

LAND USE APPLICATION

VILLAGE OF LIBERTYVILLE
COMMUNITY DEVELOPMENT DEPARTMENT
200 EAST COOK AVENUE
LIBERTYVILLE, IL 60048
(847) 918-2028
(847) 367-5148 (Fax)

DATE: 10/23/2024



<u>REQUESTED ACTION(S) (check all that apply)</u>	
<input type="checkbox"/> Comp. Plan	<input type="checkbox"/> Preliminary/Final Plat
<input type="checkbox"/> Comp. Plan Amendment	<input type="checkbox"/> Plat of Consolidation
<input type="checkbox"/> Map Amendment	<input checked="" type="checkbox"/> Site Plan Permit
<input type="checkbox"/> Planned Dev. (Concept/Final)	<input type="checkbox"/> Special Use Permit
<input type="checkbox"/> Planned Dev. (Final Amendment)	<input type="checkbox"/> Text Amendment
<input type="checkbox"/> Planned Dev. (Adjustment)	<input checked="" type="checkbox"/> Variation
<input type="checkbox"/> Planned Dev. (Master Plan)	<input type="checkbox"/> Zoning Appeal
<input type="checkbox"/> Planned Dev. (Master Plan Amendment)	

TO THE VILLAGE PRESIDENT, VILLAGE BOARD OF TRUSTEES AND THE ZONING BOARD OF APPEALS OF THE VILLAGE OF LIBERTYVILLE, LAKE COUNTY, ILLINOIS 60048.

The applicant(s) LIBERTYVILLE SCHOOL DISTRICT #70 BOARD OF EDUCATION represents that they are the OWNER , CONTRACT PURCHASER _____, LESSEE _____, AUTHORIZED AGENT _____ (please check correct term) of the following described real estate: (Insert or attach legal description of the real estate)
SEE ATTACHED

PROPERTY TAX IDENTIFICATION NUMBER (P.I.N. #): 1117300030
The property is also known as: (street address) 1441 LAKE STREET, LIBERTYVILLE, IL 60048

If someone other than the applicant(s) has the title to the property, include the name, address, trust number with beneficiaries (if applicable), and phone number of such owner(s). **A written, notarized statement from the owner(s) which acknowledges and consents to this request must be provided.**

LAND USE APPLICATION
PAGE 2

The property is now classified under the Libertyville Zoning Code and is located in the IB (INSTITUTIONAL BUILDING) District.

FOR VARIATION ONLY: Please check the type of variation(s) requested:

<input type="checkbox"/>	Front Yard Setback	<input checked="" type="checkbox"/>	Sign
<input type="checkbox"/>	Corner Side Yard Setback	<input type="checkbox"/>	Fence
<input type="checkbox"/>	Side Yard Setback	<input type="checkbox"/>	Lot Coverage
<input type="checkbox"/>	Rear Yard Setback	<input type="checkbox"/>	Building Coverage
<input checked="" type="checkbox"/>	Perimeter Landscaped Open Space	<input type="checkbox"/>	Building Height
<input type="checkbox"/>	Other (specify) _____		

Please attach a detailed narrative description of the requested development action(s).

Denim Khan
applicant/representative signature

Jennifer Khan
please print full name

1381 W Lake Ave
address of applicant/representative

847 362 9030
phone number

jkhan@d70schools.org
e-mail

NOTE! If several parties are involved with the project (i.e., architect, engineer, consultant, etc.), please attach a list including the names, addresses and phone numbers of such parties. This application must be complete before it will be accepted by the Village.

Rev. 11.2023

Development Site: 1441 LAKE STREET, LIBERTYVILLE, IL 60048

**Village of Libertyville
Land Use Application
Contact List**

Applicant:

Libertyville School District #70 Board of Education
1381 W Lake Street
Libertyville, Illinois 60048
T: 847 362 9695
E: sbachar@d70schools.org

Architect:

Wold Architects & Engineers
220 N Smith Street, Suite 310
Palatine, Illinois 60067
T: 847 241 6100
E: meichhorn@woldae.com

Civil Engineer:

Eriksson Engineering Associates, LTD.
145 Commerce Drive, Suite A
Grayslake, Illinois 60030
T: 847 223 4804
E: kcamino@eea-ltd.com

Electrical Engineer:

Wold Architects & Engineers
220 N Smith Street, Suite 310
Palatine, Illinois 60067
T: 847 241 6100
E: bjohannsen@woldae.com

APPEARANCE REVIEW APPLICATION

VILLAGE OF LIBERTYVILLE
COMMUNITY DEVELOPMENT DEPARTMENT
200 EAST COOK AVENUE
LIBERTYVILLE, IL 60048
(847) 918-2028
(847) 367-5148 (Fax)

DATE: 10/23/2024



REQUESTED ACTION(S) (check all that apply)
Building Facades
Landscaping
Lighting
Signage
Other

TO THE VILLAGE PRESIDENT, VILLAGE BOARD OF TRUSTEES AND THE APPEARANCE REVIEW COMMISSION OF THE VILLAGE OF LIBERTYVILLE, LAKE COUNTY, ILLINOIS 60048.

The applicant(s) LIBERTYVILLE SCHOOL DISTRICT #70 BOARD OF EDUCATION represents that they are the OWNER X, AUTHORIZED AGENT (please check correct term) of the property commonly known as: (street address) 1441 LAKE STREET, LIBERTYVILLE, IL 60048 .

If someone other than the applicant(s) has the title to the property, please provide a written statement from the owner(s) which acknowledges and consents to this request.

The property is now classified under the Libertyville Zoning Code and is located in the IB (INSTITUTIONAL BUILDING) District.

Jennifer Khan
applicant/representative signature

Jennifer Khan

1381 W Lake Ave
address of applicant/representative

847 362 9030
phone number

jkhan@d70schools.org
e-mail

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Development Site: 1441 LAKE STREET, LIBERTYVILLE, IL 60048

**Village of Libertyville
Appearance Review Application
Contact List**

Applicant:

Libertyville School District #70 Board of Education
1381 W Lake Street
Libertyville, Illinois 60048
T: 847 362 9695
E: sbachar@d70schools.org

Architect:

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220 N Smith Street, Suite 310
Palatine, Illinois 60067
T: 847 241 6100
E: meichhorn@woldae.com

Civil Engineer:

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145 Commerce Drive, Suite A
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T: 847 223 4804
E: kcamino@eea-ltd.com

Electrical Engineer:

Wold Architects & Engineers
220 N Smith Street, Suite 310
Palatine, Illinois 60067
T: 847 241 6100
E: bjohannsen@woldae.com



October 25, 2024

From: Michael Eichhorn
Wold Architects & Engineers
220 North Smith Street #310
Palatine, Illinois 60067

To: Community Development Department
Village of Libertyville
200 East Cook Avenue
Libertyville, Illinois 60048

**Re: Butterfield Road School Parking Lot and Lighting – Libertyville School District 70
Variation Request Application**

Project Address: 1441 Lake St, Libertyville, IL 60048
Property Owners: Board of Education, Libertyville School District 70
Industrial Building – IB Zoning District

Pre-Application Conference has been held on July 11, 2024 with David Smith

Project Narrative

To Whom it May Concern:

On behalf of Libertyville School District 70, we are pleased to present the attached documentation regarding the Butterfield Elementary School Parking Lot project. To better serve our school community daily needs, this project includes a new seventy (70) space parking lot for staff and visitors and a widened drive at the north end of the Butterfield Elementary School. The proposed site is between the existing bus drop-off lane and Lake Street to the north

We are seeking a variation for our project of the Perimeter Landscaped Open Space for an IB Zone for Institution Building under Sec. 26-13-2 of the perimeter landscaped open space under Article 13 Part A. Landscaping and Screening.

We seek a variation to providing a perimeter landscaped open space with a minimum width of no less than fifty (50) feet along Lake Street property line. See width dimension we are proposing on new site plan. The proposed landscape buffer will comply with Section 26-13-2.2 and provide for a variety of spruce, pine, and canopy shade trees. to meet these requirements.



Overall, the impact on the development of our site is minimized by providing new landscaping around the new lot and with buffered plantings along Lake Street. We are locating the lot on the property in close proximity to existing school entry for safer pedestrian travel. ADA accessibility is increase due to new ADA parking spaces provided in close proximity.

Libertyville School District 70 is grateful for your consideration of his request and looks forward to improving and enhancing our traffic safety and accessibility on site.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Eichhorn". The signature is fluid and cursive, with a long horizontal stroke at the end.

Michael Eichhorn, AIA, LEED AP
Wold Architects and Engineers

Prepared by Michael Eichhorn
Wold Architects & Engineers
220 North Smith Street #310
Palatine, Illinois 60067

On Behalf of Owner:
Board of Education, Libertyville School District 70



October 25, 2024

From: Michael Eichhorn
Wold Architects & Engineers
220 North Smith Street #310
Palatine, Illinois 60067

To: Community Development Department
Village of Libertyville
200 East Cook Avenue
Libertyville, Illinois 60048

**Re: Butterfield Road School Parking Lot and Lighting – Libertyville School District 70
Variation Request Application**

Project Address: 1441 Lake St, Libertyville, IL 60048
Property Owners: Board of Education, Libertyville School District 70
Industrial Building – IB Zoning District

STANDARDS FOR VARIATIONS

- a. General Standard. No variation shall be granted pursuant to this Section 16-8 unless the applicant shall establish that carrying out the strict letter of the provisions of this Code would create a particular hardship or a practical difficulty. Such a showing shall require proof that the variation being sought satisfies each of the standards set forth in this Section 16-8.7.

Constructing lot would be practically difficult due to the minimum width of a standard double parking lot to be between 60 and 64' wide and the distance open available between Lake Street and the existing bus drop-off, if we were to setback per code would be only 40' wide, which would not allow for a parking layout to adhere to standards for safety of parking lots and stall size. Therefore, the project would not be practical to provide the required number of parking spaces needed for school to function and provide occupants adequate parking space. Providing spaces elsewhere on site would be a hardship due to lack of open space and street access to the property

- b. Unique Physical Condition. The subject lot is exceptional as compared to other lots subject to the same provision by reason of a unique physical condition, including the presence of an existing use, structure, fence or sign, whether conforming or nonconforming; irregular or substandard shape or size; exceptional topographical

features; or other extraordinary physical conditions peculiar to and inherent in the subject lot that amount to more than a mere inconvenience to the owner and that relate to or arise out of the lot or its existing development rather than the personal situation of the current owner of the lot.

The lot is confined to the space between the school and the road. With that limitation the setback could not be achieved due to the required width of sidewalk, bus drive, and parking lot width. Also, the length of the lot between the existing location of the curb-cuts also limited the length of lot and thus the number of parking spaces on site need to achieve the 70 spaces needed to add. The design works within an otherwise, currently unused drive loop.

- c. Not Self-Created. The aforesaid unique physical condition is not the result of any action or inaction of the owner or its predecessors in title, other than the construction of structures that were lawful at the time of such construction, and existed at the time of the enactment of the provisions from which a variation is sought or was created by as a result of natural forces or governmental action, other than the adoption of this Code.

The existing building conforms to zoning setback requirements at the time of construction, and that lot size remains confirmed to the limits of the roadways surrounding.

- d. Denied Substantial Rights. The carrying out of the strict letter of the provision from which a variation is sought would deprive the owner of the subject lot of substantial rights commonly enjoyed by owners of other lots subject to the same provision.

Provision would deprive school district to function safely for drop-off and pickup and provide adequate parking for the school visitors, students, and staff on a daily basis and in events of a regular professional development on daily, weekly, or monthly basis as well as public board meetings. The design will prevent overflow into neighboring streets by providing more on-site and efficient queueing.

- d. Not Merely Special Privilege. The alleged hardship or difficulty is neither merely the inability of the owner or occupant to enjoy some special privilege or additional right not available to owners or occupants of other lots subject to the same provision, nor merely the inability of the owner to make more money from the use of the subject lot; provided, however, that where the standards set out in this Section 16-8.7 are met, the existence of an economic hardship shall not be a prerequisite to the grant of a variation.

The School District provides for the education of children as required by state law and within its mission, and needs this additional parking as described. The School District is not seeking a special privilege in its need to provide for additional parking to achieve this mission and provide this community service.

- f. Code and Plan Purposes. The variation would not result in a use or development of the subject lot that would be not in harmony with the general and specific purposes for which this Code and the provision from which a variation is sought were enacted or the general purpose and intent of the Official Comprehensive Plan.

The proposed new parking lot will be appropriately designed to be in harmony with the existing topography and openness in front of the school with no change to the district buildings and be designed in harmony within the development of the zoning district IB in which it is located. Landscaping and tree screening will be provided between new parking and Lake Street.

- g. Essential Elements of the Area. The variation would not result in a use or development on the subject lot that:

- 1) Would be materially detrimental to the public welfare or materially injurious to the enjoyment, use, development, or value of property or improvements permitted in the vicinity; or

The existing location and size of the current use and operation of the school site will remain unchanged, as well as no increase anticipated in student enrollment as this time. There will be limited increase in total vehicular traffic and buses arriving on site, and therefore street access and use will remain unchanged. Other properties in the immediate vicinity will not be negatively impacted. As it goes about its mission of educating the children of the community, the School District will continue its endeavors to be good neighbors to adjacent residents, and to the Village of Libertyville

- 2) Would materially impair an adequate supply of light and air to the properties and improvements in the vicinity; or

Parking lot has no vertical structures so would not impair supply of light nor impact flow of air across property or to neighboring properties.

- 3) Would substantially increase congestion in the public streets due to traffic or parking; or

The lot will allow for an increase in parking spaces and expanded entry and exit drive lanes onsite and improve traffic safety flow on site and not negatively increase traffic outside the property in neighbor streets. Entrance and exit driveway locations to and from existing parking areas shall remain unchanged and unhindered by new construction.

- 5) Would unduly tax public utilities and facilities in the area; or

No increase in sewer, water, or gas is proposed. Electrical will be within the capacity of the existing building's system and no new electrical service is required. The electrical utilities for the project will be designed and constructed as necessary to satisfy the demands of the lighting of proposed parking lot, and the District will bear the cost of the necessary design and construction.

- 6) Would endanger the public health or safety

The parking lot addition will serve the school community to support student development and staff daily employment. Parking will serve the school community to provide safe and protected access by decreasing congestion within existing lots. The maintenance and operation of these parking spaces will not be detrimental to or endanger the public health as they will integrate into the same way the existing parking lot serving school functions with regard to supervision, maintenance, and student drop-off an pick-up patterns.

- h. No Other Remedy. There is no means other than the requested variation by which the alleged hardship or difficulty can be avoided or remedied to a degree sufficient to permit a reasonable use of the subject lot.

The need for additional parking has been explored at various locations on the existing owner's site and these new spaces being proposed are in the only area that allow for expansion of lot and works within the confines of the buildings, driveways, adjacent streets, and crosswalks that are existing and provide for safe pedestrian access and turning and passing geometries for vehicles.

TOPOGRAPHICAL SURVEY

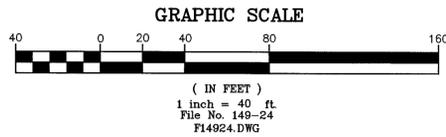
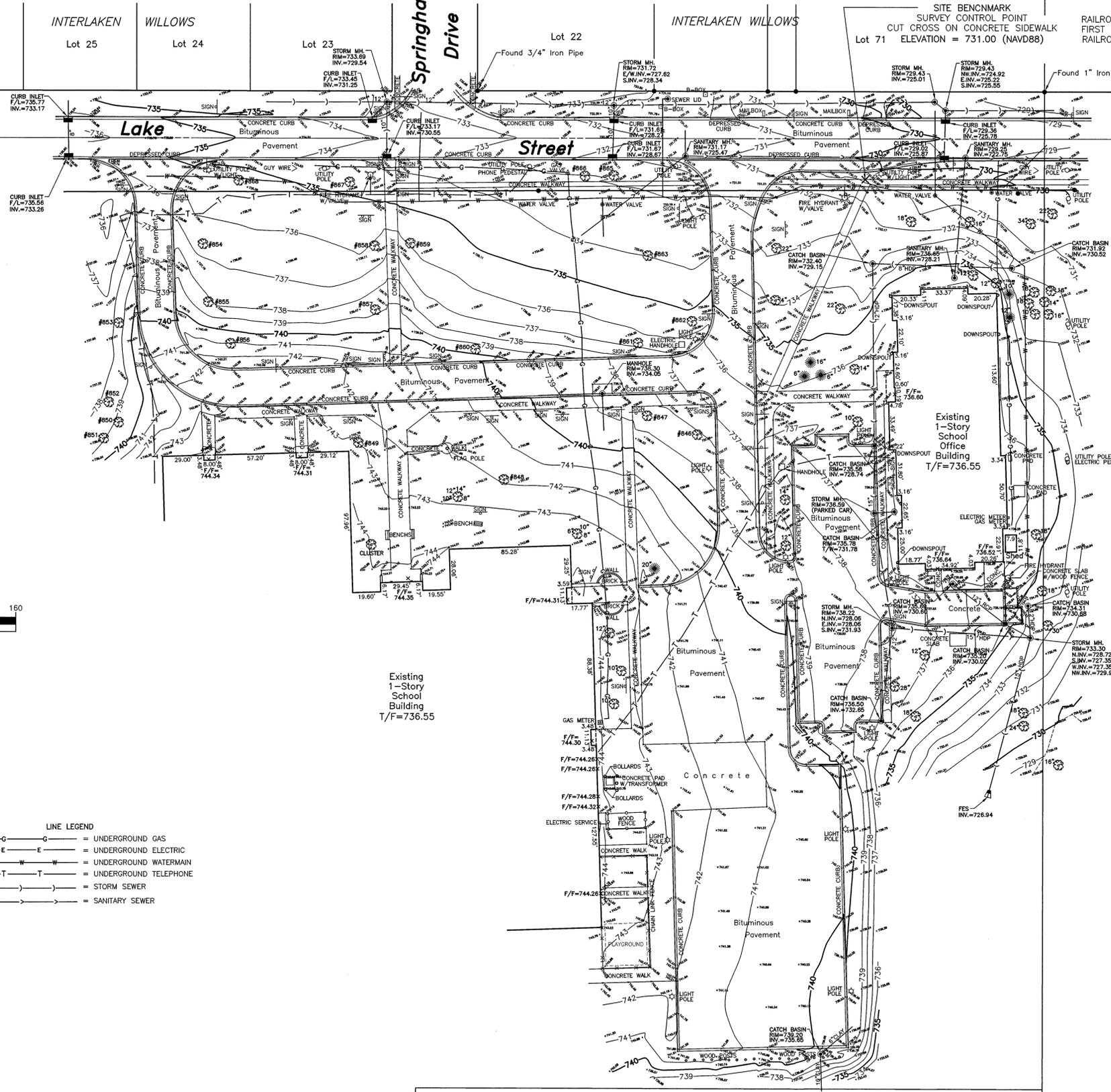
OF
BUTTERFIELD SCHOOL AND DISTRICT 70 ADMINISTRATION CENTER
 1441 LAKE STREET, LIBERTYVILLE, ILLINOIS

SOURCE BENCHMARK
 BENCH MARK RECOVERY SHEET
 LAKE COUNTY, ILLINOIS
 BENCH MARK DESIGNATION: M-25T
 RAILROAD SPIKE IN SOUTH FACE OF POWER POLE
 FIRST POWER POLE WEST OF WISCONSIN CENTRAL
 RAILROAD ON THE NORTH SIDE OF DUNBAR ROAD
 ELEVATION = 779.18 (NAVD88)

SITE BENCHMARK
 SURVEY CONTROL POINT
 CUT CROSS ON CONCRETE SIDEWALK
 Lot 71 ELEVATION = 731.00 (NAVD88)

Lot 27 Lot 26 INTERLAKEN WILLOWS Lot 25 Lot 24

Lot 23 Springhaven Drive Lot 22



LINE LEGEND

	= UNDERGROUND GAS
	= UNDERGROUND ELECTRIC
	= UNDERGROUND WATERMAIN
	= UNDERGROUND TELEPHONE
	= STORM SEWER
	= SANITARY SEWER

STATE OF ILLINOIS S.S.
 COUNTY OF LAKE

DATED: OCTOBER 1ST, 2024
 PREPARED BY:

Bryan J. Lee
 ILLINOIS PROFESSIONAL LAND SURVEYOR 35-3616
 MY LICENSE EXPIRES 11-30-24
 PROFESSIONAL DESIGN FIRM NO. 184-002732



FIELDWORK COMPLETED: 09-30-2024
 CLIENT NAME: LIBERTYVILLE SCHOOL DISTRICT 70
 ADDRESS: 1381 W. LAKE STREET
 LIBERTYVILLE, IL 60048

NOTES:
 PLAT IS VOID if the Impressed Surveyors Seal does not appear.
 Only those Building Lines or Easements shown on a Recorded
 Subdivision Plat or from a Recorded Document are shown
 hereon; check local ordinances before building.

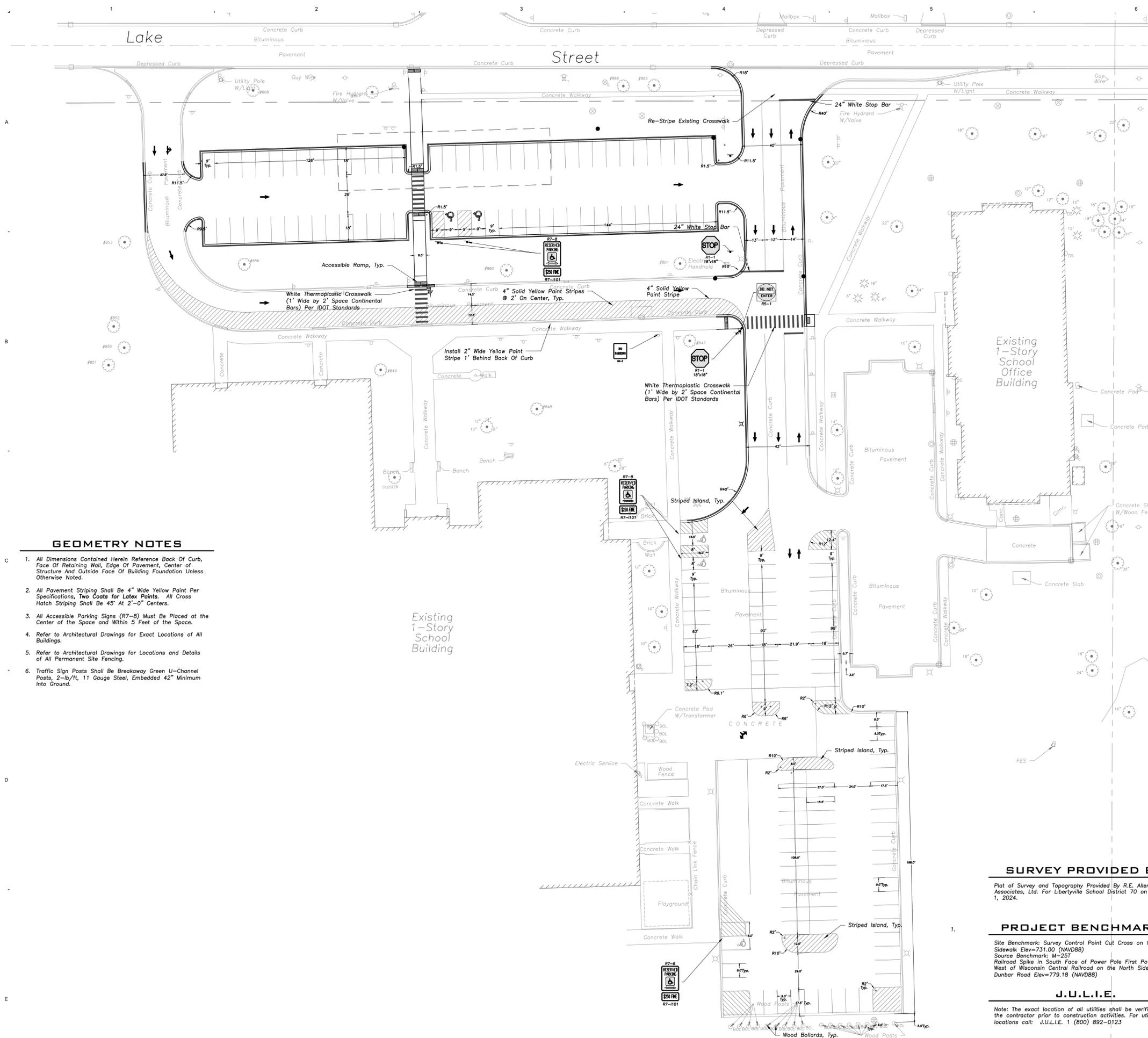
Compare your description and site markings with this plat AT
 ONCE report any discrepancies which you may find.

R.E. ALLEN AND ASSOCIATES, LTD.
 PROFESSIONAL LAND SURVEYORS
 1015 N. CORPORATE CIRCLE, SUITE C
 GRAYSLAKE, ILLINOIS 60030
 PHONE: 847-223-0914 FAX: 847-223-0980

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GEOMETRY NOTES

1. All Dimensions Contained Herein Reference Back Of Curb, Face Of Retaining Wall, Edge Of Pavement, Center Of Structure And Outside Face Of Building Foundation Unless Otherwise Noted.
2. All Pavement Striping Shall Be 4" Wide Yellow Paint Per Specifications, Two Coats For Latex Paints. All Cross Hatch Striping Shall Be 45° At 2'-0" Centers.
3. All Accessible Parking Signs (R7-B) Must Be Placed at the Center of the Space and Within 5 Feet of the Space.
4. Refer to Architectural Drawings for Locations and Details of All Buildings.
5. Refer to Architectural Drawings for Locations and Details of All Permanent Site Fencing.
6. Traffic Sign Posts Shall Be Breakaway Green U-Channel Posts, 2-1/2" Dia, 11 Gauge Steel, Embedded 42" Minimum Into Ground.

Existing 1-Story School Office Building

SURVEY PROVIDED BY:

Plot of Survey and Topography Provided By R.E. Allen and Associates, Ltd. For Libertyville School District 70 on October 1, 2024.

PROJECT BENCHMARKS

Site Benchmark: Survey Control Point Cut Cross on Concrete Sidewalk Elev=731.00 (NAVD88)
Source Benchmark: M-257 Railroad Spike in South Face of Power Pole First Power Pole West of Wisconsin Central Railroad on the North Side of Dunbar Road Elev=779.18 (NAVD88)

J.U.L.I.E.

Note: The exact location of all utilities shall be verified by the contractor prior to construction activities. For utility locations call: J.U.L.I.E. 1 (800) 892-0123



Scale: 1"=30'

LEGEND

EXISTING	PROPOSED
Manhole	Manhole
Catch Basin	Catch Basin
Inlet	Inlet
Area Drain	Area Drain
Clean Out	Clean Out
Storm Sewer	Storm Sewer
Sanitary Sewer	Sanitary Sewer
Combined Sewer	Combined Sewer
Water Main	Water Main
Gas Line	Gas Line
Overhead Wires	Overhead Wires
Electrical Cable (Buried)	Electrical Cable (Buried)
Telephone Line	Telephone Line
Fire Hydrant	Fire Hydrant
Post Indicator Valve	Post Indicator Valve
Valve Vault	Valve Vault
Buffalo Box	Buffalo Box
Downspout	Downspout
Bollard	Bollard
Gas Valve	Gas Valve
Gas Meter	Gas Meter
Electric Meter	Electric Meter
Electric Manhole	Electric Manhole
Hand Hole	Hand Hole
Light Pole	Light Pole
Utility Pole	Utility Pole
Telephone Pedestal	Telephone Pedestal
Telephone Manhole	Telephone Manhole
Sign	Sign
Fence	Fence
Accessible Parking Stall	Accessible Parking Stall
Curb & Gutter	Curb & Gutter
Depressed Curb	Depressed Curb
Curb Elevation	Curb Elevation
Gutter Elevation	Gutter Elevation
Pavement Elevation	Pavement Elevation
Sidewalk Elevation	Sidewalk Elevation
Ground Elevation	Ground Elevation
Top of Retaining Wall Elevation	Top of Retaining Wall Elevation
Contour Line	Contour Line
Deciduous Tree	Deciduous Tree
Coniferous Tree	Coniferous Tree
Brushline	Brushline
Tree Protection Fencing at Drip Line	Tree Protection Fencing at Drip Line

GENERAL NOTES

1. The Location of Existing Underground Utilities, Such As Watermains, Sewers, Gas Lines, Etc., As Shown On The Plans, Has Been Determined From The Best Available Information and Is Given For The Convenience of The Contractor. However, The Owner and The Engineer Do Not Assume Responsibility In The Event That During Construction, Utilities Other Than Those Shown May Be Encountered, and That The Actual Location of Those Which Are Shown May Be Different From The Location As Shown On The Drawings. Contact Engineer Immediately If Surface and/or Subsurface Features Are Different Than Shown On The Drawings.
2. Notify The Engineer Without Delay of Any Discrepancies Between the Drawings and Existing Field Conditions.
3. Contractor Shall Provide Private Utility Locating Services for the Project Area.
4. Notify The Owner, Engineer and The Village of Libertyville A Minimum of 48 Hours In Advance of Performing Any Work.
5. All Areas, On or Off Site, Disturbed During Construction Operations and Not Part of the Work As Shown Hereon Shall Be Restored To Original Condition to the Satisfaction of the Owner at No Additional Cost to the Owner. It is Incumbent Upon Contractor to Show That Damaged Areas Were Not Disturbed By Construction Operations.
6. These Drawings Assume That The Contractor Will Utilize An Electronic Drawing File (DWG) to Stake All Site Improvements Accordingly. Contractor Shall Re-Establish Horizontal Control. Horizontal Control Points Not Provided.
7. No Person May Utilize The Information Contained Within These Drawings Without Written Approval From Eriksson Engineering Associates, Ltd.
8. The Engineer Is Furnishing These Drawings For Construction Purposes As A Convenience To The Owner, Architect, Surveyor, or Contractor. Prior To The Use Of These Drawings For Construction Purposes, The User Of This Media Shall Verify All Dimensions And Locations Of Buildings With The Foundation Drawings And Architectural Site Plan, and Coordinate All Dimensions and Locations of All Site Items. If Conflicts Exist The User Of This Information Shall Contact The Engineer Immediately.
9. Provide An As-built Survey Prepared By A Licensed Professional Land Surveyor In Accordance With The Authorities Having Jurisdiction Which Shall Include As a Minimum All Detention Basins and Best Management Practices, Include All Storm and Sanitary Sewers, Structure Locations, Sizes, Rim and Invert Elevations, Final Detention Volume Calculations For The Basin(s), Watermain and Valve and Appurtenance Locations. Provide Photograph Of Restrictor Plate(s) Including Ruler Across Opening For Verification Of Restrictor Diameter.
10. The Illinois Department Of Transportation Standard Specifications For Road And Bridge Construction Latest Edition, And All Addenda Thereof, Shall Govern The Earthwork And Paving Work Under This Contract Unless Noted Otherwise.

Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70
1381 W Lake Street
Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS
220 N. Smith Street, Suite 310
Palatine, Illinois 60067
woldaec.com | 847 241 6100

Revisions		
Description	Date	Num
Village Submittal	10.25.24	

Comm: 243118
Date: 10.25.24
Drawn: MO
Check: KC

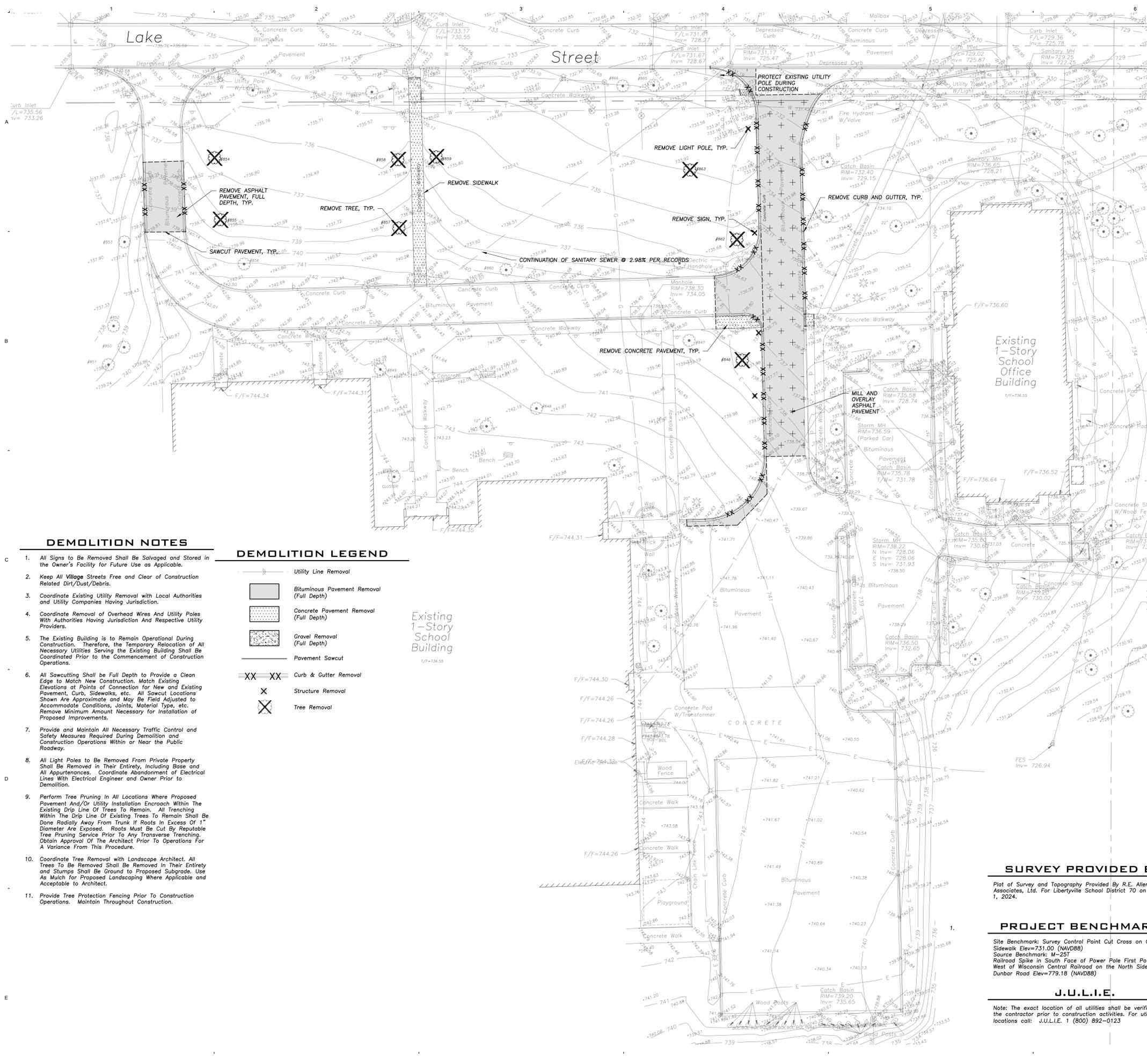


SITE GEOMETRY PLAN

Scale:
C2.1

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DEMOLITION NOTES

- All Signs to Be Removed Shall be Salvaged and Stored in the Owner's Facility for Future Use as Applicable.
- Keep All Village Streets Free and Clear of Construction Related Dirt/Dust/Debris.
- Coordinate Existing Utility Removal with Local Authorities and Utility Companies Having Jurisdiction.
- Coordinate Removal of Overhead Wires and Utility Poles With Authorities Having Jurisdiction and Respective Utility Providers.
- The Existing Building is to Remain Operational During Construction. Therefore, the Temporary Relocation of All Necessary Utilities Serving the Existing Building Shall Be Coordinated Prior to the Commencement of Construction Operations.
- All Sawcutting Shall be Full Depth to Provide a Clean Edge to Match New Construction. Match Existing Elevations at Points of Connection for New and Existing Pavement, Curb, Sidewalks, etc. All Sawcut Locations Shown are Approximate and May Be Field Adjusted to Accommodate Conditions, Joints, Material Type, etc. Remove Minimum Amount Necessary for Installation of Proposed Improvements.
- Provide and Maintain All Necessary Traffic Control and Safety Measures Required During Demolition and Construction Operations Within or Near the Public Roadway.
- All Light Poles to be Removed from Private Property Shall be Removed in Their Entirety, Including Base and All Appurtenances. Coordinate Abandonment of Electrical Lines With Electrical Engineer and Owner Prior to Demolition.
- Perform Tree Pruning in All Locations Where Proposed Pavement and/or Utility Installation Encroach Within the Existing Drip Line of Trees to Remain. All Trenching Within the Drip Line of Existing Trees to Remain Shall be Done Radially away from Trunk if Roots in Excess of 1" Diameter are Exposed. Roots Must be Cut by Reputable Tree Pruning Service Prior to Any Transverse Trenching. Obtain Approval of The Architect Prior to Operations For a Variance From This Procedure.
- Coordinate Tree Removal with Landscape Architect. All Trees to Be Removed Shall be Removed in Their Entirety and Stumps Shall be Ground to Proposed Subgrade. Use As Much for Proposed Landscaping Where Applicable and Acceptable to Architect.
- Provide Tree Protection Fencing Prior to Construction Operations. Maintain Throughout Construction.

DEMOLITION LEGEND

- Utility Line Removal
- Bituminous Pavement Removal (Full Depth)
- Concrete Pavement Removal (Full Depth)
- Gravel Removal (Full Depth)
- Pavement Sawcut
- Curb & Gutter Removal
- Structure Removal
- Tree Removal

Existing 1-Story School Office Building
1/7=736.55

SURVEY PROVIDED BY:

Plot of Survey and Topography Provided by R.E. Allen and Associates, Ltd. For Libertyville School District 70 on October 1, 2024.

PROJECT BENCHMARKS

Site Benchmark: Survey Control Point Cut Cross on Concrete Sidewalk Elev=731.00 (NAVD88)
Source Benchmark: M-257
West of Wisconsin Central Railroad on the North Side of Dunbar Road Elev=779.18 (NAVD88)

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Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70
1381 W Lake Street
Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS

220 N. Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100



Scale: 1"=30'

LEGEND

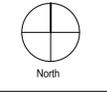
- | EXISTING | PROPOSED |
|--------------------------------------|---------------------------|
| Manhole | Manhole |
| Catch Basin | Catch Basin |
| Inlet | Inlet |
| Area Drain | Area Drain |
| Clean Out | Clean Out |
| Storm Sewer | Storm Sewer |
| Sanitary Sewer | Sanitary Sewer |
| Combined Sewer | Combined Sewer |
| Water Main | Water Main |
| Gas Line | Gas Line |
| Overhead Wires | Overhead Wires |
| Electrical Cable (Buried) | Electrical Cable (Buried) |
| Telephone Line | Telephone Line |
| Fire Hydrant | Fire Hydrant |
| Post Indicator Valve | Post Indicator Valve |
| Valve Vault | Valve Vault |
| Buffalo Box | Buffalo Box |
| Downspout | Downspout |
| Bollard | Bollard |
| Gas Valve | Gas Valve |
| Gas Meter | Gas Meter |
| Electric Meter | Electric Meter |
| Electric Manhole | Electric Manhole |
| Hand Hole | Hand Hole |
| Light Pole | Light Pole |
| Utility Pole | Utility Pole |
| Telephone Pedestal | Telephone Pedestal |
| Telephone Manhole | Telephone Manhole |
| Sign | Sign |
| Fence | Fence |
| Accessible Parking Stall | Accessible Parking Stall |
| Curb & Gutter | Curb & Gutter |
| Depressed Curb | Depressed Curb |
| Curb Elevation | C 782.50 |
| Gutter Elevation | G 782.00 |
| Pavement Elevation | P 783.25 |
| Sidewalk Elevation | W 782.10 |
| Ground Elevation | 784.0 |
| Top of Retaining Wall Elevation | T/W 785.20 |
| Contour Line | 781 |
| Deciduous Tree | |
| Coniferous Tree | |
| Brushline | |
| Tree Protection Fencing at Drip Line | |

GENERAL NOTES

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Revisions		
Description	Date	Num
Village Submittal	10.25.24	

Comm: 243118
 Date: 10.25.24
 Drawn: MO
 Check: KC



SITE DEMOLITION PLAN

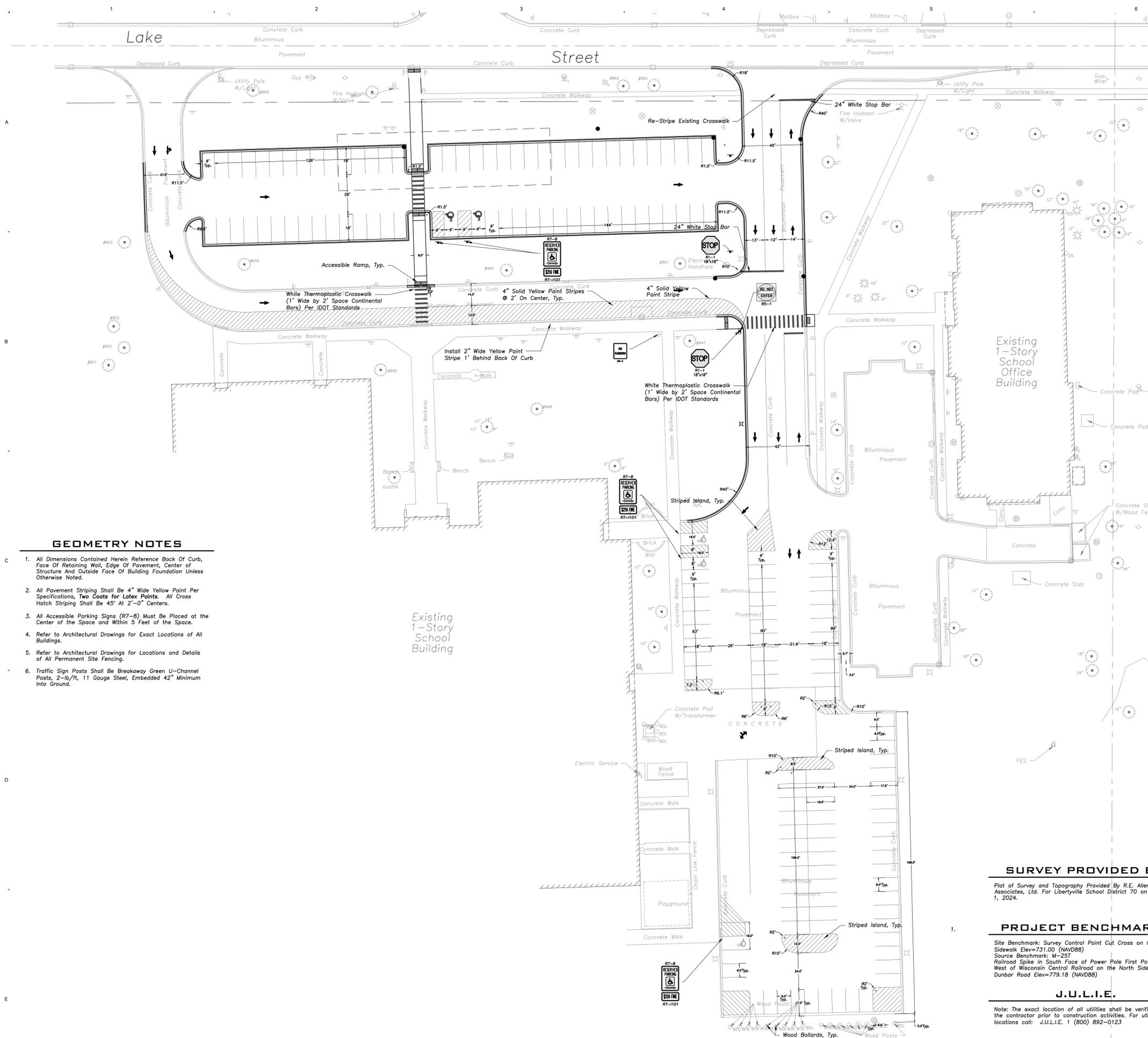
Scale:

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GEOMETRY NOTES

1. All Dimensions Contained Herein Reference Back Of Curb, Face Of Retaining Wall, Edge Of Pavement, Center Of Structure And Outside Face Of Building Foundation Unless Otherwise Noted.
2. All Pavement Striping Shall Be 4" Wide Yellow Paint Per Specifications, Two Coats For Latex Paints. All Cross Hatch Striping Shall Be 45° At 2'-0" Centers.
3. All Accessible Parking Signs (R7-B) Must Be Placed at the Center of the Space and Within 5 Feet of the Space.
4. Refer to Architectural Drawings for Exact Locations of All Buildings.
5. Refer to Architectural Drawings for Locations and Details of All Permanent Site Fencing.
6. Traffic Sign Posts Shall Be Breakaway Green U-Channel Posts, 2-1/2" Dia, 11 Gauge Steel, Embedded 42" Minimum Into Ground.

Existing 1-Story School Office Building

SURVEY PROVIDED BY:

Plot of Survey and Topography Provided By R.E. Allen and Associates, Ltd. For Libertyville School District 70 on October 1, 2024.

PROJECT BENCHMARKS

Site Benchmark: Survey Control Point Cut Cross on Concrete Sidewalk Elev=731.00 (NAVD88)
Source Benchmark: M-257 Railroad Spike in South Face of Power Pole First Power Pole West of Wisconsin Central Railroad on the North Side of Dunbar Road Elev=779.18 (NAVD88)

J.U.L.I.E.

Note: The exact location of all utilities shall be verified by the contractor prior to construction activities. For utility locations call: J.U.L.I.E. 1 (800) 892-0123



Scale: 1"=30'

LEGEND

EXISTING	PROPOSED
Manhole	Manhole
Catch Basin	Catch Basin
Inlet	Inlet
Area Drain	Area Drain
Clean Out	Clean Out
Storm Sewer	Storm Sewer
Sanitary Sewer	Sanitary Sewer
Combined Sewer	Combined Sewer
Water Main	Water Main
Gas Line	Gas Line
Overhead Wires	Overhead Wires
Electrical Cable (Buried)	Electrical Cable (Buried)
Telephone Line	Telephone Line
Fire Hydrant	Fire Hydrant
Post Indicator Valve	Post Indicator Valve
Valve Vault	Valve Vault
Buffalo Box	Buffalo Box
Downspout	Downspout
Bollard	Bollard
Gas Valve	Gas Valve
Gas Meter	Gas Meter
Electric Meter	Electric Meter
Electric Manhole	Electric Manhole
Hand Hole	Hand Hole
Light Pole	Light Pole
Utility Pole	Utility Pole
Telephone Pedestal	Telephone Pedestal
Telephone Manhole	Telephone Manhole
Sign	Sign
Fence	Fence
Accessible Parking Stall	Accessible Parking Stall
Curb & Gutter	Curb & Gutter
Depressed Curb	Depressed Curb
Curb Elevation	Curb Elevation
Gutter Elevation	Gutter Elevation
Pavement Elevation	Pavement Elevation
Sidewalk Elevation	Sidewalk Elevation
Ground Elevation	Ground Elevation
Top of Retaining Wall Elevation	Top of Retaining Wall Elevation
Contour Line	Contour Line
Deciduous Tree	Deciduous Tree
Coniferous Tree	Coniferous Tree
Brushline	Brushline
Tree Protection Fencing at Drip Line	Tree Protection Fencing at Drip Line

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Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70

1381 W Lake Street
Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS

220 N. Smith Street, Suite 310
Palatine, Illinois 60067
woldaec.com | 847 241 6100

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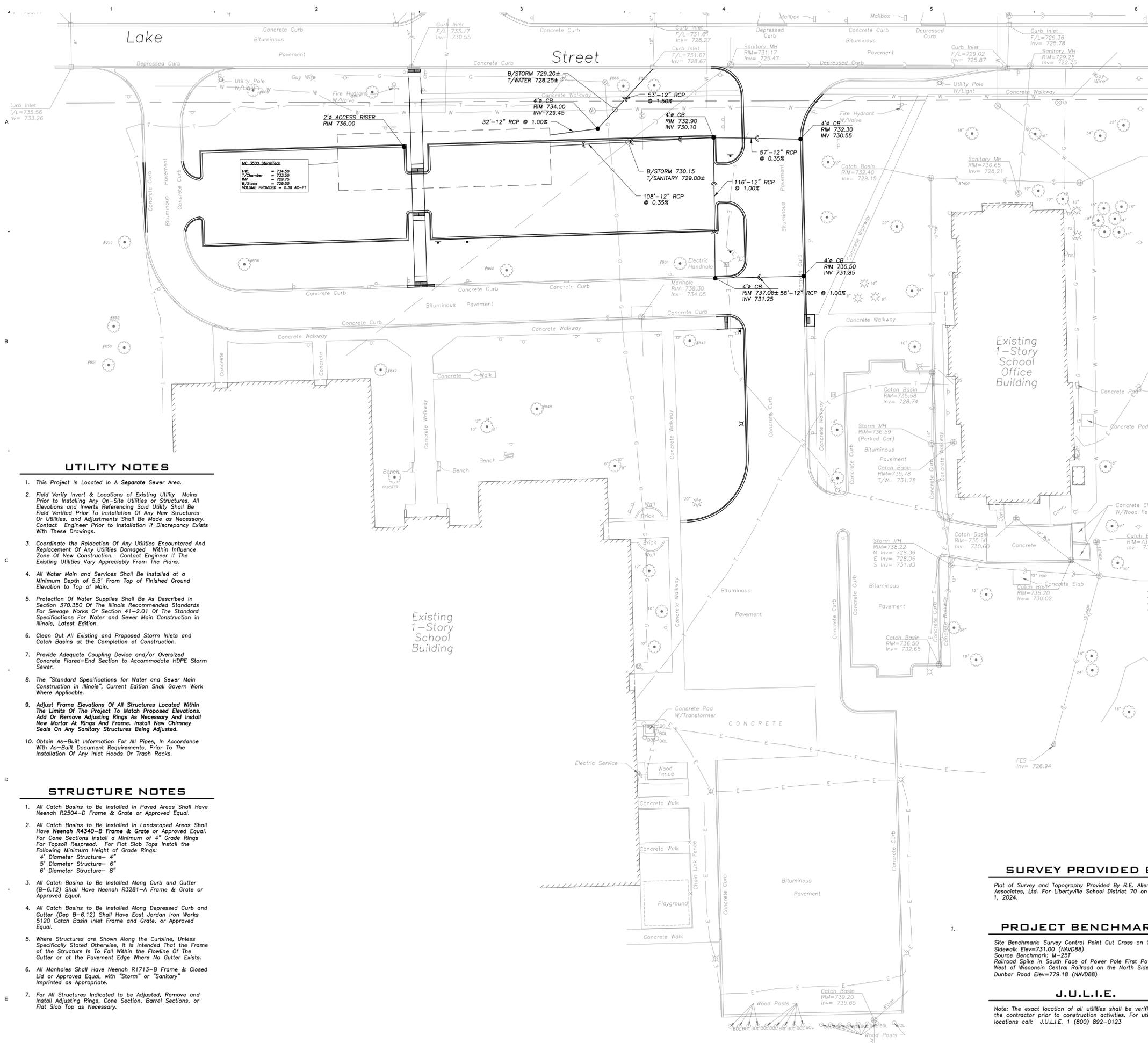
SITE GEOMETRY PLAN

Scale:

C2.1

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UTILITY NOTES

- This Project Is Located In A Separate Sewer Area.
- Field Verify Invert & Locations of Existing Utility Mains Prior to Installing Any On-Site Utilities or Structures. All Elevations and Inverts Referencing Said Utility Shall Be Field Verified Prior To Installation of Any New Structures Or Utilities, and Adjustments Shall Be Made as Necessary. Contact Engineer Prior to Installation if Discrepancy Exists With These Drawings.
- Coordinate the Relocation of Any Utilities Encountered And Replacement of Any Utilities Damaged Within Influence Zone of New Construction. Contact Engineer if the Existing Utilities Vary Appreciably From The Plans.
- All Water Main and Services Shall Be Installed at a Minimum Depth of 5.5' From Top of Finished Ground Elevation to Top of Main.
- Protection of Water Supplies Shall Be As Described In Section 370.350 of The Illinois Recommended Standards For Sewage Works Or Section 41-2.01 of The Standard Specifications For Water and Sewer Main Construction in Illinois, Latest Edition.
- Clean Out All Existing and Proposed Storm Inlets and Catch Basins at the Completion of Construction.
- Provide Adequate Coupling Device and/or Oversized Concrete Flared-End Section to Accommodate HDPE Storm Sewer.
- The "Standard Specifications for Water and Sewer Main Construction in Illinois", Current Edition Shall Govern Work Where Applicable.
- Adjust Frame Elevations of All Structures Located Within The Limits of The Project to Match Proposed Elevations. Add Or Remove Adjusting Rings As Necessary And Install New Mortar At Rings And Frame. Install New Chimney Seals On Any Sanitary Structures Being Adjusted.
- Obtain As-Built Information For All Pipes, in Accordance With As-Built Document Requirements, Prior To The Installation of Any Inlet Hoods Or Trash Racks.

STRUCTURE NOTES

- All Catch Basins to Be Installed in Paved Areas Shall Have Neenah R2504-D Frame & Grate or Approved Equal.
- All Catch Basins to Be Installed in Landscaped Areas Shall Have Neenah R4340-B Frame & Grate or Approved Equal. For Cone Sections Install a Minimum of 4" Grade Rings For Topsoil Respread. For Flat Slab Tops install the Following Minimum Height of Grade Rings:
4" Diameter Structure- 4"
5" Diameter Structure- 6"
6" Diameter Structure- 8"
- All Catch Basins to Be Installed Along Curb and Gutter (B-6.12) Shall Have Neenah R3281-A Frame & Grate or Approved Equal.
- All Catch Basins to Be Installed Along Depressed Curb and Gutter (Dep B-6.12) Shall Have East Jordan Iron Works 5120 Catch Basin Inlet Frame and Grate, or Approved Equal.
- Where Structures are Shown Along the Curbside, Unless Specifically Stated Otherwise, It is Intended That the Frame of the Structure is To Fall Within the Flowline of the Gutter or at the Pavement Edge Where No Gutter Exists.
- All Manholes Shall Have Neenah R1713-B Frame & Closed Lid or Approved Equal, with "Storm" or "Sanitary" Imprinted as Appropriate.
- For All Structures Indicated to be Adjusted, Remove and Install Adjusting Rings, Cone Section, Barrel Sections, or Flat Slab Top as Necessary.



Scale: 1"=30'

LEGEND

EXISTING	PROPOSED
Manhole	Manhole
Catch Basin	Catch Basin
Inlet	Inlet
Area Drain	Area Drain
Clean Out	Clean Out
Storm Sewer	Storm Sewer
Sanitary Sewer	Sanitary Sewer
Combined Sewer	Combined Sewer
Water Main	Water Main
Gas Line	Gas Line
Overhead Wires	Overhead Wires
Electrical Cable (Buried)	Electrical Cable (Buried)
Telephone Line	Telephone Line
Fire Hydrant	Fire Hydrant
Post Indicator Valve	Post Indicator Valve
Valve Vault	Valve Vault
Buffalo Box	Buffalo Box
Downspout	Downspout
Bollard	Bollard
Gas Valve	Gas Valve
Gas Meter	Gas Meter
Electric Meter	Electric Meter
Electric Manhole	Electric Manhole
Hand Hole	Hand Hole
Light Pole	Light Pole
Utility Pole	Utility Pole
Telephone Pedestal	Telephone Pedestal
Telephone Manhole	Telephone Manhole
Sign	Sign
Fence	Fence
Accessible Parking Stall	Accessible Parking Stall
Curb & Gutter	Curb & Gutter
Depressed Curb	Depressed Curb
Curb Elevation	Curb Elevation
Gutter Elevation	Gutter Elevation
Pavement Elevation	Pavement Elevation
Sidewalk Elevation	Sidewalk Elevation
Ground Elevation	Ground Elevation
Top of Retaining Wall Elevation	Top of Retaining Wall Elevation
Contour Line	Contour Line
Deciduous Tree	Deciduous Tree
Coniferous Tree	Coniferous Tree
Brushline	Brushline
Tree Protection	Tree Protection
Fencing at Drip Line	Fencing at Drip Line

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Plot of Survey and Topography Provided by R.E. Allen and Associates, Ltd. For Libertyville School District 70 on October 1, 2024.

PROJECT BENCHMARKS

Site Benchmark: Survey Control Point Cut Cross on Concrete Sidewalk Elev=731.00 (NAVD88)
Source Benchmark: M-257
Railroad Spike in South Face of Power Pole First Power Pole West of Wisconsin Central Railroad on the North Side of Dunbar Road Elev=779.18 (NAVD88)

J.U.L.I.E.

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Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70
1381 W Lake Street
Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS

220 N. Smith Street, Suite 310
Palatine, Illinois 60067
woldaec.com | 847.241.6100

Revisions		
Description	Date	Num
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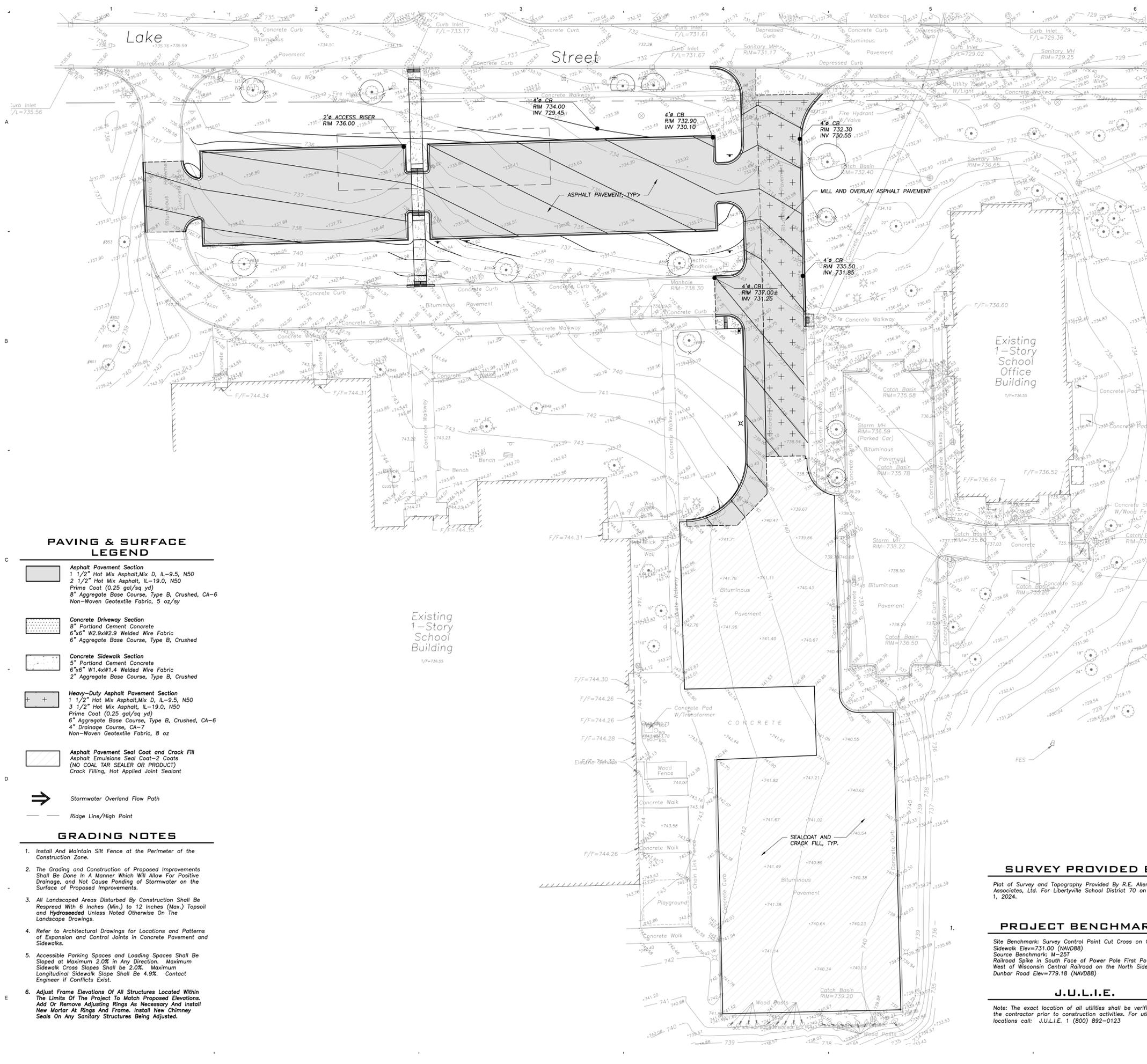


SITE UTILITY PLAN

Scale:

C3.1

IL



PAVING & SURFACE LEGEND

- Asphalt Paving Section**
 1 1/2" Hot Mix Asphalt, Mix D, IL-9.5, N50
 2 1/2" Hot Mix Asphalt, IL-19.0, N50
 Prime Coat (0.25 gal/sq yd)
 8" Aggregate Base Course, Type B, Crushed, CA-6
 Non-Woven Geotextile Fabric, 5 oz/sy
- Concrete Driveway Section**
 8" Portland Cement Concrete
 6"x6" W2.9xW2.9 Welded Wire Fabric
 6" Aggregate Base Course, Type B, Crushed
- Concrete Sidewalk Section**
 5" Portland Cement Concrete
 6"x6" W1.4xW1.4 Welded Wire Fabric
 2" Aggregate Base Course, Type B, Crushed
- Heavy-Duty Asphalt Paving Section**
 1 1/2" Hot Mix Asphalt, Mix D, IL-9.5, N50
 3 1/2" Hot Mix Asphalt, IL-19.0, N50
 Prime Coat (0.25 gal/sq yd)
 8" Aggregate Base Course, Type B, Crushed, CA-6
 4" Drainage Course, CA-7
 Non-Woven Geotextile Fabric, 8 oz
- Asphalt Paving Seal Coat and Crack Fill**
 Asphalt Emulsions Seal Coat-2 Coats
 (NO COAL TAR SEALER OR PRODUCT)
 Crack Filling, Hot Applied Joint Sealant
- Stormwater Overland Flow Path**
- Ridge Line/High Point**

GRADING NOTES

1. Install And Maintain Silt Fence at the Perimeter of the Construction Zone.
2. The Grading and Construction of Proposed Improvements Shall Be Done in a Manner Which Will Allow For Positive Drainage, and Not Cause Ponding of Stormwater on the Surface of Proposed Improvements.
3. All Landscaped Areas Disturbed By Construction Shall Be Respread With 6 Inches (Min.) to 12 Inches (Max.) Topsoil and Hydrosseded Unless Noted Otherwise On The Landscape Drawings.
4. Refer to Architectural Drawings for Locations and Patterns of Expansion and Control Joints in Concrete Pavement and Sidewalks.
5. Accessible Parking Spaces and Loading Spaces Shall Be Sloped at Maximum 2.0% in Any Direction. Maximum Sidewalk Cross Slopes Shall be 2.0%. Maximum Longitudinal Sidewalk Slope Shall Be 4.9%. Contact Engineer if Conflicts Exist.
6. Adjust Frame Elevations Of All Structures Located Within The Limits Of The Project To Match Proposed Elevations. Add Or Remove Adjusting Rings As Necessary And Install New Mortar At Rings And Frame. Install New Chimney Seals On Any Sanitary Structures Being Adjusted.

A

Butterfield Road School - New Parking Lot and Lighting

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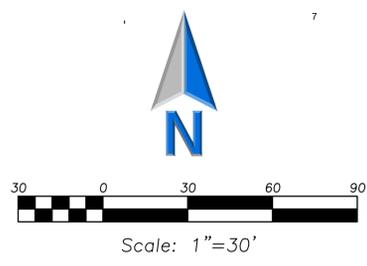
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WOLD ARCHITECTS AND ENGINEERS

220 N. Smith Street, Suite 310
 Palatine, Illinois 60067
 woldae.com | 847.241.6100



LEGEND

- | EXISTING | PROPOSED |
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 Check: KC



SITE GRADING AND PAVING PLAN

Scale:

C4.1



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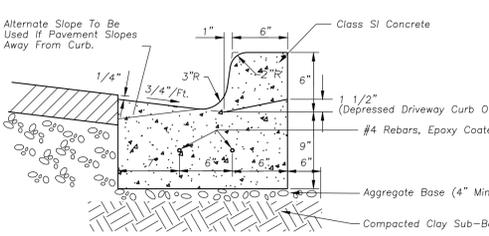
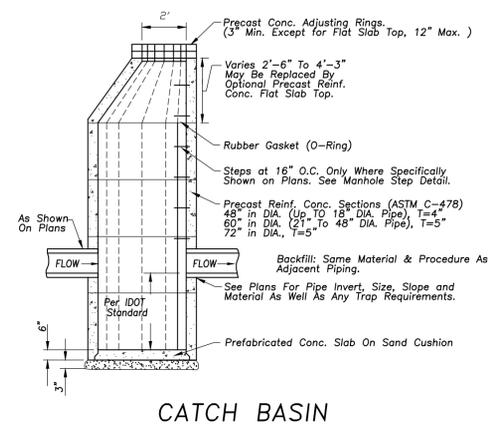


SITE DETAILS

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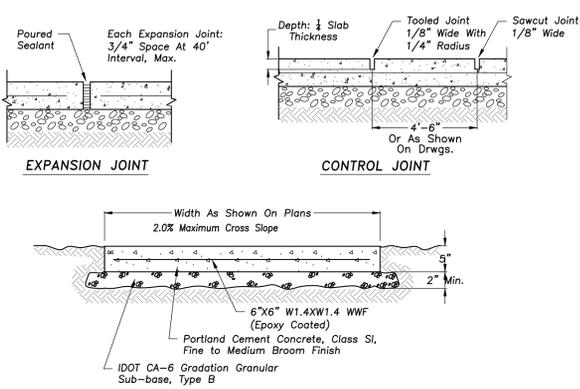
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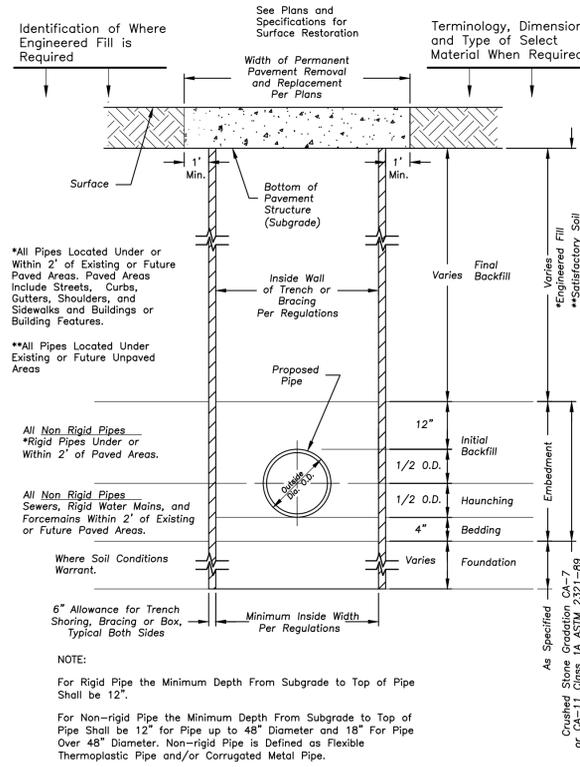


- Notes:
1. A 1" Expansion Joint Shall Be Installed At All Points of Curvature For Short Radius (under 25 ft.) Curves. Maximum Expansion Joint Spacing is 50'. Expansion Joints Shall Be Constructed With 1" Thick Preformed Expansion Joint Filler Conforming To The Curb And Gutter Cross Section And Shall Be Provided With One 1 1/4" x 18" Long, Coated Smooth Dowel Bar. The Dowel Bar Shall Be Fitted With A Cap With A Finched Stop Which Provides A Minimum Of 1" Of Expansion.
 2. Maximum Contraction (Control) Joint Spacing Shall Be 20'.

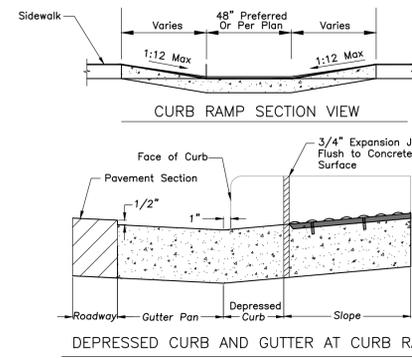
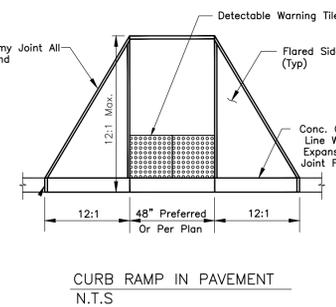
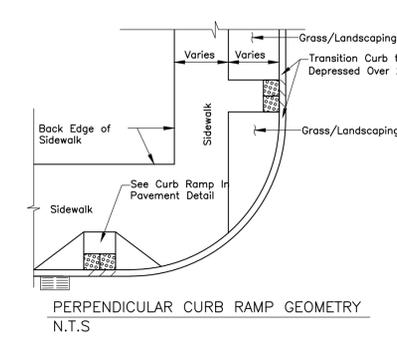
B-6.12 CURB & GUTTER



PORTLAND CEMENT CONC. SIDEWALK



STANDARD SEWER AND WATER TRENCH SECTION



GENERAL NOTES

Description:
This work shall consist of constructing sidewalk curb ramps with detectable warnings in compliance with the Americans with Disabilities Act, Accessibility Guidelines (ADAAG). The detectable warnings shall consist of an area of truncated domes that provide both visual and tactile cues to pedestrians who are about to enter into traffic.

Construction Requirements:
The detectable warnings shall present a contrast in color from the adjacent sidewalk.

1. Ramps Shall Be Located As Shown On Plans In Alignment With Normal Sidewalk And/or Crosswalk And Shall Have Sufficient Curb Length At Corner Radius To Prevent Vehicular Encroachment.
2. Curb Ramps At Marked Crossings Shall Be Wholly Contained Within The Markings Excluding Flared Sides.
3. In No Case Shall Expansion Joints That Are Constructed In Curbs And Gutters At Or Near Corner Radiuses Be Located Within The Accessible Ramp Areas.
4. Where Preformed Joint Filler (p-j-f) Is Installed Against A Curved Surface, The Contractor Shall Use A Flexible Filler In Accordance With The Illinois Department Of Transportation (IDOT) Standard Specifications.

Equipment: Equipment for the detectable warning area of the curb ramps shall meet the requirements of the Authorities having Jurisdiction.

DETECTABLE WARNING SURFACE TILES

Provide Surface Applied Detectable/Tactile Warning Surface Tiles which comply with the detectable warnings on walking surfaces section of the Americans with Disabilities Act (Title III Regulations, 28 CFR Part 36 ADA STANDARDS FOR ACCESSIBLE DESIGN, Appendix A, Section 4.29.2)

Dimensions: Cast In Place Detectable/Tactile Warning Surface Tiles shall be held within the following dimensions and tolerances:
Length and Width in One of the Following as Necessary for the Dimensions of the Surface in Which the Detectable Warning is Proposed: 12x12 24x24 24x36 24x48 24x60 36x48 36x60 nominal. No Cutting of Tiles is Allowed.

Installation of Detectable/Tactile Warning Surface Tiles Per Manufacturer's Instructions.

Verify With the Local Authorities Having Jurisdiction that Detectable/Tactile Warning Surface Tiles are an Acceptable Method of Providing for the Detectable Warning Surface.

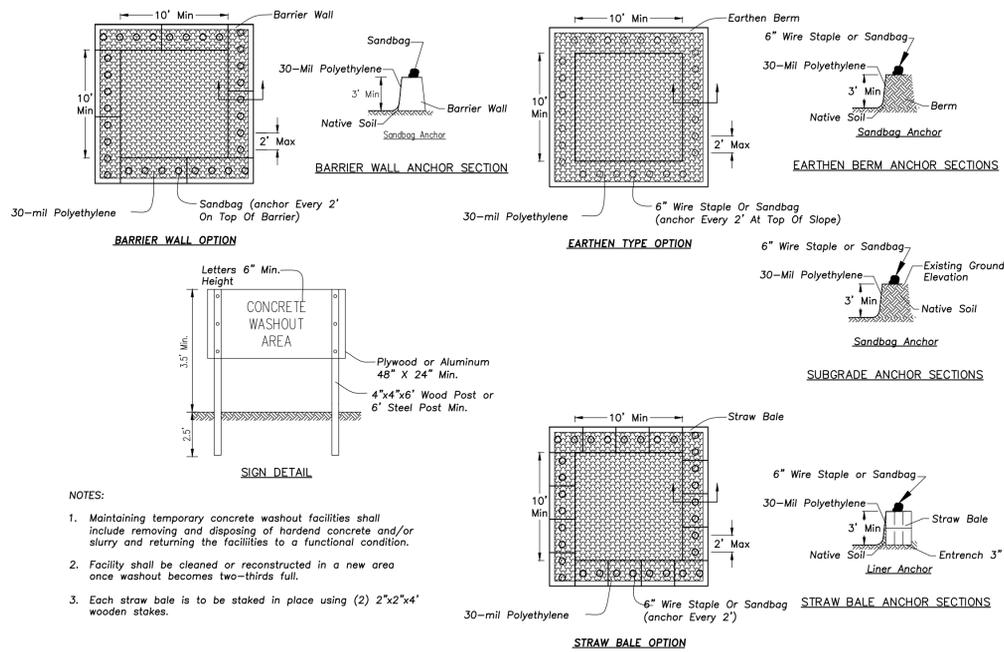
Verify With the Local Authorities Having Jurisdiction that the Manufacturer's Products are Acceptable for the Detectable Warning Surface.

ACCESSIBLE RAMPS FOR SIDEWALKS

A

E

IL



NOTES:

- Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete and/or slurry and returning the facilities to a functional condition.
- Facility shall be cleaned or reconstructed in a new area once washout becomes two-thirds full.
- Each straw bale is to be staked in place using (2) 2"x2"x4" wooden stakes.

CONCRETE/MORTAR WASHOUT FACILITY

GENERAL NOTES

STONE SIZE - Use IDOT gradation CA-1 aggregate stone.

MAINTENANCE - The entrance shall be maintained in a condition which will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or clean-out of any measures used to trap sediment. All sediment spilled, dropped, washed, or tracked onto public rights-of-way must be removed immediately.

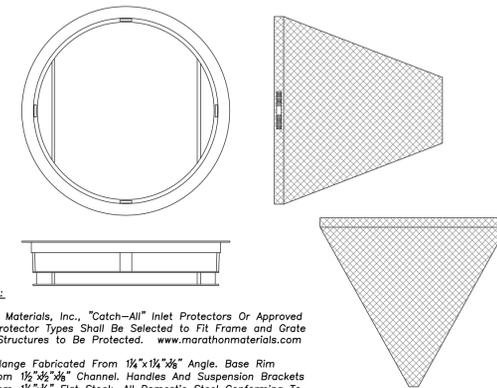
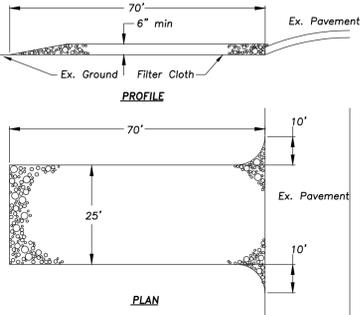
FILTER CLOTH - Will be placed over the entire area prior to placing stone. Conform to Illinois Urban Manual Section 592, Type I, II, or IV.

WASHING - Wheels shall be cleaned to remove sediment prior to entrance onto public rights-of-way. When washing is required it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.

Periodic inspection and needed maintenance shall be provided after each rain.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



General Notes:

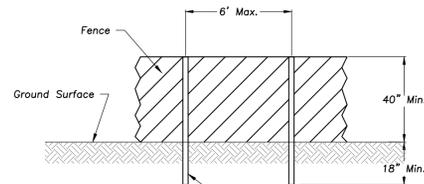
Use Marathon Materials, Inc., "Catch-All" Inlet Protectors Or Approved Equal. Inlet Protector Types Shall Be Selected To Fit Frame and Grate of Open Lid Structures to Be Protected. www.marathonmaterials.com

Frame: Top Flange Fabricated From 1 1/4"x1 1/4"x3/8" Angle. Base Rim Fabricated From 1 1/2"x3/2"x3/8" Channel. Handles And Suspension Brackets Fabricated From 1 1/4"x1/4" Flat Stock. All Domestic Steel Conforming To ASTM-A36.

Sediment Bag: Bag Fabricated From 4 Oz./sq.yd. Non-woven Polypropylene Geotextile Reinforced With Polyester Mesh. Bag Secured To Base Rim With A Stainless Steel Strap And Lock.

Install Baskets In All Existing Storm Inlets Prior To Construction And All New Storm Inlets Immediately After Installation. Contractor Shall Maintain Throughout Construction Activities.

INLET PROTECTORS - SEDIMENT BAG

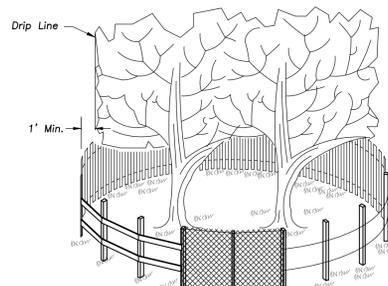


POST AND FENCE DETAIL

NOTES:

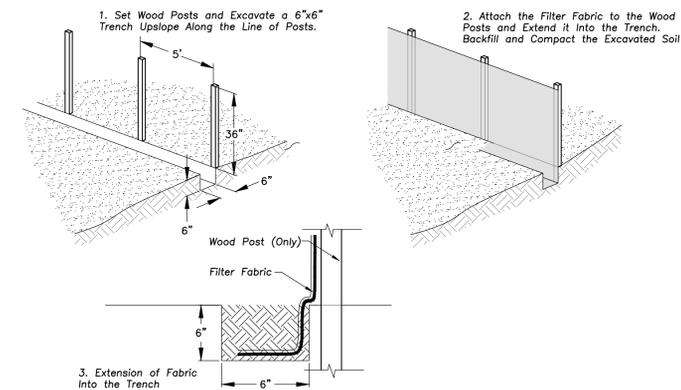
- The fence shall be located a minimum of 1 foot outside the drip line of the tree to be saved and in no case closer than 5 feet to the trunk of any tree.
- Fence posts shall be either standard steel posts or wood posts with a minimum cross sectional area of 3.0 sq. in.
- The fence may be either 40" high snow fence, 40" plastic web fencing or any other material as approved by the engineer/inspector.

TREE PROTECTION FENCE



SIDE VIEW

TREE PROTECTION FENCE



SILT FENCE CONSTRUCTION (AASHTO 288-00)

Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
 Libertyville, Illinois 60048

Libertyville School District #70

1381 W Lake Street
 Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS

220 N. Smith Street, Suite 310
 Palatine, Illinois 60067
woldae.com | 847 241 6100

Revisions		
Description	Date	Num
Village Submittal	10.25.24	

Comm: **243118**
 Date: **10.25.24**
 Drawn: **MO**
 Check: **KC**



SITE DETAILS

Scale:

C6.2

A

E

Butterfield School - New Parking
 10/20/24 4:55:37 PM



September 11, 2024

Ms. Stacey Bachar
Assistant Supt. Finance & Operations
Libertyville School District 70
1381 W. Lake St.
Libertyville, IL 60048

RE: Tree Inventory and Report
Butterfield School
Libertyville, IL

Dear Ms. Bachar,

The following is the tree inventory listing and report for the proposed parking lot north of the Butterfield School in Libertyville, IL.

All trees measuring 6" DBH (diameter at breast height) and larger and all Group A understory trees 4" DBH and larger within the proposed parking lot area were tagged and included in the inventory.

A total of twenty four (24) trees were included within this inventory, using tag #'s 846 – 869. The following inventory listing and report will describe each tree in detail by tag number and the site in general.

I've also attached a general tree location map for the surveyors to locate the trees.

Sincerely,
URBAN FOREST MANAGEMENT, INC.

Todd R. Sinn
Senior Forester

TREE INVENTORY & REPORT
BUTTERFIELD SCHOOL
LIBERTYVILLE, IL

September 11, 2024

Prepared by:

URBAN FOREST MANAGEMENT, INC.
960 Route 22, Suite 207
Fox River Grove, IL 60021
(847) 516-9708

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I.	Background and Methodology	1
II.	General Comments	2
III.	Tree Inventory	

I. Background and Methodology

A tree inventory was conducted on the proposed location of a new parking lot north of the Butterfield School building located in Libertyville, IL. All trees measuring 6" DBH (diameter at breast height-4.5' above existing soil level) and larger, as well as any Group A understory trees 4" DBH and larger, were tagged and included within the inventory. The numbered tags were nailed on the north face of the tree at eye level, with the exception of those located in the parkway. These tags were nailed on the south side of trunk to minimize visibility from the street.

Trees were evaluated for species, size, condition, form and any observed problems were also noted. The following is a key for interpreting the condition and form data found on the tree inventory listing:

Condition Rating - The condition of the trees shall be based on a six (6) point scale with one (1) being the best and six (6) being the worst.

<u>Rating</u>	<u>Description</u>	<u>General Criteria</u>
1	Excellent	The tree is typical of the species, has less than 10% deadwood in the crown that is attributable to normal causes, has no other observed problems, and required no remedial action.
2	Good to Fair	The tree is typical of the species and/or has less than 20% deadwood in the crown, only one or two minor problems that are easily corrected with normal care.
3	Fair (average)	The tree is typical of the species and/or has less than 30% deadwood in the crown, one or two minor problems that are not eminently lethal to the tree, and no significant decay or structural problems, but the tree must have remedial care above normal care in order to minimize the impact of future stress and to insure continued health.
4	Fair to Poor	The tree is not typical of the species and/or has significant problems such as 30-50% deadwood in the crown, serious decay or structural defect, insects, disease or other problems that can be eminently lethal to the tree or create a hazardous tree if not corrected in a short period of time or if the tree is subjected to additional stress.
5	Poor	The tree is not typical of the species and/or has over 50% deadwood in the crown, major decay or structural problems, is hazardous or is severely involved with insects, disease, or other problems that even if aggressively corrected would not result in the long term survival of the tree.
6	Dead	Less than 10% of the tree shows signs of life.

Form Rating – Subjective evaluation comparing tree with specimen tree of the same species. Form classes are the same as those listed above under condition, with the exception of number 6, which translates to 'very poor form'. Typical form defects might include multiple leaders, no leader, lean, one sided crown, trunk crook, etc.

II. General Comments

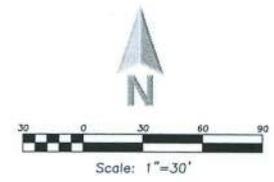
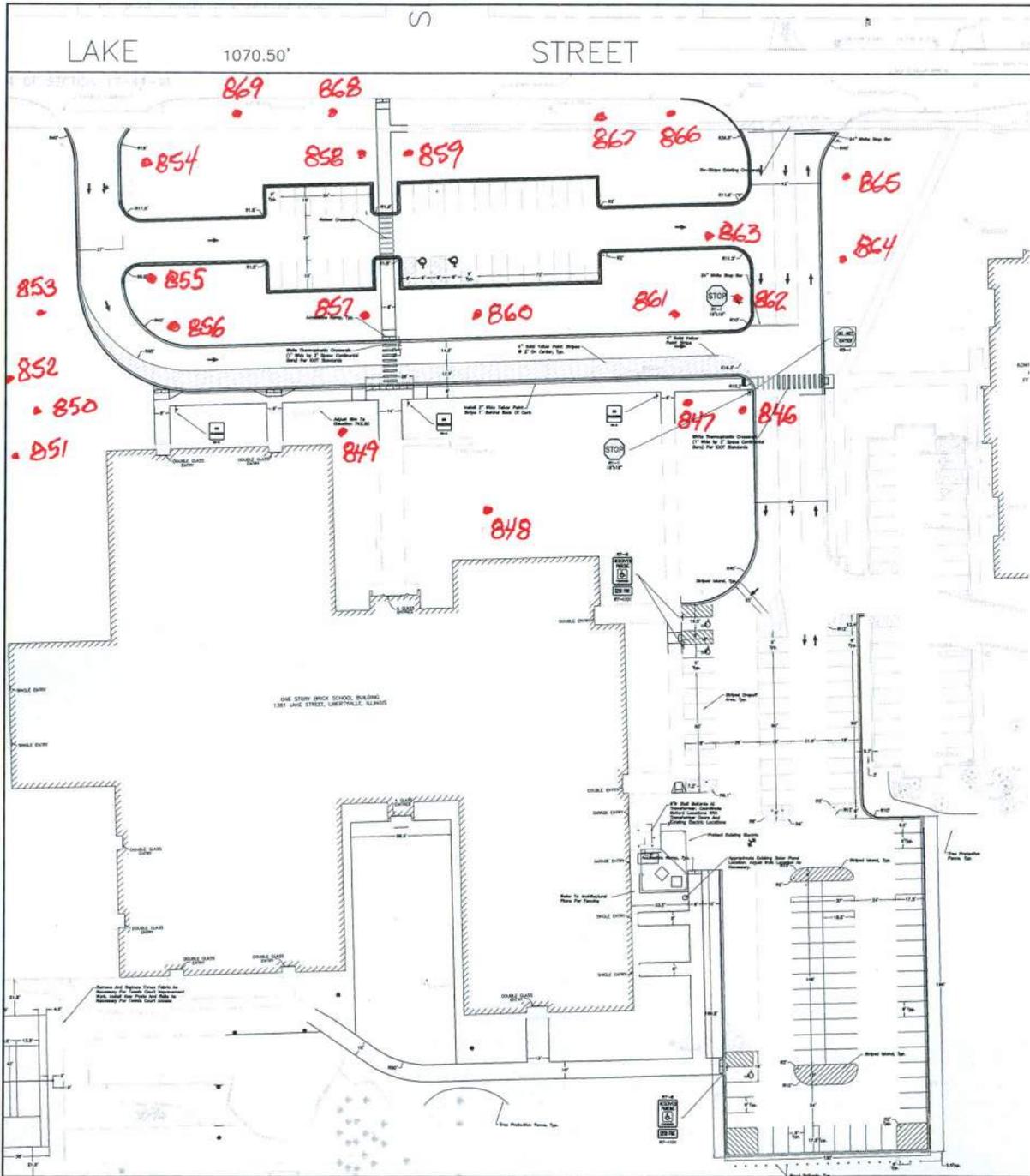
A total of twenty four (24) trees were included within this inventory. Tag numbers used included #'s 846 - 869.

Species inventoried included swamp white oak, black walnut, bur oak, Norway maple, silver maple, Freeman maple, shingle oak and other species in smaller quantities. The most common species inventoried was Norway maple with 16.7% (4 trees) of all species inventoried, followed by black walnut, bur oak and silver maple, each with 12.5% (3 trees apiece).

There were eight (8) trees inventoried that are considered Species Group A trees, per the ordinance, located within the proposed project location. There are sixteen (16) Species Group B trees located within the proposed project location. Each tree was identified by its Species Group in the far right column of the inventory listing. There were no Species Group C trees located within the project area.

The site is primarily a maintained turf setting with trees scattered throughout the turf. No understory is present with the exception of some shrubs planted at the foundation of the building and around the school sign.

Most of the trees located within the turfed areas have been maintained in the past, but some of them contain varying degrees of deadwood, decay or structural issues. Approximately 29% of the inventoried trees were in fair/poor condition at the time of the inventory. Many of the trees have lawnmower/weed whip injuries at the base. A number of the maples also have girdling roots, with a few of them beginning to decline as a result of the girdling roots. Also, the bur oak closest to the school building (tree # 850) is significantly hollow with all the weight of the crown on the school building side of the tree. This tree should be evaluated more intensely to determine whether it should be removed.



LEGEND

EXISTING	PROPOSED
Manhole	Manhole
Catch Basin	Catch Basin
Area Drain	Area Drain
Clear Cut	Clear Cut
Final End Section	Final End Section
Storm Sewer	Storm Sewer
Sanitary Sewer	Sanitary Sewer
Combined Sewer	Combined Sewer
Water Main	Water Main
Gas Line	Gas Line
Overhead Wire	Overhead Wire
Lighting Cable (Buried)	Lighting Cable (Buried)
Telephone Line	Telephone Line
Fire Hydrant	Fire Hydrant
Valve Vault	Valve Vault
Buffer Box	Buffer Box
Chimney	Chimney
Gas Valve	Gas Valve
Cond. Manhole	Cond. Manhole
Hand Hole	Hand Hole
Light Pole	Light Pole
Utility Pole	Utility Pole
Telephone Pedestal	Telephone Pedestal
Telephone Manhole	Telephone Manhole
Sign	Sign
Fence	Fence
Asphalt	Asphalt
Paving Grid	Paving Grid
Curb & Gutter	Curb & Gutter
Impervious Curb	Impervious Curb
Curb Elevation	Curb Elevation
Gravel Elevation	Gravel Elevation
Pavement Elevation	Pavement Elevation
Street Elevation	Street Elevation
Ground Elevation	Ground Elevation
Top of Retaining Wall	Top of Retaining Wall
Foundation	Foundation
Seal	Seal
Contour Line	Contour Line
Outline Tree	Outline Tree
Continuous Tree	Continuous Tree
Shrubline	Shrubline
Tree Protection	Tree Protection
Fencing at Strip Line	Fencing at Strip Line

Parking Spaces	
Regular	152
ADA	7
Total	159



145 COMMERCE DRIVE, SUITE 2
GRAYHAWK, ILLINOIS 60039
TEL: (847) 233-4864
FAX: (847) 233-4864
E-MAIL: ECA@ECA.COM
PROFESSIONAL DESIGN FIRM
LICENSE NO. 184-000820
EXPIRES 04/30/2011

**BUTTERFIELD SCHOOL
IMPROVEMENTS**
1441 LAKE STREET
LIBERTYVILLE, IL 60048

Reserved for Seal:

Expiration Date: _____

No.	Date	Description

© ERIKSSON ENGINEERING & ARCHITECTURE, LTD. 2011	
Drawn By:	SC
Check By:	AJ
Approved By:	SC
Date:	03/20/24
Project No.:	0000.00

Sheet Title:
**PROPOSED
PLAN**

Sheet No.:
09/11/2024

TREE TAG GENERAL LOCATIONS
BY IRR and FOREST MANAGEMENT, LLC

Landscape Narrative

Our project for new parking lot will comply with Section 26-13-2 for perimeter landscaping in an open space. See landscape plan attached for detailed layout and specifications.

Our parking lot will have landscaping per Section 26-13-3.1 which consists of parking lot screening for every parking lot shall to be buffered and screened with designed as shown with trees. The landscaping and screening treatment has been designed to create a minimum height of three (3) feet at time of planting.

Per Section 26-13-3.2. for parking lot interior landscaping, the design is in accordance with provisions for all parking lot and consists of tree planting islands with required minimums of shade trees, groundcover with correct spacing as shown.

Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70
1381 W Lake Street
Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS
220 N. Smith Street, Suite 310
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woldae.com | 847 241 6100

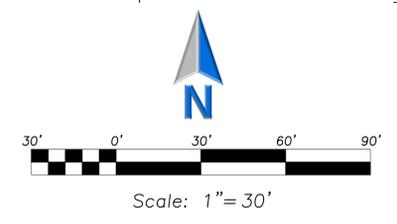
Revisions		
Description	Date	Num
Village Submittal	10.25.2024	

Comm: **243118**
Date: **10.25.24**
Drawn: **SSG**
Check: **KC**



LANDSCAPE PLAN

Scale: **L1.0**



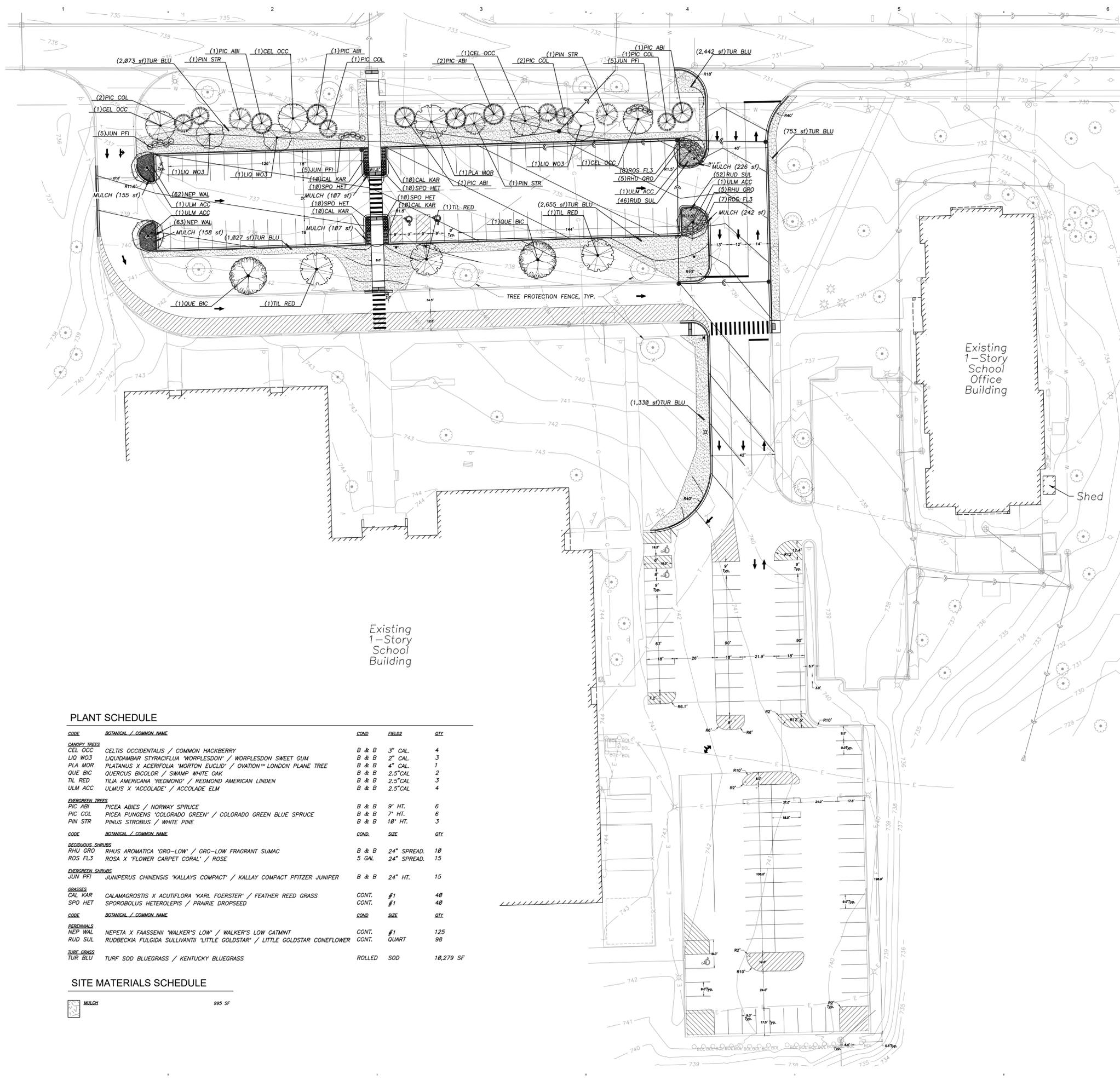
- LANDSCAPE NOTES:**
- PLANT QUANTITIES SHOWN IN THE PLANT SCHEDULE ARE FOR CONVENIENCE ONLY. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIALS SHOWN ON THE PLAN AND SHOULD NOT RELY ON THE PLANT SCHEDULE FOR DETERMINING QUANTITIES.
 - ALL PLANT MATERIALS SHALL BE NURSERY GROWN STOCK AND SHALL BE FREE FROM ANY DEFORMITIES, DISEASES OR INSECT DAMAGE. ANY MATERIALS WITH DAMAGED OR CROOKED/DISFIGURED LEADERS, BARK ABRASION, SUNSCALD, INSECT DAMAGE, ETC. ARE NOT ACCEPTABLE AND WILL BE REJECTED. TREES WITH MULTIPLE LEADERS WILL BE REJECTED UNLESS CALLED OUT IN THE PLANT SCHEDULE AS MULTI-STEM. NO PRUNING TO BE DONE AT THE TIME OF INSTALLATION EXCEPT FOR DEAD OR BROKEN LIMBS.
 - ALL LANDSCAPE IMPROVEMENTS SHALL MEET MUNICIPALITY REQUIREMENTS AND GUIDELINES, WHICH SHALL BE VERIFIED BY MUNICIPAL AUTHORITIES.
 - ALL PLANTING OPERATIONS SHALL BE COMPLETED IN ACCORDANCE WITH STANDARD HORTICULTURAL PRACTICES. THIS MAY INCLUDE, BUT NOT BE LIMITED TO, PROPER PLANTING BED AND TREE PIT PREPARATION, PLANTING MIX, PRUNING, STAKING AND GUYING, WRAPPING, SPRAYING, FERTILIZATION, PLANTING AND ADEQUATE MAINTENANCE OF MATERIALS DURING CONSTRUCTION ACTIVITIES.
 - ALL PLANT MATERIALS SHALL BE INSPECTED AND APPROVED BY THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. ANY MATERIALS INSTALLED WITHOUT APPROVAL MAY BE REJECTED.
 - THE CONTRACTOR SHALL GUARANTEE PLANT MATERIALS FOR A PERIOD OF ONE YEAR FROM DATE OF ACCEPTANCE BY OWNER. THE CONTRACTOR SHALL OUTLINE PROPER MAINTENANCE PROCEDURES TO THE OWNER AT THE TIME OF ACCEPTANCE. DURING THE GUARANTEE PERIOD, DEAD OR DISEASED MATERIALS SHALL BE REPLACED AT NO COST TO THE OWNER. AT THE END OF THE GUARANTEE PERIOD THE CONTRACTOR SHALL OBTAIN FINAL ACCEPTANCE FROM THE OWNER.
 - ANY EXISTING TREES TO BE RETAINED SHALL BE PROTECTED FROM SOIL COMPACTION AND OTHER DAMAGES THAT MAY OCCUR DURING CONSTRUCTION ACTIVITIES BY ERECTING FENCING AROUND SUCH MATERIALS THE DRIP LINE OF THE TREE TO BE PROTECTED UNLESS SPECIFIED OTHERWISE.
 - ALL GRASS, CLUMPS, OTHER VEGETATION, DEBRIS, STONES, ETC. SHALL BE RAKED OR OTHERWISE REMOVED FROM PLANTING AND LAWN AREAS PRIOR TO INITIATION OF INSTALLATION PROCEDURES.
 - THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL UNDERGROUND UTILITIES PRIOR TO INITIATING PLANTING OPERATIONS. THE CONTRACTOR SHALL REPAIR/ REPLACE AND UTILITY, PAVING, CURBING, ETC. WHICH IS DAMAGED DURING PLANTING OPERATIONS.
 - SIZE AND GRADING STANDARDS OF PLANT MATERIALS SHALL CONFORM TO THE LATEST EDITION OF ANSI Z60.1, AMERICAN STANDARDS FOR NURSERY STOCK, BY THE AMERICAN NURSERY & LANDSCAPE ASSOCIATION.
 - REFER TO PLAT OF SURVEY FOR LEGAL DESCRIPTION, BOUNDARY DIMENSIONS AND EXISTING CONDITIONS.
 - ALL PLANT MATERIAL ON THIS PLANTING PLAN REPRESENTS THE INTENTION AND INTENSITY OF THE PROPOSED LANDSCAPE MATERIAL. THE EXACT SPECIES AND LOCATIONS MAY VARY IN THE FIELD DO TO MODIFICATIONS IN THE SITE IMPROVEMENTS AND THE AVAILABILITY OF PLANT MATERIAL AT THE TIME OF INSTALLATION. ANY SUCH CHANGES MUST FIRST BE APPROVED BY THE CITY IN WRITING.
 - ALL PLANT MATERIAL SHALL BE PLANTED WITH A MINIMUM OF SIX INCHES OF ORGANIC SOIL AND MULCHED WITH A SHREDDED BARK MATERIAL TO A MINIMUM 3" DEPTH.
 - ALL BEDS SHALL BE EDGED, HAVE WEED PREMERGENTS APPLIED AT THE RECOMMENDED RATE.
 - ALL PARKWAYS SHALL HAVE LAWN ESTABLISHED WITH SEED A GROUNDCOVER, UNLESS OTHERWISE NOTED.
 - ALL LAWN AREAS ON THIS PLAN SHALL BE GRADED SMOOTH AND TOPPED WITH AT LEAST 6" OF TOPSOIL. ALL LAWN AREAS TO BE ESTABLISHED USING SOD. ALL TURF GRASS AREAS ADJACENT TO PAVEMENT OR CURB SHALL BE GRADED FLUSH WITH THAT PAVEMENT AND ALLOW POSITIVE DRAINAGE. ANY SETTLEMENT OF THE TURF GRASS AREAS SHALL BE CORRECTED BY THE LANDSCAPE CONTRACTOR AT THE CONTRACTOR'S EXPENSE PRIOR TO FINAL ACCEPTANCE BY OWNER.
 - THIS LANDSCAPE PLAN ASSUMES THE SITE WILL BE PREPARED WITH TOP SOIL SUITABLE FOR THE ESTABLISHMENT OF THE LANDSCAPE MATERIAL PRESENTED ON THIS PLAN. IF ADDITIONAL TOP SOIL IS REQUIRED IT IS UP TO THE LANDSCAPE CONTRACTOR ON THE PROJECT TO PROVIDE, SPREAD AND PREPARE THE SITE AS NEEDED FOR THE IMPLEMENTATION OF THIS LANDSCAPE PLAN.
 - CONTRACTORS MUST VERIFY ALL QUANTITIES AND OBTAIN ALL PROPER PERMITS AND LICENSES FROM THE PROPER AUTHORITIES.
 - ALL MATERIAL MUST MEET INDUSTRY STANDARDS AND THE LANDSCAPE ARCHITECT HAS THE RIGHT TO REFUSE ANY POOR MATERIAL OR WORKMANSHIP.
 - LANDSCAPE ARCHITECT IS NOT RESPONSIBLE FOR UNSEEN SITE CONDITIONS.
 - ALL PLANTINGS SHALL BE SPACED EQUAL DISTANT, BACK FILLED WITH AMENDED SOIL IN A HOLE TWICE THE ROOTBALL DIAMETER, WATERED, FERTILIZED, PRUNED, AND HAVE ALL TAGS AND ROPES REMOVED.
 - LAWN AND BED AREAS SHALL BE ROTOTILLED, RAKED OF CLUMPS AND DEBRIS.
 - REMOVE ALL DEAD AND DISEASED PLANT MATERIAL FROM SITE AND DISPOSE OF PROPERLY.
 - PLANTS TO BE PLANTED SO THAT ROOT FLARE IS AT THE GRADE OF THE AREA WHERE PLANTED. NO PRUNING TO BE DONE AT THE TIME OF INSTALLATION EXCEPT TO REMOVE DEAD OR BROKEN LIMBS.

PLANT SCHEDULE

CODE	BOTANICAL / COMMON NAME	COND.	FIELD	QTY
CANOPY TREES				
CEL OCC	CELTIS OCCIDENTALIS / COMMON HACKBERRY	B & B	3" CAL.	4
LIQ WO3	LIQUIDAMBAR STYRACIFLUA 'WORPLESDON' / WORPLESDON SWEET GUM	B & B	2" CAL.	3
PLA MOR	PLATANUS X ACERIFOLIA 'MORTON EUCLID' / OVATION™ LONDON PLANE TREE	B & B	4" CAL.	1
QUE BIC	QUERCUS BICOLOR / SWAMP WHITE OAK	B & B	2.5" CAL	2
TIL RED	TILIA AMERICANA 'REDMOND' / REDMOND AMERICAN LINDEN	B & B	2.5" CAL	3
ULM ACC	ULMUS X 'ACCOLADE' / ACCOLADE ELM	B & B	2.5" CAL	4
EVERGREEN TREES				
PIC ABI	PICEA ABIES / NORWAY SPRUCE	B & B	9' HT.	6
PIC COL	PICEA PUNGENS 'COLORADO GREEN' / COLORADO GREEN BLUE SPRUCE	B & B	7' HT.	6
PIN STR	PINUS STROBUS / WHITE PINE	B & B	10' HT.	3
DECIDUOUS SHRUBS				
RHU GRO	RHUS AROMATICA 'GRO-LOW' / GRO-LOW FRAGRANT SUMAC	B & B	24" SPREAD.	10
ROS FL3	ROSA X 'FLOWER CARPET CORAL' / ROSE	5 GAL	24" SPREAD.	15
EVERGREEN SHRUBS				
JUN PFI	JUNIPERUS CHINENSIS 'KALLAYS COMPACT' / KALLAY COMPACT PFITZER JUNIPER	B & B	24" HT.	15
GRASSES				
CAL KAR	CALAMAGROSTIS X ACUTIFLORA 'KARL FOERSTER' / FEATHER REED GRASS	CONT.	#1	40
SPO HET	SPOROBOLUS HETEROLEPIS / PRAIRIE DROPSEED	CONT.	#1	40
PERENNIALS				
NEP WAL	NEPETA X FAASSENII 'WALKER'S LOW' / WALKER'S LOW CATMINT	CONT.	#1	125
RUD SUL	RUDBECKIA FULGIDA SULLIVANTII 'LITTLE GOLDSTAR' / LITTLE GOLDSTAR CONEFLOWER	CONT.	QUART	98
TURF GRASS				
TUR BLU	TURF SOD BLUEGRASS / KENTUCKY BLUEGRASS	ROLLED	SOD	10,279 SF

SITE MATERIALS SCHEDULE

MULCH	995 SF
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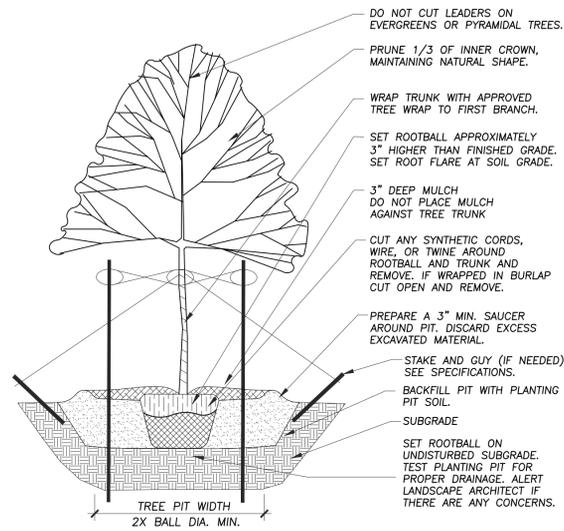


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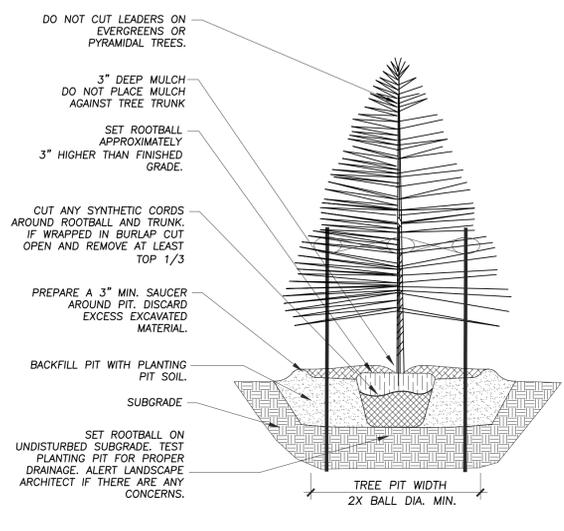
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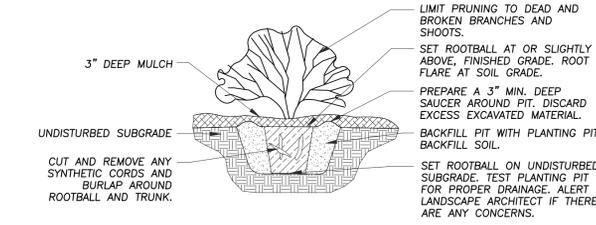
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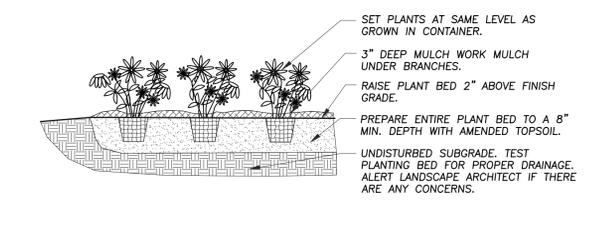
1 TREE PLANTING DETAIL
Not To Scale 32 9343-01



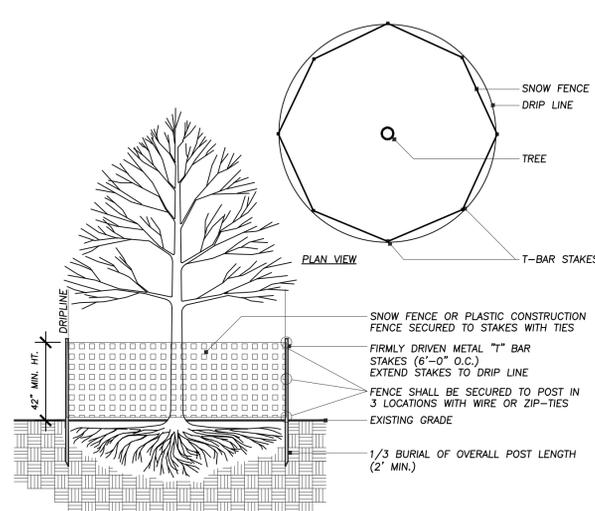
2 EVERGREEN TREE PLANTING DETAIL
NOT TO SCALE 32 9343-02



3 SHRUB PLANTING DETAIL
Not To Scale 32 9333-01



4 ANNUAL, PERENNIAL, & GROUNDCOVER DETAIL
Not To Scale 32 9301-03



5 TREE PROTECTION DETAIL
Not To Scale 32 9383-01

Butterfield Road School - New Parking Lot and Lighting
1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70
1381 W Lake Street
Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS
220 N. Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

Revisions		
Description	Date	Num
Village Submittal	10.25.2024	

Comm: **243118**
Date: **10.25.24**
Drawn: **SSG**
Check: **KC**



LANDSCAPE DETAILS

Scale:
L2.0

Butterfield School - Landscape Plan Set
10/25/2024 4:05:24 PM

A

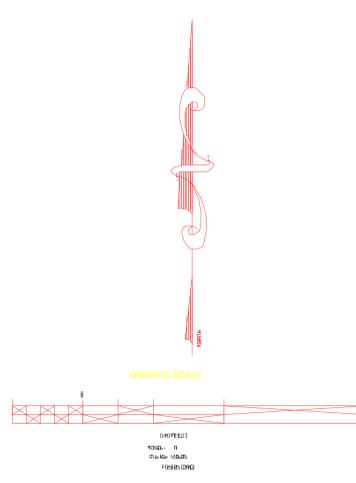
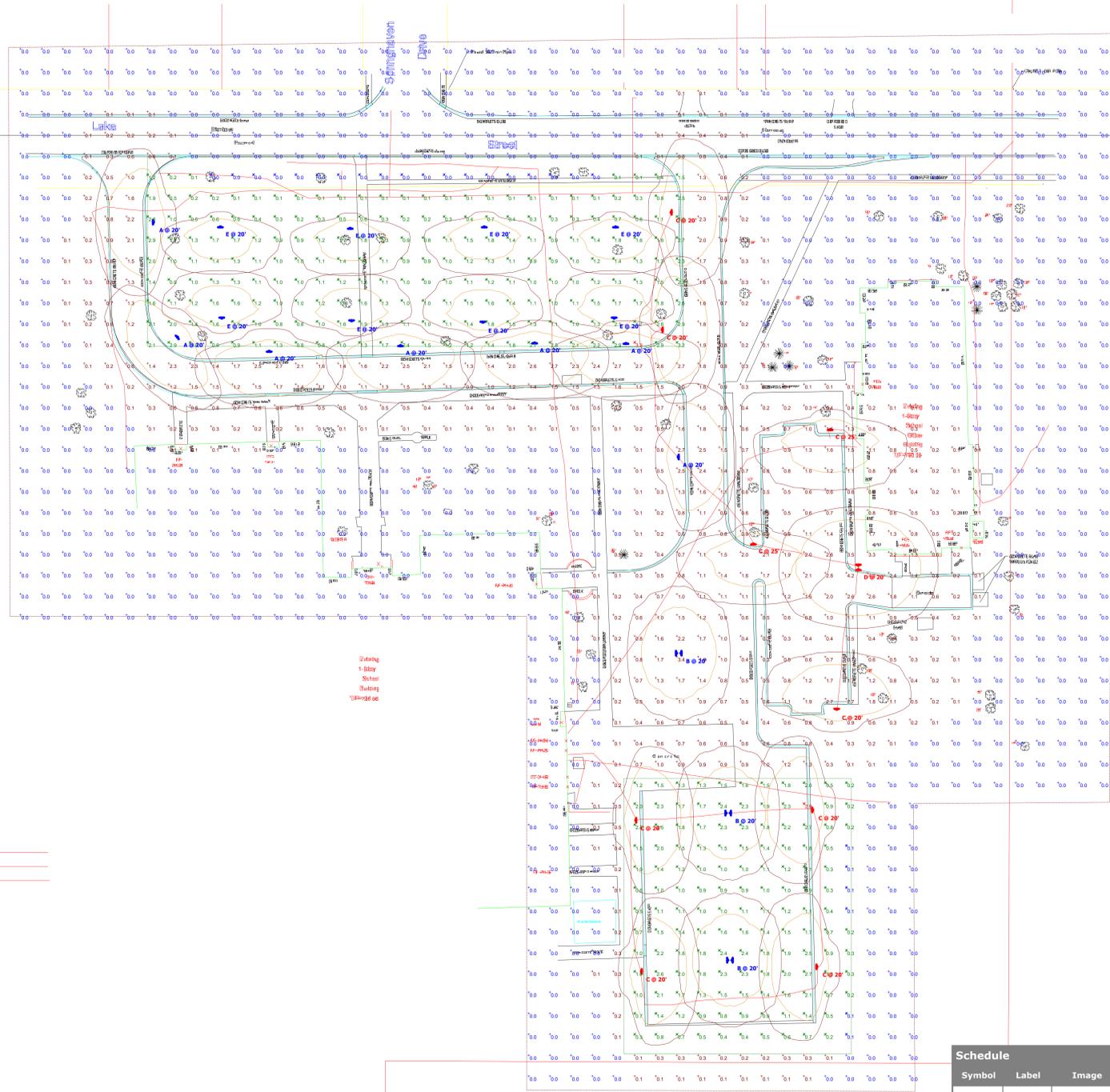
E



ELECTRICAL SYSTEMS

A. Lighting

1. Project scope includes lighting of new and resurfaced lots at Butterfield School. Existing LED fixtures to be maintained and supplemented where needed. Pole assemblies are to generally not exceed the height of the principal building they are situated near and include full cut-off / dark sky compliant fixtures. Assemblies to match those currently in place in terms of height and appearance to comply with ordinance. Photometrics and controls meet local ordinances and energy code.



Plan View

Statistics						
Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
North Parking	✖	1.1 fc	3.3 fc	0.0 fc	N/A	N/A
Site	+	0.4 fc	4.3 fc	0.0 fc	N/A	N/A
Alt. Lot	✖	1.3 fc	2.9 fc	0.1 fc	29.0:1	13.0:1

Schedule											
Symbol	Label	Image	QTY	Manufacturer	Catalog	Description	Number Lamps	Lamp Output	LLF	Input Power	Polar Plot
⬆	A		7	Lithonia Lighting	DSX1 LED P4 40K 70CRI T3M HS EGS-F	D-Series Size 1 Area Luminaire P4 Performance Package 4000K CCT 70 CRI Type 3 Medium Houseside Shield Forward External Glare Shield	1	8758	0.85	123.94	 Max: 5832cd
⬆	B		3	Lithonia Lighting	DSX1 LED P2 40K 70CRI T3M HS EGS-F	D-Series Size 1 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Type 3 Medium Houseside Shield Forward External Glare Shield	1	5333	0.85	135.58	 Max: 3552cd
⬆	C		9	Lithonia Lighting	DSX1 LED P4 40K 70CRI T3M HS EGS-F	D-Series Size 1 Area Luminaire P4 Performance Package 4000K CCT 70 CRI Type 3 Medium Houseside Shield Forward External Glare Shield	1	8758	0.85	123.94	 Max: 5832cd
⬆	D		1	Lithonia Lighting	DSX1 LED P4 40K 70CRI T3M HS EGS-F	D-Series Size 1 Area Luminaire P4 Performance Package 4000K CCT 70 CRI Type 3 Medium Houseside Shield Forward External Glare Shield	1	8758	0.85	247.88	 Max: 5832cd
⬆	E		8	Lithonia Lighting	DSX1 LED P2 40K 70CRI T3M HS EGS-F	D-Series Size 1 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Type 3 Medium Houseside Shield Forward External Glare Shield	1	5333	0.85	67.79	 Max: 3552cd



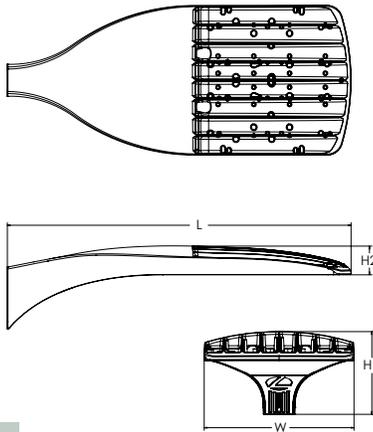
D-Series Size 1 LED Area Luminaire



d#series

Specifications

EPA:	0.69 ft ² (0.06 m ²)
Length:	32.71" (83.1 cm)
Width:	14.26" (36.2 cm)
Height H1:	7.88" (20.0 cm)
Height H2:	2.73" (6.9 cm)
Weight:	34 lbs (15.4 kg)



ds Design Select options indicated by this color background.

Catalog Number
Notes
Type

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

Introduction

The modern styling of the D-Series features a highly refined aesthetic that blends seamlessly with its environment. The D-Series offers the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. D-Series outstanding photometry aids in reducing the number of poles required in area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.



Items marked by a shaded background qualify for the Design Select program and ship in 15 days or less. To learn more about Design Select, visit www.acuitybrands.com/designselect.
*See ordering tree for details

Ordering Information

EXAMPLE: DSX1 LED P7 40K 70CRI T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

Series	LEDs	Color temperature ²	Color Rendering Index ²	Distribution	Voltage	Mounting
DSX1 LED	Forward optics	(this section 70CRI only)		AFR Automotive front row	T5M Type V medium	Shipped included
	P1 P6	30K 3000K	70CRI	T1S Type I short	MVOLT (120V-277V) ⁹	SPA Square pole mounting (#8 drilling)
	P2 P7	40K 4000K	70CRI	T2M Type II medium	HVOLT (347V-480V) ^{5,6}	RPA Round pole mounting (#8 drilling)
	P3 P8	50K 5000K	70CRI	T3M Type III medium	XVOLT (277V - 480V) ^{7,8}	SPA5 Square pole mounting #5 drilling ⁹
	P4 P9	(this section 80CRI only, extended lead times apply)		T3LG Type III low glare ³	120 ^{16,26}	SPA5 Square pole mounting #5 drilling ⁹
	Rotated optics	27K 2700K	80CRI	T4M Type IV medium	208 ^{16,26}	RPA5 Round pole mounting #5 drilling ⁹
	P10 ¹ P12 ¹	30K 3000K	80CRI	T4LG Type IV low glare ³	240 ^{16,26}	SPA8N Square narrow pole mounting #8 drilling
	P11 ¹ P13 ¹	35K 3500K	80CRI	TFTM Forward throw medium	277 ^{16,26}	WBA Wall bracket ¹⁰
		40K 4000K	80CRI		347 ^{16,26}	MA Mast arm adapter (mounts on 2 3/8" OD horizontal tenon)
		50K 5000K	80CRI		480 ^{16,26}	

Control options	Other options	Finish (required)
Shipped installed	Shipped installed	DDBXD Dark Bronze
NLTAIR2 PIRHN nLight AIR gen 2 enabled with bi-level motion / ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc. ^{13, 20, 21}	SPD20KV 20KV surge protection	DBLXD Black
PIR High/low, motion/ambient sensor, 8-40' mounting height, ambient sensor enabled at 2fc. ^{13, 20, 21}	HS Houseside shield (black finish standard) ²²	DNAXD Natural Aluminum
PER NEMA twist-lock receptacle only (controls ordered separately) ¹⁴	L90 Left rotated optics ¹	DWHXD White
PERS Five-pin receptacle only (controls ordered separate) ^{14, 21}	R90 Right rotated optics ¹	DBBTD Textured dark bronze
PER7 Seven-pin receptacle only (controls ordered separate) ^{14, 21}	CCE Coastal Construction ²³	DBLXD Textured black
FAO Field adjustable output ^{15, 21}	HA 50°C ambient operation ²⁴	DNATXD Textured natural aluminum
BL30 Bi-level switched dimming, 30% ^{16, 21}	BAA Buy America(n) Act and/or Build America Buy America Qualified	DWHGXD Textured white
BL50 Bi-level switched dimming, 50% ^{16, 21}	SF Single fuse (120, 277, 347V) ²⁵	
DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) ¹⁷	DF Double fuse (208, 240, 480V) ²⁶	
DS Dual switching ^{18, 19, 21}	Shipped separately	
	EGSR External Glare Shield (reversible, field install required, matches housing finish)	
	BSDB Bird Spikes (field install required)	



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DSX1-LED
Rev. 10/16/24
Page 1 of 10

Ordering Information

Accessories

Ordered and shipped separately.

DLL127F 1.5 JU	Photocell - SSL twist-lock (120-277V) ²⁵
DLL347F 1.5 CUL JU	Photocell - SSL twist-lock (347V) ²⁵
DLL480F 1.5 CUL JU	Photocell - SSL twist-lock (480V) ²⁵
DSHORT SBK	Shorting cap ²⁵
DSX1HS P#	House-side shield (enter package number 1-13 in place of #)
DSXRPA (FINISH)	Round pole adapter (#8 drilling, specify finish)
DSXSPA5 (FINISH)	Square pole adapter #5 drilling (specify finish)
DSXRPA5 (FINISH)	Round pole adapter #5 drilling (specify finish)
DSX1EGSR (FINISH)	External glare shield (specify finish)
DSX1BSDB (FINISH)	Bird spike deterrent bracket (specify finish)

NOTES

- Rotated optics available with packages P10, P11, P12 and P13. Must be combined with option L90 or R90.
- 30K, 40K, and 50K available in 70CRI and 80CRI. 27K and 35K only available with 80CRI. Contact Technical Support for other possible combinations.
- T3LG, T4LG, BLC3, BLC4, LCCO, RCCO not available with option HS.
- MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
- HVOLT driver operates on any line voltage from 347-480V (50/60 Hz).
- HVOLT not available with package P1 and P10 when combined with option NLTAIR2 PIRHN or option PIR.
- XVOLT operates with any voltage between 277V and 480V (50/60 Hz).
- XVOLT not available in packages P1 or P10. XVOLT not available with fusing (SF or DF).
- SPA5 and RPA5 for use with #5 drilling only (Not for use with #8 drilling).
- WBA cannot be combined with Type 5 distributions plus photocell (PER).
- NLTAIR2 and PIRHN must be ordered together. For more information on nLight AIR2 visit this [link](#).
- NLTAIR2 PIRHN not available with other controls including PIR, PER, PER5, PER7, FAO, BL30, BL50, DMG and DS. NLTAIR2 PIRHN not available with P1 and P10 using HVOLT. NLTAIR2 PIRHN not available with P1 and P10 using XVOLT.
- PIR not available with NLTAIR2 PIRHN, PER, PER5, PER7, FAO BL30, BL50, DMG and DS. PIR not available with P1 and P10 using HVOLT. PIR not available with P1 and P10 using XVOLT.
- PER/PER5/PER7 not available with NLTAIR2 PIRHN, PIR, BL30, BL50, FAO, DMG and DS. Photocell ordered and shipped as a separate line item from Acuity Brands Controls. See accessories. Shorting Cap included.
- FAO not available with other dimming control options NLTAIR2 PIRHN, PIR, PER5, PER7, BL30, BL50, DMG and DS.
- BL30 and BL50 are not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, FAO, DMG and DS. BL30 or BL50 must specify 120, 277 or 347V. Consult tech support for 208, 240 or 480V.
- DMG not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DS.
- DS not available with NLTAIR2 PIRHN, PIR, PER, PER5, PER7, BL30, BL50, FAO and DMG.
- DS requires (2) separately switched circuits. DS provides 50/50 fixture operation via (2) different sets of leads using (2) drivers. DS only available with packages P8, P9, P10, P11, P12 and P13.
- Reference Motion Sensor Default Settings table on page 4 to see functionality.
- Reference Controls Options table on page 4.
- HS not available with T3LG, T4LG, BLC3, BLC4, LCCO and RCCO distribution. Also available as a separate accessory; see Accessories information.
- CCE option not available with option BS and EGSR. Contact Technical Support for availability.
- Option HA not available with performance packages P4, P5, P7, P8, P9 and P13.
- Requires luminaire to be specified with PER, PER5 or PER7 option. See Controls Table on page 4.
- Single fuse (SF) requires 120V, 277V, or 347V. Double fuse (DF) requires 208V, 240V or 480V. XVOLT not available with fusing (SF or DF).

Shield Accessories



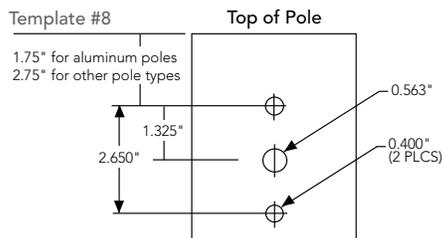
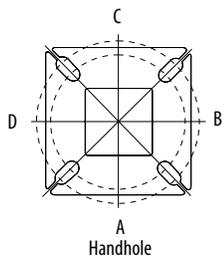
External Glare Shield (EGSR)



House Side Shield (HS)

Drilling

HANDHOLE ORIENTATION



Tenon Mounting Slipfitter

Tenon O.D.	Mounting	Single Unit	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
2-3/8"	RPA	AS3-5 190	AS3-5 280	AS3-5 290	AS3-5 390	AS3-5 320	AS3-5 490
2-7/8"	RPA	AST25-190	AST25-280	AST25-290	AST25-390	AST25-320	AST25-490
4"	RPA	AST35-190	AST35-280	AST35-290	AST35-390	AST35-320	AST35-490

Mounting Option	Drilling Template	Single	2 @ 180	2 @ 90	3 @ 90	3 @ 120	4 @ 90
Head Location		Side B	Side B & D	Side B & C	Side B, C & D	Round Pole Only	Side A, B, C & D
Drill Nomenclature	#8	DM19AS	DM28AS	DM29AS	DM39AS	DM32AS	DM49AS
Minimum Acceptable Outside Pole Dimension							
SPA	#8	3.5"	3.5"	3.5"	3.5"		3.5"
RPA	#8	3"	3"	3"	3"	3"	3"
SPA5	#5	3"	3"	3"	3"		3"
RPA5	#5	3"	3"	3"	3"	3"	3"
SPA8N	#8	3"	3"	3"	3"		3"

DSX1 Area Luminaire - EPA

*Includes luminaire and integral mounting arm. Other tenons, arms, brackets or other accessories are not included in this EPA data.

Fixture Quantity & Mounting Configuration	Single DM19	2 @ 180 DM28	2 @ 90 DM29	3 @ 90 DM39	3 @ 120 DM32	4 @ 90 DM49
Mounting Type						
DSX1 with SPA	0.69	1.38	1.23	1.54	---	1.58
DSX1 with SPA5, SPA8N	0.70	1.40	1.30	1.66	---	1.68
DSX1 with RPA, RPA5	0.70	1.40	1.30	1.66	1.60	1.68
DSX1 with MA	0.83	1.66	1.50	2.09	2.09	2.09

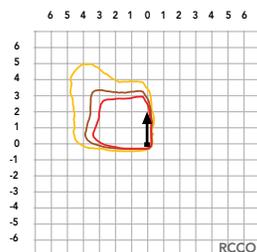
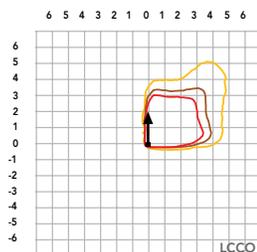
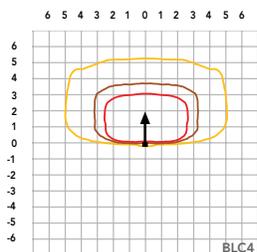
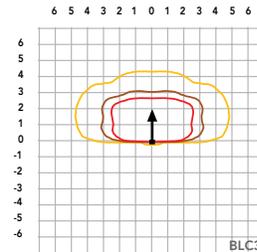
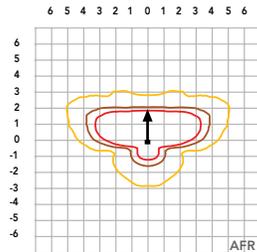
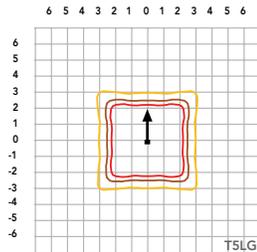
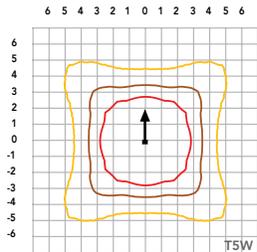
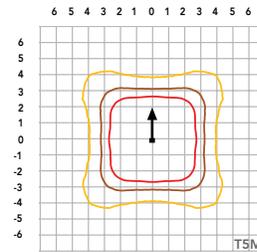
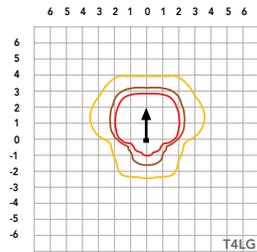
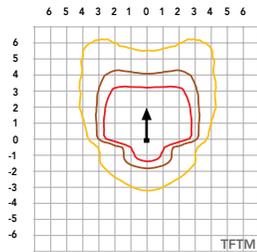
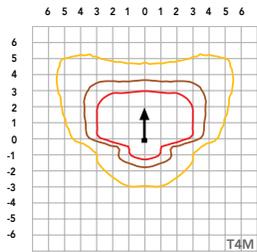
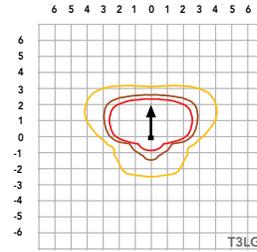
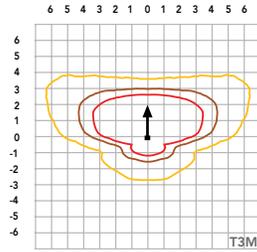
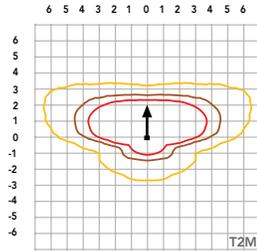
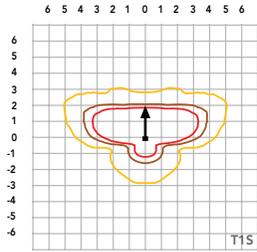
Photometric Diagrams

To see complete photometric reports or download .ies files for this product, visit Lithonia Lighting's [homepage](#).

Isofootcandle plots for the DSX1 LED P9 40K 70CRI. Distances are in units of mounting height (25').

LEGEND

- 0.1 fc
- 0.5 fc
- 1.0 fc



Performance Data

Lumen Ambient Temperature (LAT) Multipliers

Use these factors to determine relative lumen output for average ambient temperatures from 0-40°C (32-104°F).

Ambient		Lumen Multiplier
0°C	32°F	1.04
5°C	41°F	1.04
10°C	50°F	1.03
15°C	59°F	1.02
20°C	68°F	1.01
25°C	77°C	1.00
30°C	86°F	0.99
35°C	95°F	0.98
40°C	104°F	0.97

Projected LED Lumen Maintenance

Data references the extrapolated performance projections for the platforms noted in a **25°C ambient**, based on 10,000 hours of LED testing (tested per IESNA LM-80-08 and projected per IESNA TM-21-11).

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

Operating Hours	Lumen Maintenance Factor
0	1.00
25,000	0.95
50,000	0.90
100,000	0.81

FAO Dimming Settings

FAO Position	% Wattage	% Lumen Output
8	100%	100%
7	93%	95%
6	80%	85%
5	66%	73%
4	54%	61%
3	41%	49%
2	29%	36%
1	15%	20%

*Note: Calculated values are based on original performance package data. When calculating new values for given FAO position, use maximum published values by package listed on specification sheet (input watts and lumens by optic type).

Motion Sensor Default Settings

Option	Unoccupied Dimmed Level	High Level (when occupied)	Photocell Operation	Dwell Time	Ramp-up Time	Dimming Fade Rate
PIR	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min
NLTAIR2 PIRHN	30%	100%	Enabled @ 2FC	7.5 min	3 sec	5 min

Controls Options

Nomenclature	Description	Functionality	Primary control device	Notes
FAO	Field adjustable output device installed inside the luminaire; wired to the driver dimming leads.	Allows the luminaire to be manually dimmed, effectively trimming the light output.	FAO device	Cannot be used with other controls options that need the 0-10V leads
DS (not available on DSX0)	Drivers wired independently for 50/50 luminaire operation	The luminaire is wired to two separate circuits, allowing for 50/50 operation.	Independently wired drivers	Requires two separately switched circuits. Consider nLight AIR as a more cost effective alternative.
PERS or PER7	Twist-lock photocell receptacle	Compatible with standard twist-lock photocells for dusk to dawn operation, or advanced control nodes that provide 0-10V dimming signals.	Twist-lock photocells such as DLL Elite or advanced control nodes such as ROAM.	Pins 4 & 5 to dimming leads on driver, Pins 6 & 7 are capped inside luminaire. Cannot be used with other controls options that need the 0-10V leads.
PIR	Motion sensor with integral photocell. Sensor suitable for 8' to 40' mounting height.	Luminaires dim when no occupancy is detected.	Acuity Controls rSBG	Cannot be used with other controls options that need the 0-10V leads.
NLTAIR2 PIRHN	nLight AIR enabled luminaire for motion sensing, photocell and wireless communication.	Motion and ambient light sensing with group response. Scheduled dimming with motion sensor over-ride when wirelessly connected to the nLight Elypse.	nLight Air rSBG	nLight AIR sensors can be programmed and commissioned from the ground using the CIAIRity Pro app. Cannot be used with other controls options that need the 0-10V leads.
BL30 or BL50	Integrated bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output	BLC device provides input to 0-10V dimming leads on all drivers providing either 100% or dimmed (30% or 50%) control by a secondary circuit	BLC UVOLT1	BLC device is powered off the 0-10V dimming leads, thus can be used with any input voltage from 120 to 480V

Electrical Load

	Performance Package	LED Count	Drive Current (mA)	Wattage	Current (A)					
					120V	208V	240V	277V	347V	480V
Forward Optics (Non-Rotated)	P1	30	530	51	0.42	0.24	0.21	0.18	0.15	0.11
	P2	30	700	68	0.56	0.33	0.28	0.24	0.20	0.14
	P3	30	1050	104	0.85	0.49	0.43	0.37	0.29	0.21
	P4	30	1250	125	1.03	0.60	0.52	0.45	0.36	0.26
	P5	30	1400	142	1.15	0.66	0.58	0.50	0.40	0.29
	P6	40	1250	167	1.38	0.79	0.69	0.60	0.48	0.34
	P7	40	1400	188	1.54	0.89	0.77	0.67	0.53	0.38
	P8	60	1100	216	1.80	1.04	0.90	0.78	0.62	0.45
	P9	60	1400	279	2.31	1.33	1.15	1.00	0.80	0.58
Rotated Optics (Requires L90 or R90)	P10	60	530	101	0.84	0.49	0.42	0.37	0.29	0.21
	P11	60	700	135	1.12	0.65	0.56	0.49	0.39	0.28
	P12	60	1050	206	1.72	0.99	0.86	0.74	0.59	0.43
	P13	60	1400	279	2.30	1.33	1.15	1.00	0.79	0.57

LED Color Temperature / Color Rendering Multipliers

	70 CRI		80CRI		90CRI	
	Lumen Multiplier	Availability	Lumen Multiplier	Availability	Lumen Multiplier	Availability
5000K	102%	Standard	92%	Extended lead-time	71%	(see note)
4000K	100%	Standard	92%	Extended lead-time	67%	(see note)
3500K	100%	(see note)	90%	Extended lead-time	63%	(see note)
3000K	96%	Standard	87%	Extended lead-time	61%	(see note)
2700K	94%	(see note)	85%	Extended lead-time	57%	(see note)

Note: Some LED types are available as per special request. Contact Technical Support for more information.

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Forward Optics																							
Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K					40K					50K								
					(3000K, 70 CRI)					(4000K, 70 CRI)					(5000K, 70 CRI)								
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW				
P1	51W	30	530	T1S	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162				
				T2M	7,203	1	0	3	142	7,507	2	0	3	147	7,653	2	0	3	150				
				T3M	7,287	1	0	3	143	7,594	1	0	3	149	7,742	1	0	3	152				
				T3LG	6,509	1	0	1	128	6,783	1	0	1	133	6,916	1	0	1	136				
				T4M	7,395	1	0	3	145	7,707	1	0	3	151	7,857	1	0	3	154				
				T4LG	6,726	1	0	1	132	7,010	1	0	1	138	7,146	1	0	1	140				
				TFTM	7,446	1	0	3	146	7,760	1	0	3	152	7,912	1	0	3	155				
				T5M	7,609	3	0	2	149	7,930	3	0	2	156	8,084	3	0	2	159				
				T5W	7,732	3	0	2	152	8,058	4	0	2	158	8,215	4	0	2	161				
				T5LG	7,631	3	0	1	150	7,953	3	0	1	156	8,108	3	0	1	159				
				BLC3	5,300	0	0	2	104	5,524	0	0	2	109	5,631	0	0	2	111				
				BLC4	5,474	0	0	3	108	5,705	0	0	3	112	5,816	0	0	3	114				
				RCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112				
				LCCO	5,348	0	0	2	105	5,573	0	0	2	109	5,682	0	0	2	112				
				AFR	7,776	1	0	2	153	8,104	1	0	2	159	8,262	1	0	2	162				
				P2	68W	30	700	T1S	9,997	1	0	2	147	10,418	1	0	2	154	10,621	1	0	2	157
								T2M	9,260	2	0	3	137	9,651	2	0	3	142	9,839	2	0	3	145
T3M	9,368	2	0					3	138	9,763	2	0	3	144	9,953	2	0	3	147				
T3LG	8,368	1	0					2	123	8,721	1	0	2	129	8,891	1	0	2	131				
T4M	9,507	2	0					3	140	9,909	2	0	3	146	10,102	2	0	3	149				
T4LG	8,647	1	0					2	128	9,012	1	0	2	133	9,187	1	0	2	136				
TFTM	9,573	2	0					3	141	9,977	2	0	3	147	10,172	2	0	3	150				
T5M	9,782	4	0					2	144	10,195	4	0	2	150	10,393	4	0	2	153				
T5W	9,940	4	0					2	147	10,360	4	0	2	153	10,562	4	0	2	156				
T5LG	9,810	3	0					1	145	10,224	3	0	1	151	10,423	3	0	1	154				
BLC3	6,814	0	0					2	101	7,101	0	0	2	105	7,240	0	0	2	107				
BLC4	7,038	0	0					3	104	7,334	0	0	3	108	7,477	0	0	3	110				
RCCO	6,875	1	0					2	101	7,165	1	0	2	106	7,305	1	0	2	108				
LCCO	6,875	1	0					2	101	7,165	1	0	2	106	7,305	1	0	2	108				
AFR	9,997	1	0					2	147	10,418	1	0	2	154	10,621	1	0	2	157				
P3	102W	30	1050					T1S	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147
								T2M	13,055	2	0	3	128	13,605	2	0	3	133	13,871	2	0	3	136
				T3M	13,206	2	0	4	129	13,763	2	0	4	135	14,031	2	0	4	137				
				T3LG	11,797	2	0	2	115	12,294	2	0	2	120	12,534	2	0	2	123				
				T4M	13,403	2	0	4	131	13,968	2	0	4	137	14,241	2	0	4	139				
				T4LG	12,190	2	0	2	119	12,704	2	0	2	124	12,952	2	0	2	127				
				TFTM	13,496	2	0	4	132	14,065	2	0	4	138	14,339	2	0	4	140				
				T5M	13,790	4	0	2	135	14,371	4	0	2	141	14,652	4	0	2	143				
				T5W	14,013	4	0	3	137	14,605	4	0	3	143	14,889	4	0	3	146				
				T5LG	13,830	3	0	2	135	14,413	3	0	2	141	14,694	3	0	2	144				
				BLC3	9,606	0	0	2	94	10,011	0	0	2	98	10,206	0	0	2	100				
				BLC4	9,921	0	0	3	97	10,340	0	0	3	101	10,541	0	0	3	103				
				RCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101				
				LCCO	9,692	1	0	2	95	10,101	1	0	2	99	10,298	1	0	2	101				
				AFR	14,093	2	0	2	138	14,687	2	0	2	144	14,973	2	0	2	147				

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Forward Optics																			
Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K					40K					50K				
					(3000K, 70 CRI)					(4000K, 70 CRI)					(5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P4	124W	30	1250	T1S	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
				T2M	15,207	3	0	4	123	15,849	3	0	4	128	16,158	3	0	4	130
				T3M	15,383	2	0	4	124	16,032	2	0	4	129	16,345	2	0	4	132
				T3LG	13,742	2	0	2	111	14,321	2	0	2	116	14,600	2	0	2	118
				T4M	15,613	2	0	4	126	16,272	2	0	4	131	16,589	2	0	4	134
				T4LG	14,200	2	0	2	115	14,799	2	0	2	119	15,087	2	0	2	122
				TFTM	15,721	2	0	4	127	16,384	2	0	4	132	16,703	2	0	4	135
				T5M	16,063	4	0	2	130	16,741	4	0	2	135	17,067	4	0	2	138
				T5W	16,324	5	0	3	132	17,013	5	0	3	137	17,344	5	0	3	140
				T5LG	16,110	3	0	2	130	16,790	4	0	2	135	17,117	4	0	2	138
				BLC3	11,190	0	0	3	90	11,662	0	0	3	94	11,889	0	0	3	96
				BLC4	11,557	0	0	3	93	12,044	0	0	3	97	12,279	0	0	3	99
				RCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				LCCO	11,291	1	0	3	91	11,767	1	0	3	95	11,996	1	0	3	97
				AFR	16,416	2	0	3	132	17,109	2	0	3	138	17,442	2	0	3	141
				P5	138W	30	1400	T1S	18,052	2	0	3	131	18,814	2	0	3	136	19,180
T2M	16,723	3	0					4	121	17,428	3	0	4	126	17,768	3	0	4	129
T3M	16,917	3	0					4	122	17,630	3	0	4	128	17,974	3	0	4	130
T3LG	15,111	2	0					2	109	15,749	2	0	2	114	16,055	2	0	2	116
T4M	17,169	3	0					5	124	17,893	3	0	5	130	18,242	3	0	5	132
T4LG	15,615	2	0					2	113	16,274	2	0	2	118	16,591	2	0	2	120
TFTM	17,288	2	0					4	125	18,017	2	0	5	130	18,368	3	0	5	133
T5M	17,664	5	0					3	128	18,410	5	0	3	133	18,768	5	0	3	136
T5W	17,951	5	0					3	130	18,708	5	0	3	135	19,073	5	0	3	138
T5LG	17,716	4	0					2	128	18,463	4	0	2	134	18,823	4	0	2	136
BLC3	12,305	0	0					3	89	12,824	0	0	3	93	13,074	0	0	3	95
BLC4	12,709	0	0					4	92	13,245	0	0	4	96	13,503	0	0	4	98
RCCO	12,416	1	0					3	90	12,940	1	0	3	94	13,192	1	0	3	95
LCCO	12,416	1	0					3	90	12,940	1	0	3	94	13,192	1	0	3	95
AFR	18,052	2	0					3	131	18,814	2	0	3	136	19,180	2	0	3	139
P6	165W	40	1250					T1S	21,031	2	0	3	127	21,918	2	0	3	133	22,345
				T2M	19,482	3	0	4	118	20,303	3	0	4	123	20,699	3	0	4	125
				T3M	19,708	3	0	5	119	20,539	3	0	5	124	20,939	3	0	5	127
				T3LG	17,604	2	0	2	107	18,347	2	0	2	111	18,704	2	0	2	113
				T4M	20,001	3	0	5	121	20,845	3	0	5	126	21,251	3	0	5	129
				T4LG	18,191	2	0	2	110	18,959	2	0	2	115	19,328	2	0	2	117
				TFTM	20,140	3	0	5	122	20,989	3	0	5	127	21,398	3	0	5	129
				T5M	20,579	5	0	3	125	21,447	5	0	3	130	21,865	5	0	3	132
				T5W	20,912	5	0	3	127	21,795	5	0	3	132	22,219	5	0	3	134
				T5LG	20,638	4	0	2	125	21,509	4	0	2	130	21,928	4	0	2	133
				BLC3	14,335	0	0	3	87	14,940	0	0	3	90	15,231	0	0	3	92
				BLC4	14,805	0	0	4	90	15,430	0	0	4	93	15,731	0	0	4	95
				RCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				LCCO	14,464	1	0	3	88	15,074	1	0	3	91	15,368	1	0	3	93
				AFR	21,031	2	0	3	127	21,918	2	0	3	133	22,345	2	0	3	135

Performance Data

Lumen Output

Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Forward Optics																			
Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K					40K					50K				
					(3000K, 70 CRI)					(4000K, 70 CRI)					(5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P7	184W	40	1400	T1S	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
				T2M	21,066	3	0	4	114	21,955	3	0	4	119	22,383	3	0	4	121
				T3M	21,311	3	0	5	116	22,210	3	0	5	120	22,642	3	0	5	123
				T3LG	19,036	2	0	2	103	19,839	2	0	3	108	20,226	2	0	3	110
				T4M	21,628	3	0	5	117	22,541	3	0	5	122	22,980	3	0	5	125
				T4LG	19,671	2	0	2	107	20,501	2	0	3	111	20,900	2	0	3	113
				TFTM	21,778	3	0	5	118	22,697	3	0	5	123	23,139	3	0	5	125
				T5M	22,252	5	0	3	121	23,191	5	0	3	126	23,643	5	0	3	128
				T5W	22,613	5	0	3	123	23,567	5	0	4	128	24,027	5	0	4	130
				T5LG	22,317	4	0	2	121	23,258	4	0	2	126	23,712	4	0	2	129
				BLC3	15,501	0	0	3	84	16,155	0	0	4	88	16,470	0	0	4	89
				BLC4	16,010	0	0	4	87	16,685	0	0	4	90	17,010	0	0	4	92
				RCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				LCCO	15,641	1	0	3	85	16,301	1	0	3	89	16,619	1	0	3	90
				AFR	22,741	2	0	3	123	23,700	2	0	3	129	24,162	3	0	3	131
				P8	216W	60	1100	T1S	28,701	3	0	3	133	29,912	3	0	4	139	30,495
T2M	26,587	3	0					5	123	27,709	3	0	5	128	28,249	3	0	5	131
T3M	26,895	3	0					5	125	28,030	3	0	5	130	28,576	3	0	5	132
T3LG	24,025	3	0					3	111	25,038	3	0	3	116	25,526	3	0	3	118
T4M	27,296	3	0					5	127	28,448	3	0	5	132	29,002	3	0	5	134
T4LG	24,826	3	0					3	115	25,873	3	0	3	120	26,378	3	0	3	122
TFTM	27,485	3	0					5	127	28,645	3	0	5	133	29,203	3	0	5	135
T5M	28,084	5	0					4	130	29,269	5	0	4	136	29,839	5	0	4	138
T5W	28,539	5	0					4	132	29,743	5	0	4	138	30,323	5	0	4	141
T5LG	28,165	4	0					2	131	29,354	4	0	2	136	29,926	4	0	2	139
BLC3	19,563	0	0					4	91	20,388	0	0	4	94	20,786	0	0	4	96
BLC4	20,205	0	0					5	94	21,057	0	0	5	98	21,468	0	0	5	99
RCCO	19,740	1	0					4	91	20,572	1	0	4	95	20,973	1	0	4	97
LCCO	19,740	1	0					4	91	20,572	1	0	4	95	20,973	1	0	4	97
AFR	28,701	3	0					3	133	29,912	3	0	4	139	30,495	3	0	4	141
P9	277W	60	1400					T1S	34,819	3	0	4	126	36,288	3	0	4	131	36,996
				T2M	32,255	3	0	5	116	33,616	3	0	5	121	34,271	3	0	5	124
				T3M	32,629	3	0	5	118	34,006	3	0	5	123	34,668	3	0	5	125
				T3LG	29,146	3	0	3	105	30,376	3	0	4	110	30,968	3	0	4	112
				T4M	33,116	3	0	5	120	34,513	3	0	5	125	35,185	3	0	5	127
				T4LG	30,119	3	0	3	109	31,389	3	0	4	113	32,001	3	0	4	116
				TFTM	33,345	3	0	5	120	34,751	3	0	5	125	35,429	3	0	5	128
				T5M	34,071	5	0	4	123	35,509	5	0	4	128	36,201	5	0	4	131
				T5W	34,624	5	0	4	125	36,084	5	0	4	130	36,788	5	0	4	133
				T5LG	34,170	5	0	3	123	35,612	5	0	3	129	36,306	5	0	3	131
				BLC3	23,734	0	0	4	86	24,735	0	0	4	89	25,217	0	0	4	91
				BLC4	24,513	0	0	5	88	25,547	0	0	5	92	26,045	0	0	5	94
				RCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				LCCO	23,948	1	0	4	86	24,958	1	0	4	90	25,445	1	0	4	92
				AFR	34,819	3	0	4	126	36,288	3	0	4	131	36,996	3	0	4	134

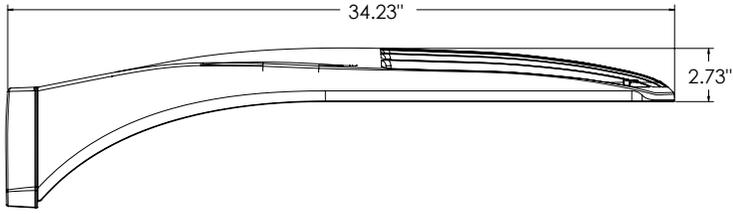
Performance Data

Lumen Output

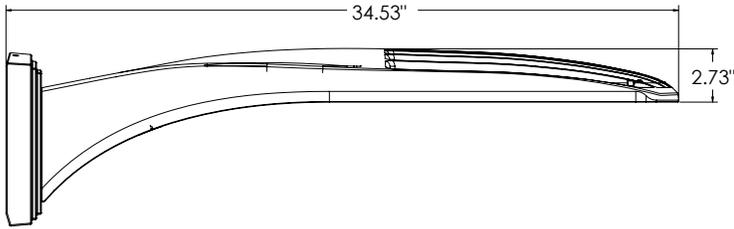
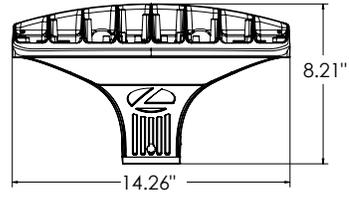
Lumen values are from photometric tests performed in accordance with IESNA LM-79-08. Data is considered to be representative of configurations shown within the tolerances described within LM-79. Contact factory for performance data on any configurations not shown here.

Rotated Optics																			
Performance Package	System Watts	LED Count	Drive Current (mA)	Distribution Type	30K					40K					50K				
					(3000K, 70 CRI)					(4000K, 70 CRI)					(5000K, 70 CRI)				
					Lumens	B	U	G	LPW	Lumens	B	U	G	LPW	Lumens	B	U	G	LPW
P10	101W	60	530	T1S	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
				T2M	14,047	4	0	4	139	14,640	4	0	4	145	14,925	4	0	4	147
				T3M	14,208	4	0	4	140	14,807	4	0	4	146	15,096	4	0	4	149
				T3LG	12,693	3	0	3	125	13,229	3	0	3	131	13,487	3	0	3	133
				T4M	14,420	4	0	4	142	15,028	4	0	4	148	15,321	4	0	4	151
				T4LG	13,115	3	0	3	129	13,668	3	0	3	135	13,934	3	0	3	138
				TFTM	14,522	4	0	4	143	15,134	4	0	4	149	15,429	4	0	4	152
				T5M	14,836	4	0	2	146	15,462	4	0	2	153	15,763	4	0	2	156
				T5W	15,076	4	0	3	149	15,712	5	0	3	155	16,019	5	0	3	158
				T5LG	14,879	3	0	2	147	15,507	3	0	2	153	15,809	3	0	2	156
				BLC3	10,335	3	0	3	102	10,771	4	0	4	106	10,981	4	0	4	108
				BLC4	10,674	4	0	4	105	11,124	4	0	4	110	11,341	4	0	4	112
				RCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				LCCO	10,429	1	0	2	103	10,869	1	0	2	107	11,080	1	0	2	109
				AFR	15,164	3	0	3	150	15,803	3	0	3	156	16,112	3	0	3	159
				P11	135W	60	700	T1S	19,437	4	0	4	144	20,257	4	0	4	150	20,651
T2M	18,005	4	0					4	133	18,765	4	0	4	139	19,131	4	0	4	142
T3M	18,211	4	0					4	135	18,980	4	0	4	141	19,350	4	0	4	143
T3LG	16,270	3	0					3	121	16,957	3	0	3	126	17,287	4	0	4	128
T4M	18,483	4	0					4	137	19,263	5	0	5	143	19,638	5	0	5	146
T4LG	16,810	3	0					3	125	17,519	3	0	3	130	17,861	3	0	3	132
TFTM	18,614	4	0					4	138	19,399	4	0	4	144	19,777	5	0	5	147
T5M	19,017	5	0					3	141	19,819	5	0	3	147	20,205	5	0	3	150
T5W	19,325	5	0					3	143	20,140	5	0	3	149	20,533	5	0	3	152
T5LG	19,072	4	0					2	141	19,876	4	0	2	147	20,264	4	0	2	150
BLC3	13,247	4	0					4	98	13,806	4	0	4	102	14,075	4	0	4	104
BLC4	13,682	4	0					4	101	14,259	4	0	4	106	14,537	4	0	4	108
RCCO	13,367	1	0					3	99	13,931	1	0	3	103	14,203	1	0	3	105
LCCO	13,367	1	0					3	99	13,931	1	0	3	103	14,203	1	0	3	105
AFR	19,437	4	0					4	144	20,257	4	0	4	150	20,651	4	0	4	153
P12	206W	60	1050					T1S	27,457	4	0	4	133	28,616	4	0	4	139	29,174
				T2M	25,436	5	0	5	124	26,509	5	0	5	129	27,025	5	0	5	131
				T3M	25,727	5	0	5	125	26,812	5	0	5	130	27,335	5	0	5	133
				T3LG	22,984	4	0	4	112	23,954	4	0	4	116	24,421	4	0	4	119
				T4M	26,110	5	0	5	127	27,212	5	0	5	132	27,742	5	0	5	135
				T4LG	23,747	4	0	4	115	24,749	4	0	4	120	25,231	4	0	4	123
				TFTM	26,295	5	0	5	128	27,404	5	0	5	133	27,938	5	0	5	136
				T5M	26,864	5	0	4	130	27,997	5	0	4	136	28,543	5	0	4	139
				T5W	27,299	5	0	4	133	28,451	5	0	4	138	29,006	5	0	4	141
				T5LG	26,942	4	0	2	131	28,078	4	0	2	136	28,626	4	0	2	139
				BLC3	18,714	4	0	4	91	19,504	4	0	4	95	19,884	4	0	4	97
				BLC4	19,327	5	0	5	94	20,143	5	0	5	98	20,535	5	0	5	100
				RCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				LCCO	18,883	1	0	4	92	19,680	1	0	4	96	20,064	1	0	4	97
				AFR	27,457	4	0	4	133	28,616	4	0	4	139	29,174	4	0	4	142
				P13	276W	60	1400	T1S	34,436	5	0	5	125	35,889	5	0	5	130	36,588
T2M	31,900	5	0					5	116	33,246	5	0	5	121	33,894	5	0	5	123
T3M	32,265	5	0					5	117	33,626	5	0	5	122	34,282	5	0	5	124
T3LG	28,826	4	0					4	105	30,042	4	0	4	109	30,628	4	0	4	111
T4M	32,746	5	0					5	119	34,128	5	0	5	124	34,793	5	0	5	126
T4LG	29,782	4	0					4	108	31,039	4	0	4	113	31,644	5	0	4	115
TFTM	32,978	5	0					5	120	34,369	5	0	5	125	35,039	5	0	5	127
T5M	33,692	5	0					4	122	35,113	5	0	4	127	35,797	5	0	4	130
T5W	34,238	5	0					4	124	35,682	5	0	4	129	36,378	5	0	4	132
T5LG	33,789	5	0					3	122	35,215	5	0	3	128	35,901	5	0	3	130
BLC3	23,471	5	0					5	85	24,461	5	0	5	89	24,937	5	0	5	90
BLC4	24,240	5	0					5	88	25,262	5	0	5	92	25,755	5	0	5	93
RCCO	23,683	1	0					4	86	24,682	1	0	4	89	25,163	1	0	4	91
LCCO	23,683	1	0					4	86	24,682	1	0	4	89	25,163	1	0	4	91
AFR	34,436	5	0					5	125	35,889	5	0	5	130	36,588	5	0	5	133

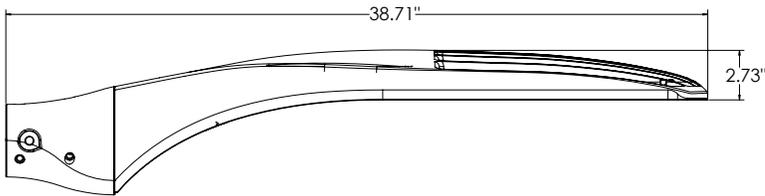
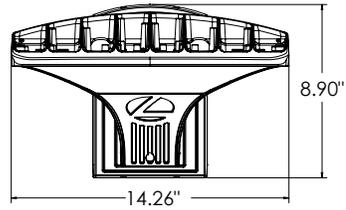
Dimensions



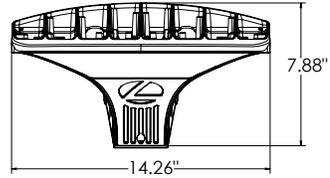
DSX1 with RPA, RPA5, SPA5, SPA8N mount
Weight: 36 lbs



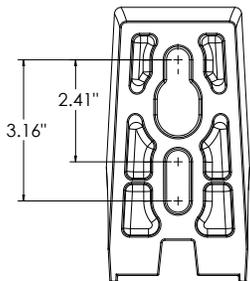
DSX1 with WBA mount
Weight: 38 lbs



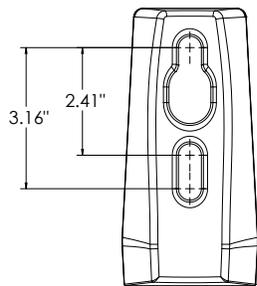
DSX1 with MA mount
Weight: 39 lbs



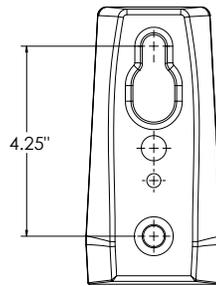
SPA (STANDARD ARM)



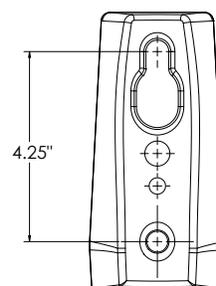
RPA



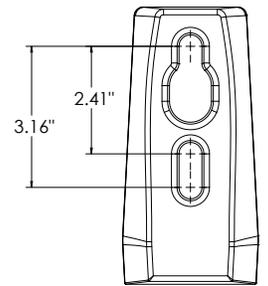
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RPA5

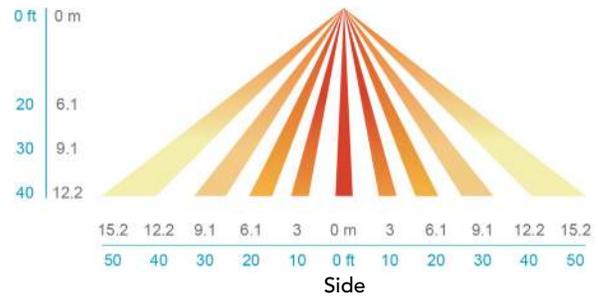
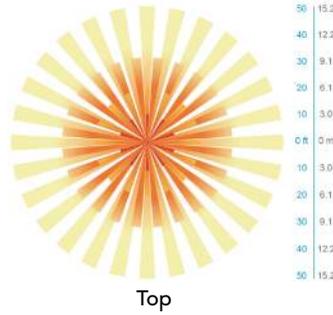


SPA8N



nLight Sensor Coverage Pattern

NLTAIR2 PIRHN



FEATURES & SPECIFICATIONS

INTENDED USE

The sleek design of the D-Series Size 1 reflects the embedded high performance LED technology. It is ideal for many commercial and municipal applications, such as parking lots, plazas, campuses, and streetscapes.

CONSTRUCTION

Single-piece die-cast aluminum housing has integral heat sink fins to optimize thermal management through conductive and convective cooling. Modular design allows for ease of maintenance and future light engine upgrades. The LED drivers are mounted in direct contact with the casting to promote low operating temperature and long life. Housing driver compartment is completely sealed against moisture and environmental contaminants (IP66). Vibration rated per ANSI C136.31 for 3G for SPA and MA. 1.5G for mountings RPA, RPA5, SPA5 and SPA8N. Low EPA (0.69 ft²) for optimized pole wind loading.

FINISH

Exterior parts are protected by a zinc-infused Super Durable TGIC thermoset powder coat finish that provides superior resistance to corrosion and weathering. A tightly controlled multi-stage process ensures a minimum 3 mils thickness for a finish that can withstand extreme climate changes without cracking or peeling. Available in both textured and non-textured finishes.

Coastal Construction (CCE)

Optional corrosion resistant construction is engineered with added corrosion protection in materials and/or pre-treatment of base material under super durable paint. Provides additional corrosion protection for applications near coastal areas. Finish is salt spray tested to over 5,000 hours per ASTM B117 with scribe rating of 10. Additional lead-times may apply.

OPTICS

Precision-molded proprietary silicone lenses are engineered for superior area lighting distribution, uniformity, and pole spacing. Light engines are available in standard 3000 K, 4000 K and 5000 K (70 CRI) configurations. 80CRI configurations are also available. The D-Series Size 1 has zero uplight and qualifies as a Nighttime Friendly™ product, meaning it is consistent with the LEED® and Green Globes™ criteria for eliminating wasteful uplight.

ELECTRICAL

Light engine configurations consist of high-efficacy LEDs mounted to metal-core circuit boards to maximize heat dissipation and promote long life (up to L81/100,000 hours at 25°C). Class 1 electronic drivers are designed to have a power factor >90%, THD <20%, and an expected life of 100,000 hours with <1% failure rate. Easily serviceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).

STANDARD CONTROLS

The DSX1 LED area luminaire has a number of control options. DSX Size 1, comes standard with 0-10V dimming drivers. Dusk to dawn controls can be utilized via optional NEMA twist-lock photocell receptacles. Integrated motion sensor with on-board photocells feature field-adjustable programming and are suitable for mounting heights up to 40 feet. Control option BL features a bi-level device that allows a second control circuit to switch all light engines to either 30% or 50% light output.

nLIGHT AIR CONTROLS

The DSX1 LED area luminaire is also available with nLight® AIR for the ultimate in wireless control. This powerful controls platform provides out-of-the-box basic motion sensing and photocontrol functionality and is suitable for mounting heights up to 40 feet. Once commissioned using a smartphone and the easy-to-use CLAIRITY app, nLight AIR equipped luminaires can be grouped, resulting in motion sensor and photocell group response without the need for additional equipment. Scheduled dimming with motion sensor over-ride can be achieved when used with the nLight Eclipse. Additional information about nLight Air can be found here.

INSTALLATION

Integral mounting arm allows for fast mounting using Lithonia standard #8 drilling and accommodates pole drilling's from 2.41 to 3.12" on center. The standard "SPA" option for square poles and the "RPA" option for round poles use the #8 drilling. For #5 pole drillings, use SPA5 or RPA5. Additional mountings are available including a wall bracket (WBA) and mast arm (MA) option that allows luminaire attachment to a 2 3/8" horizontal mast arm.

LISTINGS

UL listed to meet U.S. and Canadian standards. UL Listed for wet locations. Light engines are IP66 rated; luminaire is IP66 rated. Rated for -40°C minimum ambient.

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

International Dark-Sky Association (IDA) Fixture Seal of Approval (FSA) is available for all products on this page utilizing 3000K color temperature only.

GOVERNMENT PROCUREMENT

BAA – Buy America(n) Act: Product with the BAA option qualifies as a domestic end product under the Buy American Act as implemented in the FAR and DFARS. Product with the BAA option also qualifies as manufactured in the United States under DOT Buy America regulations.

BABA – Build America Buy America: Product with the BAA option also qualifies as produced in the United States under the definitions of the Build America, Buy America Act.

Please refer to www.acuitybrands.com/buy-american for additional information.

WARRANTY

5-year limited warranty. This is the only warranty provided and no other statements in this specification sheet create any warranty of any kind. All other express and implied warranties are disclaimed. Complete warranty terms located at: www.acuitybrands.com/support/warranty/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Butterfield School Traffic and Parking Study Libertyville, Illinois



Prepared For:

Libertyville School District 70

and

Wold Architects & Engineers

Prepared by:

Eriksson Engineering Associates, Ltd.



145 Commerce Drive, Ste A, Grayslake, IL 60030

847.223.8404

INTRODUCTION

Eriksson Engineering Associates, Ltd. (EEA) was retained by Libertyville School District 70 and Wold Architects & Engineers to conduct a traffic and parking study at Butterfield School in Libertyville, Illinois. The purpose of the study was to observe the existing traffic patterns around the school, to determine the traffic characteristics of the school, to review its parking needs, and to develop roadway and parking recommendations.

EXISTING CONDITIONS

Site Location and Area Land-Uses

Butterfield School is located at 1441 Lake Street in Libertyville, Illinois. The site is bounded by Lake Street to the north, Butterfield Road to the south and west, and powerlines to the east. It is located within a single-family residential neighborhood on the north and east with a golf course to the west. **Figure 1** illustrates the site location and the surrounding land-uses and roads. All figures are at the end of the report.

Bicycle and Pedestrian Routes

Springhaven Drive is a bike route. Lake Street east of Springhaven Drive is also a bike route to Butler Lake. Sidewalks are provided on the south side of Lake Street east of Springhaven Drive. A crosswalk over Lake Street is located west of Springhaven Drive.

Roadway Characteristics

A description of the area roadways accessing the school is provided on **Figure 2** and below:

Lake Street is an east-west major collector roadway with one travel lane in each direction. At the two-way stop-controlled intersection with Butterfield Road, Lake Street has two westbound lanes (one left and one shared thru/right). On-street parking is not permitted. The road has a 25-mph speed limit with a 20-mph school speed zone by the school and is under the authority of the Village of Libertyville.

Butterfield Road is a north-south minor arterial four-lane roadway. At the intersection with Lake Street, Butterfield Road has three lanes in each direction, one left-turn, one thru, and one shared thru/right-turn lane. On-street parking is not permitted. The road has a 40-mph speed limit and is under the authority of Lake County Division of transportation.

Springhaven Drive is a north-south local residential roadway with one travel lane in each direction. On-street parking is not permitted south of Windhaven Road but is available to the north. The road has a speed limit of 25-mph and is under the authority of the Village of Libertyville.

Existing Traffic Volumes

Weekday morning arrival (7:30-9:00 AM) and afternoon dismissal (1:30-4:30 PM) traffic counts were conducted within the study area. Peak-hours of school traffic occurred from 7:45 to 8:45 AM and 2:45 to 3:45 PM on a school weekday which coincides with the school's 8:37 AM start and 3:15 PM dismissal. The existing traffic volumes are shown on **Figure 3A** and included in the **Appendix**. EEA separated the school traffic from the background traffic in **Figures 3B and 3C**. **Figure 4** summarizes the existing pedestrian and bicycle volumes observed. Traffic during the midday early childhood dismissal and arrival periods have minimal traffic with significantly less school traffic during off-peak traffic times.

Student Loading Procedures

Butterfield School procedures are for school buses to enter the west entrance, load their students on the north side of the school, and exit via the east entrance. Parents and staff enter through the east driveway and proceed south to the drop-off/pick-up lanes next to the school or to the parking areas. Both exit via the east entrance.

School Observations

Butterfield School’s arrival and dismissal times for the Kindergarten thru 5th Grades are from 8:45 AM to 2:45 PM. Early Child has two half-day sections from 8:15-10:45 AM and from 12:05 to 2:45 PM. During the morning arrival, traffic conditions were good on the road system. The eastbound and westbound left-turns from Lake Street to Butterfield Road had longer delays waiting for gaps in mainline traffic. On the school grounds, the school bus loading worked well. Student drop-off internally was congested and backed up to but not on Lake Street. School staff indicated that school traffic regularly backs up into Lake Street. This congestion is due in part to staff and parent traffic circulation patterns overlapping. The afternoon dismissal worked well.

SITE TRAFFIC CHARACTERISTICS

The school currently serves 492 children, including 46 early childhood, with 76 staff. The overall student population is stable and not expected to grow or decrease over the next five years. The district administrative offices have 22 staff members and can host up to 30 additional staff for training.

The proposed site plan creates a new parking lot within the bus loading area with 38 spaces including two accessible spaces. These spaces will be reserved for staff parking during the school day since staff arrive before and leave after the school buses. The east parking lot will be partially restriped to help traffic flow in the lot and will lose six parking spaces. The new parking plan will provide 159 total spaces including 7 accessible.

School Trip Generation and Distribution

The site traffic generated by the school was obtained from the existing traffic counts with the results shown in **Table 1**. No growth in the student population is expected over the next few years. There are 13 buses serving the school with 394 students (80%) riding the bus.

**Table 1
Existing School Traffic Volumes**

Scenario	Morning Arrival			Afternoon Dismissal		
	In	Out	Total	In	Out	Total
Existing 492 Students	220	135	355	99	120	219

The directional distribution for school traffic is based on the existing school traffic counts and is shown in **Table 2** and on **Figure 5**. More than half of the school traffic (55%) approaches the site on Butterfield Road and 40% are from the east on Lake Street. The remaining vehicles use Springhaven Drive (5%).

**Table 2
Existing Directional Distribution**

Direction	Percentage
East on Lake Street	40%
South on Butterfield Road	15%
North on Butterfield road	40%
North on Springhaven Drive	5%
Total	100%

Trip Assignment

The existing school trips were redistributed to the area roadways based on the proposed site plan and the directional distribution analysis. The primary change in the traffic pattern is that some staff will now enter at the bus entrance to access the north parking lot instead of the east drive to the east lot. **Figure 6** illustrates the rerouted site traffic generated by the school on the road system.

The total traffic volumes are estimated for a period of five years after the projected opening which is the Year 2030. Data provided by the Chicago Metropolitan Agency for Planning shows a regional growth rate of 0.7% per year on Butterfield Road and 0.6% a year on Lake Street. A copy of the CMAP letter is included in the **Appendix**. The existing traffic volumes adjusted for regional growth (**Figure 7**) were then combined with the site traffic volumes to generate the Year 2030 total traffic volumes which are shown on **Figure 8**.

ANALYSES

Intersection Capacity Analyses

An intersection’s ability to accommodate traffic flow is based on the average control delay experienced by vehicles passing through the intersection. The intersection and individual traffic movements are assigned a level of service (LOS), ranging from A to F based on the control delay created by a traffic signal or stop sign. Control delay consists of the initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. LOS A has the best traffic flow and least delay. LOS E represents saturated or at capacity conditions. LOS F experiences oversaturated conditions and extensive delays. The Highway Capacity Manual definitions for levels of service and the corresponding control delay for both signalized and unsignalized intersections are shown in **Table 3**.

**Table 3
Level of Service Criteria for Intersections**

Level of Service	Description	Control Delay (seconds/vehicle)	
		Signals	Stop Signs
A	Minimal delay and few stops	<10	<10
B	Low delay with more stops	>10-20	>10-15
C	Light congestion	>20-35	>15-25
D	Congestion is more noticeable with longer delays	>35-55	>25-35
E	High delays and number of stops	>55-80	>35-50
F	Unacceptable delays and over capacity	>80	>50

Source: Highway Capacity Manual

Capacity analyses were conducted for each intersection using the micro-simulation computer program SYNCHRO to determine the existing future operating conditions of the access system. These analyses were performed for the school’s peak arrival and dismissal periods. **Table 4** shows the existing and future level of service results for each intersection. Copies of the capacity analysis summaries are included in the **Appendix**.

Butterfield Road at Lake Street

Butterfield Road is an arterial roadway carrying large volumes of traffic. At Lake Street and the golf course, there are stop signs controlling vehicles turning onto or crossing Butterfield Road, During peak hours, delays are high for left-turning traffic onto Butterfield Road resulting in LOS F for those movements. This is not an unusual condition. As a result, most westbound Lake Street traffic is turning right onto Butterfield Road (80 to 88%). The volume of left-turns is low and there is minimal queueing. No improvements are warranted at this intersection.

Lake Street at West Bus Entrance Drive

The west school drive is an entrance only drive that serves school buses today and will accommodate staff and school buses in the future. The additional staff traffic volumes are low, and they typically arrive before or after the school buses. The westbound left turn lane is low and operates at a level of service A. No additional improvements are proposed.

Lake Street at Springhaven Drive

Springhaven Drive is a stop-controlled roadway serving the residential area to the north. During the school arrival and dismissal periods, a crossing guard is present to help students cross Springhaven Drive and Lake Street. The overall level of service of the intersection is good (LOS A or B). Please note the crossing guard creates some delays when they stop traffic to allow students to cross safely. No additional improvements are recommended.

Lake Street at East School Entrance

The intersection of Lake Street and the East School entrance should operate well based on the level of service calculations. However, observations by EEA and staff indicate that the inbound movements internally cause congestion that can back up on to Lake Street. This is due to one inbound lane serving the student loading area on the east side of the school building and is the only entry to the school/administrative parking lot. Staff parking in the lot get caught in the vehicular queue resulting in more queuing.

To reduce this congestion, the following improvements are proposed:

1. Widen the east entrance to two inbound lanes to allow parents to stack in the western lane leaving the eastern lane open for access to the parking lot.
2. Change the parking circulation to a southbound only lane by the east side of the school for morning drop-off and afternoon pick-ups. The other north-south parking aisle is currently one-way outbound forcing loading and parking traffic to mix. Restripe the parking aisle from one-way with angled parking to two-way with perpendicular parking. Staff arriving to park can access the parking by avoiding the loading area.
3. Relocate a portion of the staff parking to the new north lot which reduces the amount of inbound traffic at the east entrance.
4. Move the existing loading area further south in the parking lot to extend the available stacking by another 120 feet.

The above improvements will minimize the on-site congestion and minimize any stacking onto Lake Street.

Parking

The existing school provides 123 standard parking stalls and 4 accessible parking stalls that are shared between Butterfield School and the School District 70 administrative office building on the east side of the site. Discussions with school staff noted that parking is inadequate for after school and evening events and on larger staff training days for the school district office. A parking count was conducted and found 120 vehicles parked at the school.

National parking data is available from the Institute of Transportation Engineers (ITE) in their publication *Parking Generation*, 6th Edition for elementary schools (Land Use Code 520). The peak demand in the ITE data was 0.14 spaces per student (492 students) or 69 spaces.

The proposed site plan creates a new parking lot within the bus loading area with 38 spaces including two accessible spaces. These spaces will be reserved for staff parking during the school day since staff arrive before and leave after the school buses. Signs by the entrance should be posted limiting access to staff and buses only from 7:30 AM to 3:30 PM.

The east parking lot will be partially restriped to help traffic flow in the lot and will lose six parking spaces. The new parking plan will provide 159 total spaces including 7 accessible spaces for an increase of 32 spaces (+25%). The school and administrative office has up to 98 staff on site with 30 trainees for 128 spaces needed.

These 32 additional spaces will help minimize parents parking into the neighborhood to the north for school events.

The Village of Libertyville requires 1 parking space per classroom (36 spaces) and 1 space per 250 square feet of administrative space (62 spaces) for a total of 96 spaces which are exceeded by the existing and proposed supply.

**Table 4
Intersection Level of Service and Delay**

Intersection	Movement	AM Arrival		PM Dismissal	
		2023	2029	2023	2029
Lake Street at Butterfield Road (Two-Way-Stop)	NB Left	B-12.9	B-13.4	A-9.5	A-9.6
	SB Left	B-11.1	B-11.5	B-11.8	B-12.12
	EB Thru/Right	B-14.8	C-15.4	B-11.1	B-11.3
	EB Left	F-100+	F-100+	F-97.6	F-100+
	WB Thru/Right	D-27.0	D-31.8	C-17.2	C-18.2
	WB Left	F-100+	F-100+	F-100+	F-100+
Lake Street at Springhaven Drive	SB Approach	B-12.5	B-11.6	B-11.5	B-10.5
	EB Left	A-7.7	A-7.5	A-7.9	A-7.7
Lake Street at West School Drive	WB Left	A-7.9	A-7.9	A-7.4	A-7.5
Lake Street at East School Drive (Two-Way Stop)	WB Left	A-8.3	A-8.3	A-7.6	A-7.6
	NB Left/Right	B-14.7	B-14.9	B-11.2	B-11.4

Vehicle Queuing

The existing loading area for students is located at the northern half of the east building face. From Lake Street, this provides 420 feet of stacking space which can accommodate 21 vehicles. Because of the single inbound lane, some of the queued vehicles are school/administrative staff. In the future, the loading zone will be moved further south in the lot for 540 feet or 27 vehicles of stacking capacity. This additional storage along with providing a separate travel path for staff will minimize any vehicles backing up on Lake Street.

SUMMARY

This report summarizes the results of the traffic and parking study for the expansion of Butterfield School in Libertyville, Illinois. The following recommendations were developed:

1. Butterfield School is not expected to increase student population or vehicular volumes during the peak school hours and will not adversely change the level-of-service of study area intersections.
2. A 36-space parking lot on the north side of the site will serve staff during the school day and be available for event parking at other times. Signs by the entrance should be changed to staff and buses only from 7:30 AM to 3:30 PM.
3. The east parking lot will be restriped to move the student loading area further south to increase the on-site vehicle storage. It will also create a two-way parking aisle to allow staff/trainees to access parking without going thru the drop-off area.
4. The east driveway will be widened to two inbound lanes to accommodate vehicular queuing for the student loading in one lane and a bypass lane to the school's parking lot. This should decrease queuing when staff can avoid the student loading area.
5. Parking counts at the school show that 120 vehicles are parked and will not increase in the future.
6. The new parking plan will provide 159 total spaces including 7 accessible spaces for an increase of 32 spaces (+25%).

Trip Assignment

The existing school trips were redistributed to the area roadways based on the proposed site plan and the directional distribution analysis. The primary change in the traffic pattern is that some staff will now enter at the bus entrance to access the north parking lot instead of the east drive to the east lot. **Figure 6** illustrates the rerouted site traffic generated by the school on the road system.

The total traffic volumes are estimated for a period of five years after the projected opening which is the Year 2030. Data provided by the Chicago Metropolitan Agency for Planning shows a regional growth rate of 0.7% per year on Butterfield Road and 0.6% a year on Lake Street. A copy of the CMAP letter is included in the **Appendix**. The existing traffic volumes adjusted for regional growth (**Figure 7**) were then combined with the site traffic volumes to generate the Year 2030 total traffic volumes which are shown on **Figure 8**.

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D	Congestion is more noticeable with longer delays	>35-55	>25-35
E	High delays and number of stops	>55-80	>35-50
F	Unacceptable delays and over capacity	>80	>50

Source: Highway Capacity Manual

Capacity analyses were conducted for each intersection using the micro-simulation computer program SYNCHRO to determine the existing future operating conditions of the access system. These analyses were performed for the school’s peak arrival and dismissal periods. **Table 4** shows the existing and future level of service results for each intersection. Copies of the capacity analysis summaries are included in the **Appendix**.

Butterfield Road at Lake Street

Butterfield Road is an arterial roadway carrying large volumes of traffic. At Lake Street and the golf course, there are stop signs controlling vehicles turning onto or crossing Butterfield Road, During peak hours, delays are high for left-turning traffic onto Butterfield Road resulting in LOS F for those movements. This is not an unusual condition. As a result, most westbound Lake Street traffic is turning right onto Butterfield Road (80 to 88%). The volume of left-turns is low and there is minimal queueing. No improvements are warranted at this intersection.

Lake Street at West Bus Entrance Drive

The west school drive is an entrance only drive that serves school buses today and will accommodate staff and school buses in the future. The additional staff traffic volumes are low, and they typically arrive before or after the school buses. The westbound left turn lane is low and operates at a level of service A. No additional improvements are proposed.

Lake Street at Springhaven Drive

Springhaven Drive is a stop-controlled roadway serving the residential area to the north. During the school arrival and dismissal periods, a crossing guard is present to help students cross Springhaven Drive and Lake Street. The overall level of service of the intersection is good (LOS A or B). Please note the crossing guard creates some delays when they stop traffic to allow students to cross safely. No additional improvements are recommended.

Lake Street at East School Entrance

The intersection of Lake Street and the East School entrance should operate well based on the level of service calculations. However, observations by EEA and staff indicate that the inbound movements internally cause congestion that can back up on to Lake Street. This is due to one inbound lane serving the student loading area on the east side of the school building and is the only entry to the school/administrative parking lot. Staff parking in the lot get caught in the vehicular queue resulting in more queuing.

To reduce this congestion, the following improvements are proposed:

1. Widen the east entrance to two inbound lanes to allow parents to stack in the western lane leaving the eastern lane open for access to the parking lot.
2. Change the parking circulation to a southbound only lane by the east side of the school for morning drop-off and afternoon pick-ups. The other north-south parking aisle is currently one-way outbound forcing loading and parking traffic to mix. Restripe the parking aisle from one-way with angled parking to two-way with perpendicular parking. Staff arriving to park can access the parking by avoiding the loading area.
3. Relocate a portion of the staff parking to the new north lot which reduces the amount of inbound traffic at the east entrance.
4. Move the existing loading area further south in the parking lot to extend the available stacking by another 120 feet.

The above improvements will minimize the on-site congestion and minimize any stacking onto Lake Street.

Parking

The existing school provides 123 standard parking stalls and 4 accessible parking stalls that are shared between Butterfield School and the School District 70 administrative office building on the east side of the site. Discussions with school staff noted that parking is inadequate for after school and evening events and on larger staff training days for the school district office. A parking count was conducted and found 120 vehicles parked at the school.

National parking data is available from the Institute of Transportation Engineers (ITE) in their publication *Parking Generation*, 6th Edition for elementary schools (Land Use Code 520). The peak demand in the ITE data was 0.14 spaces per student (492 students) or 69 spaces.

The proposed site plan creates a new parking lot within the bus loading area with 38 spaces including two accessible spaces. These spaces will be reserved for staff parking during the school day since staff arrive before and leave after the school buses. Signs by the entrance should be posted limiting access to staff and buses only from 7:30 AM to 3:30 PM.

The east parking lot will be partially restriped to help traffic flow in the lot and will lose six parking spaces. The new parking plan will provide 159 total spaces including 7 accessible spaces for an increase of 32 spaces (+25%). The school and administrative office has up to 98 staff on site with 30 trainees for 128 spaces needed.

These 32 additional spaces will help minimize parents parking into the neighborhood to the north for school events.

The Village of Libertyville requires 1 parking space per classroom (36 spaces) and 1 space per 250 square feet of administrative space (62 spaces) for a total of 96 spaces which are exceeded by the existing and proposed supply.

**Table 4
Intersection Level of Service and Delay**

Intersection	Movement	AM Arrival		PM Dismissal	
		2023	2029	2023	2029
Lake Street at Butterfield Road (Two-Way-Stop)	NB Left	B-12.9	B-13.4	A-9.5	A-9.6
	SB Left	B-11.1	B-11.5	B-11.8	B-12.12
	EB Thru/Right	B-14.8	C-15.4	B-11.1	B-11.3
	EB Left	F-100+	F-100+	F-97.6	F-100+
	WB Thru/Right	D-27.0	D-31.8	C-17.2	C-18.2
	WB Left	F-100+	F-100+	F-100+	F-100+
Lake Street at Springhaven Drive	SB Approach	B-12.5	B-11.6	B-11.5	B-10.5
	EB Left	A-7.7	A-7.5	A-7.9	A-7.7
Lake Street at West School Drive	WB Left	A-7.9	A-7.9	A-7.4	A-7.5
Lake Street at East School Drive (Two-Way Stop)	WB Left	A-8.3	A-8.3	A-7.6	A-7.6
	NB Left/Right	B-14.7	B-14.9	B-11.2	B-11.4

Vehicle Queuing

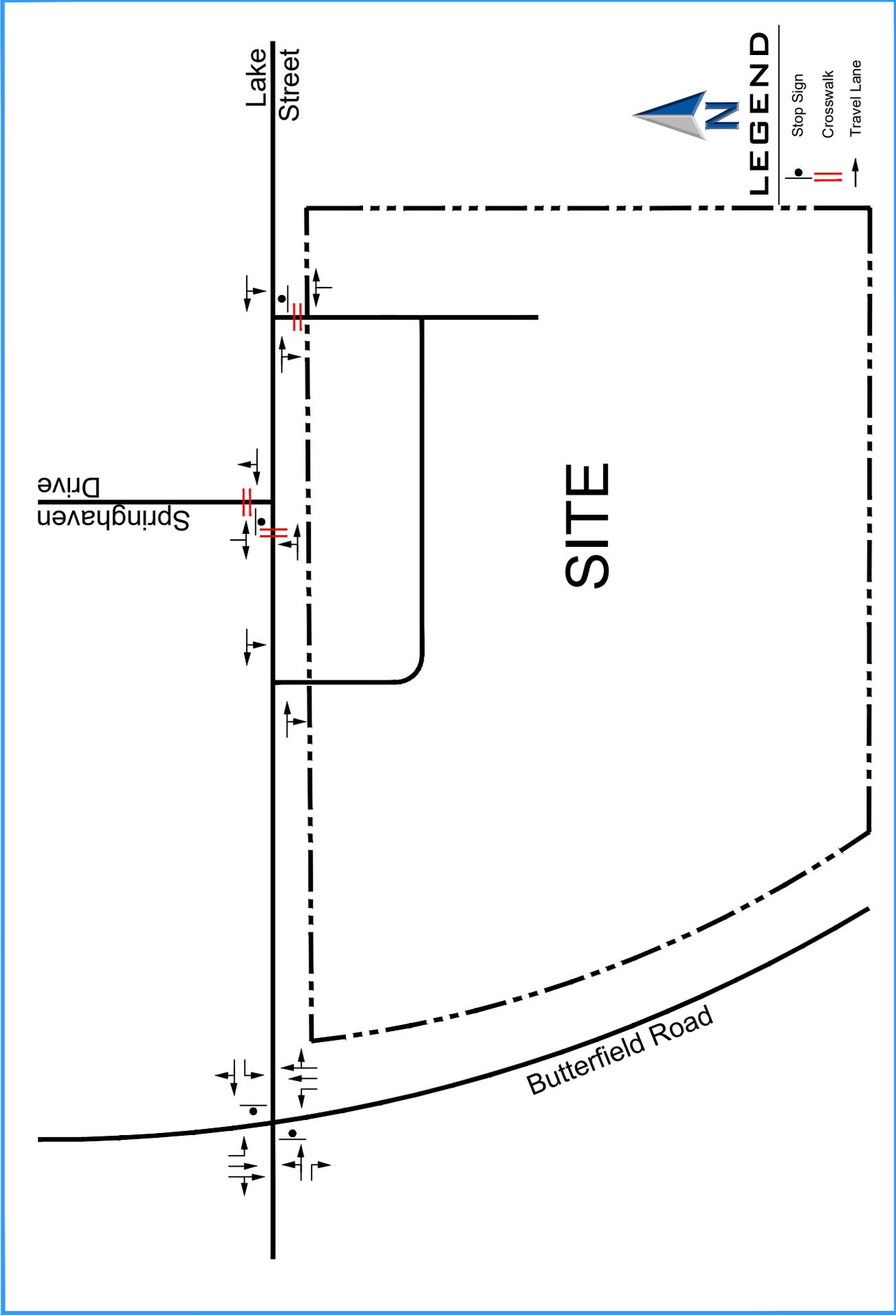
The existing loading area for students is located at the northern half of the east building face. From Lake Street, this provides 420 feet of stacking space which can accommodate 21 vehicles. Because of the single inbound lane, some of the queued vehicles are school/administrative staff. In the future, the loading zone will be moved further south in the lot for 540 feet or 27 vehicles of stacking capacity. This additional storage along with providing a separate travel path for staff will minimize any vehicles backing up on Lake Street.

SUMMARY

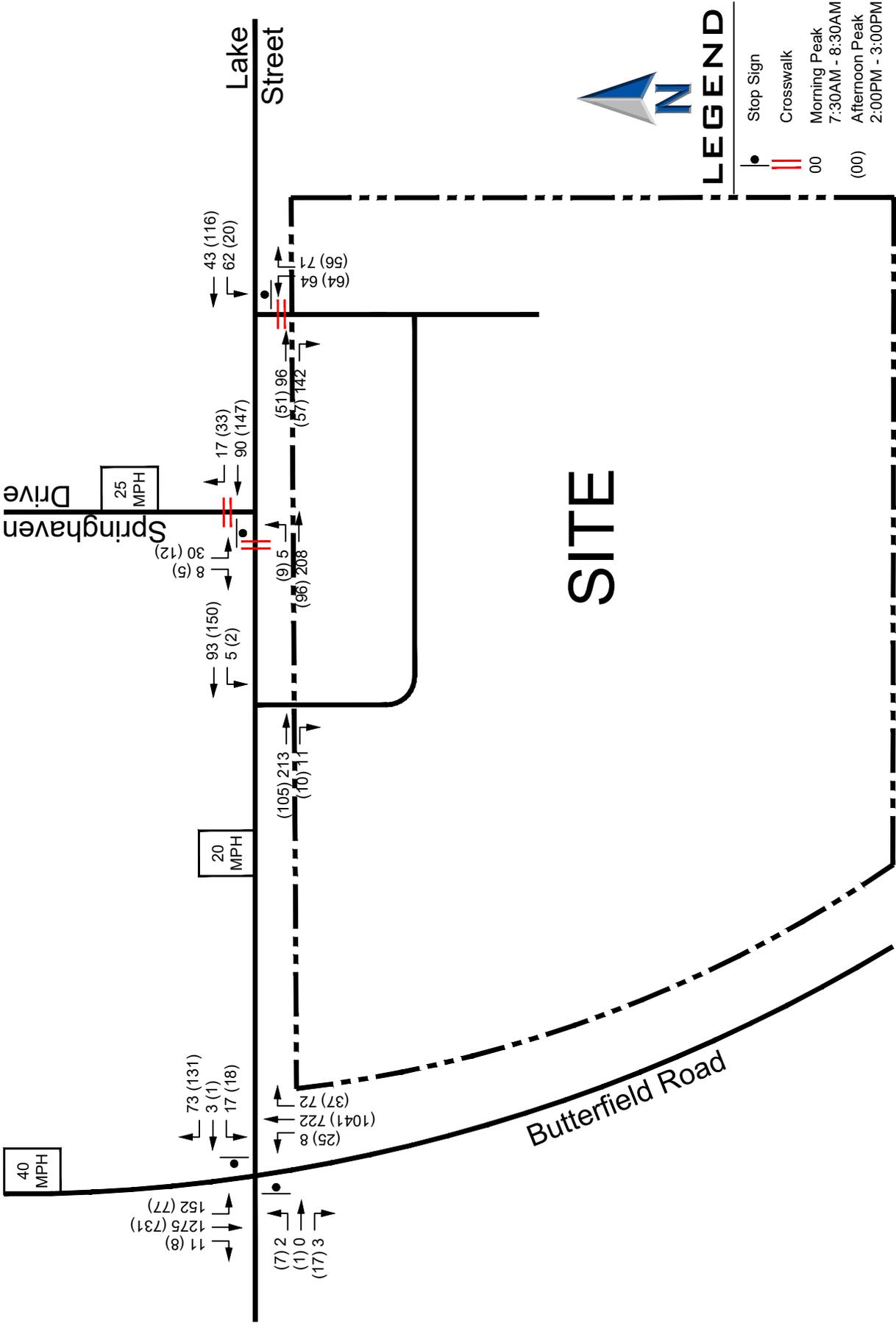
This report summarizes the results of the traffic and parking study for the expansion of Butterfield School in Libertyville, Illinois. The following recommendations were developed:

1. Butterfield School is not expected to increase student population or vehicular volumes during the peak school hours and will not adversely change the level-of-service of study area intersections.
2. A 36-space parking lot on the north side of the site will serve staff during the school day and be available for event parking at other times. Signs by the entrance should be changed to staff and buses only from 7:30 AM to 3:30 PM.
3. The east parking lot will be restriped to move the student loading area further south to increase the on-site vehicle storage. It will also create a two-way parking aisle to allow staff/trainees to access parking without going thru the drop-off area.
4. The east driveway will be widened to two inbound lanes to accommodate vehicular queuing for the student loading in one lane and a bypass lane to the school's parking lot. This should decrease queuing when staff can avoid the student loading area.
5. Parking counts at the school show that 120 vehicles are parked and will not increase in the future.
6. The new parking plan will provide 159 total spaces including 7 accessible spaces for an increase of 32 spaces (+25%).



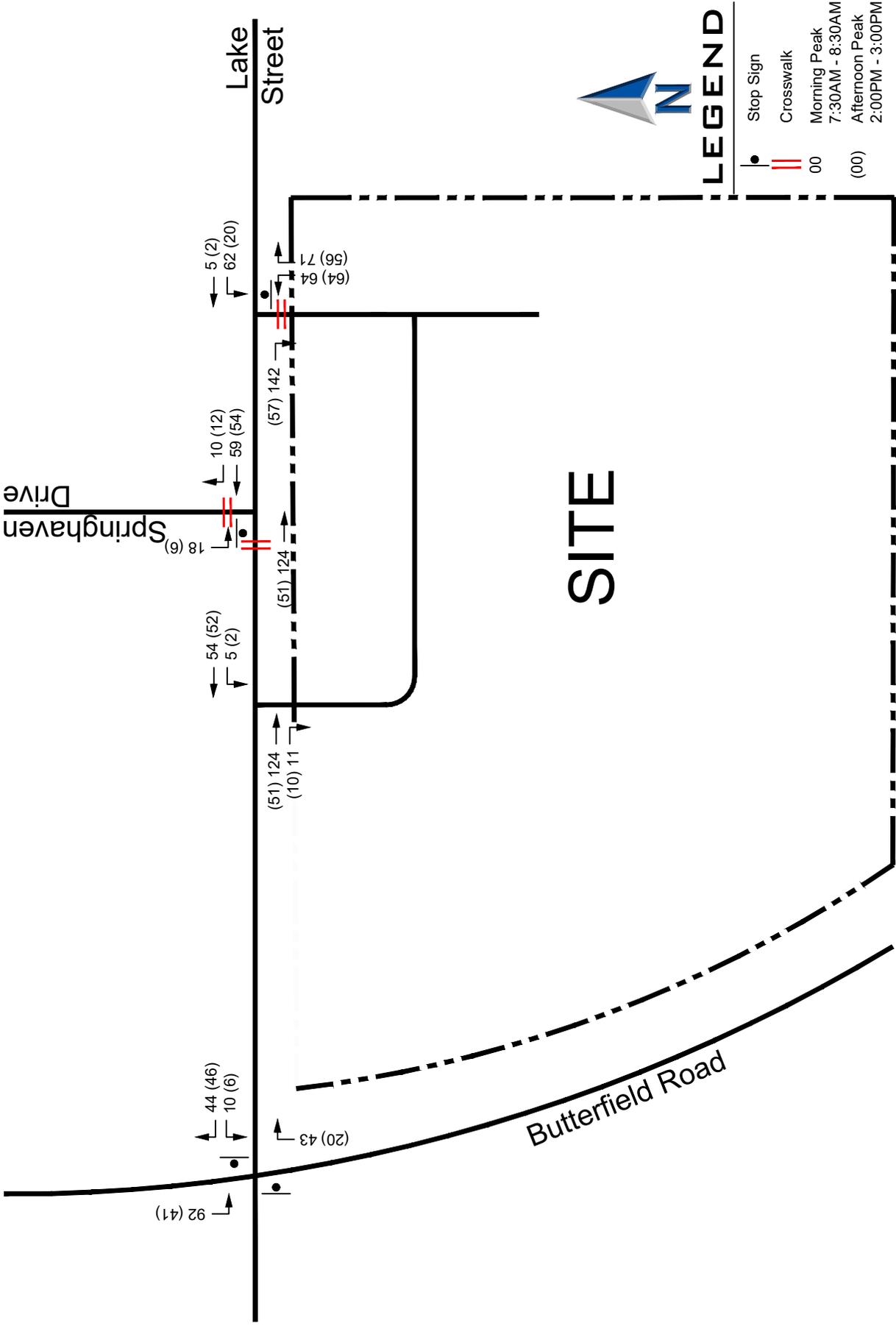


Existing Roadways Geometrics
Figure 2



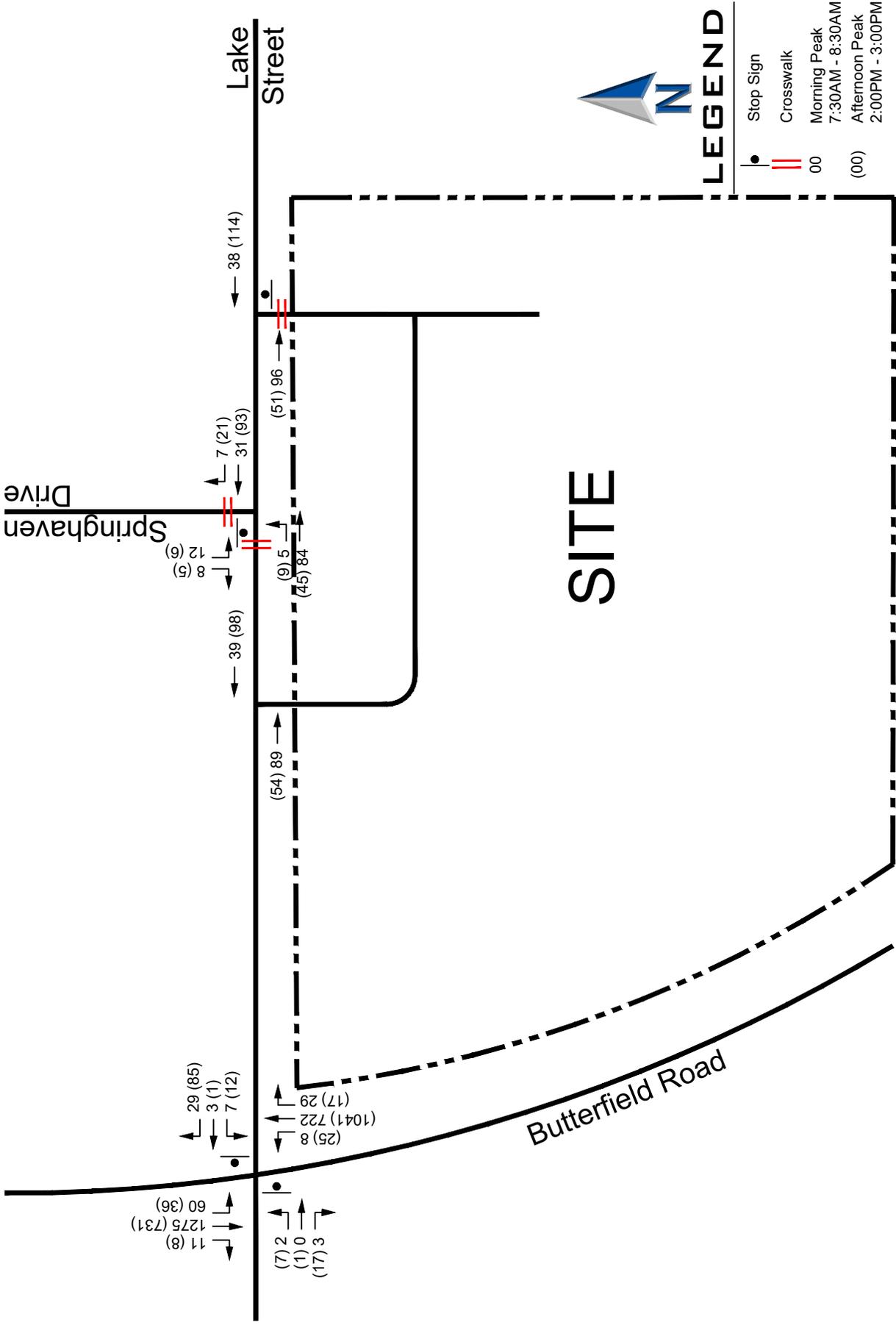
Existing Traffic Volumes

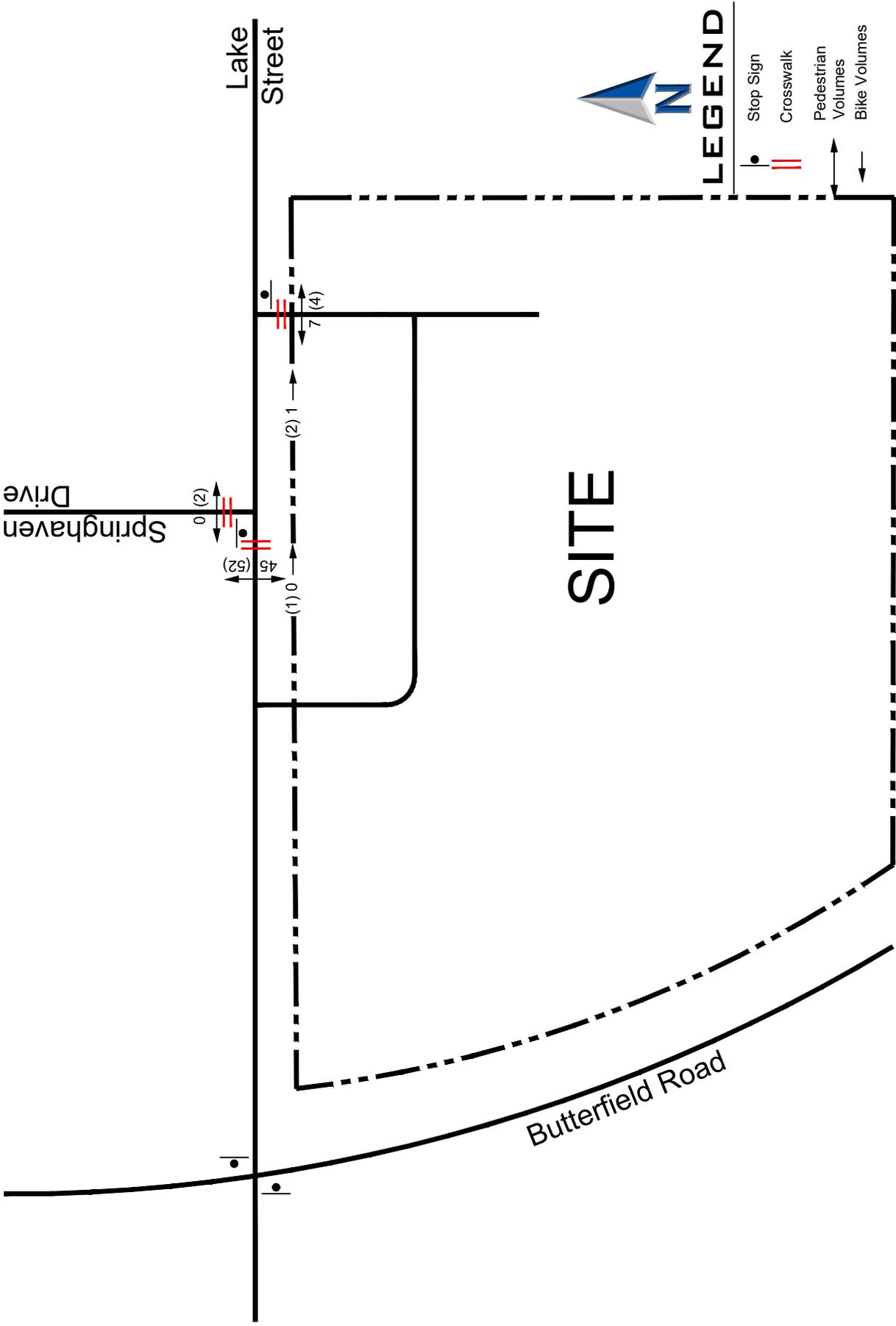
Figure 3A



Existing School Traffic Volumes

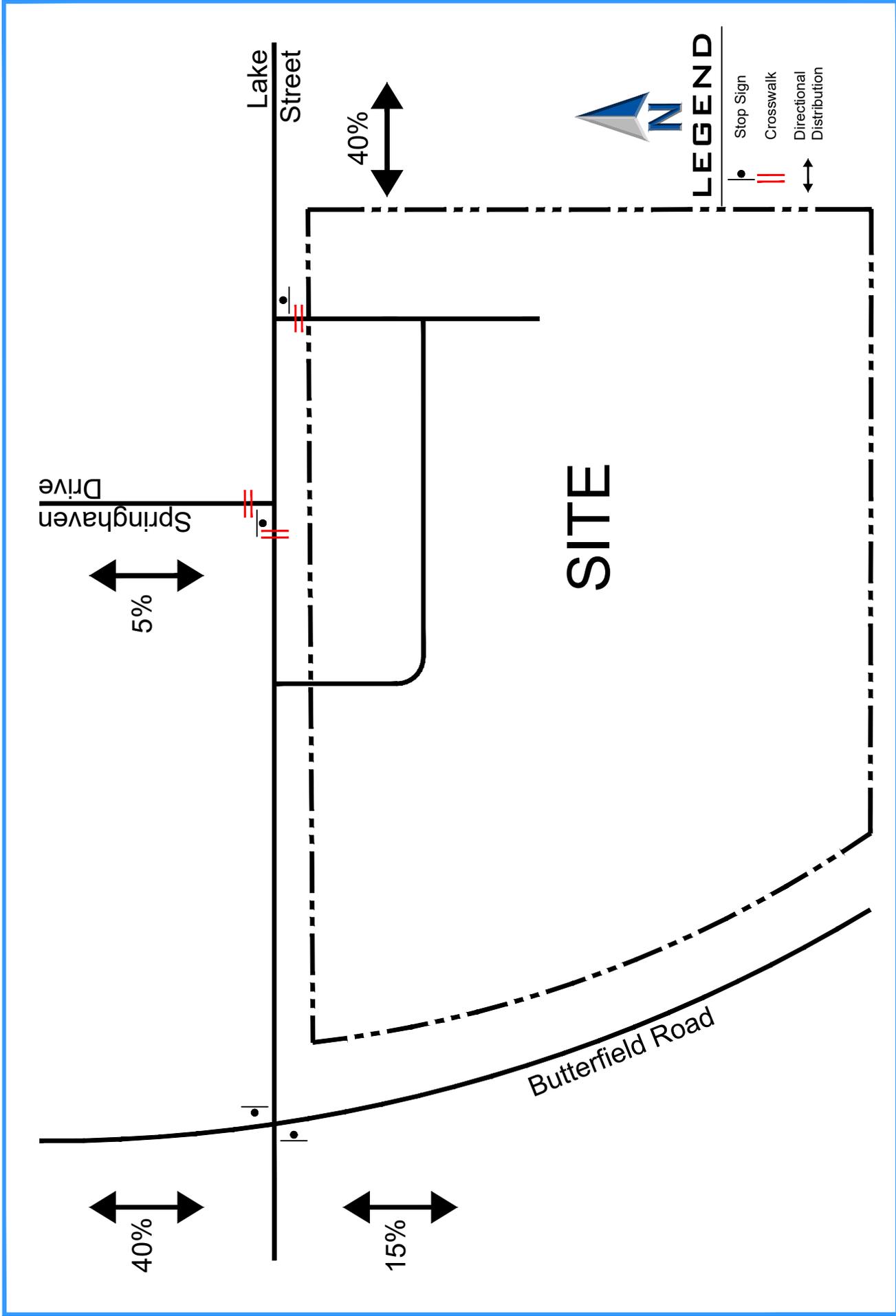
Figure 3B





Year 2023 Pedestrian and Bike Volumes

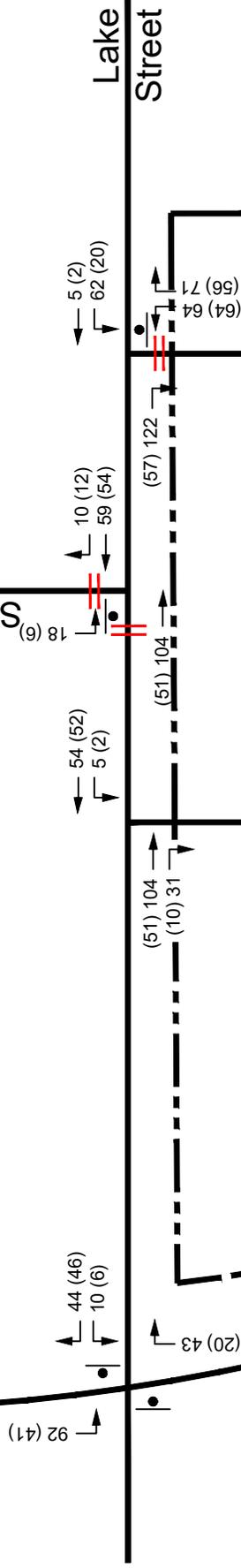
Figure 4



Directional Distribution

Figure 5

Springhaven Drive

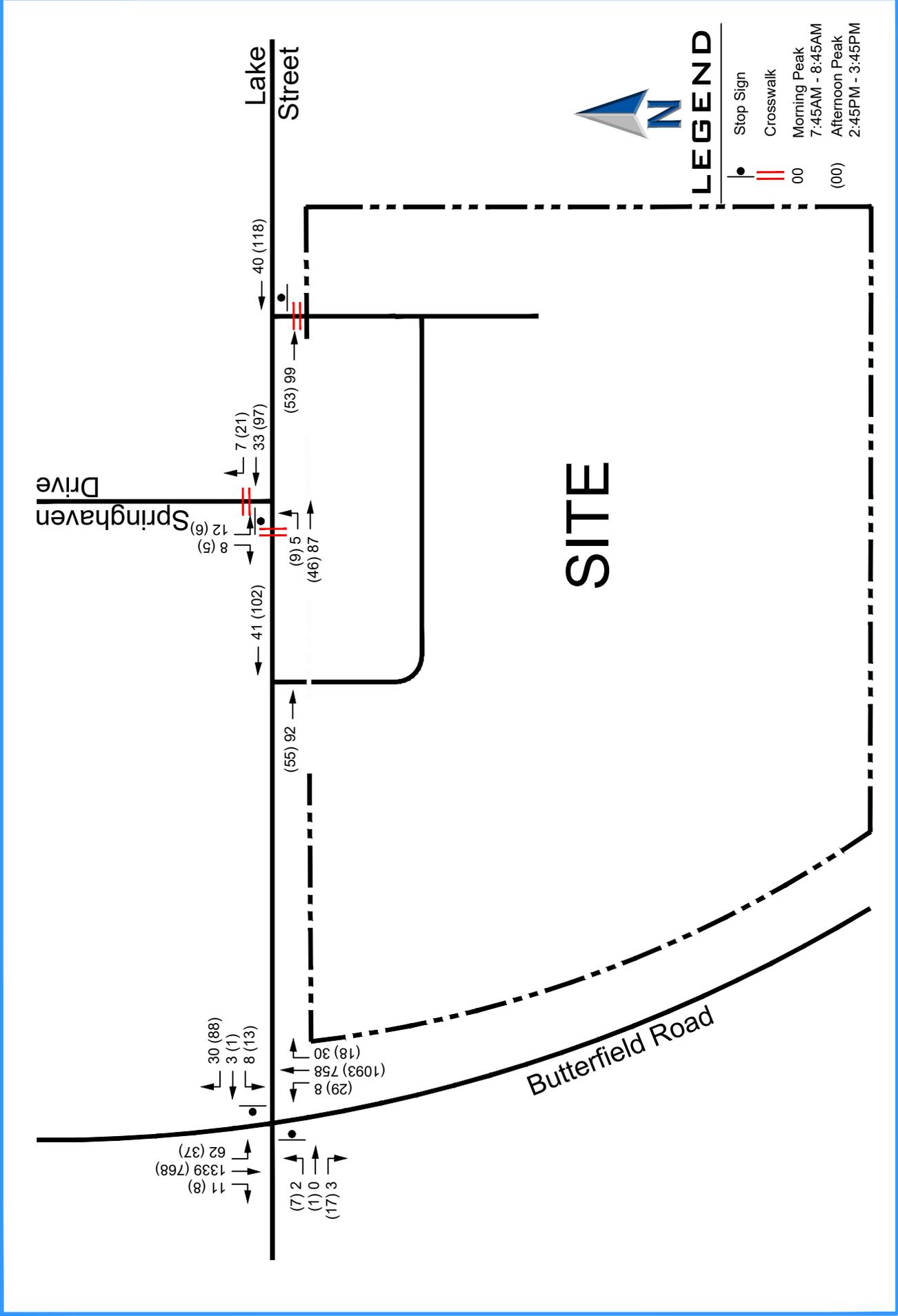


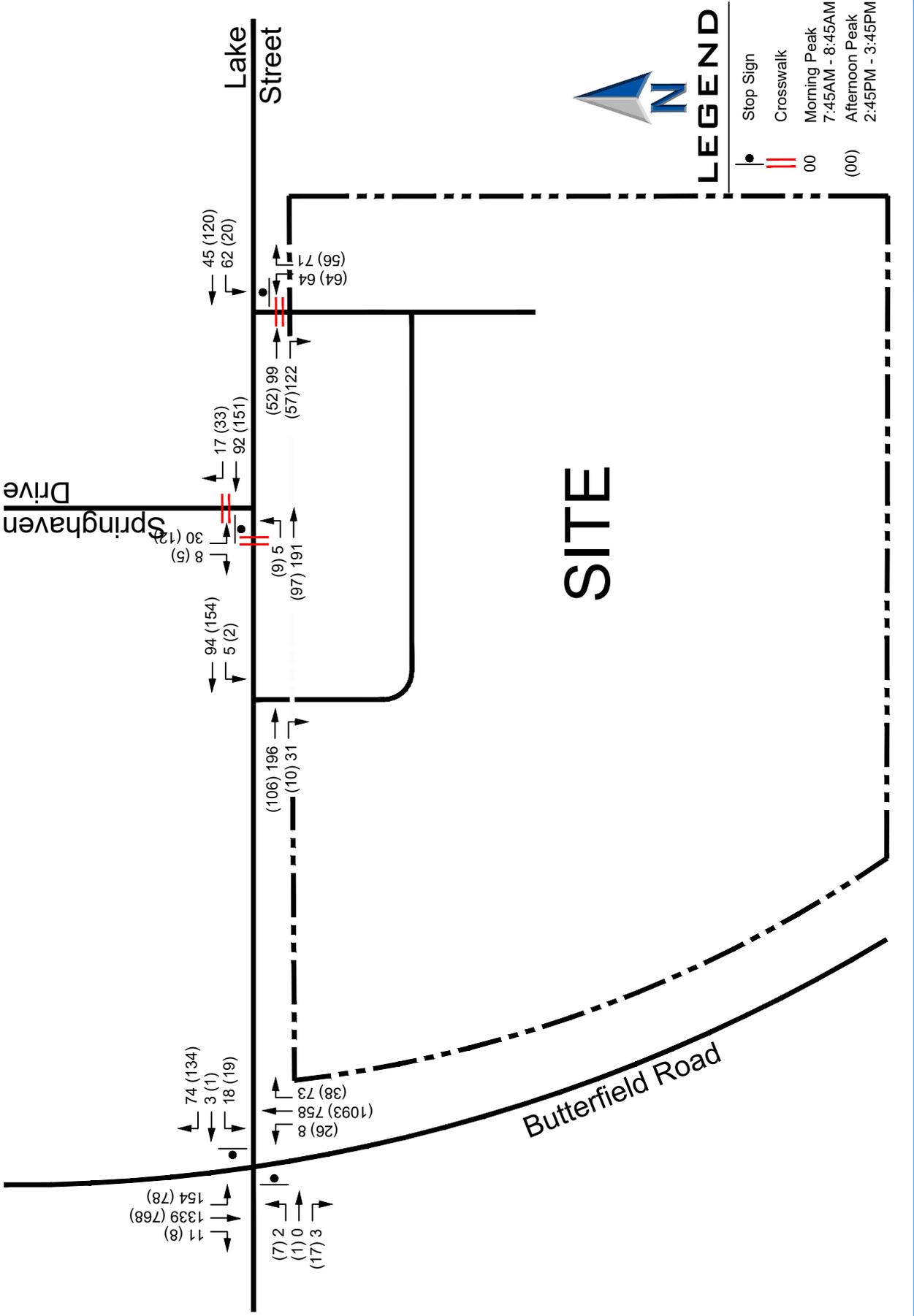
SITE



Rerouted School Traffic Volumes
Figure 6

Year 2030 Base Traffic Volumes
Figure 7





Year 2030 Projected Total Traffic Volumes

Figure 8

Appendix

- **Existing 2023 Traffic Counts**
- **CMAP Projection Letter**
- **Intersection Capacity Analyses**
 - **2023 Existing Conditions**
 - **2030 Total Traffic Volumes**



Butterfield Road at Lake Street

Libertyville, Illinois																		
Begin Time	Butterfield Road Southbound				Lake Street Westbound				Butterfield Road Northbound				Lake Street Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Through	Left Turn		Right Turn	Through	Left Turn		Right Turn	Through	Left Turn		Right Turn	Through	Left Turn			
Monday May 22, 2023																		
7:00 AM	10	184	20		8	0	0		4	137	15		0	1	0	379	2149	0.82
7:15 AM	12	287	28		8	0	0		6	146	14		0	0	0	501	2302	0.88
7:30 AM	7	393	34		10	0	0		15	191	7		0	0	0	657	2338	0.89
7:45 AM	1	328	43		25	0	4		22	187	1		0	0	1	612		
8:00 AM	3	258	49		23	1	9		25	164	0		0	0	0	532		
8:15 AM	0	296	26		15	2	4		10	180	0		3	0	1	537		
Total	33	1746	200		89	3	17		82	1005	37		3	1	2	2338		
7:30-8:30 AM	11	1275	152		73	3	17		72	722	8		3	0	2			
2:00-3:00 PM																		
1:45 PM	2	192	13		11	1	2		3	170	4		8	0	4	410	1984	0.90
2:00 PM	2	193	21		33	0	3		8	286	3		3	0	1	553	2093	0.95
2:15 PM	1	184	21		31	0	1		13	237	7		4	1	1	501	2082	0.96
2:30 PM	4	166	23		19	0	4		13	273	8		7	0	3	520		
2:45 PM	1	188	11		48	1	10		3	245	7		3	0	2	519		
3:00 PM	6	217	10		23	1	7		6	266	2		1	0	3	542		
Total	16	1140	99		165	3	27		46	1477	31		26	1	14	2093		
2:00-3:00 PM	8	731	76		131	1	18		37	1041	25		17	1	7			



Lake Street at West School Entrance

Libertyville, Illinois									
Begin Time	Lake Street Westbound		East Drive Northbound		Lake Street Eastbound		15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Through	Left Turn	Inbound Only		Right Turn	Through			
Monday May 22, 2023									
7:00 AM	8	1			0	25	34	229	0.60
7:15 AM	8	0			0	33	41	303	0.70
7:30 AM	10	0			1	48	59	320	0.74
7:45 AM	28	3			8	56	95		
8:00 AM	31	2			2	73	108		
8:15 AM	22	0			0	36	58		
Total	107	6			11	271			
7:30-8:30 AM	91	5			11	213	320		
1:45 PM	14	0			2	14	30	230	0.86
2:00 PM	37	1			4	25	67	266	0.99
2:15 PM	32	1			4	30	67	249	0.93
2:30 PM	29	0			2	35	66		
2:45 PM	52	0			0	14	66		
3:00 PM	34	0			2	14	50		
Total	198	2			14	132			
2:00-3:00 PM	150	2			10	104	266		



Lake Street at East School Entrance

Libertyville, Illinois												
Begin Time	Lake Street Westbound			West Drive Northbound			Lake Street Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Through	Left Turn	Right Turn	Right Turn	Left Turn	Right Turn	Right Turn	Through				
									Through			
Monday May 22, 2023												
7:00 AM	10	0	3	2	0	8	22	45	305	0.57		
7:15 AM	10	0	3	0	0	15	21	49	448	0.60		
7:30 AM	9	9	0	5	5	29	25	77	476	0.63		
7:45 AM	13	25	17	17	17	49	13	134				
8:00 AM	10	25	41	28	28	53	31	188				
8:15 AM	9	3	13	14	14	11	27	77				
Total	61	62	77	66	66	165	139					
7:30-8:30 AM	41	62	71	64	64	142	96	476				
1:45 PM	13	3	2	4	4	4	16	42	275	0.83		
2:00 PM	38	2	2	4	4	7	15	68	362	0.70		
2:15 PM	31	6	6	6	6	18	15	82	352	0.68		
2:30 PM	20	7	13	14	14	19	10	83				
2:45 PM	25	5	35	40	40	13	11	129				
3:00 PM	20	0	10	14	14	1	13	58				
Total	147	23	68	82	82	62	80					
2:00-3:00 PM	114	20	56	64	64	57	51	362				



Lake Street at Springhaven Drive

Libertyville, IL

Begin Time	Springhaven Drive Southbound				Lake Street Westbound			Lake Street Eastbound			15 Minute Totals	60 Minute Totals	Peak Hour Factor
	Right Turn	Left Turn	Through	Right Turn	Through	Left Turn	Through	Left Turn	Through				
										Turn			
Monday May 22, 2023													
7:00 AM	0	5	9	2	9	0	25	0	41	253	0.66		
7:15 AM	0	3	8	2	8	0	33	0	46	337	0.67		
7:30 AM	0	9	10	3	10	1	47	1	70	354	0.71		
7:45 AM	4	9	27	4	27	2	50	2	96				
8:00 AM	3	8	30	8	30	0	76	0	125				
8:15 AM	1	4	21	2	21	2	33	2	63				
Total	8	38	105	21	88	5	264	10	354				
7:30-8:30 AM	8	30	88	17	88	5	206	9	301				
2:00-3:00 PM													
1:45 PM	0	3	13	3	13	0	15	0	34	249	0.86		
2:00 PM	2	2	36	7	36	4	21	4	72	301	0.88		
2:15 PM	0	3	33	5	33	2	28	2	71	280	0.81		
2:30 PM	1	4	29	5	29	1	32	1	72				
2:45 PM	2	3	49	16	49	2	14	2	86				
3:00 PM	2	3	32	2	32	1	11	1	51				
Total	7	18	192	38	147	10	121	9	301				
2:00-3:00 PM	5	12	147	33	147	9	95	9	301				



Chicago Metropolitan Agency for Planning

433 West Van Buren Street
Suite 450
Chicago, IL 60607

312-454-0400
cmap.illinois.gov

May 17, 2023

Stephen B. Corcoran, PE PTOE
Director of Traffic Engineering
Eriksson Engineering Associates, Ltd.
145 Commerce Drive
Suite A
Grayslake, IL 60030

Subject: Butterfield and Highland Schools (SD 70)
SD 70

Dear Mr. Corcoran:

In response to a request made on your behalf and dated May 16, 2023, we have developed year 2050 average daily traffic (ADT) projections for the subject location.

ROAD SEGMENT	Current ADT	Year 2050 ADT	
Butterfield Rd, @ Lake St	23,100	28,300	4.4%/ 6 yrs
Lake St east of Butterfield Rd	3,150	3,700	3.4%/ 6 yrs
Garfield Ave north of Rockland Rd	3,600	4,220	3.3%/6 yrs
Rockland Rd from Garfield Ave to Stewart Ave	3,100	3,640	3.4%/6 yrs

Traffic projections are developed using existing ADT data provided in the request letter and the results from the October 2022 CMAP Travel Demand Analysis. The regional travel model uses CMAP 2050 socioeconomic projections and assumes the implementation of the ON TO 2050 Comprehensive Regional Plan for the Northeastern Illinois area.

If you have any questions, please call me at (312) 386-8806.

Sincerely,

Jose Rodriguez, PTP, AICP
Senior Planner, Research & Analysis

cc: SD 70; Rios (IDOT)
2023_TrafficForecasts\Libertyville\la-20-23\la-20-23.docx

TRAFFIC FORECAST RECORD

Record Number: la-20-23

Type of Report: Projection

Year Sought: 2050

Analyst: JAR

Organization requesting forecast: Eriksson Engineering Associates

Contact: Stephen B. Corcoran, P.E., PTOE

Email or Phone: scorcoran@eea-ltd.com

Sponsor: SD 70

Date request was received: May 16, 2023

Date that response was emailed: May 17, 2023

Facility Location: Butterfield and Highland Schools (SD 70)

Municipality: Libertyville

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↗		↖	↗	
Traffic Vol, veh/h	2	0	3	17	3	73	8	722	72	152	1275	11
Future Vol, veh/h	2	0	3	17	3	73	8	722	72	152	1275	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	160	-	-	155	-	-	255	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	3	19	3	82	9	811	81	171	1433	12

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2206	2691	723	1929	2657	446	1445	0	0	892	0	0
Stage 1	1781	1781	-	870	870	-	-	-	-	-	-	-
Stage 2	425	910	-	1059	1787	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	25	21	369	40	22	560	465	-	-	756	-	-
Stage 1	85	133	-	313	367	-	-	-	-	-	-	-
Stage 2	578	352	-	240	132	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	15	16	369	32	17	560	465	-	-	756	-	-
Mov Cap-2 Maneuver	15	16	-	32	17	-	-	-	-	-	-	-
Stage 1	83	103	-	307	360	-	-	-	-	-	-	-
Stage 2	479	345	-	184	102	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	122.2		62.8		0.1		1.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	465	-	-	15	369	32	248	756	-	-
HCM Lane V/C Ratio	0.019	-	-	0.15	0.009	0.597	0.344	0.226	-	-
HCM Control Delay (s)	12.9	-	-	283.4	14.8	222.9	27	11.1	-	-
HCM Lane LOS	B	-	-	F	B	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	0	2	1.5	0.9	-	-

HCM 6th TWSC
 3: West School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	0.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	213	11	5	93	0	1
Future Vol, veh/h	213	11	5	93	0	1
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	288	15	7	126	0	1

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	303	0	- 296
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	- 6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	- 3.318
Pot Cap-1 Maneuver	-	-	1258	-	0 743
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1258	-	- 743
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	9.9
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	743	-	-	1258	-
HCM Lane V/C Ratio	0.002	-	-	0.005	-
HCM Control Delay (s)	9.9	-	-	7.9	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	0	-	-	0	-

HCM 6th TWSC
5: East School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	5.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	96	142	62	43	64	71
Future Vol, veh/h	96	142	62	43	64	71
Conflicting Peds, #/hr	0	2	2	0	5	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	152	225	98	68	102	113

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	379	0	536
Stage 1	-	-	-	-	267
Stage 2	-	-	-	-	269
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1179	-	505
Stage 1	-	-	-	-	778
Stage 2	-	-	-	-	776
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1177	-	458
Mov Cap-2 Maneuver	-	-	-	-	458
Stage 1	-	-	-	-	776
Stage 2	-	-	-	-	705

Approach	EB	WB	NB
HCM Control Delay, s	0	4.9	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	582	-	-	1177	-
HCM Lane V/C Ratio	0.368	-	-	0.084	-
HCM Control Delay (s)	14.7	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0.3	-

HCM 6th TWSC
 9: Lake Street & Springhaven Drive

03/25/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	5	208	90	17	30	8
Future Vol, veh/h	5	208	90	17	30	8
Conflicting Peds, #/hr	45	0	0	45	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	293	127	24	42	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	196	0	-	0	491 184
Stage 1	-	-	-	-	184 -
Stage 2	-	-	-	-	307 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1377	-	-	-	537 858
Stage 1	-	-	-	-	848 -
Stage 2	-	-	-	-	746 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1318	-	-	-	489 821
Mov Cap-2 Maneuver	-	-	-	-	489 -
Stage 1	-	-	-	-	806 -
Stage 2	-	-	-	-	714 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1318	-	-	-	535
HCM Lane V/C Ratio	0.005	-	-	-	0.1
HCM Control Delay (s)	7.7	0	-	-	12.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	3.1											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↗		↖	↗	
Traffic Vol, veh/h	7	1	17	18	1	131	25	1041	37	77	731	8
Future Vol, veh/h	7	1	17	18	1	131	25	1041	37	77	731	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	160	-	-	155	-	-	255	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	1	18	19	1	138	26	1096	39	81	769	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1536	2122	389	1715	2107	568	777	0	0	1135	0	0
Stage 1	935	935	-	1168	1168	-	-	-	-	-	-	-
Stage 2	601	1187	-	547	939	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	79	50	610	58	51	466	835	-	-	611	-	-
Stage 1	285	342	-	206	266	-	-	-	-	-	-	-
Stage 2	454	260	-	489	341	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	48	42	610	48	43	466	835	-	-	611	-	-
Mov Cap-2 Maneuver	48	42	-	48	43	-	-	-	-	-	-	-
Stage 1	276	297	-	200	258	-	-	-	-	-	-	-
Stage 2	308	252	-	410	296	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	38.8		29.8		0.2		1.1	
HCM LOS	E		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	835	-	-	47	610	48	434	611	-	-
HCM Lane V/C Ratio	0.032	-	-	0.179	0.029	0.395	0.32	0.133	-	-
HCM Control Delay (s)	9.5	-	-	97.6	11.1	122.3	17.2	11.8	-	-
HCM Lane LOS	A	-	-	F	B	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.6	0.1	1.4	1.4	0.5	-	-

HCM 6th TWSC
3: West School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	105	10	2	150	0	0
Future Vol, veh/h	105	10	2	150	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	106	10	2	152	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	116	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-
Pot Cap-1 Maneuver	-	-	1473	-	0
Stage 1	-	-	-	-	0
Stage 2	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1473	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1473	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.4	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th TWSC
5: East School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	51	57	20	116	64	56
Future Vol, veh/h	51	57	20	116	64	56
Conflicting Peds, #/hr	0	1	1	0	3	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	73	81	29	166	91	80

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	155	0	342
Stage 1	-	-	-	-	115
Stage 2	-	-	-	-	227
Critical Hdwy	-	-	4.12	-	6.42
Critical Hdwy Stg 1	-	-	-	-	5.42
Critical Hdwy Stg 2	-	-	-	-	5.42
Follow-up Hdwy	-	-	2.218	-	3.518
Pot Cap-1 Maneuver	-	-	1425	-	654
Stage 1	-	-	-	-	910
Stage 2	-	-	-	-	811
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1424	-	637
Mov Cap-2 Maneuver	-	-	-	-	637
Stage 1	-	-	-	-	909
Stage 2	-	-	-	-	791

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	11.2
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	749	-	-	1424	-
HCM Lane V/C Ratio	0.229	-	-	0.02	-
HCM Control Delay (s)	11.2	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

HCM 6th TWSC
 9: Lake Street & Springhaven Drive

03/25/2024

Intersection						
Int Delay, s/veh	0.9					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	9	96	147	33	12	5
Future Vol, veh/h	9	96	147	33	12	5
Conflicting Peds, #/hr	52	0	0	52	2	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	109	167	38	14	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	257	0	-	0	369 238
Stage 1	-	-	-	-	238 -
Stage 2	-	-	-	-	131 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1308	-	-	-	631 801
Stage 1	-	-	-	-	802 -
Stage 2	-	-	-	-	895 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1243	-	-	-	564 761
Mov Cap-2 Maneuver	-	-	-	-	564 -
Stage 1	-	-	-	-	755 -
Stage 2	-	-	-	-	850 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	11.1
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1243	-	-	-	610
HCM Lane V/C Ratio	0.008	-	-	-	0.032
HCM Control Delay (s)	7.9	0	-	-	11.1
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection												
Int Delay, s/veh	4.2											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↗		↖	↗	
Traffic Vol, veh/h	2	0	3	18	3	74	8	758	73	154	1339	11
Future Vol, veh/h	2	0	3	18	3	74	8	758	73	154	1339	11
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	160	-	-	155	-	-	255	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	89	89	89	89	89	89	89	89	89
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	3	20	3	83	9	852	82	173	1504	12

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	2302	2808	758	2009	2773	467	1516	0	0	934	0	0
Stage 1	1856	1856	-	911	911	-	-	-	-	-	-	-
Stage 2	446	952	-	1098	1862	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	21	18	350	35	19	542	437	-	-	729	-	-
Stage 1	76	122	-	295	351	-	-	-	-	-	-	-
Stage 2	561	336	-	227	121	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	12	13	350	28	14	542	437	-	-	729	-	-
Mov Cap-2 Maneuver	12	13	-	28	14	-	-	-	-	-	-	-
Stage 1	74	93	-	289	344	-	-	-	-	-	-	-
Stage 2	461	329	-	171	92	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	155		79.8		0.1		1.2	
HCM LOS	F		F					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	437	-	-	12	350	28	219	729	-	-
HCM Lane V/C Ratio	0.021	-	-	0.187	0.01	0.722	0.395	0.237	-	-
HCM Control Delay (s)	13.4	-	-	\$ 364.5	15.4	284.9	31.8	11.5	-	-
HCM Lane LOS	B	-	-	F	C	F	D	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	0	2.3	1.8	0.9	-	-

HCM 6th TWSC
 3: West School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	196	31	5	95	0	0
Future Vol, veh/h	196	31	5	95	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	74	74	74	74	74	74
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	265	42	7	128	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	307	0	- 286
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	- 6.22
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	- 3.318
Pot Cap-1 Maneuver	-	-	1254	-	0 753
Stage 1	-	-	-	-	0 -
Stage 2	-	-	-	-	0 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1254	-	- 753
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.4	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1254	-
HCM Lane V/C Ratio	-	-	-	0.005	-
HCM Control Delay (s)	0	-	-	7.9	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th TWSC
5: East School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	5.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	99	122	62	45	64	71
Future Vol, veh/h	99	122	62	45	64	71
Conflicting Peds, #/hr	0	7	7	0	7	7
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	63	63	63	63	63	63
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	157	194	98	71	102	113

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	358	0	535 268
Stage 1	-	-	-	-	261 -
Stage 2	-	-	-	-	274 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1201	-	506 771
Stage 1	-	-	-	-	783 -
Stage 2	-	-	-	-	772 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1193	-	456 761
Mov Cap-2 Maneuver	-	-	-	-	456 -
Stage 1	-	-	-	-	778 -
Stage 2	-	-	-	-	701 -

Approach	EB	WB	NB
HCM Control Delay, s	0	4.8	14.9
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	578	-	-	1193	-
HCM Lane V/C Ratio	0.371	-	-	0.082	-
HCM Control Delay (s)	14.9	-	-	8.3	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	1.7	-	-	0.3	-

HCM 6th TWSC
 9: Lake Street & Springhaven Drive

03/25/2024

Intersection						
Int Delay, s/veh	1.4					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↕	↕		↕	
Traffic Vol, veh/h	5	191	92	17	30	8
Future Vol, veh/h	5	191	92	17	30	8
Conflicting Peds, #/hr	0	0	0	0	45	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	71	71	71	71	71	71
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	7	269	130	24	42	11

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	154	0	-	0	470 142
Stage 1	-	-	-	-	142 -
Stage 2	-	-	-	-	328 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1426	-	-	-	552 906
Stage 1	-	-	-	-	885 -
Stage 2	-	-	-	-	730 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1426	-	-	-	549 906
Mov Cap-2 Maneuver	-	-	-	-	549 -
Stage 1	-	-	-	-	880 -
Stage 2	-	-	-	-	730 -

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	11.6
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1426	-	-	-	599
HCM Lane V/C Ratio	0.005	-	-	-	0.089
HCM Control Delay (s)	7.5	0	-	-	11.6
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.3

Intersection												
Int Delay, s/veh	3.5											
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗	↖	↘		↖	↗		↖	↗	
Traffic Vol, veh/h	7	1	17	19	1	134	26	1093	38	78	768	8
Future Vol, veh/h	7	1	17	19	1	134	26	1093	38	78	768	8
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None									
Storage Length	-	-	0	160	-	-	155	-	-	255	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	95	95	95	95	95	95	95	95	95	95	95	95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	7	1	18	20	1	141	27	1151	40	82	808	8

Major/Minor	Minor2		Minor1		Major1		Major2					
Conflicting Flow All	1606	2221	408	1794	2205	596	816	0	0	1191	0	0
Stage 1	976	976	-	1225	1225	-	-	-	-	-	-	-
Stage 2	630	1245	-	569	980	-	-	-	-	-	-	-
Critical Hdwy	7.54	6.54	6.94	7.54	6.54	6.94	4.14	-	-	4.14	-	-
Critical Hdwy Stg 1	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.54	5.54	-	6.54	5.54	-	-	-	-	-	-	-
Follow-up Hdwy	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Cap-1 Maneuver	70	43	593	51	44	447	807	-	-	582	-	-
Stage 1	270	327	-	190	249	-	-	-	-	-	-	-
Stage 2	436	244	-	474	326	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	41	36	593	42	37	447	807	-	-	582	-	-
Mov Cap-2 Maneuver	41	36	-	42	37	-	-	-	-	-	-	-
Stage 1	261	281	-	184	241	-	-	-	-	-	-	-
Stage 2	287	236	-	393	280	-	-	-	-	-	-	-

Approach	EB		WB		NB		SB	
HCM Control Delay, s	45.3		34.8		0.2		1.1	
HCM LOS	E		D					

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	WBLn2	SBL	SBT	SBR
Capacity (veh/h)	807	-	-	40	593	42	413	582	-	-
HCM Lane V/C Ratio	0.034	-	-	0.211	0.03	0.476	0.344	0.141	-	-
HCM Control Delay (s)	9.6	-	-	117.6	11.3	152.5	18.2	12.2	-	-
HCM Lane LOS	A	-	-	F	B	F	C	B	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	0.1	1.7	1.5	0.5	-	-

HCM 6th TWSC
 3: West School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	0.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔			↔		↔
Traffic Vol, veh/h	106	10	2	154	0	0
Future Vol, veh/h	106	10	2	154	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	-	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	99	99	99	99	99	99
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	107	10	2	156	0	0

Major/Minor	Major1	Major2	Minor1	Minor2	Minor3
Conflicting Flow All	0	0	117	0	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-
Critical Hdwy	-	-	4.12	-	-
Critical Hdwy Stg 1	-	-	-	-	-
Critical Hdwy Stg 2	-	-	-	-	-
Follow-up Hdwy	-	-	2.218	-	-
Pot Cap-1 Maneuver	-	-	1471	-	0
Stage 1	-	-	-	-	0
Stage 2	-	-	-	-	0
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1471	-	-
Mov Cap-2 Maneuver	-	-	-	-	-
Stage 1	-	-	-	-	-
Stage 2	-	-	-	-	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	0
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	-	-	1471	-
HCM Lane V/C Ratio	-	-	-	0.001	-
HCM Control Delay (s)	0	-	-	7.5	0
HCM Lane LOS	A	-	-	A	A
HCM 95th %tile Q(veh)	-	-	-	0	-

HCM 6th TWSC
5: East School Site Drive & Lake Street

03/25/2024

Intersection						
Int Delay, s/veh	4.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	52	57	20	120	64	56
Future Vol, veh/h	52	57	20	120	64	56
Conflicting Peds, #/hr	0	4	4	0	4	4
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	70	70	70	70	70	70
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	74	81	29	171	91	80

Major/Minor	Major1	Major2	Minor1		
Conflicting Flow All	0	0	159	0	352 123
Stage 1	-	-	-	-	119 -
Stage 2	-	-	-	-	233 -
Critical Hdwy	-	-	4.12	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	-	-	2.218	-	3.518 3.318
Pot Cap-1 Maneuver	-	-	1420	-	646 928
Stage 1	-	-	-	-	906 -
Stage 2	-	-	-	-	806 -
Platoon blocked, %	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	1415	-	626 921
Mov Cap-2 Maneuver	-	-	-	-	626 -
Stage 1	-	-	-	-	902 -
Stage 2	-	-	-	-	784 -

Approach	EB	WB	NB
HCM Control Delay, s	0	1.1	11.4
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	736	-	-	1415	-
HCM Lane V/C Ratio	0.233	-	-	0.02	-
HCM Control Delay (s)	11.4	-	-	7.6	0
HCM Lane LOS	B	-	-	A	A
HCM 95th %tile Q(veh)	0.9	-	-	0.1	-

HCM 6th TWSC
9: Lake Street & Springhaven Drive

03/25/2024

Intersection						
Int Delay, s/veh	0.8					
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↔	↔		↔	
Traffic Vol, veh/h	9	97	151	33	12	5
Future Vol, veh/h	9	97	151	33	12	5
Conflicting Peds, #/hr	2	0	0	2	52	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	88	88	88	88	88	88
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	10	110	172	38	14	6

Major/Minor	Major1	Major2	Minor2		
Conflicting Flow All	212	0	-	0	375 193
Stage 1	-	-	-	-	193 -
Stage 2	-	-	-	-	182 -
Critical Hdwy	4.12	-	-	-	6.42 6.22
Critical Hdwy Stg 1	-	-	-	-	5.42 -
Critical Hdwy Stg 2	-	-	-	-	5.42 -
Follow-up Hdwy	2.218	-	-	-	3.518 3.318
Pot Cap-1 Maneuver	1358	-	-	-	626 849
Stage 1	-	-	-	-	840 -
Stage 2	-	-	-	-	849 -
Platoon blocked, %		-	-	-	
Mov Cap-1 Maneuver	1355	-	-	-	618 847
Mov Cap-2 Maneuver	-	-	-	-	618 -
Stage 1	-	-	-	-	832 -
Stage 2	-	-	-	-	847 -

Approach	EB	WB	SB
HCM Control Delay, s	0.7	0	10.5
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1355	-	-	-	671
HCM Lane V/C Ratio	0.008	-	-	-	0.029
HCM Control Delay (s)	7.7	0	-	-	10.5
HCM Lane LOS	A	A	-	-	B
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Engineer's Opinion of Probable Costs



Butterfield School - Parking & Entry Configuration

Libertyville, Illinois
October 15, 2024

Site Demolition					
Item	Description	Unit	Quantity	Unit Price	Extended Price
	Asphalt Removal	SY	230	\$20.00	\$4,600.00
	Concrete Walk Removal	SY	150	\$40.00	\$6,000.00
	Curb and Gutter Removal	LF	610	\$15.00	\$9,150.00
	Sawcut	LF	410	\$5.00	\$2,050.00
	Subtotal				\$21,800.00

Site Pavement Improvements					
Item	Description	Unit	Quantity	Unit Price	Extended Price
	Asphalt Pavement, Full Depth	SY	2800	\$55.00	\$154,000.00
	Mill and Overlay	SY	750	\$40.00	\$30,000.00
	Concrete Pavement	SY	140	\$60.00	\$8,400.00
	Sealcoat and Crack Seal	SY	3800	\$3.00	\$11,400.00
	Grind Off Concrete and Restripe	LS	1	\$10,000.00	\$10,000.00
	B-6.12 Curb and Gutter	LF	1400	\$25.00	\$35,000.00
	Striping	LS	1	\$10,000.00	\$10,000.00
	Subtotal				\$258,800.00

Earthwork					
Item	Description	Unit	Quantity	Unit Price	Extended Price
	Top Soil Stripping	CY	400	\$7.00	\$2,800.00
	Seed and Blanket	SY	3000	\$4.00	\$12,000.00
	Earth Excavation (cut/fill and haul off)	CY	1860	\$45.00	\$83,700.00
	Subtotal				\$98,500.00

Misc.					
Item	Description	Unit	Quantity	Unit Price	Extended Price
	Signs	Ea.	4	\$500.00	\$2,000.00
	Silt Fence	LF	600	\$8.00	\$4,800.00
	Inlet Protection	Ea.	6	\$250.00	\$1,500.00
	Subtotal				\$8,300.00

Utility Improvements					
Item	Description	Unit	Quantity	Unit Price	Extended Price
	4' Catch Basin	Ea.	6	\$2,000.00	\$12,000.00
	4' Manhole	Ea.	1	\$2,000.00	\$2,000.00
	8" PVC	LF	400	\$30.00	\$12,000.00
	12" RCP	LF	250	\$40.00	\$10,000.00
	Outlet Control Structure	Ea.	1	\$10,000.00	\$10,000.00
	Storm Sewer Connection In Roadway	LS	1	\$10,000.00	\$10,000.00
	StormTech	CF	17430	\$10.00	\$174,300.00
	Subtotal				\$230,300.00

	Total Costs from Above				\$617,700.00
	10% Contingency				\$61,770.00
	Opinion of Total Construction Costs				\$679,470.00

*LIGHTING ESTIMATE: \$108,000.00
*LANDSCAPE ALLOWANCE: \$23,750.00

Note: This opinion of probable construction costs is based on quantities and unit prices assumed by the engineer based on data from previous construction projects, and will not necessarily reflect actual bid prices.

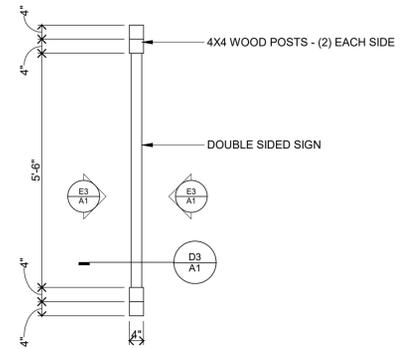
* NOT INCLUDED IN OPINION OF TOTAL CONSTRUCTION COSTS

Sign Narrative

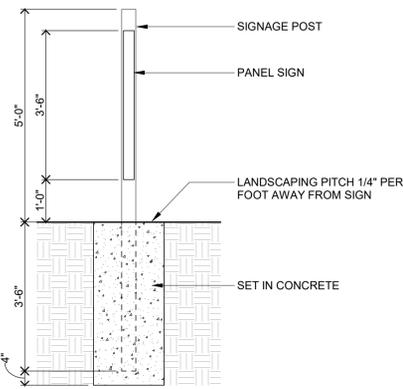
New signs are being submitted to replace 2 existing, stand alone exterior site sign reading, "Butterfield Road; District 70; Home of the Bulldogs" or similar text, will installed and set back from street and be compliant with all Village requirements. See attached sign design and locations

The first sign will greatly serve the community needs to find and identify the location of the school on a daily basis and more clearly define the entry and exit drive. The second sign will identify and celebrate the Blue Ribbon School award and will face Lake Street as pedestrian enter the site.

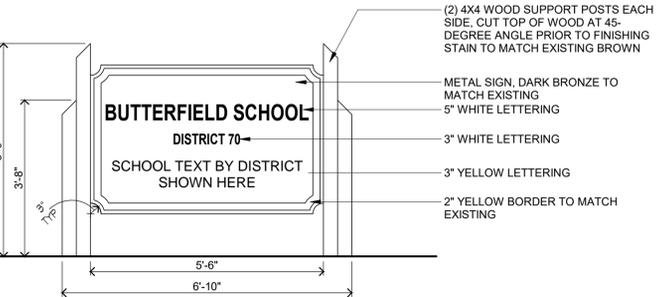
IL



C3 PLAN AT NEW SIGN
1/2" = 1'-0"



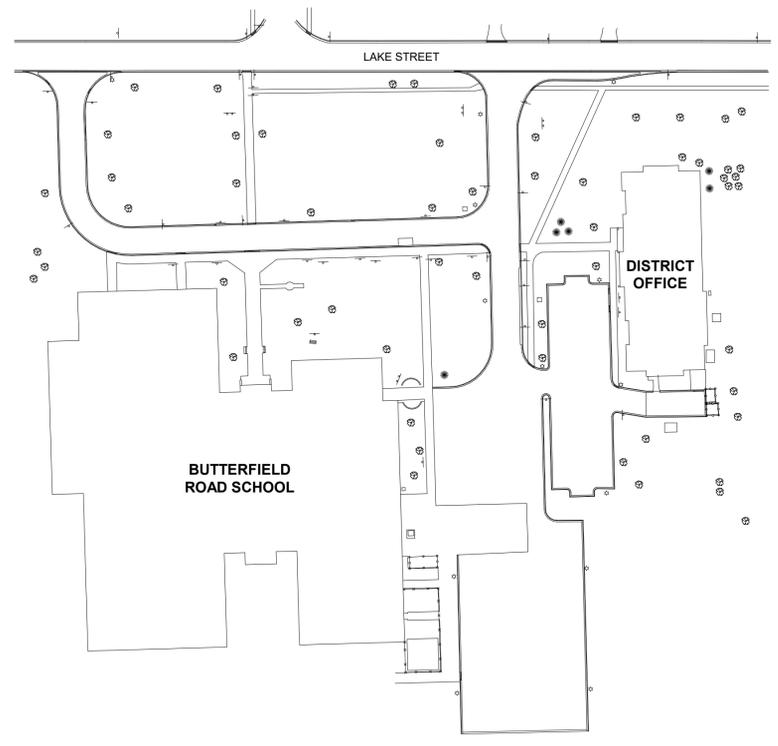
D3 EXTERIOR SIGNAGE DETAIL
1/2" = 1'-0"



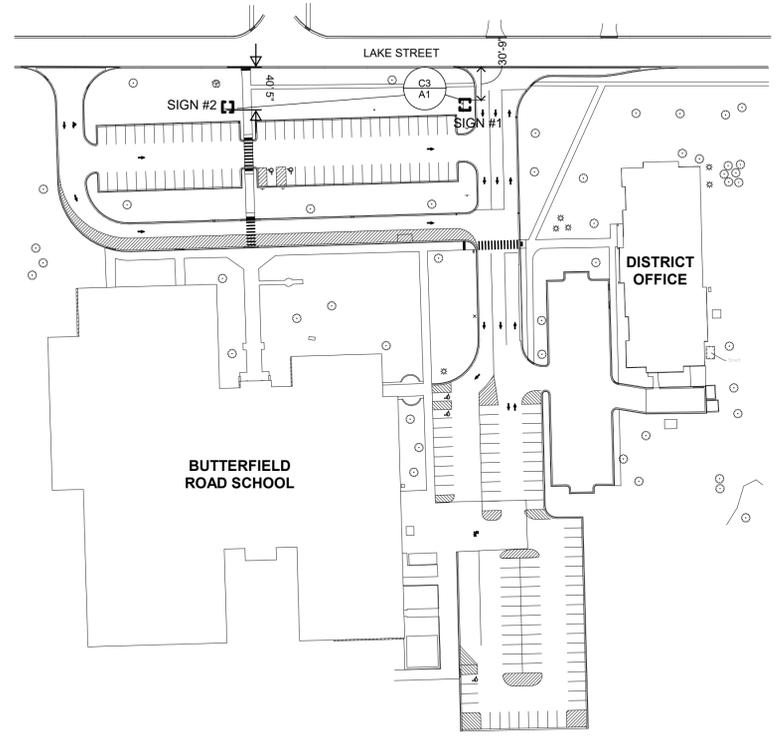
E3 PROPOSED EXTERIOR SIGN ELEVATION FOR SIGN #1 AND #2
1/2" = 1'-0"

- EXTERIOR DIRECTIONAL SIGNAGE SPECIFICATION**
- A. FREE STANDING SIGNS WITH WOOD POSTS SET IN CONCRETE FOOTINGS AND FLAT PANEL ALUMINUM FACES WITH VINYL LETTERING.
 - a. POSTS: 4 X 4 INCH (152.4 X 152.4 MM), HEIGHT AS INDICATED ON THE DRAWINGS.
 - b. FACE PANELS: 1/4 INCH (6.35 MM) WITH INTERNAL SIFFINERS AS REQUIRED TO MEET WIND LOAD REQUIREMENTS.
 - INSTALL FACE PANELS FLUSH WITH EACH FACE OF THE TUBE AND WITH A 1/2 INCH (12.7 MM) REVEAL.
 - HEIGHT AND WIDTH OF FACE PANELS AS DETAILED ON THE DRAWINGS.
 - c. FINISH:
 - DARK BRONZE TO MATCH EXISTING.
- EXTERIOR SIGNAGE POSTS STAIN SPECIFICATION:**
- A. WOOD: SOLID COLOR FOR SIDING, SOFFITS, FASCIA, TRIM.
 - a. STAIN, WATER REDUCIBLE SYSTEMS:
 - SOLID COLOR:
 - 1. 1ST AND 2ND COAT:
 - A. S-W WOODSCAPES EXTERIOR ACRYLIC SOLID COLOR STAIN, A15 SERIES.
 - B. PPG FLOOD SWF EXTERIOR SOLID WOOD STAIN.
 - C. BM ARBORCOAT SOLID DECK & SIDING STAIN 640.
 - a. 200 TO 400 SQ FT/GAL (4.9 TO 9.8 SQ M/L).

F3 SIGNAGE SPECIFICATION
1 1/2" = 1'-0"



D5 EXISTING SITE PLAN
1" = 80'-0"



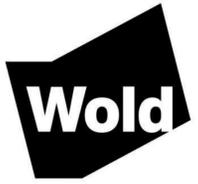
F5 PROPOSED SITE PLAN
1" = 80'-0"

Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70

1381 W Lake Street
Libertyville, Illinois 60048



WOLD ARCHITECTS AND ENGINEERS

220 N. Smith Street, Suite 310
Palatine, Illinois 60067
woldae.com | 847 241 6100

Description	Revisions	
	Date	Num

Comm: 243110
Date: 10.25.24
Drawn: AM
Check: ME



VILLAGE OF LIBERTYVILLE SUBMISSION - SIGNAGE

Scale: As indicated

A1

Address: 1441 Lake Street, Libertyville, IL 60048
 Project: Butterfield Road School - New Parking Lot and Lighting
 Date: 10/25/24
 Drawn: AM
 Check: ME

A

IL

A

B

C

D

E



Butterfield Road School - New Parking Lot and Lighting

1441 Lake Street
Libertyville, Illinois 60048

Libertyville School District #70

1381 W Lake Street
Libertyville, Illinois 60048

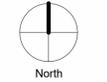


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Description	Revisions		Num
	Date		

Comm: 243110
Date: 10.25.24
Drawn: AM
Check: ME



VILLAGE OF LIBERTYVILLE SUBMISSION - AERIAL PHOTOGRAPH

Scale:

A2

A