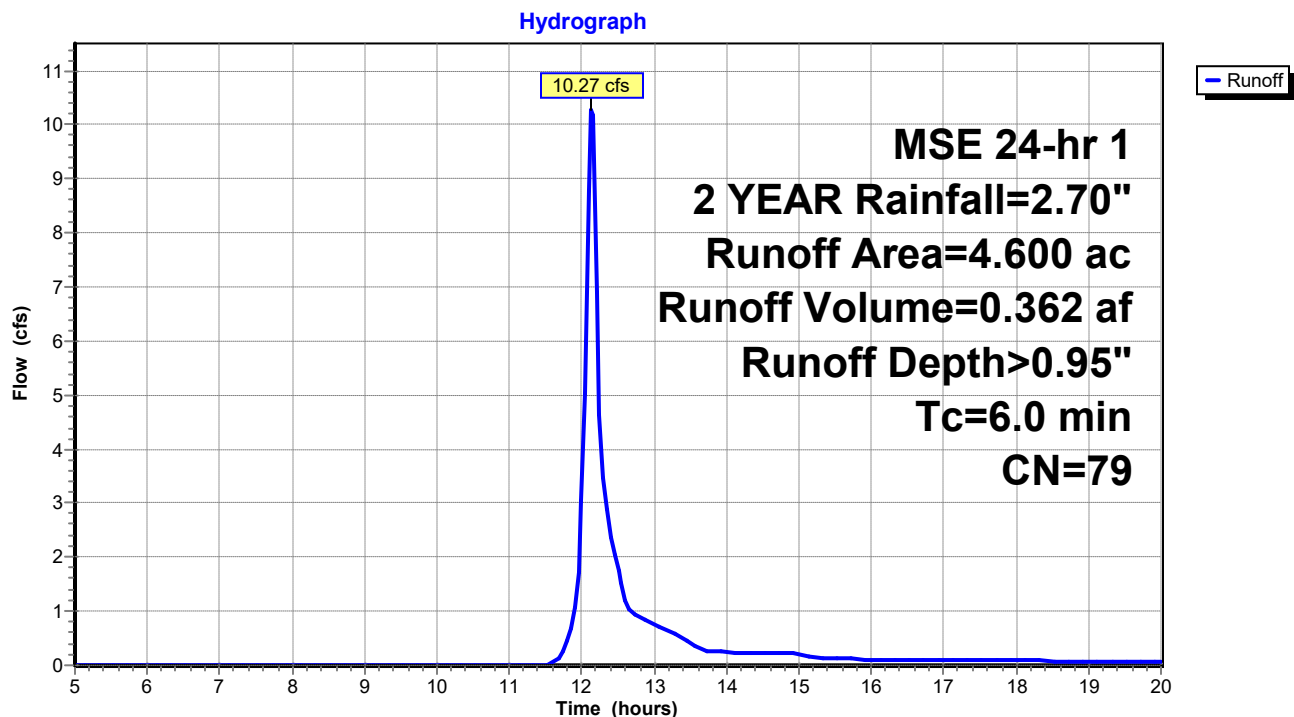
Runoff = 10.27 cfs @ 12.14 hrs, Volume= 0.362 af, Depth> 0.95"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 2 YEAR Rainfall=2.70"

Area (ac)	CN	Description
* 1.600	98	ROOF
* 0.660	98	PAVEMENT
2.340	61	>75% Grass cover, Good, HSG B
4.600	79	Weighted Average
2.340		50.87% Pervious Area
2.260		49.13% Impervious Area

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

Subcatchment PR1: PROPOSED AREA TO POND 1



Summary for Subcatchment PR2: PROPOSED AREA TO POND 2

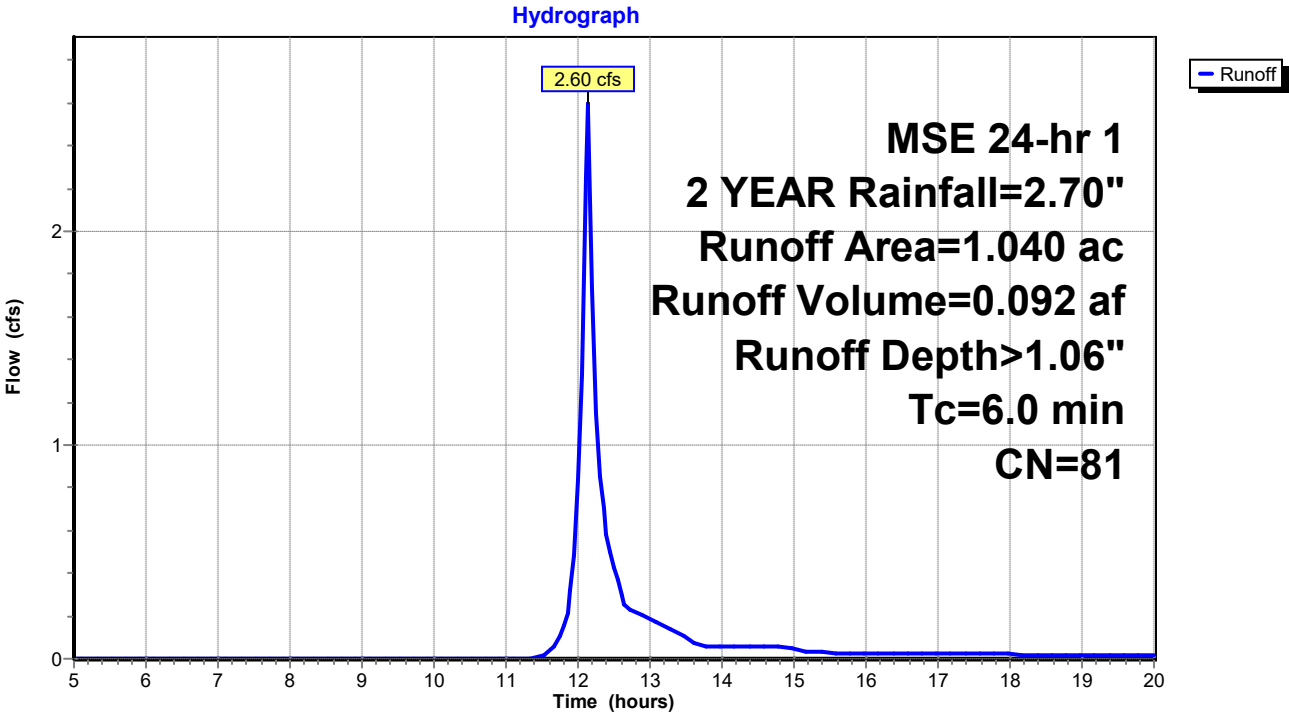
Runoff = 2.60 cfs @ 12.14 hrs, Volume= 0.092 af, Depth> 1.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 2 YEAR Rainfall=2.70"

Area (ac)	CN	Description
0.560	98	Paved parking, HSG A
0.480	61	>75% Grass cover, Good, HSG B
1.040	81	Weighted Average
0.480		46.15% Pervious Area
0.560		53.85% Impervious Area

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

Subcatchment PR2: PROPOSED AREA TO POND 2



Summary for Subcatchment UND: UNDETAINED AREA

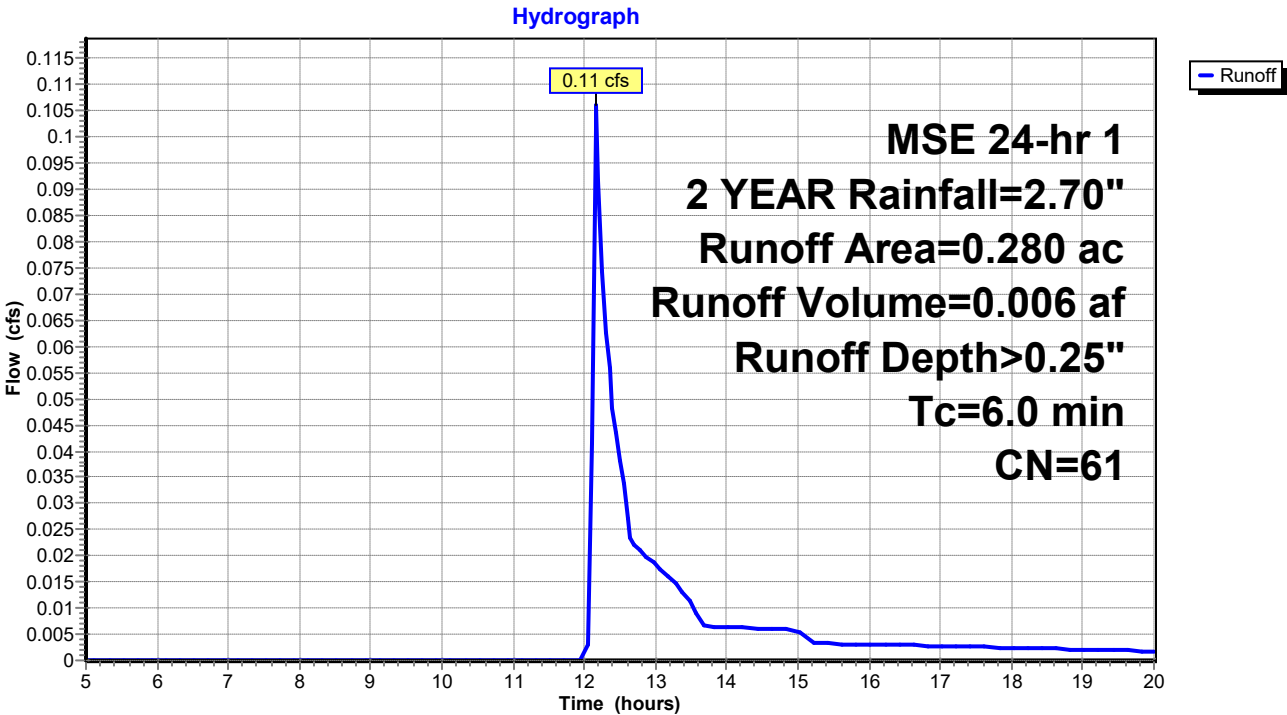
Runoff = 0.11 cfs @ 12.17 hrs, Volume= 0.006 af, Depth> 0.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 2 YEAR Rainfall=2.70"

Area (ac)	CN	Description
0.280	61	>75% Grass cover, Good, HSG B
0.280		100.00% Pervious Area

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

Subcatchment UND: UNDETAINED AREA



Summary for Pond P1: POND 1

Inflow Area = 5.640 ac, 50.00% Impervious, Inflow Depth > 0.90" for 2 YEAR event
 Inflow = 11.28 cfs @ 12.14 hrs, Volume= 0.422 af
 Outflow = 0.89 cfs @ 13.03 hrs, Volume= 0.371 af, Atten= 92%, Lag= 53.4 min
 Discarded = 0.63 cfs @ 13.03 hrs, Volume= 0.348 af
 Primary = 0.26 cfs @ 13.03 hrs, Volume= 0.023 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 841.29' @ 13.03 hrs Surf.Area= 0.149 ac Storage= 0.261 af

Plug-Flow detention time= 182.7 min calculated for 0.369 af (87% of inflow)
 Center-of-Mass det. time= 152.8 min (929.4 - 776.6)

Volume	Invert	Avail.Storage	Storage Description
#1	839.00'	0.795 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
839.00	0.080	0.000	0.000
840.00	0.110	0.095	0.095
841.00	0.140	0.125	0.220
842.00	0.170	0.155	0.375
843.00	0.210	0.190	0.565
844.00	0.250	0.230	0.795

Device	Routing	Invert	Outlet Devices
#1	Primary	841.00'	18.0" Round Culvert L= 48.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.86' S= 0.0029 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Discarded	839.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 829.00'

Discarded OutFlow Max=0.63 cfs @ 13.03 hrs HW=841.29' (Free Discharge)

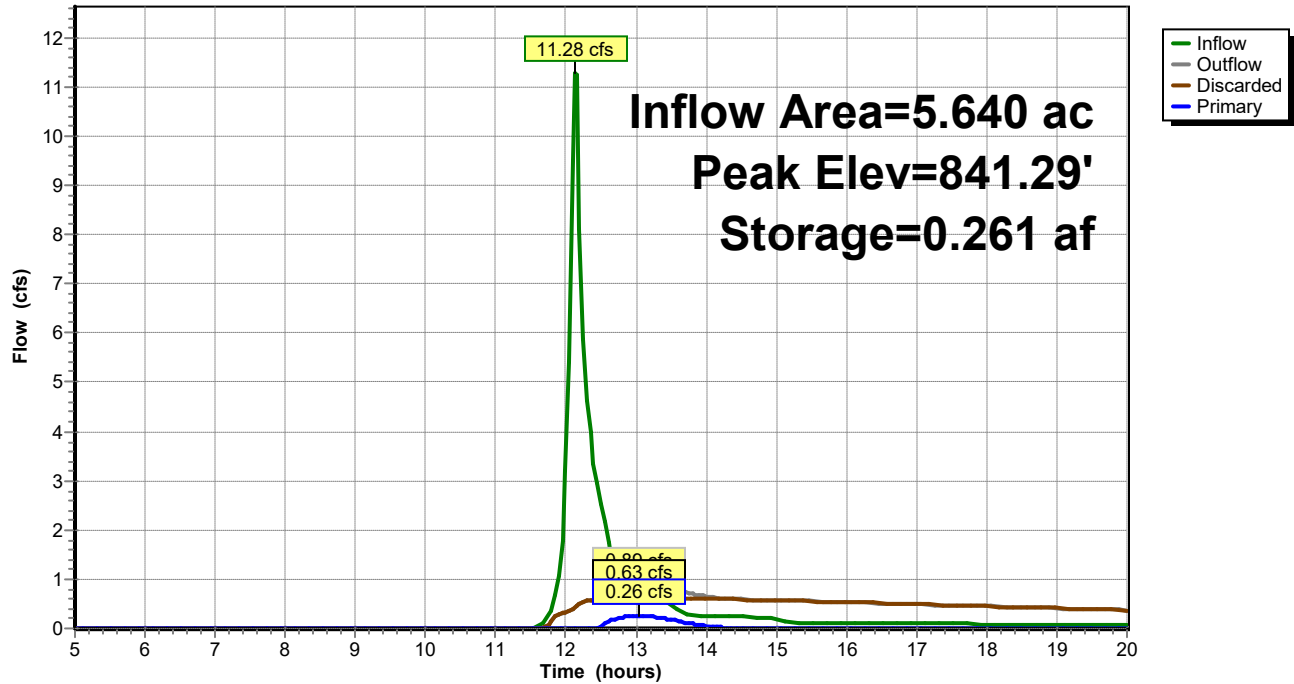
↑ **2=Exfiltration** (Controls 0.63 cfs)

Primary OutFlow Max=0.26 cfs @ 13.03 hrs HW=841.29' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 0.26 cfs @ 1.65 fps)

Pond P1: POND 1

Hydrograph



Summary for Pond P2: POND 2

Inflow Area = 1.040 ac, 53.85% Impervious, Inflow Depth > 1.06" for 2 YEAR event
 Inflow = 2.60 cfs @ 12.14 hrs, Volume= 0.092 af
 Outflow = 1.34 cfs @ 12.24 hrs, Volume= 0.092 af, Atten= 48%, Lag= 5.9 min
 Discarded = 0.13 cfs @ 12.24 hrs, Volume= 0.032 af
 Primary = 1.22 cfs @ 12.24 hrs, Volume= 0.060 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 841.86' @ 12.24 hrs Surf.Area= 0.033 ac Storage= 0.023 af

Plug-Flow detention time= 11.1 min calculated for 0.091 af (100% of inflow)
 Center-of-Mass det. time= 10.6 min (788.6 - 778.0)

Volume	Invert	Avail.Storage	Storage Description
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#1	841.00'	0.130 af	Custom Stage Data (Prismatic) Listed below (Recalc)
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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.020	0.000	0.000
842.00	0.035	0.028	0.028
843.00	0.050	0.042	0.070
844.00	0.070	0.060	0.130

Device	Routing	Invert	Outlet Devices
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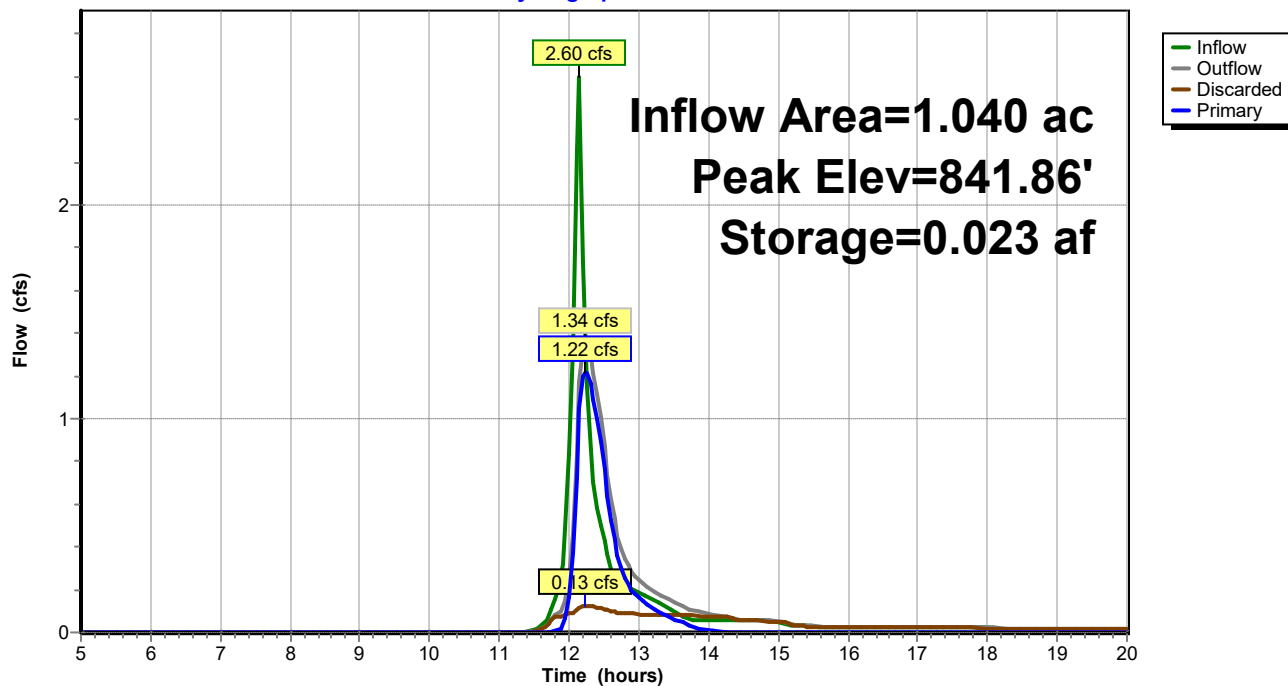
#1	Primary	841.00'	8.0" Round Culvert L= 43.0' Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.57' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Discarded	841.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 830.00'

Discarded OutFlow Max=0.13 cfs @ 12.24 hrs HW=841.85' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.13 cfs)

Primary OutFlow Max=1.21 cfs @ 12.24 hrs HW=841.85' (Free Discharge)
 ↑ **1=Culvert** (Inlet Controls 1.21 cfs @ 3.47 fps)

Pond P2: POND 2

Hydrograph

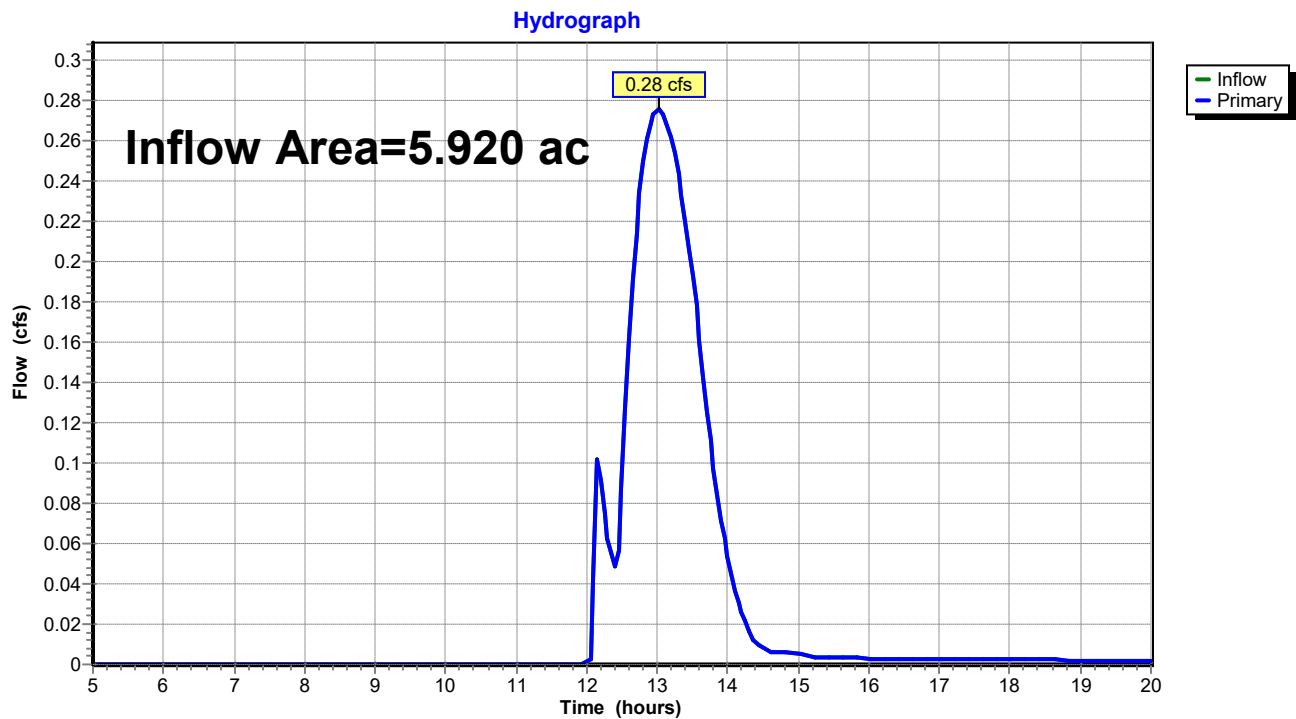


Summary for Link PRD: PROPOSED DISCHARGE

Inflow Area = 5.920 ac, 47.64% Impervious, Inflow Depth > 0.06" for 2 YEAR event
 Inflow = 0.28 cfs @ 13.02 hrs, Volume= 0.029 af
 Primary = 0.28 cfs @ 13.02 hrs, Volume= 0.029 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PRD: PROPOSED DISCHARGE



Summary for Subcatchment PR1: PROPOSED AREA TO POND 1

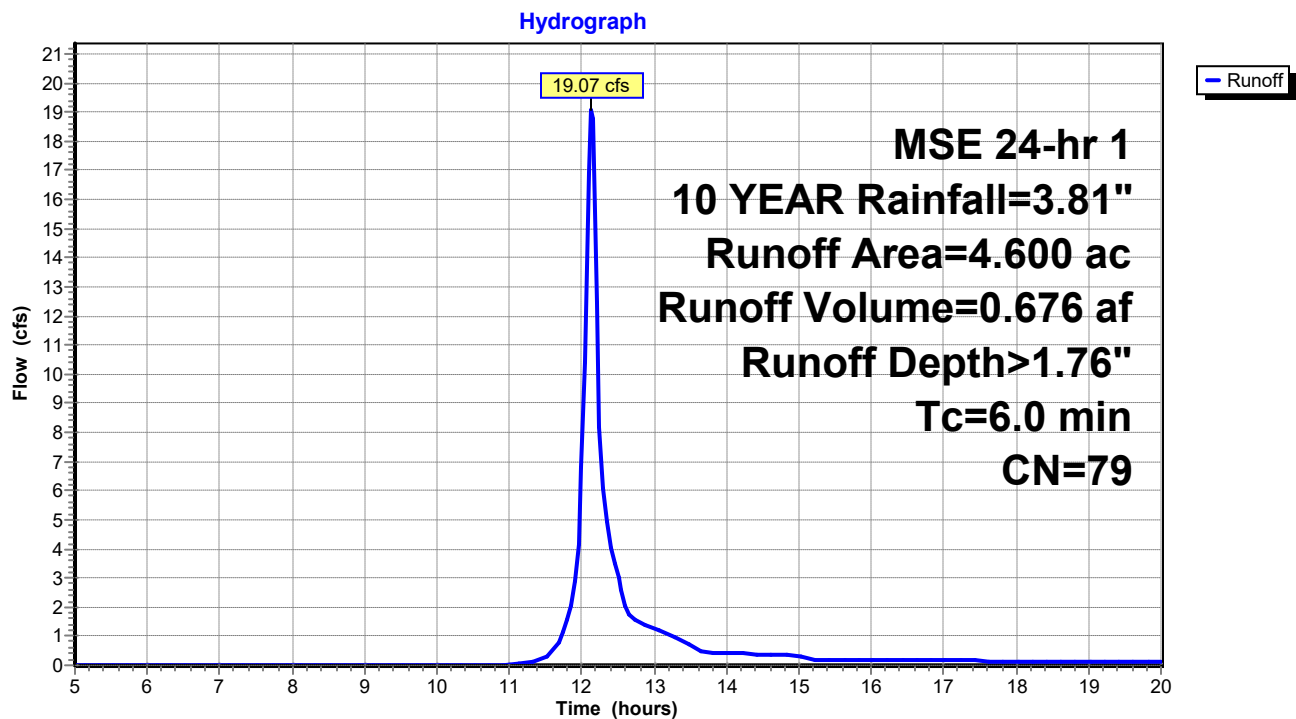
Runoff = 19.07 cfs @ 12.14 hrs, Volume= 0.676 af, Depth> 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 10 YEAR Rainfall=3.81"

Area (ac)	CN	Description
* 1.600	98	ROOF
* 0.660	98	PAVEMENT
2.340	61	>75% Grass cover, Good, HSG B
4.600	79	Weighted Average
2.340		50.87% Pervious Area
2.260		49.13% Impervious Area

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

Subcatchment PR1: PROPOSED AREA TO POND 1



Summary for Subcatchment PR2: PROPOSED AREA TO POND 2

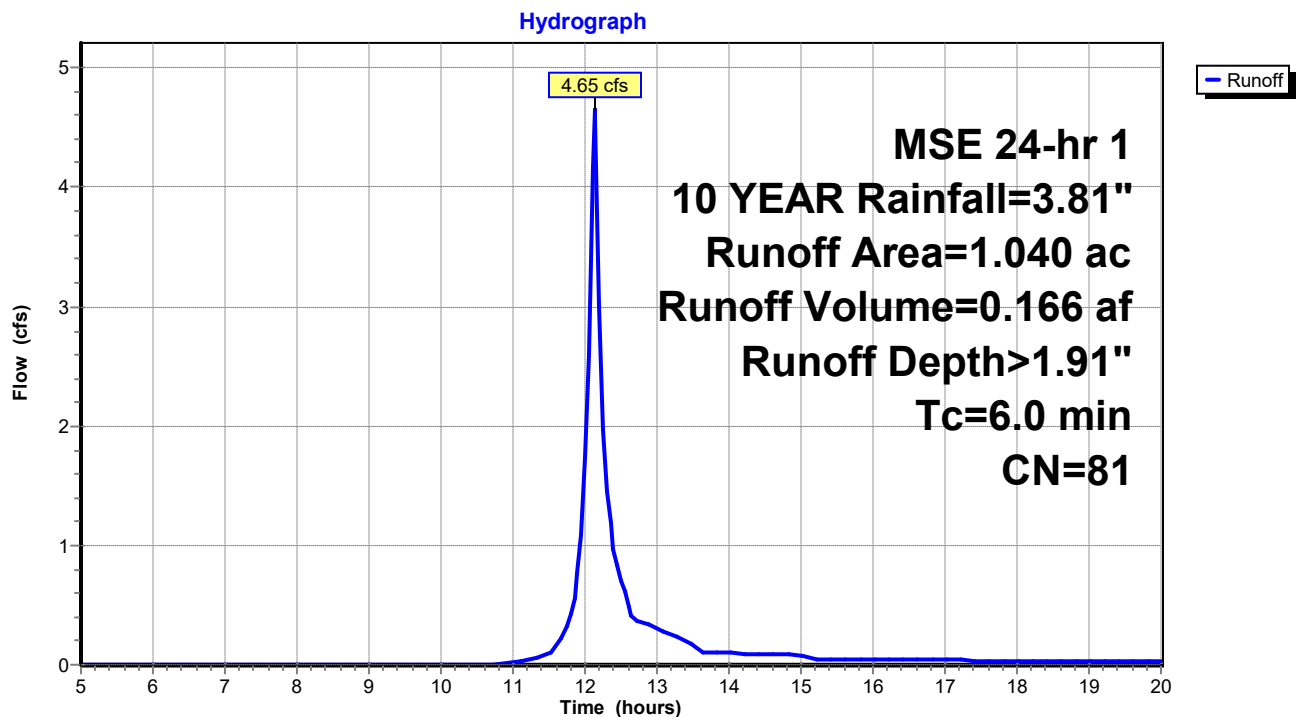
Runoff = 4.65 cfs @ 12.14 hrs, Volume= 0.166 af, Depth> 1.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 10 YEAR Rainfall=3.81"

Area (ac)	CN	Description
0.560	98	Paved parking, HSG A
0.480	61	>75% Grass cover, Good, HSG B
1.040	81	Weighted Average
0.480		46.15% Pervious Area
0.560		53.85% Impervious Area

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

Subcatchment PR2: PROPOSED AREA TO POND 2



Summary for Subcatchment UND: UNDETAINED AREA

Runoff = 0.42 cfs @ 12.15 hrs, Volume= 0.016 af, Depth> 0.69"

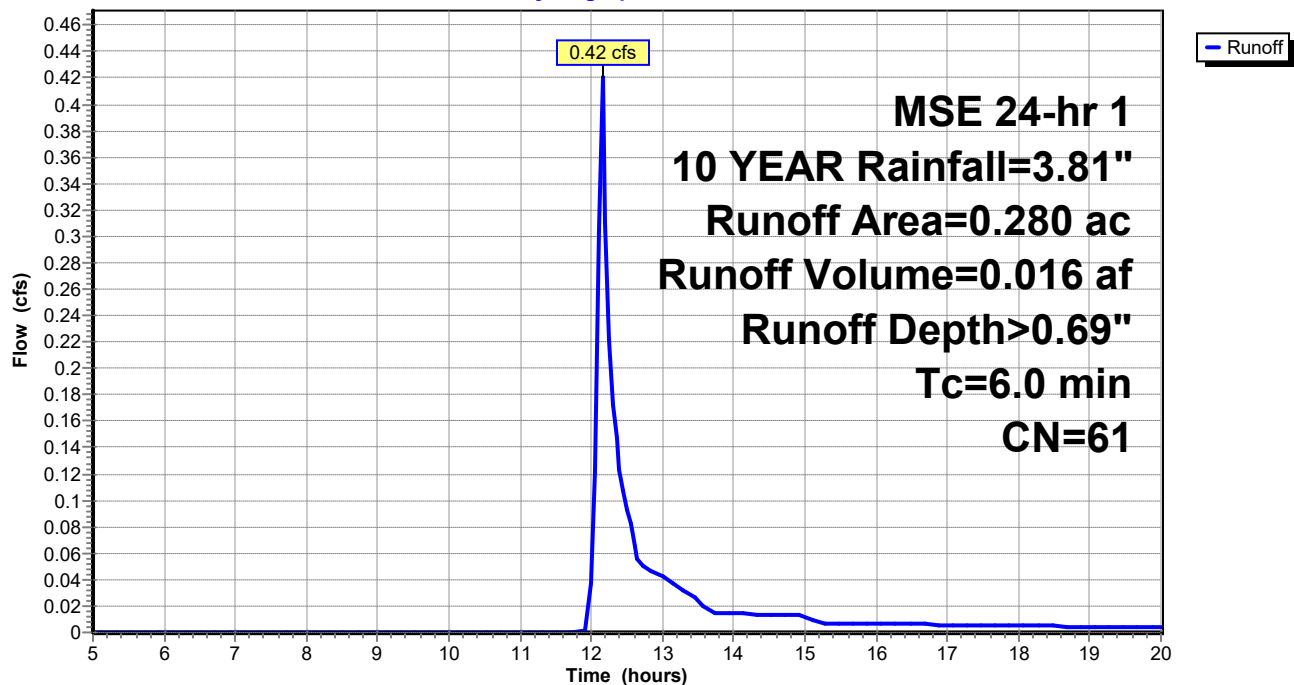
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 10 YEAR Rainfall=3.81"

Area (ac)	CN	Description
0.280	61	>75% Grass cover, Good, HSG B
0.280		100.00% Pervious Area

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

Subcatchment UND: UNDETAINED AREA

Hydrograph



Summary for Pond P1: POND 1

Inflow Area = 5.640 ac, 50.00% Impervious, Inflow Depth > 1.70" for 10 YEAR event
 Inflow = 20.53 cfs @ 12.14 hrs, Volume= 0.797 af
 Outflow = 4.40 cfs @ 12.51 hrs, Volume= 0.709 af, Atten= 79%, Lag= 22.3 min
 Discarded = 0.78 cfs @ 12.51 hrs, Volume= 0.396 af
 Primary = 3.62 cfs @ 12.51 hrs, Volume= 0.313 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 842.14' @ 12.51 hrs Surf.Area= 0.176 ac Storage= 0.400 af

Plug-Flow detention time= 119.3 min calculated for 0.709 af (89% of inflow)
 Center-of-Mass det. time= 92.0 min (862.4 - 770.4)

Volume	Invert	Avail.Storage	Storage Description
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#1	839.00'	0.795 af	Custom Stage Data (Prismatic) Listed below (Recalc)
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Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
839.00	0.080	0.000	0.000
840.00	0.110	0.095	0.095
841.00	0.140	0.125	0.220
842.00	0.170	0.155	0.375
843.00	0.210	0.190	0.565
844.00	0.250	0.230	0.795

Device	Routing	Invert	Outlet Devices
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#1	Primary	841.00'	18.0" Round Culvert L= 48.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.86' S= 0.0029 ' / Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Discarded	839.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 829.00'

Discarded OutFlow Max=0.78 cfs @ 12.51 hrs HW=842.14' (Free Discharge)

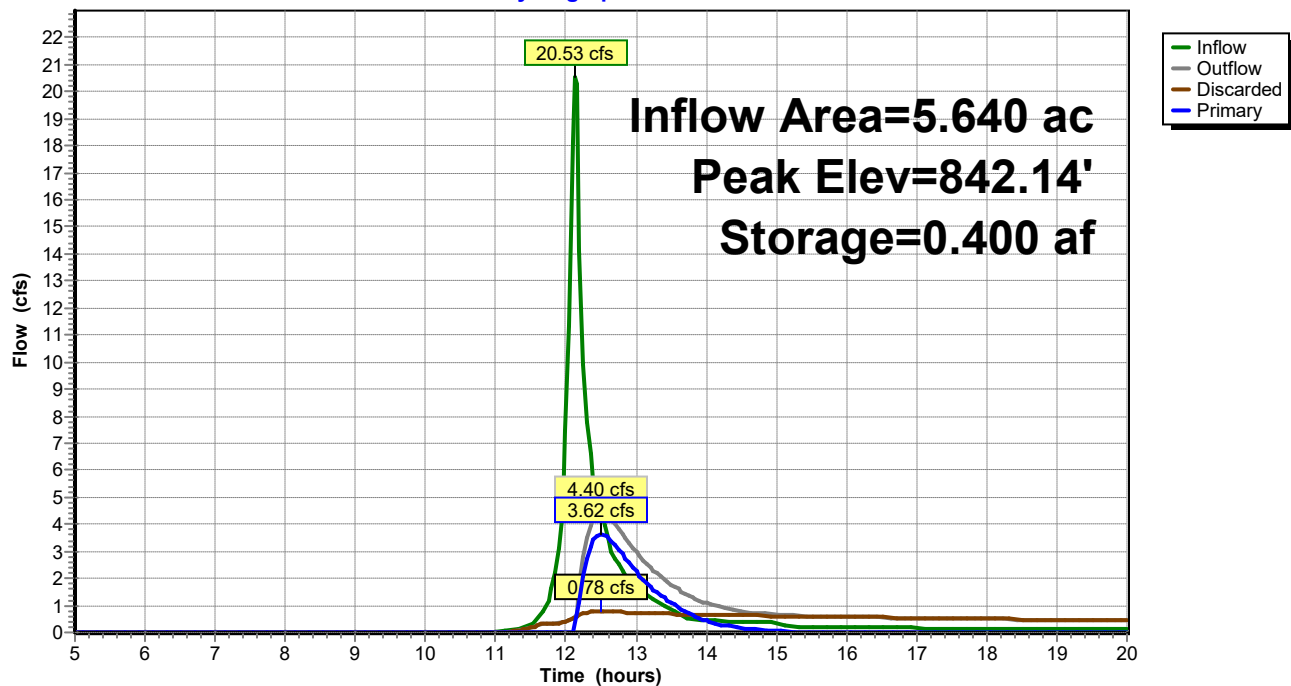
↑ **2=Exfiltration** (Controls 0.78 cfs)

Primary OutFlow Max=3.61 cfs @ 12.51 hrs HW=842.14' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 3.61 cfs @ 3.46 fps)

Pond P1: POND 1

Hydrograph



Summary for Pond P2: POND 2

Inflow Area = 1.040 ac, 53.85% Impervious, Inflow Depth > 1.91" for 10 YEAR event
 Inflow = 4.65 cfs @ 12.14 hrs, Volume= 0.166 af
 Outflow = 1.88 cfs @ 12.26 hrs, Volume= 0.166 af, Atten= 59%, Lag= 7.8 min
 Discarded = 0.17 cfs @ 12.26 hrs, Volume= 0.045 af
 Primary = 1.71 cfs @ 12.26 hrs, Volume= 0.121 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 842.54' @ 12.26 hrs Surf.Area= 0.043 ac Storage= 0.048 af

Plug-Flow detention time= 13.6 min calculated for 0.166 af (100% of inflow)
 Center-of-Mass det. time= 13.1 min (784.0 - 770.9)

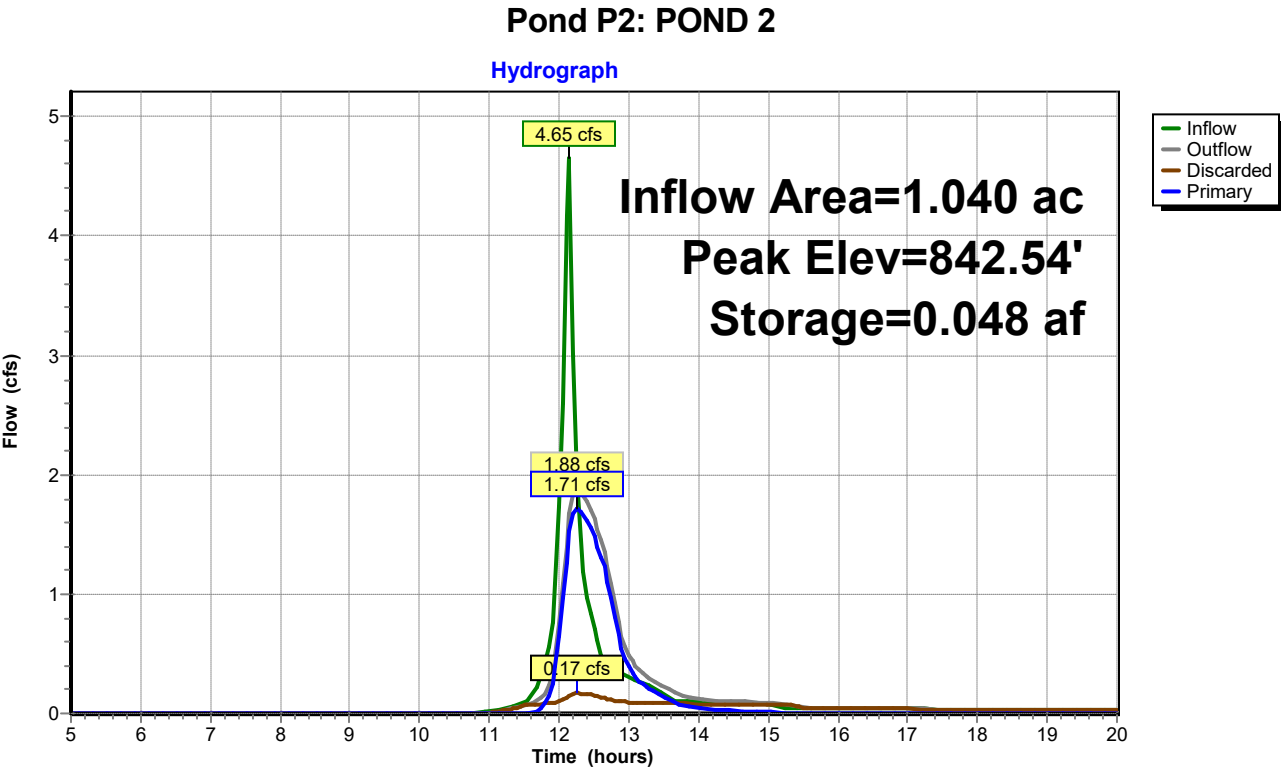
Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.130 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.020	0.000	0.000
842.00	0.035	0.028	0.028
843.00	0.050	0.042	0.070
844.00	0.070	0.060	0.130

Device	Routing	Invert	Outlet Devices
#1	Primary	841.00'	8.0" Round Culvert L= 43.0' Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.57' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Discarded	841.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 830.00'

Discarded OutFlow Max=0.17 cfs @ 12.26 hrs HW=842.53' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.17 cfs)

Primary OutFlow Max=1.71 cfs @ 12.26 hrs HW=842.53' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 1.71 cfs @ 4.89 fps)

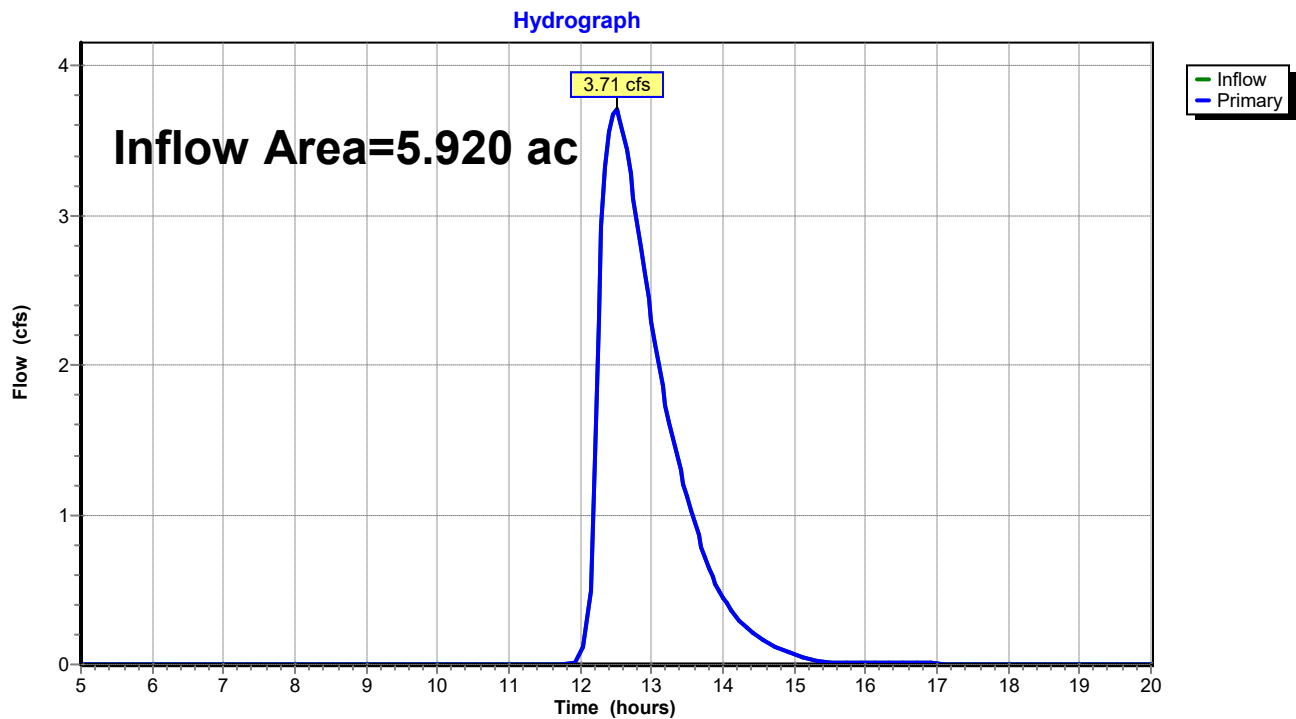


Summary for Link PRD: PROPOSED DISCHARGE

Inflow Area = 5.920 ac, 47.64% Impervious, Inflow Depth > 0.67" for 10 YEAR event
 Inflow = 3.71 cfs @ 12.50 hrs, Volume= 0.329 af
 Primary = 3.71 cfs @ 12.50 hrs, Volume= 0.329 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link PRD: PROPOSED DISCHARGE



Summary for Subcatchment PR1: PROPOSED AREA TO POND 1

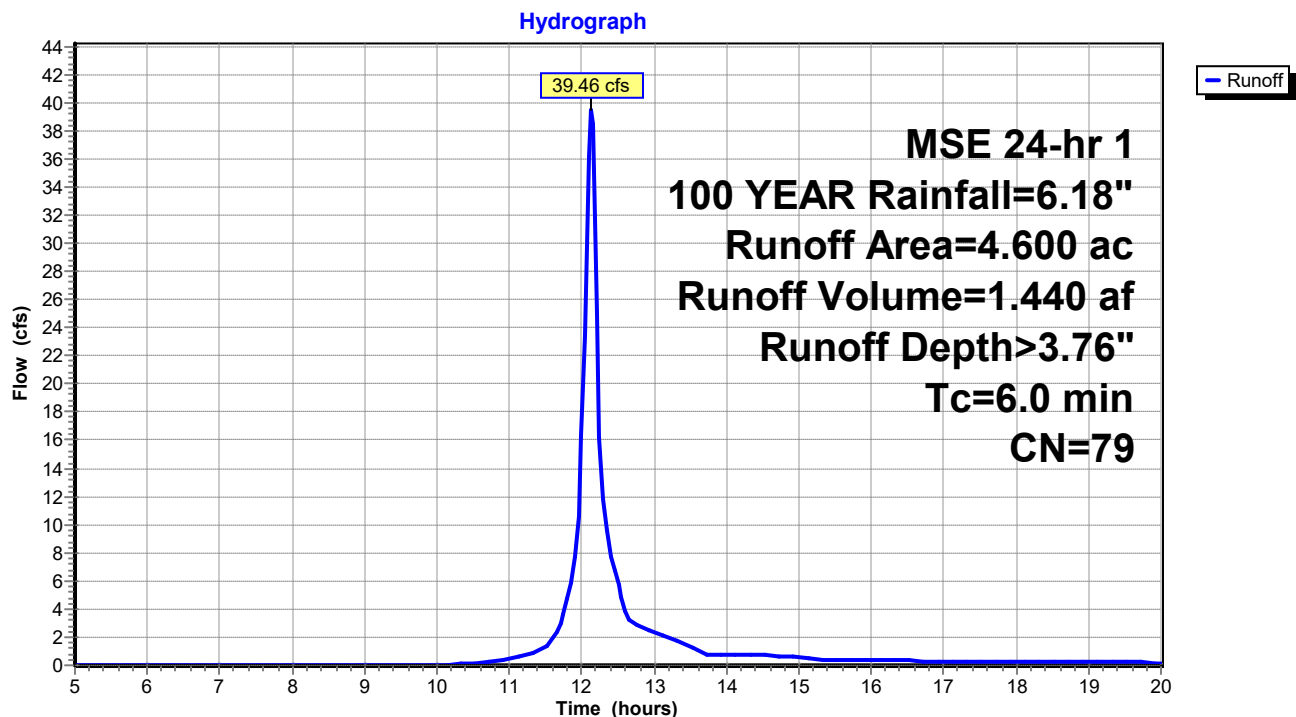
Runoff = 39.46 cfs @ 12.13 hrs, Volume= 1.440 af, Depth> 3.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 100 YEAR Rainfall=6.18"

Area (ac)	CN	Description
* 1.600	98	ROOF
* 0.660	98	PAVEMENT
2.340	61	>75% Grass cover, Good, HSG B
4.600	79	Weighted Average
2.340		50.87% Pervious Area
2.260		49.13% Impervious Area

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

Subcatchment PR1: PROPOSED AREA TO POND 1



Summary for Subcatchment PR2: PROPOSED AREA TO POND 2

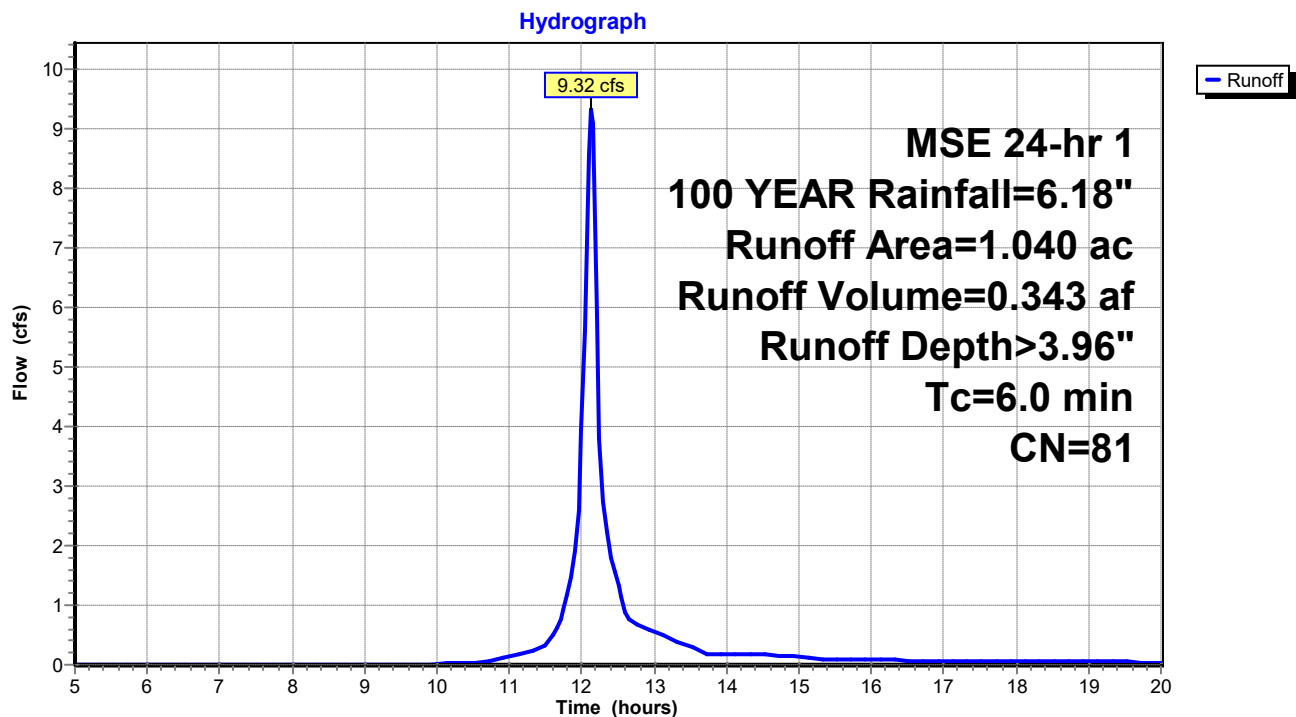
Runoff = 9.32 cfs @ 12.13 hrs, Volume= 0.343 af, Depth> 3.96"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 100 YEAR Rainfall=6.18"

Area (ac)	CN	Description
0.560	98	Paved parking, HSG A
0.480	61	>75% Grass cover, Good, HSG B
1.040	81	Weighted Average
0.480		46.15% Pervious Area
0.560		53.85% Impervious Area

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

Subcatchment PR2: PROPOSED AREA TO POND 2



Summary for Subcatchment UND: UNDETAINED AREA

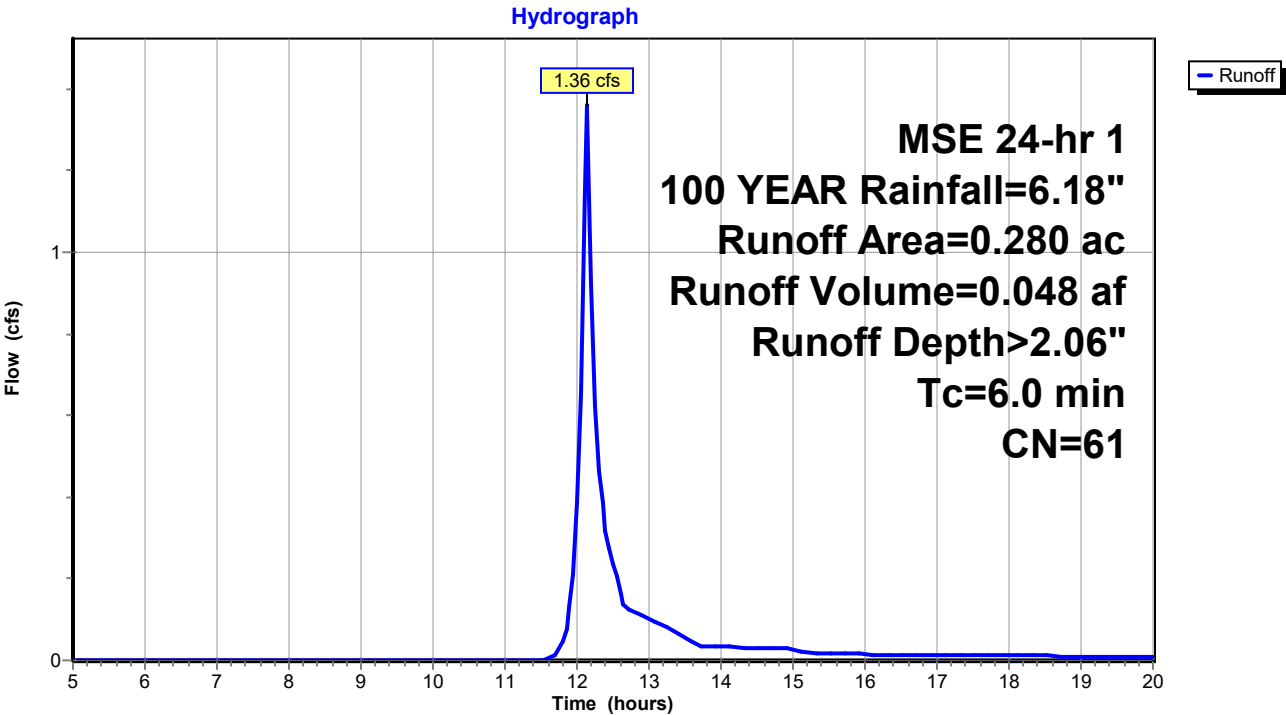
Runoff = 1.36 cfs @ 12.14 hrs, Volume= 0.048 af, Depth> 2.06"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
MSE 24-hr 1 100 YEAR Rainfall=6.18"

Area (ac)	CN	Description
0.280	61	>75% Grass cover, Good, HSG B
0.280		100.00% Pervious Area

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

Subcatchment UND: UNDETAINED AREA



Summary for Pond P1: POND 1

Inflow Area = 5.640 ac, 50.00% Impervious, Inflow Depth > 3.64" for 100 YEAR event
 Inflow = 41.57 cfs @ 12.13 hrs, Volume= 1.711 af
 Outflow = 12.09 cfs @ 12.35 hrs, Volume= 1.571 af, Atten= 71%, Lag= 13.1 min
 Discarded = 1.13 cfs @ 12.35 hrs, Volume= 0.476 af
 Primary = 10.96 cfs @ 12.35 hrs, Volume= 1.095 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 843.78' @ 12.35 hrs Surf.Area= 0.241 ac Storage= 0.741 af

Plug-Flow detention time= 73.1 min calculated for 1.566 af (92% of inflow)
 Center-of-Mass det. time= 52.1 min (816.3 - 764.2)

Volume	Invert	Avail.Storage	Storage Description
#1	839.00'	0.795 af	Custom Stage Data (Prismatic) Listed below (Recalc)
Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
839.00	0.080	0.000	0.000
840.00	0.110	0.095	0.095
841.00	0.140	0.125	0.220
842.00	0.170	0.155	0.375
843.00	0.210	0.190	0.565
844.00	0.250	0.230	0.795

Device	Routing	Invert	Outlet Devices
#1	Primary	841.00'	18.0" Round Culvert L= 48.0' RCP, end-section conforming to fill, Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.86' S= 0.0029 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf
#2	Discarded	839.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 829.00'

Discarded OutFlow Max=1.13 cfs @ 12.35 hrs HW=843.78' (Free Discharge)

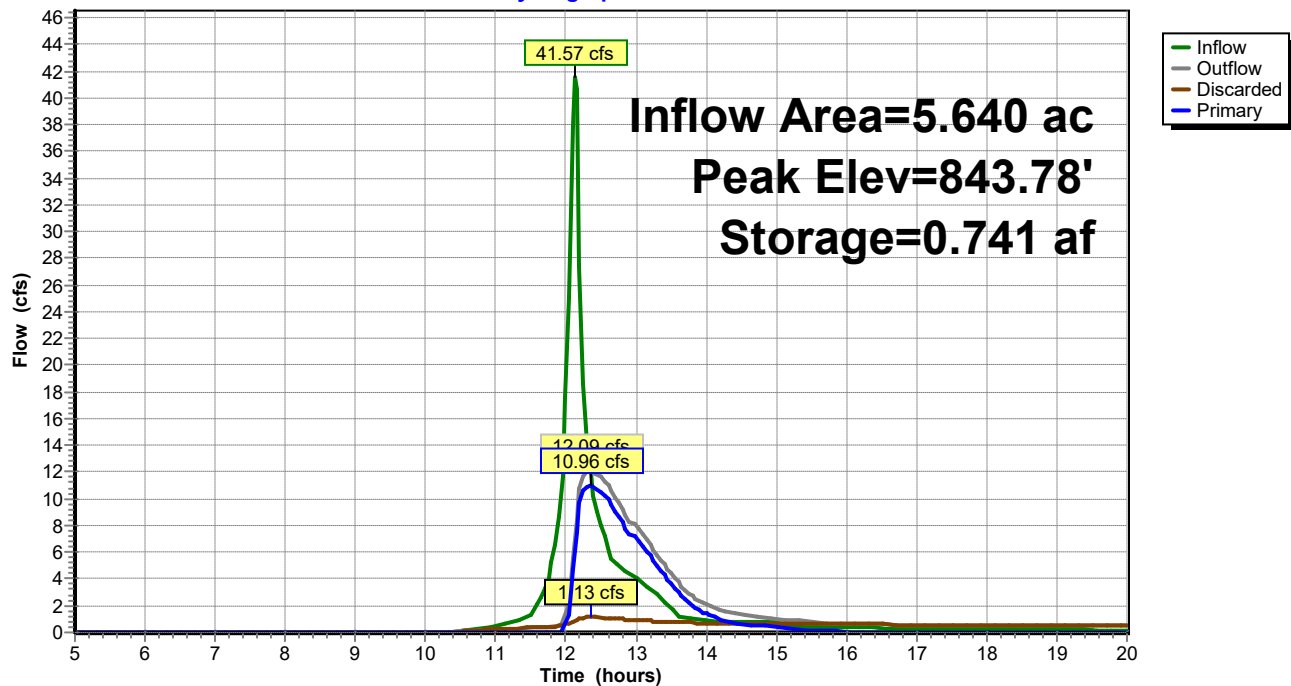
↑ **2=Exfiltration** (Controls 1.13 cfs)

Primary OutFlow Max=10.96 cfs @ 12.35 hrs HW=843.78' (Free Discharge)

↑ **1=Culvert** (Barrel Controls 10.96 cfs @ 6.20 fps)

Pond P1: POND 1

Hydrograph



Summary for Pond P2: POND 2

Inflow Area = 1.040 ac, 53.85% Impervious, Inflow Depth > 3.96" for 100 YEAR event
 Inflow = 9.32 cfs @ 12.13 hrs, Volume= 0.343 af
 Outflow = 2.72 cfs @ 12.31 hrs, Volume= 0.343 af, Atten= 71%, Lag= 10.7 min
 Discarded = 0.28 cfs @ 12.31 hrs, Volume= 0.072 af
 Primary = 2.44 cfs @ 12.31 hrs, Volume= 0.271 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
 Peak Elev= 843.88' @ 12.31 hrs Surf.Area= 0.068 ac Storage= 0.122 af

Plug-Flow detention time= 20.5 min calculated for 0.342 af (100% of inflow)
 Center-of-Mass det. time= 20.0 min (782.6 - 762.6)

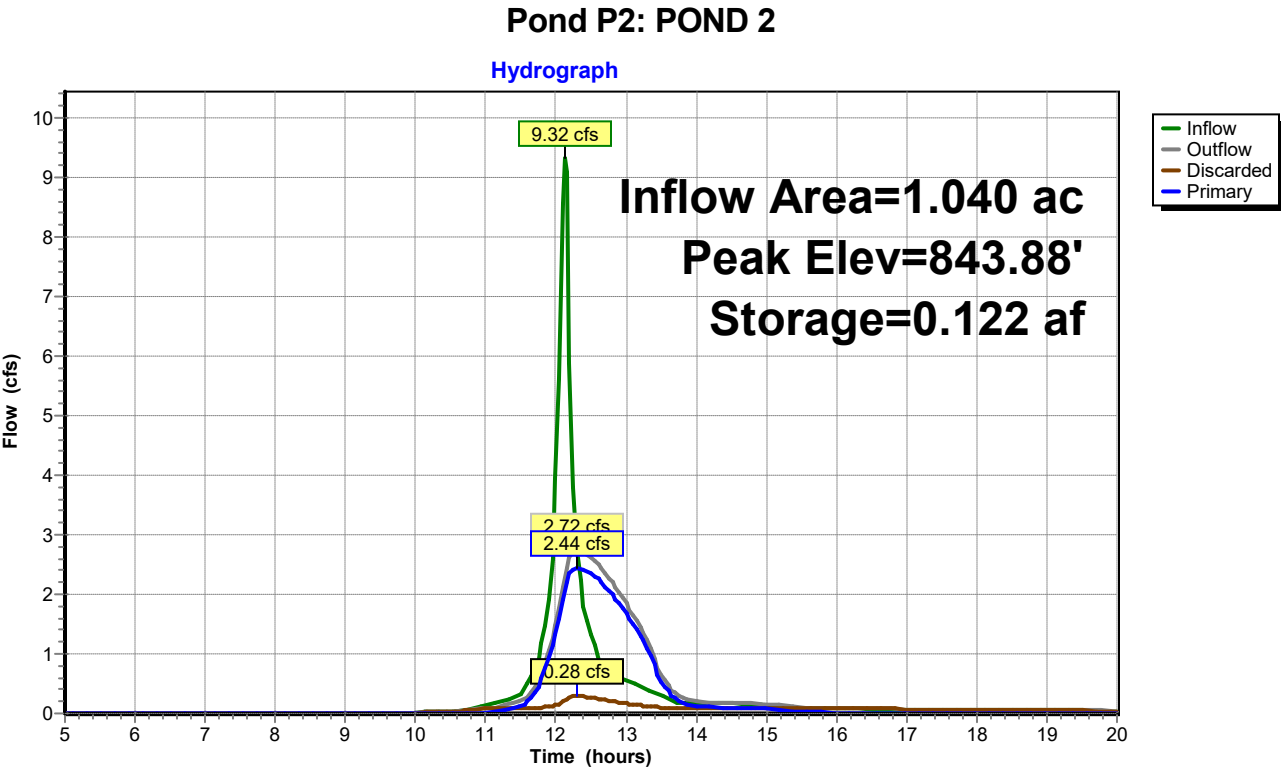
Volume	Invert	Avail.Storage	Storage Description
#1	841.00'	0.130 af	Custom Stage Data (Prismatic) Listed below (Recalc)

Elevation (feet)	Surf.Area (acres)	Inc.Store (acre-feet)	Cum.Store (acre-feet)
841.00	0.020	0.000	0.000
842.00	0.035	0.028	0.028
843.00	0.050	0.042	0.070
844.00	0.070	0.060	0.130

Device	Routing	Invert	Outlet Devices
#1	Primary	841.00'	8.0" Round Culvert L= 43.0' Ke= 0.500 Inlet / Outlet Invert= 841.00' / 840.57' S= 0.0100 '/' Cc= 0.900 n= 0.012, Flow Area= 0.35 sf
#2	Discarded	841.00'	3.600 in/hr Exfiltration over Surface area Conductivity to Groundwater Elevation = 830.00'

Discarded OutFlow Max=0.28 cfs @ 12.31 hrs HW=843.87' (Free Discharge)
 ↑ **2=Exfiltration** (Controls 0.28 cfs)

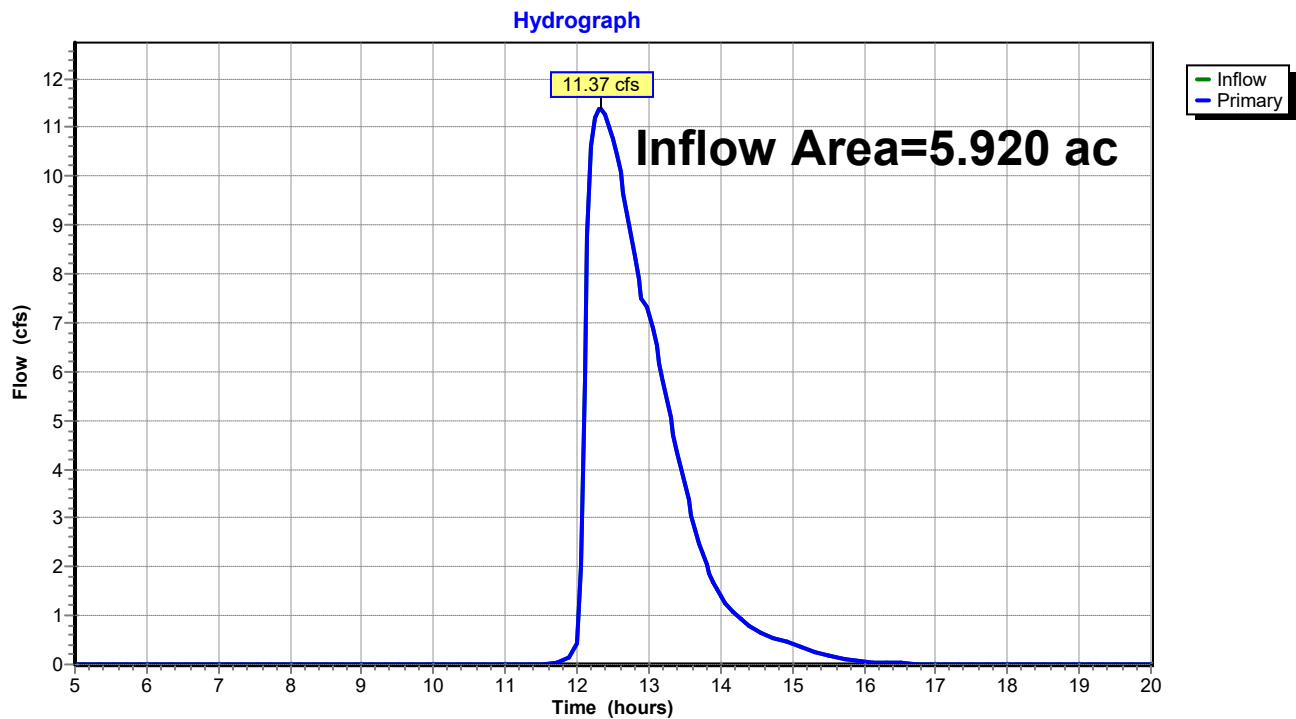
Primary OutFlow Max=2.44 cfs @ 12.31 hrs HW=843.87' (Free Discharge)
 ↑ **1=Culvert** (Barrel Controls 2.44 cfs @ 6.99 fps)



Summary for Link PRD: PROPOSED DISCHARGE

Inflow Area = 5.920 ac, 47.64% Impervious, Inflow Depth > 2.32" for 100 YEAR event
Inflow = 11.37 cfs @ 12.32 hrs, Volume= 1.143 af
Primary = 11.37 cfs @ 12.32 hrs, Volume= 1.143 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

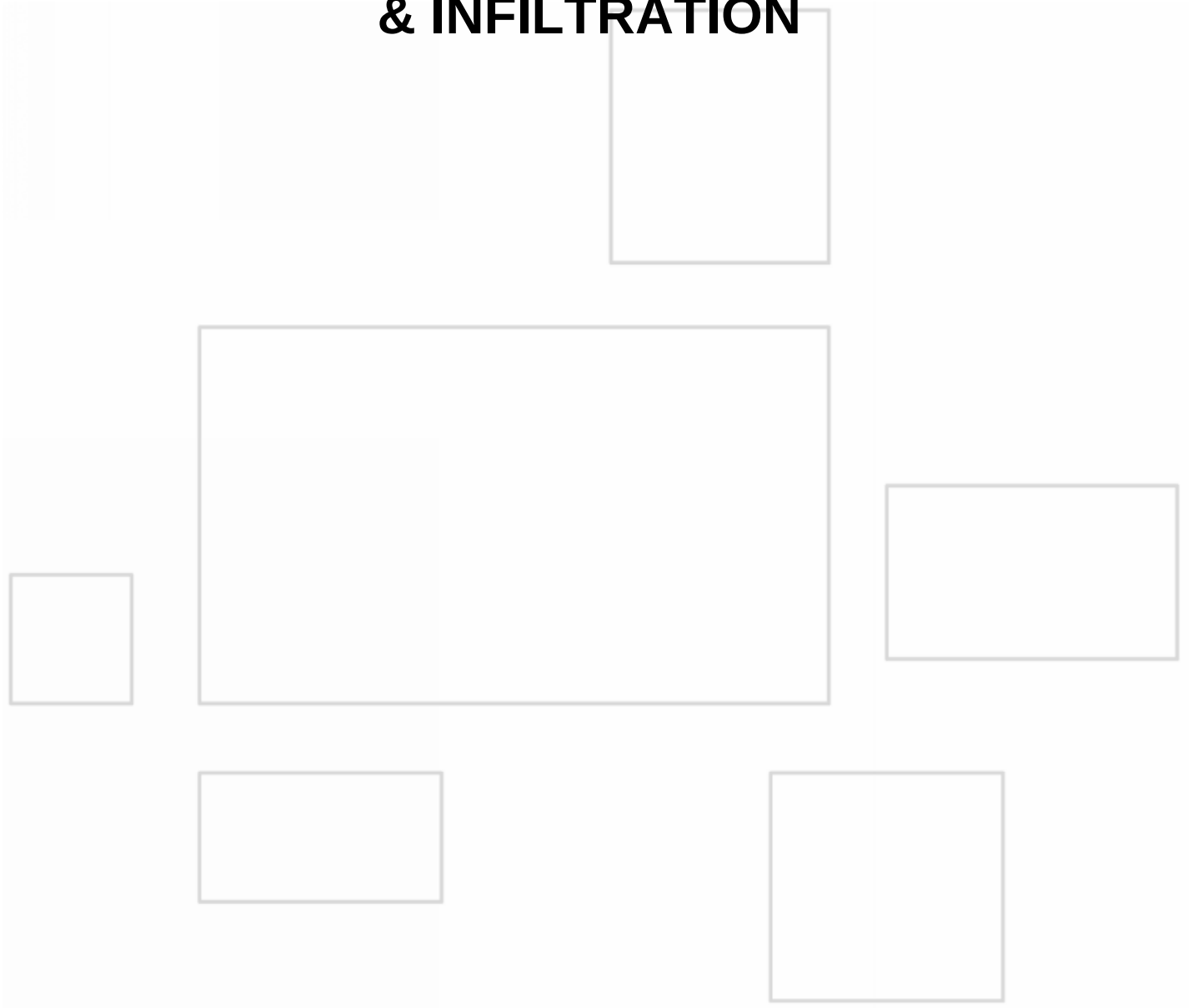
Link PRD: PROPOSED DISCHARGE

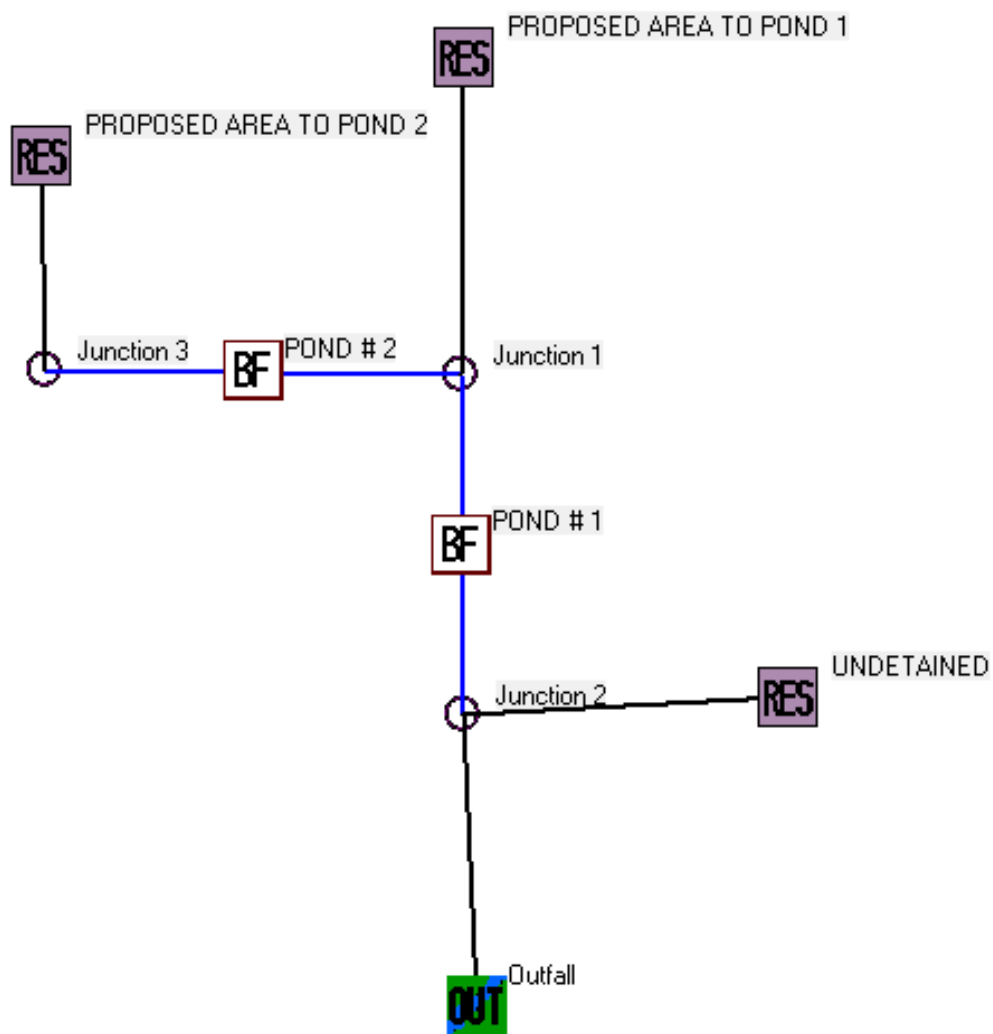
APPENDIX 4

POST DEVELOPMENT CONDITIONS

WATER QUALITY

& INFILTRATION





Data file name: Z:\Projects\2023\5172.00-WI\DESIGN\SWMP\SLAMM\5172.00 AZURA MUKWONAGO.mdb

WinSLAMM Version 10.4.1

Rain file name: C:\WinSLAMM Files\Rain Files\WI Milwaukee 69.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:

If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations

Seed for random number generator: -42

Study period starting date: 01/05/69

Study period ending date: 12/31/69

Start of Winter Season: 12/06

End of Winter Season: 03/28

Date: 03-29-2024

Time: 08:35:43

Site information: MUKWONAGO INFILTRATION CALCS

LU# 1 - Residential: PROPOSED AREA TO POND 1 Total area (ac): 4.600

1 - Roofs 1: 1.600 ac. Pitched Connected PSD File: C:\WinSLAMM Files\NURP.cpz

13 - Paved Parking 1: 0.660 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz

45 - Large Landscaped Areas 1: 2.340 ac. Normal Sandy PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 2 - Residential: UNDETAINED Total area (ac): 0.280

51 - Small Landscaped Areas 1: 0.280 ac. Normal Sandy PSD File: C:\WinSLAMM Files\NURP.cpz

LU# 3 - Residential: PROPOSED AREA TO POND 2 Total area (ac): 1.040

13 - Paved Parking 1: 0.560 ac. Connected PSD File: C:\WinSLAMM Files\NURP.cpz

51 - Small Landscaped Areas 1: 0.480 ac. Normal Sandy PSD File: C:\WinSLAMM Files\NURP.cpz

Control Practice 1: Biofilter CP# 1 (DS) - POND # 1

1. Top area (square feet) = 10700

2. Bottom area (square feet) = 3340

3. Depth (ft): 6

4. Biofilter width (ft) - for Cost Purposes Only: 10

5. Infiltration rate (in/hr) = 3.6

6. Random infiltration rate generation? No

7. Infiltration rate fraction (side): 1

8. Infiltration rate fraction (bottom): 1

9. Depth of biofilter that is rock filled (ft) 0

10. Porosity of rock filled volume = 0

11. Engineered soil infiltration rate: 3.6

12. Engineered soil depth (ft) = 0.33

13. Engineered soil porosity = 0.25

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

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 10

2. Weir crest width (ft): 10

3. Height of datum to bottom of weir opening: 5.5

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 1.5

2. Pipe invert elevation above datum (ft): 2.33

3. Number of surface pipe outlets: 1

Control Practice 2: Biofilter CP# 2 (DS) - POND # 2

1. Top area (square feet) = 2920
2. Bottom area (square feet) = 880
3. Depth (ft): 4
4. Biofilter width (ft) - for Cost Purposes Only: 10
5. Infiltration rate (in/hr) = 3.6
6. Random infiltration rate generation? No
7. Infiltration rate fraction (side): 1
8. Infiltration rate fraction (bottom): 1
9. Depth of biofilter that is rock filled (ft) 0
10. Porosity of rock filled volume = 0
11. Engineered soil infiltration rate: 3.6
12. Engineered soil depth (ft) = 0.33
13. Engineered soil porosity = 0.25
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

Biofilter Outlet/Discharge Characteristics:

Outlet type: Broad Crested Weir

1. Weir crest length (ft): 10
2. Weir crest width (ft): 10
3. Height of datum to bottom of weir opening: 3.5

Outlet type: Surface Discharge Pipe

1. Surface discharge pipe outlet diameter (ft): 0.67
2. Pipe invert elevation above datum (ft): 0.33
3. Number of surface pipe outlets: 1

Data file name: Z:\Projects\2023\5172.00-WI\DESIGN\SWMP\SLAMM\5172.00 AZURA MUKWONAGO.mdb

WinSLAMM Version 10.4.1

Rain file name: C:\WinSLAMM Files\Rain Files\WI Milwaukee 69.RAN

Particulate Solids Concentration file name: C:\WinSLAMM Files\v10.1 WI_AVG01.pscx

Runoff Coefficient file name: C:\WinSLAMM Files\WI_SL06 Dec06.rsvx

Pollutant Relative Concentration file name: C:\WinSLAMM Files\WI_GEO03.ppd

Residential Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std

Institutional Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Commercial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Industrial Street Delivery file name: C:\WinSLAMM Files\WI_Com Inst Indust Dec06.std

Other Urban Street Delivery file name: C:\WinSLAMM Files\WI_Res and Other Urban Dec06.std

Freeway Street Delivery file name: C:\WinSLAMM Files\Freeway Dec06.std

Apply Street Delivery Files to Adjust the After Event Load Street Dirt Mass Balance: False

Source Area PSD and Peak to Average Flow Ratio File: C:\WinSLAMM Files\NURP Source Area PSD Files.csv

Cost Data file name:

If Other Device Pollutant Load Reduction Values = 1, Off-site Pollutant Loads are Removed from Pollutant Load % Reduction calculations

Seed for random number generator: -42

Study period starting date: 01/05/69 Study period ending date: 12/31/69

Start of Winter Season: 12/06 End of Winter Season: 03/28

Model Run Start Date: 01/05/69 Model Run End Date: 12/31/69

Date of run: 03-29-2024 Time of run: 08:34:34

Total Area Modeled (acres): 5.920

Years in Model Run: 0.99

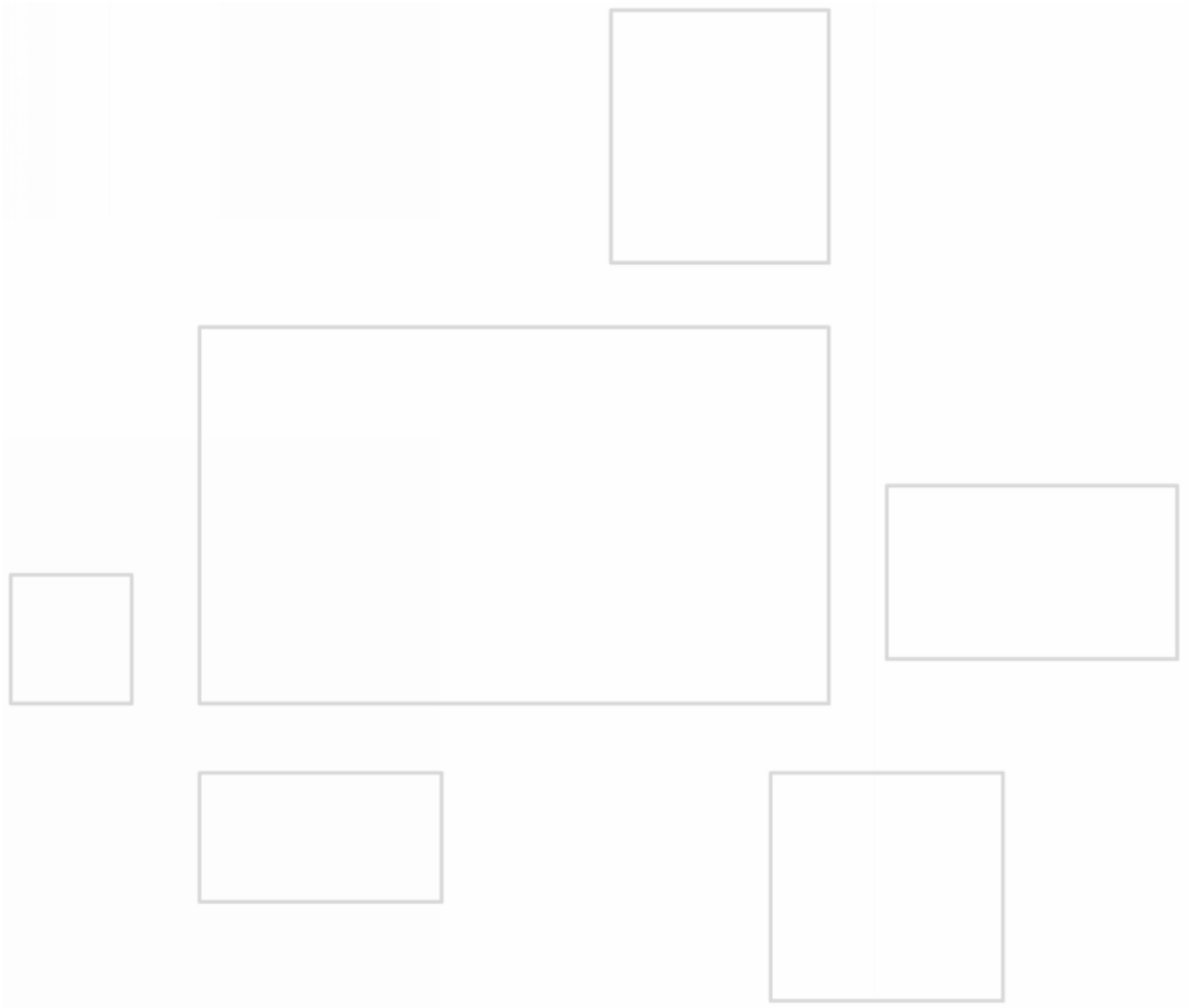
	Runoff Volume (cu ft)	Percent Runoff Volume Reduction	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Total of all Land Uses without Controls:	252047	-	74.08	1166	-
Outfall Total with Controls:	299.7	99.88%	227.0	4.247	99.64%
Annualized Total After Outfall Controls:	303.8			4.306	

Pollutant	Conc. No Controls	Conc. With Controls	Conc. Units	Pollutant Yield No Controls	Pollutant Yield With Controls	Pol. Yield Units	Percent Reduction
Particulate Solids	74.08	227.0	mg/L	1166	4.247	lbs	99.64 %
Particulate Phosphorus	0.1572	1.024	mg/L	2.474	0.01916	lbs	99.23 %

Data File: Z:\Projects\2023\5172.00-WI\DESIGN\SWMP\SLAMM\5172.00 AZURA MUKWONAGO.mdb								
Rain File: WI Milwaukee 69.RAN								
Date: 03-28-24 Time: 4:45:34 PM								
Site Description: MUKWONAGO INFILTRATION CALCS								
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.
80	09/05/69	0.74	6.978	0.000	0.74	73.9	0.003	0
81	09/14/69	0.01	0	0.000	0.01	n/a	0.000	n/a
82	09/15/69	0.03	0	0.000	0.03	n/a	0.000	n/a
83	09/16/69	0.03	0	0.000	0.03	n/a	0.000	n/a
84	09/23/69	0.16	0	0.000	0.16	n/a	0.000	n/a
85	09/25/69	0.01	0	0.000	0.01	n/a	0.000	n/a
86	09/29/69	0.84	8.994	0.000	0.84	71.5	0.002	0
87	10/06/69	0.01	0	0.000	0.01	n/a	0.000	n/a
88	10/06/69	0.01	0	0.000	0.01	n/a	0.000	n/a
89	10/09/69	0.05	0	0.000	0.05	n/a	0.000	n/a
90	10/10/69	0.14	0	0.000	0.14	n/a	0.000	n/a
91	10/10/69	1.34	20.17	0.001	1.34	61.3	0.001	846
92	10/12/69	1.63	26.97	0.001	1.63	56.6	0.001	2193
93	10/15/69	0.16	0	0.000	0.16	n/a	0.000	n/a
94	10/19/69	0.44	2.446	0.000	0.44	82.5	0.000	0
95	10/19/69	0.35	1.384	0.000	0.35	85.5	0.000	0
96	10/21/69	0.02	0	0.000	0.02	n/a	0.000	n/a
97	10/24/69	0.01	0	0.000	0.01	n/a	0.000	n/a
98	10/30/69	0.32	1.017	0.000	0.32	86.5	0.000	0
99	11/02/69	0.77	7.619	0.000	0.77	73.2	0.000	0
100	11/11/69	0.05	0	0.000	0.05	n/a	0.000	n/a
101	11/11/69	0.04	0	0.000	0.04	n/a	0.000	n/a
102	11/13/69	0.03	0	0.000	0.03	n/a	0.000	n/a
103	11/17/69	0.15	0	0.000	0.15	n/a	0.000	n/a
104	11/18/69	0.02	0	0.000	0.02	n/a	0.000	n/a
105	11/19/69	0.01	0	0.000	0.01	n/a	0.000	n/a
106	11/26/69	0.07	0	0.000	0.07	n/a	0.000	n/a
107	12/07/69	-	-	-	-	-	-	-
108	12/11/69	-	-	-	-	-	-	-
109	12/16/69	-	-	-	-	-	-	-
110	12/21/69	-	-	-	-	-	-	-
111	12/23/69	-	-	-	-	-	-	-
112	12/24/69	-	-	-	-	-	-	-
113	12/24/69	-	-	-	-	-	-	-
114	12/27/69	-	-	-	-	-	-	-
115	12/28/69	-	-	-	-	-	-	-
116	12/31/69	-	-	-	-	-	-	-
Minimum:		0.00	0	0.000	0.01	52.1	0.000	0.0
Maximum:		1.96	35.77	0.001	1.96	90.2	0.009	4344.0
Average:		0.25	2.583	0.000	0.25	63.5	0.002	412.9
Total:		29.02	299.7		29.02			14453.00
* Note: NRCS does not recommend using CN method for rains < 0.5 in.								
See 'PreDevelopment Areas and CN' Help for more info.								

APPENDIX 5

GEOTECHNICAL INFORMATION





Construction • Geotechnical
Consulting Engineering/Testing

January 22, 2024
CM23219

Mr. Matthew Lyons
Azura Memory Care
1233 N. Mayfair Road, Suite 301
Milwaukee, WI 53226

Re: Geotechnical Exploration Report
Azura Memory Care
Chapman Farm Boulevard
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, 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 new, one to two-story assisted living facility is proposed on the south side of Chapman Farm Boulevard in Mukwonago, Wisconsin. It will be an irregularly shaped building occupying about 49,000 square feet in plan area. The east half of the building will consist of 2 stories of assisted living and commons areas, while the western half of the building will consist of a 1 story memory care area. The building is expected to be of slab-on-grade construction without a below grade level. It is anticipated that the structure will be lightly to moderately loaded. A small 30 by 40 ft barn/pavilion structure is also indicated to be planned at the northeast corner of the site. The project will include associated paved parking lots and driveway to the north and east of the building, as well as a stormwater management basin which is proposed on the west end of the site. Specific details of the stormwater basin design are unknown at this time.

The proposed project site consists of a vacant 6.36-acre parcel of land with ground surface elevations ranging between about EL 841 along the southwestern portion of the site to about EL 852 on the east side of the site. The property is sparsely grass and weed covered. A tree line exists along the east and south property lines.

The proposed building elevations were not established at the time of this report. As such, based upon existing grades, a finished floor elevation (FFE) of EL 845 ft was estimated for the main building for purposes of this evaluation. However, it appears possible that the FFE for the west half of the building may be established somewhat lower than the east half to follow existing and surrounding grades more closely. A FFE of EL 851 was estimated for the Barn/Pavilion structure. Upon determination of the

Mr. Matthew Lyons
Azura Memory Care
January 22, 2024
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final FFEs for the planned building, we recommend that they be provided to us for review and possible revision to this report. Based upon existing grades within the main building area, it is anticipated that minor cuts of up to about 1.5 ft and moderate fills of up to about 2.5 ft will be required to achieve the assumed building pad grade. Minor cuts/fills are expected in the Barn/Pavilion area, as well as throughout the pavement areas. It is expected that some cutting will be required in the western portion of the site where the storm water basin will be located. The bottom elevation of the basin was not yet established at the time of this report.

SUBSURFACE CONDITIONS

Subsurface conditions on site were explored by drilling a total of thirteen (13) Standard Penetration Test (SPT) borings. The borings were extended to depths of 15 to 25 ft below existing site grades. Borings B-01 through B-09 and B-11 were extended to a depth of 20 ft below the existing site grade and were primarily located within the proposed main building area, except for boring B-11 which was in the east parking lot of the proposed building. Boring B-10 was extended to a depth of 15 ft below the existing grade in the proposed barn/pavilion area. The final two borings, B-12 and B-13 were extended 25 ft below the existing site grade within the proposed stormwater management basin. 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 located utilizing a consumer grade, handheld GPS unit and are considered accurate to within several feet. The borings were drilled between December 20 and 22, 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 topographical survey information provided. They are considered accurate to within about a 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 Borings B-12 and B-13 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. 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.

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):

Mr. Matthew Lyons
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Page 3

- The surface of the site contained of about 8 to 21 in. (most commonly about 11 to 12 in.) of **dark brown clayey topsoil**. The surface materials were underlain by;
- About 0.5 to 2 ft of stiff to very stiff, **native brown lean and sandy clay**, with trace to little sand and gravel content, underlain by;
- Loose to very dense **brown gravelly sand or sand and gravel**, with trace to little silt, occasional zones of probable cobbles and boulders, and occasional sand or sandy silt layers extending to the termination depths of the borings.

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 1.5 tsf to 2.5 tsf, indicating stiff to very stiff conditions. Standard penetration resistances (N-values) on the native granular soils ranged from about 9 to 82 blows per foot (bpf) indicating loose to very dense conditions. Natural moisture contents of representative clay samples measured in our laboratory ranged from 9.5% to 18.8%, indicating moist to very moist conditions.

Groundwater was not encountered in most of the borings performed during or upon completion of drilling. Ground water was encountered in Borings B-03 and B-11 while drilling at depths of about 8 ft and 3.5 ft, respectively, corresponding to elevations of EL 846.0 ft and 835.0 ft. Based on the general lack of groundwater 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 Borings B-03 and B-11 is considered to represent a perched condition 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 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, 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.

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1. Site Preparation

We recommend that topsoil, brush, any trees and associated rootballs be stripped 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 about 11 to 12 in. thick at the soil boring locations. However, it was encountered as thin as about 8 in. in one location (Boring B-10) and as thick as about 21 in. at Boring B-07. Therefore, variable 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 fine-grained cohesive soils. Overall, these soils exhibited stiff to very stiff conditions within the near-surface soil profile. In areas remaining at-grade or requiring fill, we recommend that cohesive 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

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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). Difficulty 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 soils encountered in the borings consist of stiff to very stiff clays and loose to very dense granular 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

In our opinion, the proposed buildings can be supported on reinforced concrete spread footing foundations bearing on the stiff to very stiff native lean clays, the loose to very dense native sands, sand and gravel, or sandy silt, or new engineered fill placed upon a suitable native soil subgrade. Accordingly, the following parameters should be used for foundation design:

- **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

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- **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).

Although generally not anticipated based upon the borings, undercutting below footings will be required where non-engineered fill, loose/disturbed silts and sands, or native clays with pocket penetrometer readings (an estimate of the unconfined compressive strength of cohesive soils) of less than 1.5 tsf are encountered at or slightly below footing grade. 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 compacted to at least 95% compaction (modified Proctor, ASTM D1557) or well-compacted 3-in. dense graded base can be used to re-establish footing grade. Clear stone can be used to restore footing grade, but if the undercut depth exceeds 12 in. and granular soils prevail, the clear stone should be enveloped (completely wrapped) with non-woven geotextile fabric (e.g., Mirafi 160N or equivalent). As an alternative, structural lean-mixed concrete (having minimum 28-day compressive strength of 500 psi) can be used to restore footing grade where undercutting is required. If lean mix concrete is used, the width of the undercut excavation can also be reduced to a minimum of 6 in. wider than the footing width.

CGC should be present during footing excavations to check whether subgrades are satisfactory for the design bearing pressure and to advise on corrective measures, where necessary. We recommend using a smooth-edged backhoe bucket for footing excavations to minimize disturbance to the bearing soils. Soils potentially susceptible to disturbance should be hand trimmed or stabilized, as appropriate. If granular soils become surficially disturbed due to typical excavation procedures, recompaction with a large vibratory plate compactor or backhoe mounted vibratory plate may be recommended to redensify these materials to a suitable degree. Provided the foundation design/construction recommendations discussed above are followed, we estimate that total and differential settlements should be on the order of 1.0 and 0.5 in., respectively.

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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, loose to very dense granular soils, or similar engineered fill soils used to raise grades. 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 DGB, 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. Elevator Pit Walls

We anticipate that the elevator pit walls will be laterally supported by the base slab, first floor slab and/or other structural means. Therefore, *at-rest* lateral earth pressures should be used during design of these walls. Walls that are not restrained from rotating can be designed for *active* earth pressures behind the walls and *passive* pressures in front of the walls. To reduce the buildup of such pressures, high-quality fill/backfill should be placed within 4 to 6 ft of the walls, consisting of well-graded sand or gravel having no more than 12% by weight passing the No. 200 U.S. standard sieve (i.e., USCS designations SP, SP-SM, GP or GP-GM). Soils containing cobbles/boulders should not be used in direct contact with elevator pit or retaining walls.

Compaction of the fill/backfill within 3 to 5 ft of the walls should be performed with lightweight equipment to avoid the development of excessive lateral earth pressures. The fill and wall backfill should be compacted to a minimum of 95% modified Proctor following Appendix D guidelines. Walls that are restrained from rotating and constructed in accordance with the above recommendations may

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be designed for an equivalent fluid pressure of 55 psf per ft of depth (*at rest conditions*). Walls not restrained from rotating constructed in accordance with the above recommendations may be designed for an *active* equivalent fluid pressure of 35 psf/ft behind the walls and *passive* pressures on the order of 200 psf/ft in front of the walls. The passive pressure value includes a safety factor of 2 to prevent excessive wall deflection. Additionally, the wall designs should also account for hydraulic pressures (if any, such as potentially during the event of high perched groundwater levels) as well as surcharge effects that could be applied during or after construction.

For the event of high perched groundwater levels, we recommend wrapping elevator pits in geomembrane to create a watertight structure (“bath tub”). As a result, we generally do not anticipate the need for a subfloor drainage layer below elevator pits.

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)	1.5	1.75	Section 460, Table 460-1, 9.5 mm
Bituminous Lower Layer ^(2,3)	2.0	2.25	Section 460. Table 460-1, 12.5 mm
Dense Graded Base Course ^(2,4)	9.0	10.0	Sections 301 and 305, 3 in. and 1¼ in.
Total Thickness	12.5	14.0	

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Notes:

1. Wisconsin DOT *Standard Specifications for Highway and Structure Construction*, latest edition, including supplemental specifications, but excluding limitations in Section 460.3.2 relating layer thickness to aggregate size.
2. Compaction requirements:
 - Bituminous concrete: Refer to Section 460.3.3.1, Table 460-3.
 - Base course: 95% modified proctor (ASTM D1557); also refer to Section 301.3.4.2, Standard Compaction.
3. Mixture Type LT or equivalent asphaltic pavement is recommended. Refer to Section 460, Table 460-2 of the *Standard Specifications*.
4. The upper 4 in. should consist of 1¼-in. DGB; the bottom part of the layer can consist of 3-in. DGB.

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 recompact.

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 recompact/stable soils.

It is recommended underdrains be placed within the 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.

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6. Stormwater Design Considerations

A. Infiltration Considerations

The soils encountered within the borings performed in the stormwater management areas (Borings B-12 and B-13) were classified in accordance with the USDA Textural Soil Classification System. The soils encountered generally consist of a surface sandy clay loam topsoil layer, followed by a relatively thin sandy clay layer, underlain by very gravelly sand and sand to the boring termination depths. Based on the conditions encountered, it is our opinion that the very gravelly sand and sand soils have a relatively high 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.

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:

- | | |
|------------------------------------|-------------|
| • Sandy Clay (SC) | 0.04 in./hr |
| • Sandy Clay Loam (SCL) | 0.11 in./hr |
| • Very Gravelly Sand/Sand (VGRS/S) | 3.60 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. Groundwater was not encountered within the depths of the stormwater area borings performed.

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

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The very gravelly sand and sand soils encountered at 1.5 to 2 ft below existing site grades at Borings B-12 and B-13 are considered to contain less than 10 percent fines (i.e., percentage of silt and clay). Therefore, based upon the Wisconsin Administrative Code section NR151.12(5)(c)5.i, either a 3-ft thick soil layer having greater than 20 percent fines or a 5 ft thick soil layer having greater than 10 percent fines must be present between the bottom of the basin and the estimated SHWT. The planned bottom elevation of the stormwater management basin was not known at the time of this report. However, the SHWT at Borings B-12 and B-13 is considered to be greater than 25 ft below the existing site grades. Considering the estimated depth to the SHWT, we anticipate that the bottom elevation of the basin will be such that adequate separation in accordance with the requirements of the Wisconsin Administrative Code section NR151.12(5)(c)5.i will be achieved.

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 E.

B. Detention Pond Considerations

In some instances, stormwater management basins may be designed as wet detention ponds with clay liners. Some of the lean clay soils encountered within the borings 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.

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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 Borings B-03 and B-11, 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.



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* * * * *

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.

Ted A. Cera, P.E.
Senior Consulting Professional

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

Encl: Appendix A - Field Exploration
Appendix B - Soil Boring Location Exhibit
Logs of Test Borings (13)
Log of Test Boring-General Notes
Unified Soil Classification System
Appendix C - Document Qualifications
Appendix D - Recommended Compacted Fill Specifications
Appendix E - Soil and Site Evaluation – Storm Form (Borings B-12 and B-13)

APPENDIX A
FIELD EXPLORATION

APPENDIX A

FIELD EXPLORATION

Subsurface conditions on site were explored by drilling a total of thirteen (13) Standard Penetration Test (SPT) borings. The borings were extended to depths of 15 to 25 ft below existing site grades. Borings B-01 through B-09 and B-11 were extended to a depth of 20 ft below the existing site grade and were primarily located within the proposed building, except for boring B-11 which was in the east parking lot of the proposed building. Boring B-10 was extended to a depth of 15 ft below the existing grade within the proposed barn/pavilion area. The final two borings, B-12 and B-13 were extended 25 ft below the existing site grade within the proposed stormwater management basin. 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 located utilizing a consumer grade, handheld GPS unit and are considered accurate to within several feet. The borings were drilled between December 20 and 22, 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 ground surface elevations at the borings were estimated by interpolation from the topographical survey information provided. They are considered accurate to within about a foot.

In each boring, soil samples were obtained at 2.5-foot intervals to a depth of 10 ft and at 5 ft intervals thereafter. However, as an exception, Borings B-12 and B-13 within the stormwater area were sampled at 2.5-foot intervals for the full depth of the borings. 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.

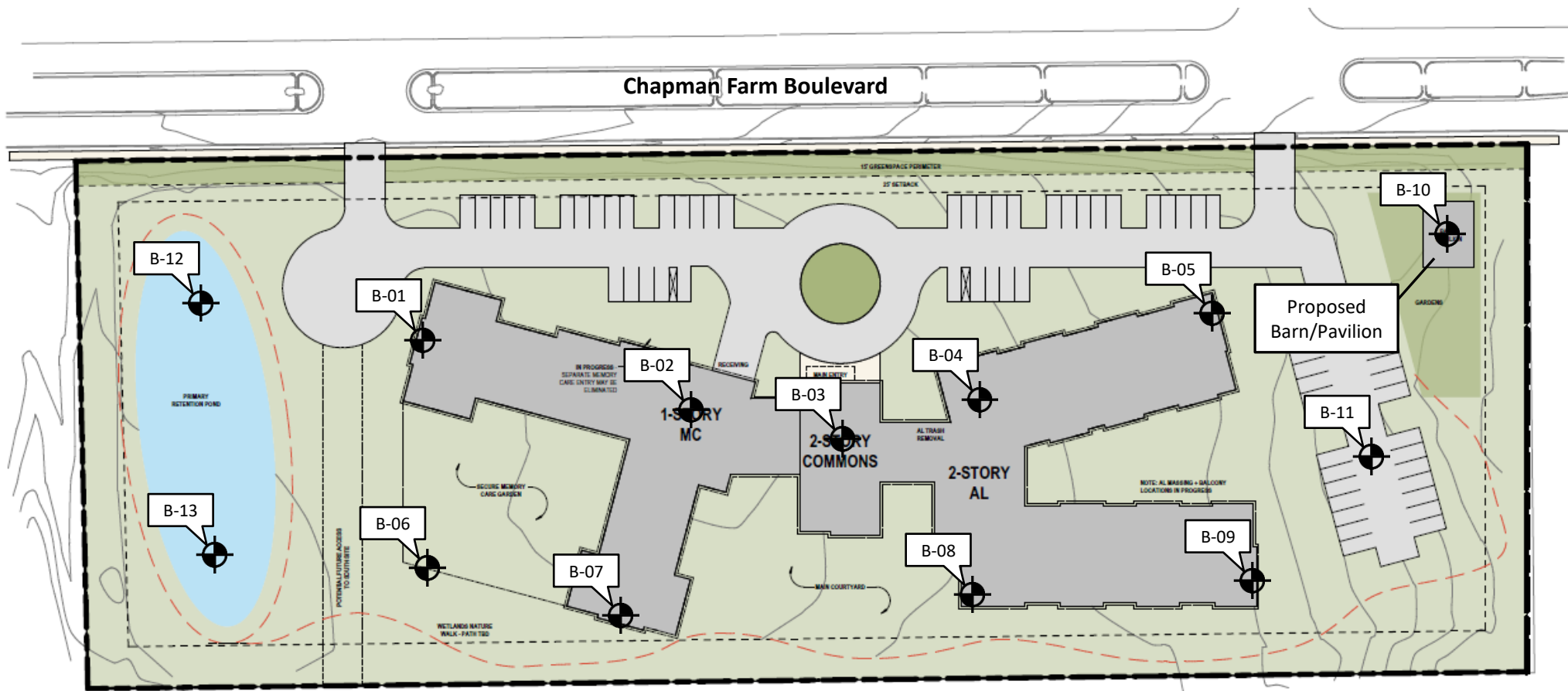
2. Standard Penetration Test and Split-Barrel Sampling of Soils
(ASTM Designation: D 1586)

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 borings 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 E.

APPENDIX B

**SOIL BORING LOCATION EXHIBIT
LOGS OF TEST BORINGS (13)
LOG OF TEST BORING-GENERAL NOTES
UNIFIED SOIL CLASSIFICATION SYSTEM**



Legend

B-#
Denotes Approximate Boring Location and Number

Notes

1. Soil borings performed by J&J Soil Testing, Ltd. between Dec. 20 and 22, 2023.
2. Base map provided by EUA.
3. Boring locations are approximate. Offsets from locations shown (if any) are described on the individual boring logs.

Date:
1-15-24

Job No.
CM23219

CGC, Inc.

SOIL BORING LOCATION EXHIBIT
Proposed Azura Memory Care Facility
Chapman Farm Boulevard
Mukwonago, Wisconsin



LOG OF TEST BORING

Project Proposed Azura Memory Care Facility
Chapman Farm Boulevard
 Location Mukwonago, Wisconsin

Boring No. **B-01**
 Surface Elevation (ft) 843±
 Job No. **CM23219**
 Sheet 1 of 1

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					15" Dark Brown Clayey TOPSOIL					
1A/B	13	M	26		Stiff, Brown Sandy CLAY to Clayey SAND (CL-SC)		9.5			
2	12	M	82		Medium Dense to Very Dense, Brown Gravelly SAND; Trace to Little Silt (SP-SM)					
3A/B	16	M	72		Medium Dense, Brown Sandy SILT; Little Gravel, Trace Clay (ML)					
4	14	M	73/ 11"		Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
5	10	M	66							
6	12	M	57							
					End of Boring at 20 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start 12/21/23 End 12/21/23
 Driller J&J Chief JP Rig CME-45
 Logger JP Editor TAC
 Drill Method 2.25" HSA

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
Location **Mukwonago, Wisconsin**

Boring No. **B-02**
Surface Elevation (ft) **843±**
Job No. **CM23219**
Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Excavation (in.)	Rec (in.)	Moist	N	Depth (ft)	qu (qa) (tsf)	W	LL	PL	LOI
						11" Dark Brown Clayey TOPSOIL				
1		12	M	7		Stiff, Brown Lean CLAY; Little Sand, Trace Gravel (CL)	(1.5-2.0)	15.4		
2		15	M	40		Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)				
3		15	M	70						
4		9	M	67						
5		14	M	70						
6		10	M	58						
End of Boring at 20 ft Backfilled with Bentonite Chips										

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling ☒ NW
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start **12/21/23** End **12/21/23**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **TAC**
Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
 Location **Mukwonago, Wisconsin**

Boring No. **B-03**
 Surface Elevation (ft) **843±**
 Job No. **CM23219**
 Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					15" Dark Brown Clayey TOPSOIL					
1A/B	11	M	4		Stiff, Brown Sandy CLAY; Trace Gravel (CL)		15.0			
					Loose, Brown Sandy SILT; Trace Clay (ML)					
2	8	M	9		Loose, Brown Gravelly SAND; Trace to Little Silt (SP-SM)					
				5						
3	14	M	39		Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
4A/B	18	W/M	66		Dense, Brown Sandy SILT; Little Gravel, Trace Clay (ML)					
				10	Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
5	11	M	31							
				15						
6	15	M	64							
				20						
					End of Boring at 20 ft Backfilled with Bentonite Chips					
				25						
				30						

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ **8.0'±** Upon Completion of Drilling **NW**
 Time After Drilling **(perched)** _____
 Depth to Water _____
 Depth to Cave in _____

Start **12/21/23** End **12/21/23**
 Driller **J&J** Chief **JP** Rig **CME-45**
 Logger **JP** Editor **TAC**
 Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
 Location **Mukwonago, Wisconsin**

Boring No. **B-04**
 Surface Elevation (ft) **844.5±**
 Job No. **CM23219**
 Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					12" Dark Brown Clayey TOPSOIL					
1	10	VM	7		Stiff, Brown Lean CLAY; Little Sand, Trace Gravel (CL)	(1.5-2.0)	16.5			
2	18	M	36		Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
3	15	M	71							
4	18	M	44		Dense, Brown Fine to Medium SAND; Trace to Little Gravel, Trace Silt (SP)					
5	14	M	62/ 8"		Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
6	12	M	64							
					End of Boring at 20 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling ☒ NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **12/21/23** End **12/21/23**
 Driller **J&J** Chief **JP** Rig **CME-45**
 Logger **JP** Editor **TAC**
 Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
Location **Mukwonago, Wisconsin**

Boring No. **B-05**
Surface Elevation (ft) **846.5±**
Job No. **CM23219**
Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					12" Dark Brown Clayey TOPSOIL					
1A/B	14	M	22		Stiff, Brown Lean CLAY; Little Sand, Trace Gravel (CL)	(2.0)	13.6			
					Medium Dense, Brown Gravelly SAND; Trace Silt (SW)					
2A/B	18	M	17		Medium Dense, Brown Fine to Medium SAND; Trace Silt (SP)					
3	18	M	49		Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
4	14	M	41							
					Dense, Brown Gravelly SAND; Trace Silt (SW)					
5A/B	16	M	44		Dense, Brown Sandy SILT; Little Gravel, Trace Clay (ML)					
					Very Dense, Brown SAND & GRAVEL; Trace Silt, Few Cobbles and Boulders (SW/GW)					
6	4	M	35/6"		End of Boring & Spoon Refusal at 19 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling ☒ NW
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start **12/22/23** End **12/22/23**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **TAC**
Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
Location **Mukwonago, Wisconsin**

Boring No. **B-06**
Surface Elevation (ft) **842.5±**
Job No. **CM23219**
Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Excavation (in.)	Rec (in.)	Moist	N	Depth (ft)	qu (qa) (tsf)	W	LL	PL	LOI
						9" Dark Brown Clayey TOPSOIL				
1		12	M	46		Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt, Few Fine to Medium Sand Layers (SW/GW)				
2		14	M	63						
					5					
3		15	M	67						
4		18	M	42						
					10					
5		15	M	30						
					15					
6		18	M	37						
					20					
						End of Boring at 20 ft Backfilled with Bentonite Chips				
					25					
					30					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling ☒ NW
Time After Drilling _____
Depth to Water _____
Depth to Cave in _____

Start **12/20/23** End **12/20/23**
Driller **J&J** Chief **JP** Rig **CME-45**
Logger **JP** Editor **TAC**
Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
 Location **Mukwonago, Wisconsin**

Boring No. **B-07**
 Surface Elevation (ft) **843±**
 Job No. **CM23219**
 Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					21" Dark Brown Clayey TOPSOIL					
1	9	M	6		Stiff, Brown Lean CLAY; Little Sand, Trace Gravel (CL)	(1.5)	10.0			
2	13	M	54		Loose, Brown Silty Fine to Medium SAND; Trace Gravel (SM)					
				5	Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt, Few Brown Sand Layers (SW/GW)					
3	16	M	65							
4	12	M	70/ 11"	10						
5	18	M	30	15						
6	14	M	54	20						
					End of Boring at 20 ft Backfilled with Bentonite Chips					
				25						
				30						

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling ☒ NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **12/20/23** End **12/20/23**
 Driller **J&J** Chief **JP** Rig **CME-45**
 Logger **JP** Editor **TAC**
 Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
 Location **Mukwonago, Wisconsin**

Boring No. **B-08**
 Surface Elevation (ft) **844.5±**
 Job No. **CM23219**
 Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Excavation (in.)	Rec (in.)	Moist	N		qu (qa) (tsf)	W	LL	PL	LOI
					11" Dark Brown Clayey TOPSOIL					
1		18	M	11	Medium Dense, Brown Fine to Medium SAND; Trace to Little Gravel, Trace Silt (SP)					
2		18	M	24						
3		18	M	50	Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
4		10	M	51						
5		18	M	32						
6		6	M	63						
					End of Boring at 20 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ **NW** Upon Completion of Drilling **NW**
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **12/20/23** End **12/20/23**
 Driller **J&J** Chief **JP** Rig **CME-45**
 Logger **JP** Editor **TAC**
 Drill Method **2.25" HSA**

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

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WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ∇ NW	Upon Completion of Drilling NW			
Time After Drilling				
Depth to Water				
Depth to Cave in				

Start	12/20/23	End	12/20/23	
Driller	J&J	Chief	JP	Rig CME-45
Logger	JP	Editor	TAC	
Drill Method	2.25" HSA			

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
 Location **Mukwonago, Wisconsin**

Boring No. **B-10**
 Surface Elevation (ft) **850.5±**
 Job No. **CM23219**
 Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					8" Dark Brown Clayey TOPSOIL					
1A/B	12	VM	10		Very Stiff, Brown Lean CLAY; Little Sand, Trace Gravel (CL)	(2.5)	17.1			
					Medium Dense, Brown SILT; Trace Fine Sand (ML)					
2A/B	18	M	23		Medium Dense, Brown Fine to Medium SAND; Trace to Little Silt (SP/SP-SM)					
					Medium Dense to Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
3A/B	18	M	24							
4	13	M	41							
5	18	M	33							
					End of Boring at 15 ft Backfilled with Bentonite Chips					

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ **NW** Upon Completion of Drilling **NW**
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **12/22/23** End **12/22/23**
 Driller **J&J** Chief **JP** Rig **CME-45**
 Logger **JP** Editor **TAC**
 Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
 Location **Mukwonago, Wisconsin**

Boring No. **B-12**
 Surface Elevation (ft) **842.5±**
 Job No. **CM23219**
 Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Excavation (in.)	Rec (in.)	Moist	N	Depth (ft)	qu (qa) (tsf)	W	LL	PL	LOI
						12" Dark Brown Clayey TOPSOIL				
1A/B		14	VM	18		Stiff to Very Stiff, Brown Lean CLAY; Little Sand, Trace Gravel (CL)	(1.5-2.5)	18.8		
2		12	M	69		Medium Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW) (Few Cobbles 14 to 17± ft)				
3		9	M	100						
4		15	M	42						
5		11	M	70/ 10"						
6A/B		14	M	73						
7		0	M	30/0"						
8		18	M	29		Medium Dense, Brown Fine to Medium SAND; Trace Silt (SP)				
9		15	M	59		Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)				
10		16	M	55						
						End of Boring at 25 ft Backfilled with Bentonite Chips				

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling ☒ NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **12/21/23** End **12/21/23**
 Driller **J&J** Chief **JP** Rig **CME-45**
 Logger **JP** Editor **TAC**
 Drill Method **2.25" HSA**

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



LOG OF TEST BORING

Project **Proposed Azura Memory Care Facility**
Chapman Farm Boulevard
 Location **Mukwonago, Wisconsin**

Boring No. **B-13**
 Surface Elevation (ft) **841.5±**
 Job No. **CM23219**
 Sheet **1** of **1**

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

SAMPLE					VISUAL CLASSIFICATION and Remarks	SOIL PROPERTIES				
No.	Rec (in.)	Moist	N	Depth (ft)		qu (qa) (tsf)	W	LL	PL	LOI
					10" Dark Brown Clayey TOPSOIL					
1A/B	14	M	24		Stiff, Brown Sandy CLAY; Trace Gravel (CL)	(1.5)	14.5			
					Medium Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
2	11	M	66							
				5						
3A/B	18	M	61							
4	13	M	42							
				10						
5	10	M	79/ 11"							
6	12	M	70/ 9"							
				15						
7A/B	18	M	33		Medium Dense to Dense, Brown Fine to Medium SAND; Trace to Little Gravel, Trace Silt (SP)					
8	18	M	23							
				20						
9A/B	13	M	44		Dense to Very Dense, Brown SAND & GRAVEL; Trace Silt (SW/GW)					
10	15	M	53							
				25						
					End of Boring at 25 ft Backfilled with Bentonite Chips					
				30						

WATER LEVEL OBSERVATIONS

GENERAL NOTES

While Drilling ☒ NW Upon Completion of Drilling ☒ NW
 Time After Drilling _____
 Depth to Water _____
 Depth to Cave in _____

Start **12/20/23** End **12/20/23**
 Driller **J&J** Chief **JP** Rig **CME-45**
 Logger **JP** Editor **TAC**
 Drill Method **2.25" HSA**

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

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

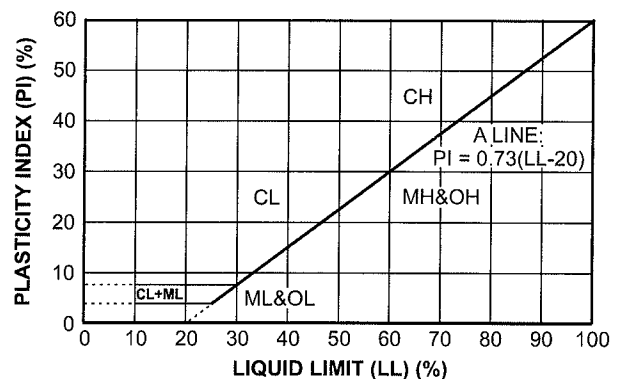
LABORATORY CLASSIFICATION CRITERIA

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.

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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
<u>Within 10 ft of building lines</u>		
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
<u>Beyond 10 ft of building lines</u>		
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

SOIL AND SITE EVALUATION – STORM FORM (BORINGS B-12 AND B-13)

SOIL AND SITE EVALUATION - STORM

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

Page 1 of 1

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)).

Property Owner Michael A. Chapman Descendants' Trust and Laurie G. Chapman Descendants' Trust				Property Location Chapman Farm Boulevard			
Property Owner's Mailing Address W299 S8915 Hwy 83				Govt. Lot SW 1/4 NW 1/4 SEC 23 T5N R18E			
				Lot # 2	Block # --	Subd. Name or CSM# CSM # 11714	
City Mukwonago	State WI	Zip Code 53149	Phone Number	☐ City	☒ Village	☐ Town	
				Nearest Road Mukwonago N. Rochester Street			

Drainage area: _____ ☐ sq. ft. ☐ acres	Hydraulic Application Test Method ☒ Morphological Evaluation ☐ Double-Ring Infiltrometer ☐ Other (Specify) _____	Soil Moisture Date of soil borings: 12/20-22/23 USDA-NRCS WETS Value: ☐ Dry = 1 ☒ Normal = 2 ☐ Wet = 3
Test Site Suitable for (check all that apply) ☐ Bioretention ☐ Subsurface Dispersal System ☐ Reuse ☐ Irrigation ☐ Other _____		

B-12	Obs. #	☒ Boring ☐ Pit	Ground Surface Elev. <u>842.5±</u> ft	Elevation of limiting factor <u><817.5±</u> ft
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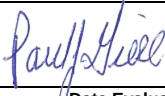
Horizon	Depth in.	Dominant Color Munsell	Redox Description Qu. Sz. Cont. Color	Texture	Structure Gr. Sz. Sh.	Consistence	Boundary	% Rock Frag.	% Fines	Hydraulic App. Rate Inches/Hr
1	0-12	10YR2/2	--	SCL*	0,m	mfr	g	<5	55	0.11
2	12-24	10YR3/3	--	SC	0,m	mfi	g	<5	55	0.04
3	24-204	10YR5/4	--	VGRS	0,sg	mfr	g	35-60	<10	3.60
4	204-246	10YR6/2	--	S	0,sg	mfr	g	<5	<10	3.60
5	246-300	10YR6/2	--	VGRS	0,sg	mfr	g	35-60	<10	3.60

Comments: * Topsoil layer. Note: No groundwater encountered during or upon completion of drilling.

B-13	Obs. #	☒ Boring ☐ Pit	Ground Surface Elev. <u>841.5±</u> ft	Elevation of limiting factor <u><816.5±</u> 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
1	0-10	10YR2/2	--	SCL*	0,m	mfr	g	<5	55	0.11
2	10-18	10YR3/4	--	SC	0,m	mfi	g	5	55	0.04
3	18-198	10YR5/4	--	VGRS	0,sg	mfr	g	35-60	<10	3.60
4	198-264	10YR6/2	--	S	0,sg	mfr	g	<5	<10	3.60
5	264-300	10YR6/2	--	VGRS	0,sg	mfr	g	35-60	<10	3.60

Comments: * Topsoil layer. Note: No groundwater encountered during or upon completion of drilling.

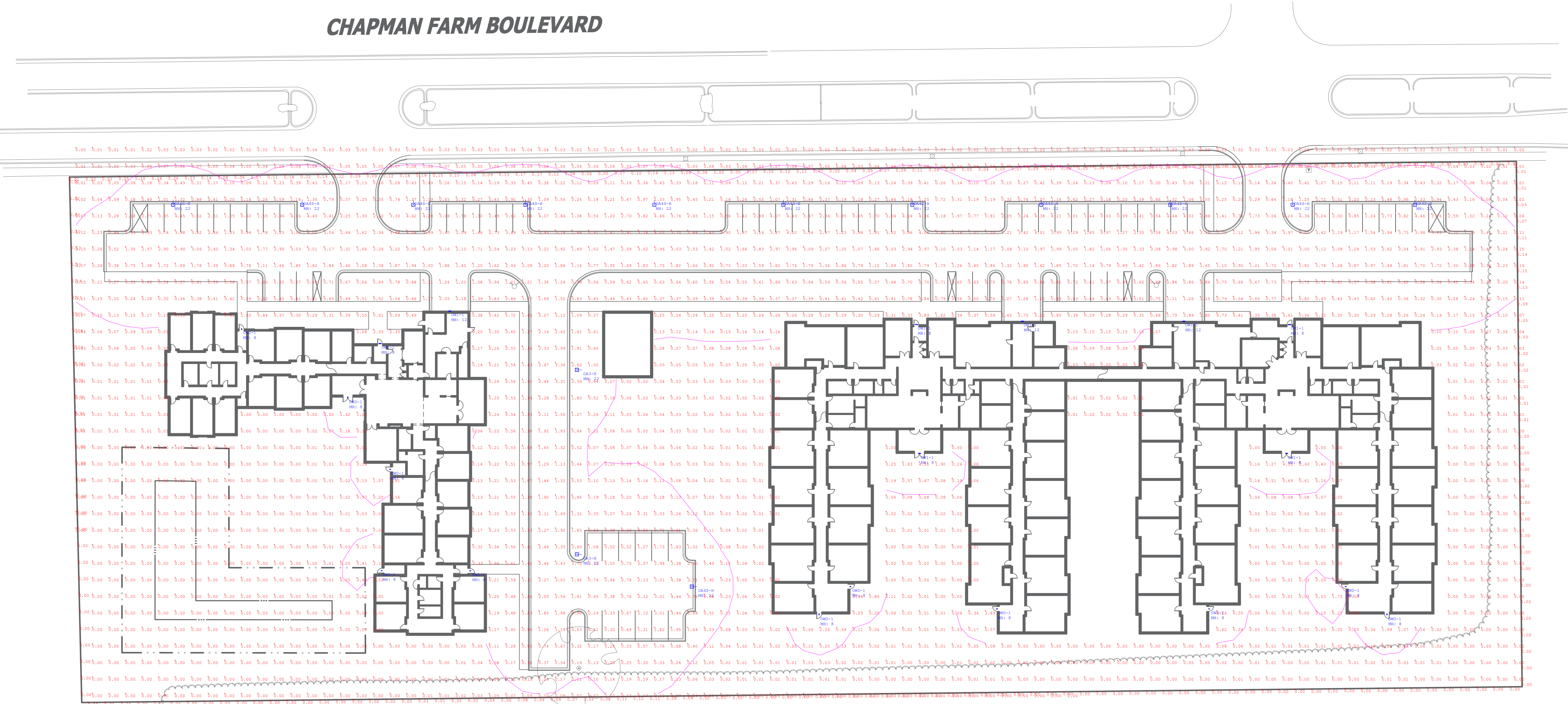
CST/PSS Name (Please Print) Paul J. Giese, CST	Signature 	CST Number SP-030800004
Address 336 S. Curtis Road, West Allis, WI 53214	Date Evaluation Conducted 1/15/24	Telephone Number (414) 443-2000

SBD-10793 (R.01/17)

Calculation Summary								
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min	
PROPOSED PROPERTY LINE	Illuminance	Fc	0.04	0.26	0.00	N.A.	N.A.	
SITE	Illuminance	Fc	0.61	4.50	0.00	N.A.	N.A.	
PARKING & DRIVES	Illuminance	Fc	2.03	4.5	0.2	10.15	22.50	

Luminaire Schedule									
Qty	Label	Arrangement	LLF	MFR	Description	Lum. Watts	Total Watts	Lum. Lumens	
2	OA3-H	SINGLE	0.950	LITHONIA	RSX1 LED P3 xxK R3 (Voltage) (Mounting) HS (Finish) -20FT POLE + 2FT BASE	109.44	218.88	9841	
12	OA4S-H	SINGLE	0.950	LITHONIA	RSX1 LED P3 xxK R4S (Voltage) (Mounting) HS (Finish) -20FT POLE + 2FT BASE	109.44	1313.28	9611	
11	OW0-1	SINGLE	0.950	LITHONIA	WPX0 LED ALO-1 SWW2 MVOLT PE DDBXD	6.0096	66.1056	829	
8	OW1-1	SINGLE	0.950	LITHONIA	WPX1 LED P1 xxK MVOLT PE (FINISH)	11.47	91.76	1568	

CHAPMAN FARM BOULEVARD



#	DATE	COMMENTS
REVISIONS		
DRAWN BY : DC		
DATE : MAR 27, 2024		
SCALE : 1/32" = 1'-0"		

AZURA	MUKWONAGO, WISCONSIN	SITE LAYOUT
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Enterprise Lighting Ltd
Manufacturers' Representative

Date: Mar 27, 2024

Enterprise Lighting, LTD.
2007 Pewaukee Rd.
Waukesha WI 53188
Phone: (262) 953-2700
Fax: (262) 953-2710

Job Name
Azura - Mukwonago, WI
ELL24-128909
Mukwonago WI

Bid Date
Mar 27, 2024

Submittal Date
Mar 27, 2024

Engineer:
Pinnacle Engineering Group
20725 Watertown Road
Brookfield WI 53186



Enterprise Lighting Ltd
Manufacturers' Representative

Transmittal

Enterprise Lighting, LTD.
2007 Pewaukee Rd.
Waukesha WI 53188
Phone: (262) 953-2700
From: Andrea Goral

Project Azura - Mukwonago, WI
Quote# ELL24-128909
Location Mukwonago WI
To Pinnacle Engineering Group
20725 Watertown Road
Suite 100
Brookfield WI 53186
Contact:

ATTACHED WE ARE SENDING YOU 1 COPY OF THE FOLLOWING ITEM:

- | | | |
|--|---|--------|
| ☒ Drawings | ☐ Specifications | Other: |
| ☐ Prints | ☐ Information | |
| ☐ Plans | ☐ Submittals | |

THESE ARE TRANSMITTED FOR:

- | | | |
|--|---|---------------------------------|
| ☐ Prior Approval | ☐ Resubmittal for Approval | ☐ Record |
| ☐ Approval | ☐ Corrections | Bids due on: |
| ☐ Approval as Submitted | ☒ Your Use | Other: |
| ☐ Approval as Noted | ☐ Review and Comment | |

Type	MFG	Part
OA3-H	Lithonia Exterior	RSX1 LED P3 **K R3 *VOLT* SPA HS *FINISH
OA3-H	Lithonia Exterior	SSS 20 4C DM19AS *FINISH*
OA4S-H	Lithonia Exterior	RSX1 LED P3 **K R4S *VOLT* SPA HS *FINISH
OA4S-H	Lithonia Exterior	SSS 20 4C DM19AS *FINISH*
OW0-1	Lithonia Exterior	WPX0 LED ALO1 SWW2 MVOLT PE DDBXD M2
OW1-1	Lithonia Exterior	WPX1 LED P1 **K MVOLT PE *FINISH*

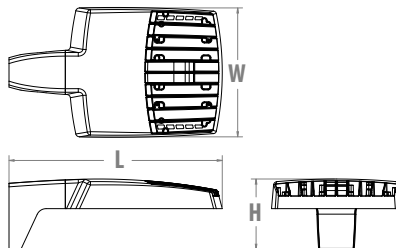


RSX1 LED Area Luminaire



Specifications

EPA (ft ² @0°):	0.57 ft ² (0.05 m ²)
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)



Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

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.



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

Ordering Information

EXAMPLE: RSX1 LED P4 40K R3 MVOLT SPA DDBXD

RSX1 LED	**VERIFY**	**VERIFY**			
Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX1 LED	P1 P2 P3 P4	30K 3000K 40K 4000K 50K 5000K	R2 Type 2 Wide R3 Type 3 Wide R3S Type 3 Short R4 Type 4 Wide R4S Type 4 Short R5 Type 5 Wide ¹ R5S Type 5 Short ¹ AFR Automotive Front Row AFRR90 Automotive Front Row Right Rotated AFRL90 Automotive Front Row Left Rotated	MVOLT (120V-277V) ² HVOLT (347V-480V) ³ XVOLT (277V-480V) ⁴ (use specific voltage for options as noted) 120 ³ 277 ⁵ 208 ³ 347 ⁵ 240 ³ 480 ⁵	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°) 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°) MA Mast arm adaptor (fits 2-3/8" OD horizontal tenon) IS Adjustable slipfitter (fits 2-3/8" OD tenon) ⁶ WBA Wall bracket ¹ WBASC Wall bracket with surface conduit box AASP Adjustable tilt arm square pole mounting ⁶ AARP Adjustable tilt arm round pole mounting ⁶ AAWB Adjustable tilt arm with wall bracket ⁶ AAWSC Adjustable tilt arm wall bracket and surface conduit box ⁶

Options	**VERIFY**																
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 Compliant 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																
	<table><tr><td>DDBXD</td><td>Dark Bronze</td></tr><tr><td>DBLXD</td><td>Black</td></tr><tr><td>DNAXD</td><td>Natural Aluminum</td></tr><tr><td>DWHXD</td><td>White</td></tr><tr><td>DDBTXD</td><td>Textured Dark Bronze</td></tr><tr><td>DBLTXD</td><td>Textured Black</td></tr><tr><td>DNATXD</td><td>Textured Natural Aluminum</td></tr><tr><td>DWHGXD</td><td>Textured White</td></tr></table>	DDBXD	Dark Bronze	DBLXD	Black	DNAXD	Natural Aluminum	DWHXD	White	DDBTXD	Textured Dark Bronze	DBLTXD	Textured Black	DNATXD	Textured Natural Aluminum	DWHGXD	Textured White
DDBXD	Dark Bronze																
DBLXD	Black																
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DWHXD	White																
DDBTXD	Textured Dark Bronze																
DBLTXD	Textured Black																
DNATXD	Textured Natural Aluminum																
DWHGXD	Textured White																

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R3 *VOLT* SPA
HS *FINISH

Notes:

Type:**OA3-H**

ELL24-128909

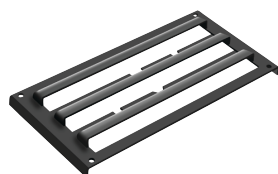
Ordering Information**Accessories**

Ordered and shipped separately.

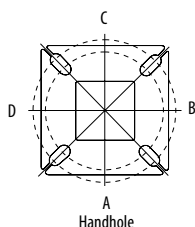
RSX1HS	RSX1 House side shield (includes 1 shield)
RSX1HSAFR U	RSX1 House side shield for AFR rotated optics (includes 1 shield)
RSX1EGS (FINISH) U	External glares shield (specify finish)
RSX1EGV (FINISH) U	External glare full visor (specify finish)
RSXRPA (FINISH) U	RSX Universal round pole adaptor plate (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

- Any Type 5 distribution, is not available with WBA.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
- 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.
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Maximum tilt is 90° above horizontal.
- It may be ordered as an accessory.
- Requires MVOLT or 347V.
- 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.
- 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.
- For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
- Must be ordered with PIRHN.
- Requires MVOLT or HVOLT.
- Must be ordered with NLTAIR2. For additional information on PIRHN visit [here](#).
- CCE option not available with WBA, WBASC, AASP, AARP, AAWB, AAWBSC, EGS, EGPV and BS.
- Must be ordered with fixture for factory pre-drilling.
- 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 Information**

Accessories including bullhorns, cross arms and other adapters are available under the accessories tab at Lithonia's Outdoor Poles and Arms product page. Click [here](#) to visit [Accessories](#).

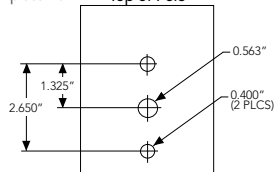
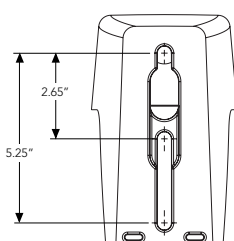
HANDHOLE ORIENTATION

Handhole

RSX POLE DRILLING

Template #8

Top of Pole

**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	AS3-5190	AS3-5280	AS3-5290	AS3-5320	AS3-5390	AS3-5490
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

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R3 *VOLT* SPA
HS *FINISH

Notes:

Type:**OA3-H**

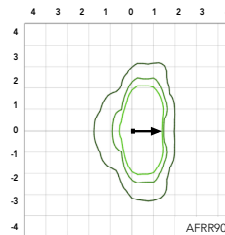
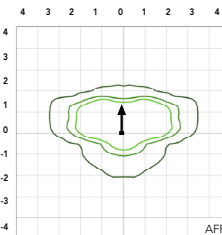
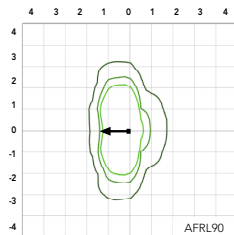
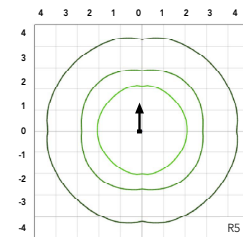
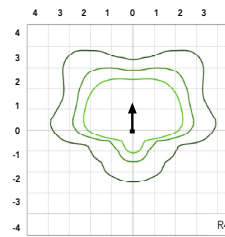
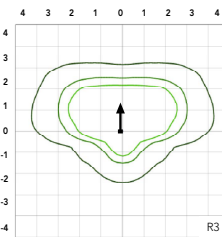
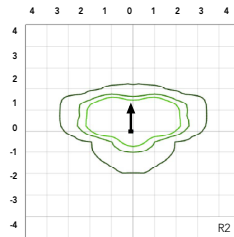
ELL24-128909

Photometric DiagramsTo 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').

LEGEND

0.1 fc
0.5 fc
1.0 fc

**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

Performance Package	System Watts (W)	Current (A)					
		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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Lithonia RSX1 Area LED
Rev. 06/27/23
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Performance Data

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

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R3 *VOLT* SPA
HS *FINISH

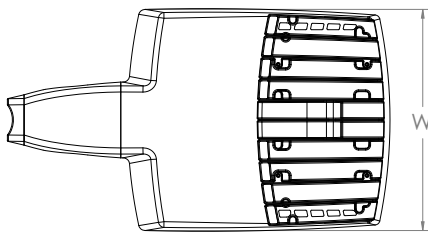
Notes:

Type:**OA3-H**

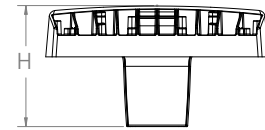
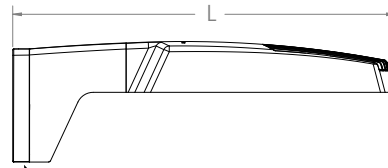
ELL24-128909

Dimensions & Weights**Luminaire Weight by Mounting Type**

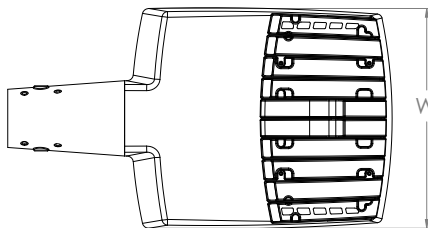
Mounting Configuration	Total Luminaire Weight
SPA	22 lbs
RPA	24 lbs
MA	22 lbs
WBA	25 lbs
WBASC	28 lbs
IS	25 lbs
AASP	25 lbs
AARP	27 lbs
AAWB	28 lbs
AAWSC	31 lbs

RSX1 with Round Pole Adapter (RPA)

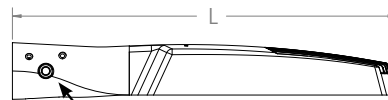
Length: 22.8" (57.9 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.4 cm) Arm



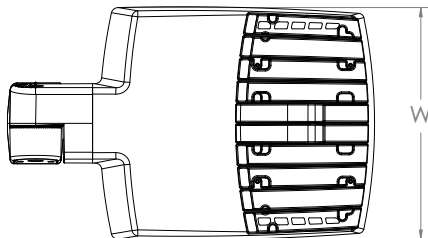
Note: RPA — Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

**RSX1 with Mast Arm Adapter (MA)**

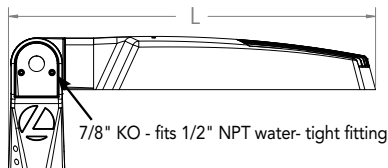
Length: 23.2" (59.1 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm



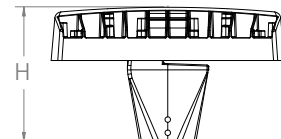
7/16" locking thru bolt/nut provided

**RSX1 with Adjustable Slipfitter (IS)**

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



7/8" KO - fits 1/2" NPT water-tight fitting



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Lithonia RSX1 Area LED
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**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R3 *VOLT* SPA
HS *FINISH

Notes:

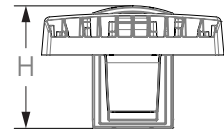
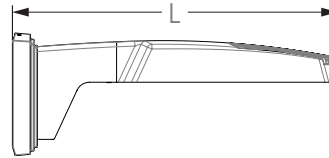
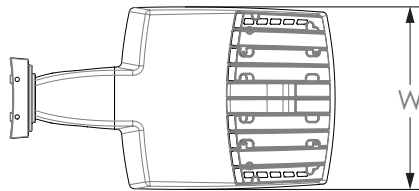
Type:

OA3-H

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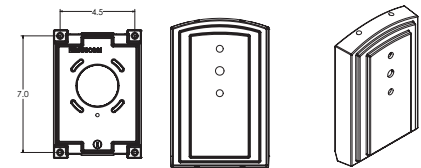
Dimensions

RSX1 with Wall Bracket (WBA)

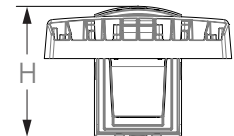
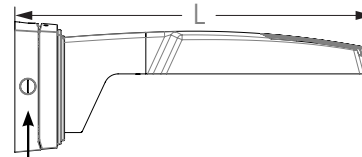
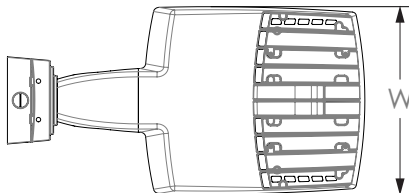


Length: 23.6" (59.9 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
8.9" (22.6 cm) Arm

Wall Bracket (WBA) Mounting Detail

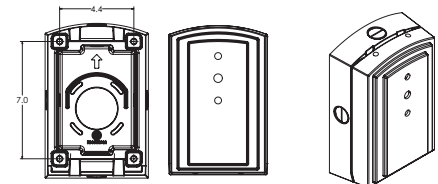


RSX1 with Wall Bracket with Surface Conduit Box (WBASC)



3/4" NPT taps with plugs - Qty (4) provided

Surface Conduit Box (SCB) Mounting Detail



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

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

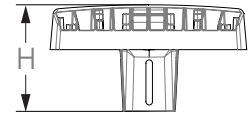
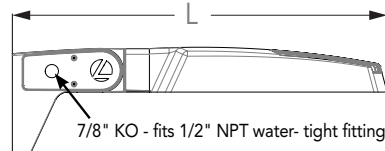
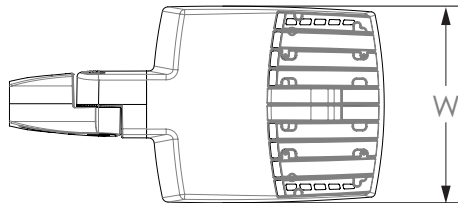
Catalog Number:

RSX1 LED P3 **K R3 *VOLT* SPA
HS *FINISH

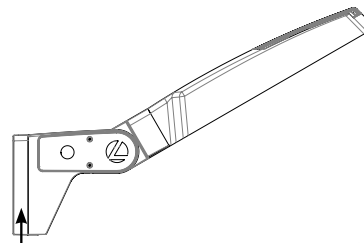
Notes:

Type:**OA3-H**

ELL24-128909

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

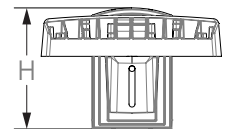
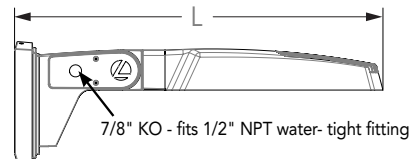
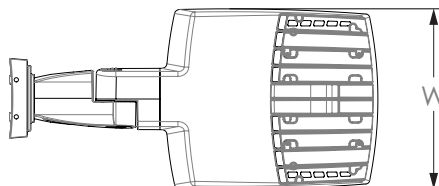


NOTE:
RPA - Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

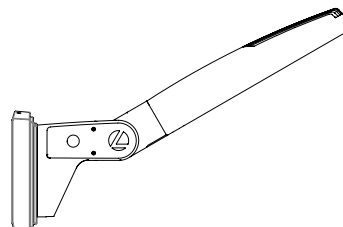
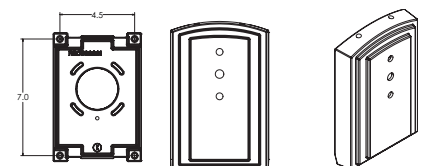
**Notes**

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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Lithonia RSX1 Area LED
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**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

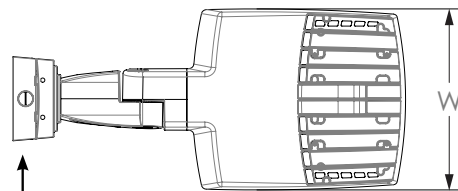
Catalog Number:

RSX1 LED P3 **K R3 *VOLT* SPA
HS *FINISH

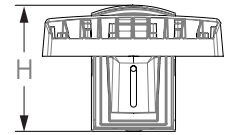
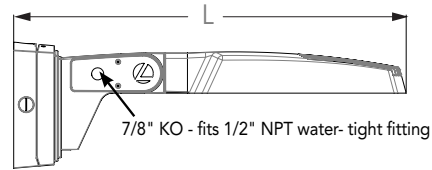
Notes:

Type:**OA3-H**

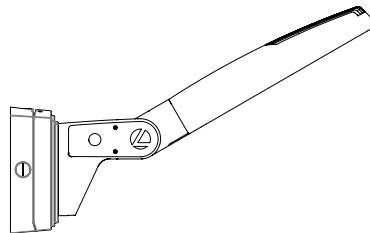
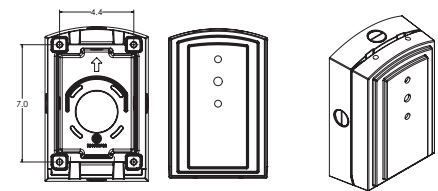
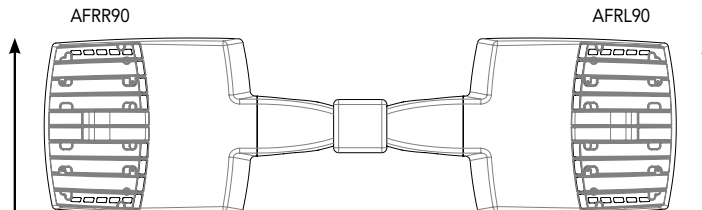
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Dimensions**RSX1 with Adjustable Tilt Arm with Wall Bracket and Surface Conduit Box (AAWSC)**

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

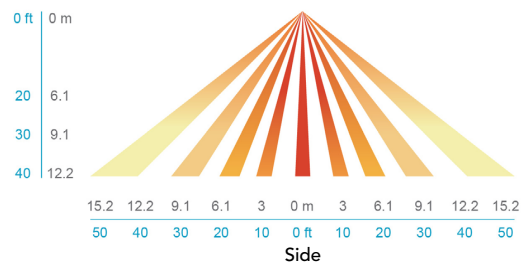
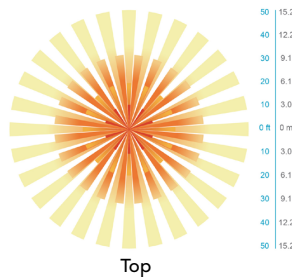
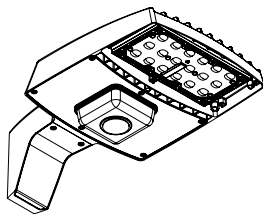
**Surface Conduit Box (SCB) Mounting Detail****Automotive Front Row - Rotated Optics (AFRL90/R90)**

(Example: 2@180 - arrows indicate direction of light exiting the luminaire)

nLight Control - Sensor Coverage and Settings

nLight Sensor Coverage Pattern

NLTAIR2 PIRHN



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 Clarity Pro App. Sensor coverage pattern shown with luminaire at 0°. Sensor coverage pattern is affected when luminaire is tilted.

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 warranted not to crack or peel.

COASTAL CONSTRUCTION (CCE)

ptional corrosion resistant construction is engineered with added corrosion protection in materials and/or pre-treatment of base material under superYurable paint. Provides additional corrosion protection for applications nearUoastal areas. Finish is salt spray tested to over 5,000 hours per ASTM B117 with cribe 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 AFR90 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 luminaires 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 Eclipse. 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, 1465

BUY AMERICAN ACT

Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. 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.

Submitted by Enterprise Lighting, LTD.  Enterprise Lighting Manufacturers' Representative	Job Name: Azura - Mukwonago, WI Engineer: Pinnacle Engineering Group (Brookfield)	Catalog Number: SSS 20 4C DM19AS *FINISH* Notes:	Type: OA3-H ELL24-128909
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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.

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. 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.

Catalog Number
Notes
Type



Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL



SSS Square Straight Steel Poles

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: SSS 20 5C DM19 DDBXD

SSS	20 = 20 Feet				**VERIFY**
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) <u>KAC/KAD/KSE/KSF/KVR/KVF</u> <u>Drill mounting³</u> DM19 1 at 90° DM28 2 at 180° DM28 PL 2 at 180° with one side plugged DM29 2 at 90° DM39 3 at 90° DM49 4 at 90° <u>CSX/DSX/RSX/AERIS™/OMERO™/KAX Drill mounting³</u> DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM39AS 3 at 90° DM49AS 4 at 90° <u>RAD drill mounting³</u> DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° <u>ESX Drill mounting³</u> DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90°	Shipped installed VD Vibration damper ⁴ HAXy Horizontal arm bracket (1 fixture) ^{5,6} FDLxy Festoon outlet less electrical ^{5,7} 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 ^{5,8} STLHHC Steel handhole cover (standard is plastic, finish is smooth) ⁹ FBCSTL2PC 2 Piece steel base cover (standard is plastic) ⁹ IC Interior coating ¹⁰ 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 ¹¹ VM/original order# Match pole to prior order or project ¹²	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 ¹³ [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"

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 HAXxy.
Example: HA20BD.
7. FDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.

8. Combination of tenon-top and drill mount includes extra handhole. EHH includes cover.

9. Plastic hand hole cover and base covers come standard with all poles. Items ship separately. Additional parts can be ordered as replacements.

10. Provides enhanced corrosion resistance. N/A with GALV.

11. Use when mill certifications are required.

12. 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

13. 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.

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)

SSS Square Straight Steel Poles

TECHNICAL INFORMATION — EPA (ft²) 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 (ft²) 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 (ft²) 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 criteria is the most conservative existing EPA calculation. For poles not showing EPA values under AASHTO 2013, EPA values may exist under commercial criteria (see table above).
*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

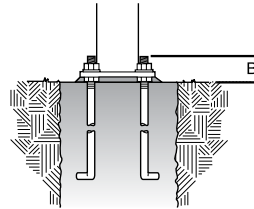
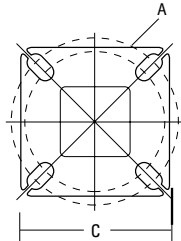
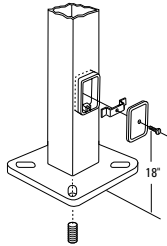
Catalog Number:

SSS 20 4C DM19AS *FINISH*

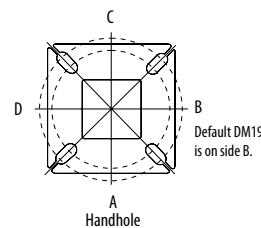
Notes:

Type:**OA3-H**

ELL24-128909

SSS Square Straight Steel Poles**BASE DETAIL****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. x in. x in.)	Anchor bolt and template description
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

HANDHOLE ORIENTATION**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.



POLE-SSS

OUTDOOR: One Lithonia Way Conyers, GA 30012 Phone: 800-705-SERV (7378) www.lithonia.com

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Rev. 09/18/23



Enterprise Lighting
Manufacturers' Representative

Job Name:

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R4S *VOLT* SPA
HS *FINISH

Notes:

Type:**OA4S-H**

ELL24-128909



RSX1 LED Area Luminaire

**Specifications**

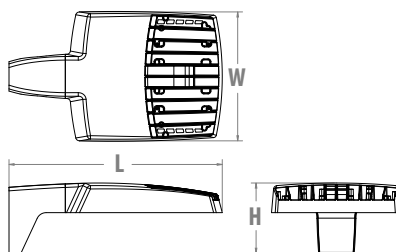
EPA
(ft²@0°): 0.57 ft² (0.05 m²)

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: 22.0 lbs (10.0 kg)
(SPA mount):

Catalog
Number

Notes

Type

Hit the Tab key or mouse over the page to see all interactive elements.

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 options indicated
by this color background.



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

Ordering Information**EXAMPLE: RSX1 LED P4 40K R3 MVOLT SPA DDBXD**

RSX1 LED		**VERIFY**		**VERIFY**	
Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting
RSX1 LED	P1 P2 P3 P4	30K 3000K 40K 4000K 50K 5000K	R2 Type 2 Wide R3 Type 3 Wide R3S Type 3 Short R4 Type 4 Wide R4S Type 4 Short R5 Type 5 Wide ¹ R5S Type 5 Short ¹ AFR Automotive Front Row AFRR90 Automotive Front Row Right Rotated AFRL90 Automotive Front Row Left Rotated	MVOLT (120V-277V) ² HVOLT (347V-480V) ³ XVOLT (277V-480V) ⁴ (use specific voltage for options as noted) 120 ³ 277 ⁵ 208 ³ 347 ⁵ 240 ³ 480 ⁵	SPA Square pole mounting (3.0" min. SQ pole for 1 at 90°, 3.5" min. SQ pole for 2, 3, 4 at 90°) 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°) MA Mast arm adaptor (fits 2-3/8" OD horizontal tenon) IS Adjustable slipfitter (fits 2-3/8" OD tenon) ⁶ WBA Wall bracket ¹ WBASC Wall bracket with surface conduit box AASP Adjustable tilt arm square pole mounting ⁶ AARP Adjustable tilt arm round pole mounting ⁶ AAWB Adjustable tilt arm with wall bracket ⁶ AAWSC Adjustable tilt arm wall bracket and surface conduit box ⁶

					VERIFY
Options					Finish
Shipped Installed					
HS	House-side shield ⁷				DDBXD Dark Bronze
PE	Photocontrol, button style ^{8,9}				DBLXD Black
PER7	Seven-wire twist-lock receptacle only (no controls) ^{9,10,11}				DNAXD Natural Aluminum
SF	Single fuse (120, 277, 347) ⁵				DWHXD White
DF	Double fuse (208, 240, 480) ⁵				DDBTXD Textured Dark Bronze
SPD20KV	20KV Surge pack (10KV standard)				DBLTXD Textured Black
FAO	Field adjustable output ⁹				DNATXD Textured Natural Aluminum
DMG	0-10V dimming extend out back of housing for external control (control ordered separate) ⁹				DWHGXD Textured White
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 Compliant				
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				



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Lithonia RSX1 Area LED
Rev. 06/27/23
Page 1 of 9

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R4S *VOLT* SPA
HS *FINISH

Notes:

Type:**OA4S-H**

ELL24-128909

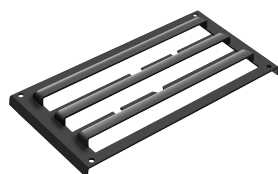
Ordering Information**Accessories**

Ordered and shipped separately.

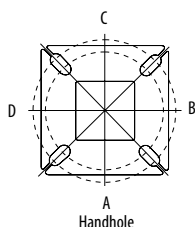
RSX1HS	RSX1 House side shield (includes 1 shield)
RSX1HSAFR U	RSX1 House side shield for AFR rotated optics (includes 1 shield)
RSX1EGS (FINISH) U	External glare shield (specify finish)
RSX1EGV (FINISH) U	External glare full visor (specify finish)
RSXRPA (FINISH) U	RSX Universal round pole adaptor plate (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

- Any Type 5 distribution, is not available with WBA.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
- 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.
- Single fuse (SF) requires 120V, 277V or 347V. Double fuse (DF) requires 208V, 240V or 480V.
- Maximum tilt is 90° above horizontal.
- It may be ordered as an accessory.
- Requires MVOLT or 347V.
- 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.
- 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.
- For units with option PER7, the mounting must be restricted to +/- 45° from horizontal aim per ANSI C136.10-2010.
- Must be ordered with PIRHN.
- Requires MVOLT or HVOLT.
- Must be ordered with NLTAIR2. For additional information on PIRHN visit [here](#).
- CCE option not available with WBA, WBASC, AASP, AARP, AAWB, AAWBSC, EGS, EGPV and BS.
- Must be ordered with fixture for factory pre-drilling.
- Requires luminaire to be specified with PER7 option. Ordered and shipped as a separate line item from Acuity Brands Controls.

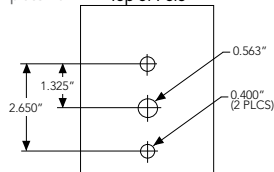
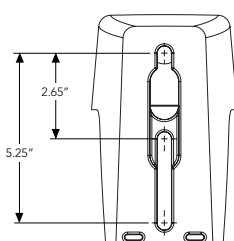
External Shields**House Side Shield****External Glare Shield****External 360 Full Visor****Pole/Mounting Information**

Accessories including bullhorns, cross arms and other adapters 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**

Template #8

Top of Pole

**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	AS3-5190	AS3-5280	AS3-5290	AS3-5320	AS3-5390	AS3-5490
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

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R4S *VOLT* SPA
HS *FINISH

Notes:

Type:**OA4S-H**

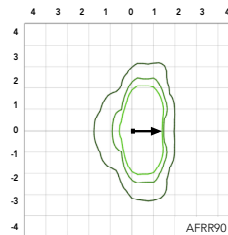
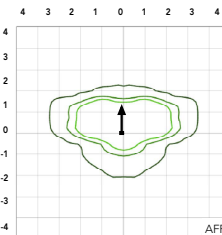
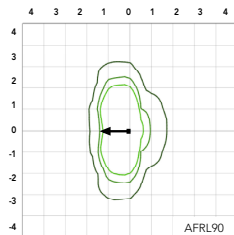
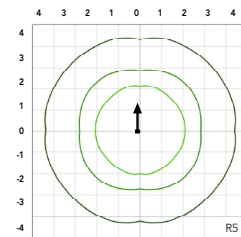
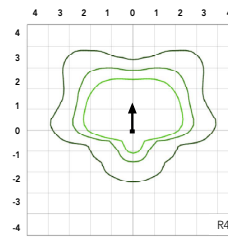
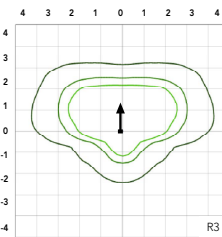
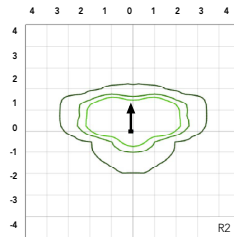
ELL24-128909

Photometric DiagramsTo 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').

LEGEND

0.1 fc
0.5 fc
1.0 fc

**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

Performance Package	System Watts (W)	Current (A)					
		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.

Performance Data

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

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R4S *VOLT* SPA
HS *FINISH

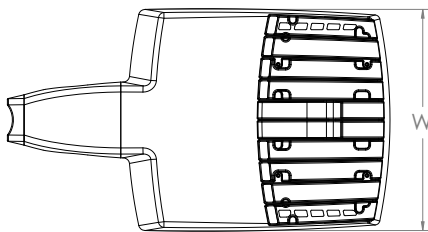
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Type:**OA4S-H**

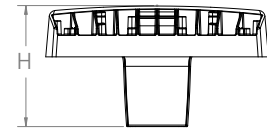
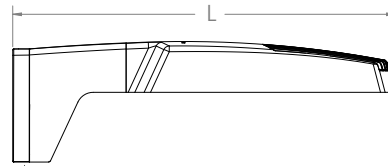
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Dimensions & Weights**Luminaire Weight by Mounting Type**

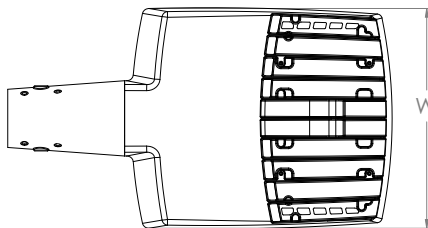
Mounting Configuration	Total Luminaire Weight
SPA	22 lbs
RPA	24 lbs
MA	22 lbs
WBA	25 lbs
WBASC	28 lbs
IS	25 lbs
AASP	25 lbs
AARP	27 lbs
AAWB	28 lbs
AAWSC	31 lbs

RSX1 with Round Pole Adapter (RPA)

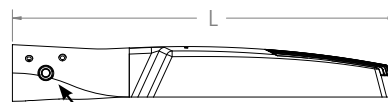
Length: 22.8" (57.9 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
7.2" (18.4 cm) Arm



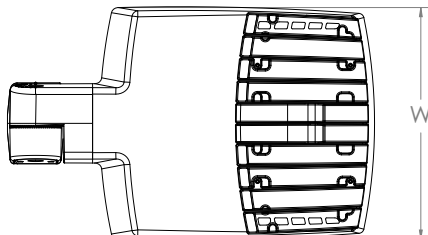
Note: RPA — Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

**RSX1 with Mast Arm Adapter (MA)**

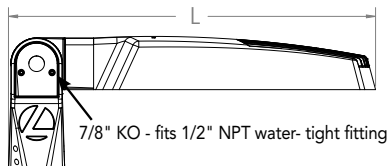
Length: 23.2" (59.1 cm)
Width: 13.3" (33.8 cm)
Height: 3.0" (7.6 cm) Main Body
3.5" (8.9 cm) Arm



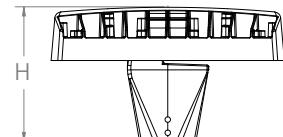
7/16" locking thru bolt/nut provided

**RSX1 with Adjustable Slipfitter (IS)**

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



7/8" KO - fits 1/2" NPT water-tight fitting



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Lithonia RSX1 Area LED
Rev. 06/27/23
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**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

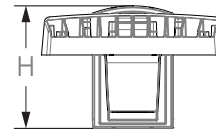
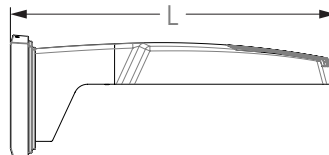
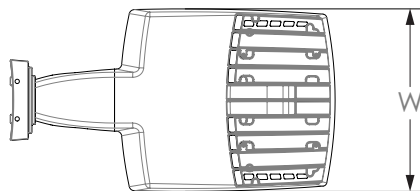
Catalog Number:

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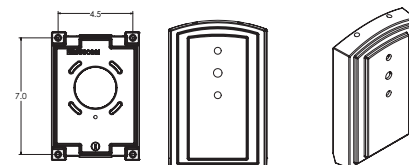
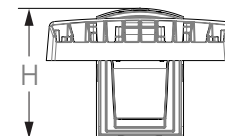
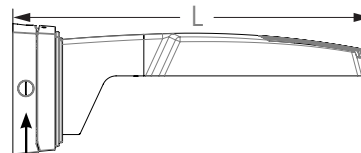
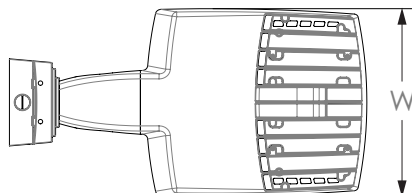
Notes:

Type:**OA4S-H**

ELL24-128909

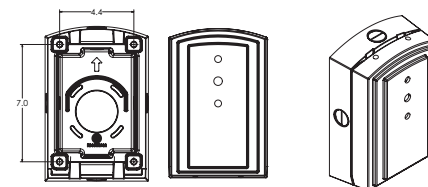
Dimensions**RSX1 with Wall Bracket (WBA)**

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



Enterprise Light
Manufacturers' Represent

Job Name:

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

RSX1 LED P3 **K R4S *VOLT* SPA
HS *FINISH

Notes:

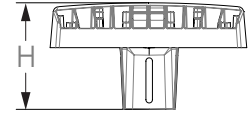
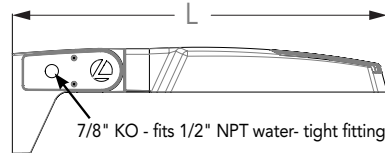
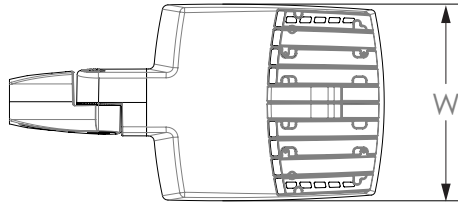
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OA4S-H

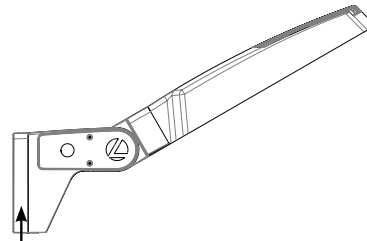
ELL24-128909

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



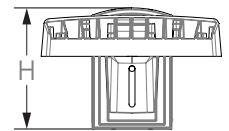
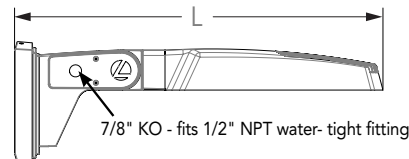
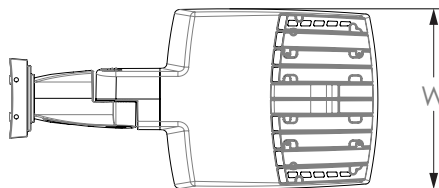
NOTE:
RPA - Round Pole mount can also be used to mount on square poles by omitting the round pole adapter plate shown here.

**Notes**

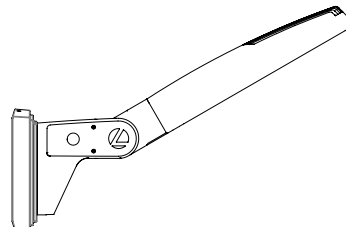
AASP: Requires 3.0" min. square pole for 1 at 90°. Requires 3.5" min. square pole for mounting 2, 3, 4 at 90°.

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°.

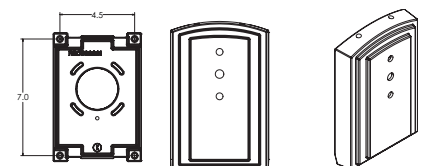
RSX1 with Adjustable Tilt Arm with Wall Bracket (AAWB)



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

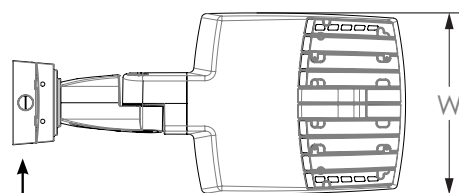
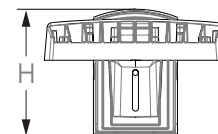
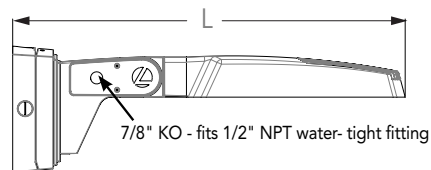
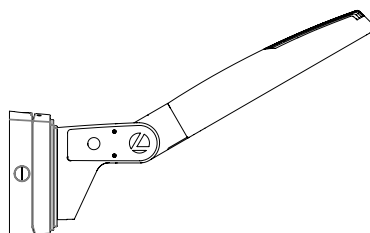
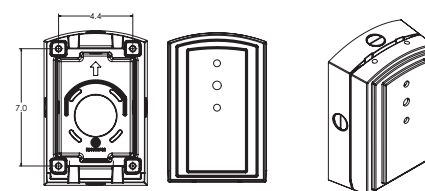
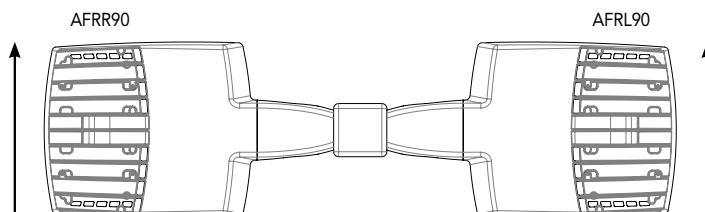


**Job Name:**Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)**Catalog Number:**RSX1 LED P3 **K R4S *VOLT* SPA
HS *FINISH

Notes:

Type:**OA4S-H**

ELL24-128909

Dimensions**RSX1 with Adjustable Tilt Arm with Wall Bracket and Surface Conduit Box (AAWSC)**3/4" NPT taps
with plugs - Qty (4)
providedLength: 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)

Submitted by Enterprise Lighting, LTD.  Enterprise Lighting Manufacturers' Representatives	Job Name: Azura - Mukwonago, WI Engineer: Pinnacle Engineering Group (Brookfield)	Catalog Number: SSS 20 4C DM19AS *FINISH* Notes:	Type: OA4S-H ELL24-128909
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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.

BUY AMERICAN ACT — Product with the BAA option is assembled in the USA and meets the Buy America(n) government procurement requirements under FAR, DFARS and DOT regulations. 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.

Catalog Number
Notes
Type



Anchor Base Poles

SSS

SQUARE STRAIGHT STEEL



SSS Square Straight Steel Poles

ORDERING INFORMATION

Lead times will vary depending on options selected. Consult with your sales representative.

Example: SSS 20 5C DM19 DDBXD

SSS	20 = 20 Feet				**VERIFY**
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) <u>KAC/KAD/KSE/KSF/KVR/KVF</u> <u>Drill mounting³</u> DM19 1 at 90° DM28 2 at 180° DM28 PL 2 at 180° with one side plugged DM29 2 at 90° DM39 3 at 90° DM49 4 at 90° <u>CSX/DSX/RSX/AERIS™/OMERO™/KAX Drill mounting³</u> DM19AS 1 at 90° DM28AS 2 at 180° DM29AS 2 at 90° DM39AS 3 at 90° DM49AS 4 at 90° <u>RAD drill mounting³</u> DM19RAD 1 at 90° DM28RAD 2 at 180° DM29RAD 2 at 90° DM39RAD 3 at 90° DM49RAD 4 at 90° <u>ESX Drill mounting³</u> DM19ESX 1 at 90° DM28ESX 2 at 180° DM29ESX 2 at 90° DM39ESX 3 at 90° DM49ESX 4 at 90°	Shipped installed VD Vibration damper ⁴ HAXy Horizontal arm bracket (1 fixture) ^{5,6} FDLxy Festoon outlet less electrical ^{5,7} 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 ^{5,8} STLHHC Steel handhole cover (standard is plastic, finish is smooth) ⁹ FBCSTL2PC 2 Piece steel base cover (standard is plastic) ⁹ IC Interior coating ¹⁰ 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 ¹¹ VM/original order# Match pole to prior order or project ¹²	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 ¹³ [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"

NOTES:

- Wall thickness will be signified with a "C" (11 Gauge) or a "G" (7-Gauge) in nomenclature. "C" - 0.120" | "G" - 0.179".
- 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.
- Refer to the fixture spec sheet for the correct drilling template pattern and orientation compatibility.
- 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.
- 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
- 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 HAXxy.
Example: HA20BD.
- FDL does not come with GFCI outlet or handhole cover. These must be supplied by contractor or electrician.
- Combination of tenon-top and drill mount includes extra handhole. EHH includes cover.
- Plastic hand hole cover and base covers come standard with all poles. Items ship separately. Additional parts can be ordered as replacements.
- Provides enhanced corrosion resistance. N/A with GALV.
- Use when mill certifications are required.
- 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
- 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.

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)

SSS Square Straight Steel Poles

TECHNICAL INFORMATION — EPA (ft²) 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 (ft²) 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 (ft²) 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 criteria is the most conservative existing EPA calculation. For poles not showing EPA values under AASHTO 2013, EPA values may exist under commercial criteria (see table above).
*For 1/2 ft increments, add -6 to the pole height. Ex: 20-6 equals 20ft 6in.



Enterprise Lighting
Manufacturers' Representative

Job Name:

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

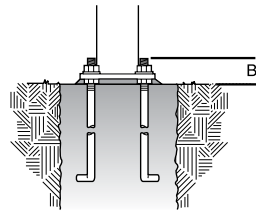
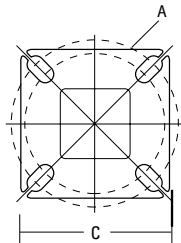
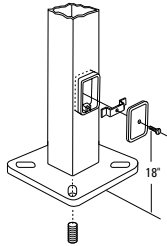
Catalog Number:

SSS 20 4C DM19AS *FINISH*

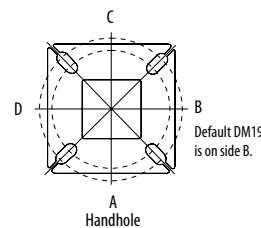
Notes:

Type:**OA4S-H**

ELL24-128909

SSS Square Straight Steel Poles**BASE DETAIL****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. x in. x in.)	Anchor bolt and template description
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

HANDHOLE ORIENTATION**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.

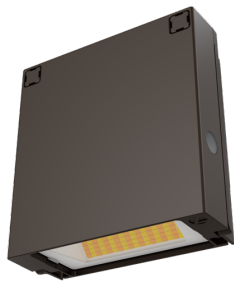


POLE-SSS

OUTDOOR: One Lithonia Way Conyers, GA 30012 Phone: 800-705-SERV (7378) www.lithonia.com

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Rev. 09/18/23



WPX0 LED Wall Pack



Catalog
Number

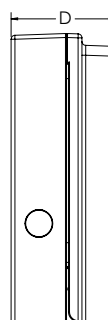
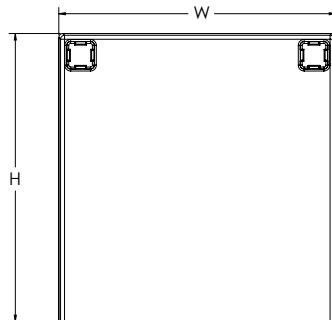
Notes

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Specifications

Depth (D): 2"
Height (H): 5.75"
Width (W): 5.5"
Weight: 2.5lbs



Introduction

The WPX LED wall packs are energy-efficient, cost-effective, and aesthetically appealing solutions for both HID wall pack replacement and new construction opportunities. Available in four sizes, the WPX family delivers 850 to 9,200 lumens with a wide, uniform distribution.

The WPX0 full cut-off wall pack is an excellent above the door lighting solution. Reliable IP66 construction and excellent LED lumen maintenance ensure a long service life. Standard features such as Adjustable Lumen Output (ALO), color switching and switchable photocell make WPX0 ideal for any application.

Ordering Information

EXAMPLE: WPX0 LED ALO SWW2 MVOLT PE DDBXD

Series	Color Temperature	Voltage	Controls	Finish
WPX0 LED ALO 850 - 1,650 Lumens	SWW2 3000K / 4000K / 5000K	MVOLT 120V - 277V	PE Photocell (On/Off)	DDBXD Dark bronze

Note: The lumen output and input power shown in the ordering tree are average representations of all configuration.

NOTES:

Default out of the box settings: 1,650 Lumens, 4000K, Photocell enabled

M2 = Packaging Code

FEATURES & SPECIFICATIONS

INTENDED USE

The WPX LED wall packs are designed to provide a cost-effective, energy-efficient solution for the one-for-one replacement of existing HID wall packs. The WPX0, WPX1, WPX2 and WPX3 are ideal for replacing up to 70W, 150W, 250W, and 400W HID luminaires respectively. WPX luminaires deliver a uniform, wide distribution. WPX is rated for -40°C to 40°C.

CONSTRUCTION

WPX feature a die-cast aluminum main body with optimal thermal management that both enhances LED efficacy and extends component life. The luminaires are IP66 rated, and sealed against moisture or environmental contaminants.

ELECTRICAL

Light engine consist of high-efficacy LEDs and LED lumen maintenance of L86/100,000 hours. Color temperature (CCT) can be switched between 3000K, 4000K and 5000K with minimum CRI of 80. Electronic driver ensures system power factor >90% and THD <20%. The luminaire operates on MVOLT (120V - 277V) input.

A module inside the luminaire allows the installer to not only switch between CCTs, but also the adjust the lumen output and switch on and off the photocell (PE).

INSTALLATION

WPX can be mounted directly over a standard electrical junction box. A port on the back surface allows poke-through conduit wiring on surfaces that don't have an electrical junction box. Wiring can be made in the integral wiring compartment in all cases. WPX is only recommended for installations with LEDs facing downwards.

LISTINGS

CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. IP66 Rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

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/CustomerResources/Terms_and_conditions.aspx.

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.

**Job Name:**Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)**Catalog Number:**WPX0 LED ALO1 SWW2 MVOLT PE
DDBXD M2

Notes:

Type:**OW0-1**

ELL24-128909

Performance Data**Electrical Load**

ALO Setting	Input Power (W)	120 V (A)	208 V (A)	240 V (A)	277 V (A)
ALO 4	13.0	0.11	0.06	0.05	0.05
ALO 3	9.2	0.08	0.04	0.04	0.03
ALO 2	7.8	0.07	0.04	0.03	0.03
ALO 1	6.4	0.05	0.03	0.03	0.02

Projected LED Lumen Maintenance

Data references the extrapolated performance projections in a 25°C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.93	>0.89	>0.86

Lumen Output

ALO Setting	Color Temperature	Lumen Output
ALO 4	3000K	1,591
	4000K	1,644
	5000K	1,667
ALO 3	3000K	1,164
	4000K	1,191
	5000K	1,225
ALO 2	3000K	974
	4000K	994
	5000K	1,025
ALO 1	3000K	814
	4000K	829
	5000K	859

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-50°C (32-122°F).

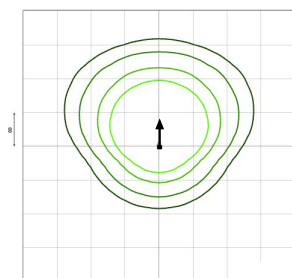
Ambient	Ambient	Lumen Multiplier
0°C	32°F	1.027
5°C	41°F	1.023
10°C	50°F	1.018
15°C	59°F	1.012
20°C	68°F	1.006
25°C	77°F	1.000
30°C	86°F	0.993
35°C	95°F	0.986
40°C	104°F	0.979

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting [WPX LED](https://www.lithonia.com) homepage. Tested in accordance with IESNA LM-79 and LM-80 standards

LEGEND

0.1 fc
0.2 fc
0.5 fc
1.0 fc

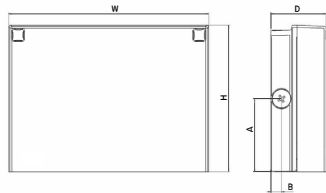
WPX0 LED ALO4**Switchable Features**



WPX LED Wall Packs



Specifications



Front View

Side View

Luminaire	Height (H)	Width (W)	Depth (D)	Side Conduit Location		Weight
				A	B	
WPX1	8.1" (20.6 cm)	11.1" (28.3 cm)	3.2" (8.1 cm)	4.0" (10.3 cm)	0.6" (1.6 cm)	6.1 lbs (2.8kg)
WPX2	9.1" (23.1 cm)	12.3" (31.1 cm)	4.1" (10.5 cm)	4.5" (11.5 cm)	0.7" (1.7 cm)	8.2 lbs (3.7kg)
WPX3	9.5" (24.1 cm)	13.0" (33.0 cm)	5.5" (13.7 cm)	4.7" (12.0 cm)	0.7" (1.7 cm)	11.0 lbs (5.0kg)

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The WPX LED wall packs are energy-efficient, cost-effective, and aesthetically appealing solutions for both HID wall pack replacement and new construction opportunities. Available in three sizes, the WPX family delivers 1,550 to 9,200 lumens with a wide, uniform distribution.

The WPX full cut-off solutions fully cover the footprint of the HID glass wall packs that they replace, providing a neat installation and an upgraded appearance. Reliable IP66 construction and excellent LED lumen maintenance ensure a long service life. Photocell and emergency egress battery options make WPX ideal for every wall mounted lighting application.

Ordering Information

EXAMPLE: WPX2 LED 40K MVOLT DDBXD

		VERIFY			**VERIFY**
Series		Color Temperature	Voltage	Options	Finish
WPX1 LED P1	1,550 Lumens, 11W ¹	30K 3000K	MVOLT 120V - 277V	(blank) None	DDBXD Dark bronze
WPX1 LED P2	2,900 Lumens, 24W	40K 4000K	347 347V ³	E4WH Emergency battery backup, CEC compliant (4W, 0°C min) ²	DWHXD White
WPX2 LED	6,000 Lumens, 47W	50K 5000K		E14WC Emergency battery backup, CEC compliant (14W, -20°C min) ²	DBLXD Black
WPX3 LED	9,200 Lumens, 69W			PE Photocell ³	Note : For other options, consult factory.

Note: The lumen output and input power shown in the ordering tree are average representations of all configuration options. Specific values are available on request.

NOTES

- All WPX wall packs come with 6kV surge protection standard, except WPX1 LED P1 package which comes with 2.5kV surge protection standard. Add SPD6KV option to get WPX1 LED P1 with 6kV surge protection.
Sample nomenclature: WPX1 LED P1 40K MVOLT SPD6KV DDBXD
- Battery pack options only available on WPX1 and WPX2.
- Battery pack options not available with 347V and PE options.

FEATURES & SPECIFICATIONS

INTENDED USE

The WPX LED wall packs are designed to provide a cost-effective, energy-efficient solution for the one-for-one replacement of existing HID wall packs. The WPX1, WPX2 and WPX3 are ideal for replacing up to 150W, 250W, and 400W HID luminaires respectively. WPX luminaires deliver a uniform, wide distribution. WPX is rated for -40°C to 40°C.

CONSTRUCTION

WPX feature a die-cast aluminum main body with optimal thermal management that both enhances LED efficacy and extends component life. The luminaires are IP66 rated, and sealed against moisture or environmental contaminants.

ELECTRICAL

Light engine(s) configurations consist of high-efficacy LEDs and LED lumen maintenance of L90/100,000 hours. Color temperature (CCT) options of 3000K, 4000K and 5000K with minimum CRI of 70. Electronic drivers ensure system power factor >90% and THD <20%. All luminaires have 6kV surge protection (Note: WPX1 LED P1 package comes with a standard surge protection rating of 2.5kV. It can be ordered with an optional 6kV surge protection). All photocell (PE) operate on MVOLT (120V - 277V) input.

Note: The standard WPX LED wall pack luminaires come with field-adjustable drive current feature. This feature allows tuning the output current of the LED drivers to adjust the lumen output (to dim the luminaire).

INSTALLATION

WPX can be mounted directly over a standard electrical junction box. Three 1/2 inch conduit ports on three sides allow for surface conduit wiring. A port on the back surface allows poke-through conduit wiring on surfaces that don't have an electrical junction box. Wiring can be made in the integral wiring compartment in all cases. WPX is only recommended for installations with LEDs facing downwards.

LISTINGS

CSA Certified to meet U.S. and Canadian standards. Suitable for wet locations. IP66 Rated. DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be 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.

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/CustomerResources/Terms_and_conditions.aspx.

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.

**Job Name:**

Azura - Mukwonago, WI
Engineer: Pinnacle Engineering Group
(Brookfield)

Catalog Number:

WPX1 LED P1 **K MVOLT PE

FINISH

Notes:

Type:**OW1-1**

ELL24-128909

Performance Data**Electrical Load**

Luminaire	Input Power (W)	120V	208V	240V	277V	347V
WPX1 LED P1	11W	0.09	0.05	0.05	0.04	0.03
WPX1 LED P2	24W	0.20	0.12	0.10	0.09	0.07
WPX2	47W	0.39	0.23	0.20	0.17	0.14
WPX3	69W	0.58	0.33	0.29	0.25	0.20

Projected LED Lumen Maintenance

Data references the extrapolated performance projections in a 25°C ambient, based on 6,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

To calculate LLF, use the lumen maintenance factor that corresponds to the desired number of operating hours below. For other lumen maintenance values, contact factory.

Operating Hours	50,000	75,000	100,000
Lumen Maintenance Factor	>0.94	>0.92	>0.90

Lumen Output

Luminaire	Color Temperature	Lumen Output
WPX1 LED P1	3000K	1,537
	4000K	1,568
	5000K	1,602
WPX1 LED P2	3000K	2,748
	4000K	2,912
	5000K	2,954
WPX2	3000K	5,719
	4000K	5,896
	5000K	6,201
WPX3	3000K	8,984
	4000K	9,269
	5000K	9,393

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

HID Replacement Guide

Luminaire	Equivalent HID Lamp	WPX Input Power
WPX1 LED P1	100W	11W
WPX1 LED P2	150W	24W
WPX2	250W	47W
WPX3	400W	69W

Emergency Egress Battery Packs

The emergency battery backup is integral to the luminaire — no external housing or back box is required. The emergency battery will power the luminaire for a minimum duration of 90 minutes and deliver minimum initial output of 550 lumens. Both battery pack options are CEC compliant.

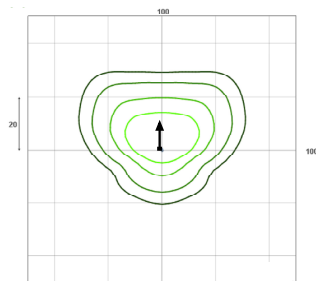
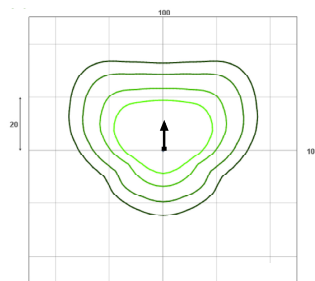
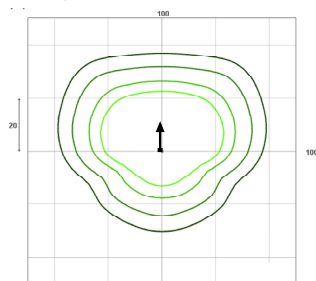
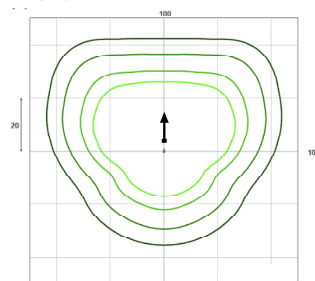
Battery Type	Minimum Temperature Rating	Power (Watts)	Controls Option	Ordering Example
Standard	0°C	4W	E4WH	WPX2 LED 40K MVOLT E4WH DDBXD
Cold Weather	-20°C	14W	E14WC	WPX2 LED 40K MVOLT E14WC DDBXD

Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit the Lithonia Lighting [WPX LED](https://www.lithonia.com) homepage. Tested in accordance with IESNA LM-79 and LM-80 standards

LEGEND

- 0.1 fc
- 0.2 fc
- 0.5 fc
- 1.0 fc

WPX1 LED P1**WPX1 LED P2****WPX2 LED****WPX3 LED****Mounting Height = 12 Feet.**



Office of the Village Public Works Dept.

440 River Crest Court, Mukwonago, Wisconsin 53149 | (262) 363-6447 | Fax: (262)363-7197
www.villageofmukwonago.com

May 31, 2024

Mr. Darwin Greenwald
Greenwald Family Limited Partnership
1243 Fox River St.
Mukwonago, WI 53149

Dear Darwin,

Thank you for taking the time to meet with me last week.

This letter will memorialize our conversation about access to Chapman Farms Boulevard.

I have reviewed the access points for the parcels owned by the Greenwald Family Limited Partnership. Due to the stormwater infiltration basins located within the median of Chapman Farms Boulevard the village can offer access in the form of a right in and right out on the eastbound lane of Chapman Farm Boulevard.

Based on the vehicle stacking capacity at the intersection, the access point will need to be located on the far western edge of parcel MUKT1962992. Chapman Farm Boulevard is slated as a through street to connect with CTH EE on the comprehensive master plan.

This access, along with the access the State of Wisconsin DOT has provided along STH 83, will provide access to parcels MUKT1962991, and MUKT1962992 for future development.

Sincerely,

VILLAGE OF MUKWONAGO

Ron Bittner
Public Works Director/Weed Commissioner
262-363-6447
rbittner @villageofmukwonago.gov



May 22, 2024

DIANA DYKSTRA
VILLAGE OF MUKWONAGO
440 RIVER CREST CT
MUKWONAGO WI 53149

Subject: WIS 83 & Chapman Farm Blvd
SW Quadrant
Greenwald Parcel Access
Waukesha County

Dear Ms. Dykstra:

The Wisconsin Department of Transportation (WisDOT) has reviewed the current access restrictions in place for the Greenwald parcels located in the southwest quadrant of the WIS 83 & Chapman Farm Blvd intersection and has made a determination on the potential for access to the Greenwald parcels with their future redevelopment.

The parcel labeled 997 on the enclosed exhibit is restricted to one access point to WIS 83 per previous access rights purchased by WisDOT. Access from this parcel to WIS 83 will only be allowed at the location of the current access. No additional access will be allowed. Any additional access will have to be via Westlawn Ave to the west or via another roadway or cross access easement to the north or south.

The parcels labeled 991 & 992 on the exhibit are restricted to one access point combined to WIS 83 per previous access rights purchase by WisDOT. Depending on how the parcel(s) are developed, WisDOT may require access to only be from Chapman Farm Blvd. If parcel 991 is developed first and separate from 992, access to WIS 83 will only be granted with the removal of the access that is currently in place for parcel 992 with access to parcel 992 being moved to Chapman Farm Blvd or via an easement to WIS 83 through parcel 991. Any access for parcel 991 to WIS 83 would be restricted to right-in/right-out movements only and would have to be located at the south property line. With any redevelopment of parcel 992, its access will be required to be off Chapman Farm Blvd.

The access options and locations described above may change depending on parcel combinations and the proposed uses on the parcel(s) when redevelopment.

If you have any questions, please contact me at (262) 548-6707.

Sincerely,

A handwritten signature in black ink, appearing to read 'Art Baumann', is positioned above the printed name.

Art Baumann, P.E.
Traffic Operations Engineer

Enclosure

Cc: Robert Elkin / Don Berghammer, DOT
Sue King / Kevin Koehnke, DOT
Mike Michalski, Ruekert-Mielke



0 400.00 Feet

Notes:

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