VILLAGE OF Lake Villa

The Village of Lake Villa

Plan Commission – Meeting Agenda
Tuesday, February 21, 2023
Lehmann Mansion, 485 N. Milwaukee

7:00 pm

1. Call to Order and Roll Call

2. Pledge of Allegiance

3. **Approval**:

    a. Minutes of the January 19, 2023 Plan Commission Meeting
    b. Minutes of the January 26, 2023 Plan Commission Meeting

4. **Public Hearing**: Consideration of approval of a Conditional Use Permit for a Senior Apartment Planned Development and rezoning to the UR4 Zoning District of the property at 0 Deep Lake Road

5. Public Comment

6. Adjournment

The Village of Lake Villa
Plan Commission Meeting
DRAFT Proceedings of the Thursday, January 19, 2023
Plan Commission Meeting – Lehmann Mansion
485 N. Milwaukee, Lake Villa, IL 60046

1. CALL TO ORDER AND ROLL CALL

A Meeting of the Plan Commission of the Village of Lake Villa was held on January 19, 2023, at the Lake Villa Lehmann Mansion, 485 N. Milwaukee Ave., and was called to order by Plan Commission Chair Kressner at 7:02 pm. relative to a proposed development at 406 and 500 Monaville Road in Lake Villa, Illinois.

Present:	Commissioners: Jerry Coia, Dan Lincoln, Tracy Lucas and Steve Smart; and Chair Craig Kressner
Absent:	Commissioner Mary Meyer
Also Present:	Village Administrator Michael Strong, Village Attorney James Bateman, Village Engineer Peter Kolb, Village Planner Scott Goldstein, and Petitioner(s) Hume An, Matt Eagle, Randy Bees and approximately 30 members of the public

2. PLEDGE OF ALLEGIENCE

3. STATUS HEARING AND MOTION TO CONTINUE CONSIDERATION OF APPROVAL OF A CONDITIONAL USE PERMIT FOR A PLANNED DEVELOPMENT AND REZONING TO THE UR4 ZONING DISTRICT RELATIVE TO THE PROPERTIES AT 406 MONAVILLE ROAD AND AT 500 MONAVILLE ROAD TO 7:00 P.M. ON THURSDAY, JANUARY 26, 2023 AT VILLAGE HALL (65 CEDAR AVENUE, LAKE VILLA, IL)

Property Owner: Rahmah Foundation, Inc.
Petitioner: Paul DeKruiff, Representative Redwood Development, LLC

Commissioner Lucas made a motion to continue the public hearing relative to the Redwood USA LLC development to January 26, 2023 at Village Hall. The motion was seconded by Commissioner Smart. The following voted “Aye”: Chairman Kressner and Commissioners Coia, Smart, Lincoln, and Lucas. The following voted “Nay”: None. 5-Ayes, 0 Nays, motion carried.

4. PUBLIC HEARING – CONSIDERATION OF APPROVAL OF A CONDITIONAL USE PERMIT FOR A SENIOR APARTMENT PLANNED DEVELOPMENT AND REZONING TO THE UR4 ZONING DISTRICT OF THE PROPERTY AT 0 DEEP LAKE ROAD

Property Owner: Home State Bank, N.A.
Petitioner: Hume An, Representative Lincoln Avenue Capital

A public hearing was held to consider and receive public comment on an amendment to an existing planned residential development and Conditional Use Permit for the properties

located in the Tower Crossing Development. The Petitioner, Lincoln Avenue Capital, requests that the properties be rezoned and re-classified from the Village's SB (Suburban Business) Zoning District to Lake Villa's UR4 (Urban Residential) Zoning District, and that a Conditional Use Permit be granted for the Properties to permit the construction and operation of a senior apartment development to be established and maintained on the property located at 0 Deep Lake Road. Commissioner Smart made a motion to open the public hearing at 7:10p.m. The motion was seconded by Commissioner Coia. The following voted "Aye": Chairman Kressner, Commissioners Coia, Smart, Lincoln, and Lucas. The following voted "Nay": None. 5-Ayes, 0 Nays, motion carried. Village Attorney Bateman began the public hearing by providing an overview of the request and proceeded to swear in members of the public wishing to speak or provide testimony relative to the petition.

Mr. Hume An, representative for the Petitioner, provided an overview of the request and provided a review of the proposed development, site plan and layout, site access, stormwater improvements, and preliminary engineering proposed for the site. Mr. An also introduced Mr. Matt Eagle, with Manhard Engineering, and Randy Bees, with North Arrow Partners to discuss additional elements relative to stormwater improvements, architectural details and elevations for the proposed building.

Members of the Plan Commission addressed the Petitioner(s) with various questions regarding the proposed conditional use permit and residential development.

Chairman Kressner opened the hearing to public testimony. Several residents expressed concerns over the architectural details and elevations of the building, arrangement of the parking lot, traffic flow into the site, stormwater/drainage, tree removals and environmental concerns, and impacts to adjacent properties as a result of the development.

After discussions by the members of the Plan Commission relative to the proposed development being considered, it was the consensus of the Plan Commission to continue the public hearing to a future date to provide time for the Developer to respond to open issues and concerns that were raised by Commission members. A motion was made by Commissioner Smart to continue the Public Hearing until Tuesday, February 21 at 7:00pm. The motion was seconded by Commissioner Coia. The following voted "Aye": Commissioners Coia, Smart, Kressner, Lincoln, and Lucas. The following voted "Nay": None. 5-Ayes, 0 Nays, motion carried.

5. PUBLIC COMMENT

No public testimony was presented to the Plan Commission on non-agenda items.

6. ADJOURNMENT

There being no further business Chairman Kressner asked for a motion to adjourn. Commissioner Coia made a motion to adjourn, seconded by Commissioner Smart. The motion carried unanimously by voice vote at 9:02 p.m.

Respectfully submitted,
Michael Strong, Village Administrator

The Village of Lake Villa
Plan Commission Meeting
DRAFT Proceedings of the Thursday, January 26, 2023
Plan Commission Meeting – Village Hall
65 Cedar Avenue, Lake Villa, IL 60046

1. CALL TO ORDER AND ROLL CALL

A Meeting of the Plan Commission of the Village of Lake Villa was held on January 26, 2023, at the Lake Villa Village Hall, 65 Cedar Ave., and was called to order by Plan Commission Chair Kressner at 7:05 pm. relative to a proposed development at 406 and 500 Monaville Road in Lake Villa, Illinois.

Present:	Commissioners: Jerry Coia, Mary Meyer, Tracy Lucas and Steve Smart; and Chair Craig Kressner
Absent:	Commissioner Dan Lincoln
Also Present:	Village Administrator Michael Strong, Village Attorney James Bateman, Village Engineer Robert Doeringsfeld, and Petitioner(s) Paul DeKruiff, Kevin Serafin and approximately 4 members of the public

2. PLEDGE OF ALLEGIENCE

3. APPROVAL OF MINUTES

Commissioner Jerry Coia made a motion to approve the minutes of the January 5, 2023 Plan Commission meeting. The motion was seconded by Commissioner Steve Smart and approved unanimously by voice vote.

4. PUBLIC HEARING – CONDITIONAL USE PERMIT FOR A RESIDENTIAL PLANNED DEVELOPMENT AT 406 MONAVILLE ROAD AND 500 MONAVILLE ROAD

Property Owner: Rahmah Foundation, Inc.
Petitioner: Paul DeKruiff, Representative Redwood Development, LLC

A public hearing was held to consider and receive public comment on a planned residential development and Conditional Use Permit for the properties located at 406 Monaville Road and 500 Monaville Road in Lake Villa, Illinois. The Petitioner, Redwood Development LLC, requests that the properties be rezoned and re-classified from the Village's SR (Suburban Residential) Zoning District to Lake Villa's UR4 (Urban Residential) Zoning District, and that a Conditional Use Permit be granted for the Properties to permit the construction and operation of a single-family rental housing development to be established and maintained on the properties. Commissioner Coia made a motion to open the public hearing at 7:06p.m. The motion was seconded by Commissioner Meyer. The following voted "Aye": Chairman Kressner, Commissioners Coia, Smart, Lucas and Meyer. The following voted "Nay": None. 5-Ayes, 0 Nays, motion

carried. Village Attorney Bateman began the public hearing by providing an overview of the request and proceeded to swear in members of the public wishing to speak or provide testimony relative to the petition.

Village Administrator Michael Strong reviewed a presentation that provided an update to the Plan Commission on the evolution of the petition and various changes that the Petitioner had made throughout the previous public hearings. He stated that the Petitioner had submitted recent revisions to the plan to address comments provided by the Plan Commission during its January 5, 2023 public hearing. Specifically, he stated that new traffic circulation has been incorporated onto the western side of the development, replacing a hammerhead road end with a cul-de-sac, along with a larger open recreational space on the eastern side of the development, along with the incorporation of pedestrian paths that would be constructed along the periphery of the development.

Mr. Paul DeKruiff, representative for the Petitioner, answered questions from the Commission relative to the proposed changes that have been made to the site plan. Chairman Kressner opened the hearing to public testimony. Those who spoke asked questions about the stormwater impacts, and concerns with maintenance of the site and access for public safety vehicles and busses.

After discussions by the members of the Plan Commission relative to the proposed development being considered, it was the consensus of the Plan Commission to close the public hearing. A motion was made by Commissioner Meyer to close the public hearing at 7:41pm. The motion was seconded by Commissioner Smart. The following voted “Aye”: Chairman Kressner, Commissioners Coia, Smart, Lucas and Meyer. The following voted “Nay”: None. 5-Ayes, 0 Nays, motion carried.

Member Coia made a motion to approve a recommendation to the Village Board consistent with the recommendations provided by the Zoning Board of Appeals during their deliberation. The motion was seconded by Member Smart. The following voted “Aye”: Chairman Kressner and Commissioners Coia, Smart, and Meyer. The following voted “Nay”: Commissioner Lucas. 4-Ayes, 1-Nay, motion carried.

5. PUBLIC COMMENT

No public testimony was presented to the Plan Commission on non-agenda items.

6. ADJOURNMENT

There being no further business Chairman Kressner asked for a motion to adjourn. Commissioner Smart made a motion to adjourn, seconded by Commissioner Coia. The motion carried unanimously by voice vote at 7:49 p.m.

Respectfully submitted,
Michael Strong, Village Administrator

Conditional Use Permit – 0 Deep Lake Road
(Cover Transmittal)

DATE: February 15, 2023

TO: Chairman Craig Kressner and Members of the Plan Commission

FROM: Michael Strong, Village Administrator

RE: **Starling Senior Apartments at 0 Deep Lake Road (the "Subject Property")**

Property Owner	**Property Location**	**Zoning District**
Home State Bank N.A. 40 Grant Street Crystal Lake, IL 60014	0 Deep Lake Road – Vacant Lot south of Tower Crossing (the "Subject Property")	Suburban Business SB

Applicant and Contract Purchaser: Lincoln Avenue Capital, LLC
c/o Hume An, Vice President and Regional Project Partner
3048 Mary Kay Lane
Glenview, IL 60026

Representatives: Hume An, Vice President and Regional Project Partner (Developer)

Requested Action

1. Preliminary Plat Approval for Planned Development

Project Background

The Subject Property is located in an existing PUD for the Tower Crossing Development at the southwest corner of the Deep Lake Road and Grass Lake Road intersection. The roughly 5-acre site is currently vacant and undeveloped land with no current access points to Tower Drive (north) or Deep Lake Road (east). The property is currently zoned Suburban Business (SB). The project is adjacent to SR-2 Single-Family Homes to the south, SR-3 Townhomes to the west, SR zoning for an elementary school to the north, and R-1 zoning for high school athletic fields to the east.

The Applicant is proposing a three-story, 40-unit senior apartment building on the Subject Property. The Applicant is requesting a change of zoning for the property, from Suburban Business to Urban Residential (UR4). The proposed UR4 zoning would be consistent with the surrounding residential and suburban business uses, provides for a residential density buffer adjacent to a commercial district and is the only zoning district that allows for elderly housing uses.

Pursuant to Section 10-9-1.7 of the Village Code, a planned development may be granted a conditional use permit in any zoning district in which it is permitted in accordance to the standards and procedures set forth in the Code. A preliminary planned development or preliminary plat must first be submitted to the Village for consideration by the Plan Commission for a required public hearing, after which the Board of Trustees will review such report or recommendation of the Plan Commission. During the Public Hearing, the Plan Commission will hear the evidence presented by Village Staff, Applicant/Developer, and any individuals in the audience wishing to speak for or against the proposed development.

At the conclusion of the public hearing, the Plan Commission shall, with the aid and advice of Village Staff, transmit its findings and recommendations as to whether the preliminary plat should be approved, approved subject to modifications, or not approved. The Plan Commission has the authority to modify the proposal and/or attach conditions to the recommendation that is sent to the Board of Trustees for final consideration.

Consistent with the Village Code, the Plan Commission opened a public hearing on January 19, 2023 to consider the petition. The Plan Commission took action to continue the public hearing on the petition to February 21, 2023 to allow the Petitioner time to address certain primary issues and concerns that were raised by the Plan Commission and Village Staff during the January public hearing.

Summary of Revised PUD – *Please refer to the attached documents as reference*

Since the Plan Commission hearing on January 19, 2022, the Village Staff has had internal meetings with the Applicant to discuss the project, review feedback collected, and discuss opportunities to address those questions and concerns raised by the Plan Commission and those who provided testimony during the public hearing. Attached, and outlined below, is a summary of major revisions that have been submitted with a revised PUD (dated February 6, 2023).

1. **Site Plan Changes and Modifications** - The Applicant has submitted revised preliminary engineering plans and a new plat that modifies the site plan for the development. Important changes submitted include, among others, reducing the size of the building footprint, increasing setbacks to property line, relocating the garbage container and eliminating the western access road to the parking lot. The western access road to the parking lot has been preserved, but will be designated for emergency vehicular access only.

2. **Stormwater Management –** The Applicant has submitted revisions to its preliminary stormwater management report and engineering plans. Notable changes include the installation of a CDS© Water Quality Structure (Hydrodnamic separator) that will be installed in the outfall pipe adjacent to the parking lot. The purpose of this structure is to remove garbage, debris, hydrocarbons and other sediment from the storm water runoff that flows into the onsite detention basin. A cutsheet for the proposed improvement has been included in the resubmittal documents.

3. **Landscape/Tree Preservation –** Additional trees are proposed to be preserved on the site. Additionally, a greater amount of buffer yard shrubs are proposed to be planted on the west side of the development to provide greater landscaping buffering between the development and adjacent residential townhome development. Lastly, the Applicant has removed Round-Up from its specifications for plant material installation. A more environmentally-friendly alternative, AquaPro Aquatic Herbicide, is proposed for site preparation and planting preparation purposes.

4. **Architectural Elevations** – The Applicant has submitted new architectural elevation and details for the proposed building. Pursuant to direction provided by the Plan Commission, new architectural details to the building's roofline are proposed, including an asphalt shingle mansard roof, face brick along the lower level of the building, and fiber cement lap siding to the second and third floors.

A review memorandum provided by Teska & Associaties, the Village's Land Planner, is attached to this memorandum which provides responses to the Applicant's resubmittal and comments relative to the Village's procedural review for Planned Developments, and Conditions for granting Conditional Use Permits.

Action Requested

The Plan Commission is being asked to consider the Application revised documents and hold the continued public hearing relative to the proposed preliminary plat of PUD for the Starling Senior Apartments at 0 Deep Lake Road.

Attachments

Exhibit 1 – Revised PUD Materials from Applicant
Exhibit 2 – Plan Review Letter from Teska & Associates

Preliminary Engineering Plans
for

STARLING SENIOR APARTMENTS

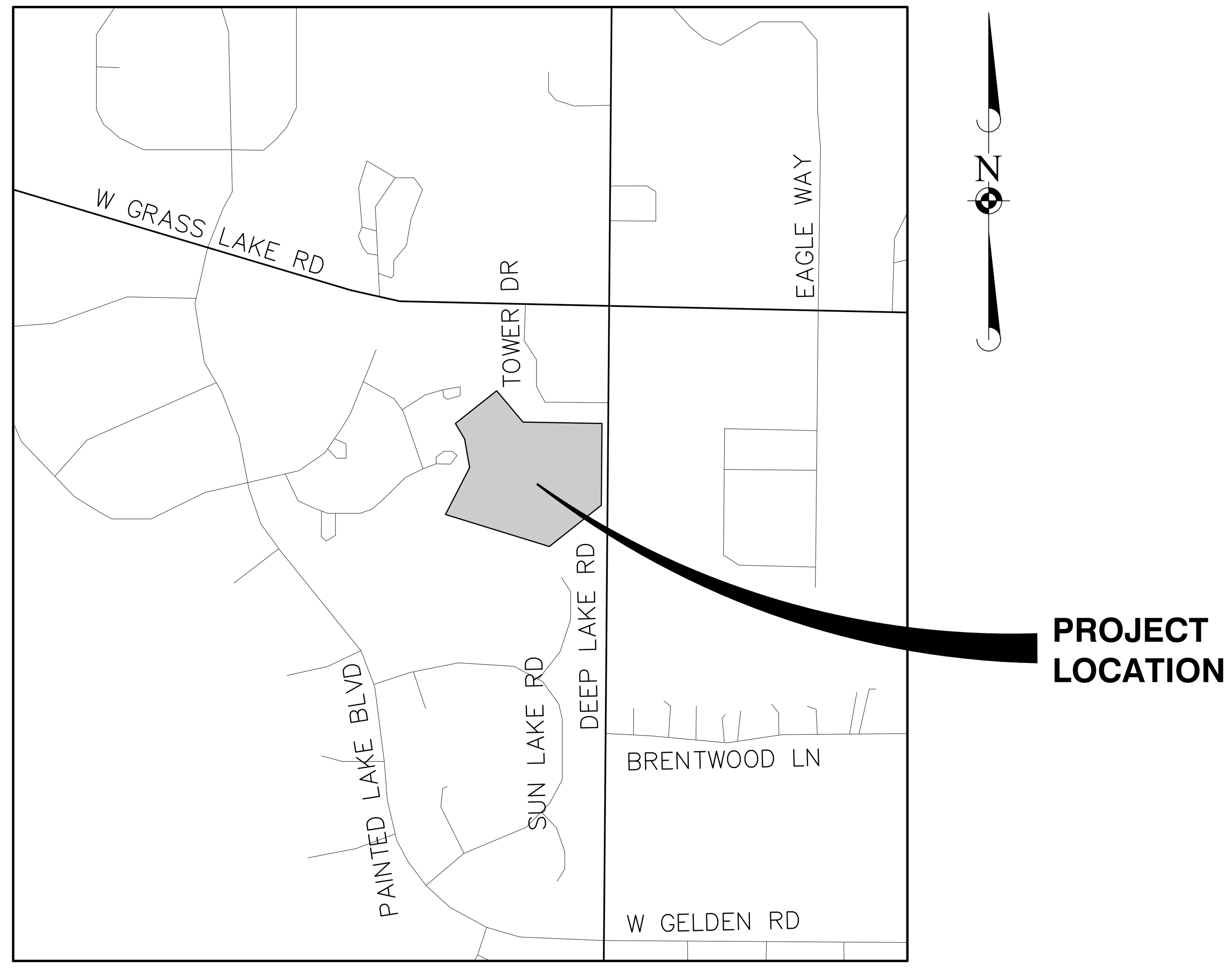
0 DEEP LAKE ROAD
VILLAGE OF LAKE VILLA, ILLINOIS

STANDARD SYMBOLS

06-01-16

EXISTING | PROPOSED

STORM SEWER
SANITARY SEWER
COMBINED SEWER
FORCEMAIN
DRAINTILE
WATER MAIN
ELECTRIC
GAS
TELEPHONE
OVERHEAD WIRES
SANITARY MANHOLE
STORM MANHOLE
CATCH BASIN
STORM INLET
CLEANOUT
HAY BALES
RIP RAP
VALVE IN VAULT
VALVE IN BOX
FIRE HYDRANT
BUFFALO BOX
FLARED END SECTION
STREET LIGHT
SUMMIT / LOW POINT
RIM ELEVATION / INVERT ELEVATION
DITCH OR SWALE
DIRECTION OF FLOW
OVERFLOW RELIEF SWALE
1 FOOT CONTOURS
CURB AND GUTTER
DEPRESSED CURB AND GUTTER
REVERSE CURB AND GUTTER
SIDEWALK
DETECTABLE WARNINGS
PROPERTY LINE
EASEMENT LINE
SETBACK LINE
MAIL BOX
SIGN
TRAFFIC SIGNAL
POWER POLE
GUY WIRE
GAS VALVE
HANDHOLE
ELECTRICAL EQUIPMENT
TELEPHONE EQUIPMENT
CHAIN-LINK FENCE
SPOT ELEVATION
BRUSH/TREE LINE
DECIDUOUS TREE WITH TRUNK DIA. IN INCHES (TBR)
CONIFEROUS TREE WITH HEIGHT IN FEET (TBR)
SILT FENCE
RETAINING WALL
WETLAND



LOCATION MAP
N.T.S.

INDEX OF SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	EXISTING CONDITIONS AND DEMOLITION PLAN
3	SITE DIMENSIONAL AND PAVING PLAN
4	GRADING PLAN
5	UTILITY PLAN- NORTH
6	UTILITY PLAN- SOUTH
7	SOIL EROSION AND SEDIMENT CONTROL PLAN

NOTE:
THE BOUNDARY LINES AND TOPOGRAPHY FOR THIS PROJECT ARE BASED ON A SURVEY PREPARED BY WT GROUP, LLC DATED JANUARY 9, 2019. THE CONTRACTOR SHALL VERIFY THE EXISTING CONDITIONS PRIOR TO CONSTRUCTION AND SHALL IMMEDIATELY NOTIFY MANHARD CONSULTING AND THE CLIENT IN WRITING OF ANY DIFFERING CONDITIONS. MANHARD CONSULTING HAS NOT VERIFIED THIS SURVEY AND IS NOT RESPONSIBLE FOR THE ACCURACY OF THE SURVEY BOUNDARY AND/OR TOPOGRAPHY.

BENCHMARKS:

SITE BENCHMARK #1 – SET CROSS ON ARROW BOLT OF HYDRANT LOCATED APPROXIMATELY 23.83' N OF GRASS LAKE ROAD AND 737.5' W OF DEEP LAKE ROAD, AS SHOWN ON SHEET SUR-1. ELEVATION=800.95' (NAVD88)

SITE BENCHMARK #2 – SET CROSS ON ARROW BOLT OF HYDRANT LOCATED APPROXIMATELY 2.3' N OF TOWER DRIVE AND 214.4' W OF DEEP LAKE ROAD, AS SHOWN ON SHEET SUR-4. ELEVATION=814.68' (NAVD88)

SITE BENCHMARK #3 – SET RAILROAD SPIKE IN UTILITY POLE LOCATED APPROXIMATELY 435.7' S OF TOWER DRIVE AND 19.9' W OF DEEP LAKE ROAD, AS SHOWN ON SHEET SUR-6. ELEVATION=809.61' (NAVD88)

SITE BENCHMARK #4 – SET CROSS ON SOUTHWEST BOLT AT TOP OF HYDRANT LOCATED APPROXIMATELY 22.9' N OF GRASS LAKE ROAD AND 137.8' W OF DEEP LAKE ROAD, AS SHOWN ON SHEET SUR-2. ELEVATION=807.34' (NAVD88)

LINCOLN AVENUE CAPITAL
401 WILSHIRE BLVD SUITE 1070
SANTA MONICA, CA 90401
PH: 424-222-8253

ABBREVIATIONS

06-01-16

ADJ	ADJUST
AGG.	AGGREGATE
ARCH	ARCHITECT
B.A.M.	BITUMINOUS AGGREGATE MIXTURE
B-B	BACK TO BACK
B/C	BACK OF CURB
B/P	BOTTOM OF PIPE
B/W	BACK OF WALK
B-BOX	BUFFALO BOX
BIT.	BITUMINOUS
BM	BENCHMARK
B.O.	BY OTHERS
C.E.	COMMERCIAL ENTRANCE
CB	CATCH BASIN
℄	CENTERLINE
CMP	CORRUGATED METAL PIPE
CNTRL	CONTROL
CO	CLEANOUT
CONC.	CONCRETE
CY	CUBIC YARD
D	DITCH
DIA.	DIAMETER
DIP	DUCTILE IRON PIPE
DIWM	DUCTILE IRON WATER MAIN
DS	DOWNSPOUT
DT	DRAIN TILE
E	ELECTRIC
E-E	EDGE TO EDGE
ELEV.	ELEVATION
E/P	EDGE OF PAVEMENT
EX.	EXISTING
F.O.	FIELD ENTRANCE
F-F	FACE TO FACE
F.P.	FINISHED FLOOR
FES	FLARED END SECTION
F/L	FLOW LINE
FM	FORCE MAIN
G	GROUND
G/F	GRADE AT FOUNDATION
GW	GUY WIRE
HDWL	HEADWALL
HH	HANDHOLE
HWL	HIGH WATER LEVEL
HYD	HYDRANT
INL	INLET
INV	INVERT
IP	IRON PIPE
LT	LEFT
HYD.	MAXIMUM
MB	MAILBOX
M/E	MEET EXISTING
MH	MANHOLE
MIN.	MINIMUM
NWL	NORMAL WATER LEVEL
P.E.	PRIVATE ENTRANCE
PC	POINT OF CURVATURE
PCC	POINT OF COMPOUND CURVE
PGL	PROFILE GRADE LINE
PI	POINT OF INTERSECTION
PL	PROPERTY LINE
PP	POWER POLE
PROP.	PROPOSED
PT	POINT OF TANGENCY
PVC	POLYVINYL CHLORIDE PIPE
PVC	POINT OF VERTICAL CURVATURE
PVI	POINT OF VERTICAL INTERSECTION
PVT	POINT OF VERTICAL TANGENCY
P	PAVEMENT
P.U.D.E.	PUBLIC UTILITY & DRAINAGE EASEMENT
R	RADIUS
R.O.W.	RIGHT-OF-WAY
RCP	REINFORCED CONCRETE PIPE
REM	REMOVAL
REV	REVERSE
RR	RAILROAD
RT	RIGHT
SAN	SANITARY
SF	SQUARE FOOT
SHLD.	SHOULDER
SL	STREET LIGHT
SMH	SANITARY MANHOLE
ST	STORM
STA.	STATION
STD	STANDARD
SW	SIDEWALK
SY	SQUARE YARDS
TBR	TO BE REMOVED
T	TELEPHONE
T-A	TYPE A
T/C	TOP OF CURB
T/F	TOP OF FOUNDATION
T/P	TOP OF PIPE
T/W	TOP OF WALK
T/WALL	TOP OF WALL
TEMP	TEMPORARY
TRANS	TRANSFORMER
V.B.	VALVE BOX
VCP	VITRIFIED CLAY PIPE
V.V.	VALVE VAULT
WL	WATER LEVEL
WM	WATER MAIN

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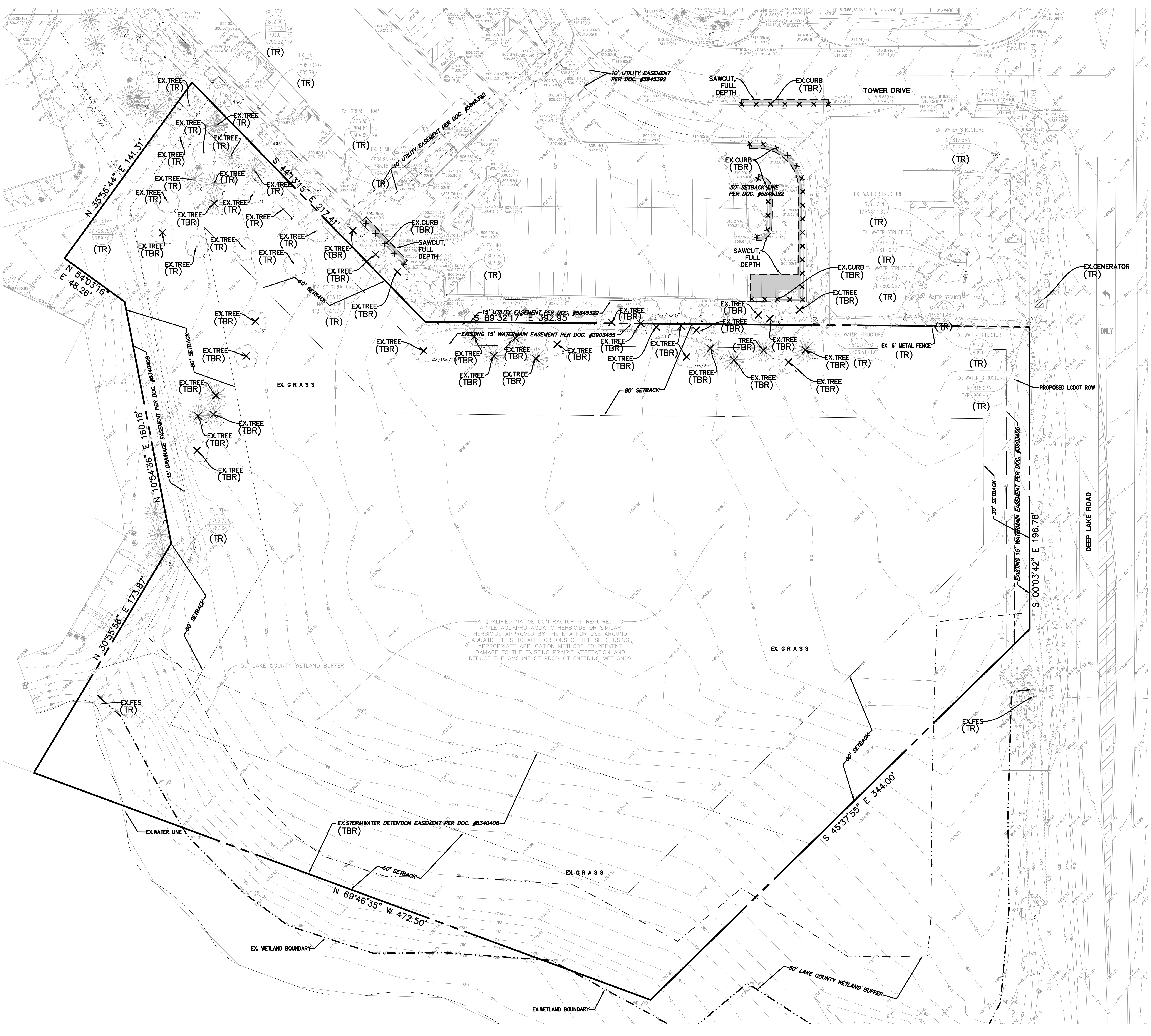
UTILITY CONTACTS	
ELECTRIC COMED (630) 576-7094	WATER VILLAGE OF LAKE VILLA (847) 356-6100 CONTACT: GLENN MCCOLLUM
GAS NICOR GAS (630) 388-2362	TELEPHONE AT&T DISTRIBUTION (800) 288-2020
SEWER VILLAGE OF LAKE VILLA (847) 356-6100 CONTACT: GLENN MCCOLLUM	

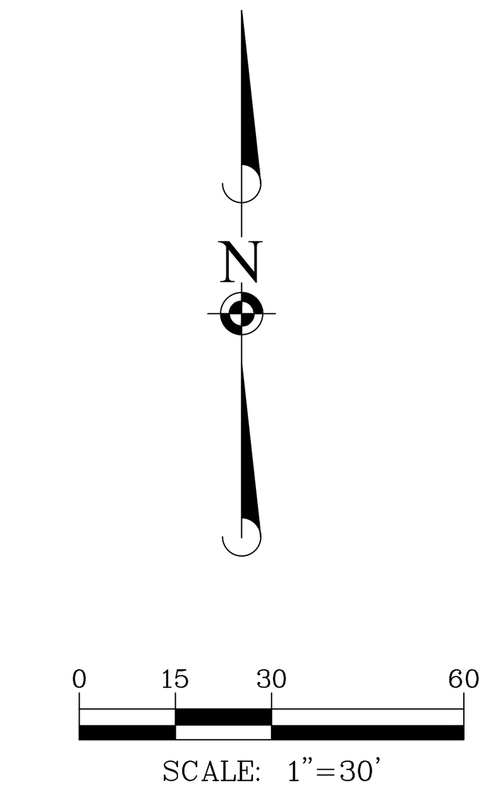
SEAL

STARLING SENIOR APARTMENTS
LAKE VILLA, ILLINOIS
TITLE SHEET

PROJ. MGR.:	MDE
PROJ. ASSOC.:	MJC
DRAWN BY:	SB
DATE:	02-06-23
SCALE:	N.T.S.

PRELIMINARY PLANS- NOT FOR CONSTRUCTION





DEMOLITION LEGEND

	BITUMINOUS PAVEMENT AND BASE TO BE REMOVED
	SAWCUT LINE
X X X	FENCE, RETAINING WALL, RAILROAD TIES, POLES, CURB AND GUTTER, ETC. TO BE REMOVED
	TREE TO BE REMOVED
(TBR)	TO BE REMOVED
(TR)	TO REMAIN

02-06-23

IDNR THREATENED AND ENDANGERED SPECIES NOTES:

1. THE CONTRACTOR SHALL FOLLOW ALL RECOMMENDATIONS IN THE ILLINOIS DEPARTMENT OF NATURAL RESOURCES ECOCAT REVIEW CONDUCTED ON 11-10-2022 IDNR PROJECT NUMBER 2306326 AS PUBLISHED IN THE "WETLAND DELINEATION REPORT" PUBLISHED BY GARY R. WEBER AND ASSOCIATES DATED 11-22-2022 AND REVISED 02-03-2023. THESE RECOMMENDATIONS INCLUDE BUT ARE NOT LIMITED TO

- BLANDINGS TURTLE: CONSTRUCTION SHOULD BE COMPLETED IN INACTIVE SEASON FROM NOVEMBER 1-MARCH 1. EXCLUSIONARY FENCING AROUND THE CONSTRUCTION AREA AND DAILY CHECKS FOR TURTLES SHOULD BE INITIATED IF TIME FRAME CANNOT BE MET.
- KING RAIL AND LEAST BITTERN: 50-FT BUFFER SHOULD BE MAINTAINED ON ALL WETLANDS, AND IF POSSIBLE ALL WORK NEAR WETLANDS SHOULD BE COMPLETED BETWEEN SEPTEMBER 30-APRIL 1 TO AVOID THE PRIME NESTING AND FLEDGING SEASON

06-01-16

DEMOLITION NOTES:

1. THE CONTRACTOR SHALL COORDINATE WITH RESPECTIVE UTILITY COMPANIES PRIOR TO THE REMOVAL AND/OR RELOCATION OF UTILITIES. THE CONTRACTOR SHALL COORDINATE WITH THE UTILITY COMPANY CONCERNING PORTIONS OF WORK WHICH MAY BE PERFORMED BY THE UTILITY COMPANY'S FORCES AND ANY FEES WHICH ARE TO BE PAID TO THE UTILITY COMPANY FOR THEIR SERVICES. THE CONTRACTOR IS RESPONSIBLE FOR PAYING FOR ALL FEES AND CHARGES.
2. SHOULD REMOVAL AND/OR RELOCATION ACTIVITIES DAMAGE FEATURES INDICATED TO REMAIN, THE CONTRACTOR SHALL PROVIDE NEW MATERIALS/STRUCTURES IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. EXCEPT FOR MATERIALS DESIGNED TO BE RELOCATED ON THIS PLAN, ALL OTHER CONSTRUCTION MATERIALS SHALL BE NEW.
3. PRIOR TO DEMOLITION OCCURRING, ALL EROSION CONTROL DEVICES ARE TO BE INSTALLED.
4. ALL EXISTING UTILITY LINES AND CONDUITS LOCATED UNDER PROPOSED BUILDINGS SHALL BE REMOVED AND PROPERLY BACKFILLED. ALL UTILITY LINES AND CONDUITS LOCATED UNDER DRIVES, ON-SITE ROADS, PARKING LOTS OR SIDEWALKS SHALL BE FILLED WITH A FLOWABLE BACKFILL AND END PLUGGED. ALL EXISTING STRUCTURES SHALL BE REMOVED. ALL EXISTING UTILITY LINES LOCATED UNDER LANDSCAPE AREAS SHALL BE LEFT IN PLACE AND PLUGGED AT ALL STRUCTURES.
5. THE CONTRACTOR IS RESPONSIBLE FOR DEMOLITION, REMOVAL AND LAWFUL DISPOSAL (IN A LOCATION APPROVED BY ALL GOVERNING AUTHORITIES) OF ALL STRUCTURES, PADS, WALLS, FLUMES, FOUNDATIONS, PARKING, DRIVES, DRAINAGE STRUCTURES, UTILITIES, ETC., SUCH THAT THE IMPROVEMENTS SHOWN ON THESE PLANS CAN BE CONSTRUCTED. ALL DEMOLITION WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE FEDERAL, STATE AND LOCAL REQUIREMENTS. ALL FACILITIES TO BE REMOVED SHALL BE UNDERCUT TO SUITABLE MATERIAL AND BROUGHT TO GRADE WITH SUITABLE COMPACTED FILL MATERIAL PER THE SPECIFICATIONS.
6. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED FOR DEMOLITION AND DISPOSAL.
7. ELECTRICAL, TELEPHONE, CABLE, WATER, FIBER OPTIC CABLE AND/OR GAS LINES NEEDING TO BE REMOVED SHALL BE COORDINATED BY THE CONTRACTOR WITH THE AFFECTED UTILITY COMPANY.
8. CONTRACTOR MUST PROTECT THE PUBLIC AT ALL TIMES WITH FENCING, BARRICADES, ENCLOSURES, AND OTHER APPROPRIATE BEST MANAGEMENT PRACTICES.
9. CONTINUOUS ACCESS SHALL BE MAINTAINED FOR SURROUNDING PROPERTIES AT ALL TIMES DURING DEMOLITION.

DATE	REVISIONS	DRAWN BY
----	----	----

Manhard™ CONSULTING
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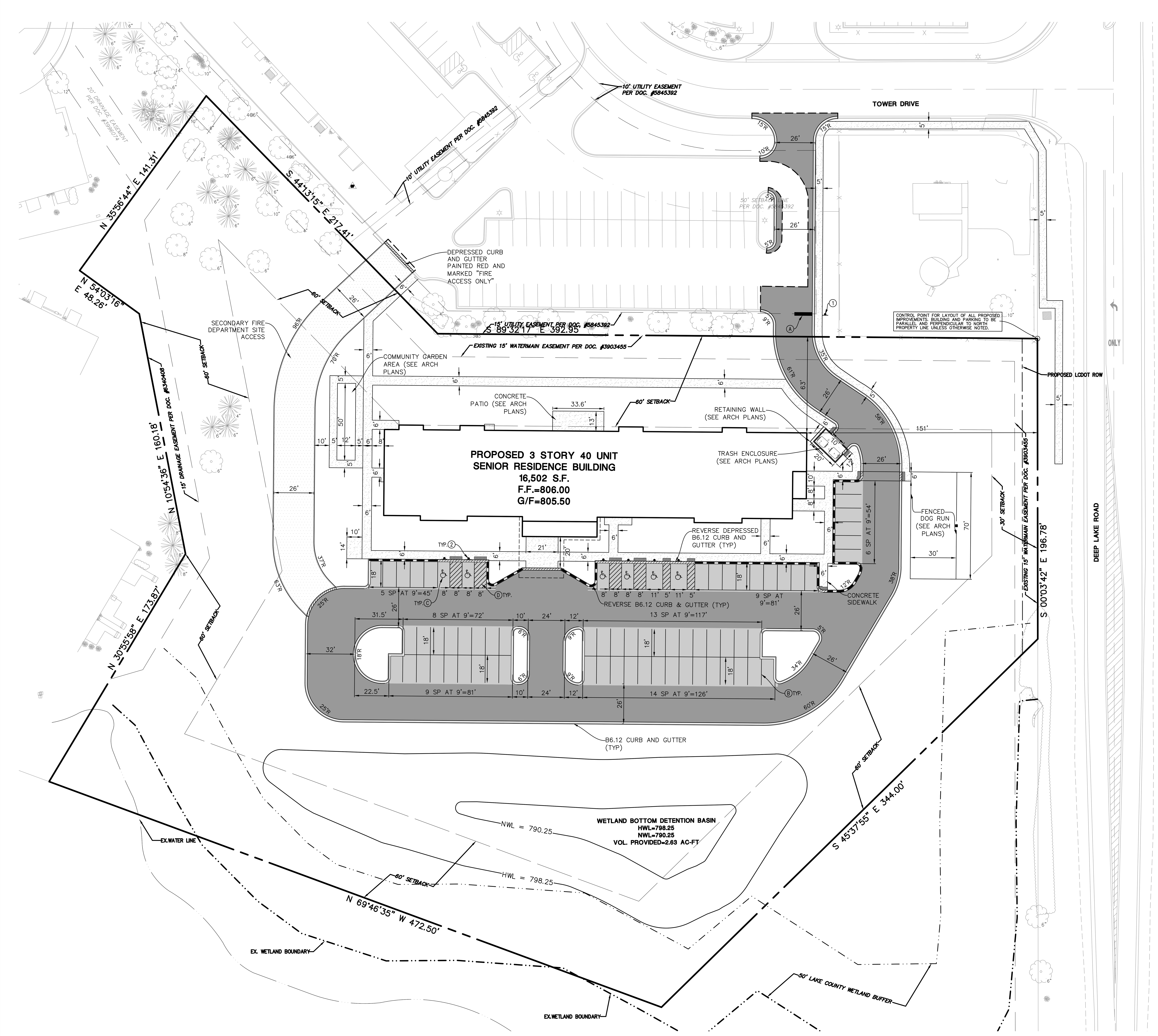
STARLING SENIOR APARTMENTS
LAKE VILLA, ILLINOIS
EXISTING CONDITIONS AND DEMOLITION PLAN

PROJ. MGR.:	MDE
PROJ. ASSOC.:	MJC
DRAWN BY:	SB
DATE:	02-06-23
SCALE:	1"=30'

SHEET
2 OF **7**
LAC.LVIL01

PRELIMINARY PLANS- NOT FOR CONSTRUCTION



SITE DIMENSIONAL AND PAVING NOTES:

06-01-16

1. ALL DIMENSIONS ARE FACE OF CURB TO FACE OF CURB OR BUILDING FOUNDATION UNLESS NOTED OTHERWISE.
2. ALL PROPOSED CURB AND GUTTER SHALL BE B6.12 UNLESS OTHERWISE NOTED.
3. ALL CURB RADII SHALL BE 3' MEASURED TO FACE OF CURB UNLESS NOTED OTHERWISE.
4. TIE ALL PROPOSED CURB AND GUTTER TO EXISTING CURB AND GUTTER WITH 2-#6 BARS x 18" LONG DOWELED INTO EXISTING CURB.
5. BUILDING DIMENSIONS AND ADJACENT PARKING HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION. BUILDING DIMENSIONS SHOWN SHOULD NOT BE USED FOR CONSTRUCTION LAYOUT OF BUILDING.
6. IMPROVEMENTS ADJACENT TO BUILDING, IF SHOWN, SUCH AS TRUCK DOCK, RETAINING WALLS, SIDEWALKS, CURBING, FENCES, CANOPIES, RAMPS, HANDICAP ACCESS, PLANTERS, DUMPSTERS, AND TRANSFORMERS ETC. HAVE BEEN SHOWN FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR EXACT LOCATIONS, SPECIFICATIONS AND DETAILS.
7. LOCATION OF PRIVATE SIDEWALKS SHALL BE COORDINATED WITH PROPOSED DOORWAY. CONTRACTOR TO VERIFY ACTUAL BUILDING PLAN LOCATIONS WITH ARCHITECT/DEVELOPER PRIOR TO CONSTRUCTING THE SIDEWALKS.
8. ALL ROADWAY AND PARKING LOT SIGNAGE, STRIPING, SYMBOLS, ETC. SHALL BE IN ACCORDANCE WITH LATEST JURISDICTIONAL GOVERNMENTAL ENTITY DETAILS.
9. SOME EXISTING ITEMS TO BE REMOVED HAVE BEEN DELETED FROM THIS PLAN FOR CLARITY. SEE DEMOLITION PLAN FOR ITEMS DELETED.
10. PROVIDE DEPRESSED CURB AND RAMP AT ALL HANDICAP ACCESSIBLE SIDEWALK AND PATH LOCATIONS PER FEDERAL AND STATE STANDARDS.
11. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (1-800-892-0123) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.

SITE DATA

SITE AREA	227,068 S.F. (5.21 ACRES)
PARKING REQUIRED	65 SPACES
STANDARD PARKING PROVIDED	64 SPACES
HANDICAP PROVIDED	6 SPACES
TOTAL PARKING PROVIDED	70 SPACES
BUILDING AREA	16,502 S.F.
EXISTING ZONING	(SB) SUBURBAN BUSINESS

PAVEMENT LEGEND

STANDARD DUTY PAVEMENT
BITUMINOUS SURFACE COURSE, HOT-MIX ASPHALT, MIX D, N50
BITUMINOUS BINDER COURSE, HOT-MIX ASPHALT, IL-19, N50
AGGREGATE BASE COURSE, TYPE B

HEAVY DUTY PAVEMENT
BITUMINOUS SURFACE COURSE, HOT-MIX ASPHALT, MIX D, N50
BITUMINOUS BINDER COURSE, HOT-MIX ASPHALT, IL-19, N50
AGGREGATE BASE COURSE, TYPE B

CONCRETE PAVEMENT
8" PORTLAND CEMENT CONCRETE PAVEMENT W/ 6 X 6 W1.4 WWF
4" COMPACTED AGGREGATE BASE, TYPE B

CONCRETE SIDEWALK
5" PORTLAND CEMENT CONCRETE
4" COMPACTED AGGREGATE BASE COURSE, TYPE B

GRASSCRETE PAVEMENT

PAVEMENT MARKING LEGEND

- (A) 24" WHITE STOP BAR
- (B) 4" YELLOW LINE
- (C) LETTERS AND SYMBOLS PAVEMENT MARKINGS
- (D) 4" YELLOW DIAGONAL AT 45° SPACED 2' O.C. W/ 4" YELLOW BORDER

SIGN LEGEND

- (1) R1-1 STOP SIGN
- (2) R7-8 HANDICAP PARKING SIGN ON BOLLARD

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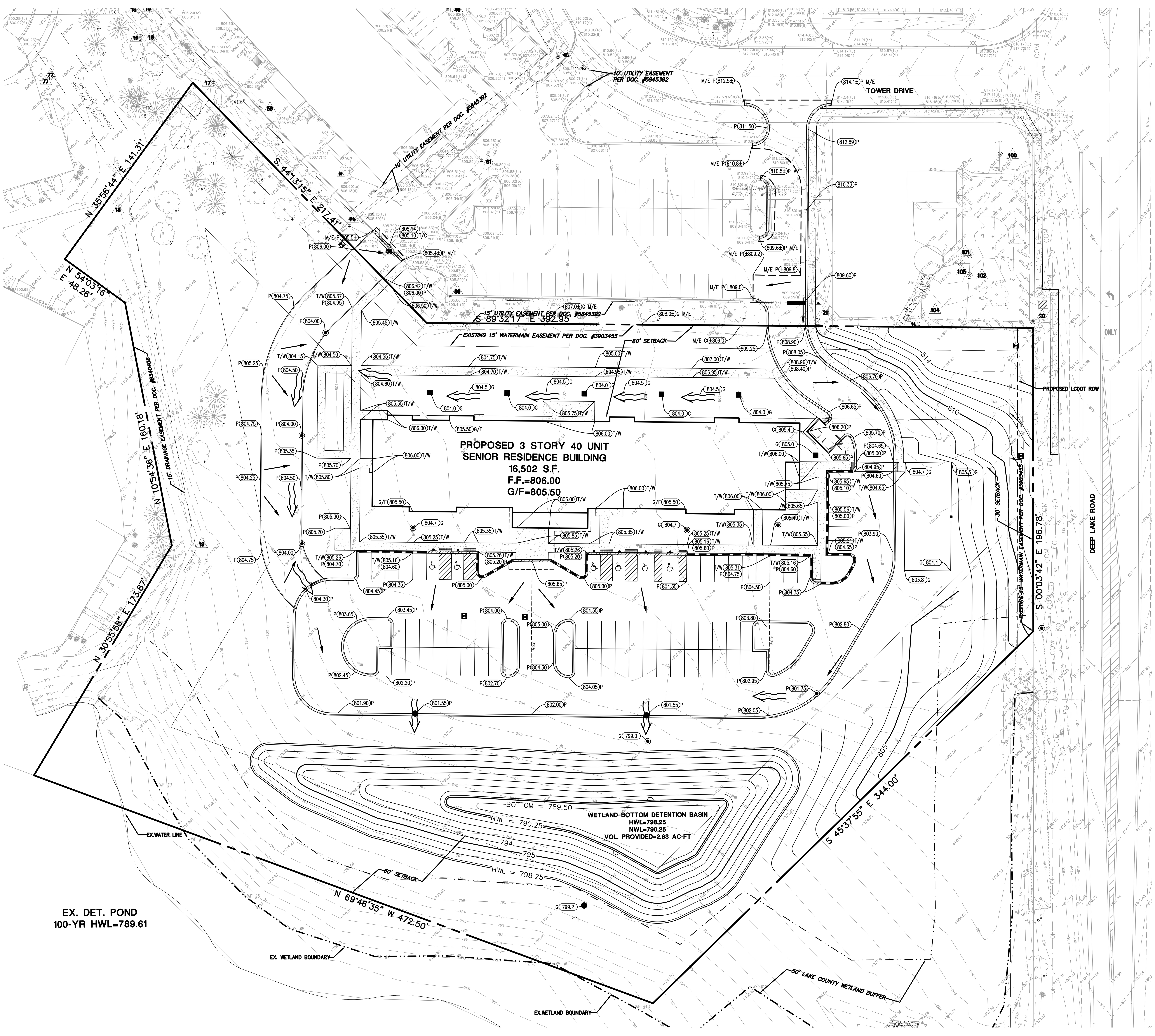
STARLING SENIOR APARTMENTS
LAKE VILLA, ILLINOIS
SITE DIMENSIONAL AND PAVING PLAN

PROJ. MGR.:	MDE
PROJ. ASSOC.:	MJC
DRAWN BY:	SB
DATE:	02-06-23
SCALE:	1"=30'

SHEET
3 OF 7
LAC.LVIL01

PRELIMINARY PLANS- NOT FOR CONSTRUCTION



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SCALE: 1"=30'

06-01-16

GRADING NOTES:

1. RETAINING WALL DESIGN TO BE PROVIDED BY OTHERS.
2. PAVEMENT SLOPES THROUGH HANDICAP ACCESSIBLE PARKING AREAS SHALL BE 2.00% MAXIMUM IN ANY DIRECTION.
3. ALL HANDICAP RAMPS SHALL BE CONSTRUCTED WITH A MAXIMUM CROSS SLOPE OF 2.00% OR LESS.
4. MEET EXISTING GRADE AT PROPERTY LIMITS UNLESS NOTED OTHERWISE.
5. CONTRACTOR SHALL REFER TO THE SOIL EROSION AND SEDIMENT CONTROL PLAN AND DETAILS FOR CONSTRUCTION SCHEDULING AND EROSION CONTROL MEASURES TO BE INSTALLED PRIOR TO BEGINNING GRADING OPERATIONS.
6. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (1-800-892-0123) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
7. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR ELEVATION OF EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES, AND WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THE INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANIES AT LEAST 72 HOURS BEFORE ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
8. IF ANY EXISTING STRUCTURES TO REMAIN ARE DAMAGED DURING CONSTRUCTION IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO REPAIR AND/OR REPLACE THE EXISTING STRUCTURE AS NECESSARY TO RETURN IT TO EXISTING CONDITION OR BETTER.
9. ALL UNPAVED AREAS DISTURBED BY GRADING OPERATIONS SHALL RECEIVE 6 INCHES OF TOPSOIL. CONTRACTOR SHALL APPLY STABILIZATION FABRIC TO ALL SLOPES 3H:1V OR STEEPER. CONTRACTOR SHALL STABILIZE DISTURBED AREAS IN ACCORDANCE WITH GOVERNING SPECIFICATIONS UNTIL A HEALTHY STAND OF VEGETATION IS OBTAINED.
10. EXISTING TOPOGRAPHY SHOWN REPRESENTS SITE CONDITIONS AS PREPARED BY WT GROUP, LLC ON JANUARY 9, 2019. CONTRACTOR SHALL FIELD CHECK EXISTING ELEVATIONS AND CONDITIONS PRIOR TO CONSTRUCTION AND NOTIFY ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO STARTING CONSTRUCTION. IF THE CONTRACTOR DOES NOT ACCEPT EXISTING TOPOGRAPHY AS SHOWN ON THE PLANS, WITHOUT EXCEPTION, THEN THE CONTRACTOR SHALL SUPPLY, AT THEIR EXPENSE, A TOPOGRAPHIC SURVEY BY A REGISTERED LAND SURVEYOR TO THE OWNER FOR REVIEW.
11. TRANSITIONS FROM DEPRESSED CURB TO FULL HEIGHT CURB SHALL BE TAPERED AT 2H:1V UNLESS OTHERWISE NOTED.

01-01-16

GRADING PLAN LEGEND

Symbol	Description
764 (contour line)	PROPOSED 1 FOOT CONTOURS
792.8 G	PROPOSED SPOT ELEVATION
F.F.	PROPOSED FINISHED FLOOR ELEVATION
G/F	PROPOSED GRADE AT FOUNDATION
P	PROPOSED PAVEMENT ELEVATION
T/C	PROPOSED TOP OF CURB
T/W	PROPOSED TOP OF WALK
T/WALL	PROPOSED TOP OF WALL
M/E	MEET EXISTING
G	PROPOSED GROUND GRADE OR GROUND AT BASE OF RETAINING WALL
	PROPOSED DITCH OR SWALE
	PROPOSED DIRECTION OF FLOW
	OVERFLOW RELIEF SWALE
RIDGE	PROPOSED RIDGE LINE
0.5'	PROPOSED DEPTH OF PONDING
	RETAINING WALL
L	PROPOSED SWALE LOW POINT
S	PROPOSED SWALE SUMMIT

DETENTION BASIN	
HWL	798.25
NWL	790.25
DET. VOLUME PROVIDED	2.63 ACRE-FEET
100 YEAR RELEASE RATE	0.65 CFS

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STARLING SENIOR APARTMENTS

LAKE VILLA, ILLINOIS

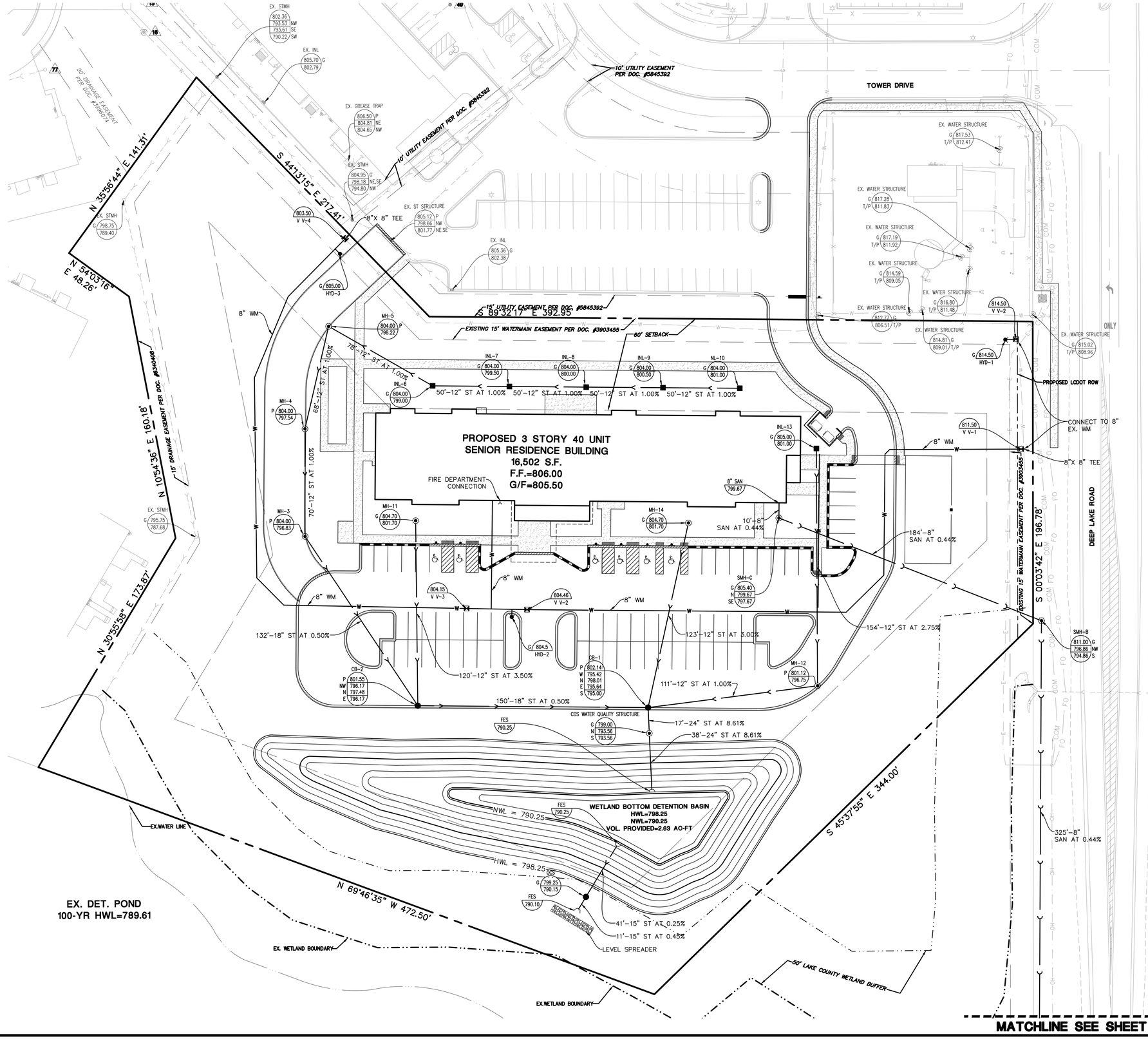
GRADING PLAN

PROJ. MGR.:	MDE
PROJ. ASSOC.:	MJC
DRAWN BY:	SB
DATE:	02-06-23
SCALE:	1"=30'

SHEET 4 OF 7

LAC.LVIL01

PRELIMINARY PLANS- NOT FOR CONSTRUCTION



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SCALE: 1"=30'

06-01-22

UTILITY NOTES:

1. ALL UTILITY DIMENSIONS ARE TO CENTER OF PIPE OR CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
2. BUILDING DIMENSIONS AND ADJACENT UTILITY LAYOUT HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL CONTACT J.U.L.I.E. (1-800-892-0123) PRIOR TO ANY WORK TO LOCATE UTILITIES AND SHALL CONTACT THE OWNER SHOULD UTILITIES APPEAR TO BE IN CONFLICT WITH THE PROPOSED IMPROVEMENT.
4. ROUTING OF GAS, ELECTRIC AND TELEPHONE SERVICES IF SHOWN ARE APPROXIMATE ONLY AND SUBJECT TO CHANGE BASED UPON FINAL REVIEW AND APPROVAL BY RESPECTIVE UTILITY COMPANIES AND OWNER. CONTRACTOR SHALL CONTACT EACH UTILITY COMPANY AND COORDINATE FINAL LOCATIONS FOR ALL UTILITY SERVICES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL EXCAVATE AND VERIFY ALL EXISTING SEWER, WATER MAIN AND DRY UTILITY LOCATIONS, SIZES, CONDITIONS & ELEVATIONS AT PROPOSED POINTS OF CONNECTION AND CROSSINGS PRIOR TO ANY UNDERGROUND CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES OR CONFLICTS.
6. LIGHTING AND UNDERGROUND CABLE IF SHOWN ON PLANS ARE FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS AND DETAILS.
7. THE CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF ALL EXISTING STRUCTURES TO PROPOSED FINISH GRADES.
8. CONTRACTOR TO VERIFY LOCATION, SIZES, AND ELEVATION OF ALL BUILDING SERVICE LOCATIONS WITH ARCHITECTURAL PLANS.
9. AT LOCATIONS WHERE WATER MAIN CROSSES BENEATH OR LESS THAN 18" ABOVE A SEWER, PROVIDE WATER MAIN PROTECTION PER STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.
10. ELEVATIONS GIVEN FOR STORM SEWER STRUCTURES LOCATED IN CURB LINE ARE PAVEMENT ELEVATIONS.
11. ALL WATER MAIN SHALL BE 5'-6" BELOW FINISHED GRADE TO TOP OF MAINS UNLESS NOTED OTHERWISE.
12. ALL EXISTING UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT ELEVATION OR LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES.
13. THE UNDERGROUND UTILITY INFORMATION AS SHOWN HERE ON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED.
14. ALL SANITARY AND STORM SEWER LENGTHS SHOWN ARE CENTER OF MANHOLE TO CENTER OF MANHOLE OR STORM MANHOLE TO FES.
15. PROVIDE CONCRETE COLLAR FOR ALL DRAINAGE STRUCTURES IN PAVEMENT, NOT ADJACENT TO CURB. SEE CONCRETE COLLAR DETAIL ON DETAIL SHEET.
16. CONTRACTOR SHALL CORE AND BOOT ALL PIPE ENTRANCES TO EXISTING SANITARY MANHOLES.
17. EXTERNAL CHIMNEY SEALS ARE REQUIRED ON PROPOSED AND ADJUSTED EXISTING SANITARY MANHOLES.
18. SOME EXISTING ITEMS TO BE REMOVED HAVE BEEN DELETED FROM THIS PLAN FOR CLARITY. SEE DEMOLITION PLAN FOR ITEMS DELETED.
19. ALL D.I. WATERMAIN PIPE AND D.I. WATERMAIN FITTINGS SHALL BE WRAPPED.

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LAKE VILLA, ILLINOIS
UTILITY PLAN- NORTH

PROJ MGR.: MDE
PROJ ASSOC.: MJC
DRAWN BY: SB
DATE: 02-06-23
SCALE: 1"=30'

SHEET 5 OF 7
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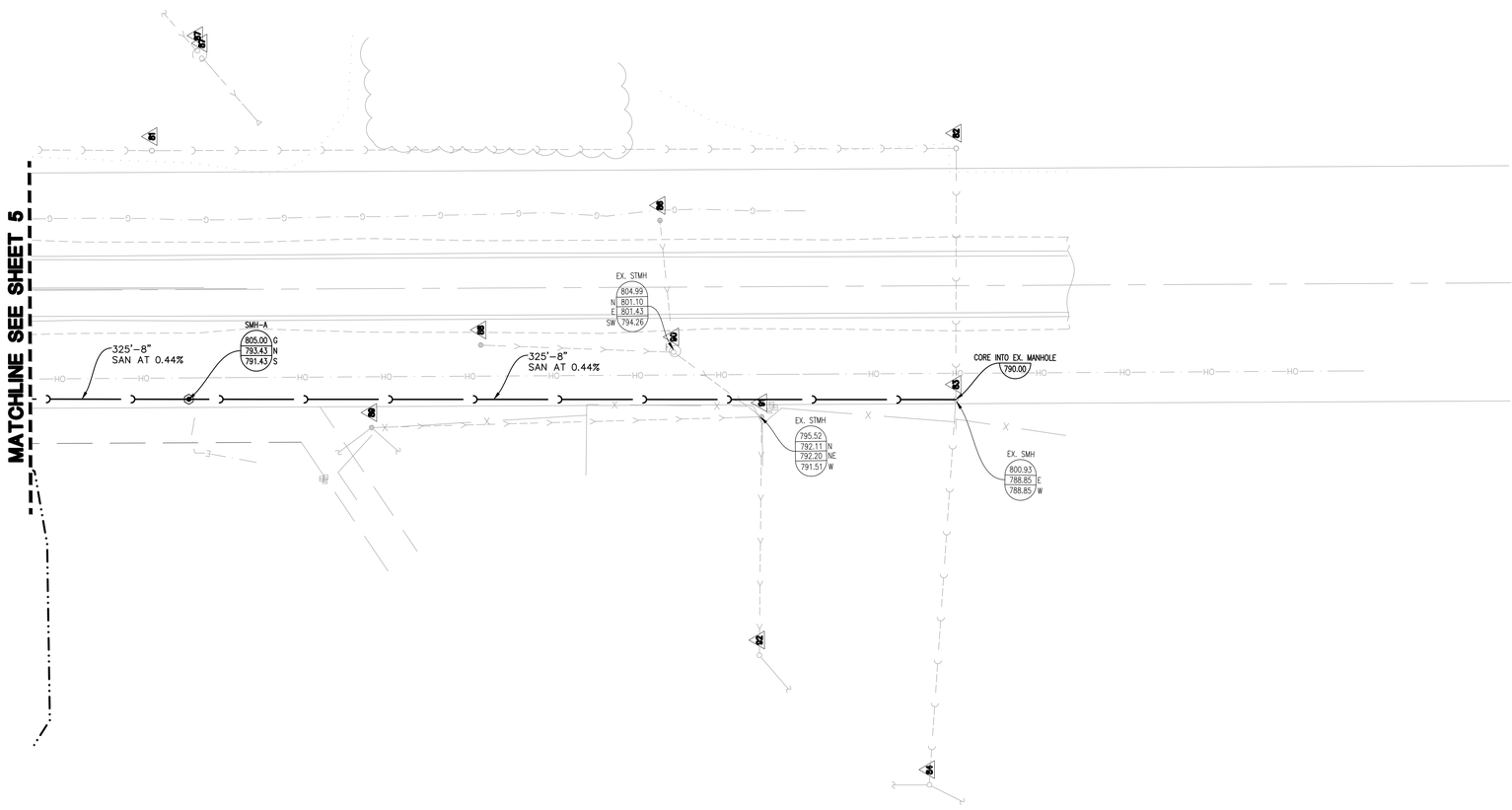
PRELIMINARY PLANS- NOT FOR CONSTRUCTION

February 6, 2023 - 10:32 Dwg Name: P:\Projects\Vlla\Civil\Preliminary\Plan Set\Plan Set\05-06 UTILITY.dwg Updated By: Sday



0 15 30 60

SCALE: 1"=30'

04-01-22

UTILITY NOTES:

1. ALL UTILITY DIMENSIONS ARE TO CENTER OF PIPE OR CENTER OF STRUCTURE UNLESS OTHERWISE NOTED.
2. BUILDING DIMENSIONS AND ADJACENT UTILITY LAYOUT HAVE BEEN PREPARED BASED UPON ARCHITECTURAL INFORMATION CURRENT AT THE DATE OF THIS DRAWING. SUBSEQUENT ARCHITECTURAL CHANGES MAY EXIST. THEREFORE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR PRECISE BUILDING DIMENSIONS AND EXACT UTILITY ENTRANCE LOCATIONS AND NOTIFY THE ARCHITECT AND ENGINEER OF ANY DISCREPANCIES PRIOR TO CONSTRUCTION.
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5. CONTRACTOR SHALL EXCAVATE AND VERIFY ALL EXISTING SEWER, WATER MAIN AND DRY UTILITY LOCATIONS, SIZES, CONDITIONS & ELEVATIONS AT PROPOSED POINTS OF CONNECTION AND CROSSINGS PRIOR TO ANY UNDERGROUND CONSTRUCTION AND NOTIFY THE OWNER OF ANY DISCREPANCIES OR CONFLICTS.
6. LIGHTING AND UNDERGROUND CABLE IF SHOWN ON PLANS ARE FOR APPROXIMATE LOCATION ONLY. REFER TO ARCHITECTURAL PLANS FOR SPECIFICATIONS AND DETAILS.
7. THE CONTRACTOR SHALL ADJUST RIM ELEVATIONS OF ALL EXISTING STRUCTURES TO PROPOSED FINISH GRADES.
8. CONTRACTOR TO VERIFY LOCATION, SIZES, AND ELEVATION OF ALL BUILDING SERVICE LOCATIONS WITH ARCHITECTURAL PLANS.
9. AT LOCATIONS WHERE WATER MAIN CROSSES BENEATH OR LESS THAN 18" ABOVE A SEWER, PROVIDE WATER MAIN PROTECTION PER STANDARD SPECIFICATIONS FOR SEWER AND WATER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.
10. ELEVATIONS GIVEN FOR STORM SEWER STRUCTURES LOCATED IN CURB LINE ARE PAVEMENT ELEVATIONS.
11. ALL WATER MAIN SHALL BE 5'-6" BELOW FINISHED GRADE TO TOP OF MAINS UNLESS NOTED OTHERWISE.
12. ALL EXISTING UTILITIES SHOWN ARE NOT TO BE INTERPRETED AS THE EXACT ELEVATION OR LOCATION, OR AS THE ONLY OBSTACLES THAT MAY OCCUR ON THE SITE. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AND PROCEED WITH CAUTION AROUND ANY ANTICIPATED FEATURES.
13. THE UNDERGROUND UTILITY INFORMATION AS SHOWN HERE ON IS BASED, IN PART, UPON INFORMATION FURNISHED BY UTILITY COMPANIES AND THE LOCAL MUNICIPALITY. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, ITS ACCURACY AND COMPLETENESS CANNOT BE GUARANTEED NOR CERTIFIED.
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15. PROVIDE CONCRETE COLLAR FOR ALL DRAINAGE STRUCTURES IN PAVEMENT, NOT ADJACENT TO CURB. SEE CONCRETE COLLAR DETAIL ON DETAIL SHEET.
16. CONTRACTOR SHALL CORE AND BOOT ALL PIPE ENTRANCES TO EXISTING SANITARY MANHOLES.
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18. SOME EXISTING ITEMS TO BE REMOVED HAVE BEEN DELETED FROM THIS PLAN FOR CLARITY. SEE DEMOLITION PLAN FOR ITEMS DELETED.
19. ALL D.I. WATERMAIN PIPE AND D.I. WATERMAIN FITTINGS SHALL BE WRAPPED.

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LAKE VILLA, ILLINOIS

UTILITY PLAN- SOUTH

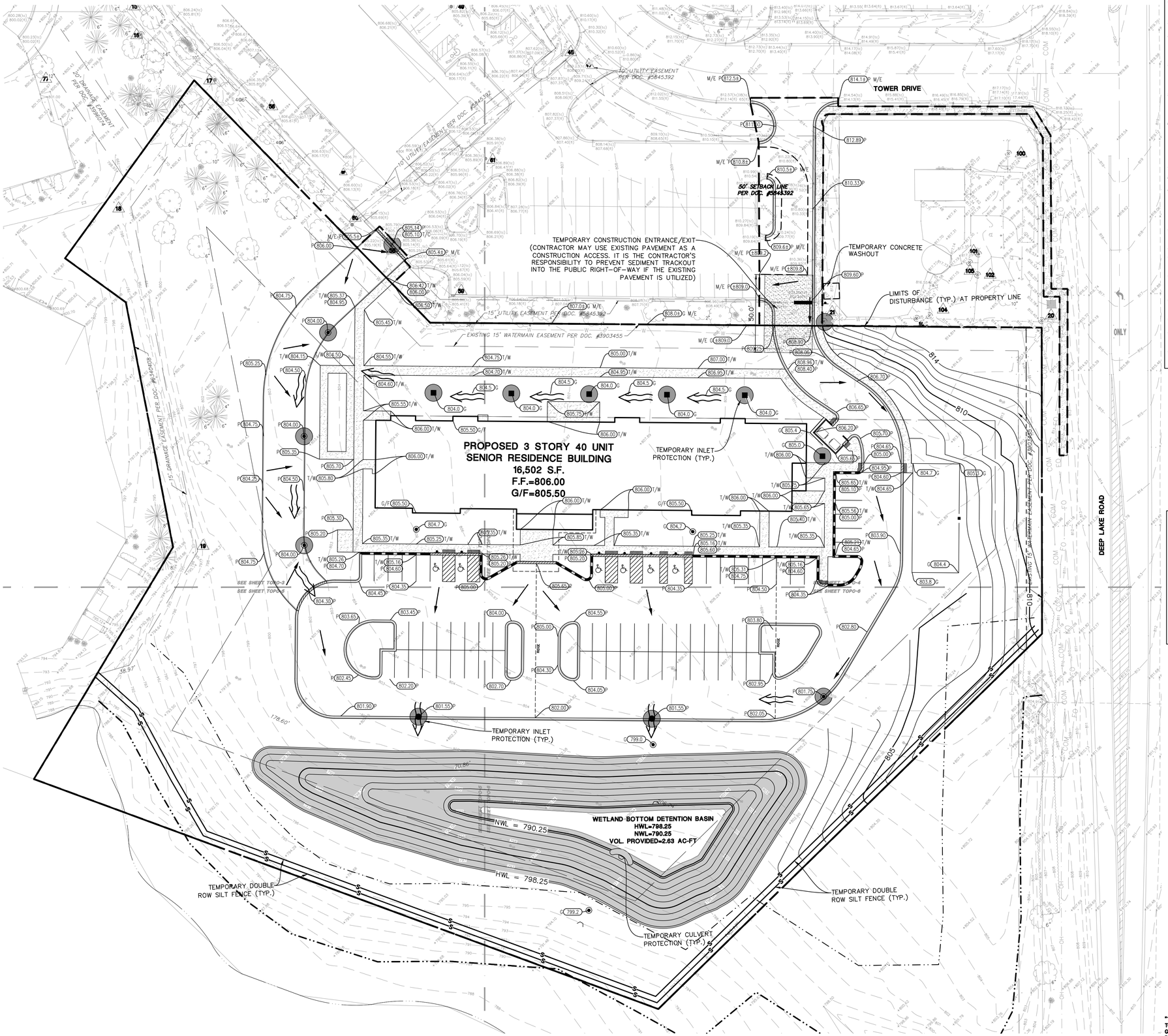
PROJ MGR.: MDE
PROJ ASSOC.: MJC
DRAWN BY: SB
DATE: 02-06-23
SCALE: 1"=30'

SHEET 6 OF 7

LAC.LVIL01

PRELIMINARY PLANS- NOT FOR CONSTRUCTION

February 6, 2023 - 10:32 Data Name: P:\Locals01\Lac\Eng\Preliminary\Plan Set\Plan Set\05-06 UTILITY.dwg Updated By: Sday



SOIL EROSION AND SEDIMENTATION CONTROL GENERAL NOTES:

1. ALL VEGETATIVE AND STRUCTURAL EROSION CONTROL PRACTICES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MINIMUM STANDARDS AND SPECIFICATIONS OF THE "ILLINOIS URBAN MANUAL".
2. MAINTENANCE AND REPLACEMENT OF EROSION CONTROL ITEMS, WHEN DIRECTED BY THE OWNER, SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT.
3. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES AT LEAST ONCE EVERY SEVEN (7) CALENDAR DAYS AND WITHIN 24 HOURS OF THE END OF A STORM THAT IS 0.5 INCHES OR GREATER OR EQUIVALENT SNOWFALL. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF SAID MEASURES SHALL BE MADE IMMEDIATELY.
4. INSTALL ALL PERIMETER SILT FENCING PRIOR TO ANY CLEARING OR GRADING. ONSITE SEDIMENT CONTROL MEASURES AS SHOWN AND SPECIFIED BY THIS EROSION AND SEDIMENTATION CONTROL PLAN SHALL BE CONSTRUCTED AND FUNCTIONAL PRIOR TO INITIATING CLEARING, GRADING, STRIPPING, EXCAVATION OR FILLING ACTIVITIES ON THE SITE.
5. STORM WATERS FALLING ON THE ENTIRE SITE SHALL BE DIVERTED INTO THE DETENTION BASIN, PRIOR TO BEGINNING MASS EXCAVATION, THE CONTRACTOR SHALL CONSTRUCT SILTATION CONTROL MEASURES AS REQUIRED TO INTERCEPT SURFACE WATERS BEFORE THEY FLOW ONTO ADJACENT PROPERTY AND CONVEY THEM TO THE DETENTION BASIN.
6. STABILIZATION OF DISTURBED AREAS MUST BE INITIATED IMMEDIATELY WHENEVER ANY CLEARING, GRADING, EXCAVATING OR OTHER EARTH DISTURBING ACTIVITIES HAVE PERMANENTLY CEASED ON ANY PORTION OF THE SITE, OR TEMPORARILY CEASED ON ANY PORTION OF THE SITE AND WILL NOT RESUME FOR A PERIOD EXCEEDING 14 CALENDAR DAYS. STABILIZATION OF DISTURBED AREAS MUST BE INITIATED WITHIN 1 WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE BUT NOT LATER THAN 14 DAYS FROM THE INITIATION OF STABILIZATION WORK IN AN AREA.
7. TEMPORARY SEED MIXTURE SHALL BE APPLIED AT 64 LBS/ACRE.
8. INLET PROTECTION SHALL BE INSTALLED UNDER THE GRATING OF EACH DRAINAGE STRUCTURE.
9. STABILIZATION OF TOPSOIL STOCKPILES SHALL BE INITIATED IMMEDIATLEY UPON COMPLETION UNLESS THEY WILL BE DISTURBED WITHIN FOURTEEN (14) CALENDAR DAYS. STABILIZATION OF STOCKPILES MUST BE INITIATED WITHIN 1 WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE BUT NOT LATER THAN 14 DAYS FROM THE INITIATION OF STABILIZATION WORK IN AN AREA. ALL SOIL STORAGE PILES SHALL BE PROTECTED FROM EROSION WITH SILT FENCE ON THE DOWN SLOPE SIDE OF THE PILES.
10. DURING DEWATERING OPERATIONS, WATER WILL BE PUMPED INTO SEDIMENT BASINS OR SILT TRAPS. DEWATERING DIRECTLY INTO FIELD TILES OR STORMWATER STRUCTURES IS PROHIBITED.
11. WATER PUMPED DURING CONSTRUCTION OPERATION SHALL BE FILTERED.
12. DUST CONTROL SHALL BE PERFORMED ON A DAILY BASIS USING WATER DISPERSED FROM A TRUCK MOUNTED TANK WITH STANDARD DISCHARGE HEADER TO PROVIDE A UNIFORM RATE OF APPLICATION.
13. TEMPORARY GRAVEL CONSTRUCTION ENTRANCES SHALL BE MAINTAINED, ADJUSTED OR RELOCATED AS NECESSARY TO PREVENT SEDIMENT FROM BEING TRACKED ONTO PUBLIC ROADWAYS. ANY SEDIMENT REACHING A PUBLIC ROAD SHALL BE REMOVED BY SHOVELING OR STREET CLEANING BEFORE THE END OF EACH WORKING DAY.
14. ANY LOOSE MATERIAL THAT IS DEPOSITED IN THE FLOW LINE OF ANY GUTTER OR DRAINAGE STRUCTURE DURING CONSTRUCTION OPERATIONS SHALL BE REMOVED AT THE CLOSE OF EACH WORKING DAY.
15. OVERLAND FLOW SHALL BE DIRECTED TO THE DETENTION BASIN PRIOR TO LEAVING THE SITE.
16. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE CLIENT OR OTHER JURISDICTIONAL GOVERNMENTAL ENTITIES.
17. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE REMOVED AND DISPOSED OF IN ACCORDANCE WITH ALL JURISDICTIONAL GOVERNMENTAL AGENCY REQUIREMENTS WITHIN 30 DAYS OF FINAL STABILIZATION.

SOIL PROTECTION CHART

STABILIZATION CHART	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDINGS	A											
DORMANT SEEDINGS	B									B		
TEMPORARY SEEDINGS	C										C	
TEMPORARY SEEDINGS	D											
SODDING	E											
MULCHING	F											

A – KENTUCKY BLUEGRASS 135 LBS./AC. MIXED WITH PERENNIAL RYEGRASS, 50 LBS./AC.

B – KENTUCKY BLUEGRASS 135 LBS./AC. MIXED WITH PERENNIAL RYEGRASS 45 LBS./AC., 2 TONS STRAW MULCH PER ACRE

C – SPRING OATS

D – WHEAT OR CEREAL RYE

E – SOD (NURSERY GROWN KENTUCKY BLUEGRASS)

F – STRAW MULCH 2 TONS PER ACRE

* IRRIGATION NEEDED DURING JULY AND SEPTEMBER

** IRRIGATION NEEDED FOR 2-3 WEEKS AFTER SODDING

NOTE: THIS CHART IS A GUIDE TO ASSISTS THE CONTRACTOR IN UNDERSTANDING OPTIONS FOR SOIL STABILIZATION. THE LANDSCAPE PLAN SHALL TAKE PRECEDENCE OVER THIS CHART. ANY CONFLICT SHALL BE DISCUSSED WITH THE LANDSCAPE ARCHITECT PRIOR TO THE START OF CONSTRUCTION.

LEGEND

- TEMPORARY SILT FENCE (PERIMETER EROSION BARRIER)
- EROSION CONTROL BLANKET (NORTH AMERICAN GREEN DS 75) (SEEDING PER LANDSCAPE PLAN)
- TEMPORARY GRAVEL CONSTRUCTION ENTRANCE
- TEMPORARY STORM STRUCTURE PROTECTION
- TEMPORARY CULVERT INLET PROTECTION
- TEMPORARY PERFORATED RISER
- PAVEMENT DRAINAGE FLOW
- LIMITS OF DISTURBANCE/CONSTRUCTION

CONSTRUCTION SEQUENCE:

1. INSTALL SILT FENCE AT LOCATIONS AS INDICATED ON THE PLANS.
2. PROVIDE STABILIZED CONSTRUCTION ENTRANCE.
3. CONSTRUCT TEMPORARY SEDIMENT TRAPS AND/OR BASINS.
4. STRIP EXISTING TOPSOIL FROM PROPOSED LIMITS OF DISTURBANCE AND STOCKPILE WHERE SHOWN ON PLANS.
5. PROVIDE SILT FENCE AROUND THE BASE OF THE STOCKPILES.
6. CONSTRUCT STORMWATER MANAGEMENT (DETENTION) FACILITIES TO SUB-GRADE AND INSTALL OUTLET PIPES.
7. COMPLETE TOPSOIL PLACEMENT AND PERMANENT SEEDING AND SODDING OF STORMWATER MANAGEMENT FACILITIES.
8. CUT AND FILL SITE TO PLAN SUB-GRADE.
9. CONSTRUCT UNDERGROUND IMPROVEMENTS, i.e. SANITARY SEWER WATERMAIN AND STORM SEWER**, ETC.
10. CONSTRUCT PAVEMENT IMPROVEMENTS PER PLAN.
11. COMPLETE CONSTRUCTION OF SITE WITH PERMANENT STABILIZATION.
12. REMOVE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES.

** INSTALL INLET PROTECTION AROUND DRAINAGE STRUCTURES AS CONSTRUCTED.

IDNR CONSULTATION #1911930

BLANDING'S TURTLE

- BLANDING'S TURTLES LEAVE WATERBODIES TO NEST IN NEARBY UPLAND AREAS. TO AVOID POTENTIAL IMPACTS TO BLANDING'S TURTLES AND THEIR NESTS, THE DEPARTMENT RECOMMENDS NO GROUND DISTURBANCE ACTIVITIES BE INITIATED BETWEEN MAY 1ST AND SEPTEMBER 30TH TO AVOID TAKING ANY NESTS THAT MAY OCCUR IN THE PROJECT AREA.
- THE DEPARTMENT RECOMMENDS EXCLUSIONARY SILT FENCING BE INSTALLED AROUND THE WORK AREA DURING CONSTRUCTION (TRENCHED INTO THE GROUND) AND INSPECTED DAILY FOR BLANDING'S TURTLES AND OTHER WILDLIFE. SILT FENCE SHOULD BE STRICTLY MAINTAINED ALL YEAR DURING CONSTRUCTION IN THIS PROJECT LOCATION. EXCAVATIONS SHOULD BE INSPECTED DAILY FOR TRAPPED WILDLIFE AND SAFELY COVERED OVERNIGHT. SOIL STOCKPILES OR OTHER POTENTIAL TURTLE NESTING MEDIUM SHOULD ALSO HAVE EXCLUSIONARY FENCING INSTALLED AROUND THE PERIMETER TO DISCOURAGE TURTLE NESTING AND POTENTIAL HARM.
- THE DEPARTMENT RECOMMENDS ALL ON-SITE PERSONNEL BE EDUCATED ABOUT THIS SPECIES AND BE INSTRUCTED TO CONTACT THE DEPARTMENT IMMEDIATELY IF THEY ARE ENCOUNTERED IN THE PROJECT AREA. FLIERS WITH PHOTOS OF ADULT AND JUVENILE BLANDING'S TURTLES, AND LIFE-HISTORY INFORMATION, SHOULD BE DISTRIBUTED TO PERSONNEL. THE FLIER SHOULD ALSO CONTAIN CONTACT INFORMATION FOR THE DEPARTMENT (CONSULTATION SECTION, 217-785-5500). BE ADVISED, STATE-LISTED SPECIES MAY NOT BE HANDLED WITHOUT APPROPRIATE PERMITS PURSUANT TO THE ILLINOIS ENDANGERED SPECIES PROTECTION ACT.
- AFTER CONSTRUCTION, THE DEPARTMENT RECOMMENDS FENCING BE INSTALLED IN SUCH A MANNER AS TO EXCLUDE TURTLES, INCLUDING HATCHLINGS, FROM ENTERING THE RETAIL AREA WHERE THEY CAN BE HARMED BY VEHICLE TRAFFIC AND MOWING ACTIVITIES. THIS CAN BE ACCOMPLISHED BY BURYING FENCING A MINIMUM OF 6 INCHES IN THE GROUND AND COVERING THE BOTTOM 2-3 FEET OF FENCING WITH GALVANIZED WIRE MESH OF AN APPROPRIATE DIAMETER TO PREVENT HATCHLING TURTLES FROM ACCESSING THE SITE. THIS FENCE IS MOST NECESSARY ON THE SOUTH AND EAST BOUNDARIES OF THE PROJECT AREA.

STATE-LISTED MIGRATORY WETLAND BIRD SPECIES

GIVEN THE CURRENT HABITAT TYPE AND PROXIMITY OF THE PROJECT TO THE WETLAND, IT IS POSSIBLE THAT STATE-LISTED WETLAND BIRDS AND OTHER MIGRATORY BIRD SPECIES US THE PROJECT ARE FOR NESTING. TO AVOID HARM TO THESE SPECIES AND POTENTIAL VIOLATIONS OF THE ILLINOIS ENDANGERED SPECIES PROTECTION ACT, THE DEPARTMENT RECOMMENDS:

- NO INITIAL VEGETATION CLEARING, AND GROUND DISTURBANCE ACTIVITIES OCCUR DURING THE NESTING PERIOD OF STATE-LISTED MIGRATORY WETLAND BIRD SPECIES, FROM MAY 1ST THROUGH SEPTEMBER 30TH. THIS ALSO REFLECTS THE SUGGESTED TURTLE NESTING DATES.
- ALL OUTDOOR LIGHTING SHOULD BE DOWNWARD-POINTING, TO AVOID IMPACTS TO THE NOCTURNAL HUNTING AND NAVIGATION OF STATE-LISTED MIGRATORY WETLAND BIRD SPECIES.

NATURAL AREAS

TO AVOID AND MINIMIZE IMPACTS TO THE ADJACENT WETLAND AND NATURAL AREAS IN THE VICINITY, THE DEPARTMENT RECOMMENDS:

- STRICTLY FOLLOW BMPS FOR SEDIMENT AND EROSION CONTROL AND STORMWATER MANAGEMENT ON THE RETAIL PROPERTY. THE DEVELOPER SHOULD CONSIDER INSTALLING PERVIOUS SURFACES AND RAIN GARDENS OR BIOSWALES PLANTED WITH NATIVE VEGETATION TO MANAGE STORMWATER AND IMPROVE WATER QUALITY AND AVOID IMPACTS TO THE ADJACENT WETLANDS.
- THE RETAIL FACILITY IMPLEMENTS A 'REFUSE MANAGEMENT PLAN' TO HELP PREVENT REFUSE FROM ENTERING ADJACENT NATURAL AREAS. THIS SHOULD INCLUDE ROUTINE LITTLER PICK-UP ON THE PROPERTY AND ADEQUATE REFUSE CONTAINERS ON THE PROPERTY. THE BOUNDARY FENCING MENTIONED FOR TURTLES WILL ALSO HELP WITH REFUSE MANAGEMENT.

"THESE EROSION CONTROL PLANS ARE A PORTION OF THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY (IEPA) TOTAL REQUIREMENTS FOR A COMPLETE STORMWATER POLLUTION PREVENTION PLAN (SWPPP) AS REQUIRED BY THE GENERAL NPDES PERMIT NO. ILR10. CLIENT AND/OR CONTRACTOR WILL BE RESPONSIBLE FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE GENERAL NPDES PERMIT AND COMPILATION OF THE COMPLETE SWPPP."

REVISIONS	DATE	DRAWN BY

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ph:312.804.3801 fx:847.634.0095 manhard.com
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STARLING SENIOR APARTMENTS

LAKE VILLA, ILLINOIS

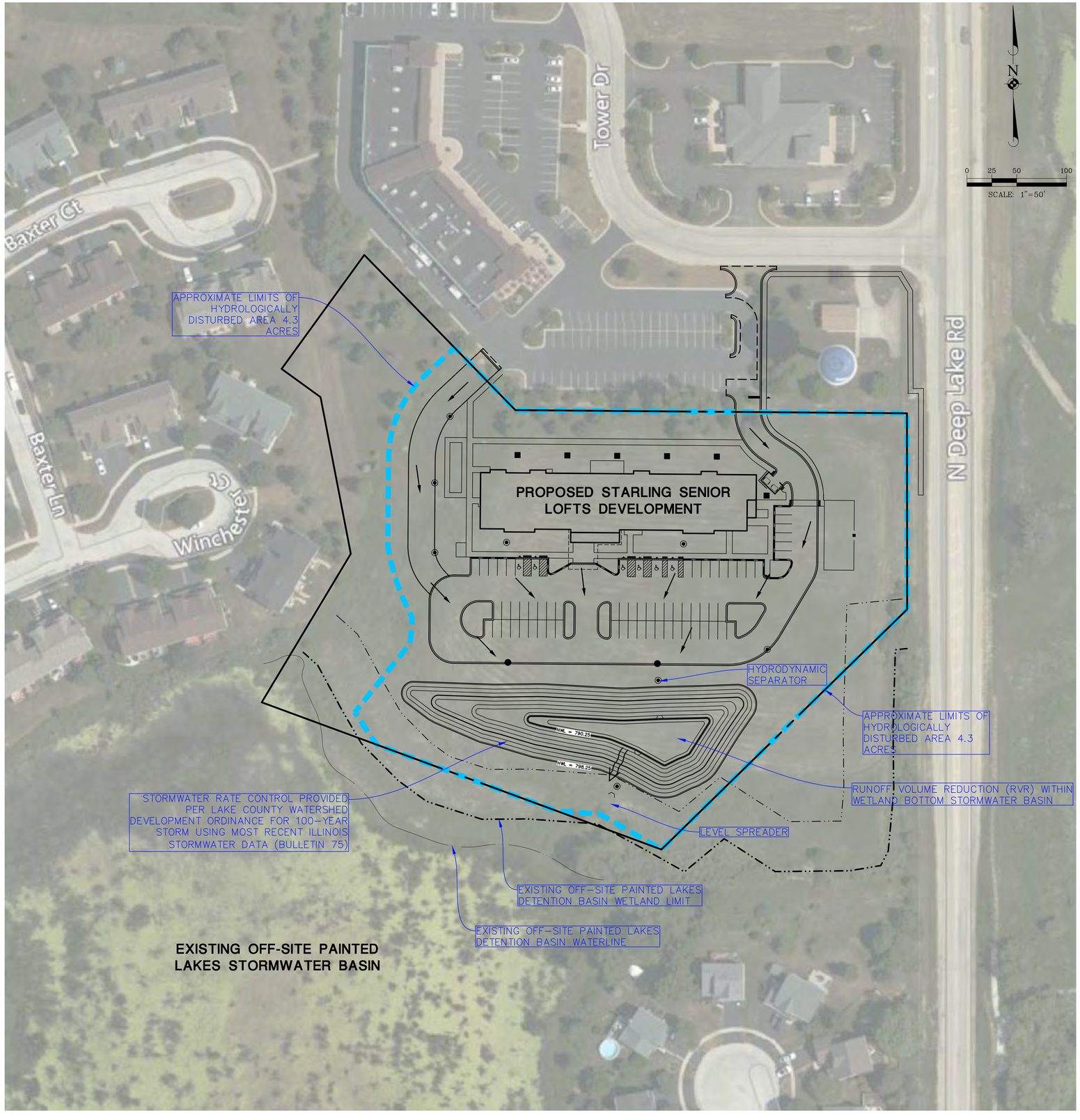
SOIL EROSION AND SEDIMENT CONTROL PLAN

PRELIMINARY PLANS- NOT FOR CONSTRUCTION

PROJ. MGR.:	MDE
PROJ. ASSOC.:	MJC
DRAWN BY:	SB
DATE:	02-06-23
SCALE:	1"=30'

SHEET 7 OF 7

LAC.LVIL01



FLOW REDUCTION TO EXISTING OFF-SITE PAINTED LAKES SUBDIVISION STORMWATER BASIN

AS PART OF THE LAKE VILLA MUNICIPAL CODE AND LAKE COUNTY WATERSHED DEVELOPMENT ORDINANCE, PROPOSED REGULATED DEVELOPMENT MUST BE REDUCED TO A MAXIMUM RELEASE OF 0.15 CUBIC FEET PER SECOND (CFS) FOR EVERY ACRE OF HYDROLOGICALLY DISTURBED AREA IN A 100-YEAR STORMWATER EVENT

BASED ON THE CURRENT DEVELOPMENT PLAN:

APPROX. 100-YEAR FLOW RATE FROM HYDROLOGICALLY DISTURBED STARLING LOFTS SITE AREA PRIOR TO DEVELOPMENT:	33.5 CFS
APPROX. 100-YEAR FLOW RATE FROM HYDROLOGICALLY DISTURBED STARLING LOFTS SITE AFTER DEVELOPMENT:	0.65 CFS
FLOW REDUCTION TO EXISTING OFF-SITE PAINTED LAKES BASIN	>80% REDUCTION

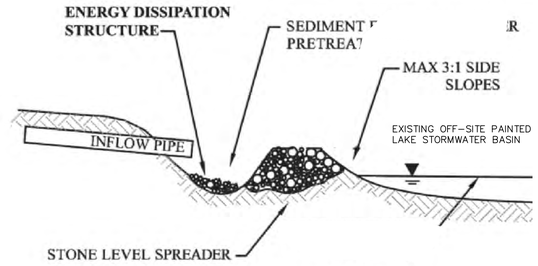
WATER QUALITY AND RUNOFF VOLUME REDUCTION (RVR)

AS PART OF THE LAKE VILLA MUNICIPAL CODE AND LAKE COUNTY WATERSHED DEVELOPMENT ORDINANCE, PROPOSED REGULATED DEVELOPMENT MUST PROVIDE STRATEGIES TO MINIMIZE STORMWATER RUNOFF VOLUMES AND ADDRESS WATER QUALITY IMPAIRMENTS BY INCORPORATED STORMWATER INFILTRATION, EVAPOTRANSPIRATION, REUSE, OR OTHER METHODS.
BASED ON THE CURRENT DEVELOPMENT PLAN:

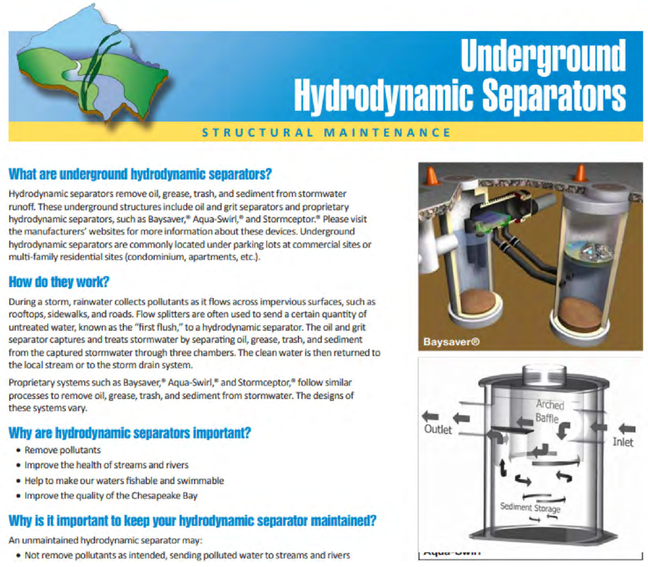
REQUIRED RUNOFF VOLUME REDUCTION	2,400 CUBIC FEET
PROVIDED RUNOFF VOLUME REDUCTION	3,900 CUBIC FEET
	160% OF REQUIREMENT

IN ADDITION TO PROVIDING GREATER RUNOFF VOLUME REDUCTION THAN REQUIRED BY CODE, THE SITE WILL PROVIDE A HYDRODYNAMIC SEPARATOR TO PROVIDE ADDITIONAL FILTRATION OF PARTICULATES PRIOR TO RELEASING STORMWATER INTO THE EXISTING OFF-SITE PAINTED LAKES STORMWATER BASIN.

A LEVEL SPREADER WILL BE PROVIDED AT THE OUTLET OF THE STORMWATER BASIN TO CONVERT CONCENTRATED FLARED END SECTION FLOW TO SHEET RUNOFF.



CONCEPT LEVEL SPREADER SCHEMATIC



HYDRODYNAMIC SEPARATOR INFORMAITON (COURTESY OF MONTGOMERY COUNTY DEP)

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STARLING SENIOR LOFTS
VILLAGE OF LAKE VILLA, ILLINOIS
STORMWATER BROCHURE

PROJ. MGR.: MDE
PROJ. ASSOC.: SB
DRAWN BY: MDE
DATE: 02-06-23
SCALE: AS SHOWN

SHEET 1 OF 1
LAC.LVIL01

PRELIMINARY - NOT FOR CONSTRUCTION

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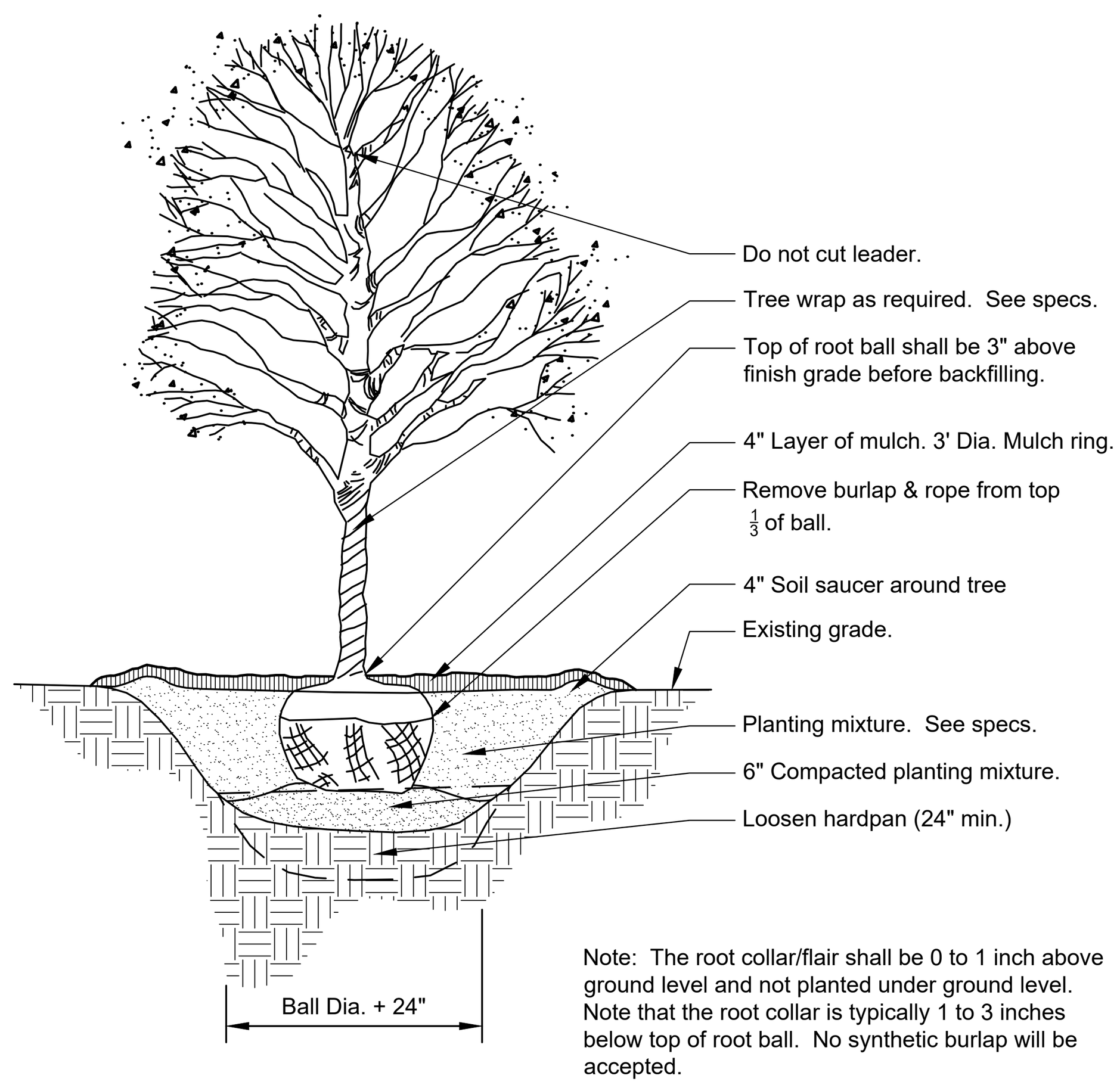
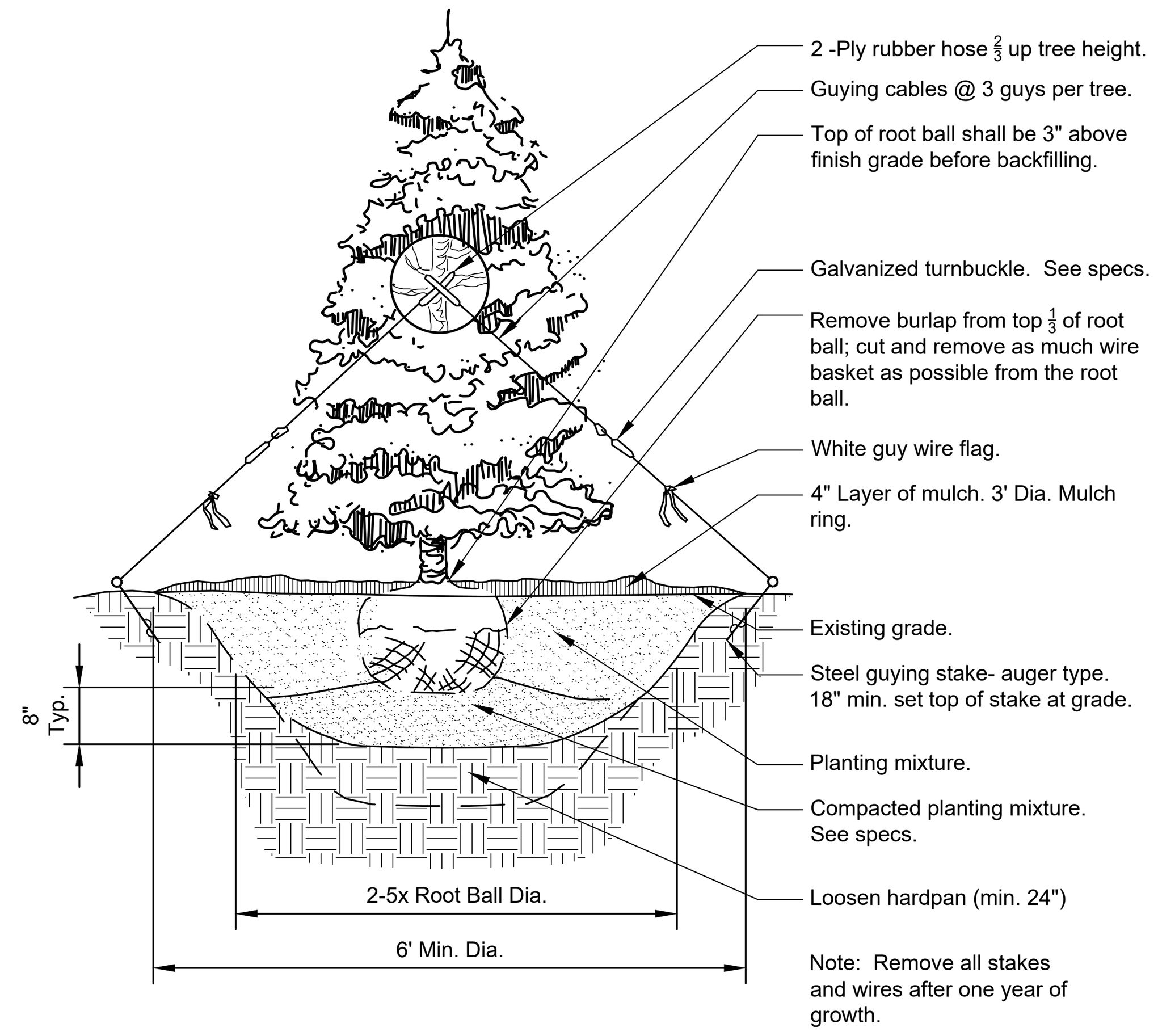


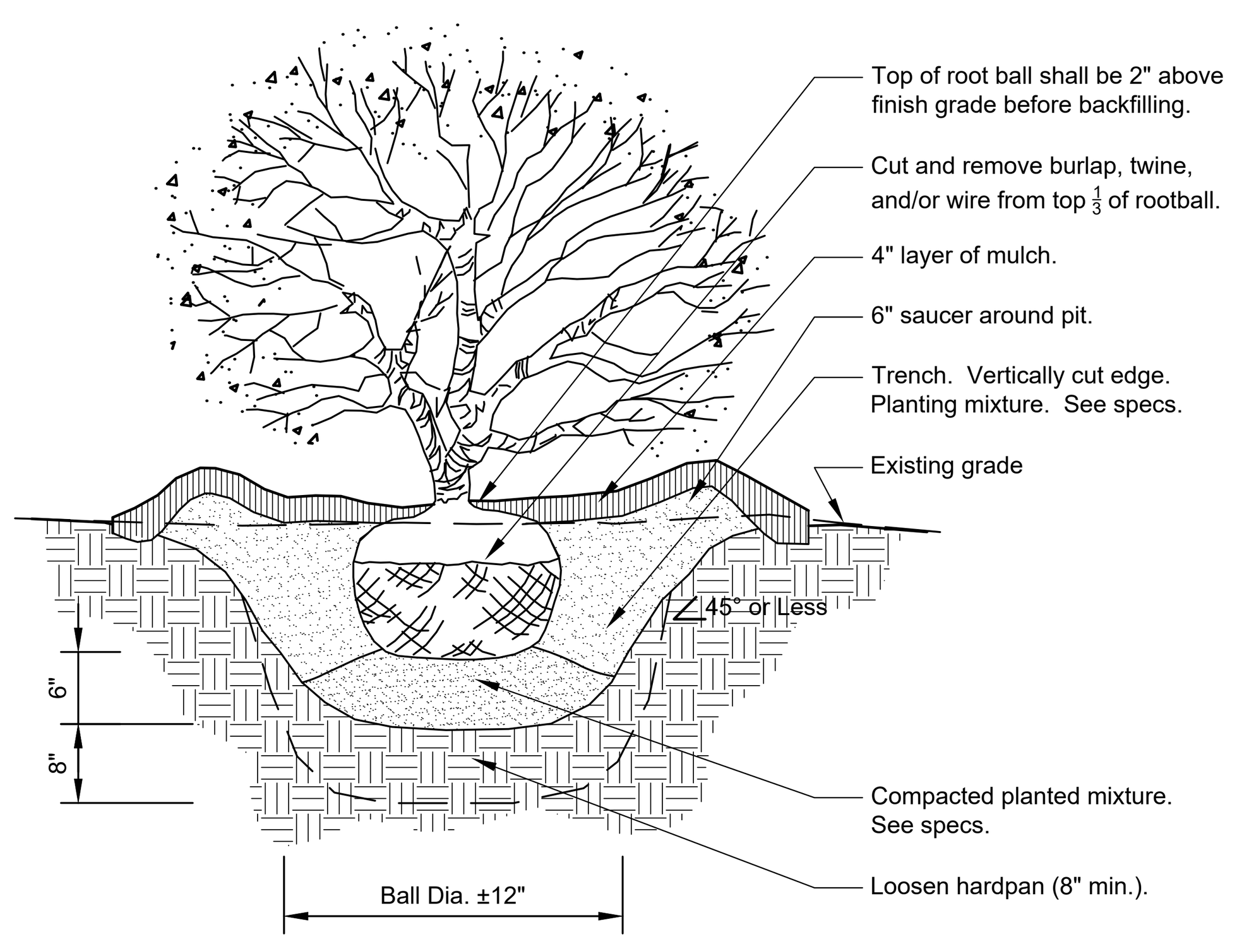
1 DECIDUOUS TREE PLANTING

1/4" = 1'-0" 32 9343.33-20



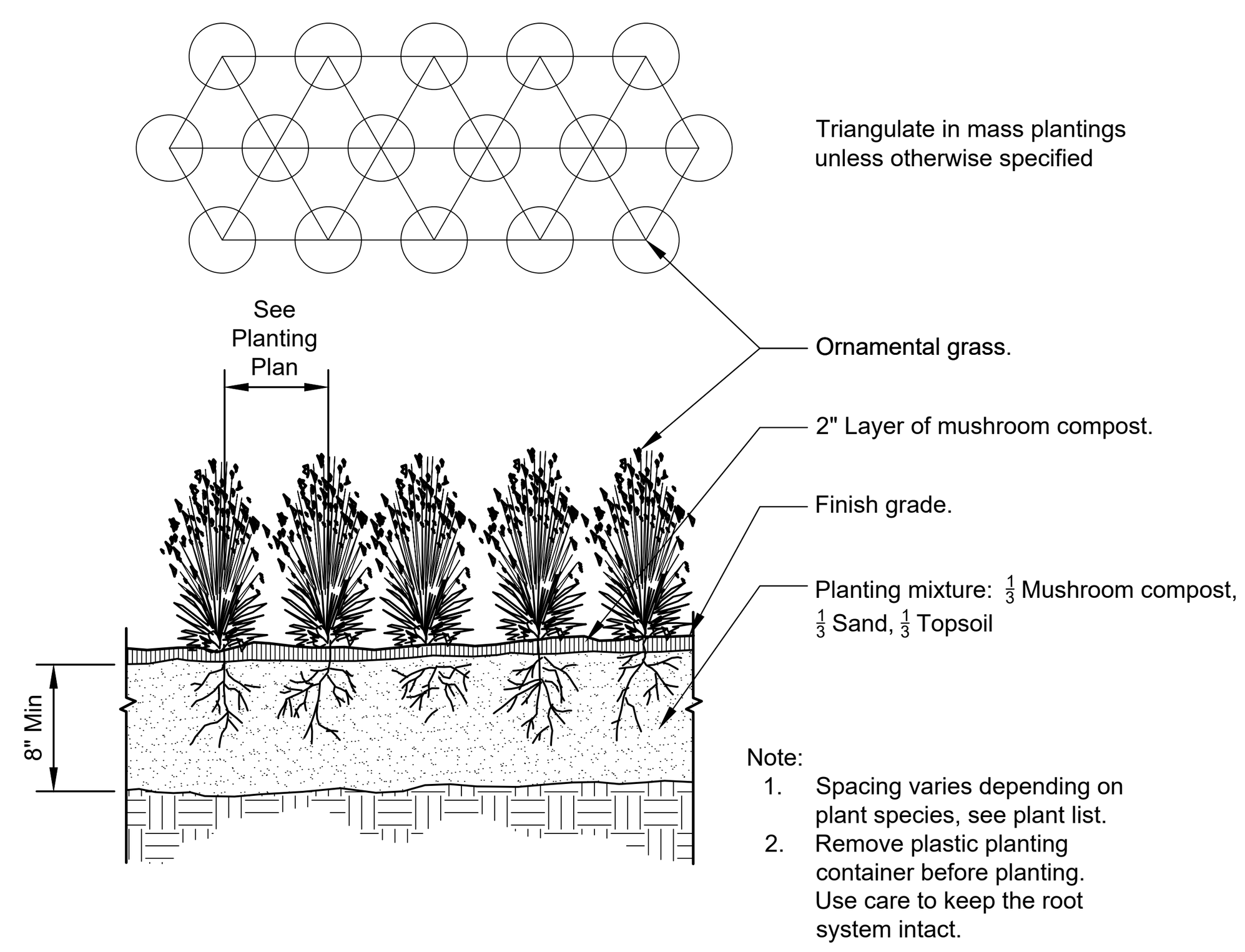
2 CONIFER TREE PLANTING

1/4" = 1'-0" 32 9343.46-01



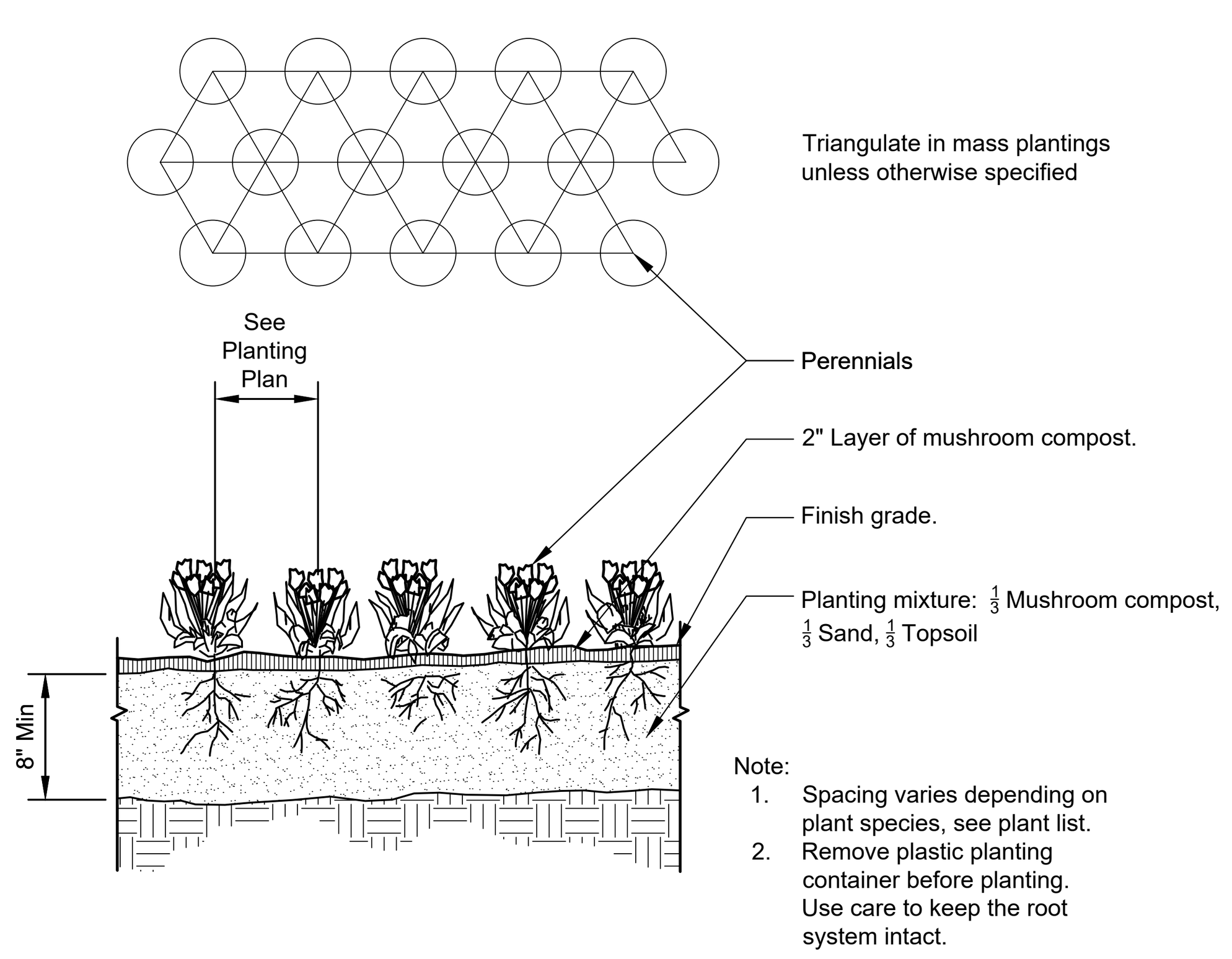
3 SHRUB PLANTING DETAIL

3/4" = 1'-0" 32 9333.16-05



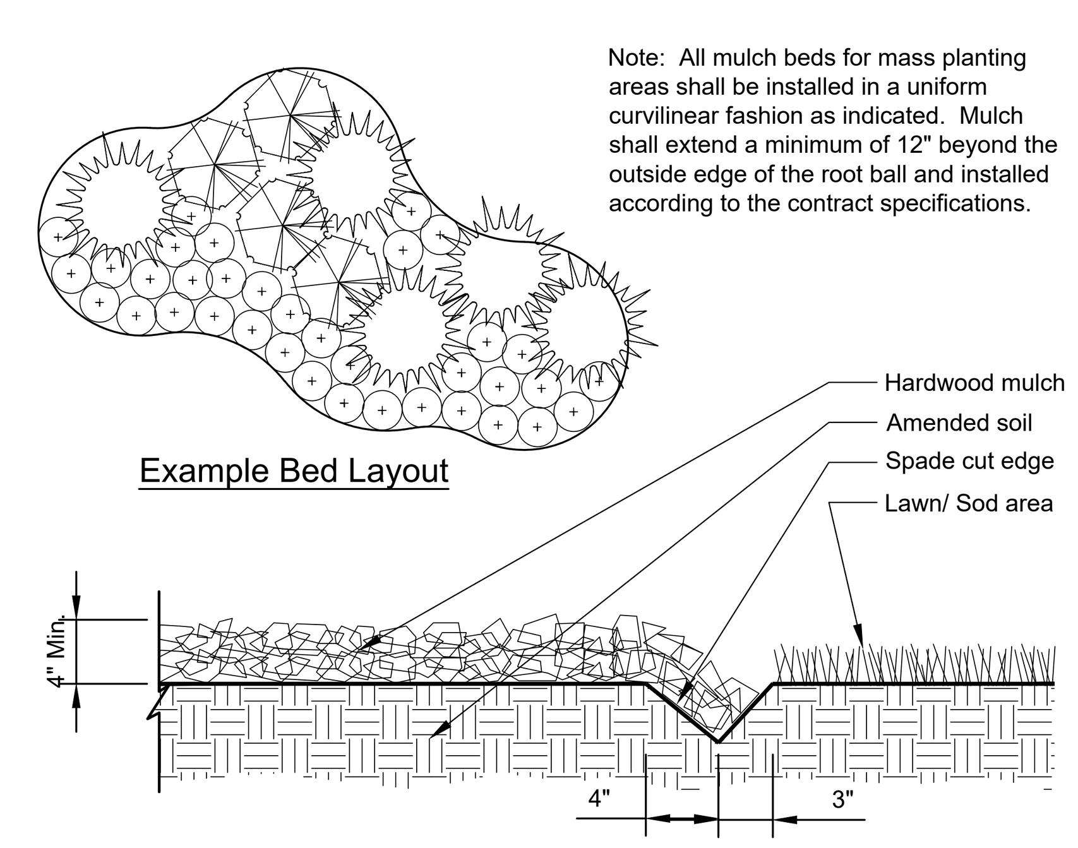
4 ORNAMENTAL GRASS PLANTING

1" = 1'-0" 32 9313-01



5 PERENNIAL / ANNUAL PLANTING

1" = 1'-0" 32 9313-02



6 CONTINUOUS MULCH EDGING

1" = 1'-0" 32 9113.26-01

Village of Lake Villa Required Landscaping

PLANTING AREA REQUIREMENTS

Requirement: Canopy trees must be 2.5" Cal min., Understory trees must be 1.5" Cal min. and Shrubs must be 2' Height min.

STREET TREE REQUIREMENT -Arterial Road

Requirement: 1 Canopy Tree and 2 Understory Trees per 50 linear feet located 15' from the Right-of-Way

Deep Lake Road - 196.78 linear feet

196.78 / 50 = 3.93 x 1 = 4 Canopy Trees

3.93 x 2 = 8 Understory Trees

Required- 4 Canopy Trees and 8 Understory Trees

On Plan - 4 Canopy Trees and 8 Understory Trees

INTERIOR LANDSCAPING FOR PARKING LOTS

Requirement: For every 10 Parking Spaces 160 square feet of landscape area. 1 Canopy Tree and 3 shrubs per 160 square feet.

Parking Lot Spaces: 92 Spaces

92 / 10 = 9.2 x 160 = 1,472 Square Feet of Landscape Area

9.2 x 1 = 9 Canopy Trees

9.2 x 3 = 28 Shrubs

Required- 9 Canopy Trees and 28 Shrubs, 1,472 square feet of green space

On Plan - 9 Canopy Trees and 28 Shrubs, 2,897 square feet of green space

PERIMETER LANDSCAPE FOR PARKING LOTS AND VEHICULAR USE AREAS

Requirement: 1 Canopy Tree or Understory Tree per 25 linear feet. Solid deciduous shrub screen 24" in height with a decorative fencing at least 3' in height.

Deep Lake Road - 196.78

196.78 / 25 = 8 Trees

Required- 8 Canopy or Understory Trees with solid deciduous shrub buffer and decorative fencing at least 3' in height.

On Plan - 8 Canopy or Understory Trees with solid deciduous shrub buffer and decorative fencing at least 3' in height.

WEST BUFFER YARD - SB adjacent to SR3

Requirement: (C Buffer Required)

30 width buffer area with 1 Canopy Tree, 1 Understory Tree, and 2 Shrubs per 100 linear feet

West property line - 523.62 / 100 = 5.24

5.24 x 1 = 5 Canopy Trees

5.24 x 1 = 5 Understory Tree

5.24 x 2 = 10 Shrubs

Required- 5 Canopy Trees, 5 Understory Trees and 10 Shrubs

On Plan - 6 Canopy Trees, 6 Understory Trees and 15 Shrubs

115% of Requirements for Buffer Yard

SOUTH BUFFER YARD - SB adjacent to SR3

Requirement: (C Buffer Required)

30 width buffer area with 1 Canopy Tree, 1 Understory Tree, and 2 Shrubs per 100 linear feet

South property line - 427.5 / 100 = 4.28

4.28 x 1 = 4 Canopy Trees

4.28 x 1 = 4 Understory Tree

4.28 x 2 = 9 Shrubs

Required- 4 Canopy Trees, 4 Understory Trees and 9 Shrubs

On Plan - 4 Canopy Trees, 4 Understory Trees and 9 Shrubs

EAST BUFFER YARD - SB adjacent to SR2

Requirement: (C Buffer Required)

30 width buffer area with 1 Canopy Tree, 1 Understory Tree, and 2 Shrubs per 100 linear feet

East property line - 344.91 / 100 = 3.45

3.45 x 1 = 3 Canopy Trees

3.45 x 1 = 3 Understory Tree

3.45 x 2 = 7 Shrubs

Required- 3 Canopy Trees, 3 Understory Trees and 7 Shrubs

On Plan - 3 Canopy Trees, 3 Understory Trees and 7 Shrubs

NORTH BUFFER YARD - SB adjacent to SB

No Buffer Yard Required

FOUNDATION LANDSCAPING

Requirement: The developer shall provide adequate foundation landscaping for all multi-family residential buildings in keeping with the overall landscape concept for the project.

Meets Requirement

TREE REPLACEMENT TREES REQUIRED

See Sheet L2 for Replacement Trees

Landscape Notes:

1. Seed/ Sod limit line is approximate. Seed/ Sod to limits of grading and disturbance. Contractor responsible for restoration of any unauthorized disruption outside of designated construction area.
2. Contractor responsible for erosion control in all seeded/ sodded areas. Tree mulch rings in turf areas are 5' diameter. Contractor shall provide a mulch ring around all existing trees within the limits of work. Remove all existing grass from area to be mulched and provide a typical spade cut edge. Landscape Fabric shall not be installed under mulch. Root flares shall be at or above grade, per specifications, and all rope/cord shall be removed from the base of tree trunks.
3. Bedlines are to be spade cut to a minimum depth of 3". Curved bedlines are to be smooth and not segmented.
4. All planting, beds shall receive top dressing of mulch. Landscape fabric shall not be installed under mulch.
5. Do not locate plants within 10' of utility structures or within 5' horizontally of underground utility lines unless otherwise shown on plans. Consult with Landscape Architect if these conditions exist.
6. For Lump Sum Contracts, plants and other materials are quantified and summarized for the convenience of the Owner and jurisdictional agencies only. Confirm and install sufficient quantities to complete the work as drawn and specified. No additional payments will be made for materials required to complete the work as drawn and specified.
7. For Unit Price Contracts, payments will be made based on actual quantities installed as measured in place by the Owner's Representative.
8. It is the responsibility of the contractor to locate and provide plant material as specified on this plan. The contractor may submit a request to provide substitutions for the specified plant material under the following conditions:
   a. Any substitutions proposed shall be submitted to the project owner's representative within two weeks of the award of contract. Substitutions must meet equivalent design and functional goals of the original materials as determined by the owner's representative. Any changes must have the approval of the owner's representative,
   b. The request will be accompanied by at least three notices from plant material suppliers that the plant material specified is not available and will not be available prior to construction.
10. Verify site conditions and information on drawings. Promptly report any concealed conditions, mistakes, discrepancies or deviations from the information shown in the Contract Documents. The Owner is not responsible for unauthorized changes or extra work required to correct unreported discrepancies. Commencement of work shall constitute acceptance of conditions and responsibility for corrections
11. A minimum of two working days before performing any digging, call underground service alert for information on the location of natural gas lines, electric cables, telephone cables, etc. The contractor shall be responsible for location and protection of all utilities, and repair of any damage resulting from his work at no additional cost to the owner.
12. Contractor shall promptly repair all damages to existing site at no cost to owner.
13. Refer to landscape specifications for additional conditions, standards, and notes.

CONCEPT PLANT SCHEDULE

STREET CANOPY TREES -	4
STREET UNDERSTORY TREES -	8
INTERIOR PARKING LOT TREES -	8
PERIMETER UNDERSTORY TREES -	8
BUFFER CANOPY TREES -	13
BUFFER UNDERSTORY TREES -	14
REPLACEMENT TREES -	41
EXISTING DECIDUOUS TREES TO REMAIN -	11
EXISTING EVERGREEN TREES TO REMAIN -	10
INTERIOR PARKING LOT SHRUBS -	22
PERIMETER LANDSCAPE SHRUB BUFFER -	46
BUFFER YARD SHRUBS -	31
LARGE EVERGREEN SHRUBS -	7
MEDIUM SHRUBS -	67
LARGE SHRUBS -	52
SMALL SHRUBS -	15
ORNAMENTAL GRASSES -	34
PERENNIALS -	126 sf
ECONOMY PRAIRIE SEED MIX -	74,755 sf
STORMWATER SEED MIX -	26,015 sf
EMERGENT STORMWATER SEED MIX -	4,621 sf
TURF AREA -	

NOTE: Proposed Plant Material on the Landscape Plan to be a native species that is native to Illinois

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Simply Call 811

LICENSED LANDSCAPE ARCHITECT
JON BRADLEY DETHLOFF
157-001632
STATE OF ILLINOIS

SEAL Date: 02/06/23

Jon Bradley Dethloff, ASLA, PLA
Illinois Registered Landscape Architect # 157-001632
Expires 08/31/2023

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DATE	REVISIONS	DRAWN BY
02/06/23	REVISED PER VILLAGE COMMENTS	JBD

LAKE VILLA SENIOR LOFTS

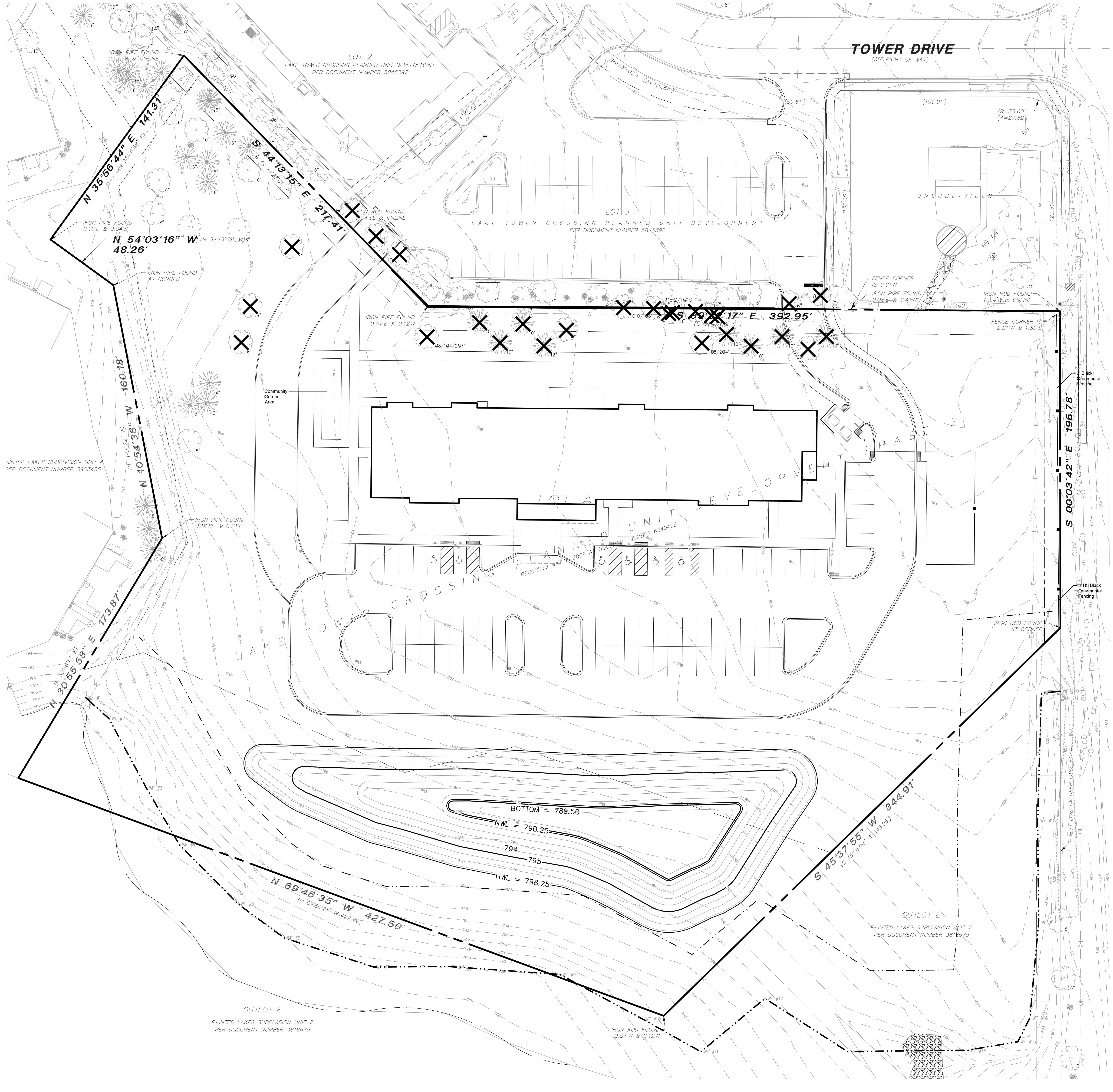
VILLAGE OF LAKE VILLA, ILLINOIS

TITLE SHEET AND LANDSCAPE SUMMARY

PROJ. MGR.: MDE
PROJ. ASSOC.: JBD
DRAWN BY: ----
DATE: 11-23-22
SCALE: 1"=XX'

SHEET L1 OF L6

LAC.LVIL01



TREE AND WOODLAND COMPENSATION/REPLACEMENT

Requirement: The developer or owner(s) shall replace any trees six inches (6") in diameter or greater dbh and/or a significant number of less caliper trees that are to be removed. The developer or owner(s) shall replace these trees including planting, according to the following size schedule:

Standards for Replacement of Woodlands:

Trunk size of removed Tree (in DBH) Number of Replacement Trees

3"-8"	1 - 3" Caliper Tree	14 - Total number of Removed 3"-8" Trees = 14 Replacement Trees
9"-15"	2 - 3" Caliper Trees	12 - Total number of Removed 9"-15" Trees = 24 Replacement Trees
16"-23"	3 - 3" Caliper Trees	1 - Total number of Removed 16"-23" Trees = 3 Replacement Trees
24"-35"	3 - 4" Caliper Trees	
36" or greater	5 - 4" Caliper Trees	

Total Number of Replacement Trees Required: 41 Trees

Legend

21" Tree to be Removed

21" Protective Fencing for Tree to be Preserved

Vulnerable Area

Root Pruning

Existing tree roots greater than one (1) inch in diameter, measured at the edge of excavation, shall be pruned within 24 hours of the time they have been damaged by construction activity. The severed root shall be pruned at the edge of excavation, or one (1) inch beyond the entire damaged portion of the tree root, if damaged root extends beyond the edge of excavation into undisturbed soil.

All cuts shall be cleanly made with sharp tools.

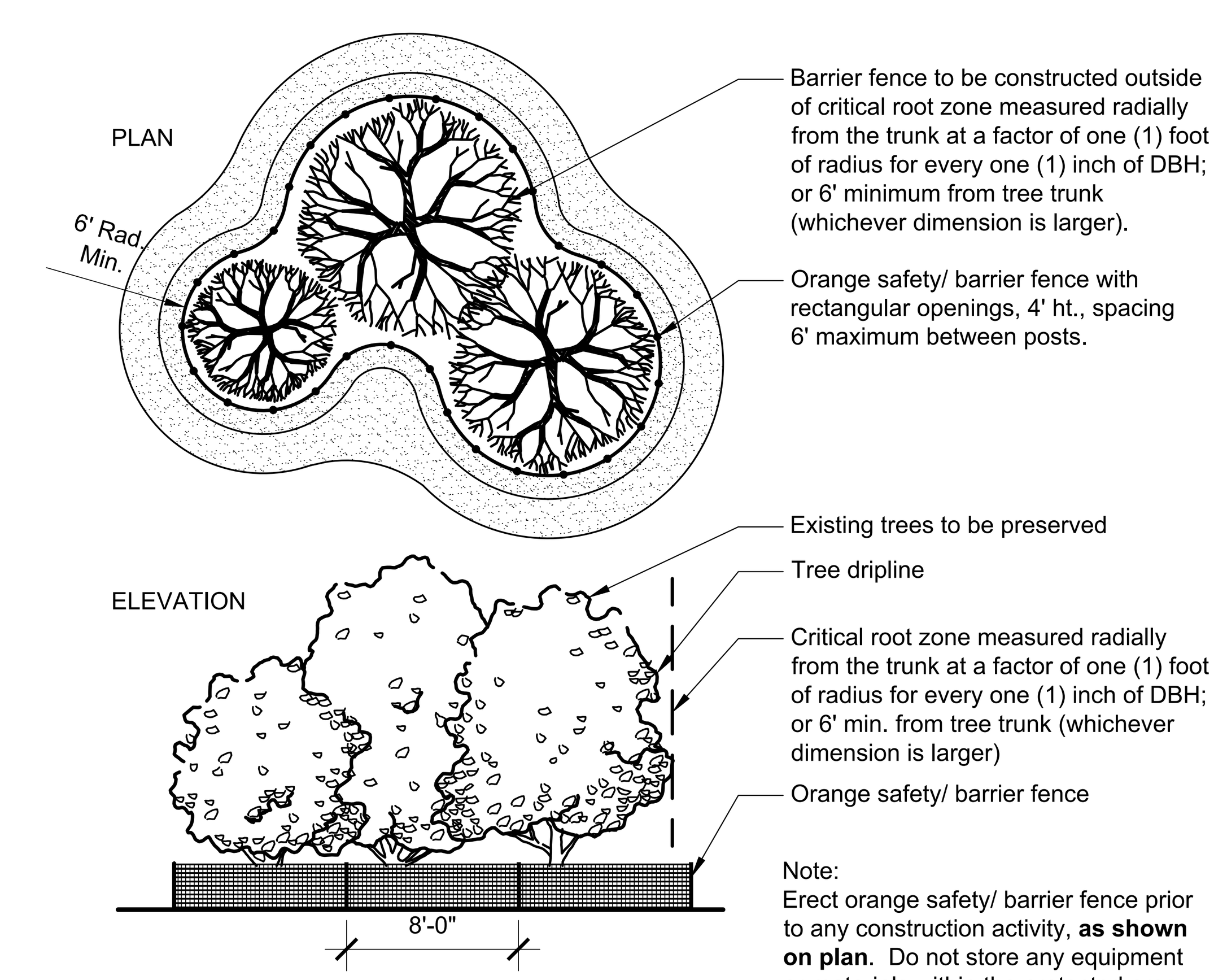
The excavated area around the existing tree roots shall be backfilled as soon as construction activities permit.

Amended existing soil shall be used as backfill material within the disturbed root zone areas not receiving drainage or subbase stone items. Amended existing soil shall be amended with peat or compost in the ratio of one part organic to seven parts existing soil.

Vulnerable Area Protection Methods

All tree root zones designated as "Vulnerable" shall receive special care and attention during construction. These areas contain roots for large trees that are within the construction area. Since these trees have high value to the project, efforts shall be made to preserve these trees, however the property owner will not be held liable if the trees do not survive.

An arborist should be consulted prior to construction to provide advice on preservation techniques. Each tree and construction condition is unique so an arborist is best qualified to provide a recommendation for each tree. Preservations may include root pruning, crown pruning, hormone treatment, fertilizers, soil amendments, excavation techniques, etc.



Note:
Erect orange safety/ barrier fence prior to any construction activity, **as shown on plan**. Do not store any equipment or materials within the protected area. Remove the barrier fence only after construction operations are completed.

1 TREE PROTECTION PLAN
N.T.S. 320190.33-01

GRAPHIC SCALE
30 0 15 30 60 120
(IN FEET)
1 inch = 30 ft.

NORTH

DATE	REVISIONS	DRAWN BY
02/06/23	REVISED PER VILLAGE COMMENTS	JBD

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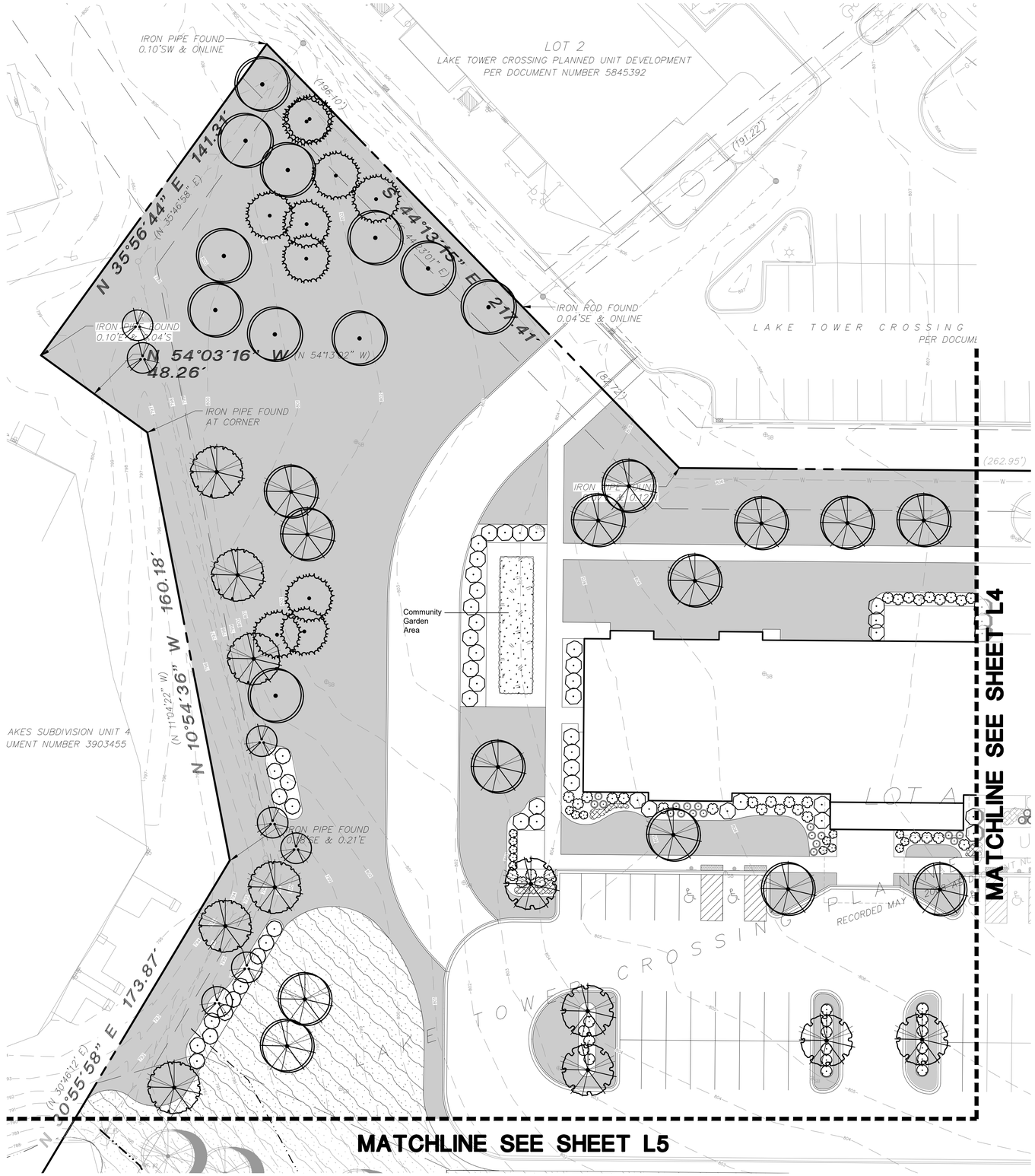
LAKE VILLA SENIOR LOFTS
VILLAGE OF LAKE VILLA, ILLINOIS
TREE PRESERVATION PLAN

PROJ. MGR.: MDE
PROJ. ASSOC.: JBD
DRAWN BY: ----
DATE: 11-23-22
SCALE: 1"=30'

SHEET
L2 OF L6
LAC.LVIL01



GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NORTH

CONCEPT PLANT SCHEDULE

	STREET CANOPY TREES -	4
	STREET UNDERSTORY TREES -	8
	INTERIOR PARKING LOT TREES -	8
	PERIMETER UNDERSTORY TREES -	8
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	STORMWATER SEED MIX -	26,015 sf
	EMERGENT STORMWATER SEED MIX -	4,621 sf
	TURF AREA -	

DATE	REVISIONS	DRAWN BY
02/06/23	REVISED PER VILLAGE COMMENTS	JBD

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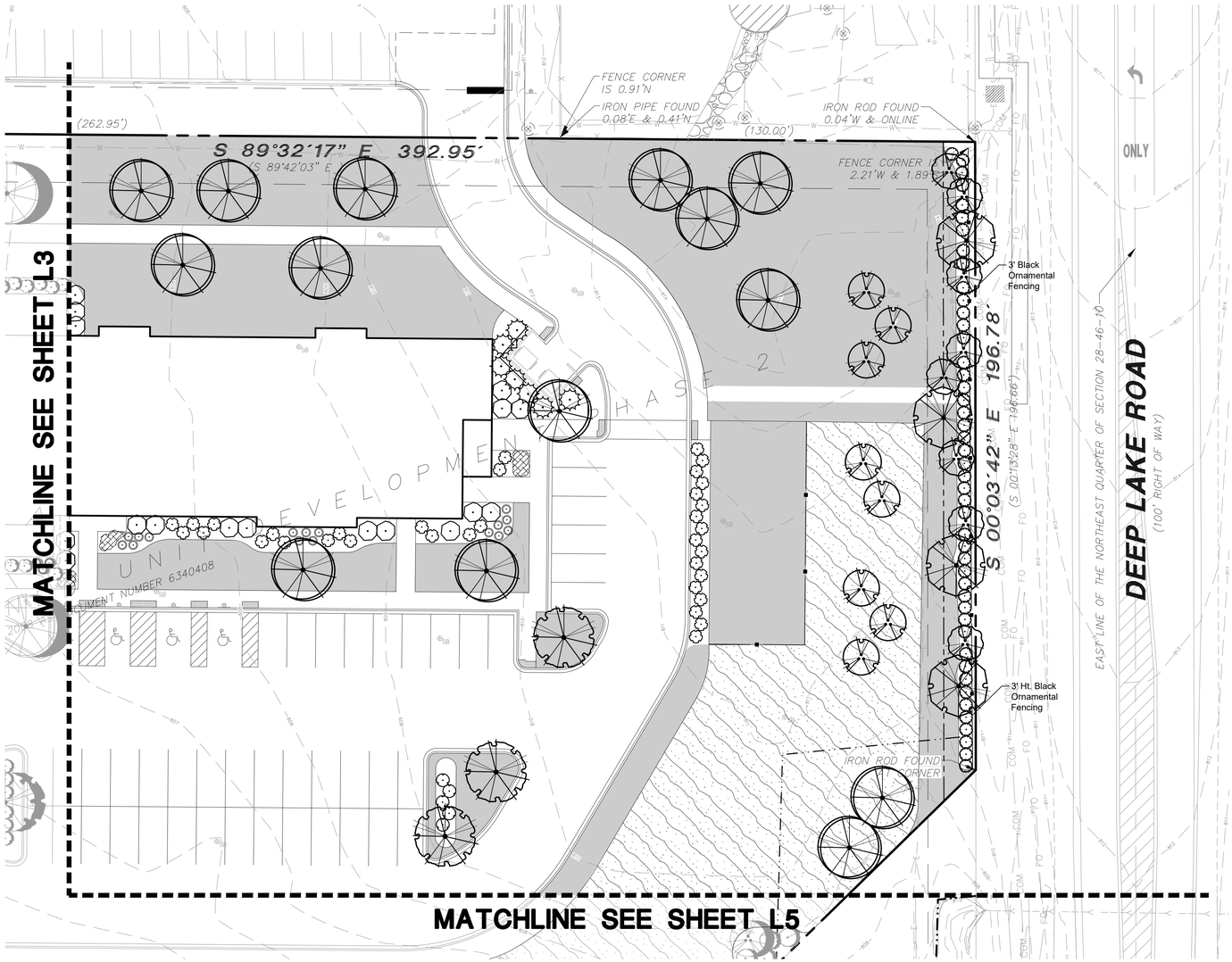
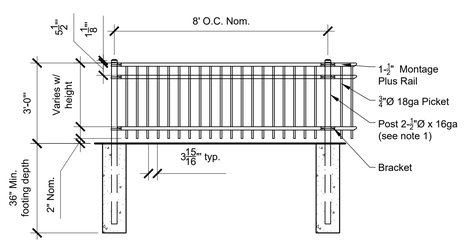
LAKE VILLA SENIOR LOFTS
VILLAGE OF LAKE VILLA, ILLINOIS
PRELIMINARY LANDSCAPE PLAN - NORTHWEST

PROJ. MGR.:	MDE
PROJ. ASSOC.:	JBD
DRAWN BY:	----
DATE:	11-23-22
SCALE:	1"=20'

SHEET
L3 OF L6
LAC.LVIL01





Notes:
1. Post size depends on fence height and wind loads. See Montage Plus specifications for post

1 3' MONTAGE PLUS ORNAMENTAL FENCE- MAJESTIC
3/8" = 1'-0" 323119-02

CONCEPT PLANT SCHEDULE

STREET CANOPY TREES	-	4
STREET UNDERSTORY TREES	-	8
INTERIOR PARKING LOT TREES	-	8
PERIMETER UNDERSTORY TREES	-	8
BUFFER CANOPY TREES	-	13
BUFFER UNDERSTORY TREES	-	14
REPLACEMENT TREES	-	41
EXISTING DECIDUOUS TREES TO REMAIN	-	11
EXISTING EVERGREEN TREES TO REMAIN	-	10
INTERIOR PARKING LOT SHRUBS	-	22
PERIMETER LANDSCAPE SHRUB BUFFER	-	46
BUFFER YARD SHRUBS	-	31
LARGE EVERGREEN SHRUBS	-	7
MEDIUM SHRUBS	-	67
LARGE SHRUBS	-	52
SMALL SHRUBS	-	15
ORNAMENTAL GRASSES	-	34
PERENNIALS	-	126 sf
ECONOMY PRAIRIE SEED MIX	-	74,755 sf
STORMWATER SEED MIX	-	26,015 sf
EMERGENT STORMWATER SEED MIX	-	4,621 sf
TURF AREA	-	

GRAPHIC SCALE
20 0 10 20 40 80
(IN FEET)
1 inch = 20 ft.

NORTH

DATE	REVISIONS	DRAWN BY
02/06/23	REVISED PER VILLAGE COMMENTS	JBD

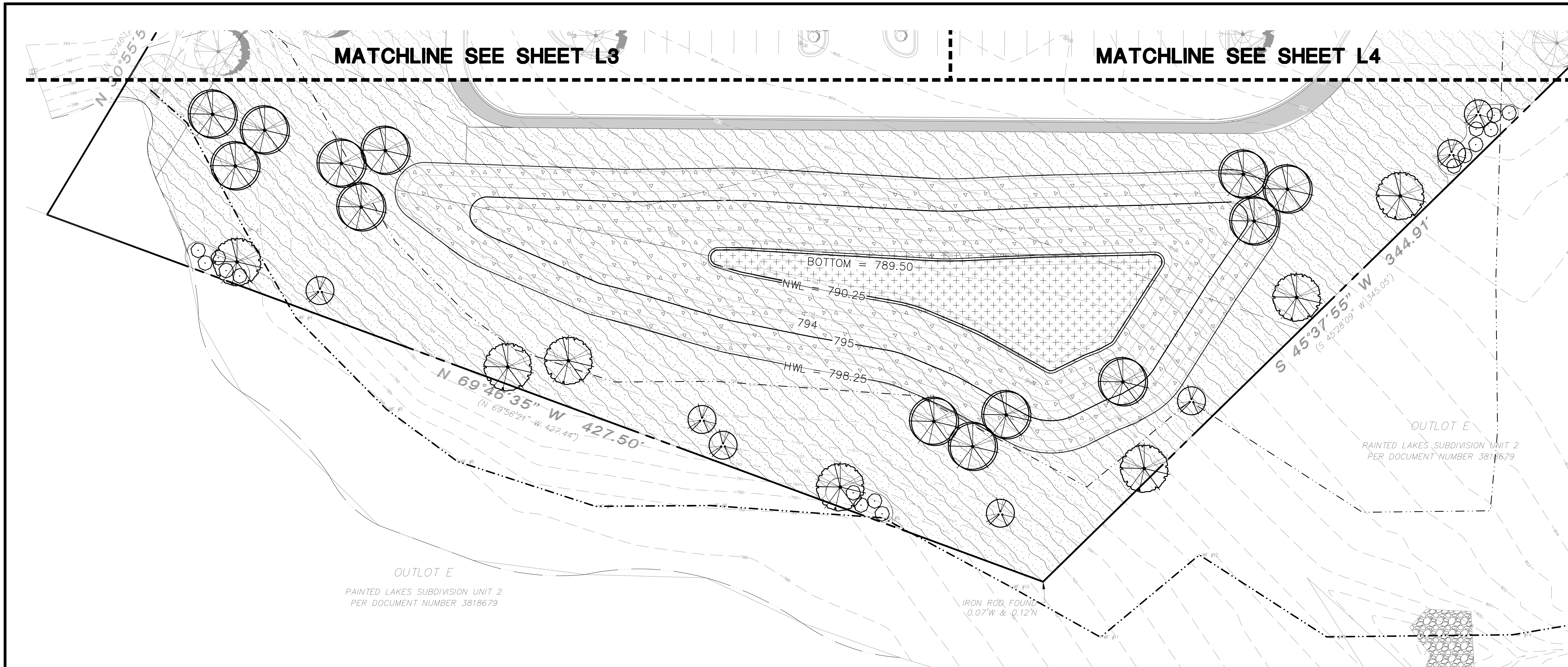
Manhard CONSULTING
One Pierseal Park, Suite 200 Lincolnshire, IL 60069 ph847.634.3000 fax 847.634.3265
Civil Engineers • Surveyors • Water Resource Engineers • Structural Engineers • Mechanical Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

LAKE VILLA SENIOR LOFTS
VILLAGE OF LAKE VILLA, ILLINOIS
PRELIMINARY LANDSCAPE PLAN - NORTHEAST

PROJ. MGR.: MDE
PROJ. ASSOC.: JBD
DRAWN BY: ----
DATE: 11-23-22
SCALE: 1"=20'

SHEET
L4 OF L6
LAC.LVIL01

February 3, 2023 - 15:14 Dwg Name: P:\Local\01\Dwg\Landplan\01-Preliminary\01-Preliminary Landscape Plan.dwg Updated By: kbathorf



CONCEPT PLANT SCHEDULE

STREET CANOPY TREES	4
STREET UNDERSTORY TREES	8
INTERIOR PARKING LOT TREES	9
PERIMETER UNDERSTORY TREES	8
BUFFER CANOPY TREES	12
BUFFER UNDERSTORY TREES	12
REPLACEMENT TREES	45
EXISTING DECIDUOUS TREES TO REMAIN	10
EXISTING EVERGREEN TREES TO REMAIN	6
INTERIOR PARKING LOT SHRUBS	28
PERIMETER LANDSCAPE SHRUB BUFFER	46
BUFFER YARD SHRUBS	26
LARGE EVERGREEN SHRUBS	8
MEDIUM SHRUBS	72
LARGE SHRUBS	32
SMALL SHRUBS	14
ORNAMENTAL GRASSES	45
PERENNIALS	126 sf
ECONOMY PRAIRIE SEED MIX	69,176 sf
STORMWATER SEED MIX	29,575 sf
EMERGENT STORMWATER SEED MIX	7,063 sf

GRAPHIC SCALE

20 0 10 20 40 80

(IN FEET)
1 inch = 20 ft.

NORTH

DATE	REVISIONS	DRAWN BY
02/06/23	REVISED PER VILLAGE COMMENTS	JBD

Manhard CONSULTING

One Overlook Point, Suite 290, Lincolnshire, IL 60069 ph:847.634.5550 fx:847.634.0095 manhard.com
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LAKE VILLA SENIOR LOFTS
VILLAGE OF LAKE VILLA, ILLINOIS
PRELIMINARY LANDSCAPE PLAN - SOUTH

PROJ. MGR.:	MDE
PROJ. ASSOC.:	JBD
DRAWN BY:	----
DATE:	11-23-22
SCALE:	1"=20'

SHEET

LAC.LVIL01

GENERAL PLANTING SPECIFICATIONS:

PART 1 - GENERAL

1-01 DESCRIPTION:

A. Provide trees, shrubs, perennials and groundcovers as shown and specified. This work includes:
   1. Spreading of topsoil or soil preparation
   2. Trees, shrubs, perennials and groundcovers
   3. Planting mixes
   4. Mulch and planting accessories
   5. Fertilizer and herbicide
   6. Maintenance
   7. Warranty of plant material

B. The Contractor shall verify all existing conditions and dimensions in the field prior to bidding and report any discrepancies to the Owner or his/her representative.

1-02 QUALITY ASSURANCE:

A. Comply with site work requirements

B. Plant names indicated must comply with 'Standardized Plant Names' as adopted by the latest edition of the American Joint Committee of Horticultural Nomenclature. Names of varieties which are not listed should conform with those generally accepted by the nursery trade. Stock should be legibly tagged.

C. All plant materials shall conform to the 'American Standards for Nursery Stock' (ASNS), latest edition, published by the American Association of Nurserymen, Washington, D.C.

D. All plant material shall be grown and supplied within a 50 mile radius of the project for a minimum of two full growing seasons.

E. Adhere to sizing requirements as listed in the plant list and/or bid form for the project. A plant shall be measured in its natural standing position.

F. Stock that is furnished shall be at least the minimum size shown. With permission of the landscape architect, substitution from the specified plant list will be accepted only when satisfactory evidence in writing is submitted to the landscape architect, showing that the plant specified is not available. Requests for approval of substitute plant material shall include common and botanical names and size of substitute material. Only those substitutions of at least equivalent size and character to that of the specified material will be approved. Stock which is larger than that which is specified is acceptable with permission of the landscape architect, providing there is no additional cost and that the larger plant material will not be cut down in order to conform to the size indicated.

G. All shrubs shall be dense in form. Shrub liners do not meet these specifications. Shrubs specified by height shall have a spread that is equal to the height measurement. Shrubs which are specified by spread shall exhibit the natural growth habit of the plant by having a greater spread than height.

H. All plant materials are subject to inspection and approval. The landscape architect and Owner reserve the right to select and tag all plant material at the nursery prior to planting. The landscape architect and Owner reserve the right to inspect plant material for size and condition of root systems, the presence of insects and diseases, injuries and latent defects (due to Contractor negligence or otherwise), and to reject unacceptable plant material at any time during progress of the project.

I. Container grown deciduous and/or evergreen shrubs will be acceptable in lieu of balled and burlapped shrubs subject to specified limitations for container grown stock. Size of container grown material must conform to size/height requirements of plant list.

1-03 DELIVERY, STORAGE & HANDLING:

A. Fertilizer shall be delivered in original, unopened and undamaged packaging. Containers shall display weight, analysis and manufacturer's name. Store fertilizer in a manner that will prevent wetting and deterioration.

B. Take all precautions customary concerning proper trade practice in preparing plants for transport. Plants shall be dug, packed and transported with care to ensure protection against injury. Inspection certificates required by law shall accompany each shipment invoice or order to stock and on arrival, the certificate shall be filed with the landscape architect . All plants must be protected from drying out. If plant material cannot be planted immediately upon delivery, said material should be properly protected in a manner that is acceptable to the landscape architect . Heeled-in plants must be watered daily. No plant shall be bound with rope or wire in a manner that could strip bark or break or shear branches.

C. Plant material transported on open vehicles should be covered with a protective covering to prevent wind burn.

D. Dry, loose topsoil shall be provided for planting bed mixes. Muddy or frozen topsoil is unacceptable as working with medium in this condition will destroy its structure, making root development more difficult.

1-04 PROJECT CONDITIONS:

A. Notify landscape architect at least seven (7) working days prior to installation of plant material.

B. It shall be the Contractor's responsibility to locate and protect all existing above and below ground utilities. Utilities can be located and marked (in Illinois) by calling J.U.L.I.E. at (800)892-0123.

C. The Contractor shall provide, at his/her own expense, protection against trespassing and damage to seeded areas, planted areas, and other construction areas until the preliminary acceptance. The Contractor shall provide barricades, temporary fencing, signs, and written warning or policing as may be required to protect such areas. The Contractor shall not be responsible for any damage caused by the Owner after such warning has been issued.

D. The Contractor shall be responsible for the protection of crowns, trunks and roots of existing trees, plus shrubs, lawns, paved areas and other landscaped areas that are to remain intact. Existing trees, which may be subject to construction damage, shall be boxed, fenced or otherwise protected before any work is started. The Owner desires to preserve those trees within and adjacent to the limits of construction except those specifically indicated to be removed on the Drawings. The contractor shall erect protective tree fencing and tree armor at locations indicated on the drawings and around all trees on site which are to be preserved. Protective fencing shall be erected between the limits of construction and any tree preservation areas shown on the Drawings.

E. A complete list of plants including a schedule of sizes, quantities and other requirements is shown on the Drawings and on the bid form. In the event that quantity discrepancies or material omissions occur in the plant materials list, the planting plans shall govern.

1-05 PRELIMINARY ACCEPTANCE:

A. All plantings shall be maintained by the Contractor for a period of 90 days after preliminary acceptance by the Owner or his/her representative. Maintenance shall include, but is not limited to: mowing and edging turf, pulling weeds, watering turf and plant material and annual flower maintenance.

1-06 WARRANTY:

A. All plant material (excluding annual color), shall be warranteed for one (1) year after the end of the 90 day maintenance period. The end of the maintenance period is marked by the final acceptance of the Contractor's work by the Owner or his/her representative. Plant materials will be warranteed against defects including death and unsatisfactory growth, except for defects resulting from abuse or damage by others, or unusual phenomena or incidents which are beyond the control of the Contractor. The warranty covers a maximum of one replacement per item.

PART 2 - PRODUCTS

2-01 PLANT MATERIALS:

A. Plants: Provide typical of their species or variety, with normal, densely developed branches and vigorous, fibrous root systems. Only sound, healthy, vigorous plants which are free from sunscald injuries, disfiguring knots, frost cracks, abrasions of the bark, plant diseases, insect eggs, borers, and all forms of infestation shall be provided. All plants shall have a fully developed form without voids and open patches.
   1. Balled and burlapped plants shall have a firm natural ball of earth of sufficient diameter and depth to encompass a root system necessary for a full recovery of the plant. Root ball sizes shall comply with the latest edition of the 'American Standards for Nursery Stock' (ASNS). Root balls that are cracked or mushroomed are unacceptable.
   2. Container grown stock should be grown for an amount of time that is of sufficient length for the root system to have developed enough to hold its soil togehter, firm and whole. Plants will not be loose in their containers, nor shall they be pot-bound and all container grown stock will comply with the sizes stated on the plant list.
   3. No evidence of wounds or pruning cuts shall be allowed unless approved by the Landscape Architect.
   4. Evergreen trees shall be branched to the ground. The height of evergreen trees are determined by measuring from the ground to the first lateral branch closest to the top. Height and/or width of other trees are measured by the mass of the plant not the very tip of the branches.
   5. Shrubs and small plants shall meet the requirements for spread and/or height indicated in the plant list. The height measurement shall be taken from ground level to the average height of the top of the plant, not the longest branch. Single stem or thin plants will not be accepted. Side branches shall be flushed with growth and have good form to the ground. Plants shall be in a moist, vigorous condition, free from dead wood, bruises or other root or branch injuries.

2-02 ACCESSORIES:

A. Topsoil:
   1. Topsoil shall be fertile, natural topsoil of a loamy character, without admixture of subsoil material. Topsoil shall be reasonably free from clay, lumps, coarse sand, stones, plants, roots, sticks and other foreign materials with a pH between 6.5 to 7.0.

B. Topsoil for seed areas shall be a minimum of 6".

C. Soil amendments shall be as follows:
   1. For trees and shrubs the plant pit will be backfilled with pulverized black dirt.
   2. For perennials and ornamental grasses the soil mixture will be as follows: CM-63 General Purpose Peat Based Mix as supplied by Midwest Trading. Top beds with 8" of CM-63 and till into existing beds to a depth of 8". Soil mixtures are available from Midwest Trading. Midwest Trading, St. Charles, IL 60174 (630) 365-1990

D. Fertilizer:
   1. For trees and shrubs use: 14-4-6 briquettes 17 g or equivalent available from Arthur Clesen, Inc. Follow manufacturer's recommendation for application. Arthur Clesen, Inc. 543 Diens Drive, Wheeling, IL 60090 (847)537-2177
   2. For turf areas use 6-24-16 Clesen Fairway with micronutrients with minor elements 3.0 % S, .02% B, .05% Cu, 1.0% Fe, .0006% Mo, .10% Mn available from Arthur Clesen or approved equal.

E. Herbicide:
   1. AquaPro Aquatic Herbicide or approved equal

F. Mulch:
   1. Bark mulch shall be finely shredded hardwood bark which has been screened and is free of any green foliage, twigs, rocks, sawdust, wood shavings, growth or germination inhibiting ingredients, or other foreign materials. Bark mulch is available from Midwest Trading.
   2. Mushroom compost as available from Midwest Trading.

G. Water:
   1. Water service will be available on the site, with the cost of water being paid by the Owner. Transporting of the water from the source to the work areas shall be the responsibility of the Landscape Contractor. All necessary hose, piping, tank truck, etc. shall be supplied by the Landscape Contractor.

H. Guying:
   1. Stakes: 5/8" x 40" steel eye anchor with 4" helix
   2. Cable:
      a. Trees under 5": flexible 1/8" galvanized aircraft cable, 7x7 strand or approved equal
      b. Trees 5" and over: flexible 3/16" galvanized aircraft cable, 7x7 strand or approved equal.
   3. Turnbuckles: 5/16", eye and eye, with 4" takeup.
   4. Hose: new two-ply reinforced rubber hose, minimum 1/2" I.D.

I. Tree wrap: Burlap tree wrap 4" wide.

J. Twine: Soft nursery jute.

PART 3 - INSTALLATION OF PLANT MATERIAL

3-01 FIELD VERIFICATION:

A. Examine proposed planting areas and conditions of installation. Do not start planting work until unsatisfactory conditions are corrected.

3-02 PREPARATION:

A. All planting techniques and methods shall be consistent with the latest edition of 'Horticulture Standards of Nurserymen, Inc.' and as detailed on these Drawings.

B. Planting shall be performed by experienced workmen familiar with planting procedures under the supervision of a qualified supervisor.

C. All underground utilities must be located and marked clearly.

D. Apply AquaPro Aquatic Herbicide or approved equivalent to kill any existing vegetation in all areas to be planted. Confirm length of waiting period between chemical application and plant installation with manufacturer. Do not begin planting operations until prescribed post-application waiting period has elapsed. Take extreme care to avoid chemical drift to adjoining properties of landscape plantings.

E. Prior to all planting, rototill all areas to be landscaped to prepare for plant installation to a minimum depth of 12". Eliminate uneven areas and low spots. Maintain lines, levels, profiles and contour. Changes in grade are to be gradual. Blend slopes into level areas. Remove all debris, weeds and undesirable plants and their roots from areas to be planted. Remove all concrete slag larger than 2" in diameter.

F. Topsoil shall be spread over the site at a minimum depth of 6". For those areas which are indicated as prairie or natural areas on the Drawings, a topsoil depth of 18" is recommended where possible.

G. It shall be the responsibility of the landscape contractor to prepare all seeded areas by disking and raking prior to planting seed. Soil shall be loosened and scarified to a minimum depth of 6". Fine grading of all seeded areas is required. Maximum size of stone or topsoil lump is 1".

H. Locate all plant material as indicated or as approved in the field by the Landscape Architect. If obstructions are encountered which are not shown on the drawings, then do not proceed with planting operations until alternate plant locations have been selected.

I. Planting holes shall be constructed as shown on the planting details. Holes shall be hand dug or machine dug. Great care will be taken to not excavate the hole deeper than the root ball and the diameter shall be a minimum of two times the root ball width. Remove any materials encountered in excavation that may be injurious to plant growth, including stones larger than 2" in diameter or other debris. Soil to be used as backfill should be pulverized.

J. Provide pre-mixed planting mixture for use around root systems and root balls of the plants. The mixtures are outlined in section B of part 2-02.

K. Prior to planting, provide additional topsoil to all planting beds to bring the finish grade of the bed to 2" above lawn grade and to finish grade of adjacent hard surface grades.

L. Add 2" thickness of mushroom compost to all annual, perennial and groundcover beds. Finish grade bed and install plants.

3-03 PLANTING PROCEDURES:

A. Set plant material in the planting hole to proper grade and alignment. Set plants upright and plumb. Set plant material 2" above the adjacent finish grade. Remove burlap from top 1/3 of root ball. Remove treated burlap (green). Cut and remove or cut and fold down upper half of wire basket, dependent upon tree size. Backfill hole by firmly tamping soil to avoid any air pockets or voids.

B. Set balled and burlapped plants in the planting hole and compact 8" of soil around the base of the ball. Backfill remaining space with planting mixture. Water plants immediately after planting to eliminate all voids and thoroughly soak the plant root ball.

C. Space groundcover plants according to dimensions given on the plans. Adjust spacing as necessary to evenly fill planting bed with indicated number of plants. Plant to within 18" of the trunks of trees and shrubs or at the edge of the plant ball, whichever is closest. Plant to within 12" of edge of bed.

D. Mulching:
   1. Install 4" depth of mulch around all tree and shrub beds as indicated on drawings or planting details. Mulch shrub planting areas as continuous beds. Do not place mulch directly against tree trunk; form mulch to create an inverted cone around trunk.
   2. Mulch perennial, groundcover and annual planting beds with 2" mushroom compost. Water mulched areas thoroughly after placing mulch.

E. Tree wrapping is not required, unless the Contractor feels it is necessary due to characteristics of a particular species or past experience with the species. The landscape architect will be notified as to which trees are to be wrapped and shall inspect the trunk(s) before wrapping. Tree wrap will not be used to cover damage or defects. When wrapping is done, trunks will be wrapped spirally with approved tree wrapping tape that is not less than 4" wide, and securely tied with suitable cord at the top, bottom and 2" intervals along the trunk. Wrap from ground to the height of the first branch.

F. Staking and guying of trees is optional. If the Contractor chooses to stake all or part of the trees, he/she shall use the method specified in the planting details. One (1) stake is to be used on trees of 1" caliper and under, or 4' height and under. Two (2) stakes are to be used on trees of 1" to 2 3/4" caliper. Guy trees of 3" caliper or larger at three (3) per tree. The root ball will not be pierced with a stake. Stakes are to be driven at least eighteen (18) inches into subsoil below the planting hole. Stakes and wire attachments shall be removed after three months for spring planted material and by the following May for fall planted stock by the Contractor. Staking and guying should be done immediately after lawn seeding or sodding operations.

G. Seeding of specified lawn areas on plans will be treated as follows:
   1. Topsoil shall be spread over all areas to be seeded to a minimum depth of 6" when compacted (to be performed by others).
   2. Seed mixture and application rate - use Premium seed mix as supplied by Arthur Clesen, Inc. Apply at a rate of 5 lbs./1000 s.f.
   3. Apply fertilizers and conditioners at the rate specified per soil test findings. In lieu of soil test results, apply two (2) tons of ground agricultural limestone and 1000 lbs. 10-10-10 or equivalent analysis fertilizer per acre. At least 40% of the fertilizer nitrogen shall be of an organic origin.
   4. Soil preparation areas where vehicular traffic has compacted the soil shall be loosened/scarified to a minimum depth of 6" before fertilizing and seeding. Fine grading of all seeded areas is required. Maximum size of stone or topsoil lump is 1".
   5. Watering seeded areas shall be done to ensure proper germination. Once seeds have germinated, watering may be decreased but the seedlings must never be allowed to dry out completely. Frequent watering should be continued approximately four (4) weeks after germination or until grass has become sufficiently established to warrant watering on an 'as needed' basis.
   6. Turf is being established on a variety of slope conditions. It shall be the Contractor's responsibility to determine and implement whatever procedures he/she deems necessary to establish the turf as part of his/her work. Seeded areas will be accepted when all areas show a uniform stand of the specified grass in healthy condition and at least 90 days have elapsed since the completion of this work. The Contractor shall submit with his/her bid a description of the methods and procedures he/she intends to use.

H. Erosion Control Blanket
   1. Erosion Control Blanket shall be installed per manufacturer's recommendation in all areas shown on the plan.
   2. Install S-75 Erosion Control Blanket as manufactured by North American Green or approved equal.
   3. Blanket should be premarked with staple pattern.
   4. Staples should be 8" wire staples, applied at two (2) per square yard minimum.
   5. Suitable erosion control practices shall be maintained by the CONTRACTOR in accordance with Illinois Urban Manual and all applicable Soil Erosion and Sedimentation Control ordinances and the PLANS.

I. Sodding of specified lawn areas on plans will be completed as follows:
   1. Rake soil surface to receive sod to completely remove any soil crust no more than one day prior to laying sod.
   2. Moisten prepared surface immediately prior to laying sod. Water thoroughly and allow surface moisture to dry before planting lawns. Do not create a muddy soil condition.
   3. Sod shall be laid within 24 hours from the time of stripping. Do not plant dormant sod or if the ground is frozen.
   4. Lay sod to form a solid mass with tightly fitted joints. Butt ends and sides of sod strips; do not overlap. Stagger strips to offset joints in adjacent courses. Work from boards to avoid damage to subgrade or sod. Work sifted soil into minor cracks between pieces of sod; remove excess to avoid smothering of adjacent sod.
   5. Place top elevation of sod 1/2 inch below adjoining edging or paving.
   6. Water sod thoroughly with a fine spray immediately after planting.
   7. After sod and soil have dried, roll seeded areas to ensure a good bond between the sod and soil, and to remove minor depressions and irregularities.
   8. Sodded slopes 3:1 or greater shall be staked to prevent erosion and washout.
   9. Warranty sodding for a period of one (1) year from the end of the 90 day maintenance period. If sod fails or lacks vigor and full growth as determined by the Landscape Architect, the Contractor will repeat site preparation operations and re-sod affected areas at the Contractor's expense.
   10. Note: Sod shall be a premium Kentucky Bluegrass blend, and is required in all areas indicated on the plans as well as areas which have been affected by construction. Sod can be placed as long as water is available and the ground surface can be properly prepared. Sod shall not be laid on frozen or snow-covered ground. Sod shall be strongly rooted, not less than two (2) years old and free of weeds and undesirable native grasses. Sod should be machine cut to pad thickness of 3/4" (plus or minus 1/4"), excluding top growth and thatch. Provide only sod capable of vigorous growth and development when planted (viable, not dormant). Provide sod of uniform pad sizes with maximum 5% deviation in either length or width. Broken pads or pads with uneven ends will not be acceptable. Sod pads incapable of supporting their own weight when suspended vertically with a firm grasp on the upper 10% of pad will not be accepted.

J. Timing of plant material and seeding operations:
   1. Seeding of specified areas shall occur when the soil temperature is above 55° F. No seed shall be sown during periods of high winds, or when the ground is not in proper condition for seeding (see section 3-02 (G)). Seeding operations for the specified mixes shall occur in the spring time frame of April 15 through June 30 and in the summer time frame of August 15 through December 1. The mixes containing bluegrass and fescue seed must have six weeks to harden off for winter survival.
   2. Sod shall be installed when the ground is not frozen or snow covered and temperatures are less than 80° F. It shall not be placed during a period of extended drought.
   3. Herbaceous ornamental plants shall be planted between May 1 and June 15 or between August 15 and December 1.
   4. Spring planting of woody ornamental plants shall be performed from the time the soil can be easily worked until June 1, except that evergreen planting shall end on May 15. Oak, hawthorn and red maple species will only be planted during this spring planting period. Fall planting will begin August 15 and will continue until the ground cannot be worked satisfactorily, except that evergreen planting shall be performed between August 15 and December 1.

3-04 MAINTENANCE:

A. All plantings shall be maintained by the Contractor for a period of 90 days after preliminary acceptance by the Owner or his/her representative. Maintenance shall include but is not limited to: mowing and edging turf, pulling weeds, watering turf areas and plant material plus annual flower maintenance. The Contractor will reset settled plants to proper grade and position. Dead material will be removed. Stakes and guy wires will be tightened and repaired as required.

3-04 ACCEPTANCE:

A. All plant material (excluding annual color), shall be warranteed for one (1) year after the end of the 90 day maintenance period. The end of the maintenance period is marked by the final acceptance of the Contractor's work by the Owner or his/her representative.

3-06 SITE CLEAN-UP:

A. The Contractor shall protect the property of the Owner and the work of other contractors. The Contractor shall also be directly responsible for all damage caused by the activities and for the daily removal of all trash and debris from his/her work area to the satisfaction of the landscape architect .

DATE	REVISIONS	DRAWN BY
02/06/23	REVISED PER VILLAGE COMMENTS	JBD

Manhard™ CONSULTING
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Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
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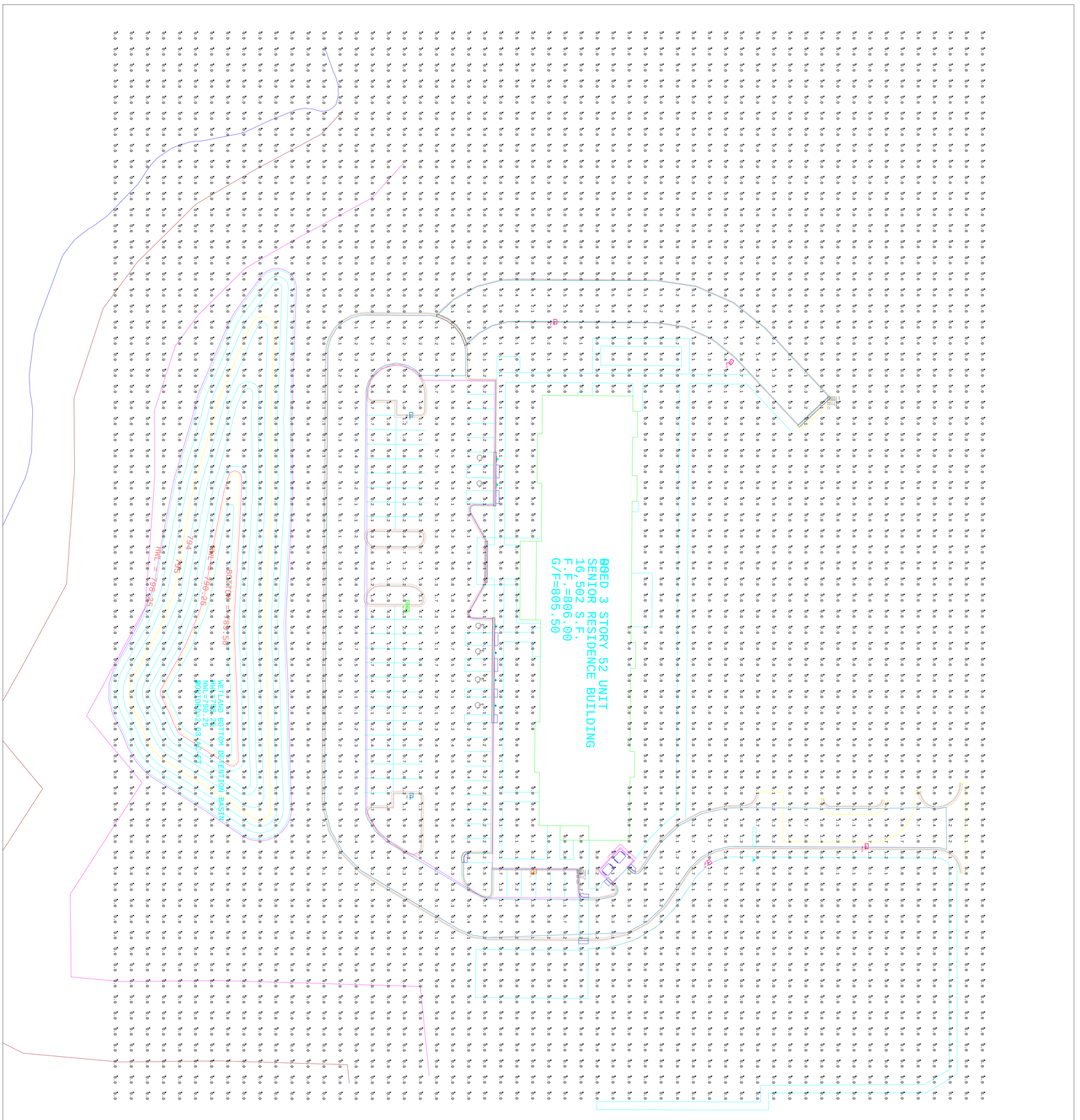
LAKE VILLA SENIOR LOFTS
VILLAGE OF LAKE VILLA, ILLINOIS
LANDSCAPE SPECIFICATIONS

PROJ. MGR.: MDE
PROJ. ASSOC.: JBD
DRAWN BY: ----
DATE: 11-23-22
SCALE: 1"=XX'

SHEET
L6 OF L6
LAC.LVIL01



24" x 36"
Page 1 of 2

Project Name: **Starling Senior Apartments**
Lake Villa

NOT TO SCALE

Date: **2/6/2023**

Rev	Date	
-	-	3,0000 Kelvin Reduced poles
-	-	-
-	-	-
-	-	-
-	-	-

Prepared By:
M Brizzell
(630) 320-2948
MBrizzell@chicagolightworks.com

Chicago Lightworks
505 Warrenville Rd.
Suite 101
Lisle, IL 60532

Luminaire Schedule						
Symbol	Label	Qty	Description	LLF	Lum. Watts	Lum. Lumens
	F3H	1	ECF-S-32L-365-WW-G2-3-HIS	0.900	40	4292
	F4B2B	1	ECF-S-32L-365-WW-G2-4	0.900	40	5637
	F5W	2	ECF-S-32L-365-WW-G2-5W	0.900	40	5604
	F2H	4	ECF-S-32L-365-WW-G2-2-HIS	0.900	40	4219

Calculation Summary							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
CalcPts_1	Illuminance	Fc	0.11	6.3	0.0	N.A.	N.A.
Drive	Illuminance	Fc	0.62	4.9	0.0	N.A.	N.A.
Parking	Illuminance	Fc	0.71	6.3	0.1	7.10	63.00

Chicago Lightworks
505 Warrenville Rd.
Suite 101
Lisle, IL 60532

Prepared By:
M Brizzell
(630) 320-2948
MBrizzell@chicagolightworks.com

Rev	Date	Comments
-	-	-
-	-	-
-	-	-
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Project Name: **Starling Senior Apartments**
Lake Villa

NOT TO SCALE

Date: **2/6/2023**

24" x 36"

GARDCO by signify

Site & Area

EcoForm

ECF-S small area light

Gardco EcoForm Gen-2 combines economy with performance in an LED area luminaire. Capable of delivering up to 27,800 lumens or more in a compact, low profile LED luminaire, EcoForm offers a new level of customer value. EcoForm features an innovative retrofit arm kit, simplifying site conversions to LED by eliminating the need to drill additional holes in most existing poles. Integral control systems available for further energy savings. Includes Service Tag, our innovative way to provide assistance throughout the life of the product.

Project:	LAKE VILLA SENIOR LOFTS
Location:	
Cat.No:	ECF-S-32L-365-WW-G2-AR-x-xxx-DD
Type:	F2 - 3 - 4 - 5 ALL
Lamps:	Qty:
Notes:	

Ordering guide

example: ECF-S-64L-900-NW-G2-AR-5-120-HIS-MGY

Prefix	Number of LEDs	Drive Current	LED Color - Generation	Mounting	Distribution	Voltage
ECF-S	32L	365	WW-G2	AR	x	xxx

Prefix: ECF-S

- **ECF-S** EcoForm site and area, small

Number of LEDs: 32L

- **32L** 32 LEDs (2 modules)
- **48L** 48 LEDs (3 modules)
- **64L** 64 LEDs (4 modules)

Drive Current: 365

	32L	48L	64L
365	365 mA		
530	530 mA		
700	700 mA		
1A	1050 mA	900 mA	900 mA
1.2A	1200 mA	1050 mA[19]	1050 mA[19]

LED Color - Generation: WW-G2

- **WW-G2** Warm White 3000K, 70 CRI Generation 2
- **NW-G2** Neutral White 4000K, 70 CRI Generation 2
- **CW-G2** Cool White 5000K, 70 CRI Generation 2

Mounting: AR

- **AR**[2] Arm Mount (standard)

The following mounting kits must be ordered separately (See accessories)

- **SF**[3] Slip Fitter Mount (fits to 2 3/8" O.D. tenon)
- **WS** Wall mount with surface conduit rear entry permitted
- **RAM**[2] Retrofit arm mount kit

Distribution: x

Type 2
- **2** Type 2
- **2-90** Rotated left 90°
- **2-270** Rotated right 270°

Type 3
- **3** Type 3
- **3-90** Rotated left 90°
- **3-270** Rotated right 270°

Type 4
- **4** Type 4
- **4-90** Rotated left 90°
- **4-270** Rotated right 270°

Type 5
- **5** Type 5
- **5W** Type 5W

- **AFR** Auto Front Row
- **AFR-90** Auto Front Row, Rotated left 90°
- **AFR-270** Auto Front Row, Rotated right 270°
- **BLC** Back Light Control
- **BLC-90** Back Light Control rotated at 90°
- **BLC-270** Back Light Control rotated at 270°
- **LCL**[19] LEED Corner Optic Left
- **RCL**[19] LEED Corner Optic Right

Voltage: xxx

- **120** 120V
- **208** 208V
- **240** 240V
- **277** 277V
- **347** 347V
- **480** 480V
- **UNV** 120-277V (50/60Hz)
- **HVU** 347-480V (50/60Hz)

Options

Dimming controls: DD

- **DD**[4,18] 0-10V External dimming (for controls by others)
- **DCC**[4,5,6,18] Dual Circuit Control
- **FAWS**[4,5,18] Field Adjustable Wattage Selector
- **LLC**[4,6,7,8,18] Integral wireless module
- **BL**[1,4,7,18] Bi-level functionality
- **SRDR**[4,5,6,8,17] SR driver connected to Zhaga socket

DynaDimmer: Automatic Profile Dimming

- **CS50**[4,8] Safety 50% Dimming, 7 hours
- **CM50**[4,8] Median 50% Dimming, 8 hours
- **CS30**[4,8] Safety 30% Dimming, 7 hours
- **CM30**[4,8] Median 30% Dimming, 8 hours

Motion sensing lens

- **IMRI3**[15] Integral with #3 lens
- **IMRI7**[16] Integral with #7 lens

Photo-sensing

- **PCB**[8,9] Photocontrol Button
- **TLRD5**[10,17] Twist Lock Receptacle 5 Pin
- **TLRD7**[10,17] Twist Lock Receptacle 7 Pin
- **TLRPC**[9,10,11,17] Twist Lock Receptacle w/ Photocell

Electrical

Fusing
- **F1**[9] Single (120, 277, 347VAC)
- **F2**[9] Double (208, 240, 480VAC)

Pole Mount Fusing
- **FP1**[9] Single (120, 277, 347VAC)
- **FP2**[9] Double (208, 240, 480VAC)
- **FP3**[9] Canadian Double Pull (208, 240, 480VAC)

Surge Protection (10kA standard)
- **SP2** Increased 20kA

Luminaire

Square Pole Adapter included in standard product
- **TB**[12] Terminal Block
- **RPA**[13] Round Pole Adapter (fits to 3"- 3.9" O.D. pole)
- **HIS**[14] Internal House Side Shield

Finish

Textured
- **BK** Black
- **WH** White
- **BZ** Bronze
- **DGY** Dark Gray
- **MGY** Medium Gray

Customer specified
- **RAL** Specify optional color or RAL (ex: RAL7024)
- **CC** Custom color (Must supply color chip for required factory quote)

1. BL-IMRI3/7 equipped with out-boarded sensor housing when voltage is HVU (347-480V)
2. Mounts to a 4" round pole with adapter included for square poles.
3. Limited to a maximum of 45 degrees aiming above horizontal.
4. Not available with other dimming control options.
5. Not available with motion sensor.
6. Not available with photocontrol.
7. Must specify a motion sensor lens.
8. Not available in 347 or 480V
9. Must specify input voltage.
10. TLRD5, TLRD7 and TLRPC receptacle pins 4 & 5 are capped off when ordered with any of the Dimming controls DD or FAWS or LLC.
11. Not available in 480V. Order photocell separately with TLRD5/7.
12. Not available with DCC.
13. Not available with SF and WS. RPAs provided with black finish standard.
14. HIS not available with Type 5, 5W, BLC, BLC-90, BLC-270, LCL or RCL optics.
15. Not available with DD, DCC, and FAWS dimming control options.
16. Not available with DD, DCC, FAWS and LLC dimming control options.
17. When ordering SRDR, controller (by others) to be used on socket must be SR compatible (See specifications for more details). Consult factory for lead time. All 7 pins in NEMA receptacle are connected to SR driver. SRDR not available with TLRD5 or TLRPC.
18. 0-10V dimming driver standard.
19. LCL and RCL not available with 48L-1.2A or 64L-1A.

ECF-S EcoForm small

Area luminaire

EcoForm Accessories[21] (ordered separately, field installed)

Shielding Accessories

HIS-32-J FOR F2H & F3H

House Side shield

Standard optic orientation:
HIS-32-H[20] Internal House Side Shield for 32 LEDs (2 modules)
HIS-48-H[20] Internal House Side Shield for 48 LEDs (3 modules)
HIS-64-H[20] Internal House Side Shield for 64 LEDs (4 modules)

Optic at 90 or 270 orientation:
HIS-32-V[20] Internal House Side Shield for 32 LEDs (2 modules)
HIS-48-V[20] Internal House Side Shield for 48 LEDs (3 modules)
HIS-64-V[20] Internal House Side Shield for 64 LEDs (4 modules)

Luminaire Accessories

ECF-BD-G2 Bird deterrent
ECF-RAM-G2-(F) Retrofit Arm mount kit
ECF-SF-G2-(F) Slip Fitter Mount (fits to 2 3/8" O.D. tenon)
ECF-WS-G2-(F) Wall mount with surface conduit rear entry permitted

EcoForm PTF2
(pole top fitter fits 23/8-21/2" OD x 4" depth tenon)

PTF2-ECF-S/L-1-90-(F) 1 luminaire at 90°
PTF2-ECF-S/L-2-90-(F) 2 luminaires at 90°
PTF2-ECF-S/L-2-180-(F) 2 luminaires at 180°
PTF2-ECF-S/L-3-90-(F) 3 luminaires at 90°
PTF2-ECF-S/L-4-90-(F) 4 luminaires at 90°
PTF2-ECF-S/L-3-120-(F) 3 luminaires at 120°

EcoForm PTF3
(pole top fitter fits 3-31/2" OD x 6" depth tenon)

PTF3-ECF-S/L-1-90-(F) 1 luminaire at 90°
PTF3-ECF-S/L-2-90-(F) 2 luminaires at 90°
PTF3-ECF-S/L-2-180-(F) 2 luminaires at 180°
PTF3-ECF-S/L-3-90-(F) 3 luminaires at 90°
PTF3-ECF-S/L-4-90-(F) 4 luminaires at 90°
PTF3-ECF-S/L-3-120-(F) 3 luminaires at 120°

EcoForm PTF4
(pole top fitter fits 31/2-4" OD x 6" depth tenon)

PTF4-ECF-S/L-1-90-(F) 1 luminaire at 90°
PTF4-ECF-S/L-2-90-(F) 2 luminaires at 90°
PTF4-ECF-S/L-2-180-(F) 2 luminaires at 180°
PTF4-ECF-S/L-3-90-(F) 3 luminaires at 90°
PTF4-ECF-S/L-4-90-(F) 4 luminaires at 90°
PTF4-ECF-S/L-3-120-(F) 3 luminaires at 120°

(F) = Specify finish

Footnotes

20. Not available with Type 5 or 5W optics
21. Consult Signify to confirm whether specific accessories are BAA-compliant.

Ready to Go configurations (when ordered with the "RS-" catalog code, the following configurations will ship in 2 weeks):

Catalog Number	12NC
RS-ECF-S-32L-1A-NW-G2-AR-3-UNV-BZ	912401466002
RS-ECF-S-32L-1A-NW-G2-AR-3-UNV-MGY	912401466003
RS-ECF-S-32L-1A-NW-G2-AR-3-UNV-BK	912401534554
RS-ECF-S-32L-1A-NW-G2-AR-4-UNV-BZ	912401466004
RS-ECF-S-32L-1A-NW-G2-AR-4-UNV-MGY	912401466005
RS-ECF-S-32L-1A-NW-G2-AR-4-UNV-BK	912401534555
RS-ECF-S-32L-1A-NW-G2-AR-5-UNV-BZ	912401466006
RS-ECF-S-32L-1A-NW-G2-AR-5-UNV-MGY	912401466007
RS-ECF-S-32L-1A-NW-G2-AR-5-UNV-BK	912401534556
RS-ECF-S-48L-1A-NW-G2-AR-3-UNV-BZ	912401466008
RS-ECF-S-48L-1A-NW-G2-AR-3-UNV-MGY	912401466009
RS-ECF-S-48L-1A-NW-G2-AR-3-UNV-BK	912401534557
RS-ECF-S-48L-1A-NW-G2-AR-4-UNV-BZ	912401466010
RS-ECF-S-48L-1A-NW-G2-AR-4-UNV-MGY	912401466011
RS-ECF-S-48L-1A-NW-G2-AR-4-UNV-BK	912401534558
RS-ECF-S-48L-1A-NW-G2-AR-5-UNV-BZ	912401466012
RS-ECF-S-48L-1A-NW-G2-AR-5-UNV-MGY	912401466013
RS-ECF-S-48L-1A-NW-G2-AR-5-UNV-BK	912401534559
RS-ECF-S-64L-1A-NW-G2-AR-3-UNV-BZ	912401466014
RS-ECF-S-64L-1A-NW-G2-AR-3-UNV-MGY	912401466015

Catalog Number	12NC
RS-ECF-S-64L-1A-NW-G2-AR-3-UNV-BK	912401534560
RS-ECF-S-64L-1A-NW-G2-AR-4-UNV-BZ	912401466016
RS-ECF-S-64L-1A-NW-G2-AR-4-UNV-MGY	912401466017
RS-ECF-S-64L-1A-NW-G2-AR-4-UNV-BK	912401534561
RS-ECF-S-64L-1A-NW-G2-AR-5-UNV-BZ	912401466018
RS-ECF-S-64L-1A-NW-G2-AR-5-UNV-MGY	912401466019
RS-ECF-S-64L-1A-NW-G2-AR-5-UNV-BK	912401534562
RS-ECF-RAM-G2-DGY	912401466487
RS-ECF-RAM-G2-MGY	912401466488
RS-ECF-RAM-G2-WH	912401466485
RS-ECF-RAM-G2-BZ	912401466486
RS-ECF-RAM-G2-BK	912401466484
RS-HIS-32-H	912401466489
RS-HIS-48-H	912401466491
RS-HIS-64-H	912401466493

ECF-S EcoForm small

Area luminaire

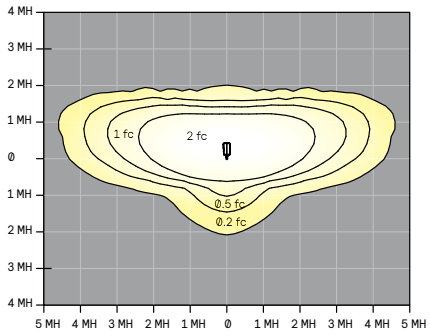
Predicted Lumen Depreciation Data

Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output. Calculated per IESNA TM21-11. Published L_{70} hours limited to 6 times actual LED test hours

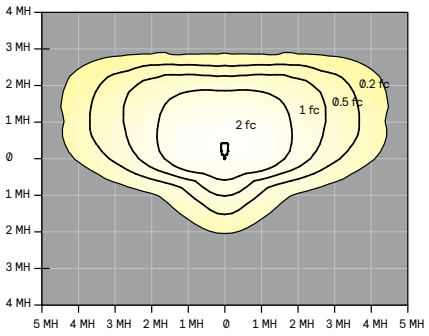
Ambient Temperature °C	Driver mA	Calculated L_{70} Hours	L_{70} per TM-21	Lumen Maintenance % at 60,000 hrs
25°C	up to 1200 mA	>100,000 hours	>120,000 hours	>99%

Optical Distributions

Based on configuration ECF-S-48L-1A-NW-G2 (159W) mounted at 20ft.



Type 2



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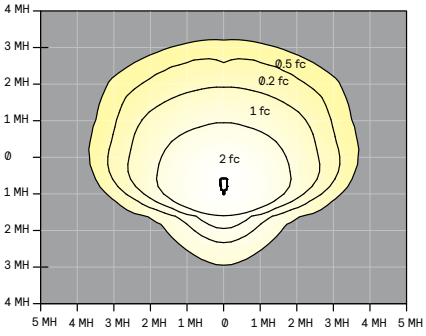
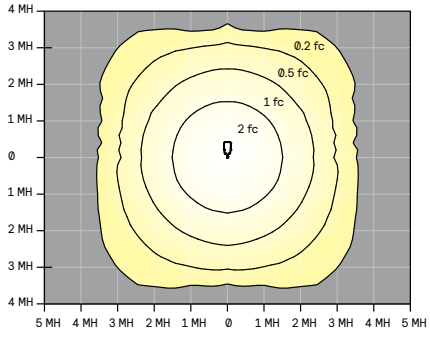
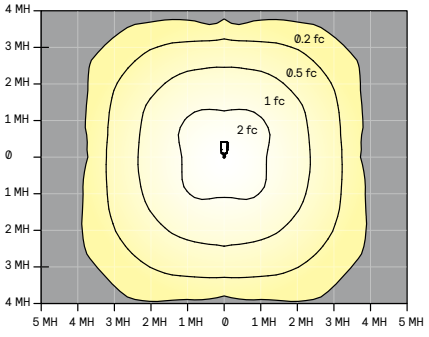


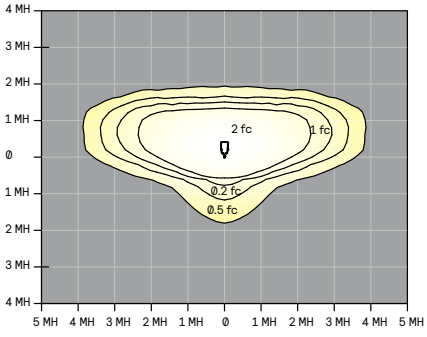
Type 4



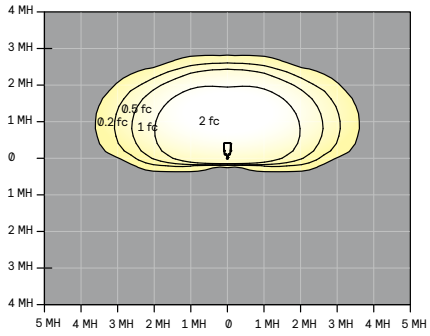
Type 5



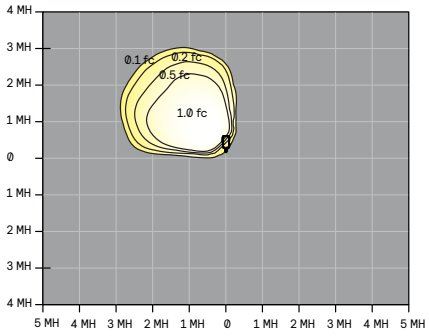
Type 5W



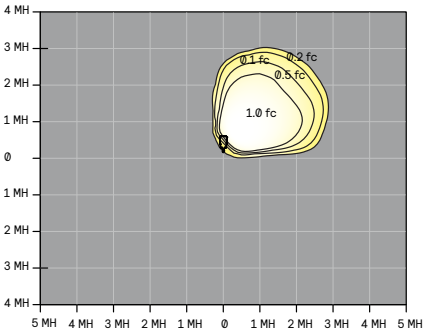
AFR



BLC



LCL



RCL

ECF-S EcoForm small

Area luminaire

3000K LED Wattage and Lumen Values

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type 2			Type 3			Type 4			Type 5			Type 5W		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
ECF-S-32L-365-WW-G2-x	32	365	3000	40	5,508	B1-U0-G1	138	5,428	B1-U0-G2	136	5,637	B1-U0-G2	141	5,790	B3-U0-G1	145	5,604	B3-U0-G1	140
ECF-S-32L-530-WW-G2-x	32	530	3000	56	7,159	B2-U0-G2	129	7,055	B1-U0-G2	127	7,327	B1-U0-G2	132	7,526	B3-U0-G2	135	7,284	B3-U0-G2	131
ECF-S-32L-700-WW-G2-x	32	700	3000	73	9,234	B2-U0-G2	127	9,034	B2-U0-G2	124	9,452	B2-U0-G2	130	9,707	B4-U0-G2	133	9,395	B4-U0-G2	129
ECF-S-32L-1A-WW-G2-x	32	1050	3000	106	13,001	B3-U0-G2	123	12,719	B2-U0-G2	120	13,306	B2-U0-G3	126	13,665	B4-U0-G2	129	13,227	B4-U0-G2	125
ECF-S-32L-1.2A-WW-G2-x	32	1200	3000	122	14,421	B3-U0-G3	119	14,108	B2-U0-G3	116	14,760	B2-U0-G3	121	15,158	B4-U0-G2	125	14,671	B4-U0-G2	121
ECF-S-48L-900-WW-G2-x	48	900	3000	135	17,115	B3-U0-G3	127	16,744	B3-U0-G3	124	17,518	B2-U0-G3	130	17,990	B4-U0-G2	133	17,413	B5-U0-G3	129
ECF-S-48L-1A-WW-G2-x	48	1050	3000	159	19,381	B3-U0-G3	122	18,960	B3-U0-G3	119	19,836	B3-U0-G4	125	20,372	B5-U0-G3	128	19,717	B5-U0-G3	124
ECF-S-48L-1.2A-WW-G2-x	48	1200	3000	183	21,515	B3-U0-G3	118	21,048	B3-U0-G4	115	22,020	B3-U0-G4	121	22,616	B5-U0-G3	124	21,888	B5-U0-G3	120
ECF-S-64L-900-WW-G2-x	64	900	3000	178	22,652	B3-U0-G3	127	22,161	B3-U0-G4	125	23,185	B3-U0-G4	130	23,810	B5-U0-G3	134	23,045	B5-U0-G3	130
ECF-S-64L-1A-WW-G2-x	64	1050	3000	206	25,520	B3-U0-G3	124	24,966	B3-U0-G4	121	26,120	B3-U0-G4	127	26,150	B5-U0-G3	127	25,964	B5-U0-G4	126

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type AFR			BLC			LCL or RCL		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
ECF-S-32L-365-WW-G2-x	32	365	3000	40	5,706	B2-U0-G1	143	3,691	B0-U0-G1	94	2,449	B0-U0-G1	62
ECF-S-32L-530-WW-G2-x	32	530	3000	56	7,417	B2-U0-G1	133	5,005	B0-U0-G2	91	3,183	B0-U0-G1	58
ECF-S-32L-700-WW-G2-x	32	700	3000	73	9,567	B2-U0-G2	131	6,409	B0-U0-G2	89	4,106	B0-U0-G1	57
ECF-S-32L-1A-WW-G2-x	32	1050	3000	106	13,467	B3-U0-G2	128	9,024	B1-U0-G2	87	5,793	B0-U0-G2	56
ECF-S-32L-1.2A-WW-G2-x	32	1200	3000	122	14,939	B3-U0-G2	123	10,010	B1-U0-G2	84	6,426	B0-U0-G2	54
ECF-S-48L-900-WW-G2-x	48	900	3000	135	17,731	B3-U0-G2	131	11,880	B1-U0-G2	89	7,626	B0-U0-G2	57
ECF-S-48L-1A-WW-G2-x	48	1050	3000	159	20,076	B3-U0-G2	127	13,453	B1-U0-G2	86	8,636	B0-U0-G2	55
ECF-S-48L-1.2A-WW-G2-x	48	1200	3000	183	22,288	B3-U0-G2	122	14,934	B1-U0-G3	83			
ECF-S-64L-900-WW-G2-x	64	900	3000	178	23,465	B3-U0-G2	132	15,723	B1-U0-G3	90	10,093	B0-U0-G2	58
ECF-S-64L-1A-WW-G2-x	64	1050	3000	206	26,437	B4-U0-G3	128	17,714	B1-U0-G3	87			

4000K LED Wattage and Lumen Values

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type 2			Type 3			Type 4			Type 5			Type 5W		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
ECF-S-32L-365-NW-G2-x	32	365	4000	40	5,798	B1-U0-G1	145	5,713	B1-U0-G2	143	5,934	B1-U0-G2	148	6,094	B3-U0-G1	152	5,898	B3-U0-G2	147
ECF-S-32L-530-NW-G2-x	32	530	4000	56	7,536	B2-U0-G2	135	7,426	B1-U0-G2	133	7,713	B1-U0-G2	138	7,922	B3-U0-G2	142	7,667	B3-U0-G2	138
ECF-S-32L-700-NW-G2-x	32	700	4000	73	9,720	B2-U0-G2	133	9,509	B2-U0-G2	130	9,949	B2-U0-G2	136	10,218	B4-U0-G2	140	9,889	B4-U0-G2	136
ECF-S-32L-1A-NW-G2-x	32	1050	4000	106	13,685	B3-U0-G2	130	13,388	B2-U0-G3	127	14,006	B2-U0-G3	133	14,384	B4-U0-G2	136	13,923	B4-U0-G2	132
ECF-S-32L-1.2A-NW-G2-x	32	1200	4000	122	15,180	B3-U0-G3	125	14,851	B2-U0-G3	122	15,537	B2-U0-G3	128	15,956	B4-U0-G2	131	15,443	B4-U0-G2	127
ECF-S-48L-900-NW-G2-x	48	900	4000	135	18,016	B3-U0-G3	133	17,625	B3-U0-G3	130	18,440	B3-U0-G3	136	18,937	B4-U0-G3	140	18,329	B5-U0-G3	136
ECF-S-48L-1A-NW-G2-x	48	1050	4000	159	20,401	B3-U0-G3	129	19,958	B3-U0-G4	126	20,880	B3-U0-G4	132	21,444	B5-U0-G3	135	20,755	B5-U0-G3	131
ECF-S-48L-1.2A-NW-G2-x	48	1200	4000	183	22,647	B3-U0-G3	124	22,156	B3-U0-G4	121	23,179	B3-U0-G4	127	23,806	B5-U0-G3	130	23,040	B5-U0-G3	126
ECF-S-64L-900-NW-G2-x	64	900	4000	178	23,844	B3-U0-G3	134	23,327	B3-U0-G4	131	24,405	B3-U0-G4	137	25,063	B5-U0-G3	141	24,258	B5-U0-G4	136
ECF-S-64L-1A-NW-G2-x	64	1050	4000	206	26,863	B3-U0-G3	130	26,280	B3-U0-G4	128	27,495	B3-U0-G4	134	27,526	B5-U0-G3	134	27,330	B5-U0-G4	133

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type AFR			BLC			LCL or RCL		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
ECF-S-32L-365-NW-G2-x	32	365	4000	40	6,006	B2-U0-G1	150	3,991	B0-U0-G1	101	2,633	B0-U0-G1	67
ECF-S-32L-530-NW-G2-x	32	530	4000	56	7,807	B2-U0-G1	140	5,412	B0-U0-G2	99	3,423	B0-U0-G1	62
ECF-S-32L-700-NW-G2-x	32	700	4000	73	10,070	B2-U0-G2	138	6,930	B0-U0-G2	96	4,415	B0-U0-G1	61
ECF-S-32L-1A-NW-G2-x	32	1050	4000	106	14,176	B3-U0-G2	134	9,756	B1-U0-G2	94	6,229	B0-U0-G2	60
ECF-S-32L-1.2A-NW-G2-x	32	1200	4000	122	15,725	B3-U0-G2	129	10,822	B1-U0-G2	90	6,910	B0-U0-G2	58
ECF-S-48L-900-NW-G2-x	48	900	4000	135	18664,	B3-U0-G2	138	12,843	B1-U0-G2	96	8,200	B0-U0-G2	62
ECF-S-48L-1A-NW-G2-x	48	1050	4000	159	21,133	B3-U0-G2	133	14,544	B1-U0-G3	93	9,286	B0-U0-G2	59
ECF-S-48L-1.2A-NW-G2-x	48	1200	4000	183	23,461	B3-U0-G2	128	16,145	B1-U0-G3	90			
ECF-S-64L-900-NW-G2-x	64	900	4000	178	24,700	B3-U0-G2	139	16,998	B1-U0-G3	97	10,853	B0-U0-G2	62
ECF-S-64L-1A-NW-G2-x	64	1050	4000	206	27,828	B4-U0-G3	135	19,150	B1-U0-G3	94			

ECF-S EcoForm small

Area luminaire

5000K LED Wattage and Lumen Values

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type 2			Type 3			Type 4			Type 5			Type 5W		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
ECF-S-32L-365-CW-G2-x	32	365	5000	40	5,798	B1-U0-G1	145	5,713	B1-U0-G2	143	5,934	B1-U0-G2	148	6,094	B3-U0-G1	152	5,898	B3-U0-G2	147
ECF-S-32L-530-CW-G2-x	32	530	5000	56	7,536	B2-U0-G2	135	7,426	B1-U0-G2	133	7,713	B1-U0-G2	138	7,922	B3-U0-G2	142	7,667	B3-U0-G2	138
ECF-S-32L-700-CW-G2-x	32	700	5000	73	9,720	B2-U0-G2	133	9,509	B2-U0-G2	130	9,949	B2-U0-G2	136	10,218	B4-U0-G2	140	9,889	B4-U0-G2	136
ECF-S-32L-1A-CW-G2-x	32	1050	5000	106	13,685	B3-U0-G2	130	13,388	B2-U0-G3	127	14,006	B2-U0-G3	133	14,384	B4-U0-G2	136	13,923	B4-U0-G2	132
ECF-S-32L-1.2A-CW-G2-x	32	1200	5000	122	15,180	B3-U0-G3	125	14,851	B2-U0-G3	122	15,537	B2-U0-G3	128	15,956	B4-U0-G2	131	15,443	B4-U0-G2	127
ECF-S-48L-900-CW-G2-x	48	900	5000	135	18,016	B3-U0-G3	133	17,625	B3-U0-G3	130	18,440	B3-U0-G3	136	18,937	B4-U0-G3	140	18,329	B5-U0-G3	136
ECF-S-48L-1A-CW-G2-x	48	1050	5000	159	20,401	B3-U0-G3	129	19,958	B3-U0-G4	126	20,880	B3-U0-G4	132	21,444	B5-U0-G3	135	20,755	B5-U0-G3	131
ECF-S-48L-1.2A-CW-G2-x	48	1200	5000	183	22,647	B3-U0-G3	124	22,156	B3-U0-G4	121	23,179	B3-U0-G4	127	23,806	B5-U0-G3	130	23,040	B5-U0-G3	126
ECF-S-64L-900-CW-G2-x	64	900	5000	178	23,844	B3-U0-G3	134	23,327	B3-U0-G4	131	24,405	B3-U0-G4	137	25063	B5-U0-G3	141	24258	B5-U0-G4	136
ECF-S-64L-1A-CW-G2-x	64	1050	5000	206	26,863	B3-U0-G3	130	26,280	B3-U0-G4	128	27,495	B3-U0-G4	134	27526	B5-U0-G3	134	27330	B5-U0-G4	133

Ordering Code	Total LEDs	LED Current (mA)	Color Temp.	Average System Watts	Type AFR			BLC			LCL or RCL		
					Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)	Lumen Output	BUG Rating	Efficacy (LPW)
ECF-S-32L-365-CW-G2-x	32	365	5000	40	6,006	B2-U0-G1	150	3,991	B0-U0-G1	101	2,633	B0-U0-G1	67
ECF-S-32L-530-CW-G2-x	32	530	5000	56	7,807	B2-U0-G1	140	5,412	B0-U0-G2	99	3,423	B0-U0-G1	62
ECF-S-32L-700-CW-G2-x	32	700	5000	73	10,070	B2-U0-G2	138	6,930	B0-U0-G2	96	4,415	B0-U0-G1	61
ECF-S-32L-1A-CW-G2-x	32	1050	5000	106	14,176	B3-U0-G2	134	9,756	B1-U0-G2	94	6,229	B0-U0-G2	60
ECF-S-32L-1.2A-CW-G2-x	32	1200	5000	122	15,725	B3-U0-G2	129	10,822	B1-U0-G2	90	6,910	B0-U0-G2	58
ECF-S-48L-900-CW-G2-x	48	900	5000	135	18,664	B3-U0-G2	138	12,843	B1-U0-G2	96	8,200	B0-U0-G2	62
ECF-S-48L-1A-CW-G2-x	48	1050	5000	159	21,133	B3-U0-G2	133	14,544	B1-U0-G3	93	9,286	B0-U0-G2	59
ECF-S-48L-1.2A-CW-G2-x	48	1200	5000	183	23,461	B3-U0-G2	128	16,145	B1-U0-G3	90			
ECF-S-64L-900-CW-G2-x	64	900	5000	178	24,700	B3-U0-G2	139	16,998	B1-U0-G3	97	10,853	B0-U0-G2	62
ECF-S-64L-1A-CW-G2-x	64	1050	5000	206	27,828	B4-U0-G3	135	19,150	B1-U0-G3	94			

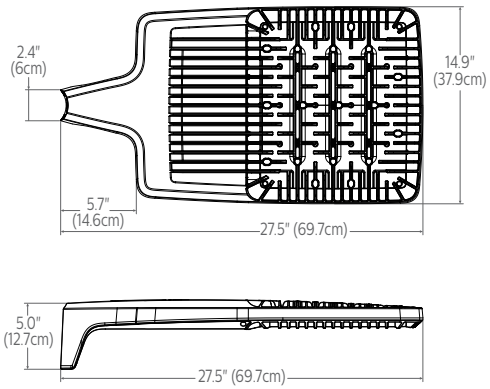
ECF-S EcoForm small

Area luminaire

Dimensions

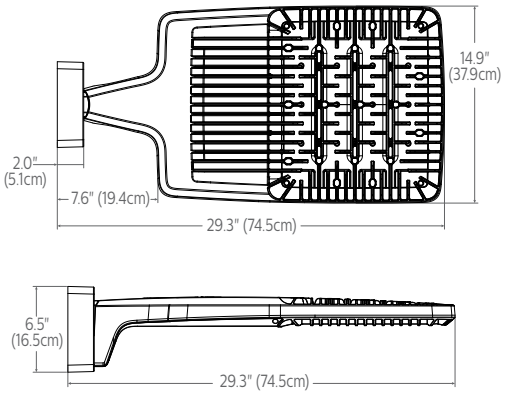
Standard Arm (**AR**)

Weight: 22 Lbs (9.9 Kg) EPA: 0.21ft² (.019m²)



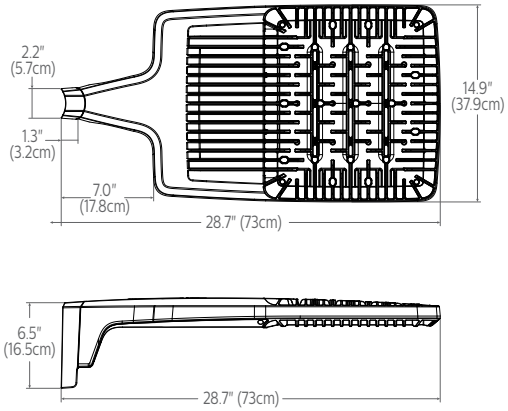
Wall (**WS**)

Weight: 27 Lbs. (12. 2Kg)EPA: 0.27ft² (.025m²)



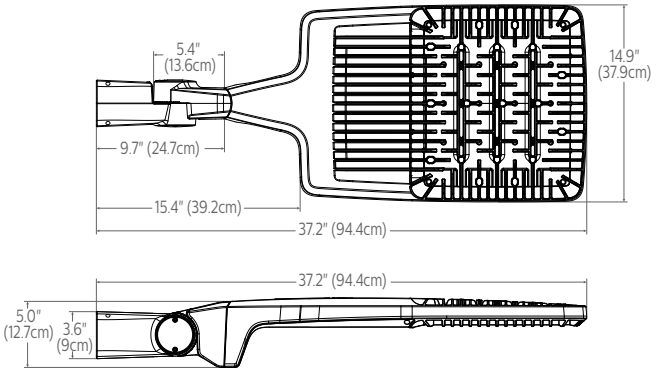
Retrofit Arm (**RAM**)

Weight: 24 Lbs (10.9 Kg) EPA: 0.24ft² (.022m²)

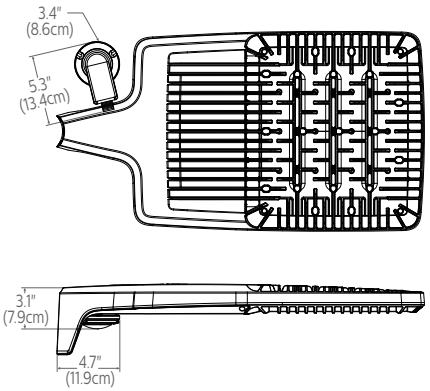


Slip fitter (**SF**)

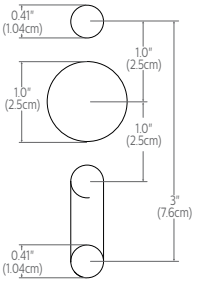
Weight: 27 Lbs (12.2 Kg) EPA: 0.33ft² (.031m²)



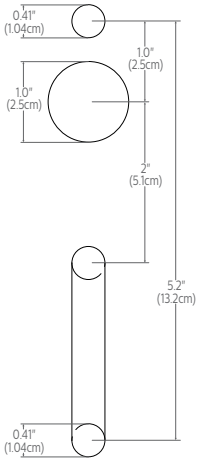
Outboard **IMR-HVU** sensor



Standard Arm (**AR**) drill pattern



Retrofit Arm (**RAM**) drill pattern



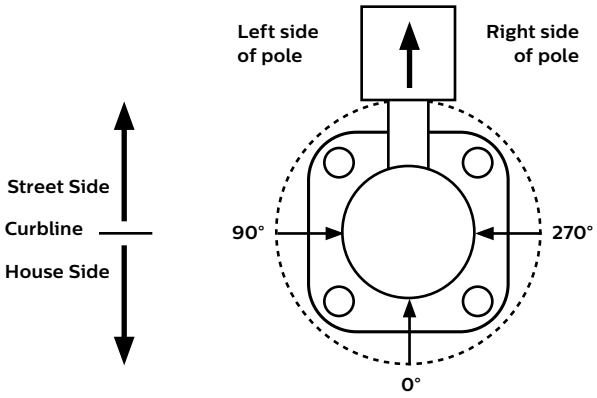
ECF-S EcoForm small

Area luminaire

Optical Orientation Information

Standard Optic Position

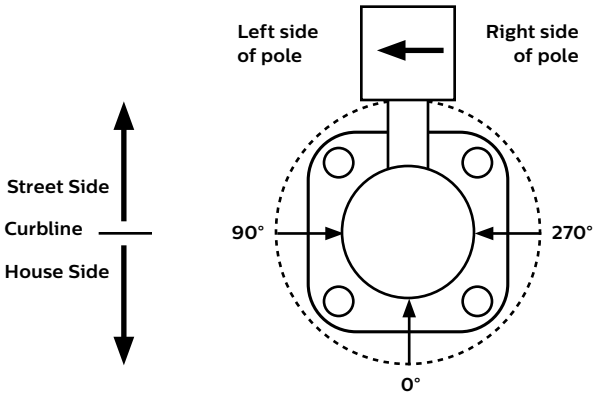
Luminaires ordered with asymmetric optical systems in the standard optic position will have the optical system oriented as shown below:



Note: The hand hole will normally be located on the pole at the 0° point.

Optic Rotated Left (90°) Optic Position

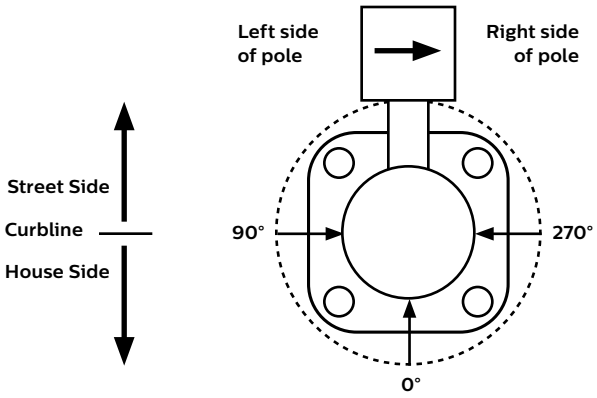
Luminaires ordered with optical systems in the Optic Rotated Left (90°) optic position will have the optical system oriented as shown below (Type 5 and 5W optics are not available with factory set rotatable optics):



Note: The hand hole will normally be located on the pole at the 0° point.

Optic Rotated Right (270°) Optic Position

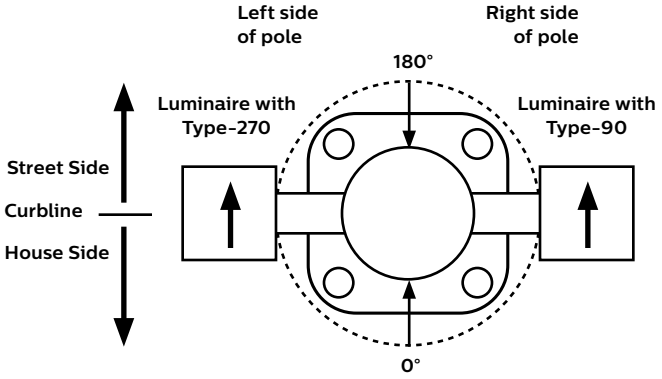
Luminaires ordered with optical systems in the Optic Rotated Right (270°) optic position will have the optical system oriented as shown below (Type 5 and 5W optics are not available with factory set rotatable optics):



Note: The hand hole will normally be located on the pole at the 0° point.

Twin Luminaire Assemblies with Type-90/Type-270 Rotated Optical Systems

Twin luminaire assemblies installed with rotated optical systems are an excellent way to direct light toward the interior of the site (Street Side) without additional equipment. It is important, however, that care be exercised to insure that luminaires are installed in the proper location.



Luminaires with Optic Rotated Right (270°) are installed on the LEFT Side of Pole

Luminaires with Optic Rotated Left (90°) are installed on the RIGHT Side of Pole

Note: The hand hole location will depend on the drilling configuration ordered for the pole.

ECF-S EcoForm small

Area luminaire

Specifications

Housing

One-piece die cast aluminum housing with integral arm and separate, self-retained hinged, one-piece die cast door frame. Luminaire housing rated to IP65, tested in accordance to Section 9 of IEC 60598-1.

Vibration resistance

Luminaire is tested and rated 3G over 100,000 cycles conforming to standards set forth by ANSI C136.31-2018. Testing includes vibration in three axes, all performed on the same luminaire.

Light engine

Light engine comprises of a module of 16-LED aluminum metal clad board fully sealed with optics offered in multiples of 2, 3, and 4 modules or 32, 48, and 64 LEDs. Module is RoHS compliant. Color temperatures: 3000K +/-125K, 4000K, 5000K +/- 200K. Minimum CRI of 70. LED light engine is rated IP66 in accordance to Section 9 of IEC 60598-1.

Energy saving benefits

System efficacy up to 152 lms/W with significant energy savings over Pulse Start Metal Halide luminaires. Optional control options provide added energy savings during unoccupied periods.

Optical systems

Type 2, 3, 4, 5, 5W, and AFR distributions available. Internal Shield option mounts to LED optics and is available with Type 2, 3, 4, and AFR distributions, including a dedicated BLC, LCL, and RCL optics to provide the best backlight control possible for those stringent requirements around property lines. Types 2, 3, 4, AFR, and BLC when specified and used as rotated, are factory set only. Performance tested per LM-79 and TM-15 (IESNA) certifying its photometric performance. Luminaire designed with 0% uplight (U0 per IESNA TM-15).

Mounting

Standard luminaire arm mounts to 4" O.D. round poles. Can also be used with 5" O.D. poles. Square pole adapter included with every luminaire. Round Pole Adapter (RPA) required for 3-3.9" poles. EcoForm features a retrofit arm kit. When specified with the retrofit arm (RAM) option, EcoForm seamlessly simplifies site conversions to LED by eliminating the need for additional pole drilling on most existing poles. RAM will be boxed separately. Also optional are slipfitter and wall mounting accessories. Note that only fixed mounts (AR, RAM, WS) are required to meet IDA compliance. SF mounting will not meet IDA.

Control options

0-10V dimming (DD): Access to 0-10V dimming leads supplied through back of luminaire (for secondary dimming controls by others). Cannot be used with other control options.

Dual Circuit Control (DCC): Luminaire equipped with the ability to have two separate circuits controlling drivers and light engines independently. Permits separate switching of separate modules controlled by use of two sets of leads, one for each circuit. Not recommended to be used with other control options, motion response, or photocells.

Sensor Ready Zhaga Socket Connector (SRDR): Product equipped with Sensor Ready drivers connected to 4-pin Zhaga Book 18 compliant receptacle designed for sensor and other control system applications. Receptacle is rated IP66 assembly in a compact design that provides a sealed electrical interface and rated UV resistance, mounted on underside of the luminaire, protective dust cap included. When a controller not provided by Signify is used with Sensor Ready Zhaga socket connector, the controller must be certified to work with the Xitanium SR LED drivers as part of the SR certified program. SRDR can be used with NEMA 7-pin twist lock receptacle, which is mounted on top of the luminaire.

Automatic Profile Dimming (CS/CM/CE/CA): Standard dimming profiles provide flexibility towards energy savings goals while optimizing light levels during specific dark hours. Dimming profiles include two dimming settings including dim to 30% or 50% of the total lumen output. When used in combination with not programmed motion response it overrides the controller's schedule when motion is detected. After 5 minutes with no motion, it will return to the automatic diming profile schedule. Automatic dimming profile scheduled with the following settings:

- **CS50/CS30:** Security for 7 hours night duration (Ex., 11 PM – 6 AM)
- **CM50/CM30:** Median for 8 hours night duration (Ex., 10 PM – 6 AM)

All above profiles are calculated from mid point of the night. Dimming is set for 6 hours after the mid point and 1 or 2 hours before depending of the duration of dimming. Cannot be used with other dimming control options.

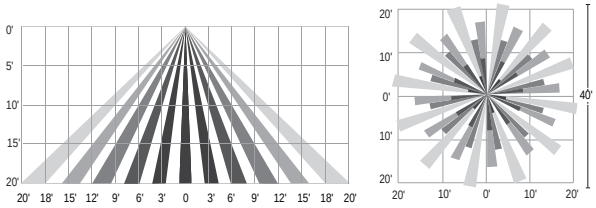
Field Adjustable Wattage Selector (FAWS): Luminaire equipped with the ability to manually adjust the wattage in the field to reduce total luminaire lumen output and light levels. Comes pre-set to the highest position at the lumen output selected. Use chart below to estimate reduction in lumen output desired. Cannot be used with other control options or motion response.

FAWS Position	Percent of Typical Lumen Output
1	25%
2	50%
3	55%
4	65%
5	75%
6	80%
7	85%
8	90%
9	95%
10	100%

Note: Typical value accuracy +/- 5%

Wireless system (LLC): Optional wireless controller integral to luminaire ready to be connected to a Limelight system (sold by others). The system allows you to wirelessly manage the entire site, independent lighting groups or individual luminaires while on-site or remotely. Based on a high-density mesh network with an easy to use web-based portal, you can conveniently access, monitor and manage your lighting network remotely. Wireless controls can be combined with site and area, pedestrian, and parking garage luminaires as well, for a completely connected outdoor solution. Equipped with motion response with #3 lens for 8-25' mounting heights. Also available with remote pod accessory where pod is mounted separate from luminaire to pole or wall.

LLC wireless controller with #3 lens



Motion response options

Bi-Level Infrared Motion Response (BL-IMRI): Motion Response module is mounted integral to luminaire factory pre-programmed to 50% dimming when not ordered with other control options. BL-IMRI is set/operates in the following fashion: The motion sensor is set to a constant 50%. When motion is detected by the PIR sensor, the luminaire returns to full power/light output. Dimming on low is factory set to 50% with 5 minutes default in "full power" prior to dimming back to low. When no motion is detected for 5 minutes, the motion response system reduces the wattage by 50%, to 50% of the normal constant wattage reducing the light level. Other dimming settings can be provided if different dimming levels are required. This can also be done with FSIR-100 Wireless Remote Programming Tool (contact Technical Support for details).

Infrared Motion Response with Other Controls: When used in combination with other controls (Automatic Dimming Profile), motion response device will simply override controller's schedule with the added benefits of a combined dimming profile and sensor detection. In this configuration, the motion response device cannot be re-programmed with FSIR-100 Wireless Remote Programming Tool. The profile can only be re-programmed via the controller.

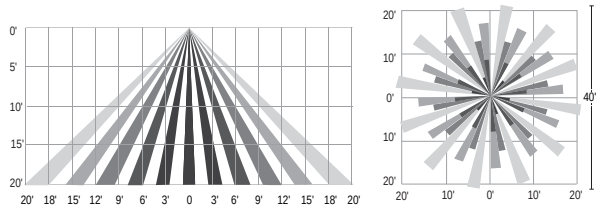
ECF-S EcoForm small

Area luminaire

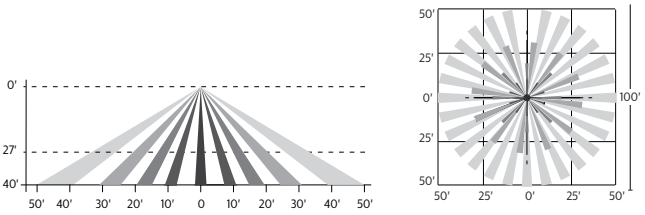
Specifications

Infrared Motion Response Lenses (IMRI3/IMRI7): Infrared Motion Response Integral module is available with two different sensor lens types to accommodate various mounting heights and occupancy detection ranges. Lens #3 (IMRI3) is designed for mounting heights up to 20' with a 40' diameter coverage area. Lens #7 is designed for higher mounting heights up to 40' with larger coverage areas up to 100' diameter coverage area. See charts for approximate detection patterns:

IMRI3 Luminaire or remote mount controller with #3 lens



IMRI7 Luminaire or remote mount controller with #7 lens



Electrical

Twist-Lock Receptacle (TLRD5/TLRD7/ TLRPC): Twist Lock Receptacle with 5 pins enabling dimming or with 7 pins with additional functionality (by others) can be used with a twistlock photoelectric cell or a shorting cap. Dimming Receptacle Type B (5-pin) and Type D-24 (7-pin) in accordance to ANSI C136.41. Can be used with third-party control system. Receptacle located on top of luminaire housing. When specifying receptacle with twistlock photoelectric cell, voltage must be specified. When ordering 7-pin Twist-lock receptacle (TLRD7), all 7 pins are wired to respective pins with the Sensor Ready (SR) driver, and photocell or shorting cap is not included. When ordering a twist-lock receptacle with a photocell (TLRPC), the receptacle used is a 5-pin receptacle, so pins 6 and 7 are not available (no SR driver). 0-10V dimming leads (pins 4 and 5) are connected if not ordered with any other dimming option.

Driver: Driver efficiency (>90% standard). 120-480V available (restrictions apply). Open/short circuit protection. All drivers are 0-10V dimming to 10% power standard, except when using Sensor Ready (SR) drivers, which uses DALI protocol (options CS50/CM50/CS30/CM30, SRDR, and TR7). Drivers are RoHS and FCC Title 47 CFR Part 15 compliant.

Button Photocontrol (PCB): Button style design for internal luminaires mounting applications. The photocontrol is constructed of a high impact UV stabilized polycarbonate housing. Rated voltage of 120V or 208-277V with a load rating of 1000 VA. The photocell will turn on with 1-4Fc of ambient light.

Surge protection (SP1/SP2): Surge protection device tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/10kA waveforms for Line-Ground, Line-Neutral and Neutral-Ground, and in accordance with DOE MSSLC Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High test level 10kV/10kA. 20kV / 10kA surge protection device that provides extra protection beyond the SP1 10kV/10kA level.

Listings

UL/cUL wet location listed to the UL 1598 standard, suitable for use in ambient temperatures from -40° to 40°C (-40° to 104°F). Most EcoForm configurations are qualified under Premium and Standard DesignLights Consortium® categories. Consult DLC Qualified Products list to confirm your specific luminaire selection is approved. CCTs 3000K and warmer are Dark Sky Approved.

Finish

Each standard color luminaire receives a fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) textured polyester powdercoat finish. Standard colors include bronze (BZ), black (BK), white (WH), dark gray (DGY), and medium gray (MGY). Consult factory for specs on optional or custom colors.

Service Tag

Each individual luminaire is uniquely identifiable, thanks to the Service tag application. With a simple scan of a QR code, placed on the inside of the mast door, you gain instant access to the luminaire configuration, making installation and maintenance operations faster and easier, no matter what stage of the luminaire's lifetime. Just download the APP and register your product right away. For more details visit: signify.com

Warranty

EcoForm luminaires feature a 5-year limited warranty
See signify.com/warranties for complete details and exclusions.

Buy American Act of 1933 (BAA):

This product is manufactured in one of our US factories and, as of the date of this document, this product was considered a commercially available off-the-shelf (COTS) item meeting the requirements of the BAA. This BAA designation hereunder does not address (i) the applicability of, or availability of a waiver under, the Trade Agreements Act, or (ii) the "Buy America" domestic content requirements imposed on states, localities, and other non-federal entities as a condition of receiving funds administered by the Department of Transportation or other federal agencies. Prior to ordering, please visit www.signify.com/baa to view a current list of BAA-compliant products to confirm this product's current compliance.

Signify North America Corporation
200 Franklin Square Drive,
Somerset, NJ 08873
Telephone 855-486-2216

Signify Canada Ltd.
281 Hillmount Road,
Markham, ON, Canada L6C 2S3
Telephone 800-668-9008

1 FRONT ELEVATION
SCALE: N.T.S.

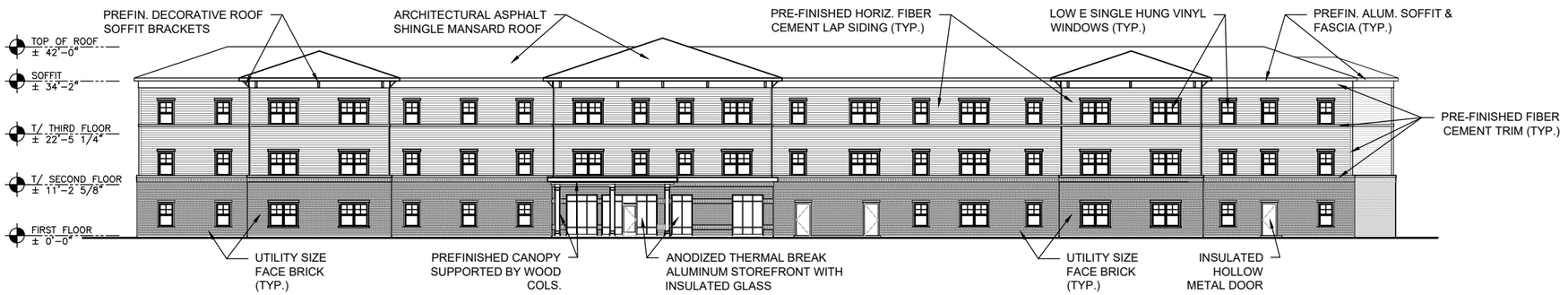
NORTH ARROW
ARCHITECTURE
524 WEST ST. CHARLES ROAD
VILLA PARK, ILLINOIS 60181

STARLING SENIOR APARTMENTS

0 DEEP LAKE ROAD
LAKE VILLA, IL 60046

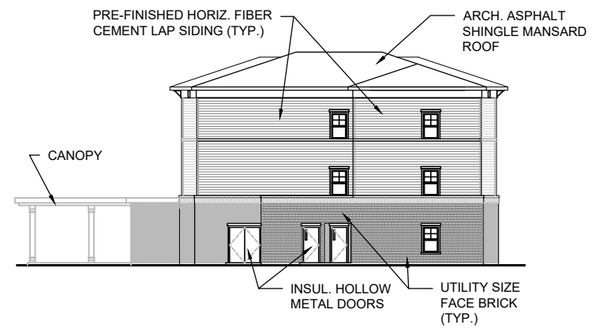
PID #
DATE: 1/27/2023

A0.2



1 SOUTH (FRONT) ELEVATION

SCALE: 1/32" = 1'-0"



2 EAST ELEVATION

SCALE: 1/32" = 1'-0"

NORTH ARROW ARCHITECTURE
524 WEST ST. CHARLES ROAD
VILLA PARK, ILLINOIS 60181

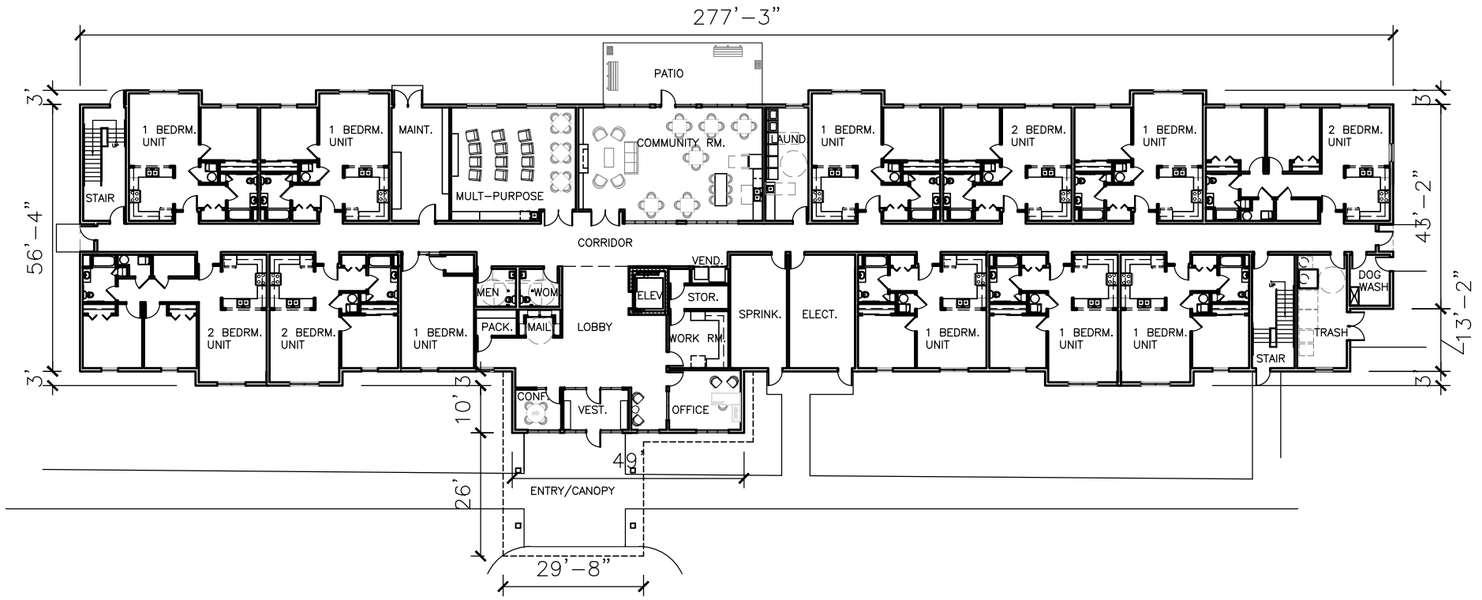
STARLING SENIOR APARTMENTS

0 DEEP LAKE ROAD
LAKE VILLA, IL 60046

PID #

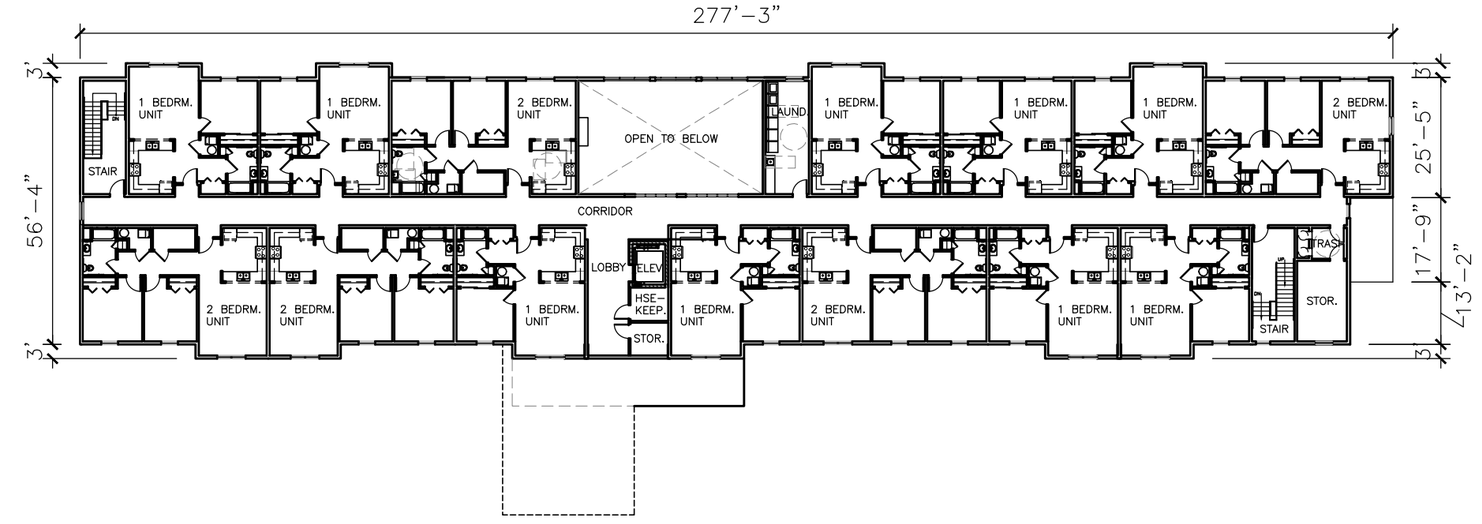
DATE: 1/27/2023

A3.0



1 FIRST FLOOR PLAN

SCALE: 1/32" = 1'-0"



2 SECOND FLOOR PLAN

SCALE: 1/32" = 1'-0"

NORTH ARROW ARCHITECTURE
524 WEST ST. CHARLES ROAD
VILLA PARK, ILLINOIS 60181

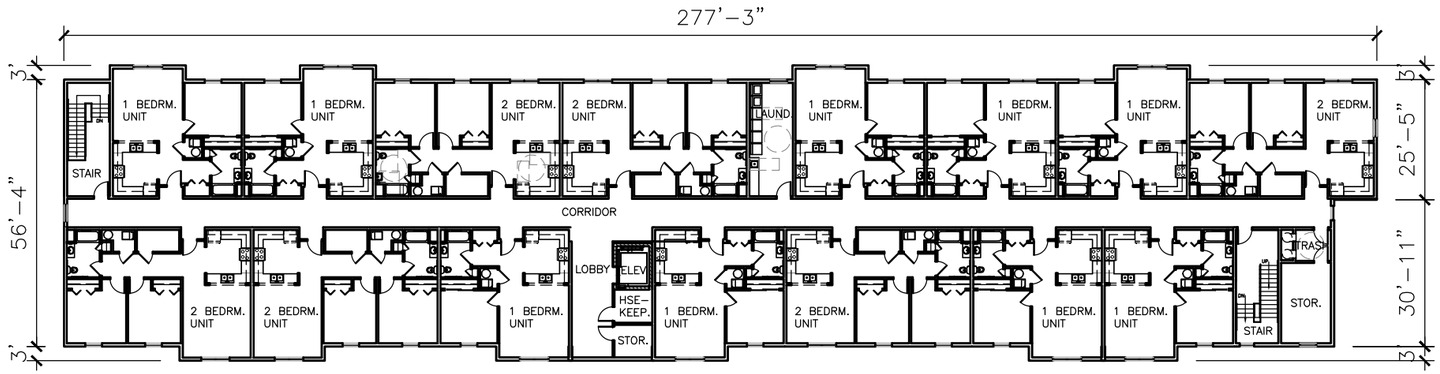
LAKE VILLA

0 DEEP LAKE ROAD
LAKE VILLA, IL 60046

PID #

DATE: 1/27/2023

A1.0



1 THIRD FLOOR PLAN

SCALE: 1/32" = 1'-0"

NORTH ARROW ARCHITECTURE
524 WEST ST. CHARLES ROAD
VILLA PARK, ILLINOIS 60181

LAKE VILLA

0 DEEP LAKE ROAD
LAKE VILLA, IL 60046

PID #

DATE: 1/27/2023

A2.0

PROPOSED LAKE VILLA SENIOR LOFTS
VILLAGE OF LAKE VILLA, ILLINOIS
PRELIMINARY STORMWATER MANAGEMENT PLAN

INTRODUCTION

The proposed Lake Villa Senior Lofts site is +/- 5.21 acres located at the southwest corner of Grass Lake Road and Deep Lake Road in Lake Villa, Illinois. These improvements will consist of a construction of a building includes car parking, grading and paving activities, installation of underground utilities, and soil erosion control measures. Stormwater Management was previously provided for the developed area north of the site (WT Group Storm Management Report). Stormwater management for the proposed improvements will be provided through additional storm sewers and an additional on-site basin, providing detention per the new Bulletin 75 rainfall data. A Bulletin 75 Nomograph was used to calculate preliminary detention requirements for the proposed improvements and modeled calculations will be performed in the final stormwater phase. This report serves as a Preliminary Stormwater Management Plan for the proposed site stormwater design.

PROJECT DECSCRIPTION

The project is located near the southwest corner of Grass Lake Road and Deep Lake Road intersection in the Village of Lake Villa, Illinois. The site is in Section 28, Township 46 North, and Range 10 East. It is bordered on the west by a neighborhood, to the north by the Lake House Restaurant and Water Tower, to the east by Deep Lake Road, and to the south by an existing detention basin. This project will be served by the proposed detention basin.

EXISTING CONDITIONS

The existing conditions of the site are an undeveloped site. The existing drainage is through sheet flow to the existing detention basin or to a swale that drains to the basin. The site is free of floodplain but wetland have been identified off-site to the south.

PROPOSED CONDITIONS

The proposed conditions are design to contain the proposed site within the proposed detention basin. The onsite project area will drain via proposed storm sewer to a proposed 2.6 ac-ft detention pond with a NWL of 790.25 and HWL of 798.25. The calculations used to size the proposed detention basins using 0.15 cubic feet per second per acre. The proposed

detention was designed using Bulletin 75. The runoff volume reduction quantity was found by using the runoff depth of 0.39 inches, for the 39% impervious site, and finding it in the provided table in the LCWDO. The RVR Quantity found in the table was then multiplied by the total impervious area to find our site RVR of 2,712 cubic feet. Additionally, a hydrodynamic separator will be added in order to provide extra filtration of stormwater particulates.

All required detention and additional information for the project site is detailed in the stormwater calculations and exhibits provided.

ANALYSIS METHODS

The procedures and assumptions used for the storm sewer and drainage design elements are listed below.

- Onsite curve numbers were calculated using 98 for impervious and 74 for pervious areas in the predeveloped condition and 80 for pervious areas in the postdeveloped condition
- The CN Exhibit and calculation attached to this report show the proposed CN to be 86.
- Required detention volume was found using a B-75 nomograph.
- RVR and water quality requirements were found using the Lake County Watershed Development Ordinance graphs and tables.

CONCLUSION

In our professional opinion the proposed development's stormwater management system as described in this report conforms to the requirements set forth by the Village of Lake Villa Municipal Code.

Sincerely,

MANHARD CONSULTING, LTD

Matt Eagle

CALCULATIONS

COMPOSITE RUNOFF CURVE NUMBER (*CN*)

PROJECT: Starling Senior Apartments **PERMIT NUMBER:**

LOCATION: Lake Villa, Illinois **DATE:** 12/29/2022

TYPE OF AREA (SELECT WITH DROP-DOWN)

X	DETAINED AREA		MAJOR STORMWATER SYSTEM
	UNRESTRICTED AREA		OTHER:
	UPSTREAM AREA		

CONDITION (SELECT WITH DROP-DOWN)

	PROPOSED CONDITION	X	EXISTING CONDITION

RUNOFF CURVE NUMBER

Surface Description	Hydrologic Soil Group (HSG)	CN	Area (acres)	Product (CN)(Area)
Pervious Surface		74	5.21	385.54
TOTALS:			5.21	385.54

COMPOSITE RUNOFF CURVE NUMBER

$$\text{Composite CN} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{385.54}{5.21} \rightarrow \textbf{Composite CN} = \textbf{74}$$

COMPOSITE RUNOFF CURVE NUMBER (*CN*)

PROJECT: Starling Senior Apartments **PERMIT NUMBER:**

LOCATION: Lake Villa, Illinois **DATE:** 2/6/2023

TYPE OF AREA (SELECT WITH DROP-DOWN)

- **X** DETAINED AREA
- ___ UNRESTRICTED AREA
- ___ UPSTREAM AREA
- ___ MAJOR STORMWATER SYSTEM
- ___ OTHER:

CONDITION (SELECT WITH DROP-DOWN)

- **X** PROPOSED CONDITION
- ___ EXISTING CONDITION

RUNOFF CURVE NUMBER

Surface Description	Hydrologic Soil Group (HSG)	CN	Area (acres)	Product (CN)(Area)
Impervious Surface	N/A	98	1.68	164.64
Pervious Surface	D (next higher soil group per Lake County WDO)	80	3.50	280.00
TOTALS:			5.18	444.64

COMPOSITE RUNOFF CURVE NUMBER

$$\text{Composite CN} = \frac{\text{Total Product}}{\text{Total Area}} = \frac{444.64}{5.18} \rightarrow \textbf{Composite CN} = \textbf{86}$$

NOMOGRAPH: BULLETIN 75 RAINFALL DATA

PROJECT: Starling Senior Apartments **PERMIT NUMBER:**

LOCATION: Lake Villa, Illinois **DATE:** 2/6/2023

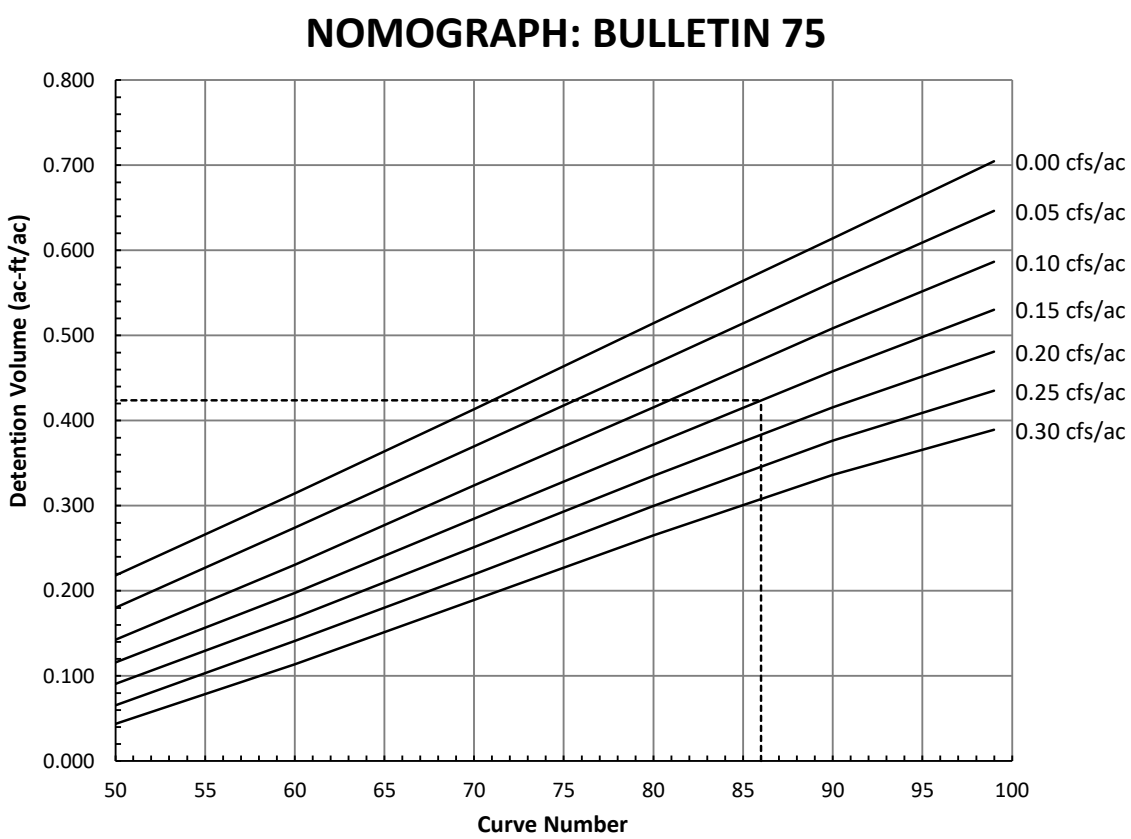
DEVELOPMENT INFORMATION

1.	Detained Area (Hydrologically Disturbed Area)	4.300	acres
2.	Curve Number	86.00	
3.	Actual Release Rate	0.65	cfs

REQUIRED DETENTION VOLUME

4.	Required Detention Volume	1.82	ac-ft

NOMOGRAPH



DETENTION VOLUME PROVIDED

PROJECT: Starling Senior Apartments **PERMIT NUMBER:**

LOCATION: Lake Villa, Illinois **DATE:** 1/23/2023

AREA UNITS (CHOOSE WITH DROP-DOWN)

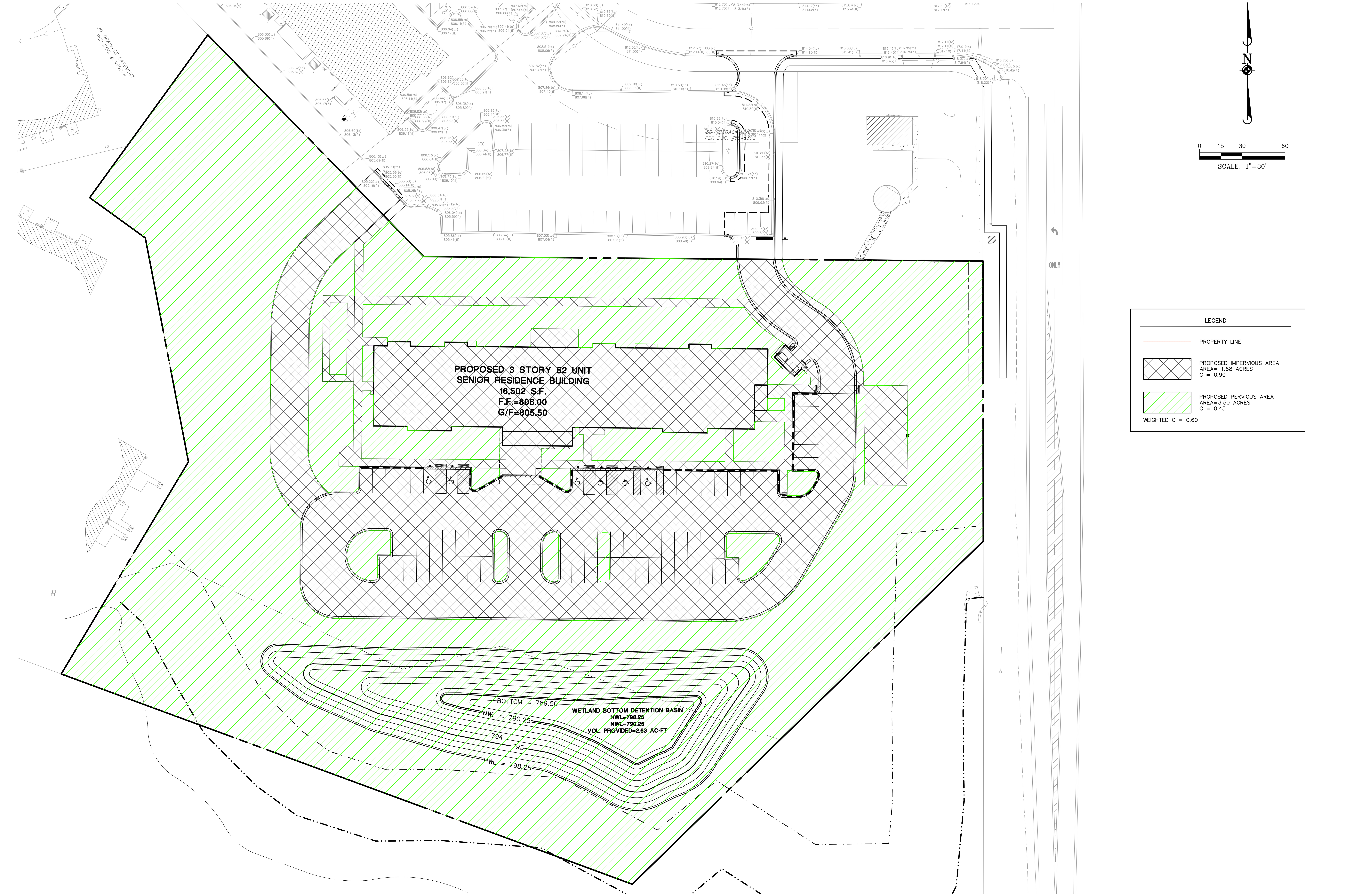
Units: ft²

POND / VAULT / SURFACE DETENTION VOLUME

Elevation (ft)	Area (ft²)	Average Area (ft²)	Increment Volume (ac-ft)	Cumulative Volume (ac-ft)
790.25	4520.00			0.00
		5139.50	0.09	
791.00	5759.00			0.09
		6964.00	0.16	
792.00	8169.00			0.25
		9281.00	0.21	
793.00	10393.00			0.46
		11801.50	0.27	
794.00	13210.00			0.73
		14587.00	0.33	
795.00	15964.00			1.07
		17481.00	0.40	
796.00	18998.00			1.47
		20519.00	0.47	
797.00	22040.00			1.94
		23611.50	0.54	
798.00	25183.00			2.48
		25584.00	0.15	
798.25	25985.00			2.63

TOTAL DETENTION VOLUME

Total Detention Volume (ac-ft) **2.63**



LAKE VILLA SENOIR LOFTS

LAKE VILLA, ILLINOIS

IMPERVIOUS EXHIBIT

Manhard CONSULTING LTD

116 West Illinois, 7th Floor, Chicago, IL 60654 ph:312.824.3801 fx:847.634.0095 manhard.com

Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers

Construction Managers • Environmental Scientists • Landscape Architects • Planners

PROJ. MGR.: KJC

PROJ. ASSOC.: MJC

DRAWN BY: SB

DATE: 02/06/23

SCALE: 1"=30'

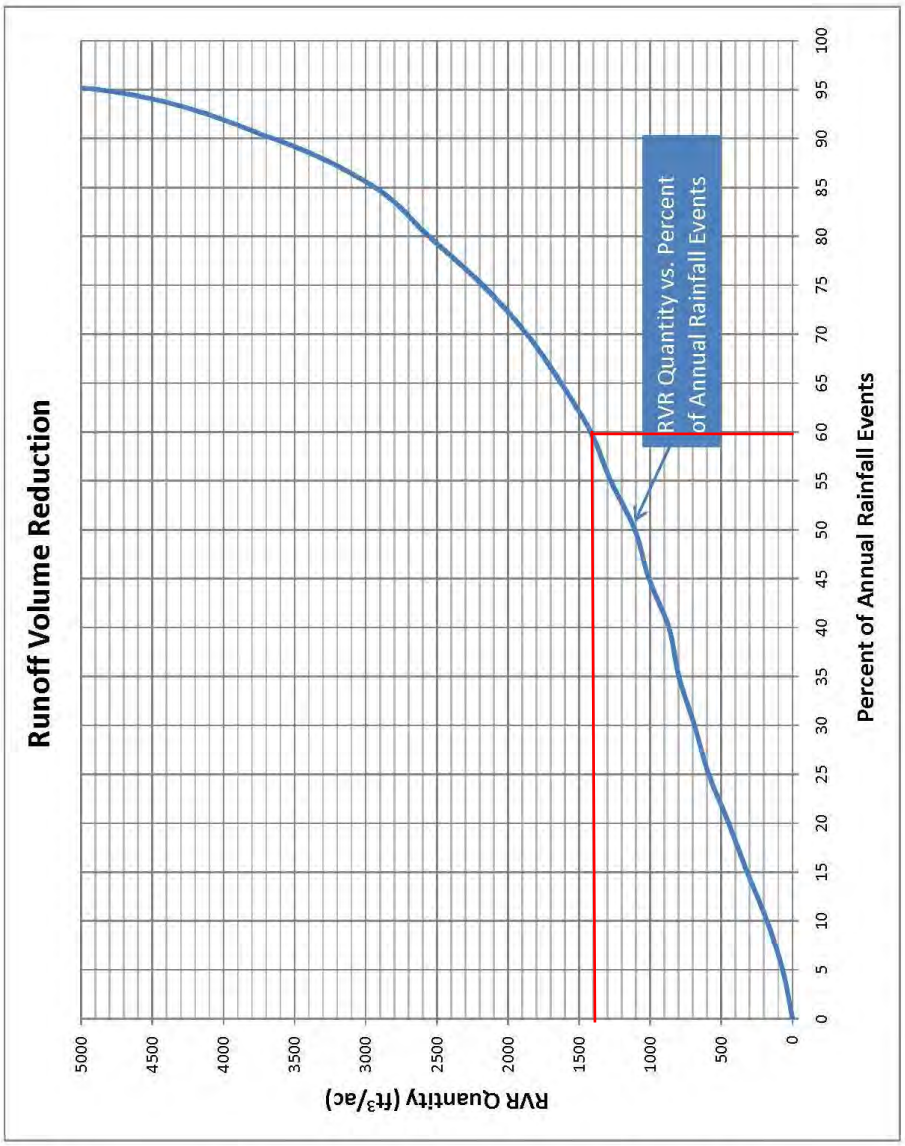
SHEET

EXH

LAC.LVIL01

NOT FOR CONSTRUCTION

Appendix O: Runoff Volume Reduction



Percent of Annual Rainfall Events	100% impervious values: Runoff Depth (in)	100% impervious values: RVR Quantity ft³/ac new impervious
0	0	0
5	0.02	70
10	0.05	180
15	0.09	320
20	0.12	450
25	0.16	590
30	0.19	690
35	0.22	800
40	0.24	870
45	0.28	1010
50	0.30	1110
55	0.35	1280
60	0.39	1420
65	0.45	1630
70	0.51	1870
75	0.60	2180
80	0.70	2560
85	0.81	2940
90	1.01	3660
95	1.35	4900
99	2.41	8760

Runoff Depth based on Figure 3 of the Center For Watershed Protection Report.

Runoff Depth = P*R where:

P = Rainfall Depth (inches)

R=Volumetric Runoff Coefficient = 0.95 for 100% impervious cover [0.05+.009(I), where I is 100% (impervious cover)]

RVR Quantity = Runoff Depth (in) / 12 (in/ft) * 43560 (ft^2/ac)

RUNOFF VOLUME REDUCTION PROVIDED

PROJECT: Starling Senior Apartments **PERMIT NUMBER:**

LOCATION: Lake Villa, Illinois **DATE:** **1/23/2023**

AREA UNITS (CHOOSE WITH DROP-DOWN)

Units: ft²

POND / VAULT / SURFACE DETENTION VOLUME

Elevation (ft)	Area (ft²)	Average Area (ft²)	Increment Volume (ac-ft)	Cumulative Volume (ac-ft)
789.25	2906.00			0.00
		3512.50	0.06	
790.00	4119.00			0.06
		4319.00	0.02	
790.25	4519.00			0.09

TOTAL DETENTION VOLUME

Total RVR Volume (ac-ft)	**0.09**

WETLAND DELINEATION REPORT

Grass Lake Road & Deep Lake Road

Lake Villa, Lake County, IL

Manhard Consulting, LTD.

MA2242

November 22, 2022
Revised February 3, 2023

GARY R. WEBER ASSOCIATES, INC.
LAND PLANNING ECOLOGICAL CONSULTING LANDSCAPE ARCHITECTURE

WETLAND DELINEATION REPORT

Grass Lake Road & Deep Lake Road

Pin #0228201178

Lake Villa, Lake County, IL

Prepared for:

Manhard Consulting, LTD.
116 West Illinois St, Floor 7
Chicago, IL 60654

Attn: Matt Eagle, P.E.

Prepared by:

Gary R. Weber Associates, Inc.
402 W. Liberty Drive
Wheaton, IL 60187
(630)668-7197

Project Reference Information

MA2242

November 22, 2022

Carl M. Peterson, CPESC, LEED AP
GRWA - Managing Principal

Ellen L. Raimondi, CWS, DECI
GRWA - Senior Ecologist

Project Staff

Lisa Pajon
GRWA - Natural Resource Consultant

CONTENTS

WETLAND DELINEATION REPORT

Project Name:	Grass Lake Road & Deep Lake Road MA2242	Client:	Manhard Consulting, LTD.
Location:	Lake Villa, Lake Villa Township, Lake County, IL, 60046,		
Parcel PIN #	0228201178		
PLSS	NE S28 T46N R10E		
Coordinates	Latitude: 42.439678 Longitude: -88.063754		
Field Ecologist:	Lisa Pajon		
Supervised by:	Ellen Raimondi (CWS)		
Date of site visit:	11/3/2022		

1.0 INTRODUCTION

Gary R Weber Associates performed a formal wetland delineation within the study area located on Deep Lake Road, Lake Villa, Lake County, IL (Exhibit A: Location), hereafter referred to as the study area. It is generally bounded by Deep Lake Road to the east, by commercial property to the north, and by wetland and residential properties to the west and south. The study area, as presented in this report, represents the property limits investigated by GRWA for the presence of regulated surface water resources. These limits do not necessarily reflect the boundaries of any proposed development activities. It is within the Sequoit Creek sub-watershed and the Fox River Watershed.

1.1 SITE DESCRIPTION

The study area (approximately 4.97-acres) consists of a turf field with a lightly a scrub-shrub border to the north and east (see Photo 1-2). The field is an elevated building pad that was constructed around 1999.

One (1) wetland complex totaling over 10 acres in size, with approximately 0.06-acres within the study area boundaries was identified. The wetland consists of a mix of emergent vegetation and open water with a connected drainage swale at Deep Lake Road. The wetland extends on-site in the southwest corner of the study area

Wetland acreages provided in this report are estimations; a survey of staked boundaries must be performed to obtain exact size and location information. A summary of regulations is provided in Section 1.2.

1.2 REGULATION SUMMARY

Basic information regarding wetland regulations may be found in the Regulatory Statement portion of this report. Briefly, the U.S. Army Corps of Engineers (USACE) regulates all Waters of the United States that are currently or historically navigable and all wetlands that are connected to or associated with these waterways. In Lake County, isolated wetlands are regulated through implementation of a countywide watershed development ordinance. Lake County requires a minimum buffer width of 50 feet for wetlands greater than 2.5 acres.

Wetland 1 extends to the west and enters a complex that is part of the Sequoit Creek drainage and is likely regulate by the USACE.

At the time of this wetland delineation report, current regulations state that this delineation is valid for 3 years from the date of site verification.

1.3 THREATENED AND ENDANGERED SPECIES

Based on a 11/10/2022 review of the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) website, sensitive (federally threatened or endangered) plant or animal species habitat habitat are not located on or adjacent to the study area (see attached USFWS Review Summary). Further consultation with this agency may not be required for a Section 404 Permit from the USACE

According to the Illinois Department of Natural Resources (IDNR), the following protected resources may be in the vicinity of the project location: Deep Lake INAI Site, Loon Lake INAI Site, Sun Lake INAI Site, Sun, Lake Nature Preserve, Blanding's Turtle (*Emydoidea blandingii*), King Rail (*Rallus elegans*), Least Bittern (*Ixobrychus exilis*) (see INDR EcoCAT correspondence).

The IDNR has provided conservation recommendations for the above listed protected resources. See the below summary and EcoCAT consultation included in Appendix E.

- Deep Lake INAI, Loon Lake INAI, Sun Lake INAI, & Sun Lake Nature Preserve: Adverse effects are unlikely.

- Blandings Turtle: Construction should be completed in inactive season from November 1-March 1. Exclusionary fencing around the construction area and daily checks for turtles should be initiated if time frame cannot be met.

- King Rail and Least Bittern: 50 ft buffer should be maintained on all wetlands, and if possible all work near wetlands should be completed between September 30-April 1 to avoid the prime nesting and fledging season.

- Lighting recommendations have been made for all external fixtures.

2.0 PROJECT PURPOSE

The purpose of the site visit was to identify regulated surface wetland, non-wetland water resources or Waters of the United States (WOUS) on, or within 100 feet, of the study area. A floodplain determination was not included as part of our investigation.

On-site wetland areas encountered were delineated using standard methods sanctioned by the United States Army Corps of Engineers in the Corps of Engineers Wetlands Delineation Manual (1987) and 2010 Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Midwest Region. Plant observations were made for calculating the Coefficient of Conservatism (ĉ) and Floristic Quality Index (FQI) for each wetland plant community using the Wilhelm method (Swink and Wilhelm, 1994).

Observations also were made to determine if wetlands present within the study area were high-quality aquatic resources based on the Lake County Watershed Development Ordinance. Observed wildlife and evaluation of resource quality are also reported as required by the Chicago District USACE.

On-site non-wetland water resources encountered were given established Ordinary High Water Mark (OHWM) boundaries using the definitions described in Section 404 of the Clean Water Act (CWA Section 404(b).(1) Guidelines (40CFR230)

3.0 EXHIBIT REVIEW

- The Location Map identifies approximate location of study area and nearby major roadways (Exhibit A)

- The National Wetlands Inventory identifies no wetlands within the study area (Exhibit B).

- The Lake County Wetland Inventory identifies a Wetland within the southern portion of the study area. This is a designation assigned to areas with a high potential for exhibiting hydric soil, hydrophytic vegetation and required hydrologic conditions (Exhibit C).

- The Soil Map identifies the following soils within the study area:

  530D2 Ozaukee silt loam – Non-hydric
  840B Zurich and Ozaukee silt loams – Non-hydric
  840C2 Zurich and Ozaukee silt loams – Non-hydric
  979B Grays and Markham silt loams – Non-hydric

  Field evaluations are made to determine if a hydric inclusion may be present (Exhibit D).

- The United States Geologic Survey (USGS) Topographic Map does not identify any surface drainage within or adjacent to the study area (Exhibit E)

- The Flood Insurance Rate Map identifies the study area outside the 500-year floodplain (Exhibit F).

- The Water Resources Summary identifies approximately locations and boundaries of water resources within the study area. Location of Wetland 1 is denoted (Exhibit G).

- The Site Photographs show conditions exhibited within the study area at the time of the site visit (Exhibit H)

4.0 METHODS

Prior to the site visit, a preliminary site evaluation is performed using aerial photography and natural resource mapping. Potential wetland areas and non-wetland waters units identified by these resources are evaluated in the field.

1987 USACE Wetland Delineation Manual and 2010 Regional Supplement.

Potential wetland areas were investigated to determine if they meet the requirements for a wetland based on the USACE parameters of vegetation, hydrology, and soils. In general, positive indication of each of the three parameters must be demonstrated to classify an area as wetland. Each of these parameters is discussed below.

Vegetation – Three vegetative indicators are applied to plant communities in order to determine if the hydrophytic vegetation criterion is met.

1. More than 50% of the dominant plant species across all strata must be hydrophytic (water tolerant). Wetland plants fall into three indicator classes based on differing tolerances to water level and soil saturation. These indicators are rated obligate wetland (OBL), facultative wetland (FACW), or facultative (FAC).

2. The prevalence index is 3.0 or less. The prevalence index is a weighted-average wetland indicator status of all plant species in a sampling plot. The index is used to determine whether hydrophytic vegetation is present on sites where indicators of hydric soil and wetland hydrology are present but the vegetation initially fails the dominance test.

3. Over 50% of non-wetland plants in a sample area exhibit morphological adaptations for life in wetlands. To apply this indicator, adapted plants must occur in areas where indicators of hydric soil and wetland hydrology are present.

Hydrology – To be considered a wetland, an area must have 14 or more consecutive days of flooding or ponding, or a water table 12 inches or less below the soil surface, during the growing season at a minimum frequency of 5 years in 10. Wetland hydrology indicators are divided into four groups as described below:

Group A – Observation of Surface Water or Saturated Soils
Group B – Evidence of Recent Inundation
Group C – Evidence of Recent Soil Saturation
Group D –Evidence from Other Site Conditions or Data

Soils - To be considered a wetland, an area must contain hydric soil. Hydric soils are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic (lacking oxygen) conditions in the upper part. Soils generally, but not always, will develop indicators that are formed predominantly by the accumulation or loss of iron, manganese, sulfur, or carbon compounds in a saturated and anaerobic environment. The most current edition of the United States Department of Agriculture, Natural Resource Conservation Service *Field Indicators of Hydric Soils in the United States* is used for identification of hydric soils. Field indicators of hydric soils include but are not limited to the presence of any of the following: histic epipedon, sulfidic odor, at least 2 centimeters of muck, depleted matrix, and/or redoximorphic features. Field indicators are usually examined in the top 20 inches of the soil. Soil colors are determined using *Munsell Soil Color Charts*.

Areas meeting these three criteria are staked in the field for surveying purposes. Boundaries are demarcated in the field with pink flagged pin stakes labeled “WETLAND DELINEATION.” Staked boundaries are mapped on an aerial photograph included in this report. Approximate off-site wetland boundaries are

identified on the aerial photograph and were determined using available aerial photographs, wetland maps, and field observation.

The Ordinary High Water Mark (OHWM)

Potential non-wetland water resources were investigated to determine if they meet requirements for a regulated WOUS or isolated waters unit based on USACE parameters.

Ordinary High Water Mark (OHWM) boundaries were established using the definition provided in 33 CFT Part 328.3 of the Clean Water Act. The OHWM is defined as the line on the shore established by the fluctuations of water. This line can be identified by physical characteristics such as a clear, natural line on the bank, changes in the character of the soil, shelving, vegetation matted down, bent, or absent, leaf litter disturbed or washed away, sediment deposition, water staining, the presence of litter and debris, destruction of terrestrial vegetation, sediment sorting, scour, multiple observed or predicted flow events, and abrupt change in plant community.

5.0 REVIEWED ON-SITE CONDITIONS

5.1 WATER RESOURCES SUMMARY

Wetland 1. This wetland (approximately over 10 acres in total size and 0.06 acres on-site) is located outside to the south within the southwestern portion of the study area.

The wetland is a complex characterized by emergent vegetation and portions of open water. A drainage route along Deep Lake Rd connects to the wetland complex and is included in the identified boundaries. A prairie buffer separates the wetland complex from the turf building pad within the study area. The wetland complex appears to provide water flow to Sequoit Creek, west of the study area. See photos 3-7 for reference.

The wetland is identified on the NWI, Lake County Wetland Inventory, and the USGS Topographic map.

Sample points were established within and adjacent to the on-site portion of Wetland 1 to characterize the vegetation, soils, and hydrology (Exhibit G: Aerial Photograph). The on-site wetland boundaries and a portion of the drainageway along Grass Lake Rd. were demarcated with 18 pink flagged pin stakes.

The on-site portion of Wetland 1 was primarily vegetated by Sandbar Willow (*Salix interior*), Narrow-leaved Cattails (*Typha angustifolia*), Awl-Fruit Sedge (*Carex stipata)* and Dark Green Bulrush (*Scirpus atrovirens*). The mapped soil series are 530D2 Ozaukee silt loam, a non-hydric soil, and 840C2 Zurich and Ozaukee silt loams, a non-hydric soil. USDA field indicators A11: Depleted Below Dark Surface, A12: Thick Dark Surface, provided evidence of hydric soil. Saturation, geomorphic position, and the FAC-neutral test provided evidence of persistent hydrology (See Wetland Determination Data Forms).

The field investigation was done outside of the growing season. Floristic dominance was assessed by observing available seed heads, general morphology, and non-dormant vegetation. Floristic quality may need to be assessed in the spring.

6.0 REGULATORY STATEMENT

6.1 Federal Regulations

The deposition of dredge or fill materials into federally jurisdictional wetlands or Waters of the United States is regulated by the USACE under Section 404 of the Clean Water Act.

The Nationwide Permit authorizes 0.1 acre or less of low quality wetlands to be filled without mitigation. If over 0.1 acre is proposed for filling or is subject to secondary impacts, in-kind mitigation may be required at a ratio of 1.5:1, or greater. The aggregate total loss of waters of the U.S. authorized by NWP cannot exceed 0.5 acre or 300 linear feet of streambed.

Under the existing regulations, secondary impacts (both on-site and off-site) from filling also must be evaluated. Mitigation may be required at a higher rate if a project will significantly alter wetland functions such as stormwater detention, water filtration, sediment trapping, and/or wildlife habitat.

Before mitigation will be approved, reasonable proof that avoidance or minimization of wetland impacts has been attempted must be provided to the Corps.

A USACE permit is not required if the wetlands are avoided and construction erosion near a wetland is controlled.

6.2 Municipal and State Regulations

Lake County Watershed Development Ordinance: The Lake County Watershed Development Ordinance regulates the development of all areas within the county. Plans for development must include provisions for stormwater conveyance, and conservation of streams and channels, lakes, ponds, or wetlands that exist on the site. A soil erosion and sediment control plan must be provided. Buffer areas are required for all areas defined as "Waters of the U.S." including isolated wetlands, lakes and ponds. Buffer areas are divided into 2 types, linear buffers and water body buffers.

Linear buffers will be designated along both sides of all channels meeting the definition of "Waters of the U.S" or "Isolated Waters of Lake County". Minimum buffer widths are as follows:

- When the linear water body has a watershed greater than 20 acres but less than 1.0 square mile, the minimum buffer width will be 50 feet on each side of the linear water body;
- When the linear water body has a watershed greater than 1.0 square mile, the minimum buffer width will be 30 feet on each side of the linear water body;
- Linear exceptional functional value wetlands and streams with an Index of Biotic Integrity greater than 40 will `have a minimum buffer width of 100 feet on each side of the linear water body.

Water body buffers will encompass all non-linear bodies of water meeting the definition of "Waters of the United States" or "Isolated Waters of Lake County". Minimum buffer widths are as follows:

- For water bodies and wetlands greater than 1/3 acre but less than 1.0 acre in size, the minimum buffer width is 30 feet;
- For water bodies and wetlands greater than 1.0 acre but less than 2.5 acres in size, the minimum buffer width is 40 feet;
- For water bodies and wetlands greater than 2.5 acres in size, the minimum buffer width is 50 feet;
- Non-linear high quality aquatic resources shall have a minimum buffer width of 100 feet.

Mitigation for impacts to isolated wetlands is required within Lake County for:

- Wetland impacts greater than or equal to one-tenth (0.1) acres of Isolated Waters of Lake County that are high-quality aquatic resources (HQAR).
- Wetland impacts greater than or equal to one-quarter (0.25) acres of Isolated Waters of Lake County that are not high-quality aquatic resources.

Mitigation shall provide for the replacement of the Wetland environment lost to development at the following proportional rates (i.e. creation acreage to wetland acreage):

- For wetland impacts to areas that are not high-quality aquatic resources under Categories I, II and III, a minimum of 1.5:1 mitigation ratio for fully certified wetland mitigation bank credits;
- A minimum of 3:1 for wetland impacts that are high-quality aquatic resources
- A minimum of 6:1 for wetland impacts that are high-quality forested wetlands as defined in Appendix L.
- For wetland impacts to open waters that are not high-quality aquatic resources under Categories I, II, and III, a minimum of 1:1 mitigation ratio shall be required.

Illinois Department of Natural Resources Agency Action Plans for Interagency Wetlands Policy Act of 1989: The Illinois Interagency Wetlands Policy Act of 1989 is intended to ensure that there is no overall net loss of the State's existing wetland acres or their functional values resulting from State-supported activities. The Act charges State agencies with a further duty to "preserve, enhance and create wetlands where necessary to increase the quality and quantity of the State's wetland resource base."

The Interagency Wetlands Policy Act of 1989 states that any construction, land management or other activity performed by, or for which financial assistance is administered or provided by, a State agency that will result in an adverse impact to a wetland shall be subject to compliance. This includes, but is not limited to the following:

- The alteration, removal, excavation, or dredging of soil, sand, gravel, minerals, organic matter, vegetation, or naturally occurring minerals of any kind from a wetland;
- The discharge or deposit of fill material or dredged material in a wetland;
- The alteration of existing drainage characteristics, sedimentation patterns, or flood retention characteristics of a wetland;
- The disturbance of water level or water table of a wetland;
- The destruction or removal of plant life that would alter the character of a wetland, except for activities undertaken in accordance with the Illinois Noxious Weed Act;
- The transfer of State owned wetlands to any entity other than another state agency; and
- Other actions that cause or may cause adverse wetland impacts.

The Act is to be implemented through a State Wetland Mitigation Policy. The State Wetland Mitigation Policy requires preservation of wetlands as the primary objective. Where adverse wetland impacts are unavoidable, progressive levels of compensation based upon the level of impact to the existing wetland and the location of compensation wetlands are required.

Archaeological Survey Requirements: An archaeological survey may be required before a Section 404 permit will be issued for wetland impacts. The U.S. Army Corps of Engineers will make this determination as part of the permit application review. The archaeological survey must cover all areas of the study area, not wetlands only. If you already have a letter from the Illinois Historic Preservation Agency (IHPA) stating an archaeological survey is required, you should act on it because the USACE will support this notification.

7.0 RECOMMENDATIONS

One (1) wetland complex was identified within the study area. The overall wetland is over 10 acres in size, with approximately 0.006 acres located within the study area boundaries. In Lake County, wetlands over 2.5 acres require a minimum buffer width of 50 feet.

Based on connection with regulated waterways off=site, the Wetland 1 complex may be under USACE jurisdiction.

The U.S. Army Corps of Engineers has the final authority in determining the jurisdictional status of the wetlands identified on site. GRWA recommends that a request for jurisdictional determination be sent to the U.S. Army Corps of Engineers as soon as possible.

Any impacts to jurisdictional wetland, Waters of the U.S., or associated buffers will require U.S. Army Corps of Engineers and Lake County notification. GRWA can assist you with the request for jurisdictional determination, permit applications, agency negotiations, wetland design plans, and mitigation plans which may be applicable to your project. The wetland consultant should be involved during the planning and design stages of the project to avoid complications with the agencies after the plan has been drafted. Proper planning regarding wetlands can reduce delays caused by the permitting process and costly changes in site plans.

The Corps of Engineers will not perform wetland boundary verifications during the winter season. If an application for a wetland permit will be submitted to the Corps of Engineers during the winter months, we recommend that a request for concurrence of jurisdictional boundaries be sent to the Corps during the growing season. This will prevent a delay in the permitting process. GRWA is available to assist you with obtaining Corps concurrence.

8.0 REFERENCES

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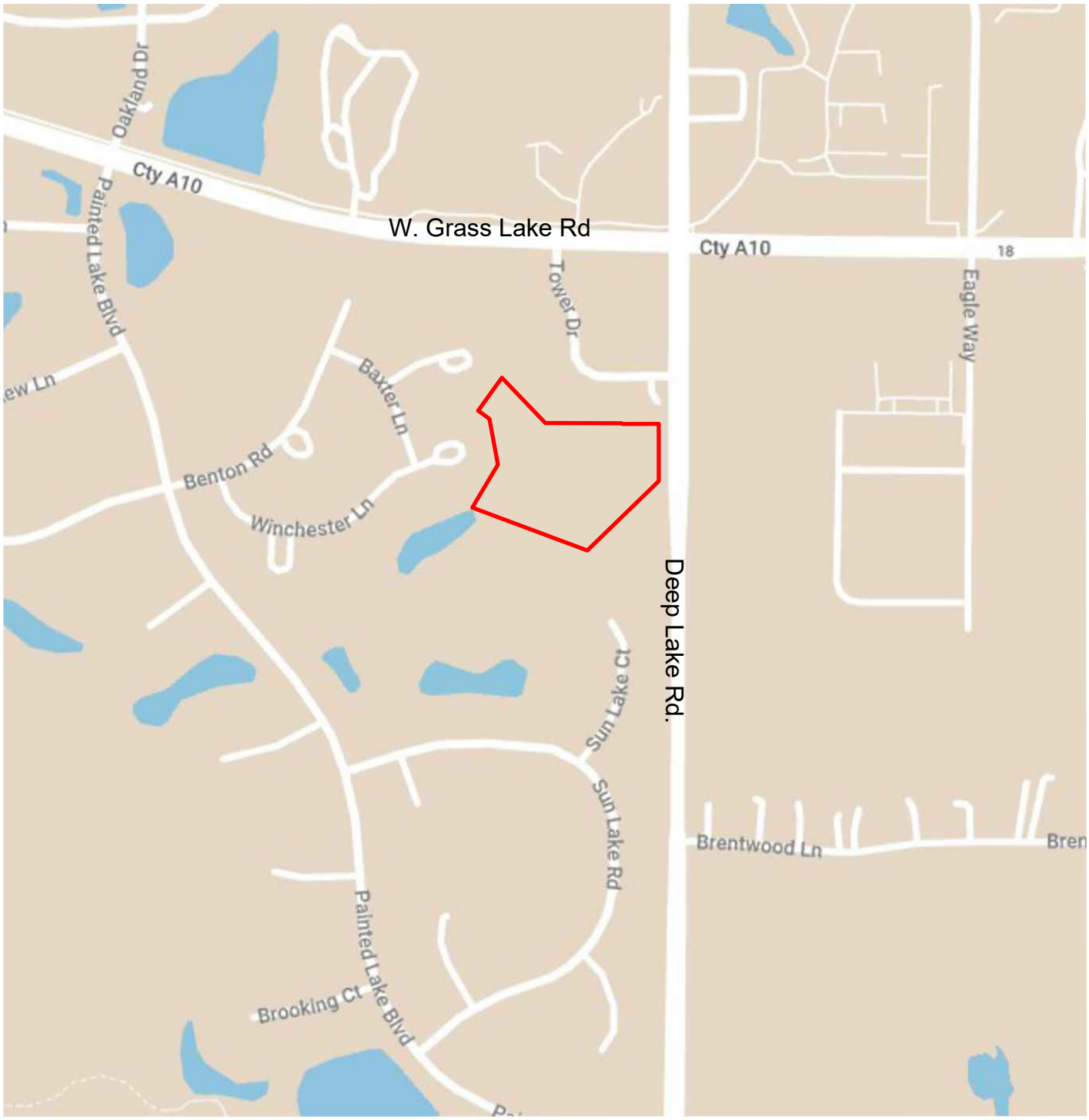
Appendix A: Water Resource Maps (Exhibits A-G)



LEGEND

PLSS: NE S28 T46N R10E
Latitude: 42.439678
Longitude: -88.063754

Study Area

Coordinates provided by Earth Point for Google Earth

0 250' 500'

SCALE: 1"=500'

NORTH

GARY R. WEBER ASSOCIATES, INC.

Grass Lake Rd & Deep Lake Rd

Lake Villa, IL

MA2242

Manhard Consulting, LTD.

LOCATION MAP

Provided by: Google Maps

EXHIBIT A

Created by: MGK Checked by:

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LEGEND

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine
- Study Area

0 75' 150'

SCALE: 1"=150'

NORTH

GARY R. WEBER ASSOCIATES, INC.

Grass Lake Rd & Deep Lake Rd

Lake Villa, IL

MA2242

Manhard Consulting, LTD.

NATIONAL WETLANDS INVENTORY MAP

Provided by: U.S. Fish and Wildlife Service

EXHIBIT B

Created by: MGK Checked by:

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LEGEND

- Study Area
- Lake County Wetland
- ADvanced IDentification Wetlands

0 50' 100'

SCALE: 1"=100'

NORTH

GARY R. WEBER ASSOCIATES, INC.

Grass Lake Rd & Deep Lake Rd

Lake Villa, IL

MA2242

Manhard Consulting, LTD.

LAKE CO. WETLAND INVENTORY MAP

Provided by: Lake County Parcel Viewer

EXHIBIT C

Created by: MGK Checked by:

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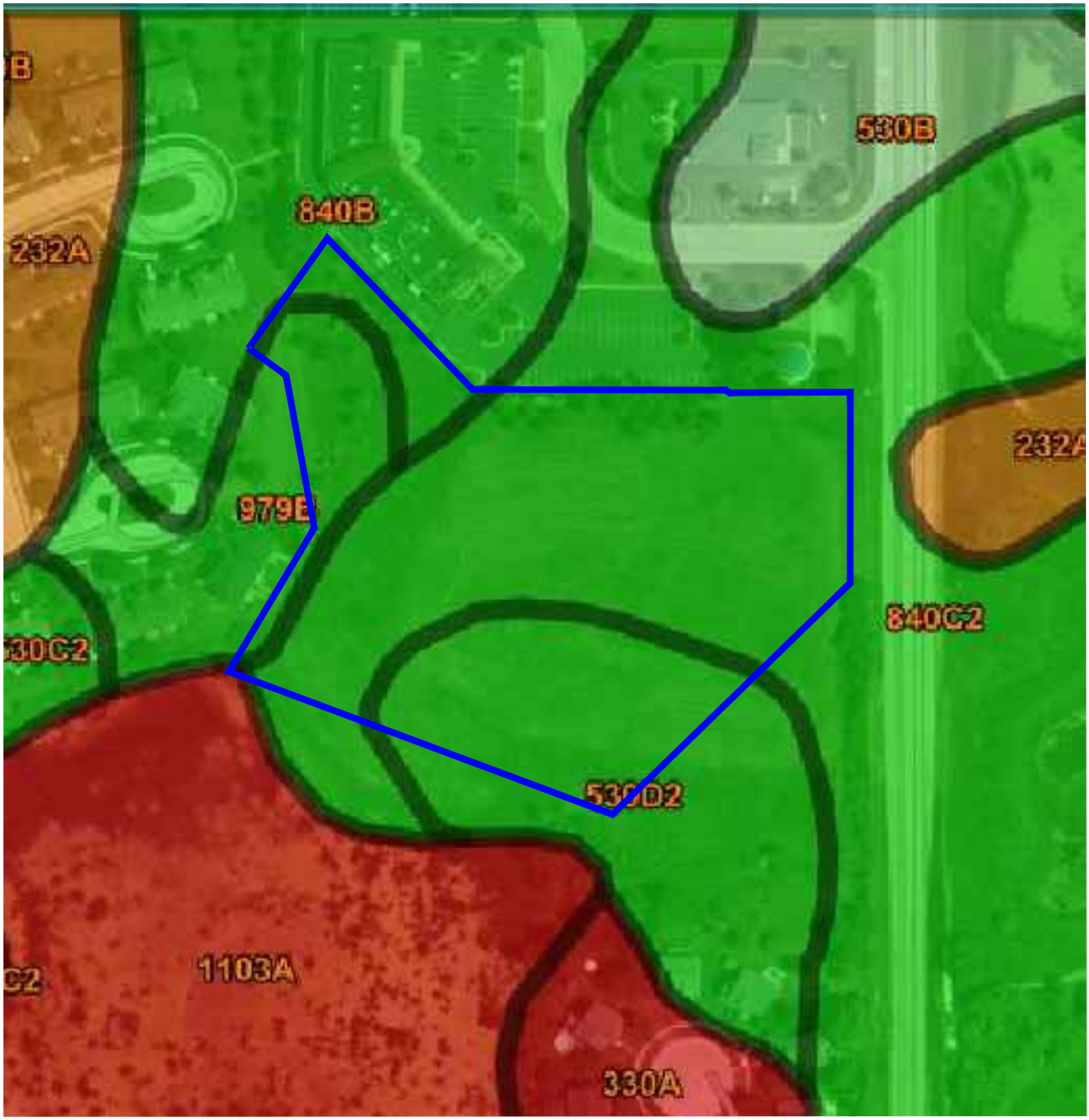

LEGEND

- Hydric Soil (100%)
- Predominantly Hydric (66-99%)
- Partially Hydric (33-65%)
- Predominantly Non-hydric (1-32%)
- Non-hydric (0%)

Study Area

0 75' 150'

SCALE: 1"=150'

NORTH

GARY R. WEBER ASSOCIATES, INC.

Grass Lake Rd & Deep Lake Rd

Lake Villa, IL

MA2242

Manhard Consulting, LTD.

SOIL SURVEY MAP

Web Soil Survey 3.0 (Lake County)

USDA Natural Resources Conservation Service

EXHIBIT D

Created by: MGK Checked by:

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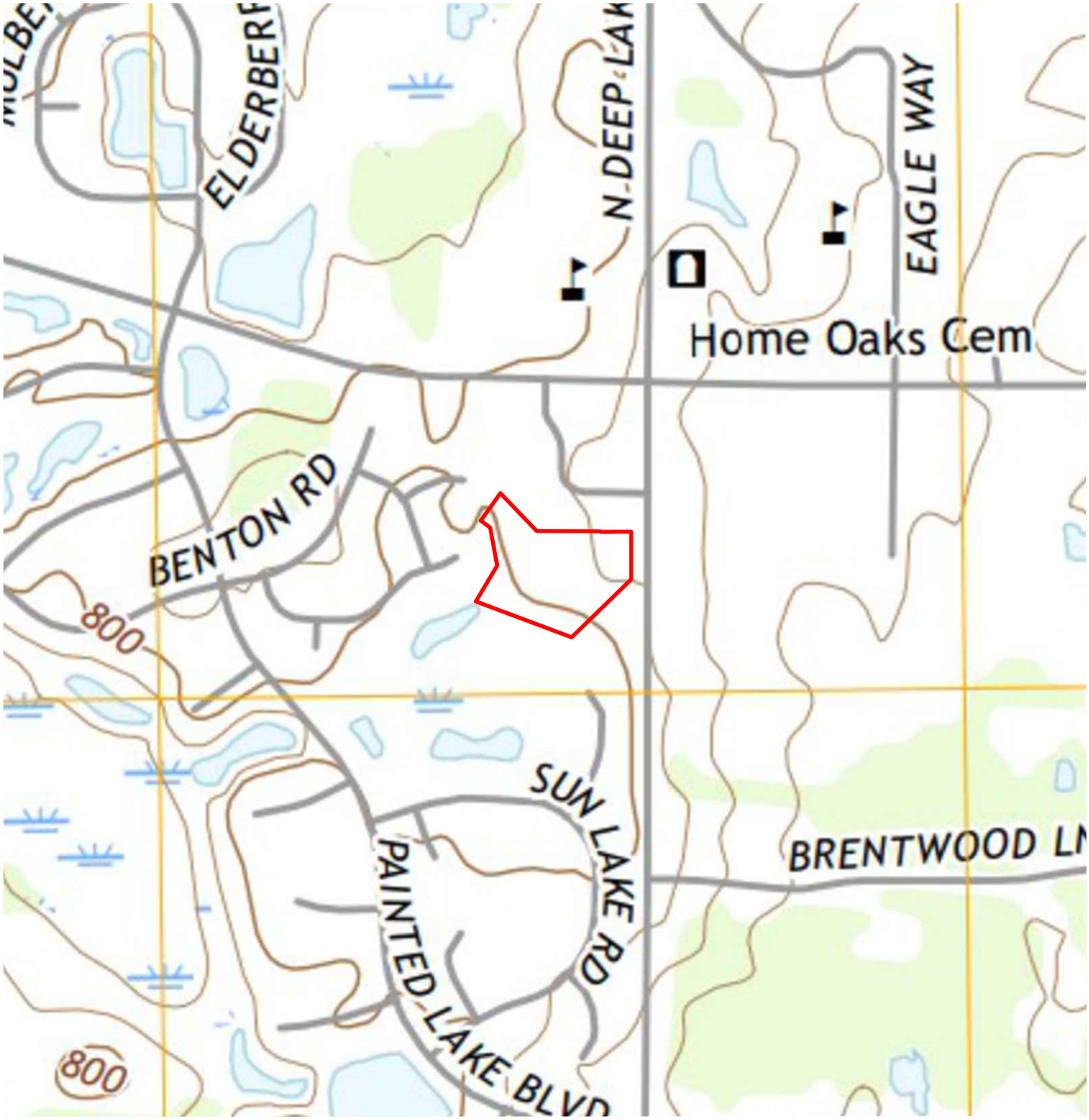

LEGEND

- Perennial Stream
- Perennial River
- Intermittent Stream
- Intermittent River
- Marsh or swamp
- Submerged marsh
- Wooded marsh or swamp
- Submerged wooded marsh or swamp
- Perennial Lake/Pond
- Intermittent Lake/Pond
- Study Area

0 300' 600'

SCALE: 1"=600' **NORTH**

GARY R. WEBER ASSOCIATES, INC.

Grass Lake Rd & Deep Lake Rd

Lake Villa, IL

MA2242

Manhard Consulting, LTD.

USGS TOPOGRAPHIC MAP

Provided by: USGS Topographic (Antioch)

EXHIBIT E

Created by: MGK Checked by:

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LEGEND

- Regulatory Floodway
- Special Floodway
- 1% Annual Chance Flood Hazard
- 0.2% Annual Chance Flood Hazard
- Area of Undetermined Flood Hazard
- Future Conditions 1% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee
- Study Area

0 150' 300'

SCALE: 1"=300'

NORTH

GARY R. WEBER ASSOCIATES, INC.

Grass Lake Rd & Deep Lake Rd

Lake Villa, IL

MA2242

Manhard Consulting, LTD.

FLOOD INSURANCE MAP

Provided by: Federal Emergency Management Agency

EXHIBIT F

Created by: MGK Checked by:

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LEGEND

Study Area - 4.97 Acres

Flagged Wetland Boundaries

Off-site Wetland Boundaries (not flagged)

Sample Points A-F

0 50' 100'

SCALE: 1"=100' **NORTH**

Provided by: Google Earth - Image date 4/6/2017

GARY R. WEBER ASSOCIATES, INC.

Grass Lake Rd & Deep Lake Rd

Lake Villa, IL

MA2242

Manhard Consulting, LTD.

WATER RESOURCES SUMMARY

DATE OF SITE VISIT: 11/3/2022

EXHIBIT G

Created by: MGK Checked by:

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Appendix B: Site Photographs (Exhibit H)

Photo 1: View of turf field that encompasses the majority of the site (facing south).

Photo 2: View of the southern edge of the turf field and the start of the wetland off-site to the south (facing southwest).

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Grass Lake Rd & Deep Lake Rd
Lake Villa, IL, 60046

MA2242
Manhard Consulting, LTD.

SITE PHOTOGRAPHS
11/3/2022

EXHIBIT H

Photo 3: View of the on-site portion of Wetland 1 and the west stormwater culvert that feeds into it (facing west).

Photo 4: Base of prairie slope and edge of wetland (facing north).

GARY R. WEBER ASSOCIATES, INC.	Grass Lake Rd & Deep Lake Rd Lake Villa, IL, 60046 MA2242 Manhard Consulting, LTD.	SITE PHOTOGRAPHS 11/3/2022 EXHIBIT H

Photo 5: Overview of open water and emergent north edge of wetland. Adjacent to prairie slope (facing west).

Photo 6: Stormwater culvert under Deep Lake Rd. Flagged as part of WL1 (facing north).

Photo 7: View of the drainage swale extending from the Deep Lake Rd culvert. Flagged as part of WL1 (facing south).

Appendix C: Wetland Determination Data Forms

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: MA2242 / Grass Lake Rd & Deep Lake Rd City/County: Lake Villa / Lake County Sampling Date: 11/3/2022

Applicant/Owner: Manhard Consulting, LTD. State: IL Sampling Point: A

Investigator(s): Lisa Pajon Section, Township, Range: NE S28 T46N R10E

Landform (hillside, terrace, etc.): Local relief (concave, convex, none):

Slope (%): Lat: 42.439678 Long: -88.063754 Datum:

Soil Map Unit Name: 840C2 Zurich and Ozaukee silt loams NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks:
In ditch near road

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Cornus racemosa*	10	Yes	FAC
2.			
3.			
4.			
5.			
	10 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	50	Yes	FACW
2. *Typha angustifolia*	20	Yes	OBL
3. *Symphyotrichum novae-angliae*	20	Yes	FACW
4. *Solidago altissima*	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20	x 1 =	20
FACW species	70	x 2 =	140
FAC species	10	x 3 =	30
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	110 (A)		230 (B)
Prevalence Index = B/A =			2.09

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: A

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					Loamy/Clayey	Small Gravel, Wet, Silty
14-20	10YR 4/2	70	10YR 2/1	20		M	Loamy/Clayey	
			10YR 5/4	10	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 3

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: MA2242 / Grass Lake Rd & Deep Lake Rd City/County: Lake Villa / Lake County Sampling Date: 11/3/2022

Applicant/Owner: Manhard Consulting, LTD. State: IL Sampling Point: B

Investigator(s): Lisa Pajon Section, Township, Range: NE S28 T46N R10E

Landform (hillside, terrace, etc.): Local relief (concave, convex, none):

Slope (%): Lat: 42.439678 Long: -88.063754 Datum:

Soil Map Unit Name: 840C2 Zurich and Ozaukee silt loams NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** **No** X
Hydric Soil Present?	Yes	No X	
Wetland Hydrology Present?	Yes	No X	

Remarks:
Turf upland point

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Poa pratensis*	70	Yes	FAC
2. *Dactylis glomerata*	20	No	FACU
3. *Taraxacum officinale*	10	No	FACU
4. *Plantago major*	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
	110 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	80	x 3 =	240
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	110 (A)		360 (B)
Prevalence Index = B/A =			3.27

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: B

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 2/1	100					Loamy/Clayey	Silty
6-10	2.5Y 4/4	80	10YR 2/1	20			Loamy/Clayey	Gravel

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** ___ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No Hydro

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: MA2242 / Grass Lake Rd & Deep Lake Rd City/County: Lake Villa / Lake County Sampling Date: 11/3/2022

Applicant/Owner: Manhard Consulting, LTD. State: IL Sampling Point: C

Investigator(s): Lisa Pajon Section, Township, Range: NE S28 T46N R10E

Landform (hillside, terrace, etc.): Local relief (concave, convex, none):

Slope (%): Lat: 42.439678 Long: -88.063754 Datum:

Soil Map Unit Name: 530D2 Ozaukee silt loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks:
In wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix nigra*	40	Yes	OBL
2.			
3.			
4.			
5.			
	40	=Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix interior*	30	Yes	FACW
2.			
3.			
4.			
5.			
	30	=Total Cover	
Herb Stratum (Plot size: 5)			
1. *Carex stipata*	90	Yes	OBL
2. *Phalaris arundinacea*	10	No	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
		=Total Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	130	x 1 =	130
FACW species	40	x 2 =	80
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	170 (A)		210 (B)

Prevalence Index = B/A = 1.24

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: C

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					Loamy/Clayey	Small Gravel, Wet, Silty
14-20	10YR 4/2	70	10YR 2/1	20			Loamy/Clayey	
			10YR 5/4	10	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: MA2242 / Grass Lake Rd & Deep Lake Rd City/County: Lake Villa / Lake County Sampling Date: 11/3/2022

Applicant/Owner: Manhard Consulting, LTD. State: IL Sampling Point: D

Investigator(s): Lisa Pajon Section, Township, Range: NE S28 T46N R10E

Landform (hillside, terrace, etc.): Local relief (concave, convex, none):

Slope (%): Lat: 42.439678 Long: -88.063754 Datum:

Soil Map Unit Name: 840C2 Zurich and Ozaukee silt loams NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks:
Center of slope

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Sorghastrum nutans*	45	Yes	FACU
2. *Solidago altissima*	30	Yes	FACU
3. *Baptisia alba*	15	No	FACU
4. *Solidago ptarmicoides*	5	No	UPL
5. *Silphium laciniatum*	5	No	UPL
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	90	x 4 =	360
UPL species	10	x 5 =	50
Column Totals:	100 (A)		410 (B)

Prevalence Index = B/A = 4.10

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation
___ 2 - Dominance Test is >50%
___ 3 - Prevalence Index is ≤3.0[1]
___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: D

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/1	100					Loamy/Clayey	Small gravel, silty
14-20	10YR 4/2	70	10YR 2/1	20		M	Loamy/Clayey	
			10YR 5/4	10	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- X Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:
Same hydric soil but very dry in top 10"

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydro

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: MA2242 / Grass Lake Rd & Deep Lake Rd City/County: Lake Villa / Lake County Sampling Date: 11/3/2022

Applicant/Owner: Manhard Consulting, LTD. State: IL Sampling Point: E

Investigator(s): Lisa Pajon Section, Township, Range: NE S28 T46N R10E

Landform (hillside, terrace, etc.): Local relief (concave, convex, none):

Slope (%): Lat: 42.439678 Long: -88.063754 Datum:

Soil Map Unit Name: 840C2 Zurich and Ozaukee silt loams NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No	**Is the Sampled Area within a Wetland?** **Yes** X **No**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes X	No	

Remarks:
In wetland at edge of cattails

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Herb Stratum (Plot size: 5)			
1. *Typha angustifolia*	40	Yes	OBL
2. *Scirpus atrovirens*	30	Yes	OBL
3. *Carex stipata*	30	Yes	OBL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	100	x 1 =	100
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		100 (B)

Prevalence Index = B/A = 1.00

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- X 2 - Dominance Test is >50%
- X 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** X **No**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: E

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 2/1	98	10YR 4/6	2	C	M	Loamy/Clayey	Gravel and Debris in Top 8"
8-20	10YR 4/2	70	10YR 2/1	20	D	M	Loamy/Clayey	
			10YR 5/4	10	C	M		Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- X Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___
Water Table Present?	Yes ___	No X	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches): ___

Wetland Hydrology Present? **Yes** X **No** ___

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers
WETLAND DETERMINATION DATA SHEET – Midwest Region
See ERDC/EL TR-10-16; the proponent agency is CECW-CO-R

OMB Control #: 0710-0024, Exp:11/30/2024
Requirement Control Symbol EXEMPT:
(Authority: AR 335-15, paragraph 5-2a)

Project/Site: MA2242 / Grass Lake Rd & Deep Lake Rd City/County: Lake Villa / Lake County Sampling Date: 11/3/2022

Applicant/Owner: Manhard Consulting, LTD. State: IL Sampling Point: F

Investigator(s): Lisa Pajon Section, Township, Range: NE S28 T46N R10E

Landform (hillside, terrace, etc.): Local relief (concave, convex, none):

Slope (%): Lat: 42.439678 Long: -88.063754 Datum:

Soil Map Unit Name: 530D2 Ozaukee silt loam NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks.)

Are Vegetation , Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation , Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes	No X	**Is the Sampled Area within a Wetland?** **Yes** **No X**
Hydric Soil Present?	Yes X	No	
Wetland Hydrology Present?	Yes	No X	

Remarks:
On slope north of C

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
5.			
	=Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Salix interior*	10	Yes	FACW
2. *Pyrus calleryana*	10	Yes	UPL
3.			
4.			
5.			
	20 =Total Cover		
Herb Stratum (Plot size: 5)			
1. *Equisetum hyemale*	50	Yes	FACW
2. *Solidago altissima*	20	Yes	FACU
3. *Sorghastrum nutans*	10	No	FACU
4. *Ratibida pinnata*	10	No	UPL
5. *Panicum virgatum*	10	No	FAC
6.			
7.			
8.			
9.			
10.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	=Total Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	60	x 2 =	120
FAC species	10	x 3 =	30
FACU species	30	x 4 =	120
UPL species	20	x 5 =	100
Column Totals:	120 (A)		370 (B)
Prevalence Index = B/A =			3.08

Hydrophytic Vegetation Indicators:

- 1 - Rapid Test for Hydrophytic Vegetation
- 2 - Dominance Test is >50%
- 3 - Prevalence Index is ≤3.0[1]
- 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? **Yes** **No X**

Remarks: (Include photo numbers here or on a separate sheet.)

SOIL

Sampling Point: F

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 4/1	90	10YR 5/4	10	C	M	Loamy/Clayey	Distinct redox concentrations

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, MS=Masked Sand Grains.

[2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators:

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5)
- ___ 2 cm Muck (A10)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 5 cm Mucky Peat or Peat (S3)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Dark Surface (S7)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ Coast Prairie Redox (A16)
- ___ Iron-Manganese Masses (F12)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** ___

Remarks:
No Dark Surface

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Water-Stained Leaves (B9)
- ___ Aquatic Fauna (B13)
- ___ True Aquatic Plants (B14)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Oxidized Rhizospheres on Living Roots (C3)
- ___ Presence of Reduced Iron (C4)
- ___ Recent Iron Reduction in Tilled Soils (C6)
- ___ Thin Muck Surface (C7)
- ___ Gauge or Well Data (D9)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Stunted or Stressed Plants (D1)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes ___ No X Depth (inches): ___

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? Yes ___ No X Depth (inches): ___

(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:
No hydro

Appendix D: Threatened and Endangered Species Consultation

Illinois Department of
Natural Resources
One Natural Resources Way Springfield, Illinois 62702-1271
www.dnr.illinois.gov

JB Pritzker, Governor
Colleen Callahan, Director

November 14, 2022

Lisa Pajon
Natural Resources Consultant
402 W. Liberty Drive
Wheaton, IL 60187

RE: Grass Lake Rd & Deep Lake Rd ment
Consultation Program
EcoCAT Review #2306326
Lake County

Dear Mrs. Pajon:

The Department has received your submission for this project for the purposes of consultation pursuant to the *Illinois Endangered Species Protection Act* [520 ILCS 10/11], the *Illinois Natural Areas Preservation Act* [525 ILCS 30/17], and Title 17 *Illinois Administrative Code* Part 1075.

The proposed action consists of the construction of a development with associated stormwater and utilities (42.440°, -88.069°).

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Illinois Natural Areas Inventory (INAI) Sites
Deep Lake
Loon Lake
Sun Lake

Illinois Nature Preserves Commission Lands
Sun Lake Nature Preserve

State Threatened or Endangered Species
Blanding's Turtle (*Emydoidea blandingii*)
King Rail (*Rallus elegans*)
Least Bittern (*Ixobrychus exilis*)

Due to the project scope and proximity to protected resources the Department recommends the following actions be taken to avoid adversely impacting listed species in the vicinity of the project:

Deep Lake INAI, Loon Lake INAI, Sun Lake INAI, & Sun Lake Nature Preserve

The Department has determined adverse impacts to these protected natural areas are unlikely.

Blanding's Turtle

To avoid adverse impacts to Blanding's Turtles, the Department recommends the following:

- All on-site personnel should be educated about this species and be instructed to stop work immediately and contact the Department (Brad Semel, Natural Heritage Division, 815-675-2386 ext. 216) if they are encountered in the project area. Fliers with photos of adult and juvenile Blanding's turtles, and life-history information, should be distributed to personnel.
- Exclusionary fencing should be installed around the work area, or at a minimum, to partition off any wetland areas before the active season (March 1st - November 1st). Exclusionary fencing should be trenched into the ground (a minimum of 4 inches) and inspected daily for Blanding's turtles. Fencing should be installed with turn-arounds at open ends and at any access openings needed in the fencing, in order to redirect animals away from openings.
- Excavations should be inspected daily for trapped wildlife and safely covered overnight. Soil or other potential turtle nesting medium stockpiles should also have exclusionary fencing installed around the perimeter to discourage turtle nesting and potential harm.
- A permanent exclusionary barrier between any wetlands and the project site should be incorporated into project plans to prevent turtles from entering areas where they may be adversely impacted by daily activity. The barrier should include turn-arounds where needed and be trenched into the soil a minimum of 4 inches.
- If erosion control blanket is to be used, the Department also recommends that wildlife-friendly plastic-free blanket be used around wetlands and adjacent to natural areas, if not feasible to implement project wide, to prevent the entanglement of native wildlife.

King Rail & Least Bittern

To avoid adverse impacts to King Rail and Least Bittern, the Department recommends the following:

- A 50-foot buffer should be maintained on all wetlands.
- When feasible, work near wetlands should be avoided between April 1st and September 30th to avoid the prime nesting and fledging season for these protected bird species.
- Any required night lighting should follow International Dark-Sky Association (IDA) guidance to minimize the effect of light pollution on wildlife; including shielding fixtures so no light travels upward, using "warm-white" or filtered LEDs (CCT < 3,000 K) to minimize blue emission, and avoiding over-lighting.

Given the above recommendations are adopted the Department has determined that impacts to these protected resources are unlikely. The Department has determined impacts to other protected resources in the vicinity of the project location are also unlikely.

In accordance with 17 Ill. Adm. Code 1075.40(h), please notify the Department of your decision regarding these recommendations.

Consultation on the part of the Department is closed unless the applicant desires additional information or advice related to this proposal. Consultation for Part 1075 is valid for two years unless new information becomes available which was not previously considered; the proposed

action is modified; or additional species, essential habitat, or Natural Areas are identified in the vicinity. If the action has not been implemented within two years of the date of this letter, or any of the above listed conditions develop, a new consultation is necessary.

The natural resource review reflects the information existing in the Illinois Natural Heritage Database at the time of the project submittal and should not be regarded as a final statement on the project being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are unexpectedly encountered during the project's implementation, the applicant must comply with the applicable statutes and regulations.

This letter does not serve as permission to take any listed or endangered species. As a reminder, no take of an endangered species is permitted without an Incidental Take Authorization or the required permits. Anyone who takes a listed or endangered species without an Incidental Take Authorization or required permit may be subject to criminal and/or civil penalties pursuant to the *Illinois Endangered Species Act*, the *Fish and Aquatic Life Act*, the *Wildlife Code* and other applicable authority.

The Department also offers the following conservation measures be considered to help protect native wildlife and enhance natural areas in the project area:

- Good housekeeping practices should be implemented and maintained during and after construction to prevent trash and other debris from inadvertently blowing or washing into nearby natural areas.
- Post construction invasive species control should be considered, especially near any natural areas.

Please contact me with any questions about this review.
Sincerely,

Bradley Hayes
Manager, Impact Assessment Section
Division of Real Estate Services and Consultation
Office of Realty & Capital Planning
Illinois Department of Natural Resources
One Natural Resources Way
Springfield, IL 62702
Bradley.Hayes@Illinois.gov
Phone: (217) 782-0031

EcoCAT
Ecological Compliance Assessment Tool

ILLINOIS DEPARTMENT OF NATURAL RESOURCES

Applicant: Gary R. Weber Associates, Inc.
Contact: Lisa Pajon
Address: 402 W. Liberty Drive
Wheaton, IL 60187

IDNR Project Number: 2306326
Date: 11/10/2022

Project: Grass Lake Rd & Deep Lake Rd
Address: Deep Lake Road, Lake Villa

Description: Proposed above ground development with associated stormwater and utilities

Natural Resource Review Results

The Illinois Natural Heritage Database shows the following protected resources may be in the vicinity of the project location:

Deep Lake INAI Site
Loon Lake INAI Site
Sun Lake INAI Site
Sun Lake Nature Preserve
Blanding's Turtle *(Emydoidea blandingii)*
King Rail *(Rallus elegans)*
Least Bittern *(Ixobrychus exilis)*

An IDNR staff member will evaluate this information and contact you to request additional information or to terminate consultation if adverse effects are unlikely.

Location

The applicant is responsible for the accuracy of the location submitted for the project.

County: Lake

Township, Range, Section:
46N, 10E, 28

IL Department of Natural Resources Contact
Bradley Hayes
217-785-5500
Division of Ecosystems & Environment

Government Jurisdiction
U.S. Army Corps of Engineers

Disclaimer

The Illinois Natural Heritage Database cannot provide a conclusive statement on the presence, absence, or condition of natural resources in Illinois. This review reflects the information existing in the Database at the time of this inquiry, and should not be regarded as a final statement on the site being considered, nor should it be a substitute for detailed site surveys or field surveys required for environmental assessments. If additional protected resources are encountered during the project's implementation, compliance with applicable statutes and regulations is required.

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1. The IDNR EcoCAT website was developed so that units of local government, state agencies and the public could request information or begin natural resource consultations on-line for the Illinois Endangered Species Protection Act, Illinois Natural Areas Preservation Act, and Illinois Interagency Wetland Policy Act. EcoCAT uses databases, Geographic Information System mapping, and a set of programmed decision rules to determine if proposed actions are in the vicinity of protected natural resources. By indicating your agreement to the Terms of Use for this application, you warrant that you will not use this web site for any other purpose.

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November 21, 2022

Matt Eagle
Manhard Consulting, Ltd.
116 W. Illinois Street.
Chicago, IL 60604

RE: USFWS Threatened and Endangered Species IPaC Review Summary
Grass Lake Rd & Deep Lake Rd, Lake Cook County, Illinois

Dear Mr. Eagle,

Gary R. Weber Associates Inc. reviewed the U.S, Fish and Wildlife Information for Planning and Consultation (IPaC) website on November 10, 2022 for federally listed threatened and endangered species. The IPaC program utilizes known or expected range of species, as well as additional areas outside of the range in which activities may indirectly affect a species. This review represents an informal consultation and further coordination with USFWS may be required for a formal consultation.

According to the IPaC consultation, seven (7) species are thought to be present in this location of Lake County (see below). Based on the 11/3/2022 site review, potential habitat for these species is not present within the project area and therefore would not negatively affect threatened or endangered species.

Site Summary:

The study area (approximately 4.97-acres) consists of a turf field with a lightly a scrub-shrub border to the north and east. The field is an elevated building pad that was constructed around 1999.

The vegetated areas are entirely maintained, with mowed turf throughout the main area, and a narrow scrub-shrub community at the north boundary. The scrub-shrub consists of a few large trees and dense dogwood around the basin.

Habitat and Requirements:

Threatened – Northern long-eared bat (*Myotis septentrionalis*): No Affect

According to the USFWS guidance, conditions suitable for the Northern long-eared bat (NLEB) includes wooded areas characterized by the presence of roosting trees and an herbaceous understory community. The bats will spend the summer foraging and roosting before overwintering in caves and mines from late October to April. Summer roosting trees required by the bats are characterized by mature trees containing potential roosting features (PRF) such as peeling and crevice forming bark, cavities, and dead snags. Foraging can occur in a variety of habitats including upland forests, edge habitats, wetlands, riparian buffers, and floodplain forests. An open, herbaceous understory is beneficial to supporting insect abundance for the bats to feed on.

The current site conditions contain few large trees that contain PRF, however no canopy is present and adjacent areas are either paved or maintained turf. These conditions are not suitable as habitat for the NLEB.

Endangered – Piping Plover (*Charadrius melodus*) No Affect

According to USFWS guidance, the piping plover is a summer resident that inhabits shoreline and coastal areas of the Great Lakes during the summer breeding season. The plover is a shorebird that prefers breeding habitat consisting of open, sparsely vegetated areas with alkali or unconsolidated substrates. Foraging habitat consist of mud flats or ephemeral pools with abundant vertebrate populations. Critical habitat has been designated for this species along the Great Lakes shoreline.

Current site conditions are not suitable for the Piping Plover.

Threatened – Red Knot (*Calidris canutus rufa*): No Affect

According to USFWS guidance, the red knot is primarily occurs in Illinois during migration in the spring and fall. Spring migrants arrive in May and fall migrants arrive in July. The red knot is a shorebird that typically uses sandy, open shoreline along Lake Michigan for foraging, but has also been observed at water reservoirs.

Current site conditions are not suitable for the Red Knot.

Endangered – Karner Blue Butterfly (*Lycaeides melissa samuelis*): No Affect

According to USFWS guidance, the karner blue butterfly require environments characterized by dry, sandy areas with open woodlands capable of supporting Wild Blue Lupine populations. The lupine is the only food source for larval butterflies as well as required for adult oviposition. Foraging adults require diverse blooming nectar resources.

Current site conditions are not suitable for the Karner Blue Butterfly due to lack of lupine presence.

Endangered – Monarch Butterfly (*Danaus plexippus*): No Affect

According to USFWS Species Status Assessment Report, Monarch Butterflies require environments containing both diverse blooming nectar resources for foraging during breeding and migration, and sufficient milkweed (*Asclepias spp.*) populations for oviposition and larval feeding.

Due to mowing activity and lack of wildflower presence, current site conditions are not suitable for the Monarch Butterfly.

Threatened – Eastern Prairie Fringed Orchid (*Platanthera leucophaea*): No Affect

According to USFWS guidance, the eastern prairie fringed orchid (EPFO) occurs in a wide variety of habitats. It requires full sun for optimum growth and can occur in tall grass silt-loam or sand prairies, sedge meadows, and fens. It is adaptive to natural patch disturbance and other dynamic disturbance regimes. It is occasionally found in successional environments.

Current site conditions are not suitable for the EPFO as there are no fens, sedge meadows, or sand prairies.

Endangered – Pitcher's Thistle (*Cirsium pitcher*): No Affect
According to USFWS guidance, the Pitcher's Thistle occurs in open sand dunes and beach ridges along Lake Michigan. This species was once extirpated in Illinois but has been reintroduced in Lake County.

Current site conditions are not suitable for the Pitcher's thistle.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
Phone: (312) 485-9337

In Reply Refer To: November 10, 2022
Project Code: 2023-0014834
Project Name: Grass Lake Rd & Deep Lake Rd

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

Additionally, please note that on March 23, 2022, the Service published a proposal to reclassify the northern long-eared bat (NLEB) as endangered under the Endangered Species Act. The U.S. District Court for the District of Columbia has ordered the Service to complete a new final listing

determination for the NLEB by November 2022 (Case 1:15-cv-00477, March 1, 2021). The bat, currently listed as threatened, faces extinction due to the range-wide impacts of white-nose syndrome (WNS), a deadly fungal disease affecting cave-dwelling bats across the continent. The proposed reclassification, if finalized, would remove the current 4(d) rule for the NLEB, as these rules may be applied only to threatened species. Depending on the type of effects a project has on NLEB, the change in the species' status may trigger the need to re-initiate consultation for any actions that are not completed and for which the Federal action agency retains discretion once the new listing determination becomes effective (anticipated to occur by December 30, 2022). If your project may result in incidental take of NLEB after the new listing goes into effect this will first need to addressed in an updated consultation that includes an Incidental Take Statement. If your project may require re-initiation of consultation, please contact our office for additional guidance.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and

recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Chicago Ecological Service Field Office
U.s. Fish And Wildlife Service Chicago Ecological Services Office
230 South Dearborn St., Suite 2938
Chicago, IL 60604-1507
(312) 485-9337

Project Summary

Project Code: 2023-0014834
Project Name: Grass Lake Rd & Deep Lake Rd
Project Type: New Constr - Above Ground
Project Description: Proposed above ground development with associated stormwater and utilities.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/@42.439811750000004,-88.06377054473049,14z

Counties: Lake County, Illinois

Endangered Species Act Species

There is a total of 7 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

---

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Birds

NAME	STATUS
Piping Plover *Charadrius melodus* Population: [Great Lakes watershed DPS] - Great Lakes, watershed in States of IL, IN, MI, MN, NY, OH, PA, and WI and Canada (Ont.) There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6039	Endangered
Red Knot *Calidris canutus rufa* There is **proposed** critical habitat for this species. Species profile: https://ecos.fws.gov/ecp/species/1864	Threatened

Insects

NAME	STATUS
Karner Blue Butterfly *Lycaeides melissa samuelis*	Endangered

There is **proposed** critical habitat for this species.
Species profile: https://ecos.fws.gov/ecp/species/6656

Monarch Butterfly *Danaus plexippus*	Candidate

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/9743

Flowering Plants

NAME	STATUS
Eastern Prairie Fringed Orchid *Platanthera leucophaea*	Threatened

No critical habitat has been designated for this species.
This species only needs to be considered under the following conditions:

- Follow the guidance provided at https://www.fws.gov/midwest/endangered/section7/s7process/plants/epfos7guide.html

Species profile: https://ecos.fws.gov/ecp/species/601

Pitcher's Thistle *Cirsium pitcheri*	Threatened

No critical habitat has been designated for this species.
Species profile: https://ecos.fws.gov/ecp/species/8153

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

IPaC User Contact Information

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MEMORANDUM

TO: Michael Strong, Village Administrator

FROM: Scott Goldstein, FAICP LEED AP, Principal

DATE: February 10, 2023

SUBJECT: Starling Senior Housing

GENERAL INFORMATION

Applicant:	Hume An
Project Name:	Starling Senior Housing
Location:	Southwest Corner, Grass Lake Road and Deep Lake Road, Village of Lake Villa
Action:	Review materials submitted regarding Planned Unit Development Application

Project Summary

The proposed development calls for a revision of an existing Planned Unit Development located at the southwest corner of Grass Lake Road and Deep Lake Road. The site is currently zoned for SB- Suburban Business and there are two retail buildings on the site, a commercial strip center and a bank. The site abuts three sides of a property on which a water tower is located along Deep Lake Road. The project also proposes rerouting and reconfiguring a portion of Tower Drive westward where it meets Grass Lake Road.

The proposed project was revised from 52 units of senior housing to 40 units on vacant land at the southern end of the PUD.

The project is adjacent to SR-2 Single-Family Homes to the south, SR-3 Townhomes to the west, SR zoning for an elementary school to the north, and R-1 zoning for high school athletic fields to the east.

Planned Development Review

a. In evaluating a Planned Unit Development, The Planning Commission shall consider the degree to which that development varies from underlying zoning standards of the district in which it is located, and also consider benefits of the development such as the following (summary of Lake Villa Zoning Ordinance 9-1-2):

i. Residential:
   (1) The proposed development plan has provided a trail system for residents; or
   (2) The amount of landscaping is substantially greater than the minimum required by the Village Code; or
   (3) The proposed development has substantially greater architectural amenities; or
   (4) Other extraordinary site amenities
ii. Permitted Nonresidential Uses: The PUD is intended to permit development that is superior to that of the surrounding uses, but which may be of a higher intensity than the zone would permit as a matter of right.

b. The degree to which the development exhibits extra care and attention to details in excess of Village requirements which enhance the character of the development
c. The degree to which any requested increase in density reflects an investment in better design, landscaping, or facilities
d. The degree to which the developer has gone to better preserve critical natural environments, restore or mitigate degraded or distressed environments, alleviated off-site problems, or provided other improvements.

Comments

There are no outstanding comments based on a review of plans dated February 6, 2023.

Resubdivision
The Applicant requests that Lot A in Lake Tower Crossing Planned Unit Development Phase 2, being a resubdivision of Part of Section 28, Township 46 North, Range 10 East of the Third Principal Meridian.

Comprehensive Plan
The proposed development is consistent with the Village of Lake Villa Comprehensive Plan, adopted January 3, 2022, which shows the site as Multi-Family on the Future Land Use Map. Senior housing would be compatible with a Multi-Family designation in the context of the comprehensive plan.

Zoning
The site is currently zoned SB2 which allows dwelling units restricted to owner occupied, single-family condominium, second floor or above. The only zone that allows elderly housing is UR4 with a Conditional Use. As "each planned development shall be compatible with the character and objectives of the underlying zoning district or districts within which it is located" it is recommended to change the zoning of Lot A Phase 2 to UR4 that allows "elderly housing" as a conditional use.

	SB 2	**UR4 + Conditional Use Elderly Housing**	**Proposed**
Use	50	Elderly housing is a conditional use	Elderly housing
Front	20	30 feet	151 feet
Rear	30	6 (first) + 4 (second) +1 (each additional unit) = 48 feet	66 feet – Confirm with Applicant
Total Side Yard	15	15 (first) + 8 (second) +2 (each additional unit) = 101 feet	N/A

Side Yard	50	6 (first) + 4 (second) + 1 (each additional unit) = 48 feet	63 feet
Min. Setback Abutting a Street	50	30 feet	151 feet
Min. Setback Abutting a Residential Zone	50	6 (first) + 4 (second) + 1 (each additional unit) = 48 feet	66 feet – Confirm with Applicant

Maximum FAR	.80	2.0 (Elderly)	.09
Maximum Height of Principal Use	40	50	42
Number of Stories	3	4 (Elderly)	3
Site Area			227,068 sq ft

Parking

Requirement:
1.0 space per unit for elderly housing

Parking	**Elderly**	**Proposed**
Required	40	See below
Standard		64
Handicap		6
Total	**40**	**70**

Standards for Conditional Uses

1. Location: The site shall be so situated that the proposed use is compatible with the existing or planned future development of the area.

   Comment: The proposed development is located along an arterial with compatible with commercial development to the north and residential development to the east.

2. Zone Requirements: All regulations of the zone in which a conditional use is located shall apply to such uses, except where specifically amended by the conditions under which the conditional use permit is granted.

   Comment: Zoning variances may be provided through the adoption of the planned development.

3. Lot Area: A conditional use shall be located on a lot or a zoning lot, which conforms to the zone regulations, unless the lot area requirement is specified in this section.

   Comment: The proposed project is in compliance with minimum requirements of the proposed zone.

Standards for Elderly Housing Conditional Use

a. Lot Area, Yard and Bulk Requirements
   Comment: Meets criteria listed above

b. Size – The maximum size of any elderly housing project shall be no greater than one hundred (100) dwelling units
   Comment: meets standard

c. Subordinate Uses: The subordinate uses shall not exceed more than eighteen percent (18%) of the total floor area.
   Comment: meets standard

d. Parking: Parking shall be provided at the rate of one space per dwelling units
   Comment: meets standard

e. Open Space: Elderly housing projects shall provide open space which is not less than forty percent (40%) of the gross area of the project.
   Comment: meets standard

f. Other conditions: All elderly housing projects must meet the minimum standards of this zoning ordinance regarding resource protection and landscaping, as well as the provisions of this section.
   Comment: meets standard

Planned Development Standards

a. In evaluating a Planned Unit Development, The Planning Commission shall consider the degree to which that development varies from underlying zoning standards of the district in which it is located, and also consider benefits of the development such as the following (summary of Lake Villa Zoning Ordinance 9-1-2):
   (1) The proposed development plan has provided a trail system for residents; or
   (2) The amount of landscaping is substantially greater than the minimum required by the Village Code; or
   (3) The proposed development has substantially greater architectural amenities; or
   (4) Other extraordinary site amenities

   Comment: The proposed development exceeds the amount of landscaping that is required by providing two of the standards:
   (1) The proposed development provides a trail system in the northwest portion of the development
   (2) The proposed development exceeds landscape requirements by providing common open space, a community garden and dog run.

b. The degree to which the development exhibits extra care and attention to details in excess of Village requirements which enhance the character of the development

Comment: the proposed development provides additional open space, a trail system, community garden and dog run. It also exceeds requirements for parking and accessible parking spaces.

c. The degree to which any requested increase in density reflects an investment in better design, landscaping, or facilities

Comment: the design of the development provides a moderate-density senior housing that is needed in the community, is located along an easily accessible arterial and complements the commercial development to the north and serves as a buffer to residential development to the west.

d. The degree to which the developer has gone to better preserve critical natural environments, restore or mitigate degraded or distressed environments, alleviated off-site problems, or provided other improvements.

Comment: the proposed development provides additional open space, a trail system, community garden and dog run. The wet bottom detention basin should be designed with native wetland vegetation wherever possible to enhance the natural environment and the abutting wetland to the south.

Sidewalks

e. Consistent with the C.U.P. Ordinance 2020-07-07 a sidewalk should be provided on the west side of Deep Lake Rd. from Tower Drive to the southern boundary of the parcel. In addition, a sidewalk should be provided along the eastern access drive from the Lake Tower Crossing parking lot to the site. See Applied Technologies report for an exhibit detailing sidewalk comments.

Comment, sidewalks are shown on the December 29, 2022 2022 civil engineering plans along Deep Lake Road, Tower Drive and the eastern access lane to the site to arrive at the east frontage of the building.

Landscaping

The project meets landscape requirements.

Comment: Planting and seed mixes for the stormwater detention area should promote native wetland species to preserve and enhance the natural environment and the abutting wetland to the south.

Lighting

Lighting plan meets requirements. Luminaries are 90 degrees or less and will be 15 feet tall, less than the maximum permitted height of 20 ft. in UR4.