

**TOWN OF WOLFEBORO
PLANNING BOARD
September 5, 2023
APPROVED MINUTES**

I. Call to Order

Chair Kathy Barnard called the meeting to order at 7:00PM.

II. Introduction of Planning Board Members

Members Present: Kathy Barnard, Chair, Doug Breskin, Vice-Chair, Brad Harriman, Selectmen's Representative, John Thurston, Roger Murray, Vaune Dugan, Members, Julie Jacobs, Jane Nielsen, Alternates.

Members Absent: Peter Goodwin, Member, Steve Webster, Alternate.

Staff Present: Tavis Austin, Director of Planning and Development, Lee Ann Hendrickson, Administrative Secretary, Michaela Beckwith, Recording Secretary.

III. Public Hearings

Brewster Academy - Tax Map & Lot #218-150 Case #2023-13 – Site Plan Review – Permanent Ice Rink; continued from 8/15/2023

Kathy Barnard indicated that Julie Jacobs and Jane Nielsen sat on the 8/15/2023 public hearing. She stated John Thurston and Vaune Dugan cannot vote on the application but can ask questions.

Doug Breskin stated the Board received several documents, see attached.

Susan Harrington, Chief Financial Officer, Brewster Academy, stated the documents submitted address issues and concerns noted by abutters. She reviewed the purpose of the installation of the existing outdoor hockey rink, noting that moving forward the rink would serve the boys and girls JV practices and help facilitate the JV hockey program. She stated they will not be abandoning the use of Pop Whalen Ice Arena.

Peter Gilligan, Chief Operating Officer, Brewster Academy, reviewed the issues raised by abutters and Board members, with regard to the rationale for location of the hockey rink, see attached documents.

Julie Jacobs stated that she visited the site and questioned alternative locations including existing green space and fields. She stated that a different location may also benefit students.

Peter Gilligan stated Brewster hired architects and engineers to perform a comprehensive study; noting the existing location was recommended in the study.

Jane Nielsen asked if cost came into consideration when the location was chosen.

Peter Gilligan replied yes.

Jane Nielsen questioned the permanence of other locations' uses.

John Thurston stated he was the Brewster Academy property today and was approached and asked to leave. He stated photographs were taken of his vehicle and stated he is discouraged by the plan presented; noting that his intent was to learn and gather more information for an alternative solution.

Peter Gilligan stated he oversees campus maintenance and security and apologized for the interaction Mr. Thurston experienced; noting today was the first day of school.

Roger Murray stated he had a different experience; noting that he parked in the Anderson Hall parking lot and walked around the rink and wasn't bothered by anyone. He stated that if the rink was located on Clark Road, then abutters would have an issue and there could be environmental issues if moved by the soccer fields.

Doug Breskin asked if there would be excessive traffic in the Anderson parking lot.

Peter Gilligan stated only for the four Winter Classic hockey games and community events such as First Night. With regard to lighting, he stated that an expert from Longchamps Electric was present at the meeting and could address such. He stated Brewster would like to reduce the hours of use to Monday through Fridays 7:00AM to 8:30PM, Saturdays 7AM to 10PM and Sundays 10AM to 10PM all with no hockey after 8:30PM. He referred to the photometric assessment Brewster had completed.

John Thurston questioned the setback issue and whether a boundary line adjustment is necessary. He asked if services are connected to houses on Green Street.

Peter Gilligan stated the existing rink meets the setbacks from the boundary line.

Kathy Barnard questioned if the Zamboni shed needed clarification.

Peter Gilligan reviewed the landscaping and buffer plan, to include both plantings and fencing, see attached. He noted the hockey rink will be used four and half months per year.

Jane Nielsen questioned the number of years until the trees mature.

Peter Gilligan stated such would depend on species health and weather.

Doug Breskin questioned the species of trees.

Peter Gilligan replied spruce and rhododendron. Referencing noise concerns, he reviewed the plan for noise mitigation. He stated a schedule would be provided for when the rink would be in use for community review/notification.

Kathy Barnard confirmed the use is not inclusive of the JV teams.

Peter Gilligan stated the varsity teams would practice at the rink as well.

Roger Murray asked if there would be free skate available.

Peter Gilligan stated Brewster would be open to such.

John Thurston stated the Board should be open and flexible to possibility of later hours for special events such as First Night.

Peter Gilligan stated Brewster Academy doesn't use an outdoor PA system. He referenced the sound engineering study that was conducted and reviewed such, see attached.

Kathy Barnard questioned the noise of the hockey pucks make when hitting boards and glass of the rink.

Doug Breskin suggested the noise of the pucks and rink machinery each be addressed separately.

Kathy Barnard questioned whether the proposed Saturday games would be held during daytime hours.

Peter Gilligan replied the four games are tentatively scheduled for: January 13, January 20, February 3, and February 10.

Vaune Dugan questioned the absolute of daytime games.

Jane Nielsen questioned 4 games versus 2 games discussed previously.

Susan Harrington addressed the quantitative standards for the Town of Wolfeboro and the Universal Standards used in the comprehensive noise study that Brewster had completed, see attached. She stated the four games scheduled will take place during the day, two for girls' program and two boys' program. She stated the games would be daytime only.

Doug Breskin noted the Town's sound ordinance is qualitative not quantitative. He questioned the document Susan Harrington referenced, see attached.

John Thurston questioned the noise ordinance.

Tavis Austin stated the noise ordinance is 10:00PM.

Susan Harrington referenced the issue relative to noise from the chiller. She stated Brewster had a more in-depth study performed with regard to such; noting a sound barrier is proposed. She read the following document from company, Everything Ice and reviewed the specifications of the sound barrier, see attached.

Doug Breskin questioned the outside finish of the block wall.

Susan Harrington stated such has not yet been decided and noted it would not be visible from the road.

Doug Breskin stated he was concerned about the visibility of the wall from the neighbors.

Doug Breskin questioned the height of the walls and glass.

Susan Harrington stated a foam barrier was researched however, after further review it was found that such could damage the boards and in addition the noise reduction was minimal.

John Thurston questioned if the use of soft pucks could be considered for practices.

Susan Harrington stated she would speak to the athletic director regarding such.

Kathy Barnard requested storm water runoff be addressed.

Joanne Carpenter, RFS Engineering, reviewed proposed stormwater treatment measures and the Town and State's stormwater regulations. She stated the stormwater runoff from the rink are directed to two (2) two hundred foot 24" diameter perforated pipes. She stated she performed calculations for when the ice melts; noting it would be more than a one-inch storm however, considerably less than a one-year storm. She stated the current rink design handles a fifty-year storm/event.

Doug Breskin stated the Board received a letter from Amy Hines, 22 Green Street, see attached.

Joanne Carpenter stated she assumes the question relates to the melting of the Zamboni ice pile; noting she is unable to speak to such.

Doug Breskin asked if there are chemicals in the ice (referencing Ms. Hines' letter).

Joanne Carpenter replied no.

Peter Gilligan referenced the proposed stormwater management plan with regard to the Zamboni ice pile; noting there would be no increase in runoff.

John Thurston questioned the location of the proposed Zamboni ice storage area.

Tavis Austin stated the rink and Zamboni shed meets the setbacks and noted the ice storage location does not need to meet setbacks.

Roger Murray noted the buildings are existing and owned by Brewster.

John Thurston questioned the location of the infiltration trenches.

Joanne Carpenter stated the Zamboni ice pile will be infiltrated in the infiltration swale and not in the pipes that abut each side of the rink.

John Thurston confirmed the area of the ice pile is not graded.

Joanne Carpenter reviewed such and stated there is a small amount of fill on the Estabrook Road side.

Doug Breskin questioned the schedule for improvements if the site plan is approved and whether the improvements would be completed prior to the start of practices.

Peter Gilligan replied as soon as possible and the hope is that it would be completed however, there may be some items to be completed in the spring.

Doug Breskin stated his main concern is the foundation for the chiller wall being completed before ground freezes.

John Thurston asked if there is a plan to cover the rink in the future.

Peter Gilligan stated such would be costly and is not currently being considered.

Chairman Barnard opened the public hearing.

Amy Hines, 22 Green Street, stated she is representing a neighbor that is not present this evening. She read the following letter from Al Pierce, resident of Green Street, see attached document.

Susan Harrington stated she spoke to Al Pierce when Brewster made application to the ZBA in September 2022 and noted she has tried to contact Al Pierce since however, has been unsuccessful.

Peter Batchelder, 10 Green Street, stated it is his belief that the current location is the absolute worst location (behind Al Pierce's house). He stated the lighting, sound and buffers proposed is what they should do. He stated the rink was proposed to be temporary and now they are asking that it be permanent. He stated the structure is huge and feels it is the opposite of what Brewster would want to do to maintain the village character of Wolfeboro. He stated the Zamboni is driven right behind Mr. Pierce's house. He questioned compliance with the setback; noting that the rink may meet the setback however, the players benches are beyond such. He stated the rink infringes onto Mr. Pierce's property. He stated Brewster is going to destroy the visual character of Wolfeboro and requested the rink be moved 50-100 feet. He stated Brewster can and needs to move the rink.

Dennis Schauer, 209 South Main Street, stated the genesis of the whole situation is that the abutters were told it was a temporary structure and asked if Brewster approached the Board for a permanent rink. He stated he feels the location is not appropriate and feels there are other options. He wished Brewster well however, feels the location of the structure is a mistake.

Susan Harrington stated Brewster hears the concerns of its neighbors. She reviewed the Planning Board Notice of Decision, specifically point #5, dated September 20, 2022. She stated Brewster did not pitch the concept of a one-season rink. With regard to the setbacks on the Green Street side, she questioned the setback requirement being met.

Tavis Austin stated Brewster complies with the 10' setback.

Nancy Hirshberg, 40 Clark Road, stated that although it may have been Brewster's intent for the rink to be permanent, the notice received by the abutters stated a temporary ice rink.

John Thurston reviewed the August 20, 2023 minutes; noting the minutes reflect that the rink was intended for one season and the structure would be removed after the season.

There being no further questions or comments, Chairman Barnard closed the public hearing.

Vaune Dugan stated she recalls temporary approval meaning a full site plan review; noting the Board still needed information for further review.

Tavis Austin stated Brewster was not sure when they would be returning to the Board for site plan approval hence, the condition of approval.

Roger Murray stated the Planning Board's job is to ensure compliance with the zoning ordinance and applicable regulations. He stated the proposal meets the setback requirements and permitted use requirements. He stated Brewster has tried to address the concerns noted by abutters and feels the Board and Brewster has listened.

Doug Breskin stated that the decision-making process cannot be solely based on the regulations being met but also the abutters and property values.

Tavis Austin recommended requesting additional information if the Board chooses. He stated the noise ordinance doesn't address an outdoor recreational facility as part of a campus; noting such may be a point for future discussion. He stated the noise ordinance speaks more to construction noise rather than recreational noise. He stated the applicant is suggesting an eight-foot fence; noting such may require a variance and recommended a six-foot fence. He stated the Board needs to make a determination on the sound block finish; noting the architectural design standards state concrete block as a prohibited product.

Vaune Dugan questioned whether Brewster can use the rink if the conditions are not fully met prior to intended use.

Tavis Austin stated the language of the Notice of Decision would determine the use of the rink.

John Thurston questioned whether the face of the concrete block could be covered with a material that meets the architectural design standards.

Doug Breskin noted the texture of the foam block faces the chiller and the smooth side faces out. He stated how the block will deaden sound from the chiller and that the block could be finished with clapboard or stucco material.

Julie Jacobs questioned if the exposed block's exterior surface is painted, is it still considered exposed.

Vaune Dugan stated that the block should have screening or covering.

John Thurston stated the plan doesn't depict bleachers.

Tavis Austin stated bleachers are not proposed.

Jane Nielson confirmed the applicant would have to return to the Board if they were to want to add bleachers in the future.

Tavis Austin referenced the four conditions of approval and recommended a fifth condition to include the information included in the 16 pages provided by applicant.

Doug Breskin recommended a condition to include the improvements relative to lights and noise be incorporated prior to use this upcoming season.

Tavis Austin recommended additional conditions to include six-foot fencing and exterior block wall.

Roger Murray stated the Planner Review references security and questioned such; noting there should be security for the fence.

Tavis Austin recommended the following conditions of approval;

1. The following plans, as amended to the date of this approval are incorporated into the approval:
Plan Set: Materials as received on July 12, 2023, and September 5, 2023
2. Applicant shall be responsible for the payment of all recording fees for Notice of Decision.
3. Applicant shall provide a materials list for the exterior finishes of the fence and chiller surround structures for review by staff.
4. Fence and chiller enclosure to be constructed prior to operation of rink.
5. Applicant shall post security pursuant to §173-16 related to proposed landscaping improvements.
6. Applicant shall comply with those conditions presented in their 16-page submission received September 05, 2023, at the Planning Board:
 - a. All site lights to be lowered to 20' in height; 'barn door' light shields to be installed on those fixtures along Green Street side of rink;
 - b. Rink use limited to four and a half months per year;
 - c. Install property line fence along the back of the Green Street properties;
 - d. Trees and bushes to be planted along Anderson Hall parking lot, blocking glare and view of rink from Main Street;
 - e. Rink lights will be off Sunday through Friday by 8:30 PM, Saturdays lights off by 10 PM with no hockey after 8:30 PM.
 - f. Rink lights will be off whenever facility not in use;
 - g. A timer will be used to ensure that lights are off by the stated times, and lights will be manually turned off earlier if the facility not in use;
 - h. For noise concerns, the following schedule will be utilized:
 - i. Monday – Friday: 7:00 AM to 8:30 PM (lights off at 8:30 PM)
 - ii. Saturday: 7:00 AM to 10:00 PM with no hockey after 8:30 PM
 - iii. Sunday: 10:00 AM to 8:30 PM.
 - iv. Only four daytime games will be played per year/season; advance schedule to be posted for these games.
 - v. There will be no music/public address system at the rink.
 - vi. Noise containment wall to be installed around the chillers.

Kathy Barnard removed the condition of storing the Zamboni on the subject property.

It was moved by Kathy Barnard to approve the Brewster Academy Site Plan Review application (permanent ice rink). Roger Murray seconded the motion. Roll call vote: Julie Jacobs – yes, Kathy Barnard – yes, Jane Nielson – no, Doug Breskin – yes, Brad Harriman – yes. Roger Murray – yes. The motion passed (5-1-0).

O'Hare Enterprises – 33 Tips Cove Road – Tax Map & Lot #240-001 – Case #2023-15 – Special Use Permit for Construction in Wetlands Buffer Setback for Pickleball Court

Kathy Barnard appointed Jane Nielsen, Alternate, sit in Peter Goodwin's place as the alternate.

Jim Rines, Horizons Engineering representing O'Hare Enterprises, reviewed his letter dated August 7, 2023, see attached.

Julie Jacobs questioned surface play or pathway where the court is located in relation to where the setback is located.

Jim Rines replied the slope of the court and reviewed the proposal.

John Thurston questioned the 22 square feet noted in the plan.

Jim Rines reviewed the Special Use Permit criteria, see attached.

Kathy Barnard read the Conservation Commission's comments, see attached.

Jim Rines stated that any vegetation that is disturbed will be replaced.

Roger Murray asked if the plan submitted is the 2021 plan or an amended 2021 plan.

Jim Rines stated the plan submitted is the 2021 plan.

Roger Murray questioned if the revision should be resubmitted with the application.

Vaune Dugan asked if the 12' could be put on one side to avoid the setback.

Jim Rines stated the submitted plan to have the pickleball court be centered on the existing basketball court is critical to the applicant.

Roger Murray questioned placing the pickleball court on the tennis court like Foss Field.

Tavis Austin stated the court is not a structure.

Roger Murray stated a structure is defined as something that is built or constructed with a fixed location on the ground.

John Thurston asked if there are concrete footings.

Jim Rines replied no.

Julie Jacobs asked if the surface is asphalt.

Jim Rines replied no.

John Thurston questioned the type of proposed vegetation.

Jim Rines replied shrubs.

Kathy Barnard opened and closed public hearing.

There being no public present, Kathy Barnard closed the public hearing.

Tavis Austin recommended the following conditions of approval;

1. The following plans, as stamped received on August 7, 2023, and/or as amended by the Planning Board approval, are incorporated into the any subsequent building permit application related thereto.
2. The applicant shall be responsible for the payment of all recording fees for the Notice of Decision.

Kathy Barnard noted the following findings of fact; no impact to abutters and Conservation Commission made recommendations and those recommendations will be implemented.

It was moved by John Thurston to approve the O'Hare Enterprises Special Use Permit application subject to the recommended conditions of approval. Vaune Dugan seconded the motion. All members voted in favor. The motion passed (6-1-0).

Vaune Dugan stated she feels the application does not meet Criteria A.

Christopher Melnik – 104 Filter Bed Road – Tax Map #189-009 – Case #2023-16 – Site Plan Review – Conversion to Multi Family, addition of 3rd dwelling unit

Tavis Austin stated the applicant is not present.

Roger Murray stated the application is incomplete therefore, the Board cannot act on such.

It was moved by John Thurston to deny the Christopher Melnik Site Plan Review application without prejudice. Julie Jacobs seconded the motion. All members voted in favor. The motion passed (6-0-0).

Roger Murray questioned if there are three approved units in the building.

Tavis Austin replied no. He stated the property was sold as a three-unit building; noting the application would be authorizing the second floor of an existing structure with no site plan changes.

IV. Discussion items

a. 2024 Meeting Schedule

Roger Murray noted the election is November 5th not 12th.

Tavis Austin stated he would confirm with the Town Clerk.

The Board agreed to maintain meetings for the first and third Tuesdays of each month at 7:00 pm.

b. 2024 Budget

Roger Murray questioned whether such includes sufficient funds for a recording secretary.

Tavis Austin replied yes.

John Thurston stated the Board of Selectmen discussed circuit planners and questioned whether such falls in the Board's budget.

Brad Harriman stated such would be included in the Planning Department's budget.

c. Affordable Housing/Inclusionary Zoning

Kathy Barnard stated affordable housing/inclusionary zoning will be the topic of the October 17th Planning Board meeting.

Roger Murray suggested grammatical amendments to the newspaper advertisement.

d. ZBA Special Exception: 57 Crooked Pond Lane

Vaune Dugan stated such crosses her property; she has no issues with such.

Kathy Barnard confirmed the proposal meets setbacks/requirements.

John Thurston questioned impact of runoff to abutters and requested details related to such.

Julie Jacobs stated the location is an appropriate place for the garage.

Vaune Dugan stated a Shoreland permit is required.

e. Wolfeboro Waters

Kathy Barnard stated Wolfeboro Waters forwarded Questions to Ask Before Project Approval to Limit Impacts on Surface Waters to the Board for consideration during the application review process, when applicable.

V. Public Comment

Kathy Barnard stated the Board received a letter from Bill and Becky Swaffield regarding Lone Wolf, see attached letter dated August 20, 2023.

Tavis Austin stated the condition(s) of approval state music be indoors and unamplified; noting he doesn't see it as a direct violation.

John Thurston referred to the application and Conditions of Approval.

Tavis Austin questioned whether the Board wishes to remove outdoor seating.

The Board discussed the conditions of approval and agreed to send a letter and copy of the conditions of approval to the Police Department.

Tavis Austin suggested that a letter be drafted informing the owner of the complaint and if they fail to comply, outdoor seating be revoked.

Julie Jacobs asked if the letter could include the removal of outside furniture prior to snowfall and enclose a copy of the minutes with the letter.

It was moved by John Thurston to send a letter to the applicant notifying them of the complaint (letter to include conditions of approval) and forward a copy of the approval to the Police Department. Kathy Barnard seconded the motion. All members voted in favor. The motion passed (6-0-0).

VI. Approval of Minutes:

August 15, 2023

Corrections:

Throughout document change “Hermann” to “Harriman”
Page 3, Stormwater Controls; change “vein” to “main” and “separate” to “septic”
Page 4, 11th bullet; change “Doul” to “Dow”
Page 5, last bullet; change “Ed Maris” to “Edie Desmaris” and change “Mr. Reese” to “Ms. DeVries”
Page 6, 4th paragraph, change “Chair K Barnard” to “Vice-Chair D. Breskin”
Page 7, 14th paragraph; add “drainage” following “and”, 6th paragraph; change “Toad” to “road, 12th paragraph change “step” to “staff”, 17th paragraph; change “Disruption” to “Alteration”
Page 8, 11th paragraph; change “unused” to “in use”
Page 8, 14th paragraph; change “Chief Marketing Officer” to “Chief Operating Officer”
Page 12, Public Comments, 1st paragraph; change “disruptive” to “disturbing”, change “labor” to “neighbor”, change “There’s a lot of debris that lands on my grass.” to “There’s a lot of pucks banging on the glass.” Change “Neighbor on South Main Street” to “Dennis Schauer, South Main Street,”
Page 13, 6th paragraph; change “again” to “game”
Page 18, 9th paragraph; change “louder” to “loud or”, change “And he says” to “Any such”
Page 19, 7th paragraph; change “SFO” to “Estabrook”, 8th paragraph; change “Neighbor on South Main Street” to “Dennis Schauer, South Main Street”

It was moved by Kathy Barnard to approve the August 15, 2023 Planning Board minutes as amended. Doug Breskin seconded the motion. Kathy Barnard, Doug Breskin, Brad Harriman, Roger Murray voted in favor. Vaune Dugan, John Thurston abstained. The motion passed (4-0-2).

June 6, 2023

Corrections:

Page 1, Members Present; change “Robert Murray” to “Roger Murray” and add summary of the Planning Board and public’s comments for Robert Beckwith public hearing
Page 3, review 3) – the proposed lot does not conflict with Percy’s well easement
Page 3, add summary of the Planning Board and public’s comments for Ferncliff Trust and TCW Property Development, LLC and Peapod, LLC public hearings (including the requirement that the area under the deck next to the parking lot be screened and the configuration of the awning changed)
Page 4, add summary of the Planning Board comments for Hunter’s preliminary discussion

July 11, 2023

July 18, 2023

It was moved by John Thurston to approve the June 6, 2023 Planning Board minutes as amended and approve the July 11, 2023 and July 18, 2023 Planning Board minutes as submitted. Kathy Barnard seconded the motion. All members voted in favor. The motion passed (6-0-0).

It was moved by John Thurston to adjourn the September 5, 2023 Planning Board meeting. Kathy Barnard seconded the motion. All members voted in favor. The motion passed.

The meeting was adjourned at 9:44PM.

Respectfully Submitted,
Michaela M. Beckwith
Michaela M. Beckwith

**** Please note these minutes are subject to amendments and approval at a later date. ****

Brewster

Outdoor Hockey Rink

Proposed Responses to Address Neighbor Concerns

Brewster strives to always be a good neighbor and member of the Wolfeboro community. We heard the concerns of our neighbors at the August 15, 2023 Planning Board meeting and we propose the following responses to help address the issues that were raised.

Rationale for Location

We understand that neighbors along Green Street wish that there could be an alternative location for the outdoor rink. We carefully explored all available options with the firm we work with for campus master planning, DSK | Dewing Schmid Kearns Architects + Planners.

- All other potential locations (based on grade) are being utilized for other activities and community events/needs
- We have invested time and resources in the current location
- It has available parking in the Anderson Hall lot
- It is adjacent to the Smith Center, Brewster's athletics facility, providing locker rooms and restrooms for athletes, as well as access to the training room

Light Concerns

Neighbors were concerned about glare from the lights. Brewster will:

- Significantly reduce the schedule that was originally proposed
 - Lights off Sunday- Friday by 8:30 PM, Saturdays lights off by 10 PM (no hockey after 8:30 PM)
 - Lights will be turned off whenever the facility is not in use
 - A timer will be used to ensure that lights are off by the stated times, and lights will be manually turned off earlier if the facility is not in use
- Lower the light poles to 20 feet as requested by a planning board member
- Plant a line of trees and bushes along the Anderson Hall parking lot, blocking glare and view of the rink from Main Street
- Install a property line fence along the back of the Green Street properties
- Continue to use dark sky compliant lights as required
- We will add "barn door" light shields to the light fixtures along the Green Street side of the rink
- We will limit our rink operation to four and a half months of the year

Landscaping Concerns

Neighbors would like to see landscaping improvements to improve aesthetics and block light and sound. Brewster will:

- Plant a line of trees and bushes along the Anderson Hall parking lot facing Main Street.
- Install a property line fence along the back of the Green Street properties in order to ensure that there is no issue of snow being pushed onto other properties

Noise Concerns

Neighbors expressed concerns about the noise of the chillers and the noise of students playing hockey. We proposed the following responses to address those concerns:

- Reduce the proposed schedule to established times that we share with our neighbors
 - M-F: 7:00 AM to 8:30 PM (Lights off at 8:30 PM)
 - Saturday: 7:00 AM to 10:00 PM with no hockey after 8:30 PM (this will allow for open free skate time as part of weekend activities for students)
 - Sunday: 10:00 AM to 8:30 PM
- The established schedule will help avoid any surprise sound from pucks
- Likewise, we will provide an advanced schedule for the four winter classic game days
 - Friday, December 1, 2023
 - Wednesday, December 6, 2023
 - Saturday, January 20, 2024
 - Friday, February 16, 2024
- Install a fence between the rink and the neighboring properties along Green Street
- Our rink operation is limited to four and a half months of the year (during a time of year when doors and windows are closed, further reducing sound issues)
- There will be no PA system installed at the rink.
- There will be walls installed around the chiller to absorb and block sound. The current decibel level at the chiller is 53 decibels. Applying universal standards. Our closest neighbor is over 300' away.

We greatly appreciate the community's support and we are hopeful that these proposed changes will satisfactorily address the concerns raised at the last meeting. We are hopeful to obtain approval in order to support our JV hockey athletes for the 2023-24 season.



September 5, 2023

Ms. Susan Harrington
Chief Financial Officer
Brewster Academy
Via Email Transmission

RE: Strategies for Reducing Outdoor Chiller Noise Levels at Brewster Academy Outdoor Ice Rink

Dear Ms. Harrington:

The Brewster Academy Outdoor Ice Rink serves as a valuable resource for the community, providing recreational opportunities for individuals of all ages. However, the noise generated by the chiller associated with the ice rink has been reported as exceeding the desired sound levels for the surrounding environment. We wish to explore a comprehensive strategy for reducing the sound levels produced by the chiller, with the objective of minimizing noise disturbances for nearby residents and users of the facility. The unique challenge in this context is the absence of defined sound ordinances in the community, which makes compliance with noise standards subjective rather than quantitative. Despite this challenge, the proposed solution involves the implementation of masonry walls with sound-absorbing blocks, considering principles of sound propagation, absorption, and barrier design.

1. Introduction

The Brewster Academy Outdoor Ice Rink offers a place for community members to engage in ice-related activities and connect with neighbors. However, the noise generated by the chiller system can introduce challenges to the tranquility of the area. This paper aims to provide insights into effective strategies for mitigating chiller noise levels at the Brewster Academy Outdoor Ice Rink. Given the absence of established sound ordinances in the community, the proposed solutions are based on principles of sound reduction, taking into consideration the unique context of the facility.

2. Sound Levels and Perception

Sound levels are an integral aspect of the auditory experience. The initial sound level of the chiller at Brewster Academy's ice rink measures 53 dB, which is considered moderately loud. The subjective nature of sound perception complicates the assessment of noise disturbances, especially in the absence of quantitative sound ordinances. The challenge is to reduce the sound level to 40 dB at a distance of 150 feet, aiming to achieve a balance between the operational needs of the ice rink and the comfort of nearby residents. As the background community noise level exceeds 40 dB, this target represents cutting the audible sound level by 50% and may be optimistic.

Noise Reduction Strategies & Sound Propagation and Barrier Design

Understanding the principles of sound propagation is crucial for effective noise reduction. The proposed noise barrier consists of masonry walls, strategically designed to impede the transmission of sound waves. Given the unique needs of the Brewster Academy ice rink, the barrier's height is set to be 3 feet taller than



Ms. Susan Harrington
September 5, 2023
Page 2

the chiller. This consideration aims to prevent sound from traveling over the top of the barrier and impacting neighboring properties.

Sound Absorption

The integration of sound-absorbing materials into the masonry wall is pivotal for reducing noise levels. Porous materials such as mineral wool, foam, and fiberglass are employed as sound-absorbing blocks. These materials convert sound energy into heat, mitigating sound reflections and transmissions through the barrier. The choice of materials ensures that the barrier contributes effectively to noise reduction efforts.

3.3. Barrier Placement and Orientation

Strategic placement of the noise barrier is essential for optimal noise reduction. By considering the angles of incidence and the line of sight between the chiller and adjoining properties, the barrier's orientation minimizes direct sound paths to receiver locations. The goal is to intercept sound waves effectively and prevent their propagation toward sensitive areas.

Ground Reflection and Absorption

The ground surface surrounding the Brewster Academy ice rink influences sound propagation. Hard surfaces like concrete can reflect sound waves, exacerbating noise issues. The integration of soft, absorptive surfaces such as grass or soil helps mitigate sound reflections. Incorporating such landscaping around the chiller area contributes to overall noise reduction.

Barrier Design and Materials

The design and materials of the noise barrier are critical factors in achieving effective noise reduction. The barrier's surface, shape, and construction are optimized for maximum sound absorption and transmission loss. The incorporation of sound-absorbing materials further enhances the barrier's efficiency in reducing noise levels.

Acoustic Modeling and Simulation

Prior to constructing the noise barrier, acoustic modeling and simulation tools are employed to predict its performance. Simulation software considers variables such as barrier height, materials, and distances to estimate the expected reduction in sound levels. These simulations assist in refining the barrier design, ensuring its effectiveness in meeting the desired noise reduction objectives.

Monitoring and Maintenance

Upon the installation of the noise barrier, continuous monitoring of sound levels at Brewster Academy's ice rink and adjoining properties is essential. Regular assessments ensure that the barrier effectively reduces noise and aligns with the community's goals. If adjustments are necessary, they can be made to the barrier design, placement, or materials to address any unforeseen noise issues.

4/16



Ms. Susan Harrington
September 5, 2023
Page 3

Community Considerations and Universal Standards

A notable challenge faced by Brewster Academy is the absence of defined sound ordinances in the community. Without quantitative standards, complying with noise regulations becomes subjective. However, in neighboring communities, universal standards can be as low as 50 dB(A) at the property line, with variations between daytime and nighttime levels (e.g., 60 dB(A) during the day and 50 dB(A) at night). Adapting these standards as a reference could provide valuable insights for Brewster Academy's noise reduction efforts. Defining sound levels in community codes or ordinances permits fair governance and separates unusual sounds from those sounds that are excessive.

Conclusion

Attached are sketches illustrating the most effective means of reducing the sound and the sound-absorbing block typically used for such purposes.

Effectively addressing the noise levels of the chiller at Brewster Academy's Outdoor Ice Rink involves a comprehensive approach that considers the unique challenges posed by the absence of defined sound ordinances. By implementing masonry walls with sound-absorbing blocks tailored to the specific context of the facility, Brewster Academy can strike a balance between providing recreational opportunities and minimizing noise disturbances. The principles of sound propagation, absorption, and barrier design, coupled with considerations of community standards, guide the development of strategies that enhance the quality of life for both the users of the ice rink and the neighboring residents.

Please feel free to contact me with any questions.

Sincerely,

A handwritten signature in black ink, appearing to read 'John S. Burley'. The signature is fluid and cursive, with the first and last names being more prominent.

John S. Burley
Everything Ice, Inc.

Equipment sound levels without abatement wall



Appendix B

Table B-4 — Sound Pressure Levels 30 ft. From Side of Chiller
A-Weighted Sound Pressure with Comprehensive Acoustic Solution

| Unit Size | Level, dBA, ref 20 micro Pa | |
|-----------|-----------------------------|--------------|
| | 60 Hz @ 30 ft | 50 Hz @ 10 m |
| RTAC | | |
| 140 STD | 67 | 64 |
| 155 STD | 68 | 64 |
| 170 STD | 69 | 65 |
| 185 STD | 70 | 65 |
| 200 STD | 70 | 66 |
| 225 STD | 70 | NA |
| 250 STD | 70 | 66 |
| 275 STD | 71 | 67 |
| 300 STD | 72 | 68 |
| 350 STD | 72 | 68 |
| 375 STD | NA | 68 |
| 400 STD | 73 | 69 |
| 450 STD | 73 | NA |
| 500 STD | 73 | NA |
| 140 HIGH | 68 | 64 |
| 155 HIGH | 69 | 65 |
| 170 HIGH | 70 | 65 |
| 185 HIGH | 70 | 66 |
| 200 HIGH | 70 | 66 |
| 225 HIGH | 71 | 67 |
| 250 HIGH | 71 | 67 |
| 275 HIGH | 72 | 68 |
| 300 HIGH | 72 | 68 |
| 350 HIGH | 73 | 69 |
| 375 HIGH | 73 | 69 |
| 400 HIGH | 73 | 69 |

Note: 30 ft or 10 m is measured from the side of the chiller. Sound radiation at this distance will approximate a line noise source.



Appendix B

Table B-7 (60 Hz) — Octave Band Sound Power Levels, dB ref. 1 pw WITH COMPREHENSIVE

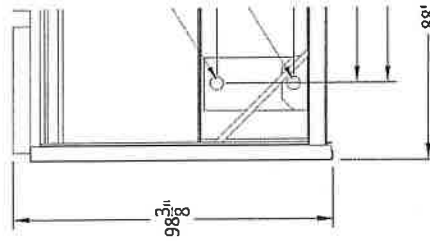
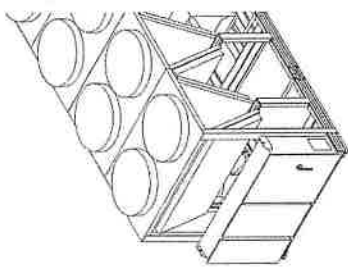
| Model RTAC | Octave Band & Center Frequency, Hz | | | | |
|------------|------------------------------------|-----|-----|-----|------|
| | 63 | 125 | 250 | 500 | 1000 |
| 140 STD | 87 | 95 | 96 | 93 | 90 |
| 155 STD | 87 | 96 | 96 | 93 | 91 |
| 170 STD | 88 | 96 | 97 | 95 | 92 |
| 185 STD | 88 | 97 | 97 | 96 | 92 |
| 200 STD | 88 | 97 | 98 | 96 | 92 |
| 225 STD | 88 | 97 | 98 | 97 | 92 |
| 250 STD | 88 | 97 | 99 | 97 | 92 |
| 275 STD | 90 | 98 | 99 | 97 | 94 |
| 300 STD | 89 | 99 | 100 | 98 | 94 |
| 350 STD | 90 | 99 | 100 | 98 | 94 |
| 400 STD | 91 | 100 | 101 | 99 | 95 |
| 450 STD | 91 | 100 | 101 | 100 | 95 |
| 500 STD | 91 | 101 | 102 | 100 | 96 |
| 140 HIGH | 88 | 96 | 97 | 94 | 91 |
| 155 HIGH | 88 | 97 | 97 | 95 | 91 |
| 170 HIGH | 88 | 97 | 97 | 95 | 92 |
| 185 HIGH | 88 | 97 | 98 | 96 | 92 |
| 200 HIGH | 88 | 98 | 98 | 97 | 93 |
| 225 HIGH | 88 | 98 | 99 | 97 | 93 |
| 250 HIGH | 89 | 98 | 99 | 97 | 93 |
| 275 HIGH | 90 | 99 | 99 | 97 | 94 |
| 300 HIGH | 90 | 99 | 100 | 98 | 94 |
| 350 HIGH | 91 | 100 | 100 | 98 | 95 |
| 400 HIGH | 91 | 101 | 101 | 100 | 96 |

Sound Power is a calculated quantity and cannot be measured directly like SOUND PRESSURE. Sound power is the absolute quantity and not dependent on the surrounding environment or distance, as is sound pressure. 32 measurement then mathematically reduced to give the sound power level, dB.

Table B-8 (50 Hz) — Octave Band Sound Power Levels, dB ref. 1 pw WITH COMPREHENSIVE

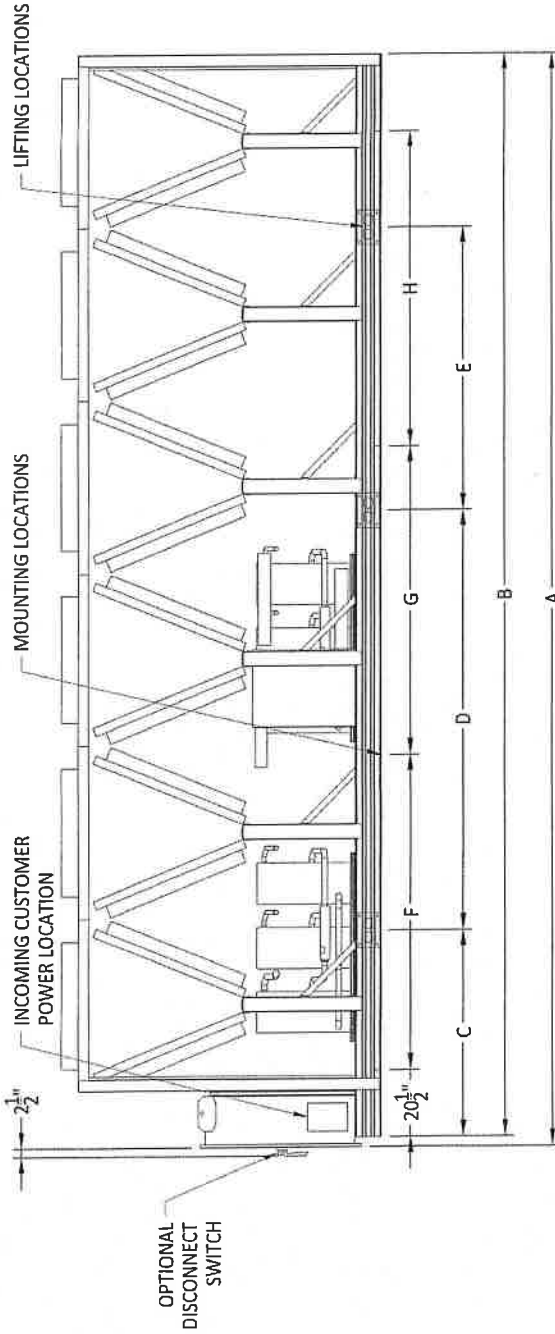
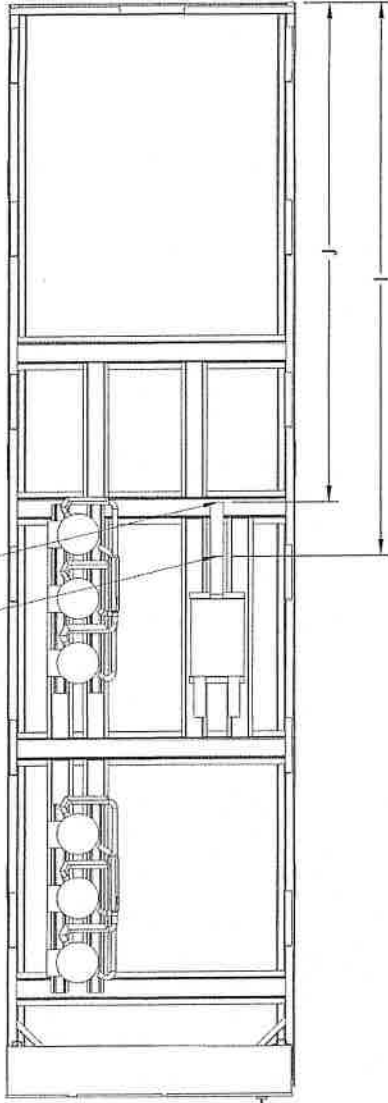
| Model RTAC | Octave Band & Center Frequency, Hz | | | | |
|------------|------------------------------------|-----|-----|-----|------|
| | 63 | 125 | 250 | 500 | 1000 |
| 140 STD | 86 | 91 | 94 | 89 | 86 |
| 155 STD | 86 | 91 | 92 | 89 | 87 |
| 170 STD | 86 | 91 | 93 | 89 | 87 |
| 185 STD | 86 | 92 | 93 | 90 | 87 |
| 200 STD | 86 | 92 | 94 | 90 | 87 |
| 225 STD | 86 | 92 | 94 | 90 | 87 |
| 250 STD | 86 | 92 | 94 | 90 | 87 |
| 275 STD | 87 | 93 | 95 | 92 | 89 |
| 300 STD | 86 | 94 | 96 | 92 | 91 |
| 350 STD | 88 | 94 | 96 | 93 | 90 |
| 400 STD | 88 | 95 | 97 | 93 | 90 |
| 450 STD | 88 | 95 | 97 | 93 | 91 |
| 500 STD | 88 | 95 | 97 | 93 | 91 |
| 140 HIGH | 87 | 93 | 95 | 92 | 89 |
| 155 HIGH | 87 | 93 | 95 | 92 | 89 |
| 170 HIGH | 87 | 93 | 95 | 92 | 89 |
| 185 HIGH | 87 | 93 | 95 | 92 | 89 |
| 200 HIGH | 87 | 93 | 95 | 92 | 89 |
| 225 HIGH | 87 | 93 | 95 | 92 | 89 |
| 250 HIGH | 87 | 93 | 95 | 92 | 89 |
| 275 HIGH | 87 | 93 | 95 | 92 | 89 |
| 300 HIGH | 86 | 94 | 96 | 92 | 91 |
| 350 HIGH | 88 | 94 | 96 | 93 | 90 |
| 400 HIGH | 88 | 95 | 97 | 93 | 91 |
| 450 HIGH | 88 | 95 | 97 | 93 | 91 |
| 500 HIGH | 88 | 95 | 97 | 93 | 91 |

Sound Power is a calculated quantity and cannot be measured directly like SOUND PRESSURE. Sound power is the absolute quantity and not dependent on the surrounding environment or distance, as is sound pressure. 32 measurement then mathematically reduced to give the sound power level, dB.



INLET WATER CONNECTION
OUTLET WATER CONNECTION

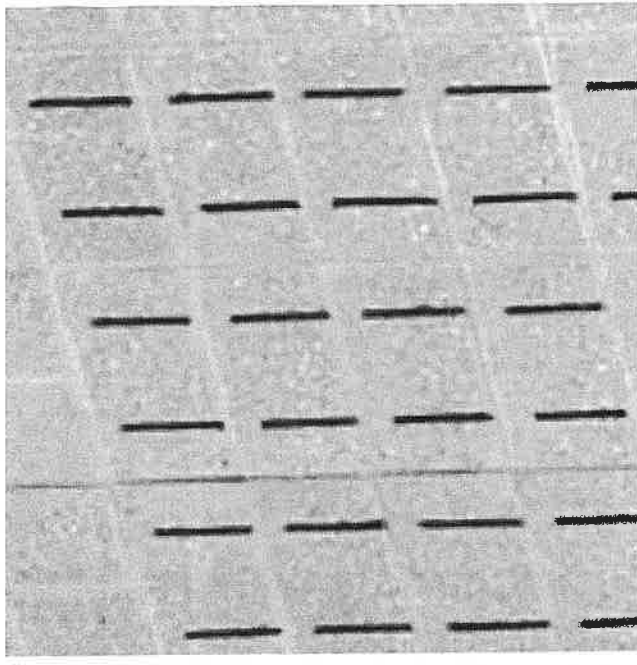
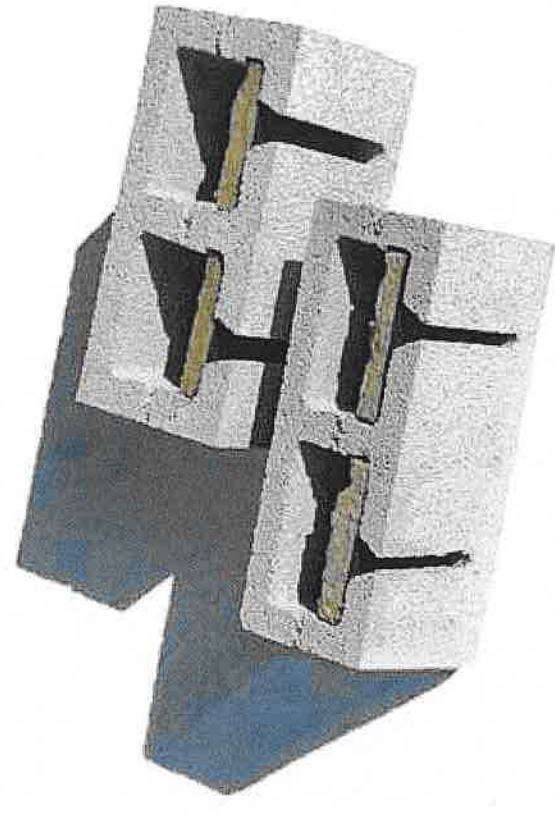
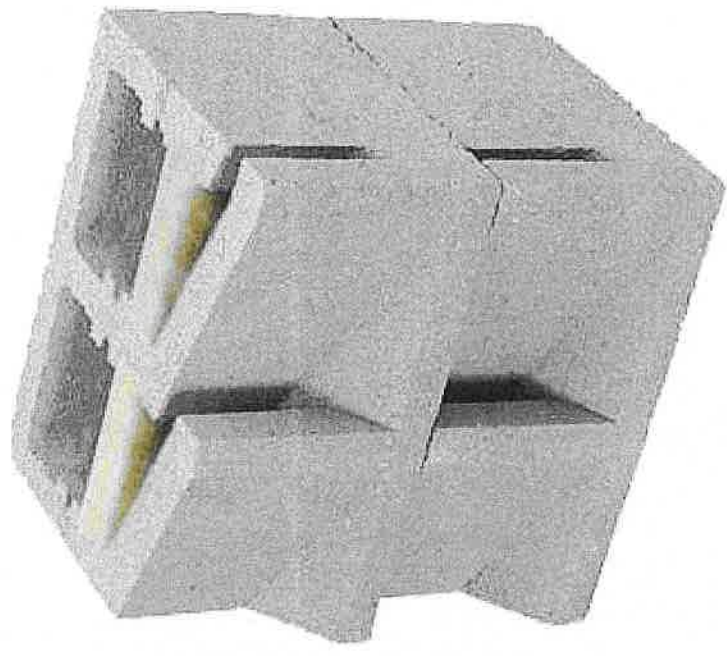
INLET/OUTLET CONNECTION = 4"



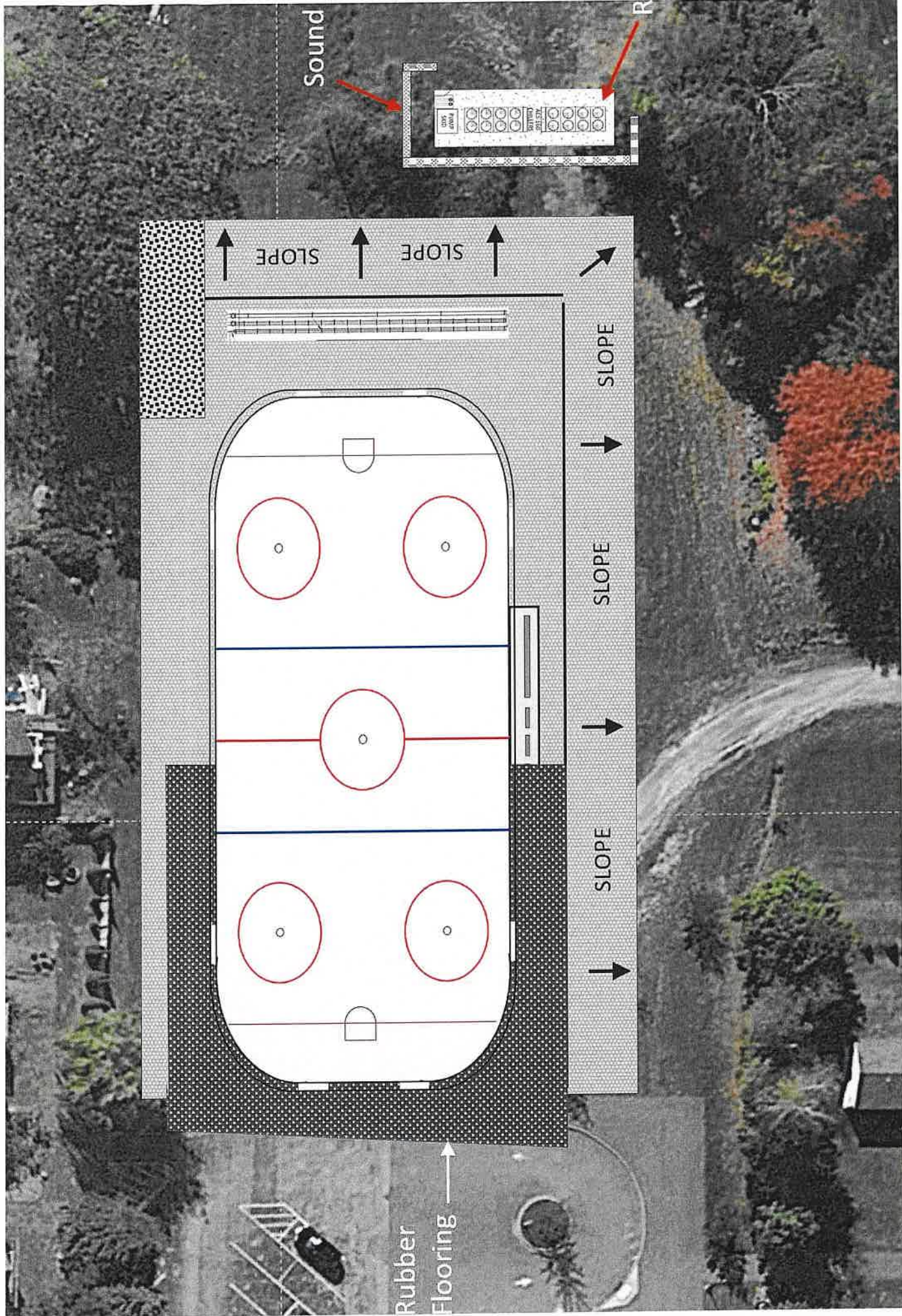
OPTIONAL DISCONNECT SWITCH

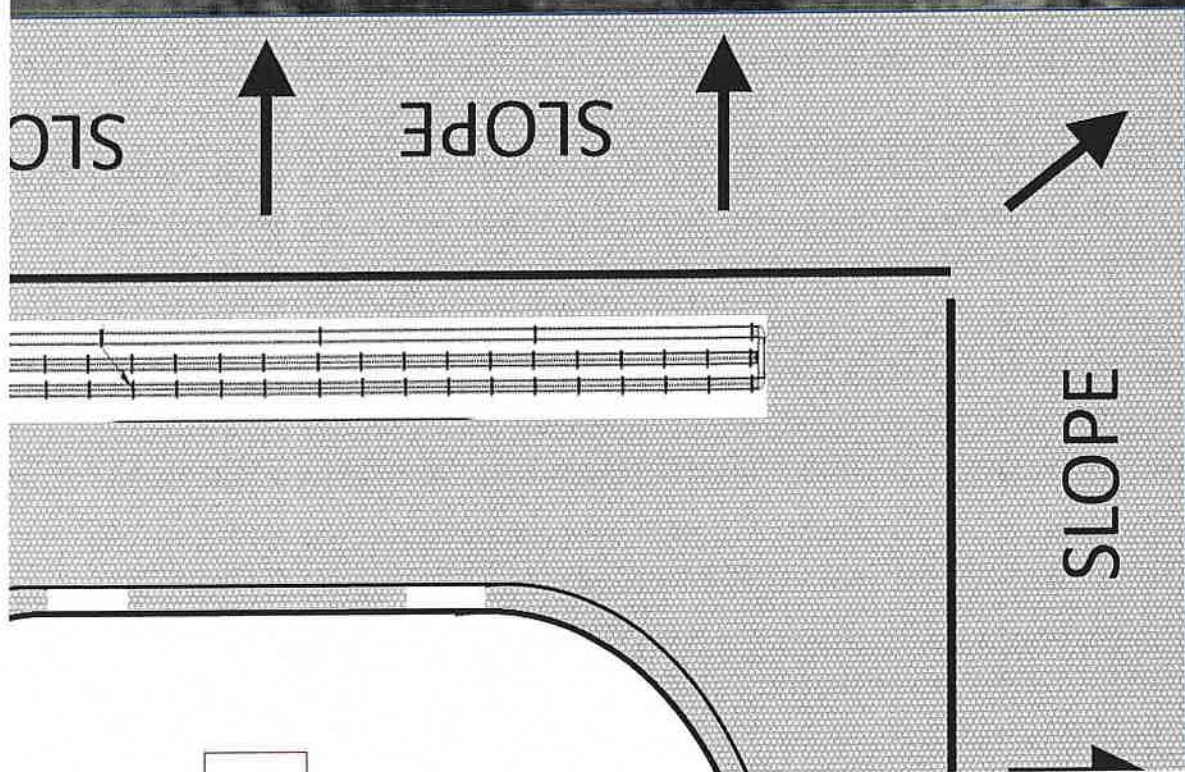
| UNIT SIZE | |
|-------------|-----------|
| ID | DIM (in) |
| A | 228.9 |
| B | 225.7 |
| C | 48.3 |
| D | 172.6 |
| F | 75.6 |
| G | 134.6 |
| H | 189.8 |
| I | 64.1 |
| J | 58.9 |
| K | 64.3 |
| L | 64.3 |
| UNIT WEIGHT | |
| SHIPPING | OPERATING |
| 7754 lb | 7897 lb |

7/16



Examples of so
absorbing blc

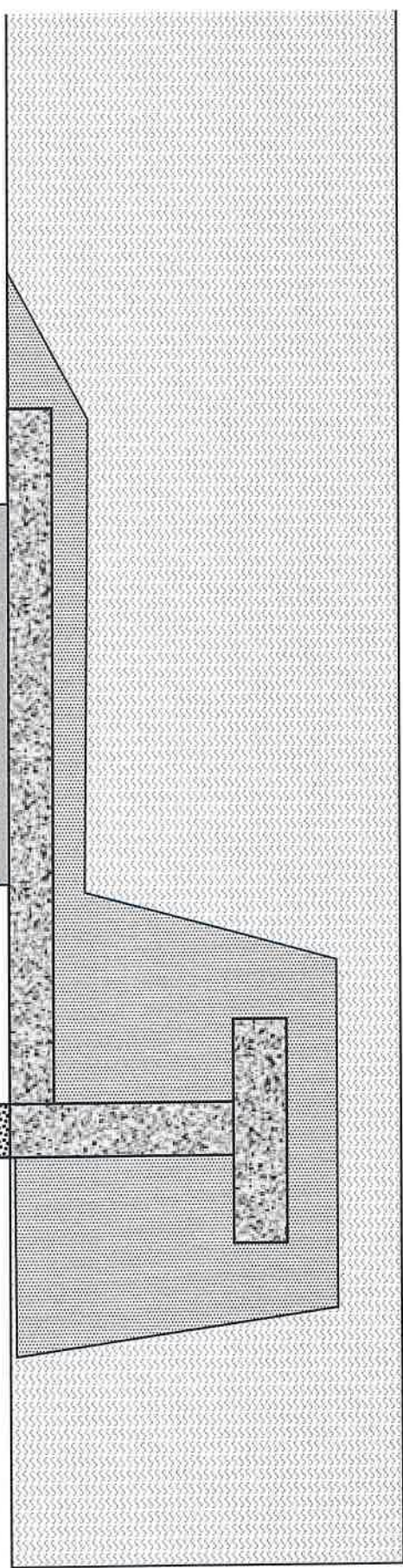
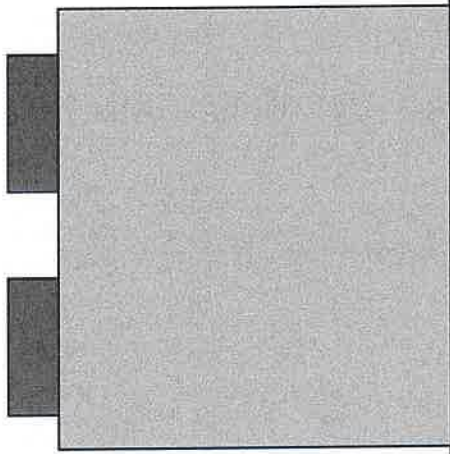
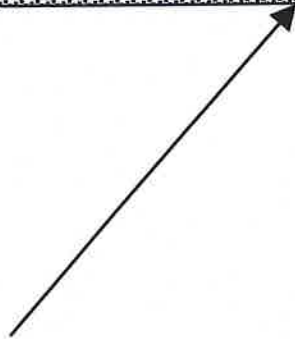


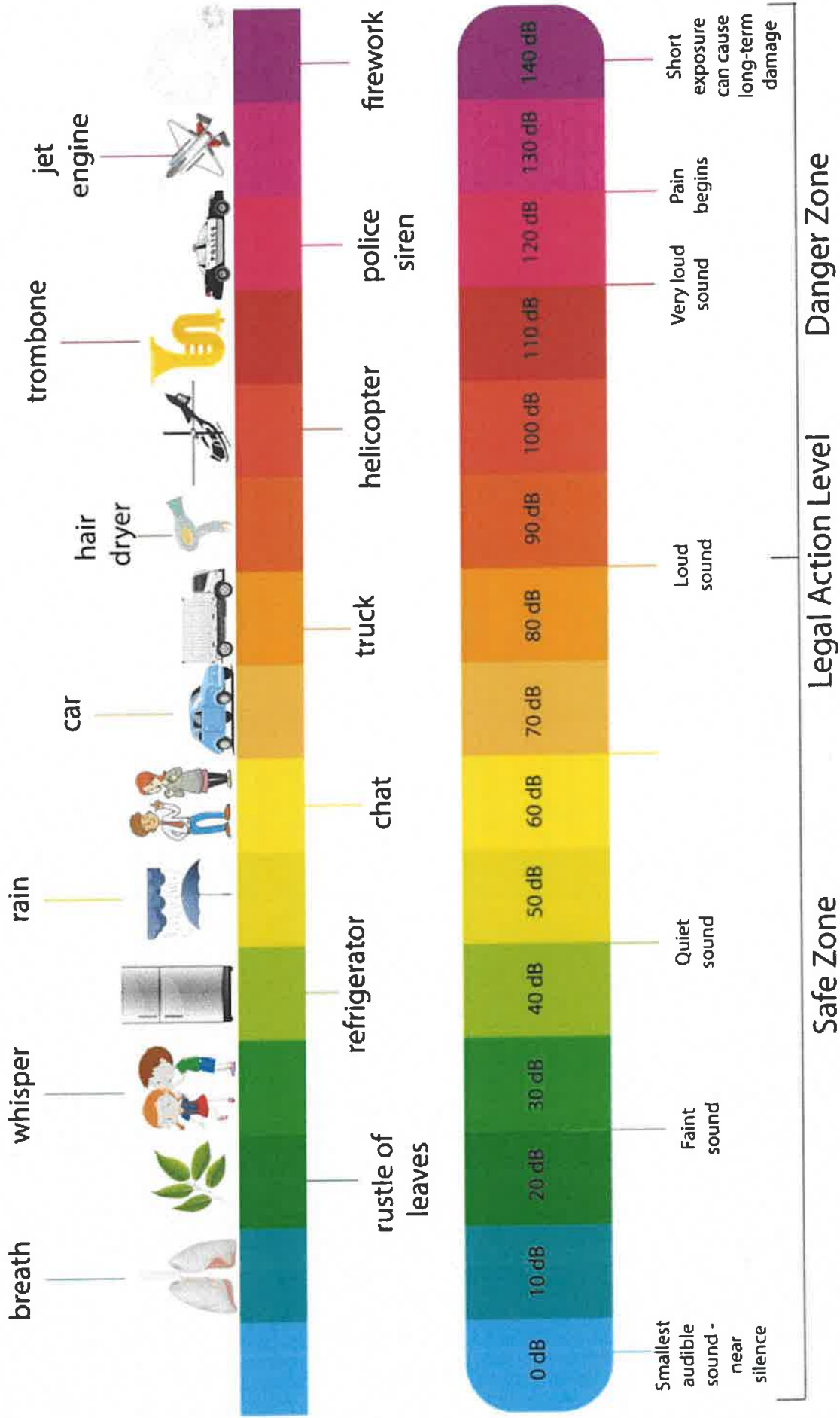


Sound Absorbing Block



Sound Wall







**Stormwater Design/ Analysis
and Inspection & Maintenance Manual
for**

Brewster Academy Ice Rink

Project Location: Brewster Campus, Wolfeboro, NH



Background

This project consists of erecting and maintaining an outdoor ice rink at Brewster Academy, including ice surface, boards, plexiglass walls, netting, lighting, rubberized surfaces, water supply and chillers to maintain the ice, Zamboni shed, and stormwater management system. The rink will be used during the winter season only, as it is outdoors and exposed to the ambient air. The Town of Wolfeboro granted Brewster Academy temporary approval to erect the rink this past year, but site plan review and approval from the Planning Board is needed to continue operating the rink.

Project Plans

A set of plans, consisting of a pre-development existing conditions plan and post-development proposed conditions plan of the site, accompanies this report. These plans show all project impact areas and the stormwater runoff mitigation measures proposed to address the Town of Wolfeboro's stormwater management regulations.

Stormwater Runoff Mitigation

Existing Conditions: The existing site, prior to the erection of the rink, was a grassy, undeveloped field which sloped gently from east to west. Anderson Hall and a small parking area are located immediately to the east/ northeast of the rink. A gravel access road on the northwest of the site connects the parking area with Estabrook Road. A few single-family homes are located immediately southeast of the rink on Green Street. Stormwater runoff sheet flows across the site in a westerly direction. A ditch running along the southwest side of the site conveys runoff to a stone-lined drainage swale to the west of the site where it ultimately ends up in Lake Winnepesaukee, located approximately 1,000 feet to the west.

Proposed Conditions: The ice rink occupies a surface area of 17,200 square feet (SF). Additionally, a Zamboni shed, 12-foot-wide Zamboni path, and proposed walkways around the rink collectively occupy a surface area of 4,940 SF. The result is a net increase in impervious area from pre- to post-development of 22,140 SF for the project. Stormwater from the rink and new walkways will be treated and infiltrated into the ground using a stone-filled infiltration trench with 24" perforated pipe.

Computer Stormwater Runoff Modeling

The infiltration trench is to be located immediately adjacent to the rink at the top of the fill slope, to take advantage of the infiltrative capacity of the fill material (crushed gravel) used to build the rink. An infiltration rate of 0.5 inches per hour was used in the model, which is less than the range of infiltration rates typical for crushed gravel (established range is greater than 0.8 inches per hour for gravel and coarse sands.) The Natural Resources Conservation Service (NRCS) data indicates that the native soil is Woodbridge series with Ksat values in the B horizon ranging from 0.6 to 2.0 inches per hour, and C horizon ranging from 0.0 to 0.6 in/hr. Test pits dug for the stormwater system design indicate that the native soils do not have a very good infiltrative capacity, which is why the infiltration system was located in the fill soils. The fill on the site ranges from 2 feet deep at the northerly end of the rink and 6 feet deep at the southerly end of the rink. Rainfall data utilized was from the Northeast Regional Climate Center. Hydrocad modeling software was utilized in the design of the stormwater management system, and the results are summarized below:

| FLOWRATE IN CUBIC FEET PER SECOND – DESIGN POINT #1 | | | | | | | | | |
|---|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| 1-INCH | | 2-YEAR | | 10-YEAR | | 25-YEAR | | 50-YEAR | |
| Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev |
| 0.57 | 0.41 | 2.67 | 2.26 | 4.16 | 3.54 | 5.29 | 4.52 | 6.31 | 5.38 |

| RUNOFF VOLUME IN ACRE-FEET – DESIGN POINT #1 | | | | | | | | | |
|--|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| 1-INCH | | 2-YEAR | | 10-YEAR | | 25-YEAR | | 50-YEAR | |
| Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev |
| 0.039 | 0.024 | 0.188 | 0.173 | 0.300 | 0.289 | 0.387 | 0.381 | 0.466 | 0.464 |

| FLOWRATE IN CUBIC FEET PER SECOND – DESIGN POINT #2 | | | | | | | | | |
|---|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| 1-INCH | | 2-YEAR | | 10-YEAR | | 25-YEAR | | 50-YEAR | |
| Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev |
| 0.01 | 0.01 | 1.61 | 1.42 | 3.40 | 2.92 | 4.90 | 4.17 | 6.31 | 5.34 |

| RUNOFF VOLUME IN ACRE-FEET – DESIGN POINT #2 | | | | | | | | | |
|--|----------|---------|----------|---------|----------|---------|----------|---------|----------|
| 1-INCH | | 2-YEAR | | 10-YEAR | | 25-YEAR | | 50-YEAR | |
| Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev | Pre-Dev | Post-Dev |
| 0.007 | 0.007 | 0.161 | 0.129 | 0.325 | 0.255 | 0.464 | 0.377 | 0.598 | 0.508 |

The complete Hydrocad report, along with supporting data, is attached.

Water Quality

The stormwater flowing onto the site from the parking area to the northeast is routed around the site to Design Point 1 and is collected with deep-sump catch basins and treated with a grassed swale. The stormwater from the new rink and walkways is routed to the infiltration system and then to grassed swales to Design Point 2. The combination of deep sump catch basins, infiltration trenches, and grassed swales effectively mitigates any negative impacts on water quality due to development that could be reasonably expected.

See information on pages 4, 5, & 6 regarding how town requirements for removal of total suspended solids (TSS), Total Nitrogen (TN), and Total Phosphorous (TP) are being met.

Groundwater Recharge

Groundwater recharge is accomplished in general by directing stormwater runoff to areas where it is allowed to infiltrate back into the ground, such as rain gardens, vegetated areas, infiltration basins or trenches, and the like; it involves refraining from concentrating stormwater runoff in collection systems to the highest extent possible. The Groundwater Recharge Volume (GRV) is based on the following equation:

$$GRV = (Ai)(Rd)$$

Where A_i is the change in impervious cover from pre- to post-development
And R_d is the groundwater Recharge depth based on soil type

Soil type from NRCS = Group C (Woodbridge)
 R_d for Woodbridge soil is $0.10'' = 0.00833$ feet

For this project, the required GRV is calculated as follows:

Pre-Development impervious area = 0 SF
Post- Development impervious area = 22,140 SF = 0.508 ac
Increase in impervious cover = 22,140 SF = 0.508 ac

$$GRV \text{ required} = 22,140 \text{ SF}(0.00833) = 185 \text{ CF} \approx 1,384 \text{ gallons}$$

The volume infiltrated in the infiltration trenches is the storage below the invert out, which is elevation 570.00 and is calculated as follows:
Stone-filled trenches are 5' wide by 200' long by 1' deep (depth of stone below the 24" pipe invert) with a 40% void space. There is one trench on each of the long sides of the rink.
The perforated pipe within the trenches is 24" diameter by 200 feet long on each side.

$$\text{Storage volume in trenches: } 200 \times 5 \times 1 \times 2 \times 0.40 = 800 \text{ CF} = 5,984 \text{ gal.}$$

Groundwater Recharge Volume Provided \approx 6,000 gallons

Note that the volume far exceeds the GRV required but is needed to meet the flowrate and volume requirements for a 50-year storm.

§ 173-21. Stormwater regulations. [Amended 3-15-2022 by Planning Board]

- (f) Surface runoff shall be directed into appropriate stormwater control measures designed for treatment and/or filtration to the maximum extent practicable and/or captured and reused on-site.
- (g) All newly generated stormwater from new development shall be treated on the development site. A development plan shall include provisions to retain natural predevelopment watershed areas on the site by using the natural flow patterns.
- (h) **Runoff from impervious surfaces shall be treated to achieve at least 80% removal of total suspended solids and at least 50% removal of both total nitrogen and total phosphorus using appropriate treatment measures, as specified in the New Hampshire Stormwater Manual, Volumes 1 and 2, December 2008, or most current as amended, or other equivalent means, except where there is a water impairment as discussed in Subsection E(2)(b), below. Where practical, the use of natural, vegetated filtration and/or infiltration practices or subsurface gravel wetlands for water quality treatment is preferred. All new impervious area draining to surface waters impaired by nitrogen, phosphorus or nutrients shall be treated with stormwater BMPs designed to optimize pollutant removal efficiencies based on design standards and performance data published by the University of New Hampshire Stormwater Center and/or included in the latest version of the New Hampshire Stormwater Manual.**
- (i) Measures shall be taken to control the post-development peak runoff rate so that it does not exceed predevelopment runoff. Drainage analyses shall include calculations comparing pre- and post-development stormwater runoff rates (cubic feet/second) and volumes (cubic feet) for the one-inch rainstorm and two-year, ten-year, twenty-five-year, and fifty-year, twenty-four-hour storm events. Similar measures shall be taken to control the post-development runoff volume to infiltrate the groundwater recharge volume (GRV) according to the following ratios of hydrologic soil group (HSG) type versus infiltration rate multiplier: HSG-A: 0.4; HSG-B: 0.25; HSG-C: 0.1; HSG-D: 0.00. For sites where infiltration is limited or not practicable, the applicant must demonstrate that the project will not create or contribute to water quality impairment.
- (j) The physical, biological and chemical integrity of the receiving waters shall not be degraded by the stormwater runoff from the development site.
- (k) The design of the stormwater drainage system shall provide for the disposal of stormwater without flooding or functional impairment to streets, adjacent properties, downstream properties, soils, or vegetation.
- (l) The design of the stormwater management systems shall account for upstream and upgradient runoff that flows onto, over, or through the site to be developed or redeveloped and provide for this contribution of runoff.
- (m) Appropriate erosion and sediment control measures shall be installed prior to any soil disturbance, the area of disturbance shall be kept to a minimum, and any sediment in runoff shall be retained within the project area. Wetland areas and surface waters shall be protected from sediment. Disturbed soil areas shall be either temporarily or permanently stabilized consistent with the New Hampshire Department of Environmental Services Stormwater Manual Volume 3 Guidelines (December, 2008), or latest edition, as amended. In areas where final grading has not occurred, temporary stabilization measures should be in place within seven days for exposed soil areas within 100 feet of a surface water body or wetland and no more than 14 days for all other areas. Permanent

(Excerpt from NH Stormwater Manual Volume 2)

Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis

Best Management Practice (BMP) removal efficiencies for pollutant loading analysis for total suspended solids (TSS), total nitrogen (TN), and total phosphorus (TP) are presented in the table below. These removal efficiencies were developed by reviewing various literature sources and using best professional judgment based on literature values and general expectation of how values for different BMPs should relate to one another. The intent is to update this information and add BMPs and removal efficiencies for other parameters as more information/data becomes available in the future.

NHDES will consider other BMP removal efficiencies if sufficient documentation is provided.

Please note that all BMPs must be designed in accordance with the specifications in the Alteration of Terrain (AoT) Program Administrative Rules (Env-Wq 1500). If BMPs are not designed in accordance with the AoT Rules, NHDES may require lower removal efficiencies to be used in the analysis.

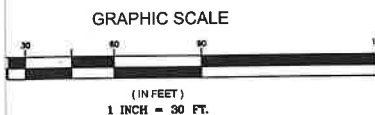
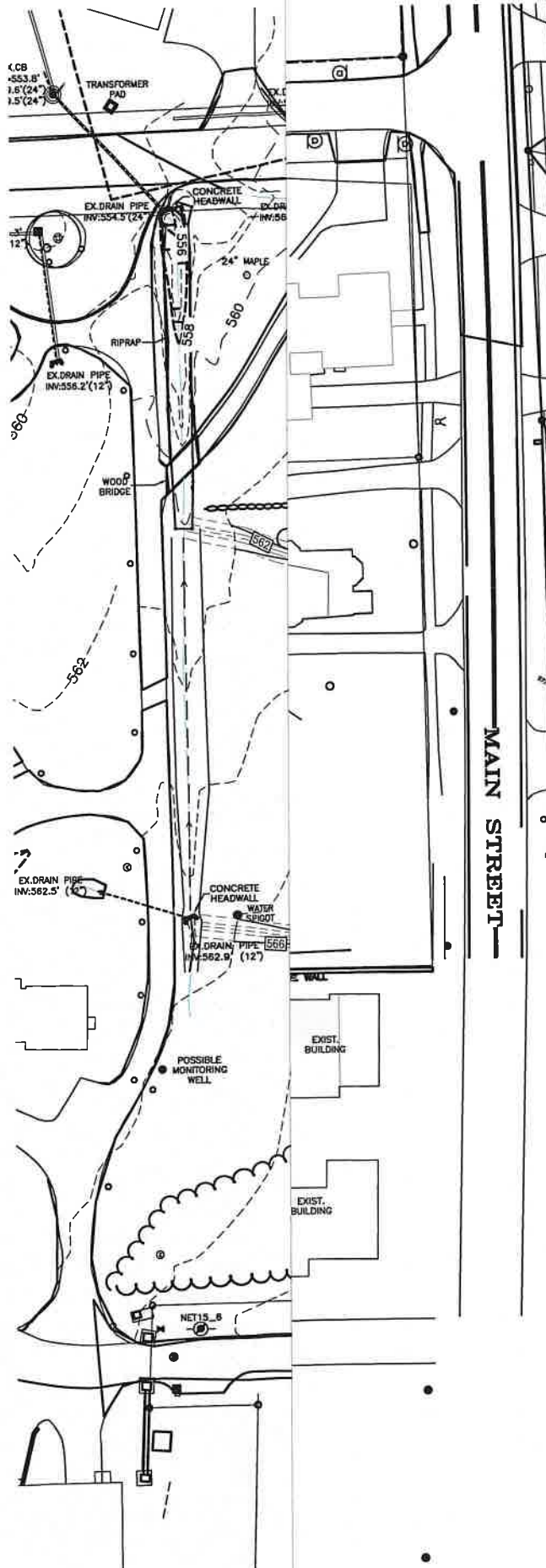
BMP in Series: When BMPs are placed in series, the BMP with the highest removal efficiency shall be the efficiency used in the model for computing annual loadings. Adding efficiencies together is generally not allowed because removals typically decrease rapidly with decreasing influent concentration and, in the case of primary BMPs (i.e., stormwater ponds, infiltration and filtering practices), pre-treatment is usually part of the design and is therefore, most likely already accounted for in the efficiencies cited for these BMPs.

15/16

(Excerpt from NH Stormwater Manual Volume 2)

| Pollutant Removal Efficiencies for Best Management Practices for Use in Pollutant Loading Analysis | | | | Values Accepted for Loading Analyses | | |
|---|---|-------|--|---|-----|-----|
| BMP Type | BMP | Notes | Lit. Ref. | TSS | TN | TP |
| Stormwater Ponds | Wet Pond | | B, F | 70% | 35% | 45% |
| | Wet Extended Detention Pond | | A, B | 80% | 55% | 68% |
| | Micropool Extended Detention Pond | TBA | | | | |
| | Multiple Pond System | TBA | | | | |
| | Pocket Pond | TBA | | | | |
| Stormwater Wetlands | Shallow Wetland | | A, B, F, I | 80% | 55% | 45% |
| | Extended Detention Wetland | | A, B, F, I | 80% | 55% | 45% |
| | Pond/Wetland System | TBA | | | | |
| | Gravel Wetland | | H | 95% | 85% | 64% |
| Infiltration Practices | Infiltration Trench (≥ 75 ft from surface water) | | B, D, I | 90% | 55% | 60% |
| | Infiltration Trench (< 75 ft from surface water) | | B, D, I | 90% | 10% | 60% |
| | Infiltration Basin (≥ 75 ft from surface water) | | A, F, B, D, I | 90% | 60% | 65% |
| | Infiltration Basin (< 75 ft from surface water) | | A, F, B, D, I | 90% | 10% | 65% |
| | Dry Wells | | | 90% | 55% | 60% |
| | Drip Edges | | | 90% | 55% | 60% |
| | | | | | | |
| Filtering Practices | Aboveground or Underground Sand Filter that infiltrates WQV (≥ 75 ft from surface water) | | A, F, B, D, I | 90% | 60% | 65% |
| | Aboveground or Underground Sand Filter that infiltrates WQV (< 75 ft from surface water) | | A, F, B, D, I | 90% | 10% | 65% |
| | Aboveground or Underground Sand Filter with underdrain | | A, I, F, G, H | 85% | 10% | 45% |
| | Tree Box Filter | TBA | | | | |
| | Bioretention System | | I, G, H | 90% | 65% | 65% |
| | Permeable Pavement that infiltrates WQV (≥ 75 ft from surface water) | | A, F, B, D, I | 90% | 60% | 65% |
| | Permeable Pavement that infiltrates WQV (< 75 ft from surface water) | | A, F, B, D, I | 90% | 10% | 65% |
| | Permeable Pavement with underdrain | | Use TN and TP values for sand filter w/ underdrain and outlet pipe | 90% | 10% | 45% |

Infiltration trench
removes 90% TSS,
85% TN & 64% P



80 Academy Drive
Wolfeboro, NH 03894

Ice Rink Improvements

Rist Frost Shumway Engineering, P.C.
71 Water Street
Laconia, NH 03246
603.524.4647
RFS Project #: 10182.001



DSK Dewing Schmid Kearns
ARCHITECTS + PLANNERS

Suite 200B
30 Monument Square
Concord, MA 01742
978.371.7500

280 Elm Street
South Dartmouth
MA 02748

www.dskap.com

PERMITTING SET

| NO. | DATE | REVISION | BY |
|-----|------------|----------|----|
| 1 | 07/24/2023 | | |
| 2 | 08/29/2023 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

TITLE

SITE PLAN

DATE 06/30/2023
SCALE 1" = 30'
JOB NO.
DRAWN BY

C202

16/16

OSQ Series

OSQ™ LED Area/Flood Luminaire featuring Cree TrueWhite® Technology – Extra Large

Rev. Date: V3 07/18/2022

Product Description

The OSQ™ Extra Large Area/Flood luminaire blends extreme optical control, advanced thermal management and modern, clean aesthetics. Built to last, the housing is rugged cast aluminum with an integral, weathertight LED driver compartment. Versatile mounting configurations offer simple installation. Its slim, low-profile design minimizes wind load requirements and blends seamlessly into the site providing even, quality illumination. The OSQ extra large luminaire is a suitable upgrade for HID applications with one or even multiple 1000 Watt luminaires.

Applications: Auto dealerships, parking lots, campuses, facade lighting, high-mast and general site lighting applications

Performance Summary

Utilizes Cree TrueWhite® Technology on 5000K Luminaires

NanoOptic® Precision Delivery Grid™ optic

Assembled in the USA by Cree Lighting from US and imported parts

Initial Delivered Lumens: 25,500 - 86,000

Efficacy: 162 LPW

CRI: Minimum 70 CRI (3000K, 4000K & 5700K); 90 CRI (5000K)

CCT: 3000K, 4000K, 5000K, 5700K

Limited Warranty*: 10 years on luminaire; 10 years on Colorfast DeltaGuard® finish; 5 years for PML sensor; up to 5 years for Synapse® accessories; 1 year on luminaire accessories

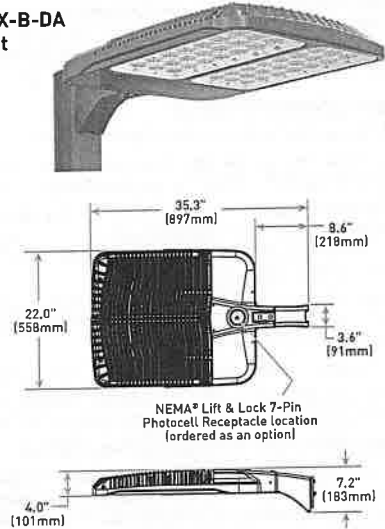
* See www.creelighting.com/warranty for warranty terms. For Synapse accessories, consult Synapse spec sheets for details on warranty terms.

Ordering Information

Fully assembled luminaire is composed of two components that must be ordered separately:

Example: Mount: OSQ-X-AA-SV + Luminaire: OSQ-B-40L-30K7-2M-UL-NM-SV

OSQ-X-B-DA Mount



| Lumen Package | Voltage | Weight |
|---------------|----------|--------------------|
| 40/50L | 120-480V | 70.0 lbs. [31.8kg] |
| 65L/75L | 120-480V | 72.0 lbs. [32.7kg] |

Note: Refer to page 12 for fixture mounting drill pattern. For OSQ-X-B-AA mount diagram, refer to page 13.

Mount (Luminaire must be ordered separately)*

OSQ-X-B-

OSQ-X-B-AA Adjustable Arm

OSQ-X-B-DA Direct Arm

Color Options: SV Silver BK Black BZ Bronze WH White

* Reference EPA and pole configuration suitability data beginning on page 11

Luminaire (Mount must be ordered separately)

| OSQ | X | B | | | | | NM | | | |
|--------|------|--------|--|--|---|---|-------------------|--|--|---|
| Family | Size | Series | Lumen Package** | CCT/CRI | Optic | Voltage | Mount | Color Options | Controls*** | Options |
| OSQ | X | B | 40L 40,000 Lumens 50L 50,000 Lumens 65L 65,000 Lumens 75L 75,000 Lumens | 30K7 3000K, 70 CRI 40K7 4000K, 70 CRI 50K9 5000K, 90 CRI 57K7 5700K, 70 CRI | Asymmetric 2M* 4M* Type II Type IV Medium Medium 3M* AF* Type III Automotive Medium FrontlineOptic™ Symmetric 5M 44 Type V NEMA® 4x4 Medium 55 5N NEMA® 5x5 Type V 66 Narrow NEMA® 6x6 N3 75 Narrow NEMA® 7x5 Flood 33 NEMA® 3x3 | UL Universal 120-277V - All lumen packages UM Universal 208-480V - 75L lumen package only UE Universal 277-480V - 65L lumen package only UH Universal 347-480V - 40L & 50L lumen packages only | NM No Mount | BK Black BZ Bronze SV Silver WH White | PML Programmable Multi-Level, up to 40° Mounting Height - Refer to PML spec sheet for details - Not available with 65L or 75L - Intended for downlight applications at 0° tilt Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1 Field Adjustable Output - Must select Q9, Q8, Q7, Q6, Q5, Q4, Q3, Q2, or Q1 - Not available with 65L or 75L when ordered w/R option - Offers full range adjustability - Refer to pages 14-17 for power and lumen values - Not available with PML option X8/X7/X6/X5/X4/X3/X2/X1 Locked Lumen Output - Must select X8, X7, X6, X5, X4, X3, X2, or X1 - Not available with 65L or 75L when ordered w/R option - Lumen output is permanently locked to the setting selected - Refer to pages 14-17 for power and lumen values - Not available with PML option | 20KV20kV/10kA Surge Suppression - Replaces standard 10kV/5kA surge protection F Fuse - Compatible with 120V, 277V or 347V (phase to neutral) - Consult factory if fusing is required for 208V, 240V or 480V (phase to phase) - When code dictates fusing, use time delay fuse R NEMA® Lift & Lock 7-Pin Photocell Receptacle - 7-pin receptacle per ANSI C136.41 - Intended for downlight applications with maximum 45° tilt - Factory connected 0-10V dim leads - 12" [305mm] seven-conductor leads exit luminaire - Requires photocell or shunting cap by others - Not available with 65L or 75L when ordered w/Q or X options - Refer to page 2 for compatible Synapse control offerings RL Rotate Left - LED and optic are rotated to the left - Refer to RR/RL configuration diagram on page 13 for optic directionality RR Rotate Right - LED and optic are rotated to the right - Refer to RR/RL configuration diagram on page 13 for optic directionality |

* Available with Backlight Shield when ordered with field-installed accessory (on page 21).

** Lumen Package selection codes identify approximate light output only. Actual lumen output levels vary depending on CCT and optic selection. Refer to Initial Delivered Lumen tables for specific lumen values.

*** Luminaire comes standard with 0-10V dimming.



CREE LIGHTING

US: creelighting.com (800) 236-6800

Canada: creelighting-canada.com (800) 473-1234

Product Specifications

CREE TRUEWHITE® TECHNOLOGY

A revolutionary way to generate high-quality white light, Cree TrueWhite® Technology is a patented approach that delivers an exclusive combination of 90+ CRI, beautiful light characteristics and lifelong color consistency, all while maintaining high luminous efficacy – a true no compromise solution.

CONSTRUCTION & MATERIALS

- Slim, low profile design minimizes wind load requirements
- Luminaire housing is rugged die cast aluminum with an integral, weather-tight LED driver compartment and high-performance heat sink
- Convenient interlocking mounting method on direct arm mount. Mounting adaptor is rugged die cast aluminum and mounts to 3" (76mm) or larger square or round pole, secured by two 5/16-18 UNC bolts spaced on 2" (51mm) centers
- Adjustable arm that mounts to a horizontal or vertical 2" (51mm) IP, 2.375-2.50" (60-64mm) O.D. steel tenon. Tenon length must be a minimum of 3.75" (95mm)
- Adjustable arm mount can be adjusted 180° in 5.0° increments
- Includes 12" (305mm) 18/5 or 16/5 leads exiting the luminaire. When ordered with R option, 12" (305mm) 18/7 or 16/7 leads are provided
- Designed for uplight and downlight applications
- Exclusive Colorfast DeltaGuard® finish features an E-Coat epoxy primer with an ultra-durable powder topcoat, providing excellent resistance to corrosion, ultraviolet degradation and abrasion. Silver, bronze, black, and white are available
- **Weight:** See Dimension and Weight Chart on pages 1 and 13

ELECTRICAL SYSTEM

- **Input Voltage:** 120-277V, 208-480V, 277-480V or 347-480V, 50/60Hz, Class 1 drivers
- **Power Factor:** > 0.9 at full load
- **Total Harmonic Distortion:** < 20% at full load
- Integral 10kV/5kA surge suppression protection standard; 20kV/10kA surge suppression protection optional
- When code dictates fusing, a slow blow fuse or type C/D breaker should be used to address inrush current
- Designed with 0-10V dimming capabilities. For 65L and 75L SKUs with UL voltage, dimming control lines must be >1V when operated at 277V. Controls by others
- Refer to Dimming spec sheet for details
- **Maximum 10V Source Current:** 1mA
- **Operating Temperature Range:** -40°C to 40°C [-40° F to 104° F]

REGULATORY & VOLUNTARY QUALIFICATIONS

- cULus Listed (UL1598)
- Suitable for wet locations
- Meets NEMA C82.77 standards
- Drivers and LEDs are UL Recognized in accordance with UL8750
- Consult factory for CE Certified products
- Certified to ANSI C136.31-2001, 3G vibration standards
- ANSI C136.2 10kV/5kA [standard] and 20kV/10kA [optional] surge protection, tested in accordance with IEEE/ANSI C62.41.2
- Meets FCC Part 15, Subpart B, Class A limits for conducted and radiated emissions
- Luminaire and finish endurance tested to withstand 5,000 hours of elevated ambient salt fog conditions as defined in ASTM Standard B 117
- Meets Buy American requirements within ARRA
- RoHS compliant. Consult factory for additional details
- OSQX luminaires are enclosure rated IP66 per IEC 60598-1 when ordered without the R option. Luminaires with R option meet IP66 requirements per IEC 60598-1 when used with IP66 rated NEMA control or shorting cap
- Dark Sky Friendly, IDA Approved when ordered with 30K CCT and DA mount only. Please refer to <https://www.darksky.org/our-work/lighting/lighting-for-industry/fsa/fsa-products/> for most current information
- DLC and DLC Premium qualified versions available. Please refer to <https://www.designlights.org/search/> for most current information
- **CA RESIDENTS WARNING:** Cancer and Reproductive Harm – www.p65warnings.ca.gov

Product Specifications

SYNAPSE® SIMPLYSNAP INTELLIGENT CONTROL

The Synapse SimplySNAP platform is a highly intuitive connected lighting solution featuring zone dimming, motion sensing, and daylight harvesting with utility-grade power monitoring and support of up to 1000 nodes per gateway. The system features a reliable and robust self-healing mesh network with a browser-based interface that runs on smartphones, tablets, and PCs. The Twist-Lock Lighting Controller (TL7-B2 or TL7-HVG) and Site Controller (SS450-002) take the OSQ Series to a new performance plateau, providing extreme energy productivity, code compliance and a better light experience.

Synapse Wireless Control Accessories

| | |
|--|---|
| Twist-Lock Lighting Controller TL7-B2 - Suitable for 120-277V (UL) voltage only - Requires NEMA/ANSI C136.41 7-Pin Dimming Receptacle - Not for use with PML or Q options - Provides On/Off switching, dimming, power metering, digital sensor input, and status monitoring of luminaires - Refer to TL7-B2 spec sheet for details Twist-Lock Lighting Controller TL7-HVG - Suitable for 120-480V (UE, UH, UL and UM voltages) - Requires NEMA/ANSI C136.41 7-Pin Dimming Receptacle - Not for use with PML options - Provides On/Off switching, dimming, power metering, digital sensor input, and status monitoring of luminaire - Refer to TL7-HVG spec sheet for details SimplySNAP Central Base Station CBSSW-450-002 - Includes On-Site Controller (SS450-002) and 5-button switch - Indoor and Outdoor rated - Refer to CBSSW-450-002 spec sheet for details | Synapse Wireless Sensor WSN-DPM - Motion and light sensor - Control multiple zones - Refer to WSN-DPM spec sheet for details SimplySNAP On-Site Controller SS450-002 - Verizon® LTE-enabled - Designed for indoor applications - Refer to SS450-002 spec sheet for details Building Management System (BMS) Gateway BMS-GW-002 - Required for BACnet integration - Refer to BMS-GW-002 spec sheet for details Outdoor Antennas (Optional, for increased range, 8dB gain) KIT-ANT420SM - Kit includes antenna, 20' cable and bracket KIT-ANT360 - Kit includes antenna, 30' cable and bracket KIT-ANT600 - Kit includes antenna, 50' cable and bracket - Refer to Outdoor antenna spec sheet for details |
|--|---|

Electrical Data*

| Lumen Package | System Watts 120-480V | Total Current (A) | | | | | |
|---------------|--------------------------|-------------------|------|------|------|------|------|
| | | 120V | 208V | 240V | 277V | 347V | 480V |
| 40L | 301 | 2.54 | 1.46 | 1.27 | 1.10 | 0.88 | 0.63 |
| 50L | 383 | 3.23 | 1.86 | 1.61 | 1.40 | 1.12 | 0.81 |
| 65L | 458 | 3.97 | 2.29 | 1.99 | 1.72 | 1.32 | 0.95 |
| 75L | 553 | 4.73 | 2.78 | 2.30 | 1.98 | 1.59 | 1.15 |

* Electrical data at 25°C (77°F). Actual wattage may differ by +/- 10% when operating between 120-277V, 208-480V, 277-480V or 347-480V +/- 10%.

OSQ Series (OSQX) Ambient Adjusted Lumen Maintenance¹

| Ambient | Optic | Initial LMF | 25K hr Reported² LMF | 50K hr Reported² LMF | 75K hr Reported²/ Estimated³ LMF | 100K hr Reported²/ Estimated³ LMF |
|-------------|------------|-------------|----------------------|----------------------|----------------------------------|-----------------------------------|
| 5°C (41°F) | Asymmetric | 1.04 | 1.03 | 1.01 | 0.99² | 0.97² |
| | Symmetric | 1.05 | 1.05 | 1.05 | 1.05² | 1.05² |
| 10°C (50°F) | Asymmetric | 1.03 | 1.02 | 1.00 | 0.98² | 0.96² |
| | Symmetric | 1.04 | 1.03 | 1.03 | 1.03² | 1.03² |
| 15°C (59°F) | Asymmetric | 1.02 | 1.01 | 0.99 | 0.97² | 0.95² |
| | Symmetric | 1.02 | 1.02 | 1.02 | 1.02² | 1.02² |
| 20°C (68°F) | Asymmetric | 1.01 | 1.00 | 0.98 | 0.96² | 0.94² |
| | Symmetric | 1.01 | 1.01 | 1.01 | 1.01² | 1.01² |
| 25°C (77°F) | Asymmetric | 1.00 | 0.99 | 0.97 | 0.95² | 0.93² |
| | Symmetric | 1.00 | 1.00 | 1.00 | 1.00² | 1.00² |

¹ Lumen maintenance values at 25°C (77°F) are calculated per IES TM-21 based on IES LM-80 report data for the LED package and in-situ luminaire testing. Luminaire ambient temperature factors (LATF) have been applied to all lumen maintenance factors. Please refer to the Temperature Zone Reference Document for outdoor average nighttime ambient conditions.

² In accordance with IES TM-21, Reported values represent interpolated values based on time durations that are up to 6x the tested duration in the IES LM-80 report for the LED.

³ Estimated values are calculated and represent time durations that exceed the 6x test duration of the LED.

Accessories

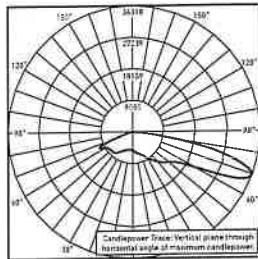
Field-Installed

| | | |
|--|--|--|
| Backlight Shields (One pair) OSQ-BLSXF [Extra Large] - Front facing optics OSQ-BLSXR [Extra Large] - Rotated optics | Shorting Cap XA-XLSHRT Bird Spikes OSQ-XL-BRDSK | Hand-Held Remote XA-SENSREM - For successful implementation of the programmable multi-level option, a minimum of one hand-held remote is required |
|--|--|--|

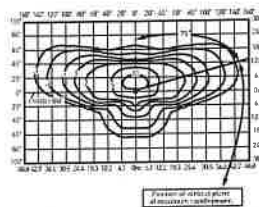
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/area/area-osq-high-output>

2M



RESTL Test Report #: PL16478-001A
OSQX-B-40L-40K7-2M-UL
Initial Delivered Lumens: 45,082



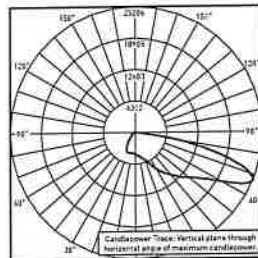
OSQX-B-40L-40K7-2M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 44,400
Initial FC at grade

| Type II Mid Distribution | | | | | | | | |
|--------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 41,500 | B4 U0 G5 | 44,400 | B4 U0 G5 | 36,100 | B4 U0 G4 | 44,400 | B4 U0 G5 |
| 50L | 53,600 | B4 U0 G5 | 57,400 | B4 U0 G5 | 46,600 | B4 U0 G5 | 57,400 | B4 U0 G5 |
| 65L | 69,300 | B5 U0 G5 | 74,100 | B5 U0 G5 | 60,200 | B4 U0 G5 | 74,100 | B5 U0 G5 |
| 75L | 80,400 | B5 U0 G5 | 86,000 | B5 U0 G5 | 69,800 | B5 U0 G5 | 86,000 | B5 U0 G5 |

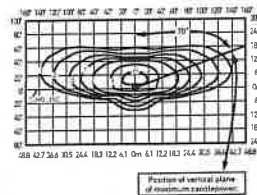
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11-BUG-Ratings-Addendum.pdf>. Valid with no tilt

2M w/BLS



RESTL Test Report #: PL16484-001A
OSQX-B-40L-40K7-2M-UL
w/OSQ-BLSXF
Initial Delivered Lumens: 33,890



OSQX-B-40L-40K7-2M-UL w/
OSQ-BLSXF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 34,400
Initial FC at grade

| Type II Mid w/BLS Distribution | | | | | | | | |
|--------------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 32,100 | B3 U0 G4 | 34,400 | B3 U0 G4 | 27,900 | B2 U0 G4 | 34,400 | B3 U0 G4 |
| 50L | 41,500 | B3 U0 G4 | 44,400 | B3 U0 G5 | 36,000 | B3 U0 G4 | 44,400 | B3 U0 G5 |
| 65L | 53,600 | B3 U0 G5 | 57,300 | B3 U0 G5 | 46,600 | B3 U0 G5 | 57,300 | B3 U0 G5 |
| 75L | 62,200 | B3 U0 G5 | 66,500 | B3 U0 G5 | 54,000 | B3 U0 G5 | 66,500 | B3 U0 G5 |

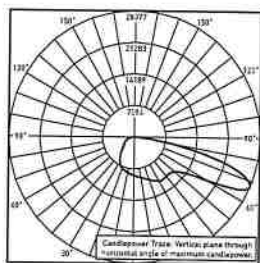
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11-BUG-Ratings-Addendum.pdf>. Valid with no tilt

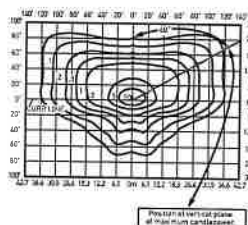
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/area/area-osq-high-output>

3M



RESTL Test Report #: PL16594-001A
OSQX-B-40L-40K7-3M-UL
Initial Delivered Lumens: 43,786



OSQX-B-40L-40K7-3M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 44,400
Initial FC at grade

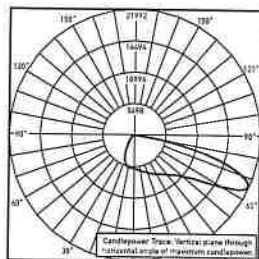
Type III Mid Distribution

| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
|---------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 41,500 | B4 U0 G5 | 44,400 | B4 U0 G5 | 36,100 | B4 U0 G4 | 44,400 | B4 U0 G5 |
| 50L | 53,600 | B4 U0 G5 | 57,400 | B4 U0 G5 | 45,600 | B4 U0 G5 | 57,400 | B4 U0 G5 |
| 65L | 69,300 | B4 U0 G5 | 74,100 | B5 U0 G5 | 60,200 | B4 U0 G5 | 74,100 | B5 U0 G5 |
| 75L | 80,400 | B5 U0 G5 | 86,000 | B5 U0 G5 | 69,800 | B4 U0 G5 | 86,000 | B5 U0 G5 |

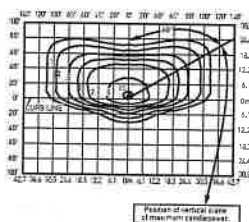
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

3M W/BLS



RESTL Test Report #: PL16483-001A
OSQX-B-40L-40K7-3M-UL
w/OSQ-BLSXF
Initial Delivered Lumens: 30,663



OSQX-B-40L-40K7-3M-UL
w/OSQ-BLSXF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 31,400
Initial FC at grade

Type III Mid w/BLS Distribution

| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
|---------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 29,300 | B3 U0 G4 | 31,400 | B3 U0 G4 | 25,500 | B3 U0 G4 | 31,400 | B3 U0 G4 |
| 50L | 37,800 | B3 U0 G5 | 40,500 | B3 U0 G5 | 32,900 | B3 U0 G4 | 40,500 | B3 U0 G5 |
| 65L | 48,900 | B3 U0 G5 | 52,300 | B4 U0 G5 | 42,500 | B3 U0 G5 | 52,300 | B4 U0 G5 |
| 75L | 56,700 | B4 U0 G5 | 60,700 | B4 U0 G5 | 49,300 | B3 U0 G5 | 60,700 | B4 U0 G5 |

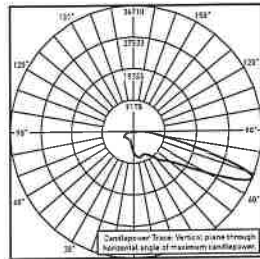
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens.

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingsAddendum.pdf>. Valid with no tilt

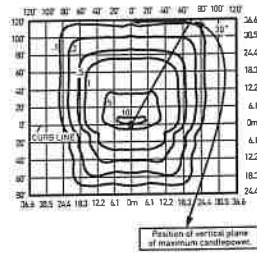
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/area/area-osq-high-output>

4M



RESTL Test Report #: PL16479-001A
OSQX-B-40L-40K7-4M-UL
Initial Delivered Lumens: 44,187



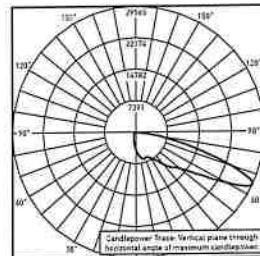
OSQX-B-40L-40K7-4M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 44,400
Initial FC at grade

| Type IV Mid Distribution | | | | | | | | |
|--------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 41,500 | B3 U0 G5 | 44,400 | B4 U0 G5 | 36,100 | B3 U0 G5 | 44,400 | B4 U0 G5 |
| 50L | 53,600 | B4 U0 G5 | 57,400 | B4 U0 G5 | 46,600 | B4 U0 G5 | 57,400 | B4 U0 G5 |
| 65L | 69,300 | B4 U0 G5 | 74,100 | B4 U0 G5 | 60,200 | B4 U0 G5 | 74,100 | B4 U0 G5 |
| 75L | 80,400 | B4 U0 G5 | 86,000 | B5 U0 G5 | 69,800 | B4 U0 G5 | 86,000 | B5 U0 G5 |

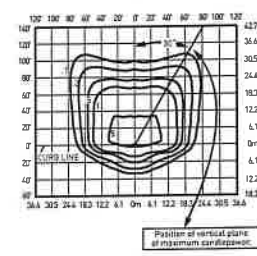
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf>. Valid with no tilt

4M W/BLS



RESTL Test Report #: PL16485-001A
OSQX-B-40L-40K7-4M-UL
w/OSQ-BLSXF
Initial Delivered Lumens: 32,030



OSQX-B-40L-40K7-4M-UL
w/OSQ-BLSXF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 31,400
Initial FC at grade

| Type IV Mid w/BLS Distribution | | | | | | | | |
|--------------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 29,300 | B2 U0 G4 | 31,400 | B2 U0 G4 | 25,500 | B2 U0 G4 | 31,400 | B2 U0 G4 |
| 50L | 37,800 | B3 U0 G5 | 40,500 | B3 U0 G5 | 32,900 | B2 U0 G5 | 40,500 | B3 U0 G5 |
| 65L | 48,900 | B3 U0 G5 | 52,300 | B3 U0 G5 | 42,500 | B3 U0 G5 | 52,300 | B3 U0 G5 |
| 75L | 56,700 | B3 U0 G5 | 60,700 | B3 U0 G5 | 49,300 | B3 U0 G5 | 60,700 | B3 U0 G5 |

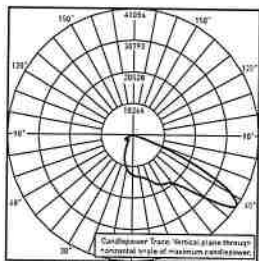
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf>. Valid with no tilt

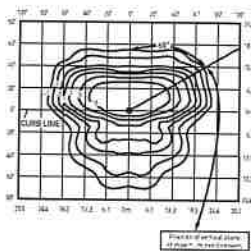
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/area/area-osq-high-output>

AF



RESTL Test Report #: PL16480-001A
OSQX-B-40L-40K7-AF-UL
Initial Delivered Lumens: 45,176



OSQX-B-40L-40K7-AF-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 44,400
Initial FC at grade

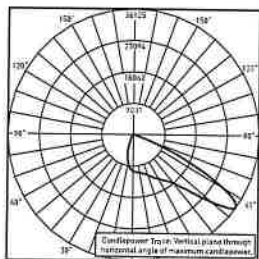
Automotive FrontLineOptic™ Distribution

| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
|---------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 41,500 | B4 U0 G3 | 44,400 | B4 U0 G3 | 36,100 | B3 U0 G3 | 44,400 | B4 U0 G3 |
| 50L | 53,600 | B4 U0 G3 | 57,400 | B4 U0 G3 | 46,600 | B4 U0 G3 | 57,400 | B4 U0 G3 |
| 65L | 69,300 | B4 U0 G4 | 74,100 | B4 U0 G4 | 60,200 | B4 U0 G3 | 74,100 | B4 U0 G4 |
| 75L | 80,400 | B5 U0 G4 | 86,000 | B5 U0 G4 | 69,800 | B4 U0 G4 | 86,000 | B5 U0 G4 |

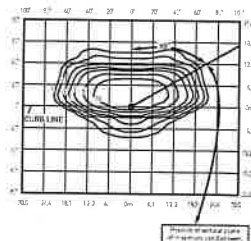
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf>. Valid with no tilt

AF W/BLS



RESTL Test Report #: PL16486-001A
OSQX-B-40L-40K7-AF-UL
w/OSQ-BLSXF
Initial Delivered Lumens: 34,912



OSQX-B-40L-40K7-AF-UL
w/OSQ-BLSXF
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 34,400
Initial FC at grade

Automotive FrontLineOptic™ w/BLS Distribution

| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
|---------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 32,100 | B3 U0 G2 | 34,400 | B3 U0 G2 | 27,900 | B3 U0 G2 | 34,400 | B3 U0 G2 |
| 50L | 41,500 | B3 U0 G2 | 44,400 | B3 U0 G2 | 36,000 | B3 U0 G2 | 44,400 | B3 U0 G2 |
| 65L | 53,600 | B4 U0 G3 | 57,300 | B4 U0 G3 | 46,600 | B3 U0 G3 | 57,300 | B4 U0 G3 |
| 75L | 62,200 | B4 U0 G3 | 66,500 | B4 U0 G3 | 54,000 | B4 U0 G3 | 66,500 | B4 U0 G3 |

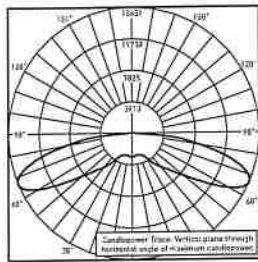
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf>. Valid with no tilt

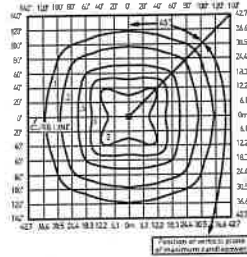
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://cree-lighting.com/products/outdoor/area/area-osq-high-output>

5M



RESTL Test Report #: PL16593-001A
OSQX-B-40L-40K7-5M-UL
Initial Delivered Lumens: 38,284



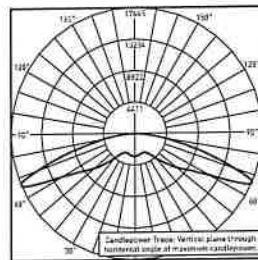
OSQX-B-40L-40K7-5M-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 38,300
Initial FC at grade

| Type V Mid Distribution | | | | | | | | |
|-------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 35,800 | B5 U0 G5 | 38,300 | B5 U0 G5 | 31,100 | B5 U0 G5 | 38,300 | B5 U0 G5 |
| 50L | 45,100 | B5 U0 G5 | 48,300 | B5 U0 G5 | 39,200 | B5 U0 G5 | 48,300 | B5 U0 G5 |
| 65L | 60,300 | B5 U0 G5 | 64,500 | B5 U0 G5 | 52,400 | B5 U0 G5 | 64,500 | B5 U0 G5 |
| 75L | 70,800 | B5 U0 G5 | 75,700 | B5 U0 G5 | 61,500 | B5 U0 G5 | 75,700 | B5 U0 G5 |

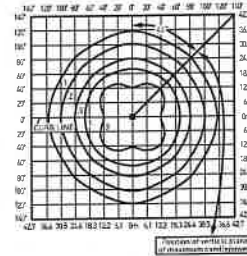
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf>. Valid with no tilt

5N



RESTL Test Report #: PL16500-001A
OSQX-B-40L-40K7-5N-UL
Initial Delivered Lumens: 42,762



OSQX-B-40L-40K7-5N-UL
Mounting Height: 25' (7.6m) A.F.G.
Initial Delivered Lumens: 41,300
Initial FC at grade

| Type V Narrow Distribution | | | | | | | | |
|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|---------------------------|----------------------------|
| Lumen Package | 3000K/70 CRI | | 4000K/70 CRI | | 5000K/90 CRI | | 5700K/70 CRI | |
| | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 | Initial Delivered Lumens* | BUG Ratings** Per TM-15-11 |
| 40L | 38,600 | B5 U0 G5 | 41,300 | B5 U0 G5 | 33,600 | B5 U0 G5 | 41,300 | B5 U0 G5 |
| 50L | 48,700 | B5 U0 G5 | 52,100 | B5 U0 G5 | 42,300 | B5 U0 G5 | 52,100 | B5 U0 G5 |
| 65L | 65,100 | B5 U0 G5 | 69,700 | B5 U0 G5 | 56,600 | B5 U0 G5 | 69,700 | B5 U0 G5 |
| 75L | 76,400 | B5 U0 G5 | 81,800 | B5 U0 G5 | 66,400 | B5 U0 G5 | 81,800 | B5 U0 G5 |

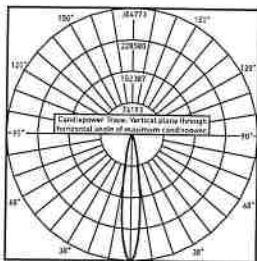
* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

** For more information on the IES BUG (Backlight-Uplight-Glare) Rating visit: <https://www.ies.org/wp-content/uploads/2017/03/TM-15-11BUGRatingAddendum.pdf>. Valid with no tilt

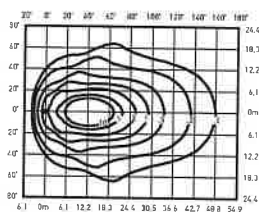
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://creeighting.com/products/outdoor/area/area-osq-high-output>

N3



RESTL Test Report #: PL16501-001A
OSQX-B-40L-40K7-N3-UL
Initial Delivered Lumens: 43,397



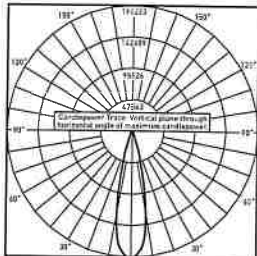
OSQX-B-40L-40K7-N3-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 41,300
Initial FC at grade

Narrow Flood Distribution

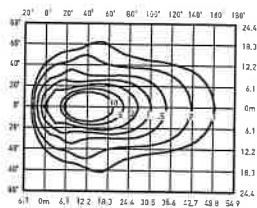
| Lumen Package | 3000K/70 CRI | 4000K/70 CRI | 5000K/90 CRI | 5700K/70 CRI |
|---------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* |
| 40L | 38,600 | 41,300 | 33,600 | 41,300 |
| 50L | 48,700 | 52,100 | 42,300 | 52,100 |
| 65L | 65,100 | 69,700 | 56,600 | 69,700 |
| 75L | 76,400 | 81,800 | 66,400 | 81,800 |

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

33



RESTL Test Report #: PL16502-001A
OSQX-B-40L-40K7-33-UL
Initial Delivered Lumens: 43,489



OSQX-B-40L-40K7-33-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 41,300
Initial FC at grade

NEMA® 3x3 Distribution

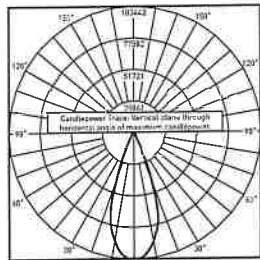
| Lumen Package | 3000K/70 CRI | 4000K/70 CRI | 5000K/90 CRI | 5700K/70 CRI |
|---------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* |
| 40L | 38,600 | 41,300 | 33,600 | 41,300 |
| 50L | 48,700 | 52,100 | 42,300 | 52,100 |
| 65L | 65,100 | 69,700 | 56,600 | 69,700 |
| 75L | 76,400 | 81,800 | 66,400 | 81,800 |

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

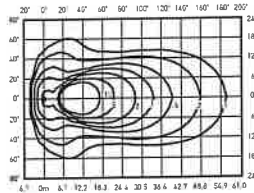
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/area/area-osq-high-output>

44



RESTL Test Report #: PL16503-001A
OSQX-B-40L-40K7-44-UL
Initial Delivered Lumens: 42,939

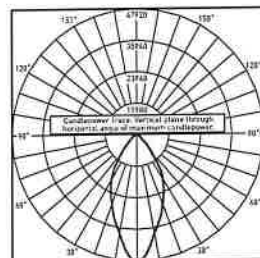


OSQX-B-40L-40K7-44-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 41,300
Initial FC at grade

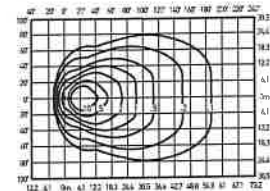
| NEMA® 4x4 Distribution | | | | |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Lumen Package | 3000K/70 CRI | 4000K/70 CRI | 5000K/90 CRI | 5700K/70 CRI |
| | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* |
| 40L | 38,600 | 41,300 | 33,600 | 41,300 |
| 50L | 48,700 | 52,100 | 42,300 | 52,100 |
| 65L | 65,100 | 69,700 | 56,600 | 69,700 |
| 75L | 76,400 | 81,800 | 66,400 | 81,800 |

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

55



RESTL Test Report #: PL16504-001A
OSQX-B-40L-40K7-55-UL
Initial Delivered Lumens: 41,734



OSQX-B-40L-40K7-55-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 41,300
Initial FC at grade

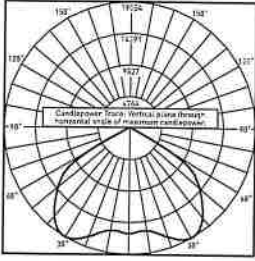
| NEMA® 5x5 Distribution | | | | |
|------------------------|---------------------------|---------------------------|---------------------------|---------------------------|
| Lumen Package | 3000K/70 CRI | 4000K/70 CRI | 5000K/90 CRI | 5700K/70 CRI |
| | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* |
| 40L | 38,600 | 41,300 | 33,600 | 41,300 |
| 50L | 48,700 | 52,100 | 42,300 | 52,100 |
| 65L | 65,100 | 69,700 | 56,600 | 69,700 |
| 75L | 76,400 | 81,800 | 66,400 | 81,800 |

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

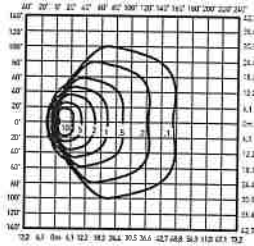
Photometry

All published luminaire photometric testing performed to IES LM-79 standards. To obtain an IES file specific to your project consult: <http://creelighting.com/products/outdoor/area/area-osq-high-output>

66



RESTL Test Report #: PL16506-001A
OSQX-B-40L-40K7-66-UL
Initial Delivered Lumens: 43,073



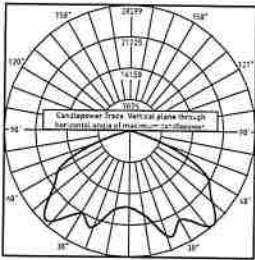
OSQX-B-40L-40K7-66-UL
Mounting Height: 25' (7.6m) A.F.G., 60° Tilt
Initial Delivered Lumens: 41,300
Initial FC at grade

NEMA® 6x6 Distribution

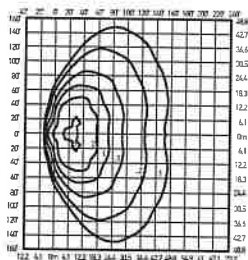
| Lumen Package | 3000K/70 CRI | 4000K/70 CRI | 5000K/90 CRI | 5700K/70 CRI |
|---------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* |
| 40L | 38,600 | 41,300 | 33,600 | 41,300 |
| 50L | 48,700 | 52,100 | 42,300 | 52,100 |
| 65L | 65,100 | 69,700 | 56,600 | 69,700 |
| 75L | 76,400 | 81,800 | 66,400 | 81,800 |

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

75



RESTL Test Report #: PL16505-001A
OSQX-B-40L-40K7-75-UL
Initial Delivered Lumens: 42,760




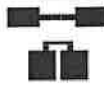






OSQX-B-40L-40K7-75-UL
Mounting Height: 25' (7.6m) A.F.G., 60° tilt
Initial Delivered Lumens: 41,300
Initial FC at grade

NEMA® 7x5 Distribution

| Lumen Package | 3000K/70 CRI | 4000K/70 CRI | 5000K/90 CRI | 5700K/70 CRI |
|---------------|---------------------------|---------------------------|---------------------------|---------------------------|
| | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* | Initial Delivered Lumens* |
| 40L | 38,600 | 41,300 | 33,600 | 41,300 |
| 50L | 48,700 | 52,100 | 42,300 | 52,100 |
| 65L | 65,100 | 69,700 | 56,600 | 69,700 |
| 75L | 76,400 | 81,800 | 66,400 | 81,800 |

* Initial delivered lumens at 25°C (77°F). Actual production yield may vary between -10 and +10% of initial delivered lumens

Luminaire EPA

| Adjustable Arm Mount – OSQ-X-B-AA Weight: 40L/50L, 120-480V: 73.0 lbs. (33.1kg); 65L/75L, 120-480V: 75.0 lbs. (34.0kg) | | | | | | | |
|--|---|---|---|---|---|---|---|
| Single | 2 @ 180° | 2 @ 90° | 3 @ 90° | 3 @ 120° | 3 @ 180° | 4 @ 180° | 4 @ 90° |
| Tenon Configuration (0°-90° Tilt); If used with Cree Lighting tenons, please add tenon EPA with Luminaire EPA | | | | | | | |
|  |  |  |  |  |  |  |  |
| PB-1A*; PW-1A3** | PB-2A*; PB-2R2.375; PW-2A3** | PB-2A*; PB-2R2.375; PW-2A3** | PB-3A*; PB-3R2.375 | PB-3A*; PB-3R2.375 | PB-3A*; PB-3R2.375 | PB-4A*(180); PB-4R2.375 | PB-4A*(90); PB-4R2.3(90) |
| 0° Tilt | | | | | | | |
| 1.16 | 2.03 | 2.03 | 2.90 | 2.63 | 2.90 | 3.77 | 3.77 |
| 10° Tilt | | | | | | | |
| 1.67 | 3.06 | 3.06 | 4.45 | 4.27 | 4.45 | 5.83 | 5.83 |
| 20° Tilt | | | | | | | |
| 2.35 | 4.41 | 4.41 | 6.48 | 6.34 | 6.48 | 8.54 | 8.54 |
| 30° Tilt | | | | | | | |
| 2.99 | 5.70 | 5.70 | 8.41 | 8.29 | 8.41 | 11.12 | 11.12 |
| 45° Tilt | | | | | | | |
| 3.85 | 7.41 | 7.41 | 10.98 | 10.89 | 10.98 | 14.54 | 14.54 |
| 60° Tilt | | | | | | | |
| 4.51 | 8.73 | 8.73 | 12.95 | 12.91 | 12.95 | 17.18 | 17.18 |
| 70° Tilt | | | | | | | |
| 4.83 | 9.37 | 9.37 | 13.91 | 13.88 | 13.91 | 18.45 | 18.45 |
| 80° Tilt | | | | | | | |
| 5.02 | 9.76 | 9.76 | 14.50 | 14.44 | 14.50 | 19.24 | 19.24 |
| 90° Tilt | | | | | | | |
| 5.02 | 9.76 | 9.76 | 14.50 | 14.44 | 14.50 | 19.24 | 19.24 |

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation

** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

Tenon EPA

| Part Number | EPA |
|-------------|------|
| PB-1A* | None |
| PB-2A* | 0.82 |
| PB-3A* | 1.52 |
| PB-4A*(180) | 2.22 |
| PB-4A*(90) | 1.11 |
| PB-2R2.375 | 0.92 |
| PB-3R2.375 | 1.62 |
| PB-4R2.375 | 2.32 |
| PW-1A3** | 0.47 |
| PW-2A3** | 0.94 |
| WM-2 | 0.08 |
| WM-4 | 0.25 |
| WM-DM | None |

* Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"] for single, double or triple luminaire orientation or 4 [4"], 5 [5"], or 6 [6"] for quad luminaire orientation

** These EPA values must be multiplied by the following ratio: Fixture Mounting Height/Total Pole Height. Specify pole size: 3 [3"], 4 [4"], 5 [5"], or 6 [6"]

Tenons and Brackets* (must specify color)

Square Internal Mount Vertical Tenons (Steel)

- Mounts to 3-6" (76-152mm) square aluminum or steel poles

PB-1A* – Single

PB-2A* – 180° Twin

PB-3A* – 180° Triple

PB-4A*(90) – 90° Quad

PB-4A*(180) – 180° Quad

Wall Mount Brackets

- Mounts to wall or roof

WM-2 – Horizontal for OSQ-X-B-AA mount

WM-4 – L-Shape for OSQ-X-B-AA mount

WM-DM – Plate for OSQ-X-B-DA mount

Round External Mount Vertical Tenons (Steel)

- Mounts to 2.375" (60mm) O.D. round aluminum or steel poles or tenons

PB-2R2.375 – Twin

PB-3R2.375 – Triple

PB-4R2.375 – Quad

Mid-Pole Bracket

- Mounts to square pole

PW-1A3** – Single

PW-2A3** – Double

* Refer to the [Bracket and Tenon's spec sheet](#) for more details

US: creelighting.com (800) 236-6800

Canada: creelighting-canada.com (800) 473-1234

CREE  **LIGHTING**

Luminaire EPA

| Fixed Arm Mount – OSQ-X-B-DA Weight: 40L/50L, 120-480V: 70.0 lbs. (31.8kg); 65L/75L, 120-480V: 72.0 lbs. (32.7kg) | | | | | |
|---|----------|---------|---------|----------|---------|
| Single | 2 @ 180° | 2 @ 90° | 3 @ 90° | 3 @ 120° | 4 @ 90° |
| 1,06 | 1.93 | 1.93 | 2.80 | 2.53 | 3.67 |

Direct Mount Configurations

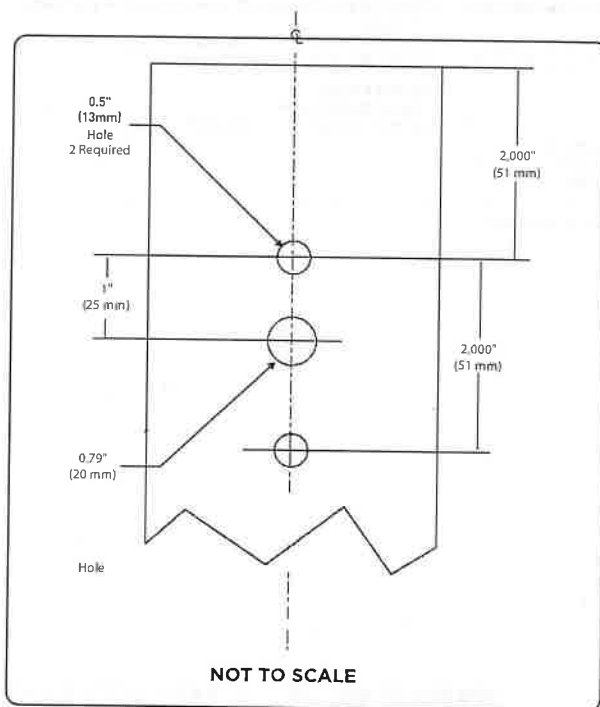
| Compatibility with OSQ-X-B-DA Direct Arm Mount | | | | | |
|--|---------|----------|---------|----------|---------|
| Input Delivered Lumens | 2 @ 90° | 2 @ 180° | 3 @ 90° | 3 @ 120° | 4 @ 90° |
| 3" Square | | | | | |
| 40L/50L/65L | N/A | ✓ | N/A | N/A | N/A |
| 3" Round | | | | | |
| 40L/50L/65L | N/A | ✓ | N/A | ✓ | N/A |
| 4" Square | | | | | |
| 40L/50L/65L | ✓ | ✓ | ✓ | N/A | ✓ |
| 4" Round* | | | | | |
| 40L/50L/65L | ✓ | ✓ | ✓ | ✓ | ✓ |
| 5" Square | | | | | |
| 40L/50L/65L | ✓ | ✓ | ✓ | N/A | ✓ |
| 5" Round | | | | | |
| 40L/50L/65L | ✓ | ✓ | ✓ | ✓ | ✓ |
| 6" + Square | | | | | |
| 40L/50L/65L | ✓ | ✓ | ✓ | N/A | ✓ |
| 6" + Round | | | | | |
| 40L/50L/65L | ✓ | ✓ | ✓ | ✓ | ✓ |

* Note: only 0.10" clearance between mounts on 4 @ 90°

Fixture Mounting Drill Pattern for OSQ-X-B-DA

Note: When using with Cree Lighting poles, order the Q Fixture Mounting Drill Pattern.

POLE TEMPLATE

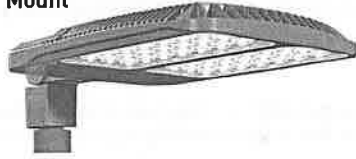


US: creeighting.com (800) 236-6800

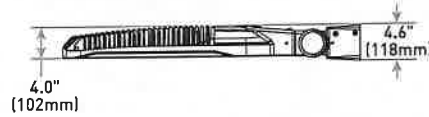
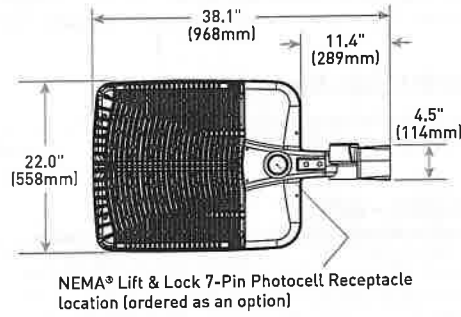
Canada: creeighting-canada.com (800) 473-1234

CREE ⇄ LIGHTING®

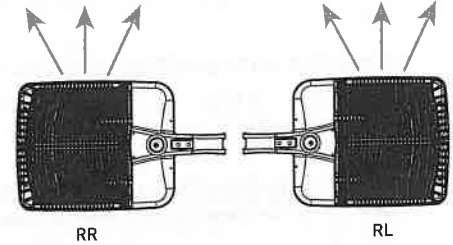
**OSQ-X-B-AA
Mount**



| Lumen Package | Voltage | Weight |
|---------------|----------|--------------------|
| 40/50L | 120-480V | 73.0 lbs. [33.1kg] |
| 65L/75L | 120-480V | 75.0 lbs. [34.0kg] |



RR/RL Configuration



Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ Extra Large area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 40L

| Q/X Option Setting | CCT | System Watts | Lumen Values | | | | |
|--------------------------|-----|--------------|--------------|--------|-------------|-------------|-------------|
| | | 120-480V | Asymmetric | 5M | 5N & Floods | 2M/AF w/BLS | 3M/4M w/BLS |
| Q9 (Full Power) | 30K | 301 | 41,500 | 35,800 | 38,600 | 32,100 | 29,300 |
| | 40K | | 44,400 | 38,300 | 41,300 | 34,400 | 31,400 |
| | 50K | | 36,100 | 31,100 | 33,600 | 27,900 | 25,500 |
| | 57K | | 44,400 | 38,300 | 41,300 | 34,400 | 31,400 |
| Q8/X8 | 30K | 281 | 38,800 | 33,400 | 36,100 | 30,000 | 27,400 |
| | 40K | | 41,500 | 35,700 | 38,600 | 32,100 | 29,300 |
| | 50K | | 33,700 | 29,000 | 31,300 | 26,100 | 23,800 |
| | 57K | | 41,500 | 35,700 | 38,600 | 32,100 | 29,300 |
| Q7/X7 | 30K | 277 | 37,000 | 31,900 | 34,500 | 28,700 | 26,100 |
| | 40K | | 39,600 | 34,100 | 36,900 | 30,600 | 28,000 |
| | 50K | | 32,200 | 27,700 | 29,900 | 24,900 | 22,700 |
| | 57K | | 39,600 | 34,100 | 36,900 | 30,600 | 28,000 |
| Q6/X6 | 30K | 253 | 35,500 | 30,600 | 33,000 | 27,500 | 25,100 |
| | 40K | | 38,000 | 32,700 | 35,300 | 29,400 | 26,800 |
| | 50K | | 30,800 | 26,600 | 28,700 | 23,900 | 21,800 |
| | 57K | | 38,000 | 32,700 | 35,300 | 29,400 | 26,800 |
| Q5/X5 | 30K | 229 | 32,500 | 28,000 | 30,300 | 25,200 | 23,000 |
| | 40K | | 34,800 | 30,000 | 32,400 | 26,900 | 24,600 |
| | 50K | | 28,300 | 24,400 | 26,300 | 21,900 | 20,000 |
| | 57K | | 34,800 | 30,000 | 32,400 | 26,900 | 24,600 |
| Q4/X4 | 30K | 207 | 30,200 | 26,000 | 28,100 | 23,400 | 21,300 |
| | 40K | | 32,300 | 27,800 | 30,100 | 25,000 | 22,800 |
| | 50K | | 26,200 | 22,600 | 24,400 | 20,300 | 18,500 |
| | 57K | | 32,300 | 27,800 | 30,100 | 25,000 | 22,800 |
| Q3/X3 | 30K | 182 | 27,200 | 23,400 | 25,300 | 21,000 | 19,200 |
| | 40K | | 29,100 | 25,100 | 27,100 | 22,500 | 20,500 |
| | 50K | | 23,600 | 20,400 | 22,000 | 18,300 | 16,700 |
| | 57K | | 29,100 | 25,100 | 27,100 | 22,500 | 20,500 |
| Q2/X2 | 30K | 163 | 24,500 | 21,100 | 22,800 | 18,900 | 17,300 |
| | 40K | | 26,200 | 22,600 | 24,400 | 20,300 | 18,500 |
| | 50K | | 21,300 | 18,300 | 19,800 | 16,500 | 15,000 |
| | 57K | | 26,200 | 22,600 | 24,400 | 20,300 | 18,500 |
| Q1/X1 | 30K | 149 | 22,700 | 19,500 | 21,100 | 17,500 | 16,000 |
| | 40K | | 24,300 | 20,900 | 22,600 | 18,800 | 17,100 |
| | 50K | | 19,700 | 17,000 | 18,300 | 15,200 | 13,900 |
| | 57K | | 24,300 | 20,900 | 22,600 | 18,800 | 17,100 |

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ Extra Large area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 50L

| Q/X Option Setting | CCT | System Watts | Lumen Values | | | | |
|--------------------|-----|--------------|--------------|--------|-------------|-------------|-------------|
| | | 120-480V | Asymmetric | 5M | 5N & Floods | 2M/AF w/BLS | 3M/4M w/BLS |
| Q9 (Full Power) | 30K | 383 | 53,600 | 45,100 | 48,700 | 41,500 | 37,800 |
| | 40K | | 57,400 | 48,300 | 52,100 | 44,400 | 40,500 |
| | 50K | | 46,600 | 39,200 | 42,300 | 36,000 | 32,900 |
| | 57K | | 57,400 | 48,300 | 52,100 | 44,400 | 40,500 |
| Q8/X8 | 30K | 357 | 50,100 | 42,100 | 45,500 | 38,700 | 35,300 |
| | 40K | | 53,500 | 45,100 | 48,700 | 41,400 | 37,800 |
| | 50K | | 43,500 | 36,600 | 39,500 | 33,600 | 30,700 |
| | 57K | | 53,500 | 45,100 | 48,700 | 41,400 | 37,800 |
| Q7/X7 | 30K | 352 | 47,800 | 40,200 | 43,500 | 37,000 | 33,800 |
| | 40K | | 51,200 | 43,100 | 46,500 | 39,600 | 36,100 |
| | 50K | | 41,600 | 35,000 | 37,800 | 32,100 | 29,300 |
| | 57K | | 51,200 | 43,100 | 46,500 | 39,600 | 36,100 |
| Q6/X6 | 30K | 322 | 45,800 | 38,600 | 41,600 | 35,500 | 32,300 |
| | 40K | | 49,000 | 41,300 | 44,500 | 37,900 | 34,600 |
| | 50K | | 39,800 | 33,500 | 36,200 | 30,800 | 28,100 |
| | 57K | | 49,000 | 41,300 | 44,500 | 37,900 | 34,600 |
| Q5/X5 | 30K | 291 | 42,000 | 35,400 | 38,200 | 32,500 | 29,700 |
| | 40K | | 44,900 | 37,800 | 40,800 | 34,800 | 31,700 |
| | 50K | | 36,500 | 30,700 | 33,200 | 28,200 | 25,800 |
| | 57K | | 44,900 | 37,800 | 40,800 | 34,800 | 31,700 |
| Q4/X4 | 30K | 263 | 39,000 | 32,800 | 35,400 | 30,200 | 27,500 |
| | 40K | | 41,700 | 35,100 | 37,900 | 32,300 | 29,400 |
| | 50K | | 33,900 | 28,500 | 30,800 | 26,200 | 23,900 |
| | 57K | | 41,700 | 35,100 | 37,900 | 32,300 | 29,400 |
| Q3/X3 | 30K | 231 | 35,100 | 29,500 | 31,900 | 27,200 | 24,800 |
| | 40K | | 37,600 | 31,600 | 34,100 | 29,000 | 26,500 |
| | 50K | | 30,500 | 25,700 | 27,700 | 23,600 | 21,500 |
| | 57K | | 37,600 | 31,600 | 34,100 | 29,000 | 26,500 |
| Q2/X2 | 30K | 208 | 31,600 | 26,600 | 28,700 | 24,500 | 22,300 |
| | 40K | | 33,800 | 28,500 | 30,700 | 26,200 | 23,900 |
| | 50K | | 27,500 | 23,100 | 25,000 | 21,300 | 19,400 |
| | 57K | | 33,800 | 28,500 | 30,700 | 26,200 | 23,900 |
| Q1/X1 | 30K | 190 | 29,300 | 24,600 | 26,600 | 22,600 | 20,700 |
| | 40K | | 31,300 | 26,300 | 28,500 | 24,200 | 22,100 |
| | 50K | | 25,400 | 21,400 | 23,100 | 19,700 | 18,000 |
| | 57K | | 31,300 | 26,300 | 28,500 | 24,200 | 22,100 |

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ Extra Large area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 65L

| Q/X Option Setting | CCT | System Watts | Lumen Values | | | | |
|--------------------|-----|--------------|--------------|--------|-------------|-------------|-------------|
| | | 120-480V | Asymmetric | 5M | 5N & Floods | 2M/AF w/BLS | 3M/4M w/BLS |
| Q9 (Full Power) | 30K | 458 | 69,300 | 60,300 | 65,100 | 53,600 | 48,900 |
| | 40K | | 74,100 | 64,500 | 69,700 | 57,300 | 52,300 |
| | 50K | | 60,200 | 52,400 | 56,600 | 46,600 | 42,500 |
| | 57K | | 74,100 | 64,500 | 69,700 | 57,300 | 52,300 |
| Q8/X8 | 30K | 441 | 66,500 | 57,100 | 61,700 | 51,500 | 47,000 |
| | 40K | | 71,200 | 61,100 | 66,000 | 55,100 | 50,200 |
| | 50K | | 57,800 | 49,600 | 53,600 | 44,700 | 40,800 |
| | 57K | | 71,200 | 61,100 | 66,000 | 55,100 | 50,200 |
| Q7/X7 | 30K | 419 | 63,700 | 54,600 | 59,000 | 49,200 | 44,900 |
| | 40K | | 68,100 | 58,500 | 63,100 | 52,700 | 48,100 |
| | 50K | | 55,300 | 47,500 | 51,300 | 42,800 | 39,000 |
| | 57K | | 68,100 | 58,500 | 63,100 | 52,700 | 48,100 |
| Q6/X6 | 30K | 403 | 61,300 | 52,600 | 56,800 | 47,400 | 43,300 |
| | 40K | | 65,600 | 56,300 | 60,800 | 50,700 | 46,300 |
| | 50K | | 53,300 | 45,700 | 49,400 | 41,200 | 37,600 |
| | 57K | | 65,600 | 56,300 | 60,800 | 50,700 | 46,300 |
| Q5/X5 | 30K | 366 | 56,300 | 48,400 | 52,200 | 43,600 | 39,800 |
| | 40K | | 60,300 | 51,700 | 55,900 | 46,600 | 42,500 |
| | 50K | | 49,000 | 42,000 | 45,400 | 37,900 | 34,600 |
| | 57K | | 60,300 | 51,700 | 55,900 | 46,600 | 42,500 |
| Q4/X4 | 30K | 331 | 52,200 | 44,800 | 48,400 | 40,400 | 36,900 |
| | 40K | | 55,900 | 48,000 | 51,800 | 43,200 | 39,400 |
| | 50K | | 45,400 | 39,000 | 42,100 | 35,100 | 32,000 |
| | 57K | | 55,900 | 48,000 | 51,800 | 43,200 | 39,400 |
| Q3/X3 | 30K | 299 | 47,600 | 40,800 | 44,100 | 36,800 | 33,600 |
| | 40K | | 50,900 | 43,700 | 47,200 | 39,400 | 35,900 |
| | 50K | | 41,400 | 35,500 | 38,300 | 32,000 | 29,200 |
| | 57K | | 50,900 | 43,700 | 47,200 | 39,400 | 35,900 |
| Q2/X2 | 30K | 269 | 42,900 | 36,800 | 39,700 | 33,200 | 30,300 |
| | 40K | | 45,800 | 39,300 | 42,500 | 35,500 | 32,400 |
| | 50K | | 37,200 | 32,000 | 34,500 | 28,800 | 26,300 |
| | 57K | | 45,800 | 39,300 | 42,500 | 35,500 | 32,400 |
| Q1/X1 | 30K | 232 | 38,900 | 33,400 | 36,000 | 30,100 | 27,400 |
| | 40K | | 41,600 | 35,700 | 38,500 | 32,200 | 29,300 |
| | 50K | | 33,800 | 29,000 | 31,300 | 26,100 | 23,800 |
| | 57K | | 41,600 | 35,700 | 38,500 | 32,200 | 29,300 |

Field Adjustable Output (Q9/Q8/Q7/Q6/Q5/Q4/Q3/Q2/Q1) Option Description:

The Field Adjustable Output option enables the OSQ Extra Large area luminaires to be tuned to the exact needs of a particular application through multiple levels of adjustment. When ordered with the Q option, the luminaire will be shipped from the factory at the selected Q setting and will be fully adjustable between the nine settings.

Locked Lumen Output (X8/X7/X6/X5/X4/X3/X2/X1) Option Description:

The Locked Lumen Output option on this page permanently locks the lumen output on the OSQ area luminaire to the setting selected. When ordered with the X option, the luminaire will be shipped from the factory at the lumen output setting selected and will only be able to be adjusted down in the field through a dimming control (by others).

Q & X Option Power & Lumen Data – 75L

| Q/X Option Setting | CCT | System Watts | Lumen Values | | | | |
|--------------------|-----|--------------|--------------|--------|-------------|-------------|-------------|
| | | 120-480V | Asymmetric | 5M | 5N & Floods | 2M/AF w/BLS | 3M/4M w/BLS |
| Q9 (Full Power) | 30K | 553 | 80,400 | 70,800 | 76,400 | 62,200 | 56,700 |
| | 40K | | 86,000 | 75,700 | 81,800 | 66,500 | 60,700 |
| | 50K | | 69,800 | 61,500 | 66,400 | 54,000 | 49,300 |
| | 57K | | 86,000 | 75,700 | 81,800 | 66,500 | 60,700 |
| Q8/X8 | 30K | 524 | 75,000 | 66,100 | 71,400 | 58,000 | 52,900 |
| | 40K | | 80,200 | 70,700 | 76,300 | 62,100 | 56,600 |
| | 50K | | 65,200 | 57,400 | 62,000 | 50,400 | 46,000 |
| | 57K | | 80,200 | 70,700 | 76,300 | 62,100 | 56,600 |
| Q7/X7 | 30K | 495 | 71,700 | 63,100 | 68,200 | 55,400 | 50,600 |
| | 40K | | 76,700 | 67,500 | 72,900 | 59,300 | 54,100 |
| | 50K | | 62,300 | 54,900 | 59,200 | 48,200 | 43,900 |
| | 57K | | 76,700 | 67,500 | 72,900 | 59,300 | 54,100 |
| Q6/X6 | 30K | 468 | 68,700 | 60,500 | 65,300 | 53,100 | 48,500 |
| | 40K | | 73,500 | 64,700 | 69,900 | 56,800 | 51,800 |
| | 50K | | 59,700 | 52,600 | 56,800 | 46,200 | 42,100 |
| | 57K | | 73,500 | 64,700 | 69,900 | 56,800 | 51,800 |
| Q5/X5 | 30K | 425 | 63,000 | 55,500 | 59,900 | 48,700 | 44,400 |
| | 40K | | 67,300 | 59,300 | 64,100 | 52,100 | 47,500 |
| | 50K | | 54,700 | 48,200 | 52,000 | 42,300 | 38,600 |
| | 57K | | 67,300 | 59,300 | 64,100 | 52,100 | 47,500 |
| Q4/X4 | 30K | 383 | 58,400 | 51,500 | 55,600 | 45,200 | 41,200 |
| | 40K | | 62,500 | 55,000 | 59,400 | 48,300 | 44,100 |
| | 50K | | 50,800 | 44,700 | 48,300 | 39,300 | 35,800 |
| | 57K | | 62,500 | 55,000 | 59,400 | 48,300 | 44,100 |
| Q3/X3 | 30K | 345 | 52,600 | 46,300 | 50,000 | 40,700 | 37,100 |
| | 40K | | 56,300 | 49,600 | 53,500 | 43,500 | 39,700 |
| | 50K | | 45,700 | 40,300 | 43,500 | 35,400 | 32,300 |
| | 57K | | 56,300 | 49,600 | 53,500 | 43,500 | 39,700 |
| Q2/X2 | 30K | 304 | 47,400 | 41,800 | 45,100 | 36,700 | 33,500 |
| | 40K | | 50,700 | 44,700 | 48,200 | 39,200 | 35,800 |
| | 50K | | 41,200 | 36,300 | 39,200 | 31,900 | 29,100 |
| | 57K | | 50,700 | 44,700 | 48,200 | 39,200 | 35,800 |
| Q1/X1 | 30K | 268 | 43,900 | 38,600 | 41,700 | 33,900 | 31,000 |
| | 40K | | 46,900 | 41,300 | 44,600 | 36,300 | 33,100 |
| | 50K | | 38,100 | 33,600 | 36,300 | 29,500 | 26,900 |
| | 57K | | 46,900 | 41,300 | 44,600 | 36,300 | 33,100 |

© 2022 Cree Lighting, A company of IDEAL INDUSTRIES. All rights reserved. For informational purposes only. Content is subject to change. Patent www.creelighting.com/patents. Cree®, the Cree logo, TrueWhite®, Cree TrueWhite®, and the Cree TrueWhite Technology logo are registered trademarks of Cree, Inc. NanoOptic® and Colorfast DeltaGuard® are registered trademarks, and Precision Delivery Grid™ and OSQ™ are trademarks of Cree Lighting, A company of IDEAL INDUSTRIES. The UL logo is a registered trademark of UL LLC. NEMA® is a registered trademark of the National Electrical Manufacturers Association. Synapse® is a registered trademark of Synapse Wireless, Inc. Verizon® is a registered trademark of Verizon Trademark Services LLC. The DLC QPL, DLC QPL Premium and the DLC LUNA Logos are the registered and unregistered trademarks of Efficiency Forward, Inc.

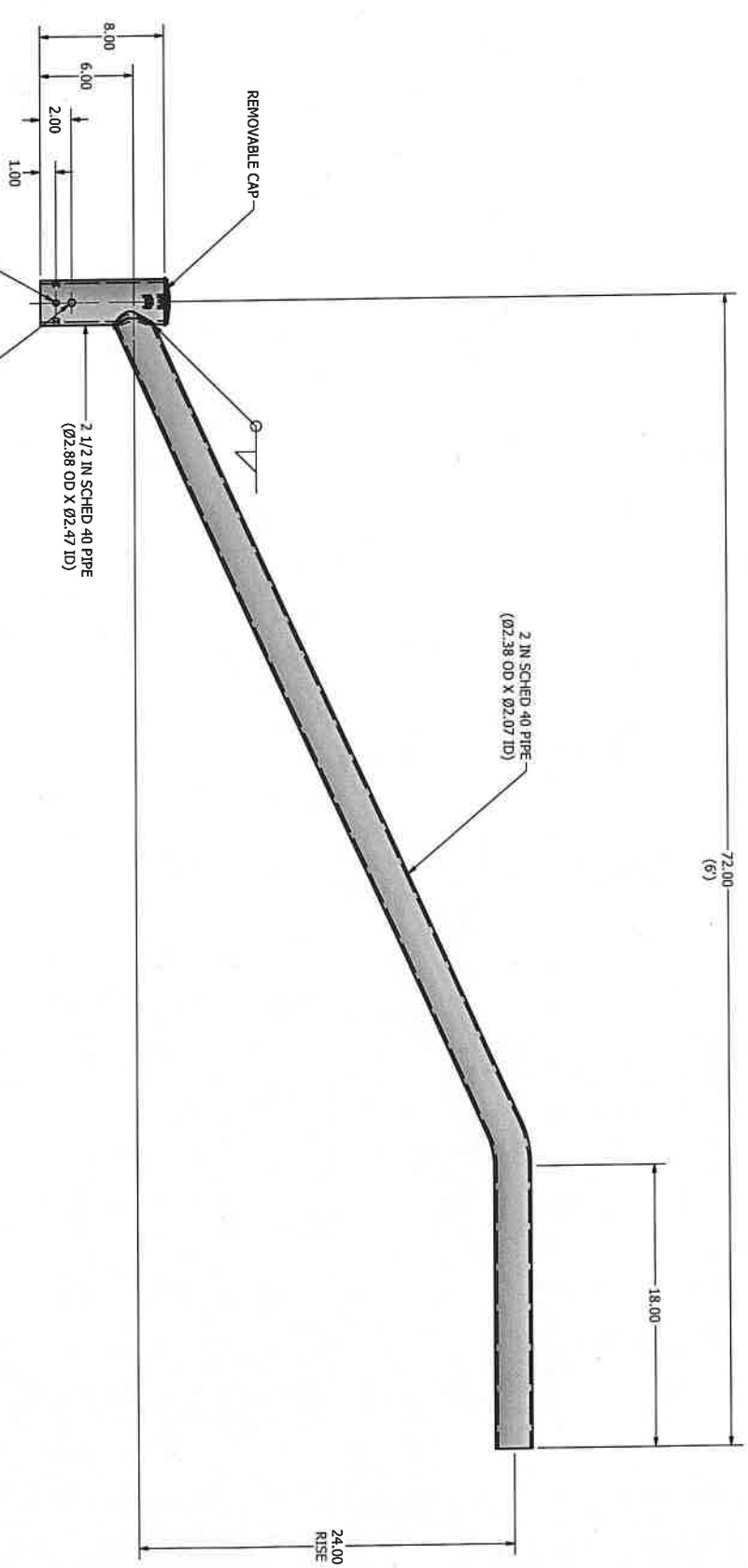
US: creelighting.com (800) 236-6800

Canada: creelighting-canada.com (800) 473-1234

CREE ➤ **LIGHTING**

A COMPANY OF IDEAL INDUSTRIES, INC.

| POLE TOP UMB BRACKET SPECIFICATIONS | | | | |
|-------------------------------------|----------------|-----------------------|---------------|-----------------------------|
| CATALOG # | ARM SPAN (FT.) | ARM QTY / ORIENTATION | WEIGHT (LBS.) | EPA (SQ. FT.) |
| UMB-16 | 6' | 1 @ 90° | 29 LBS. | 1.5 |
| | | | | MAX LUMINAIRE EPA (SQ. FT.) |
| | | | | 2.0 |



NOTE: POLE TOP SERIES UMB BRACKETS SLIP OVER A 2 IN PIPE TENON (Ø2.38 OD). TENON ARMS ARE 2 IN PIPE SIZE (Ø2.38 OD). BRACKETS ARE FINISHED TO MATCH THE POLE.

UMB BRACKETS CATALOGED ARE CONSTRUCTED OF STEEL AND ARE DESIGNED FOR USE ON STEEL OR ALUMINUM POLES. IF ALUMINUM UMB BRACKETS ARE REQUIRED FOR ALUMINUM POLES CONTACT YOUR REPRESENTATIVE.

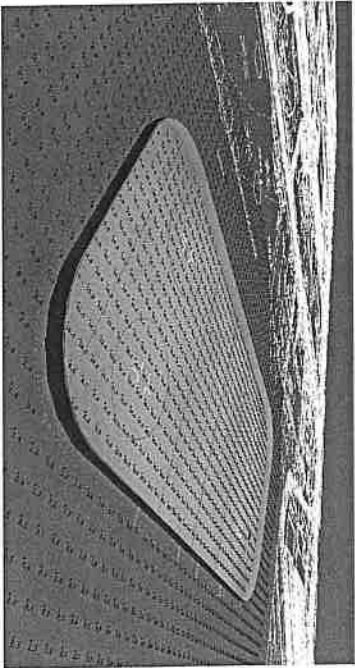
| | |
|-------------------|-------------|
| DRAWN: M. HARVALA | 2/19/2015 |
| CHECKED: | DATE: |
| REVISION: | APPROVED: |
| QUOTE: | S.O. # |
| REF: | SCALE: NONE |



GENERAL STRUCTURES INC.
A DIVERS COMPANY
23171 Groesbeck Hwy.
Warren, MI 48089
P: (586) 774-6105 | F: (586) 774-5706
www.generalstructuresinc.com

| | |
|---|---------|
| SOME GEOGRAPHICAL AREAS HAVE SPECIAL WIND CONDITIONS THAT CAN CREATE WIND INDUCED VIBRATIONS CAUSING A FATIGUE PROBLEM. NO METHOD HAS YET BEEN FOUND FOR PREDICTING DESTRUCTIVE LIGHTING POLE VIBRATION. THESE CONDITIONS ARE UNIQUE AND CANNOT BE GUARANTEED AGAINST, AND ARE THE RESPONSIBILITY OF A LOCAL SITE ENGINEER. | |
| TITLE: | |
| CATALOG: | |
| DWG NO: UMB-16 | SIZE: C |
| SHEET 1 OF 1 | |





| Symbol | Qty | Label | Arrangement | LF | Description | Item Reference |
|--------|-----|------------|-------------|-------|---|----------------|
| 6 | | P. 416 SLS | SINGLE | 0.100 | CHICK B (75L 40C) 444-46, 47-55-55A-55B | 60100 |

LOCATION: Wofleboro, NH

Amy Hines
22 Green St

Attn: TAVIS

SEP 5 2023

WOLFEBORO
PLANNING DEPT.

Concerning the Building of the Permanent Link @ Brewster Academy

I don't even know how they 'Brewster'
can put our minds at ease for this project.
Once it (the link) becomes permanent, the
possibilities become endless.

Games every weekend or weeknights.
Traffic situation on Main Street is already
an issue. Green Street will be flooded with
traffic and overflow parking (neighbors
lawns and driveways etc) The residential
quiet neighborhood we now know and love
is jeopardized and already has been.

It (the supposed temporary link) has already
impacted our lives in a negative way listening
to the loud noise echoing from the skidders
constantly. We also have a neighbor who had
to wait for the monstrous ice pile to melt in
order to plant his garden. And what is in these
ice piles (ingredients). Is there chemicals we
need to know about?

Lots of unanswered questions. What
will they do as far as the building of the
enclosure? Expansion? Then they will need
seating taking up more of the field of wetlands.
The Board; they promise to muffle the
levels. (we) are not convinced that they
will carry out these assurances.

In closing we hope this project can
be moved to another location considering
they have so much acreage away from
our little pieces of tranquility (our long standing
homes.) Thank you for your consideration!

RECEIVED

AUG 28 2023

WOLFEBORO
PLANNING DEPT.

August 25, 2023

Wolfeboro Planning Department
Re-Brewster hockey rink

All members,

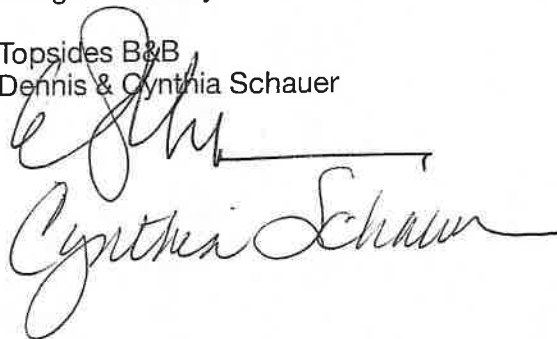
At the last meeting regarding Brewster's hockey rink and their request for additional improvements, a number of items greatly concerned the abutting neighbors.

This letter is requesting that the town address very carefully the items that were brought up, including noise from pucks etc, lighting which is not carefully monitored—its basically left open for kids to come as they please. The whole facility looks out of place, its messy, it has created a ponding for the close neighbors within their yards. The generator noise is a problem and no doubt each of us has a problem with certain things as a result of this boondoggle. The snow removal was a big problem for them before this rink was put in and is now a serious issue. There is no where to push the snow, they have taken away the only storage area when pushing snow the length of the parking lot. As I see it they will need to truck it out.

Shoving snow to the side on neighbors yards is not an option and certainly not neighborly. I have put up an orange snow fence, several signs over the past few years all to be pushed down. They continue to push the snow against my arborvitaes breaking branches every year and last year knocked over two forsythia bushes. I have watched them do the same thing to a beautiful evergreen that they planted near Anderson Hall and snow was pushed up so hard on it that all the bottom limbs were broken and had to be limbed up. There seems to be a history of— its all about them.

Lastly, we were approached prior to construction and approval that this was going to be a temporary rink. It appears all of us were told that. Temporary means just that not permanently temporary. I assumed stupidly that they were going to create a way to hold in water which would freeze and it would be something that went away in the spring. A million dollars seems a bit over kill for temporary. In my opinion they have made a bad investment and need to be held to the letter of temporary. Pop whalen is now finished and they should be able to resume using that facility.

Topsides B&B
Dennis & Cynthia Schauer

A handwritten signature in cursive script, appearing to read 'Cynthia Schauer', written over a horizontal line.

Attn: TAVIS

RECEIVED

SEP 5 2023

WOLFEBORO
PLANNING DEPT.

CAMELOT BOOKSHOP

11 Green Street
WOLFEBORO,
N.H. 03894
603 569 8488

DATE: 09/05/23

TO: PLANNING BOARD WOLFEBORO
RE: BREWSTER ACADEMY APPLICATION FOR HOCKEY RINK

GOOD EVENING AND THANK YOU FOR THE OPPORTUNITY TO SPEAK AS A GREEN STREET RESIDENT AND TO BRING TO LIGHT A NUMBER OF REASONS FOR OUR CONCERN AS NEIGHBORS TO BREWSTER.

FIRST, A LITTLE HISTORY. ON A JUNE DAY IN 2022 BREWSTER'S MS. HARRINGTON CAME TO MY DOOR TO ANNOUNCE THAT BREWSTER WAS GOING TO BUILD A HOCKEY RINK ON THE FIELD BEHIND MY HOUSE. THIS FIELD HAS FOR OUR 66 YEARS IN OUR HOUSE OFFERED US PLEASURE AND APPRECIATION OF A GRASSY GREEN OUTLOOK TOWARD CAMPUS AND, EARLIER TOWARD THE LAKE NOW, A YEAR LATER, THAT'S GONE, REPLACED BY AN OLYMPIC-SIZED STRUCTURE OF BOARDS, MULTIPLE ICE-MAKING MACHINES, STADIUM-SIZE LIGHTS, TWO GRANDSTANDS AND A DITCH IN THE TWELVE-FOOT STRIP OF REMAINING LAND BETWEEN THE RINK AND MY PROPERTY LINE.

AT THE TIME OF OUR VISIT I ASKED QUESTIONS OF MS. HARRINGTON; WHAT HOURS WOULD THEY OPERATE: ANSWER: AFTERNOONS TO 8 P.M. (THIS TIME SCHEDULE WAS OBSERVED). WOULD THERE BE COMPETITIVE GAMES WITH VISITING SCHOOLS? ANSWER: NO, THOSE GAMES WOULD BE PLAYED AT ABENAKI FACILITY. WHAT ABOUT LIGHTING? THERE WOULD BE DOWN-WARD LIGHTS . NOT SO: A NEARBY LIGHT SHONE DIRECTLY AT MY HOUSE AND INTO THE WINDOWS OF MY BARN APARTMENT DISTURBING MY TENANT. AND FINALLY , WHEN ASKED HOWLONG THEY WOULD OPERATE INTO THE SEASON, MS. HARRINGTON SAID THAT THEY WOULD DISMANTLE THE RINK IN THE SUMMER SEASON! OBVIOUSLY THIS LAST HAS NOT HAPPENED.

MY FAMILY, AS WELL AS OUR NEIGHBORS ACROSS THE STREET ARE DEEPLY CONCERNED THAT THE INTRUSION OF THIS RINK WILL, OR ALREADY HAS IMPEDED THE NATURAL FLOW OF GROUND WATER AS IT MAKES ITS WAY OVER OUR PROPERTIES AND INTO THE FIELD DOWN TOWARD THE LAKE CAN BREWSTER PROVE TO US US THAT THIS WILL NOT HAPPEN?

FURTHER CAN BREWSTER SHOW US THAT , IN THIS NEW "PERMANENT" PLAN, THAT THEY WILL NOT BUILD A STRUCTURE ANY HIGHER THAN THAT WHAT PRESENTLY EXISTS. IN OTHER WORDS, DO THEY ANTICIPATE A BUILDING, ROOF OR OTHER COVER BEYOND THE PRESENT STRUCTURE? WHAT KIND OF SPEAKER SYSTEM DO THEY ANTICIPATE? WOULD THEY BUILD GRANSTANDS OR VIEWER SEATING ? MORE SUCH QUESTIONS WILL UNDOUBTEDLY ARISE IN TIME.

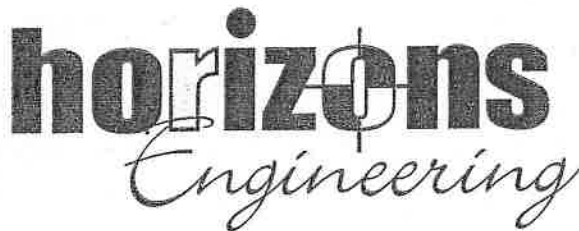
UNHAPPILY, BECAUSE WE ARE THE SOLE INDEPENDENT PROPERTY REMAINING ON THE WEST SIDE OF GREEN STREET, WE FIND IT NECESSARY TO DEFEND OURSELVES AGAINST THE STEADY INTRUSION OF BREWSTER ON THE RESIDENTIAL CHARACTER OF OUR TOWN. WE WILL CONTINUE TO JOIN OUR GOOD NEIGHBORS IN THIS ONGOING CONFLICTIVE ATMOSPHERE TO PROTECT AND PRESERVE OUR NEIGHBORHOOD.

THANK YOU

In addition to the above, which I also sign,
this ice rink has ruined my beautiful
views of green fields and trees. Now
instead of what I see is an ugly metal
hut housing the Zamboni and an
ice rink - I need not say any more!

Teija Kristina Sakai

16 Green St
Woburn



1270 NH Route 16, P.O. Box 440, Ossipee, NH 03864 • Ph 603-539-4118 • Fax 603-539-7912 • www.horizonsengineering.com

August 7, 2023

Via Hand Delivery

Tavis Austin, Director of Planning & Development
Town of Wolfeboro
P.O. Box 629
Wolfeboro, NH 03894

RECEIVED

AUG 7 2023

WOLFEBORO
PLANNING DEPT.

Re: O'Hare Enterprises, LLC Special Use Permit
33 Tips Cove Road
Tax Map 240, Lot 1

Dear Tavis:

Please accept this letter and the accompanying application package as a completed application for a Special Use Permit in accordance with Section 175-10 of the Wolfeboro Zoning Ordinance.

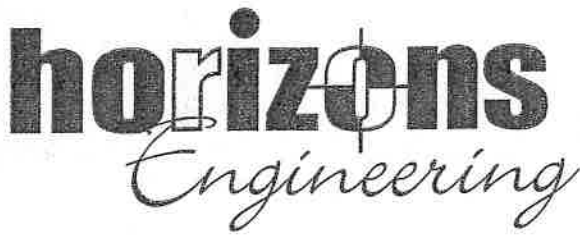
Enclosed you will find a completed special use permit application package for O'Hare Enterprises LLC. The applicant is seeking approval to construct a 6' wide paved extension on each side of the existing basketball court, to make the surface large enough for a pickleball court. While the westerly extension will comply with wetland structure and buffer setbacks, the easterly side will impact 22 SF of wetland setback, in an area that has been previously disturbed. There are no impacts to the wetlands, or the buffer are part of this application. An NHDES Permit by Notification Shoreland Application will be applied for on this application.

The specific section of the Zoning Ordinance that we believe that we must apply under Section 175-10.C.(2) for "(t)he undertaking of a use not otherwise permitted in the Wetlands Conservation Overlay District." To obtain approval under this section, we must demonstrate to the Planning Board that such use as proposed satisfies all of Section 175-10.C.(1)(a), (b), (c) and the findings listed in Section 175-5. Below you will find our arguments demonstrating why we believe we have satisfied these requirements and the owner should be granted the Special Use Permit for the requested improvements.

Criteria 175-10.C.(1)(a) - Lack of Alternatives

As required by Section 175-10.C.(1)(a), there is no reasonable alternative location outside of the wetland or buffer zone which has a less detrimental impact on the wetland. Due to the location of the on-site wetlands and the existing development, there is no way to expand the

Horizons Engineering, Inc.



1270 NH Route 16, P.O. Box 440, Ossipee, NH 03864 • Ph 603-539-4118 • Fax 603-539-7912 • www.horizonsengineering.com

basketball court into a dual purpose pickleball court/basketball court, while keeping the basketball hoop centered upon the expanded court without impacts to the wetland structure setback. The applicant has considered at constructing an entirely new pickle ball court in other locations on Map 228, Lot 32, which they also own, but this would result in 2,323 SF of new impervious coverage and significant earth disturbance and vegetation removal in existing undisturbed areas to construct the new pickleball court. Whereas the proposed location will remove no trees and is in a previously disturbed area.

Criteria 175-10.C.(1)(b) - Essential Need

Section 175-10.C.(1)(b) requires that the proposed construction be essential to the productive use of other land which is not within the Wetland Conservation Overlay District and Buffer Zone. Since the area outside of the structure setback can be used for recreational purposes, which are essential to the lifestyle of the applicants, the expansion of the basketball court will allow them to maintain those recreational activities, without jeopardizing the quality of the wetlands.

Criteria 175-10.C.(1)(c) - Impact Minimization

Section 175-10.C.(1)(c) requires that the design, construction, and maintenance methods will be such as to minimize the detrimental impact upon the wetland and will include restoration of the site nearly as possible to its original grade and condition.

The proposal is to minimize impact to the site by constructing the expansion in previously disturbed areas. At the onset of the project the applicant looked at other alternative areas on Map 228, Lot 32 for the pickleball court that are entirely outside the wetland setback, but these areas are undisturbed and the construction of a new pickleball court would result in more than 2300 SF of impervious surface, substantially more earth disturbance to create the level area, and removal of mature vegetation in a virgin area. Thus, the proposed expansion was deemed as the least impacting alternative and the most environmentally sound option.

In accordance with Section 175-5.A through G, we will now address the following standards and criteria necessary for the Board to make their decision.

175-5.A. Prevent the destruction of or significant changes to those wetland areas, related water bodies and adjoining land which provide flood protection.

The proposed expansion will not impact any wetlands or water bodies and therefore we will not impact the ability of the wetlands to continue to perform their function of flood protection.

Horizons Engineering, Inc.

New London, NH • Newport, VT • Littleton, NH • Sharon, VT • Saco, ME • Conway, NH • Newmarket, NH • Ossipee, NH



1270 NH Route 16, P.O. Box 440, Ossipee, NH 03864 • Ph 603-539-4118 • Fax 603-539-7912 • www.horizonsengineering.com

175-5.B. Protect persons and property against the hazards of flood inundation by ensuring the continuation of natural flow patterns of streams and other water courses.

The proposed changes will have no negative impact to persons or property, nor will it alter the natural flow patterns of streams or other water courses.

175-5.C. Provide for nutrient attenuation and augmentation of stream flow during dry periods.

The proposed changes will be a neutral impact for nutrient attenuation and augmentation of stream flow during dry periods.

175-5.D. Preserve and protect important wildlife habitat and maintain ecological balance.

There are no unique habitats that will be impacted by this proposal and therefore we believe we will have no negative impact to important wildlife habitat and that this proposal will continue to strike an ecological balance and preserve the surrounding habitat, such as it is.

175-5.E. Prevent the expenditure of municipal funds for the purposes of providing and/or maintaining essential services and utilities which might be required as a result of abuse or inharmonious use of wetlands.

This proposal makes absolutely no use or impact directly in or to wetlands or their buffer. For this reason, there will be no expenditure of municipal funds required because of this proposal.

175-5.F. Protect the wetlands, watercourse, surface and groundwater supplies and waterbodies of the Town/city from degradation.

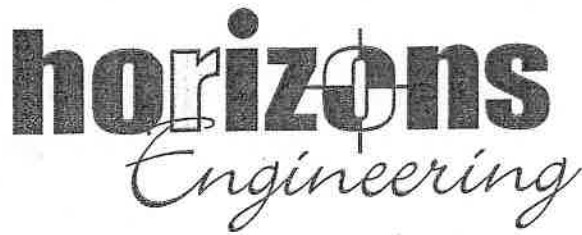
By expanding the paved surface in a previously disturbed area and by maintaining all the buffer, the wetlands, watercourses, and groundwater will be protected. The buffer will act as a vegetated strip and buffer for the small encroachment into the structure setback.

175-5 G. Preserve and enhance those aesthetic values associated with the Wetlands Conservation Overlay district.

By expanding the basketball court in a previously disturbed area, we believe that we will minimize impacts to the site, which will preserve the surface and groundwater while minimizing the impacts to the remaining land in the Wetlands Conservation Overlay District.

Horizons Engineering, Inc.

New London, NH • Newport, VT • Littleton, NH • Sharon, VT • Saco, ME • Conway, NH • Newmarket, NH • Ossipee, NH



1270 NH Route 16, P.O. Box 440, Ossipee, NH 03864 • Ph 603-539-4118 • Fax 603-539-7912 • www.horizonsengineering.com

Based on all the statements made above, it is our position that this project satisfies the criteria to be granted a Special Use Permit for the project as proposed.

With the addition of the included special exception material, I believe you will find the application self-explanatory, and we look forward to presenting these plans at your September 5, 2023, hearing.

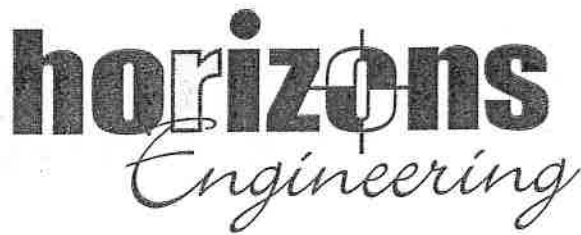
Sincerely,
Horizons Engineering, Inc.
WMS&E Division

A handwritten signature in cursive script that reads "James F. Rines".

James F. Rines, PE, LLS, CPESC
VP Land Surveying Group

Horizons Engineering, Inc.

New London, NH • Newport, VT • Littleton, NH • Sharon, VT • Saco, ME • Conway, NH • Newmarket, NH • Ossipee, NH



1270 NH Route 16, P.O. Box 440, Ossipee, NH 03864 • Ph 603-539-4118 • Fax 603-539-7912 • www.horizonsengineering.com

August 7, 2023

RECEIVED

AUG 7 2023

WOLFEBORO
PLANNING DEPT.

Project Report

Proposed Basketball/Pickleball Court Expansion
O'Hare Enterprises
33 Tips Cove Road
Tax Map 240, Lot 1

Description of the ecological communities, floral and faunal

Per the report prepared by North Country Soil Services identified the vegetation in the wetlands to include Red Maple, Green Ash, Cinnamon Fern, and Sensitive Fern. Soils within the wetland system are dominated by poorly drained hydric soils most closely associated with an NRCS Soil designation of Pillsbury series. The basketball court will be expanded in areas that have been previously disturbed and will not have any direct wetlands impacts or wetland buffer impacts.

The fauna in this area is typical of what is found along any other wetland complex in this region ranging from large mammals such as white-tailed deer and black bear, to smaller mammals such as foxes and coyotes, down other creatures such as frogs, toads, mice, and voles.

Functions of the Wetlands and effects of the impact on the wetland

The function of this wetland is to provide filtration of surface water prior to reaching the lake, sediment retention, nutrient removal, and groundwater recharge.

No impact to the actual wetlands or the wetland buffer is proposed.

In the activities adjacent to the wetlands, we are proposing a six foot widening on the westerly and easterly sides of the existing basketball court. There will be 22 SF of structure setback impact on the easterly side as part of this expansion. By employing temporary erosion controls, we are implementing BMP erosion control to minimize or eliminate any potential temporary impacts.

Measures taken to minimize the impact

Measures taken to minimize any potential impact to the wetlands include the installation of silt log erosion control measures during construction.

Horizons Engineering, Inc.

New London, NH • Newport, VT • Littleton, NH • Sharon, VT • Saco, ME • Conway, NH • Newmarket, NH • Ossipee, NH

RECEIVED

AUG 21 2023

WOLFEBORO
PLANNING DEPT.

August 20, 2023

To the Wolfeboro Planning Department

Please see the enclosed minutes of the September 20, 2022 Planning Board Meeting, application of Libby Mill, LLC Graham Combes.

The application was approved with 5 conditions, one of which allows for mainly non-amplified music confined to the interior of the building.

On Friday evening August 18th 2023, the Lone Wolf provided outside amplified music. Bill Swaffield called the police to notify them that this use had been denied by the Town. An officer went down and told them they had to stop by 10:00, which they did. It was mentioned by the Department that they had no knowledge of the Planning Board's decision and seemed reluctant to be called on to enforce it.

We are sending this letter as an official complaint and ask that the Board see that this condition of approval is enforced. Please let us know soon your response and intent.

Thank you,

Bill Swaffield *Becky Swaffield*

Bill and Becky Swaffield
swaffields@metrocast.net

603-393-7307

PO Box 506

Wolfeboro, NH 03894

Owners of 26 Mill Street and 19 Libby Street, Wolfeboro

Cc: Tavis Austin, Town Planner
Kathy Barnard, Planning Board Chair
James Pineo, Town Manager

Town of Wolfeboro
Planning Board Agenda
Great Hall at Wolfeboro Town Hall - 84 South Main Street
Tuesday, September 20, 2022
7:00 PM

- I. Chairman Barnard called meeting to Order 7:00 PM**
- II. Members Present: Chairman Kathy Barnard, Vice Chairman Mike Hodder, Peter Goodwin, Doug Breskin, Vaune Dugan, John Thurston, Brad Harriman Selectmen's Representative, Julie Jacobs, Alternate**

Staff Present: Tavis Austin, Director of Planning and Development

III. Public Hearings:

- (a) LIBBY-MILL, LLC- GRAHAM COMBES – 36 Mill Street – Tax Map & Lot #217-27 – Case #2022-10 – Site Plan Review- Outdoor Seating – continued from 09/06/2022**

Resident R. Swaffield handed out an amendment from 30 years ago stating that there can't be a decrease in parking spaces. She stated that she checked with an attorney, and he said the Planning Board has no authority to waive a parking regulation, the applicant would have to go before the ZBA.

Resident Fred Fernald of Libby St. stated the neighborhood concern is about the noise. Mr. Fernald read from the June 20, 2017, minutes. "Attorney DeVyllder said, abutters are entitled to quiet enjoyment of their property. Chairman Barnard stated that noise would be addressed thru the town's noise ordinance.

Resident Bill Swaffield asked about addressing the kitchen being enlarged and wondered if the Board needs to know about this before they make a decision. He also asked about the procedure that the applicant used to move outdoors.

Planning Director Tavis Austin spoke to both questions. Stating that nothing has come through his office regarding kitchen enlargement, but the applicant could apply for a permit without necessarily effecting parking. The change back during Covid, outdoor dining was authorized by the Governor.

Mr. Swaffield continued his remarks stating that if the Board decided to approve the applicants request a condition should be added that the current use goes with the business not with the new owner, just in case the business is sold, he also stated that the music should be kept indoors and would like the Board to take this all into consideration.

Graham Combes Owner of Lone Wolfe stated that the purpose of this application was for outdoor seating and parking spaces and believes this is being overlooked. Back in 2017 Kurt DeVlyder represented him and presented in great detail the agreement. Graham asked to continue with the music from Memorial Day thru Labor Day in accordance with the Noise Ordinance, in order to sustain his business

Resident Derrick Brown of Libby St. spoke to the 2017 minutes and pointed out several things that were going to be adhere to and are not. He respectfully believes they have been overlooked or not addressed by the Board or Mr. Combes.

Resident Bill Swaffield addressed the Board further with concerns of other outdoor eating establishments could potentially host music and this would become carte blanche.

Chairman Barnard referred to the 2017 minutes where Mr. Combes stated the music was going to be held inside the building, with non-amplified acoustic music.

Director of Planning Tavis Austin made the comment that Mr. Combes has not applied for approval to modify his current agreement regarding the music.

Vice Chairman Mike Hodder stated that the business appears to be in violation of the 2017 agreement.

Tavis Austin stated that the original approval holds.

Resident Bill Swaffield asked about how the Board would address a complaint.

Tavis Austin, told him the Police Department would be the first line of complaint, if there were many of them then a letter to his office would be submitted and the Planning and Development Office would send a letter to the owner stating he was in violation of agreement.

Mike Hodder stated that back in the 2017 minutes, the Board approved acoustic music that would be played indoors.

Graham Combes stated that he did say back in 2017 that the music would be "mainly" acoustic, not solely. Things changed during the Governors' Emergency order for outside dining, Graham stated that he spoke to the then Planning Director and asked if he could continue on what was being done inside be held outside. Graham asked if he should have come before the Board back in 2020 and he is confused.

The Board spoke to "Mainly" amplified acoustic music not being played outside only inside

Chairman Barnard closed the public hearing.

John Thurston asked if the planters would be moved in the Winter as Mr. Combes stated.

Vaune Dugan is not opposed to the request of additional parking as long as applicant complies with prior 2017 agreements.

Mike Hodder stated the applicant has satisfied 175.138 of application and he would accept approval with Conditions.

Tavis Austin read the conditions of approval:

1. The following plans, as amended to the date of this approval are incorporated into the approval: **Plan Set: Materials** as received on August 09, 2022.
2. Applicant shall be responsible for the payment of all recording fees for Notice of Decision.
3. All documentation submitted in the application package by the applicant and any requirements imposed by other agencies are part of this approval unless otherwise updated, revised, clarified in some manner, or superseded in full or in part. In the case of conflicting information between documents, the most recent documentation and this notice herein shall generally be determining.
4. If there is to be music, it shall be "mainly nonamplified music, confined within the building."
5. Planters and tables must be removed in the winter

Mike Hodder made a motion to approve the application with the 5 conditions made by the Board, Kathy Barnard seconded the motion, 5 in favor, 1 opposed, motion passed.

- (b) **BREWSTER ACADEMY** – 80 Academy Drive – Tax Map & Lot 218-150-
Case #2022-11 – Site Plan Review – Temporary Ice Rink & Associated
Equipment – Formal Submission/Public Hearing

Peter Gilligan CEO for Brewster Academy and Susan Harrington CFO for Brewster Academy were present to speak to the application.

Chairman Barnard stated that the application has a lot of Waiver request and asked for them to speak to the reason for them

Mr. Gilligan spoke to the Site Plan.

Chairman Barnard, Mike Hodder, and John Thurston made comments that there wasn't enough information.

Mr. Gilligan presented plans as submitted.

Mike Hodder explained that this is not how a site-plan review is usually conducted.

Mr. Gilligan stated he had a meeting with Tavis Austin and Kathy Barnard 3/12/22, months ago, regarding the proposed plan.

Chairman Barnard stated that the earlier discussion was a very informal meeting to gather information and stated that she spoke with Tavis Austin after said discussion the meeting saying that she felt there was not enough information included in the request.

Mr. Gilligan and Ms. Harrington continued with the presentation with the information they had available, explaining that the abutters or anyone close in proximity of the project have been approached; none expressed any concerns to them about the project.

Mike Hodder stated that this is the most disorganized site plan review, and that he has no intention of voting for this proposal, until he has a proper site plan review in front of him. He stated that the waiver requests were missing information, on lighting, temporary shed, and the impervious surface.

Susan Harrington stated they were told by the town when they inquired back in April that this was a light review. She was unaware they needed a full site-plan review. What would constitute them presenting a full site plan review to the Board.

Ms. Harrington asked what it is that triggers this request from that of what they do every year, that would necessitate a full site plan review.

Mike Hodder doesn't know about the concrete and what is going underneath it, request for shed and how close it to the lot lines even your own, lights are involved, and we don't know where they are going, there is the noise issue, he doesn't know what kind of noise the compressor would be giving along with use of the Zamboni, and he doesn't know how high the poles are going to be.

Peter Gilligan stated that since construction hasn't started yet they could change the concrete building to a canvas structure.

Mike Hodder asked if they were changing their application mid-stream.

Peter Gilligan explained that he would have come to the Board with a full site plan review if it was told to them that was what they needed, they were told that this was a light review and everything they were presenting looked fine, and they would see them on a certain date to go before the Board for approval. He apologized for not being as prepared as some members are expecting.

Ms. Harrington also stated that time was of the essence, they had to proceed with this proposed project as enrollment was going to be an issue. When parents heard that there may not be access to a rink a lot of the Hockey parents said they would remove their child from the school due to the lack of an accessible hockey facility. We didn't come here with a full site plan review because of our communication with Tavis and the Temporary nature of this structure.

Chairman Barnard asked Tavis Austin to speak to the application.

Tavis Austin stated, that it is a temporary structure, minor grading, six dark sky compliant lights which is on the plan. He believes this application is borderline if it even requires site plan review.

Kathy Barnard stated that it has lights and noise involved and that would need review. Usually when people put up lights, they come in with a site plan.

Peter Goodwin asked about the noise device being at a 65 decimal which is not considered loud, asked if they would be using Abenaki area once its back online, and asked about the impervious mat, and housing of the Zamboni.

Peter Gilligan addressed noise question stating that yes, it is 65 decimals, they would be going back to Abenaki once it is back online, and the mat would be removed from the temporary housing for the Zamboni. He then confirmed this request is for one season.

Susan Harrington stated that once Abenaki is up online that is what they will be using.

Kathy Barnard asked if this building will be totally removed at the end of the seasonal

Peter Gilligan stated that yes it would be taken down and removed and stored.

John Thurston asked how high your wind screen is.

Peter Gilligan stated that they would not be using a wind screen.

Peter Goodwin, asked about the impervious mat and if needed to be frozen, and asked if the shed could be canvas to house the Zamboni.

Peter Gilligan stated they can certainly change their plan.

Kathy Barnard asked about the time the facility would be in use. Kathy believes she read until 8:00 PM.

Susan Harrington stated the rink would be open from 7:00 AM until 8:00 or 10:00 PM whichever time the Board is comfortable with. They have reached out

to Bay Back, and Kingswood High School Athletic Director to see if they have interest in using the rink, that is why she mentioned 10:00 PM.

Tavis Austin stated that Kathy read the correct time on the application. It states the hours as 6:30 AM to 8:00 PM.

Mike Hodder addressed Tavis Austin asking if the meeting was being recorded, Tavis responded that it was. Mike requested that the minutes be verbatim. That the applicants have been stating and agreeing to several operational characteristics and he does not want the Board or the applicants to lose track of these characteristics—particularly as they are neither in the submitted materials or documented outside of the minutes.

John Thurston doesn't feel comfortable approving the lighting waiver, he would like everyone to follow the process.

Peter Goodwin made a motion to grant all waivers for the application that is being represented. Doug Breskin Seconded the motion. Motion passed with Kathy Barnard, Peter Goodwin, Vaune Dugan, Doug Breskin in favor and Mike Hodder and John Thurston opposed.

Peter Goodwin made a motion to accept the application as complete, Vaune Dugan seconded the motion, motion passed with Kathy Barnard, Doug Breskin, Vaune Dugan, Peter Goodwin in favor and Mike Hodder, John Thurston opposed.

Chairman Barnard opened for Public Hearing

Bob Tougher, neighbor of Brewster Academy for 28 years stated that he and wife have had no issues with noise or bad behavior and is in favor of application moving forward.

Chairman Barnard asked Tavis for conditions of approval

Planning Director Tavis Austin read the conditions of approval

1. The following plans, as amended to the date of this approval are incorporated into the approval: **Plan Set: Materials** as received on August 16, 2022.
2. Applicant shall be responsible for the payment of all recording fees for Notice of Decision.
3. All documentation submitted in the application package by the applicant and any requirements imposed by other agencies are part of this approval unless otherwise updated, revised, clarified in some manner, or superseded in full or in part. In the case of conflicting information between documents, the most recent documentation and

- this notice herein shall generally be determining.
4. Surface will not be used for competition games.
 5. This temporary installation is approved for one season (October 2022 through March 2023) or until full site plan approval is granted.
 6. The underlying impervious rubber mat will be installed after ground is frozen and removed upon spring thaw.
 7. Applicant shall utilize a temporary shed structure (no permanent foundation) for the Zamboni.
 8. Hours of operation shall be 6:30AM to 8:00 PM.

IV. Discussion Items:

- (a) Lots with no frontage

Tavis Austin presented changes as asked by the Board.

Board members generally discussed the changes and asked for legal review of the changes.

- (b) Inclusionary Housing amendments (pending legal review)

T. Austin noted he had not yet heard back from the Town Counsel on this; he will update the Board when a response is received.

- (c) ADU Forum discussion

Board discussed next steps with the amendment. M. Hodder motioned to set the date of public hearing on the proposed amendment.

T. Austin suggested multiple hearings to be set for the second meeting in October or first meeting in November given the full agenda for the October 4, 2022 meeting.

Comments from Public: Linda Murray stated that if anyone wants more information on their Budget, Amy can get it for you.

Review of Minutes: No minutes reviewed.

V. ADJOURNMENT

M. Hodder motioned to adjourn the meeting at 9:15 PM. K. Barnard seconded the motion which passed unanimously.