



KEENE PLANNING BOARD
Council Chambers, Keene City Hall
September 28, 2026
6:30 PM

A. CALL TO ORDER & ROLL CALL

B. MINUTES FROM PRECEDING MEETING

1. August 24, 2026

C. EXTENSION REQUESTS

D. FINAL VOTE ON CONDITIONAL APPROVALS

1. Applications Ready for Final Approval

E. BOUNDARY LINE ADJUSTMENT

1. **PB-26-28 - Boundary Line Adjustment - Ash Brook Ct** - Applicant GM2 Associates Inc., on behalf of owner The State of NH, proposes to transfer ~1.4-ac of land from the ~11.4-ac parcel at 6-15 Ash Brook Ct (TMP #110-001-000) in the Agriculture District to the ~0.74-ac parcel at 0 Ash Brook Ct (TMP #109-029-000) in the Commerce District.

F. CONTINUED PUBLIC HEARINGS:

G. PUBLIC HEARINGS

1. **PB-26-26 - Major Site Plan & Congregate Living & Social Services Conditional Use Permit - Anew Behavioral Health, 232 Winchester St**
- Applicant and owner, Anew Behavioral Health LLC, proposes to convert the mixed-use building at 232 Winchester St (TMP #592-017-000) into a small group home with 8 beds. The parcel is ~0.4-ac in size and is located in the High Density District.
2. **PB-26-29 - Major Site Plan - Fast Food Restaurant, 348 Winchester St**
- Applicant Bohler Engineering, on behalf of owner Riverside Improvements LLC, proposes to demolish the former Rite Aid building and

construct an ~4,576-sf fast food restaurant with a drive-thru on the parcel at 348 Winchester St (TMP #111-004-000). A waiver is requested from Section 21.6.2.B.2 to allow for the drive-through to be located along the western building facade adjacent to Winchester St. The building is located in Riverside Plaza, which is ~18.7-ac in size and is located in the Commerce District.

H. OTHER BUSINESS

1. **City Council Referral** - Request for written findings from the Planning Board to support a temporary moratorium on data centers and cryptocurrency mining facilities.

I. STAFF UPDATES

J. NEW BUSINESS

UPCOMING DATES OF INTEREST

- Joint Committee of the Planning Board and PLD - Tuesday, October 13, 6:30 PM
- Planning Board Steering Committee - Tuesday, October 13, 12:00 PM
- Planning Board Site Visit - Wednesday, October 21, 8:00 AM - To Be Confirmed
- Planning Board Meeting - Monday, October 26, 6:30 PM

K. MORE TIME ITEMS

ADJOURNMENT

City of Keene
New Hampshire

PLANNING BOARD
MEETING MINUTES

Monday, August 24, 2026

6:30 PM

Council Chambers,
City Hall

Members Present:

Harold Farrington, Chair
Roberta Mastrogiovanni, Vice Chair
David Bergeron
Michael Hoefer
Kenneth Kost
Mayor Jay V. Kahn
Councilor Molly Ellis
Stephon Mehu, Alternate
Joseph Cocivera, Alternate

Staff Present:

Paul Andrus, Community Development
Director
Megan Fortson, Planner

Members Not Present:

Andrew Madison
Tammy Adams, Alternate

A. CALL TO ORDER & ROLL CALL

Chair Farrington called the meeting to order at 6:30 PM and a roll call was taken.
Stephon Mehu was invited to join the session as a voting member.

B. MINUTES FROM PRECEDING MEETING
1. July 27, 2026

Chair Farrington offered the following correction:
Line 428 – “forum” should be “form”

A motion was made by Roberta Mastrogiovanni that the Planning Board approve the July 27, 2026 meeting minutes as amended. The motion was seconded by Mayor Kahn and was unanimously approved.

C. EXTENSION REQUESTS

None

D. FINAL VOTE ON CONDITIONAL APPROVALS

1. Applications Ready for Final Approval

Planner Megan Fortson stated the first item ready for final approval is PB-26-10, Cottage Court Conditional Use Permit for Habitat for Humanity on Grove Street. There were four precedent conditions of approval for the application: Owner's signature appear on the final plans; Submittal of five full size paper copies and a PDF version of the final plan set and elevations; Submittal of an updated proposed conditions plan showing the ZBA approval number; and Submittal of draft written documentation of any easements or other legal instruments necessary for the application. The applicant has met all conditions precedent and staff recommends the Board issue final approval.

A motion was made by Roberta Mastrogiovanni that the Planning Board issue final approval for PB-26-10. The motion was seconded by David Bergeron and carried on a unanimous vote.

The second application ready for final approval is PB-26-12, Major Site Plan and Cottage Court Conditional Use Permit application for Elm City Commons. The applicant had seven conditions precedent: Owner's signature on the final plans; Submittal of full-sized copies of the final plan sets and elevations; Submittal of a recorded voluntary merger for the four subject parcels; Submittal of a security; Submittal of draft written documentation of any easements or other legal instruments necessary for the application; Submittal of an updated plan sets showing a native replacement for the Callery Pear trees; and Completion of a sewer flow study to demonstrate that there is adequate capacity in the City sewer line. Ms. Fortson stated the applicant has satisfied all conditions precedent and staff recommends the Board issue final approval for PB-26-12.

The Chair asked whether staff knows the results of the sewer study. Ms. Fortson stated the applicant is proposing to upgrade the sewer infrastructure within the public right of way, which negates the need for the completion of a sewer flow study. She added the actual upgrade of the sewer would take place once work has started on the project and the applicant would need to get an initial approval of the infrastructure from City Council. Once it is constructed, it would need to be inspected by the Public Works Director to make sure that it met all necessary City standards and go back to City Council for final acceptance of the utilities and infrastructure as public infrastructure.

A motion was made by Roberta Mastrogiovanni that the Planning Board issue final site plan approval for PB-26-12. The motion was seconded by Stephon Mehu and carried on a unanimous vote.

The third application ready for final approval is PB-26-15, Major Site Plan and Surface Water Conditional Use Permit for changes to the Eversource L163 transmission line. There were four conditions precedent: Owner's signature appears on the final plans; Submittal of five color copies of the final plan sets; Submittal of documentation of all necessary permits and approvals, including an NH DES Statutory Notification, Alteration of Terrain Permit, US Army Corps of Engineer Permit, and EPA general construction permit; and lastly, Update the proposed plan set to include a note stating that Old Gilsum Road will be returned to pre-construction conditions.

Ms. Fortson stated all precedent conditions of approval have been met and staff recommends Board issue final approval.

A motion was made by Roberta Mastrogiovanni that the Planning Board issue final approval for PB-26-15. The motion was seconded by Mayor Kahn and carried on a unanimous vote.

The last item ready for final approval is PB-26-18, Boundary Line Adjustment involving the parcels at 35 and 39 Kendall Road. There were three precedent conditions: Owner's signature appears on the final plans; Submittal of paper and mylar copies of the final plans; and Submittal of a check to cover the cost of recording fees. Ms. Fortson stated the applicant has satisfied these conditions, and staff recommends the Board issue final approval.

A motion was made by Roberta Mastrogiovanni that the Planning Board issue final site plan approval for PB-26-18. The motion was seconded by Mayor Kahn and carried on a unanimous vote.

E. BOUNDARY LINE ADJUSTMENT

None

F. CONTINUED PUBLIC HEARINGS:

None

G. PUBLIC HEARINGS

1. PB-26-21 - Major Site Plan - Bensonwood Parking Lot Modifications, 25

Production Ave - Applicant Bensonwood, on behalf of owner LIDA Realty LLC, proposes to construct a new 46-space employee parking area and make associated site improvements on the parcel at 25 Production Ave (TMP #110-007-000). The parcel is 6.87-ac in size and is located in the Industrial District.

A. Board Determination of Completeness

Planner Megan Fortson stated the applicant has requested exemptions from submitting a separate landscaping plan, elevations/renderings, a traffic report, a soil analysis, a historic evaluation, a screening analysis, and an architectural analysis. Planning Staff have made the preliminary determination that granting the requested exemptions would have no bearing on the merits of the application and recommend that the Board accept the application as "complete."

A motion was made by Roberta Mastrogiovanni that the Board accept this Application as complete. The motion was seconded by and was unanimously approved.

B. Public Hearing

Ms. Liza Sargent of SVE Associates addressed the Board and referred to a rendering that showed the existing conditions at the site. She explained that this is an existing facility for

122 manufacturing panels for Unity Homes. She indicated currently the product is being stored in the
123 parking lot. She referred to an existing gravel roadway along the north side of the building, a tax
124 ditch along the border with Eversource to the south, Ash Swamp Brook is along the west side of
125 the property. She indicated the applicant is having a difficult time storing the product they are
126 making. Delivery trucks and tractor-trailers are having a difficult time backing into the site.

127
128 Ms. Sargent stated there is no change to the number employees. The proposal is to store product
129 in the paved area to the south with an employee only driveway along the north side with parking
130 along the face of the building. There are doors at that location for employees only. Ms. Sargent
131 explained the alignment is such that fire trucks can make it around the building, but the general
132 public will not be driving in that area.

133
134 This project requires a Shoreland Permit, which has been applied for and will be submitted to the
135 City.

136
137 Ms. Sargent went on to say there is a series of catch basins in the southern parking lot that
138 discharge to the front. The two tax ditches have culverts that outlet to Ash Swamp Brook.

139
140 She noted lighting will be along the face of the building and there will be no light trespass.

141
142 Screening of the parking lot – she noted it is very limited on the north side. There is power line
143 easement and water main in this area. She noted there is existing vegetation along the tax ditch
144 which the applicant is going to try to maintain, but an alternative would be to add plantings in the
145 front of the building to try to shield the existing parking at the face of the building, which she
146 added is an enhancement along Production Avenue.

147
148 Drainage - Storm water that runs off from the parking is being captured in the catch basins along
149 the curb line as well as into the cleaned-out, expanded storm water pond at the front of the site.
150 The City Engineer has requested some improvements to the drainage, such as a rip rap apron to
151 the outlet of the pipe along the tax ditch. Other alternatives the applicant has proposed in dealing
152 with storm water would include porous asphalt, but in this climate, this option would be a
153 challenge to maintain. This concluded Ms. Sargent's comments.

154
155 Mr. Bergeron pointed out there were some questions from Public Works about water and sewer
156 lines along that side and asked whether that has been addressed. Ms. Sargent stated they have
157 made those modifications and the City Engineer has reviewed them and has accepted them.

158
159 Staff comment were next.

160
161 Ms. Fortson addressed the Board and stated this subject parcel is approximately 6.87 acres in
162 size, located at the end of Production Avenue. The site is developed with an existing,
163 approximately 104,428 square foot building that house Bensonwood and Unity Homes.
164 The parcel currently has site access via an existing curb cut along Production Avenue.
165 There are light industrial uses to the north and east. To the south and west is undeveloped land as
166 well as residential uses.

This parcel is located in the industrial district and the parcels to the west are located in the rural district.

Ms. Fortson went on to say that the applicant is proposing to create a second curb cut on the property and construct a 43-space parking area which would consist of approximately 22,970 square feet of asphalt. This work is proposed to be completed along the northern portion of the site, which is currently a grassed with a small gravel access road and some trees.

Under Section 26.12.3.8.1.e of the Land Development Code, the installation of new impervious surfaces exceeding 10,000 square feet of contiguous area meets the threshold for major site plan review by this Body. Ms. Fortson stated this is the reason this application is before the Board tonight – because of the amount of impervious surface that is being added.

During staff's review of the application, staff did not feel the project had the potential for regional impact, but ultimately this is something the Board would need to address.

In regards to staff comments on the application, Ms. Fortson stated the Zoning Administrator did note that the proposal typically would have to comply with the landscaping standards for 50 or more parking spaces. In this case, the applicant is proposing an alternative landscaping design due to the site constraints and the proximity of the northern most building facade to the northern property line.

Ms. Fortson stated the Fire Department made some specific comments related to signage and parking spaces not blocking their connections to the building; the applicant has addressed those comments. As was mentioned by Mr. Bergeron, there were some comments from the City Engineer related to the property infrastructure and the potential drainage on the site. The applicant has submitted a revised grading and drainage plan and has submitted a revised drainage narrative. Those materials were reviewed by the City Engineer and he had no further comments.

Ms. Fortson next reviewed the application analysis. All standards relevant to this application are under Article 21 of the LDC.

Drainage - Currently, storm water from the existing paved parking and storage area is directed into a detention basin at the front or the eastern end of the site. The basin discharges into a City tax ditch along the southern property line that connects to Ash Swamp Brook. Ms. Fortson pointed out that Ash Swamp Brook makes up the entire western property boundary of the parcel. Runoff from the north side of the building goes into tax ditch along the northern property line and then into Ash Swamp Brook. Storm water from the new parking lot on the northern side of the building is proposed to be collected in catch basins and piped into the existing storm water basin, which will be expanded to handle the additional volume of runoff.

The City Engineer had questions regarding post development storm water runoff rate, as well as specifications regarding the design of the new drainage infrastructure. Staff has received updated materials from the applicant and this material has addressed all comments and questions raised by the City Engineer.

Ms. Fortson stated Planning Staff recommends as a condition of approval that the Board include the submittal of security to cover the cost of as-built plans.

Sediment and Erosion Control - The applicant is proposing to install silt fencing along the northern and northwestern portions of the site to protect the City tax ditch from siltation during construction. Planning Staff recommends that the applicant submit a security to cover the cost of sediment and erosion control measures, and also recommend the Board include a condition related to Community Development Staff inspecting these measures prior to the start of construction or site work – This standard appears to be met.

Snow Storage and Removal - Snow storage areas are shown in the proposed conditions plan to the west of the proposed parking lot area and the applicant has also added a note on the plan stating that snow cannot be pushed into or stored within the 30 foot surface water buffer. Because this parcel is located in the industrial district, the applicant has to maintain a 30-foot buffer from the edge of Ash Swamp Brook. The proposed changes are well outside of that 30-foot buffer. Ms. Fortson noted as Ms. Sargent had mentioned, the applicant would need to obtain a Shoreland Permit. Staff recommends the Board include the submittal of that approved permit as a condition of approval.

Landscaping - The applicant is proposing to remove nine existing trees along the western side of the north building facade to allow for the creation of the new parking area. Under Section 9.4.4.A of the Land Development Code, a perimeter landscaping area is required to be created if a new on-site parking lot will be visible from the public right of way and/or is located to a residential zoning district. Ms. Fortson noted the proposed new parking area on the northern portion of the site is going to be minimally visible from Production Avenue to the east and on the western side; the travel aisle is going to be adjacent to the rural district. Hence, screening applies not only to the northern property boundary, but also a portion of the eastern property boundary and the western property boundary as well.

The applicant is proposing to install 13 low Bush Blueberries and 12 Inkberry Hollies along the eastern portion of the site to screen the parking area from Production Avenue as well as soften the transition between the building and the public right of way. To screen the rear portion of the site from the adjacent rural district to the west, the applicant is proposing to maintain a 25-foot wooded buffer. Ms. Fortson noted the applicant is allowed to satisfy that requirement to screen this industrial use from an adjacent residential zoning district. There is a provision in the parking lot landscaping standards that states that you can maintain that 25-foot wooded buffer.

Ms. Fortson went on to say, during the review of this application, Planning Staff noted there was aerial imagery included which shows that, on the southwestern portion, there is an unpaved area being used for parking that goes into that 25 foot wooded buffer. In order to provide that buffer completely the applicant is going to be rototilling the soil in that area and then installing some new trees. This is an effort to prevent future parking in that area to make sure that any runoff coming from that portion of the site that goes into the brook won't have any discharge from vehicles.

The applicant is also required to install one tree for every 10 new parking spaces and create interior parking lot landscaping areas. Ms. Fortson noted the applicant is proposing to install five Red Maple trees on the eastern portion of the site. She noted there is a specific provision under Section 9.4.5.B5 of the Land Development Code that the Planning Board may approve an alternative design for interior landscaping of parking lots as part of a site plan, if the Board determines that the proposed design generally meets the intent of this article. Planning Staff recommend a condition of approval related to the submittal of a security to cover the cost of landscaping.

The existing City tax ditch vegetation is proposed to screen the parking lot from the property to the north and west. The property owner is proposing to maintain that 25-foot vegetated buffer with one small area of remediation. Ms. Fortson explained the Board would need to determine if what the applicant has proposed meets the intent of the parking lot landscaping regulations.

Lighting - The applicant is proposing to install four new wall-mounted, full cut-off light fixtures with a color rendering index greater than 70 and a color temperature of 3,500 Kelvin or less – That standard appears to be met.

Sewer and Water - The narrative states no changes are proposed to the existing utilities other than raising the grade of the rims, clean outs, curb stops and gate valves to match the new finish grade as necessary - That standard appears to be met.

Traffic and Access Management – Ms. Fortson noted there is going to be a new curb cut on Production Avenue to access the northern parking lot, which would be identified as an employee only entrance using signage. There will be no truck traffic going around the site from the northern curb cut. The north and south parking and storage areas are going to be connected via an existing concrete pad. Circulation around the building will be limited to use by emergency vehicles only. The southern portion of the site will be reserved for delivery vehicles picking up finished product and the proposed conditions plan shows that a 22-foot-wide travel aisle is going to be maintained between the outdoor storage areas and the installation of a bike rack near the northeastern corner of the building near the employee entrance - That standard appears to be met.

Filling and Excavation - The narrative states that there will be minimal filling and excavation and notes that the proposed employee parking lot will require stripping and installation of gravel and asphalt, which will result in proposed finished grades that are close to the existing site grading – That standard appears to be met.

Ms. Fortson noted because the applicant is staying further away than the required 30-foot buffer from Ash Swamp Brook, they do not require a surface water conditional use permit under the City's regulations but are subject to the Shoreland Water Quality Protection Act and would be required to obtain a Shoreland Permit.

Hazardous and Toxic Materials - None proposed as part of this application – That standard is not applicable.

Noise - Noise levels are not going to be changed - That standard is not applicable.

Architecture and Visual Appearance – Do not apply as there are no changes proposed to the outside of the building. The parking lot, under the architecture and visual appearance standards, has to be located to either the side or the rear of the building. This parking lot is located to the side of the building so it complies with that standard.

Ms. Fortson next reviewed conditions of approval as outlined in the staff report.

Mr. Kost asked for the definition of alternate landscaping plan.

Ms. Fortson stated how it is defined in the Land Development Code is “*the Planning Board may approve an alternative design for interior landscaping of parking lots as part of a site plan review if they determine that the proposed design meets the intent of this article.*” Ms. Fortson stated there are two sections that this relates to. There is interior parking lot landscaping that would need to be installed in terms of landscaping islands within the parking area, and there is also the perimeter parking lot landscaping standards. The applicant is requesting an alternative landscaping plan for both these categories and the Board have this provision carved out in the regulations to be able to approve that. Ms. Fortson added it was pointed out to the applicant the prior plan approved in 1993 had more landscaping along the eastern portion of the site and staff encouraged the applicant to install some extra landscaping to make up for the fact that there is the lack of landscaping along the northern property boundary.

The Chair asked for public comment next.

Kevin Thatcher of 28 Evans Circle addressed the Board and stated he is opposed to this proposal. He stated the primary reason is related to storm water management. He felt this project does not comply with Section 21.2 of the Land Use Code – “Drainage and Storm water Management”. He stated Section 21. 2.1. regarding runoff volume and velocity, he stated he understands this issue has been addressed with a revised drainage narrative with the City Engineer. He noted he has not had the opportunity to review this but the original application did not provide enough information for that determination.

Regarding volume, Mr. Thatcher stated this project does not comply, as it increases storm water runoff volume from the site as it represents a significant increase in impervious area of about half an acre and proposes no infiltration of storm water.

He further stated Section 21.2.2 regarding low impact design. Mr. Thatcher felt it does not appear that there is enough information in this application to show that these methods have been appropriately vetted for this site. Specifically, fire retention, porous pavement and vegetated swales all seem like they could be possible used in some capacity. He also felt the applicant’s requested exemption regarding soil analysis is not warranted as that would give more data towards the potential design of LID practices on the site.

Finally, Section 21,2.3 regarding discharge of storm water to surface waters. He asked that this discharge be treated to the standards of the Federal Clean Water Act.

The storm water treatment being proposed is an existing dry detention basin with limited detention associated with it. He noted a dry detention basin is not an approved storm water quality measure. It is primarily for volumetric control of storm water. Mr. Thatcher stated at the very least, to enhance storm water quality, the design should be modified beyond its expanded grading to include control with extended detention on the possibility that any of the LID methods are not feasible.

Mr. Thatcher referred to other issues related with this application. He noted the applicant has indicated that they have applied for a State Shoreland permit but the plans do not depict the wetlands on the site. The applicant has identified setbacks associated with Ash Swamp Brook, but they do not identify the wetlands associated with Ash Swamp Brook. Likewise, he felt it needs to be verified that the tax ditch areas and the storm water basin have been evaluated to make sure they don't have wetlands within them, if they do, the grading for the proposed project has wetlands impact.

Regarding sediment and erosion control, Mr. Thatcher stated the existing storm water basin the applicant is proposing to use on the southeast side of the building also receives storm water from the unchanged storm water system on the south side of the building. He added the proposed erosion controls for this project do not address separating that storm water from the construction activities associated with this project. He suggested creating a temporary bypass for that storm water system or at the very least creating a diversion with proposed erosion controls to allow the storm water from that system to discharge from the site without disturbing the grading revisions necessary for the storm water basin. Mr. Thatcher's asked that the Board continue this application so that the applicant may provide more information regarding these topics.

With no further comment, the Chair closed the public hearing.

C. Board Discussion and Action

A motion was made by Roberta Mastrogiovanni that the Planning Board approve PB-26-21 as shown on the plan set identified as "Employee Parking; 25 Production Avenue, Keene, New Hampshire" prepared by SVE Associates at varying scales on July 10, 2025 and last revised on August 11, 2026 with the following conditions:

1. Prior to final approval and signature of the plans by the Planning Board Chair, the following conditions shall be met:

- a. Submittal of an approved NHDES Shoreland Permit and the inclusion of the approved permit number on the proposed conditions plan.
- b. Owner's signature appears on the plans.
- c. Submittal of five (5) full-size paper copies and a flattened PDF version of the final plan set.
- d. Submittal of a security to cover the cost of landscaping, sediment and erosion control measures, and as-built plans in a form and amount acceptable to the Community Development Director.

2. Subsequent to final approval and signature of the plans by the Planning Board Chair, the following conditions shall be met:

- a. Prior to the commencement of site work, all sediment and erosion control measures shall be installed and inspected by the Community Development Director or their designee.
- b. Following the installation of landscaping, the Community Development Department shall be contacted to perform an initial inspection.
- c. One year following the installation of all landscaping, the Community Development Department shall be contacted to perform a final landscaping inspection.”

The motion was seconded by Mayor Kahn.

The Chair stated he would like to hear comments from the Board on landscaping/screening for the parking lot and the storm water issues raised by Mr. Thatcher.

Mr. Hoefer felt the alternate plan for landscaping was appropriate for the site. He noted because the adjacent property to this site is another industrial use with parking and storage, the need for screening is minimized. He felt the addition of trees to the west and east of the building would be a good improvement.

The Mayor stated the alternate landscape plan does address the screening.

Mr. Kost stated he would like to receive additional information regarding the storm water issues raised by Mr. Thatcher. The Chair invited the applicant to comment. Ms. Sargent stated with reference to soil analysis, she stated this was an already disturbed site that has had modifications since the 90s and the applicant is mostly importing fill.

With reference to alternative storm water practices, Ms. Sargent stated the applicant did look into other alternatives other than expanding the existing basin. The porous asphalt or concrete would need to be modified, the subbase removed and good draining soils brought in. She also added this facility is currently in the 500-year floodplain. The applicant does not require a flood permit, but they are limited in depth for any storm water practices.

With reference to wetlands, the applicant did have a certified wetland scientist review the ditches in the storm water basin. She stated if the Board would like the applicant to provide a stamped plan, indicating there are no wetland impacts, one can be provided.

As it pertains to sediment and erosion control for the existing storm water in the parking lot, Ms. Sargent stated those modifications could be added to the plan and approved by the City Engineer, if requested by the Board.

Mr. Kost noted that Mr. Thatcher has raised concern that the dry retention as not being sufficient. Ms. Sargent responded by saying the classification of the storm water basin AOT specifications are very specific on what sort of storm water infrastructure you use. She indicated the City of Keene is less descriptive and hence, the reason the applicant is proposing what is shown on the plan.

If Mr. Thatcher were looking for a storm water basin, additional modifications would be required on the site.

Mr. Mehu stated at a minimum, he would like to see the wetland scientist data that was collected as a subsequent condition.

Mr. Bergeron stated he echoes what others have said. With respect to landscaping, he felt what is being proposed is the best plan based on the size and the condition of the site. The amount of work that the applicant has on the other side of the building, what is being proposed is a much-improved layout which would keep the employee vehicles separate from the area where trucks are being loaded and materials moved around. He agreed with the request from Mr. Mehu so it can be verified that there are no wetlands impacts.

Mr. Kost felt if the City Engineer has approved the storm water requirements there isn't anything more that could be requested and stated he was comfortable with what is being proposed.

Councilor Ellis stated she too agrees with what has been stated by other Board members; because City Engineer has signed off on this proposal she too was comfortable with what is being proposed. She also added because of the constraints of the site the alternate landscape plan also does make sense.

The Chair asked for the purpose of the Shoreland Permit. Ms. Fortson explained in the State of New Hampshire, there are certain water bodies that are subject to the Surface Water Quality Protection Act which are within 250 feet of the edge of the surface water. Certain water bodies, depending on the activities proposed, are required to obtain a permit from DES indicating that you are not going to be negatively impacting any of the land within that buffer. Ash Swamp Brook is the body of water this permit covers.

Mr. Hoefer noted this application does not have any regional impact.

The Chair asked whether the Board would like to see a plan, which shows the wetlands. Mr. Mehu stated he would like to see this plan.

A motion was made by Stephon Mehu to amend the motion to include delineation of wetlands on the site plan as a condition precedent. The motion was seconded by Michael Hoefer and unanimously approved.

Mr. Kost stated there was testimony from Mr. Thatcher regarding separating the storm water from the construction at the south of the site. Ms. Sargent responded by saying that Mr. Thatcher has requested erosion control prevention to the storm water that discharges into the storm water basin located at the southerly location. She indicated that perhaps sandbags are something that could be used to separate the construction area from the storm water discharge to the existing parking lot; this is a note that could be added on the plan and coordinated with the City Engineer. The Mayor asked whether this was feasible without much expense and clarified that there was already a silt fencing being proposed. Ms. Sargent stated a silt fence is being proposed

for the outlet of the storm water basin, but adding another one to where the storm water discharges from the existing parking lot would be another silt fence and sandbags in the general vicinity.

Mr. Hoefer stated he was concerned about this requested addition. He felt if this was required it would have been raised by Planning staff or the City Engineer.

The Chair suggested another amendment.

A motion was made by Kenneth Kost to amend the motion that a condition precedent to add silt fencing that would separate storm water runoff from the construction runoff. The amendment failed for lack of second.

The original motion to approve carried on a unanimous vote.

Ms. Fortson provided additional information on the question raised regarding the purpose of the Shoreland Permit. She noted she found the following language online:

Any water bodies in the State of New Hampshire that are greater than 10 acres in size, or if they are year-round, flowing waters such as streams or rivers that are of the fourth order or higher, certain designated rivers, streams and coastal waters, are all subject to the Shoreland Water Quality Protection Act in the State of New Hampshire. DES has a list of consolidated water bodies on their website. Within the City of Keene there are certain water bodies that meet the criteria and they are as follows: Portions of Ash Swamp Brook, Ashuelot River, and the Minnewawa River. Any time there is development, excavation, or removal of vegetation proposed within that 250-foot buffer and it is one of those specific segments of the river which is identified in this list, a Shoreland Permit is required.

H. OTHER BUSINESS

1. Opportunity Zone 2.0 Nomination

Deputy City Manager Rebecca Landry addressed the Board and stated she is before the Board to ask for support in the form of a letter from the Chairman to the Governor for the nomination for two census tracts to be nominated as opportunity zones. She indicated this would be the second round of the Opportunity Zone Program. This is federal incentive.

Ms. Landry referred to language regarding this program:

An opportunity zone is a federal program that encourages private investors to put their capital gains into long-term community projects (capital gains tax shelter). This designation is limited to census tracts that meet federal low-income criteria, where median family income is no more than 70% of the State average or poverty is 20% or higher. It draws private money into areas that might otherwise get passed over.

Ms. Landry noted the City has two eligible tracks, including the current OZ 1.0 tract, which was the Inaugural Opportunity Zone program. She indicated the Board has information on the existing tract. There is another tract that is now eligible, which is the smallest of five tracts in Keene and is generally downtown; Washington Street to about Routes 9 and 12 along West

Street. She explained endorsing the nomination does not cost the City any money; It requires no matching funds. It grants 0 tax abatements locally. This is not a local tax incentive, it is a federal program.

The local zoning and planning processes will remain. Because opportunity zones are a federal tax incentive, transactions take place privately between investor funds and property owners. The City may never know where specific developers use the incentive on a given project but the City is not involved in the process.

By supporting the nomination, the Board is helping put Keene on the map. Local properties and projects are competitive for private investment capital. Ms. Landry explained a big difference between the OZ original and OZ 2.0 is this specifically makes rural communities more appealing to investors who are looking for this capital gains tax shelter because there is a 30% forgiveness of the tax obligation in a qualified rural opportunity zone as opposed to others who do not qualify for that. One of the limitations of the first opportunity zone program was much of the funding was going to bigger cities and there wasn't much of an incentive to invest in rural communities.

Deadline for the nominations is Friday, August 28th. Ms. Landry noted MEDC is assisting in the preparation of the supporting materials. They have a lot of information on what has been done recently, the pipeline for development projects and their assistance has been key in helping to prepare the nominations. This concluded Ms. Landry's presentation.

The Chair asked whether Ms. Landry knows of any projects that have happened in the opportunity zone. Ms. Landry stated if there have been any she is not aware, as they don't have to file paperwork with the City. She added there is no guarantee that both tracts will be approved. There are more than 50 eligible tracts in New Hampshire, and the Governor can only approve 25.

The current opportunity zone has areas like Optical Avenue where the City could see some development in the future. The newer opportunity tract that is eligible goes along West Street and there are areas through to Court Street and to Washington Street where the City could see some development. She added the Kingsbury property is not eligible for this particular program.

Mr. Kost asked whether the first zone needs to be renewed. Ms. Landry stated the first one is effective through December 2028. She added the City will be submitting two nominations, one is to extend the current tract and another nomination for a new tract. She added there is a 2 ½ year deadline for an applicant to make renovations that are equal to or greater than half the value of the property they are investing in.

A motion was made by Roberta Mastrogiovanni that the Planning Board Chair be directed to submit a letter of support for the City of Keene's Housing Opportunity Zone 2.0 expansion nomination. The motion was seconded by Stephon Mehu.

The Mayor stated Council had requested the Mayor's endorsement which he has provided.

The motion was unanimously approved.

I. STAFF UPDATES

None

J. NEW BUSINESS

None

UPCOMING DATES OF INTEREST

- Joint Planning Board and PLD Committee — September 14 at 6:30 PM
- Planning Board Steering Committee — September 15 at 12:00 PM
- Planning Board Site Visit — September 23 at 8:00 AM — To be Confirmed
- Planning Board Meeting — September 28 at 6:30 PM

K. MORE TIME ITEMS

ADJOURNMENT

There being no further business, Chair Farrington adjourned the meeting at 7:54 PM.

Respectfully submitted by,
Krishni Pahl, Minute Taker

Reviewed and edited by,
Mari Brunner, Senior Planner



CITY OF KEENE NEW HAMPSHIRE

ITEM #D.1.

Meeting Date: September 28, 2026
To: Planning Board
From: Mari Brunner, Senior Planner
Through: Paul Andrus, Community Development Director
Subject: **Applications Ready for Final Approval**

Recommendation:

To issue final approval for any applications that have met their conditions precedent to final approval.

Attachments:

None

Background:

This is a standing agenda item. As a matter of practice, the Planning Board issues a final vote on all conditionally approved projects after the “conditions precedent to final approval” have been met. This final vote will be the final approval and will start the 30-day appeal clock.

As of the date of this packet, the following applications are ready for final approval:

1.

If any other projects meet their conditions precedent between the date of this packet and the meeting, they will be identified and discussed during this agenda item.

All Planning Board actions, including final approvals, are posted on the City of Keene website the day after the meeting at [KeeneNH.gov/planning-board](https://www.KeeneNH.gov/planning-board).



CITY OF KEENE NEW HAMPSHIRE

ITEM #E.1.

Meeting Date: September 28, 2026

To: Planning Board

From: Evan Clements, Planner

Through: Mari Brunner, Senior Planner

Subject: **PB-26-28 - Boundary Line Adjustment - Ash Brook Ct - Applicant GM2 Associates Inc., on behalf of owner The State of NH, proposes to transfer ~1.4-ac of land from the ~11.4-ac parcel at 6-15 Ash Brook Ct (TMP #110-001-000) in the Agriculture District to the ~0.74-ac parcel at 0 Ash Brook Ct (TMP #109-029-000) in the Commerce District.**

Recommendation:

To review the attached staff report and application materials in preparation for the public hearing.

Attachments:

1. Staff Report
2. Applicant Narrative
3. Plan Set
4. Application
5. Abutter List

Background:

The purpose of this application is to adjust the boundary of the parcel containing the former NH Liquor Store and State Police facility (lot 110-001) and the parcel containing the front parking lot of the former NH Liquor Store building (lot 109-029) in order to combine the former NH Liquor Store building with the front parking lot. This will result in both the State Police facility and the former NH Liquor Store building being on their own parcels. This adjustment will transfer ~1.4-ac of land from the State Police parcel to the parking lot parcel.

STAFF REPORT

PB-26-28 – BOUNDARY LINE ADJUSTMENT – NH LIQUOR STORE BLA, 6 ASHBROOK CT

Request:

Applicant GM2 Associates Inc., on behalf of owner The State of NH, proposes to transfer ~1.4-ac of land from the ~11.4-ac parcel at 6-15 Ash Brook Ct (TMP #110-001-000) in the Agriculture District to the ~0.74-ac parcel at 0 Ash Brook Ct (TMP #109-029-000) in the Commerce District.

Background:

The subject parcels are existing lots located on the northeast corner of the Ashbrook Rd and Ashbrook Ct intersection, directly north of Michaels in the Monadnock Marketplace shopping plaza. Both parcels are owned by The State of NH and originally developed under the Governmental Land Use statute RSA 674:54.

The purpose of this application is to adjust the boundary of the parcel containing the former NH Liquor Store and State Police facility (lot 110-001) and the parcel containing the front parking lot of the former NH Liquor Store building (lot 109-029) in order to combine the former NH Liquor Store building with the front parking lot.

This will result in both the State Police facility and the former NH Liquor Store building being on their own parcels. This adjustment will transfer ~1.4-ac of land from the State Police parcel to the parking lot parcel.



Fig:1 Subject parcels outlined in yellow with the boundary line to be adjusted in blue

Determination of Regional Impact:

Staff have made a preliminary evaluation that the proposal does not appear to have the potential for “regional impact” as defined in RSA 36:55. The Board should make a final determination as to whether the proposal could have the potential for regional impact.

Completeness:

The applicant has requested exemptions from separate existing and proposed conditions plans and all technical reports. After reviewing the request, staff have made the determination that

STAFF REPORT

granting these exemptions would have no bearing on the merits of the application and recommend that the Board accept the application as complete.

Application Analysis

Article 20 – Subdivision Regulations:

20.2.1 Lots: Both lots are existing and all zoning dimensional requirements will be maintained. The resulting parcel containing the former NH Liquor Store building will be in both the Commerce and Agriculture districts. Depending on the proposed future use of the building, the parcel may need to be rezoned or a Variance from the Zoning Board of Adjustment may be required. This is beyond the scope of this application. This standard has been met.

Table 1. Area of Land Affected by Proposed Boundary Line Adjustment		
Lot Sizes	Lot 109-029	Lot 110-001
	Commerce (COM)	Agriculture (A)
Required in District	15,000-SF	10-ac
Before BLA	32,451-SF or .74-ac	496,467-SF or 11.40-ac
Amount of Land Transferred	0	60,866-SF or 1.4-ac
After BLA Parcel Size	93,317-SF or 2.14-ac	435,601-SF or 10-ac

20.2.2 Character of Land for Subdivision: Both lots are developed and the proposed boundary adjustment will not alter the existing character of the parcels. This standard has been met.

20.2.3 Scattered or Premature Development: Both parcels are developed and located adjacent to state highways, municipal infrastructure, and the Monadnock Marketplace Shopping Plaza. This standard has been met.

20.2.4 Preservation of Existing Features: There are existing delineated wetlands located on lot 110-001. No additional development is proposed as part of this application. All existing features will be maintained. This standard has been met.

20.2.5 Monumentation: The plan indicates that new monuments will be set at proposed boundary corners and existing monuments will be utilized whenever possible. This standard has been met.

20.2.6 Special Flood Hazard Areas: The narrative states that the majority of both parcels are located within the 0.2% annual flood hazard zone. No improvements are proposed with this application. This standard has been met.

20.2.7 Fire Protection & Water Supply: Existing fire protection and water supply systems will be utilized. No changes are proposed with this application. This standard has been met.

20.2.8 Utilities: Both properties are serviced by existing municipal water and sewer services. No changes to these systems are proposed with this application. This standard is met.

STAFF REPORT

Recommended Motion:

If the Board is inclined to approve this request, the following motion is recommended:

"Issue final approval for PB-26-28 as shown on the plan set title Boundary Line Adjustment Survey prepared by GM2 Associates, Inc. at a scale of 1"=60' and dated September 11, 2026."



BOUNDARY LINE ADJUSTMENT NARRATIVE

Land of State of New Hampshire
Tax Map 109, Lot 29 & Tax Map 110, Lot 1
6 & 15 Ash Brook Court, Keene, New Hampshire

September 11, 2026

Project Narrative:

GM2 Associates, Inc. (GM2) has contracted with the State of New Hampshire to facilitate a Boundary Line Adjustment (BLA) between two State-owned parcels along Ash Brook Court in Keene, NH. The accompanied Boundary Line Adjustment Survey identified "Parcel 1" as Tax Map 109, Lot 29 which falls in the Commerce zoning district and "Parcel 2" as Tax Map 110, Lot 1, which falls in the Agricultural zoning district. Following the boundary line adjustment, "Parcel 1" will fall in both the Commerce and Agricultural zoning districts.

The State of New Hampshire had previously contracted with a different consultant in 2005 to accomplish a similar boundary line adjustment. The survey was performed, a plan was developed, the new boundary monumentation was installed, and the survey was recorded with the Cheshire County Registry of Deeds in Cabinet 13, Drawer 1, Plan 044. The City of Keene and State of New Hampshire have no record of this boundary line adjustment survey receiving Planning Board approval.

Since the 2005 project never received approval, there are two separate uses today on Tax Map 110, Lot 1, an existing office building supporting the NH Department of Safety on the southerly portion of the parcel, and a retail store that previously served as a NH Liquor Store. Much of the existing parking lot the served the NH Liquor Store exists on Tax Map 109, Lot 29.

The intent of this BLA is to adjust the common boundary lines between the two subject parcels in order to make them more conforming with their existing uses.

Existing Lot Information:

Map 109 Lot 29 :

- Area: 32,451 Square Feet or 0.74 Acres
- Frontage: 230.05' on Ash Brook Court
- Use: Existing parking lot and associated improvements for NH Liquor Store (Vacant)
- Access: Parcel is accessed through its frontage along Ash Brook Court

Map 110 Lot 1:

- Area: 496,467 Square Feet or 11.40 Acres
- Frontage: 105.01' on Ash Brook Court and 809.91' along US Route 9
- Use: Existing NH Department of Safety Building and Existing NH Liquor Store (Vacant)
- Access: Parcel is accessed through Map 109, Lot 27, via its frontage along Ash Brook Road.

Proposed Lot Information:

Map 109 Lot 29 :

- Area: 93,317 Square Feet or 2.14 Acres

- Frontage: 335.06' on Ash Brook Court
- Use: No changes proposed – NH Liquor Store (Vacant)
- Access: No proposed changes

Map 110 Lot 1:

- Area: 435,601 Square Feet or 10.00 Acres
- Frontage: 50.00' along Ash Brook Court, 809.91' along US Route 9
- Use: No changes proposed - NH Department of Safety Building
- Access: No proposed changes

No improvements or changes of use are proposed as part of the Boundary Line Adjustment.

Site Development Standard Compliance (Article 21 of the Land Development Code)

21.2 Drainage & Stormwater: There are no proposed changes to the existing drainage or stormwater infrastructure on either parcel.

21.3 Sediment & Erosion Control: There are no proposed changes or improvements on either parcel. Sediment & erosion control is not warranted as part of this BLA.

21.4 Snow Storage & Removal: There are no proposed changes or improvements on either parcel. Snow storage & removal will continue as it has on each parcel.

21.5 Landscaping: There are no proposed changes or improvements on either parcel. Existing landscaping will remain.

21.6 Screening: There are no proposed changes or improvements on either parcel. Existing screening and wooded areas are to remain.

21.7 Lighting: There are no proposed changes or improvements on either parcel. Existing lighting is to remain.

21.8 Sewer & Water: There are no proposed changes or improvements to either parcel. Both parcels are serviced by municipal water and sewer systems. No new connection are proposed as part of this BLA.

21.9 Traffic & Access Management: There are no proposed changes or improvements to either parcel. Traffic & Access Management will continue as they have in the past.

21.10 Filling & Excavation: There are no proposed changes or improvements to either parcel. No filling or excavation is proposed.

21.11 Surface Waters & Wetlands: There are no proposed changes or improvements to either parcel. Existing jurisdictional wetlands were identified by GM2 in September of 2025 and are shown on the survey.

21.12 Hazardous & Toxic Materials: There are no proposed changes or improvements to either parcel. Hazardous & toxic materials are not stored on either parcel.

21.13 Noise: There are no proposed changes or improvements to either parcel. No changes in noise levels will be realized at either parcel as a result of this BLA.

21.14 Architecture & Visual Appearance: There are no proposed changes or improvements to either parcel, including the existing structures' architecture or the parcels' visual appearances.

Subdivision Regulations Standards Compliance (Article 20 of the Land Development Code)

20.2.1 Lots: The proposed BLA works to improve the lot configurations to better align with existing uses. As proposed, Map 110, Lot 1 in the Agricultural zoning district does meet the minimum lot size of 10 acres. The remaining dimensional requirements for both parcels are met.

20.2.2 Character of Land for Subdivision: The BLA will not adversely impact the character of the subject parcels and aims to resolve existing non-conforming uses.

20.2.3 Scattered or Premature Development: There are no proposed changes or improvements to either parcel. The BLA aims to resolve existing non-conforming uses.

20.2.4 Preservation of Existing Features: There are no proposed changes or improvements to either parcel. The existing features will be preserved on both parcels.

20.2.5 Monumentation: The existing boundaries of the subject parcels are sufficiently monumented.

20.2.6 Special Flood Hazard Areas: The majority of both parcels fall within FEMA Zone X, area subject to 0.2% annual chance of flood hazard. There are no proposed changes or improvements to either parcel.

20.2.7 Fire Protection & Water Supply: There are no proposed changes or improvements to either parcel. Existing infrastructure for fire protection and water supply will remain in place.

20.2.8 Utilities: There are no proposed changes or improvements to either parcel. Both parcels are currently serviced by municipal water and sewer systems and no new connections or changes in use are proposed.

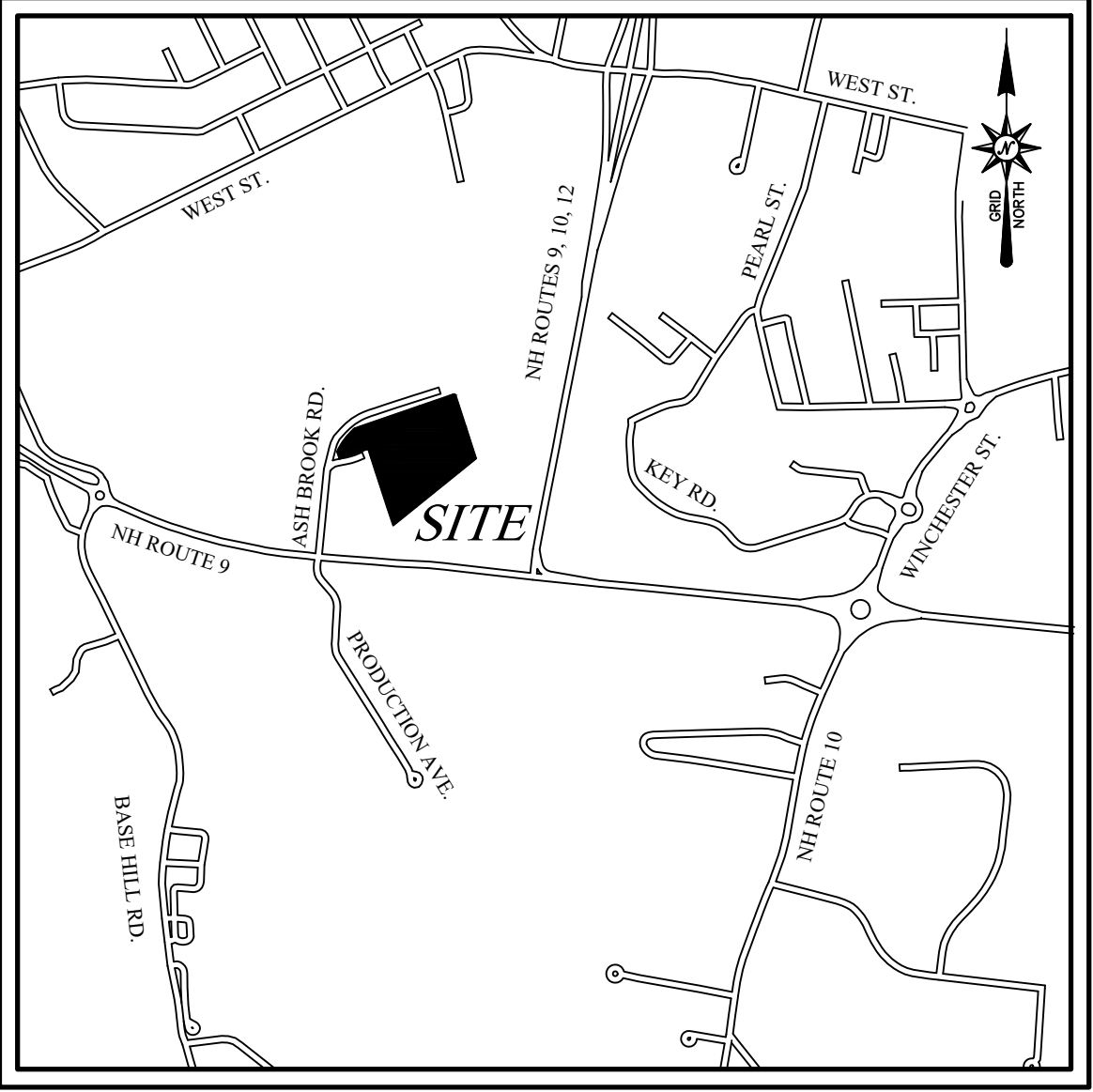
Conclusion

This Boundary Line Adjustment Application aims to resolve an existing, non-conforming use. The existing NH Liquor Store was constructed during 2005 without a boundary line adjustment being approved by the City as was likely intended. Please accept this application in an effort to resolve this unique land-use situation.

Respectfully,
GM2 Associates, Inc.



Seth P. Hill, PE
Director of Engineering – Northern New England



SCALE: 1" = 1,400' +/-

- 7.) The subject site is primarily located within a FEMA Zone X, area subject to 0.2% Annual Chance of Flood Hazard as shown of FEMA map 33005C0266E with an effective date of 5/23/2006 and subject to a Letter of Map Revision 08-01-0182P with an effective date of 3/20/2008.
- 8.) An underground gas main with witness posts exists along the easterly boundary of Map 110 Lot 1. No written easement was found during the course of this survey benefiting the utility owner. The gas line exists in an area where Pitcher Road once existed.
- 9.) Temporary shelters with occupants were witnessed throughout the wooded areas of Map 110 Lot 1 at the time of the survey.
- 10.) Unwritten rights in land, through they may exist, are not shown on this survey. Easements, rights, and restrictions shown or identified are those which were found during research at the Cheshire County Registry of Deeds and the City of Keene. Other rights, easements, or restrictions may exist which a title examination of the subject parcel(s) would determine.
- 11.) Sheet 1 of 2 is to be recorded with the Cheshire County Registry of Deeds upon Planning Board Approval. Sheet 2 of 2 contains site data such as topography & floodplain data and will remain on file with the City of Keene and this office.

prepared for
NEW HAMPSHIRE LIQUOR COMMISSION
land of
 STATE OF NEW HAMPSHIRE
Tax Map 109 Lot 29 & Map 110 Lot 1
 6 & 15 Ash Brook Court
 City of Keene, New Hampshire
County of Cheshire

JOB NO. 42613.00		GM2 Associates, Inc.
SCALE: 1" = 60'		197 Loudon Road, Suite 310
DATE: Sep. 11, 2026		Concord, NH 03301
SHEET NO. 1 of 2		Tel: 603-856-7854 Fax: 603-856-7855

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Planning Application

Project Number:

NH Liquor Store BLA

Date Submitted:

August 21, 2026

Project Name:

6 ASH BROOK CT.

Zoning:

AG

Project Address:

110001000000000

Parcel Size:

11230

Parcel Number:

Owner Information

STATE OF NH

Name

33 HAZEN DR

Address

CONCORD NH 03305

City/State/Zip

Applicant Name

Applicant Phone #

Authorized Agent Name

Authorized Agent Phone #

Project Description

Transfer 1.4ac of land to parcel #1 (map 109 lot 29) from parcel #2 (map 110 lot 1) by adjusting the property lines of both parcels.

Attachments		Technical Reports	
Narrative & Plan Set			
Narrative	Submitted	Drainage Report	Exemption Requested
Location Map		Traffic Report / Analysis	Exemption Requested
Existing Conditions Plan	Exemption Requested	Soil Analysis	Exemption Requested
Proposed Conditions Plan	Submitted	Historic Evaluation	
Grading Plan		Screening Analysis	
Landscaping Plan		Architectural Analysis	
Lighting Plan		Other Reports / Analyses	N/A
Elevations / Renderings			

KEENE MZL LLC
535 5TH AVE. FL 12 NY, NY 10017-3628

580 MAIN STREET LLC
PO BOX 177, CHESTERFIELD, NH 03443

LIBERTY UTILITIES CORP
(ENERGYNORTH NATURAL GAS)
15 BUTTRICK RD.,
LONDONDERRY, NH 03053

JAZZLYN HOSPITALITY II LLC
110 HARTWELL AVE #300,
LEXINGTON, MA 02421

STATE OF NH
PO BOX 503 CONCORD, NH 03301

FENTCO REALTY GROUP
PO BOC 646, KEENE, NH 03431

GMS Realty LLC
356 RATHE RD., COLCHESTER, VT 05446

KEY ROAD REALTY TRUST
7 COUNTRY LN., LEOMINISTER, MA 01453

KEENE MZL LLC
535 5TH AVE. FL 12 NY, NY 10017-3628

SAI JALA LLC
3 ASH BROOK RD., KEENE, NH 03431

18 PRODUCTION AVE. LLC
18 PRODUCTION AVE.,
KEENE NH 03431

AURORA HOLDINGS KEENE LLC
148 KEY RD., KEENE, NH 034131

GM2 ASSOCIATES
197 LOUDON RD, SUITE 310
CONCORD, NH 03301

PB-2025-26
NH BLA
6-15 Ash Brook Ct



CITY OF KEENE NEW HAMPSHIRE

ITEM #G.1.

Meeting Date: September 28, 2026

To: Planning Board

From: Megan Fortson, Planner

Through: Mari Brunner, Senior Planner

Subject: **PB-26-26 - Major Site Plan & Congregate Living & Social Services Conditional Use Permit - Anew Behavioral Health, 232 Winchester St**
- Applicant and owner, Anew Behavioral Health LLC, proposes to convert the mixed-use building at 232 Winchester St (TMP #592-017-000) into a small group home with 8 beds. The parcel is ~0.4-ac in size and is located in the High Density District.

Recommendation:

To review the attached staff report and application materials in preparation for the public hearing.

Attachments:

1. Staff Report
2. Application
3. Narrative
4. Plot Plan
5. Floor Plan
6. Traffic Generation Estimates

Background:

The subject parcel is ~0.40-ac in size and is located on the south side of Winchester St in the High Density District. The site is developed with a ~2,262-sf building and a paved driveway leading to a gravel parking area. The building was previously occupied by an office and two apartment units. Adjacent land uses include apartment buildings to the east and south, the Ashuelot River to the west, and a motorsports retail store to the north. The site is almost entirely within the 500-year floodplain; however, no portion of the lot is currently in the 100-year floodplain or the floodway.

The Applicant proposes to change the use of this building from a mix of apartments and office space to an 8-bedroom small group home, Anew Integrated Recovery (AIR). Per Section 3.6.5 of the Land Development Code (LDC), this use is permitted in the High Density District subject to the issuance of a Congregate Living & Social Services (CLSS) Conditional Use Permit (CUP). This application was previously reviewed and conditionally approved by the Planning Board on January 26, 2026; however, the application expired on July 26, 2026 before the Applicant satisfied all conditions

precedent, which included the submittal of five paper copies of the final plan set signed by the property owner.

STAFF REPORT

PB-26-26 - Major Site Plan & Congregate Living & Social Services Conditional Use Permit - Anew Behavioral Health, 232 Winchester St

Request:

Applicant and owner, Anew Behavioral Health LLC, proposes to convert the mixed-use building at 232 Winchester St (TMP #592-017-000) into a small group home with 8 beds. The parcel is ~0.4-ac in size and is located in the High Density District.

Background:

The subject parcel is ~0.40-ac in size and is located on the south side of Winchester St in the High Density District (Figure 1). The site is developed with a ~2,262-sf building and a paved driveway leading to a gravel parking area. The building was previously occupied by an office and two apartment units. Adjacent land uses include apartment buildings to the east and south, the Ashuelot River to the west, and a motorsports retail store to the north. The site is almost entirely within the 500-year floodplain; however, no portion of the lot is currently in the 100-year floodplain or the floodway.

The Applicant proposes to change the use of this building from a mix of apartments and office space to an 8-bedroom small group home, Anew Integrated Recovery (AIR). Per Section 3.6.5 of the Land Development Code (LDC), this use is permitted in the High Density District subject to the issuance of a Congregate Living & Social Services (CLSS) Conditional Use Permit (CUP).



Figure 1. Aerial imagery from 2020 showing the location of the parcel at 232 Winchester St.

This application was previously reviewed and conditionally approved by the Planning Board on January 26, 2026; however, the application expired on July 26, 2026 before the Applicant satisfied all conditions precedent, which included the submittal of five paper copies of the final plan set signed by the property owner.

STAFF REPORT

Determination of Regional Impact:

Staff have made a preliminary evaluation that the proposal does not have the potential for “regional impact” as defined in RSA 36:55. The Board should make a final determination as to whether the proposal could have the potential for regional impact.

Completeness:

The Applicant has requested exemptions from submitting a grading plan, landscaping plan, lighting plan, elevations/renderings, and all technical reports. Planning Staff have made the preliminary determination that granting the requested exemptions would have no bearing on the merits of the application and recommend that the Board accept the application as “complete.”

Departmental Comments: There were no departmental comments received on this application.

APPLICATION ANALYSIS

Congregate Living & Social Services Criteria (Section 15.2 of the LDC):

- A. ***“The nature of the proposed application is consistent with the spirit and intent of the Zoning Regulations, this LDC and the City’s Comprehensive Master Plan, and complies with all the applicable standards in this LDC for the particular use in Section 8.3.4.”***

The LDC defines a small group home as “A facility in a residential dwelling providing living accommodations and care for no more than 8 unrelated natural persons who are in need of personal care services and/or are in need of supervision. Small group home[s] may include non-medical drug and alcohol rehabilitation.” The standards specific to this use state that there shall only be one group home permitted per lot; group homes may not operate without an approved CUP; a CLSS license shall be obtained and renewed on an annual basis; and that the building exterior shall maintain the appearance of a residential structure.

The project narrative states that the proposed use will “...provide a safe, structured, and substance-free living environment for adults in recovery from substance use.” The building will be staffed by a Recovery Monitor or Peer Support Worker/Driver and the House Manager during the day. Overnight, at least one credentialed staff member will be present. Medical and clinical services will be provided to residents off-site through licensed Anew Behavioral Health programs or other qualified treatment providers. Additionally, the length of stay for residents will be based on individual circumstances and is evaluated using Anew Integrated Recovery’s six-phase model. No changes are proposed to the exterior of the building, which looks like a residential structure (Figure 2).

In the project narrative, the Applicant states that they will obtain an annual CLSS license as well as a certification through the New Hampshire Partnership for Recovery Residences. Planning Staff recommend that obtaining and submitting copies of all required local and state approvals be included as a condition subsequent to approval for this application.

Section 6.1 of the 2025 Comprehensive Master Plan (CMP) outlines the goals and action items for the Livable Housing Pillar. Goal #5 of this pillar is to “Address the housing needs of all residents, current and future.” Action item #5.7 states that the community needs to “Ensure zoning and development regulations allow for diverse housing.” This use will provide needed

STAFF REPORT

dwelling units and services to a vulnerable population in the Keene community. The proposal appears to be consistent with the spirit and intent of the zoning regulations, the LDC, and the Master Plan.

B. *"The proposed use will be established, maintained, and operated so as not to endanger the public health, safety, or welfare."*

The project narrative states that the facility will operate 24-hours a day with at least one credentialed staff member on-site at all times to provide supervision, respond to concerns, and manage operations. Daily facility processes will be performed according to Anew Behavioral Health's CARF-accredited (Commission on Accreditation of Rehabilitation Facilities) policies and procedures. Additionally, residents will be required to complete a formal orientation to the AIR Resident Handbook upon admission. This handbook outlines policies and procedures including but not limited to treatment engagement, substance use, personal conduct, curfews, and neighbor relations.

The narrative goes on to state windows and doors are equipped with functioning locks to prevent unauthorized access. Residents are also issued keys to enter the building, which is locked at all times. Unauthorized visits are not permitted and there will be no public waiting or intake areas on the site. The project narrative states this combination of operational, staffing, and physical design elements will create a secure, supervised residential setting that prioritizes safety, privacy, and stability.

C. *"The proposed use will be established, maintained, and operated so as to be harmonious with the surrounding area and will not impede the development, use, and enjoyment of adjacent property. In addition, any parking lots, outdoor activity areas, or waiting areas associated with the use shall be adequately screened from adjacent properties and from public rights-of-way."*

Figure 2 shows the main (north) façade of the building), which is an early 20th-century colonial-style house. The project narrative states that adjacent multi-family buildings along Winchester St. and Winchester Ct. are similar in style and appearance. The proposed use aligns with the intent of the High Density District to provide higher-density residential uses compatible with the surrounding development. Additionally, the narrative states that the proposed use will provide a needed housing resource that promotes recovery, safety, and community integration without altering the scale or character of the neighborhood.



Figure 2. Google Street View imagery from 2023 showing the main (north) façade of the building at 232 Winchester St.

The project narrative states there are no other congregate living or social service uses located within 750' of the subject parcel. Screening for the site is provided by an existing wooden

STAFF REPORT

stockade fence to the south and east; the Ashuelot River and existing mature trees to the west; and the existing building screens the parking area from view of Winchester St. to the north.

- D. *"The proposed use will be of a character that does not produce noise, odors, glare, and/or vibration that adversely affects the surrounding area."***

The project narrative states that the only outdoor activity area proposed is a ~40-sf covered structure that will be added to the southern portion of the site. This will serve as the designated smoking area and will have two covered sides to provide screening from Winchester St. and adjacent parcels. The Applicant has submitted a plot plan showing the proposed location of this structure outside of the required 30' surface water buffer. This is discussed further under the "Surface Waters & Wetlands" section of the staff report below. This standard appears to be met.

- E. *"The proposed use will not place an excessive burden on public infrastructure, facilities, services, or utilities."***

The project narrative states that traffic activity associated with the residence will be limited and is estimated to be lower than the previous office and apartment uses. Trips for residents are scheduled in advance and use company passenger vans, which will reduce the number of vehicles entering and exiting the site. The narrative states that ~10 vehicle trips are expected per weekday and ~6 vehicle trips are expected per weekend day. Residents will not be eligible to keep vehicles on-site until after at least 90 days of residence and clinical approval. The existing parking area can accommodate ~8 vehicles. One parking space will be used routinely for Recovery Monitor Staff parking and the remaining 7 spaces may be used for resident parking and/or temporary staff parking. Public transportation is accessible via nearby established sidewalks and the rail trail. The site is also located within a ~0.4-mile distance of the City Express black and red bus routes.

The site has access to City water and sewer utilities from Winchester St, and the narrative states that no increase utility demand is anticipated from the change of use. During the previous use of the site as an office/apartments, it is estimated that ~10-15 were occupying the building at any given time. If operated as a small group home, there would be a maximum of 8 residents and 2 staff in the building. The project narrative acknowledges that, during and throughout the interior renovation and certification process, additional analyses from a mechanical engineer or other licensed professional may be required to ensure that the existing infrastructure will meet the demands of the proposed use. This standard appears to be met.

- F. *"The proposed use will not result in the destruction, loss, or damage of any feature determined to be of significant natural, scenic, or historic importance."***

The existing building was constructed in 1910 and is similar in age to adjacent residential buildings along Winchester St. and Winchester Ct. Given that there are no changes proposed to the building exterior or site, this standard is not applicable.

- G. *"The proposed use will not create a traffic safety hazard or a substantial increase in the level of traffic congestion in the vicinity of the use."***

STAFF REPORT

The existing parking area can accommodate eight vehicles, and the anticipated traffic generation is ~10 vehicle trips per weekday and ~6 vehicle trips per day on the weekends. Given the combination of low anticipated traffic demand, the limited number of resident and staff vehicles that will be parked on the site, and the proximity of the site to various types of public transportation, the City Engineer did not express any concerns that the proposed use will create a traffic safety hazard or a substantial increase in the level of traffic congestion in the vicinity of the proposed use. This standard appears to be met.

H. "The proposed use will be located in proximity to pedestrian facilities (e.g. multiuse trails and sidewalks), public transportation, or offer transportation options to its client population."

As stated previously in this staff report, the proposed small group home will have access to sidewalks, the nearby Cheshire Rail Trail, and will be located ~0.4-miles from the City Express red and black bus lines. Additionally, AIR will have a dedicated vehicle that will be used to take residents to pre-scheduled appointments. This standard appears to be met.

Site Development Standards (Article 21 of the LDC)

- 21.4 SNOW STORAGE & REMOVAL:** The Applicant has identified a snow storage area on the southern portion of the site. This standard appears to be met.
- 21.6 SCREENING:** The Applicant is proposing to construct an ~40-sf covered outdoor smoking area on the southern portion of the site that will be screened on the western side by the existing tree line and along the south and east sides by the existing fence. The northern side of the enclosure will be covered to screen it from view of Winchester St. This standard appears to be met.
- 21.8 SEWER & WATER:** Information about water and sewer utilities is provided under Section E above.
- 21.9 TRAFFIC & ACCESS MANAGEMENT:** Site access will be provided from the existing curb cut and driveway on Winchester St, which are not proposed to be changed. Additionally, a bike rack will be installed at the southwestern corner of the building for residents and staff to use. Traffic generation estimates for the previous and proposed uses are addressed under Section G above. This standard appears to be met.
- 21.11 SURFACE WATERS & WETLANDS:** The western edge of the subject parcel is bordered by the Ashuelot River and is subject to the Surface Water Protection Overlay District. The only new development proposed on the site is the construction of a ~40-sf covered smoking area, which was originally proposed to be within the 30' surface water buffer. In response to staff comments, the Applicant submitted an updated plot plan showing this structure outside of the 30' buffer. Additionally, a note has been added to the second page of the plot plan stating that any future development within the 30' buffer may require the submittal of a Surface Water CUP to the City of Keene Planning Board. This standard appears to be met.

STAFF REPORT

Recommended Motion:

If the Board is inclined to approve this request, the following motion is recommended:

“Approve PB-26-26 as shown in the application and supporting materials submitted to the Community Development Department on August 3, 2026 and last revised on September 4, 2026, with the following condition subsequent to the final approval and signature of the plans by the Planning Board Chair:

- 1. The Applicant shall obtain all required state and local permits and approvals.”**

Print Version of Application Form

Planning Application

Record No.PB-26-26

Status Completed

Type Document

Record No: PB-26-26

CD-Planning Application

Status: Active

Submitted On: 8/3/2026

Primary Location

232 WINCHESTER ST.
KEENE, NH 03431

Owner

ANEW BEHAVIORAL HEALTH LLC
KING CT 11 KEENE, NH 03431-4649

Applicant

 Jess Watson
 603-686-8635
 jesswatson@anewbh.com
 11 King Ct
Anew Behavioral Health
Keene, NH 03431

Planning Application

Issued on September 16, 2026

Version History

Version	Date Issued	User
1	September 16, 2026 at 1:39 pm	Megan Fortson

Step Activity

Megan Fortson issued a new document

09/04/2026 at 8:56 am

Description of the existing and proposed uses. Description of the services provided to the clients or residents of the facility

The existing two-story commercial office building at 232 Winchester Street will be adapted into an 8-bed, peer-supported, Level 3 Recovery House known as Anew Integrated Recovery (AIR). The residence will provide a safe, structured, and substance-free living environment for adults in recovery from substance use. The program follows the social model of recovery, emphasizing shared accountability, mutual support, and community integration. There are no medical or clinical services provided on site; residents engage in treatment separately through licensed Anew Behavioral Health programs or other qualified treatment providers.

No changes are proposed to the exterior of the building or landscaping requiring excavation. The proposed use will be similar to the previous mixed residential/commercial use and similar in intensity to a residential home. Other site development standards not already addressed in the narrative are not applicable.

Description of the size and intensity of the use

The property lies within the High Density (HD) zoning district. Under the City of Keene Land Development Code, the proposed use qualifies as a Group Home, Small, a category that permits up to eight unrelated occupants in a supervised residential setting by Conditional Use Permit. The proposed occupancy of a Level 3 Recovery House with up to eight residents and continuous on-site staff supervision is consistent with this classification.

The home will always operate twenty-four hours per day with at least one credentialed staff member present. No staff will live on site. The anticipated maximum number of staff present at the recovery home during daytime operations is two: a Recovery Monitor or Peer Support Worker/Driver and the House Manager. On a routine basis, including during overnights and weekends, there will be one staff member present on the property with the residents. The House Manager may regularly visit the residence, but their office will be located off site at an Anew clinical building.

Description of any proposed development or redevelopment

No exterior construction or site expansion is proposed. The reuse will meet applicable life-safety and residential occupancy code requirements. Interior modifications will convert former office areas into sleeping areas, shared living and dining spaces, and required life-safety features such as smoke and carbon monoxide detection, fire extinguishers, and posted evacuation plans. All work will comply with applicable building and fire codes for residential occupancy. The existing building footprint, parking, and access points will remain unchanged. A Congregate Living and Social Services License will be obtained and maintained, as well as certification through the New Hampshire Partnership for Recovery Residences (NHPRR).

Staff provide oversight, support, and structure while fostering resident leadership and participation in maintaining the household. Residents will follow house guidelines that include curfews, random substance screening, and participation in peer meetings. These measures maintain safety and accountability while promoting stability and recovery.

Anew Integrated Recovery is an adaptive reuse of an existing building that aligns with the intent of the HD district to support higher-density residential uses compatible with surrounding development. The project provides a needed housing resource that promotes recovery, safety, and community reintegration without altering the scale or character of the neighborhood.

Description of the physical and architectural characteristics of the site and the surrounding neighborhood

The building is an early 20th-century colonial-style house on a 0.40-acre lot that was converted to its current use as a mixed residential and commercial space. It is similar in style and use to other properties in the area. The property abuts a 0.54-acre lot to the east at 218–228 Winchester Street that contains two buildings of similar style and appearance, which are currently used as affordable housing units. The lot to the south, off Winchester Court, is a 0.90-acre parcel with three newer residential apartment buildings.

The Ashuelot River runs along the western border of the lot. Mature tree growth along the southwest corner of the lot obscures views of the river and partially obscures views of the Winchester Court lot. Across the river to the west is the Winchester Street parking lot, used primarily for Keene State College parking. Across the street to the northeast are two commercial buildings.

Description of how the site and/or use is designed to address the safety and security of its client population. Description of the size and location of indoor and/or outdoor waiting or intake areas, if applicable

The safety and security of residents are addressed through a combination of qualified staffing, structured operations, and physical safeguards within the residence. AIR staff hiring and onboarding follow Anew Behavioral Health's CARF-accredited clinical policies and procedures to ensure that staff working with this vulnerable population are appropriately qualified and trained. At least one credentialed staff member is present on site at all times to provide supervision, respond to concerns, and manage emergencies.

Residents complete a formal orientation to the AIR Resident Handbook upon admission. This orientation covers expectations and procedures related to treatment engagement, substance use, urine drug screening, searches, smoking, personal conduct, grievance processes, emergency contacts and procedures, communicable disease protocols, and medication policies. This also includes policies and expectations related to curfews and neighbor relations.

Windows and doors are equipped with functioning locks to prevent unauthorized access, and blinds are installed and maintained on all windows to protect resident privacy. Residents are issued keys to access the building, which remains locked at all times. No unauthorized visitors are permitted at the residence, and there are no public waiting or intake areas on site.

A detached, covered, one-story accessory building is proposed to function as a designated smoking area (see attached material). This structure will have at least two sides covered to function as windshields and provide privacy from adjacent property. The size of this covered area will be approximately 10x12 square (120 square feet). It will not contain any electricity or plumbing.

Daily operations further support safety through routine household chores assigned to residents to maintain a clean, orderly environment free of hazards. Together, these operational, staffing, and physical design elements create a secure, supervised residential setting that prioritizes resident safety, privacy, and stability.

An analysis of estimated traffic generation associated with the proposed use

Traffic activity associated with the residence will be limited and is estimated to be lower than the former office use. Trips are scheduled in advance and use company passenger vans for efficiency, which reduces the number of vehicles entering and exiting the property. We estimate 10 trips total per weekday and 6 trips total per weekend day. Based on the average rate of trips per bed, AIR will add ~1 trip during peak traffic hours (4-6pm) (see attached traffic analysis). We estimate that this will be similar to, or lower than historical use given the multi-use function of the building. This building has historically seen 10-15 individuals living/working/and/or patronizing the space on a regular basis and driving individually compared to the carpooling practice that will be used by AIR.

Information about the estimated parking demand for the proposed use and the number of parking spaces to be provided on site. Description of the staffing of the facility, including the number of on-site managers, if any

Company vehicles will be parked at a nearby Anew clinical office. Staff transporting residents will park their vehicles at that location as well, using parking at the recovery residence only for temporary pick-up or drop-off.

The existing parking area provides adequate capacity for eight vehicles. One parking space will be used routinely for Recovery Monitor staff parking, and the remaining seven spaces may be used for resident parking and/or temporary staff parking. Many of these spaces are not expected to be utilized regularly, as residents are not permitted to keep vehicles on site until after at least 90 days of residence and clinical approval.

Public transportation is accessible nearby via established sidewalks and the rail trail. The recovery home is within 0.4 miles walking distance of the City Express black and red bus routes.

Residents are not permitted unscheduled visitors at the recovery home. Visits, if applicable, are scheduled in advance and occur at an Anew clinical office. Transportation to employment, appointments, and recovery meetings is scheduled in advance and coordinated by staff. Residents participate in clinical treatment off site at an Anew clinical building or another local treatment provider; therefore, much of the traffic associated with appointments and work originates from those locations.

Information about the proximity of the facility to other known congregate living and social service uses within 750 feet

To the applicant's knowledge, the property line is not within 750 feet of another building with a use listed under Section 15.1 of the Land Development Code.

For congregate living uses, the average length of stay for residents/occupants of the facility

The length of stay for each resident varies based on individual circumstances and recovery capital. AIR's model uses six phases to monitor progress. These phases vary in length and have different minimum requirements. For example, to be eligible to graduate from Phase 5, residents must have lived at the recovery home for a minimum of six months with an equal or greater amount of time in recovery. In Phase 6, residents continue progressing toward independence and may remain in this phase indefinitely.

Conversely, some residents may only need a short stay, such as less than one month. In addition, given the nature of substance use disorder as a chronic, relapsing brain disease, there may be circumstances in which it is clinically appropriate to abruptly shorten a resident's stay to transition them from recovery housing to a higher level of care for stabilization.

Utilities

The current mixed residential/commercial use of the building spans both stories and includes multiple offices, bedrooms, bathrooms, and a kitchen. No increase in utility usage is anticipated. As stated, previous use of the building included 10-15 individuals using the space regularly, much higher than the max number of beds (8) proposed for AIR. In addition, AIR understands that during subsequent inspections during/throughout the interior renovation and certification process, additional analysis from a mechanical engineer or other professionals (eg fire marshal) may be required to ensure the infrastructure will meet the demands of the proposed use.

Anew Behavioral Health and Anew Integrated Recovery (herein referred to as ABH) understands group homes may not operate without an approved Conditional Use Permit. ABH will maintain annual renewal of its Congregate Living and Social Services License to also maintain its Conditional Use Permit.

Standard A. To align with the Zoning for a High Density District, the building exterior will maintain the appearance of a residential structure.

To align with the Livable Housing Pillar that ensures diverse housing and the Comprehensive Master Plan, the proposed house provides dwelling units and services to a vulnerable population in the Keene community.

Standard B. The company implements several procedures that will take place both inside the building and outside of the building to ensure that all residents are going to be safe. There will be locked doors, secured medication, prohibited items, and residential chores to ensure the property is well maintained, both inside and out.

Standard C. There are not going to be any waiting areas, residents must be screened prior to entry to the home. The only outdoor area that is proposed is the 48 square foot smoking shelter towards the southern portion of the site. The property is screened with fencing and natural vegetation to screen from the Ashuelot River.

Standard D states as follows: the proposed use will be of a character that does not produce noise, odors, glare and or vibration that will adversely affect the surrounding area. Most of the use will be inside the building, as it is a residential use, and the site itself is screened on most sides by fencing or the Ashuelot River, which already has an existing vegetated buffer.

Standard E states as follows: The proposed use will not place an excessive burden on public infrastructure, facilities, services or utilities. This site anticipates decreased traffic generation from the previous uses. There will not be a drastic increase in utility usage as the house will have shared resources and appliances.

There is an approximation of about 10 vehicle trips per weekday and six vehicle trips per weekend day. There is only parking available for eight vehicles, which is what is driving the number of beds on site (one bed per space for this use).

Standard F: The proposed use will not result in the destruction, loss, or damage of any feature determined to be of significant natural, scenic, or historic importance. The house does not fulfill any significant importance criteria.

Standard G: The proposed use will not create a traffic safety hazard or a substantial increase in the level of traffic congestion in the vicinity of the use. On-site vehicle privileges are earned after 90 days of residence. Additionally, the use of carpooling will reduce the impact of vehicle trips.

Standard H: The proposed use will be located in proximity to pedestrian facilities (e.g., multiuse trails and sidewalks), public transportation, or offer transportation options to its client population. The Cheshire Rail Trail is located .4 miles from the site. The City Express is .5 miles from the site, and the facility will also have its own transportation for its residents. There are sidewalks outside the site.

Snow Storage and Removal: There is a large snow storage area on the southern portion of the site.

Screening: The outdoor smoking area will be screened on at least two sides from view of the public right-of-way and adjacent parcels.

Surface Waters and Wetlands: The subject parcel is located right next to the Ashuelot River and is located in the High Density District. The applicant is required to maintain a 30-foot buffer from the edge of the river onto the parcel, and they have submitted a plan and supplemental information indicating that they are aware that they cannot place any structures within that 30-foot buffer

The site is open to anyone from the State based on their licensing, however, we have a waitlist and do not foresee much participation from outside of Keene.

Clarification of the smoking shelter architectural features

The smoking shelter will be an 8'x5' metal gazebo equipped with a designated ash and cigarette disposal receptacle with signage posted to identify its purpose. It will permit rain and snow to not increase the impervious area taken on the property. Contrary to the prior plan, and upon suggestion by the NHPRR, it will be placed along the west side of the property to distance from other property lines while respecting the 30-foot buffer from waterways and the 20-foot buffer from openings to the home.



232 Winchester Street

City of Keene, NH

1 inch = 35 Feet

January 15, 2026



○	Addresses	—	Bridge	□	Parking Lot
—	PWater	—	WaterLines	■	Road
—	Property Line	■	Water-poly		
—	Public Road	■	Other Impervious Area		

Sheet 1 of 2

Data shown on this map is provided for planning and informational purposes only. The municipality and CAI Technologies are not responsible for any use for other purposes or misuse or misrepresentation of this map.

1 inch = 35 feet scaled map.

Red buffer line: 2.2 centimeters (~30.3) feet from river. Any future developments within the 30 foot surface water buffer may require the submittal of a Surface Water Protection Conditional Use Permit application to the City of Keene Community Development Department for review by the Planning Board.

Black parking lot area. 5.3 centimeters long by 3.05 centimeters wide (~73 feet x 42 feet) which is sufficient for one 16'x18' parking space and seven 8'x18' parking spaces.

Orange area: snow storage area. Can be expanded to the south property line if need as area is well over 30 feet from the river.

Bright yellow: bike rack area. 0.5 centimeters by 1 centimeter (~94 square feet). Additional 0.5 cm x 1 cm of additional area on the West side of the building that does not cross the red buffer line if needed for an additional bike rack.

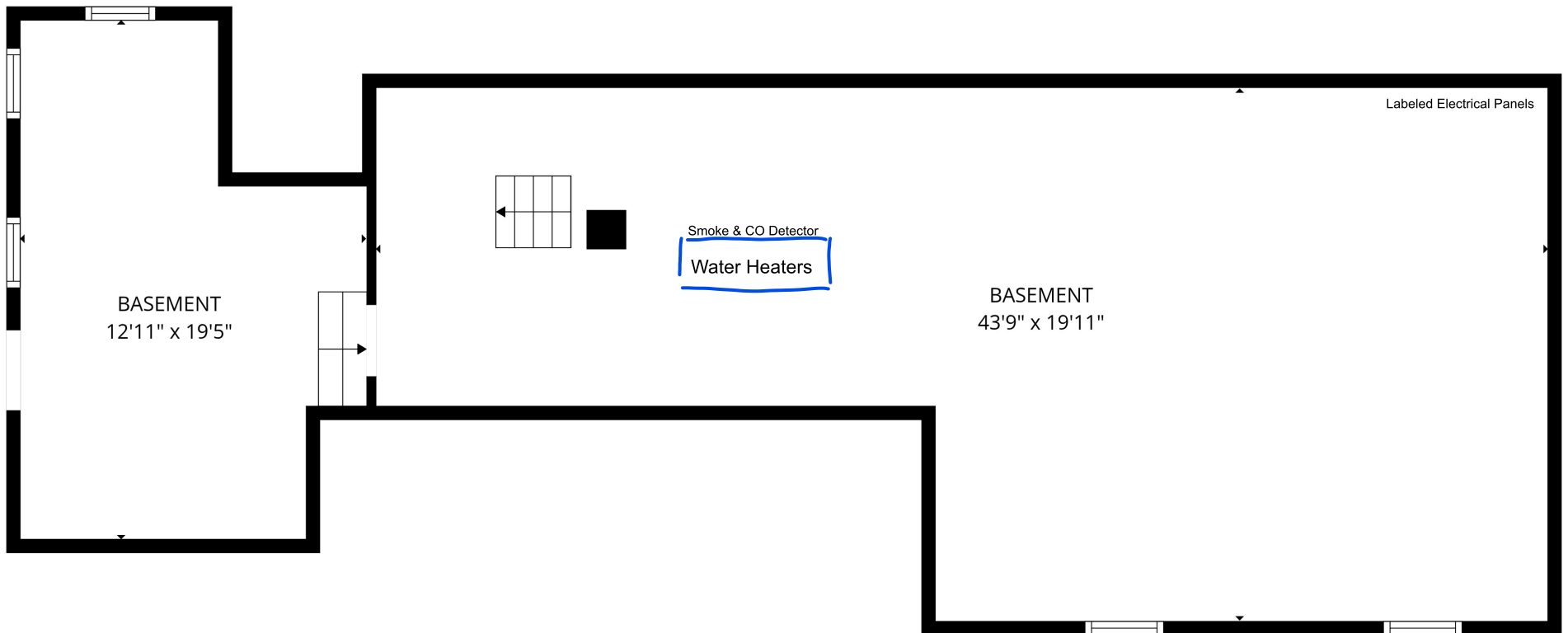
Black: designated smoking area. 0.6 cm x 0.2 cm (~40 sf). The smoking area is to be sheltered from rain but will not have a concrete foundation that renders the land beneath impervious. It will comply with Sec. 6-112 of the Keene Code listed below.

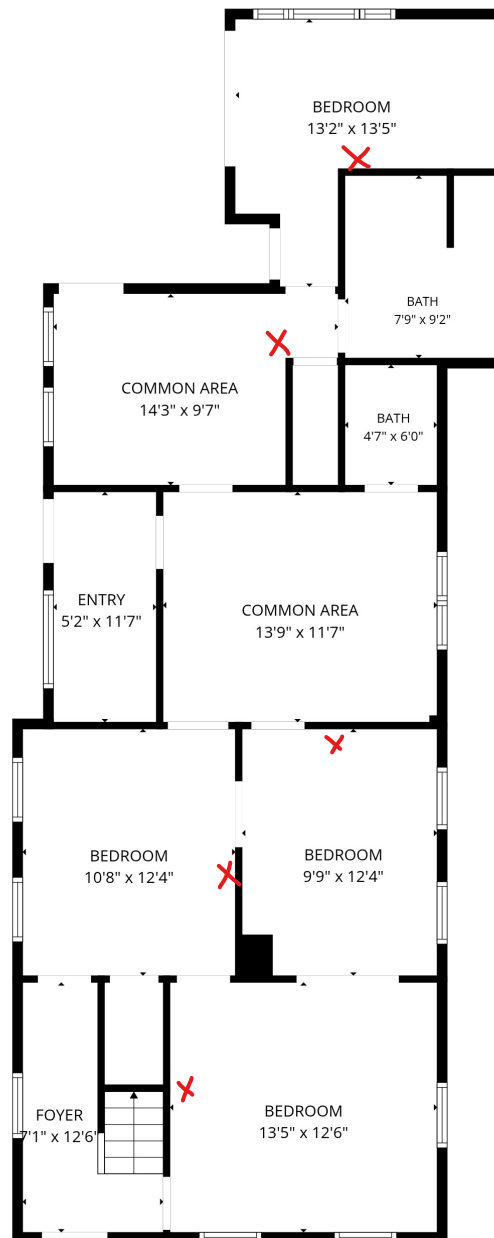
(a) Such area be not less than five feet on any side and shall contain a receptacle designed for the safe disposal of tobacco products.

(b) Such area is not located within 20 feet of any entrance or exit, or walkway to such entrance or exit, or other area open to the public where smoking or use of tobacco products is otherwise prohibited.

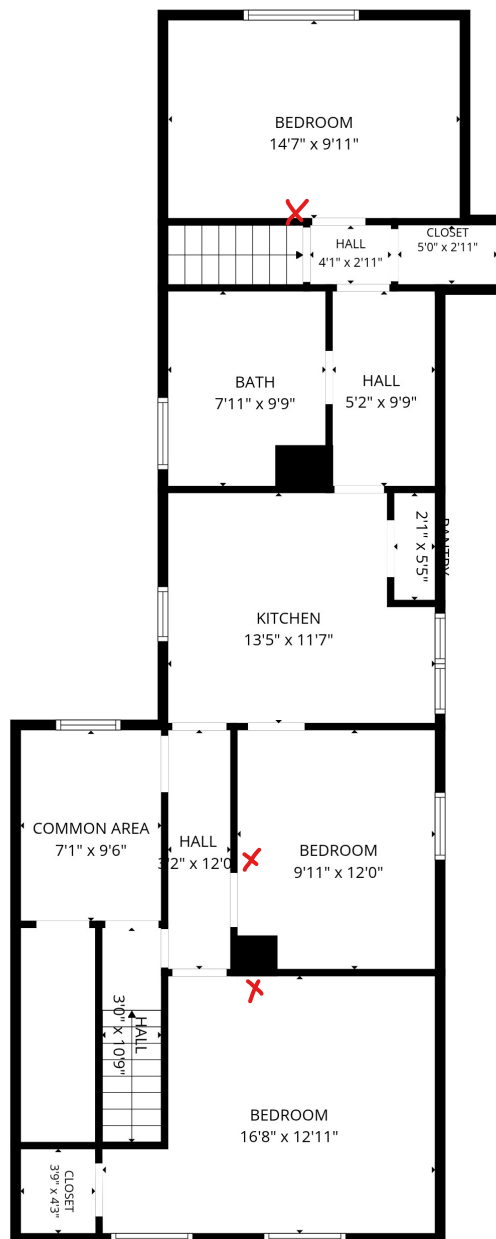
(c) Such area is posted with one or more conspicuously displayed sign(s) that identify the area as a designated area for smoking or tobacco product use.

(d) The city manager may require, in their sole discretion, that any such area be modified or removed if it creates a nuisance or public health hazard.





X Interconnected
Smoke and CO
Detectors



Landscaping Plan: AIR focuses on creating routine and good habits with our residents. Landscaping and maintenance of the property is highlighted in this plan and is one of the contingencies of residence in our program. We implement a House Responsibilities plan as follows:

Residents share responsibility for maintaining a safe, clean, and welcoming living environment.

Residents are expected to:

- Complete assigned chores and housekeeping responsibilities.
- Maintain personal living spaces.
- Assist in keeping common areas clean and orderly.
- Report maintenance or safety concerns promptly.
- Participate in routine and deep-cleaning activities as assigned.

These expectations support development of personal responsibility, independent living skills, and community accountability.

Good Neighbor Expectations

Residents are expected to be respectful members of the surrounding community and to conduct themselves in a manner that reflects positively on the residence.

Residents are expected to:

- Maintain reasonable noise levels.
- Respect neighboring properties.
- Park only in designated areas.
- Keep the property free from litter and debris.
- Report neighbor concerns to staff promptly.

AIR encourages positive relationships with neighbors and strives to maintain a safe, attractive, and well-managed property.

Commitment to a Recovery-Oriented Environment

AIR Housing is committed to fostering a respectful, supportive, and recovery-focused environment. Through clear expectations, structured accountability, and resident engagement, AIR promotes personal growth, recovery success, and positive community living.



In blue: Smoking Shelter, is still permeable.

Nursing Home (620)

Vehicle Trip Ends vs: Beds
On a: Weekday

Setting/Location: General Urban/Suburban

Number of Studies: 3

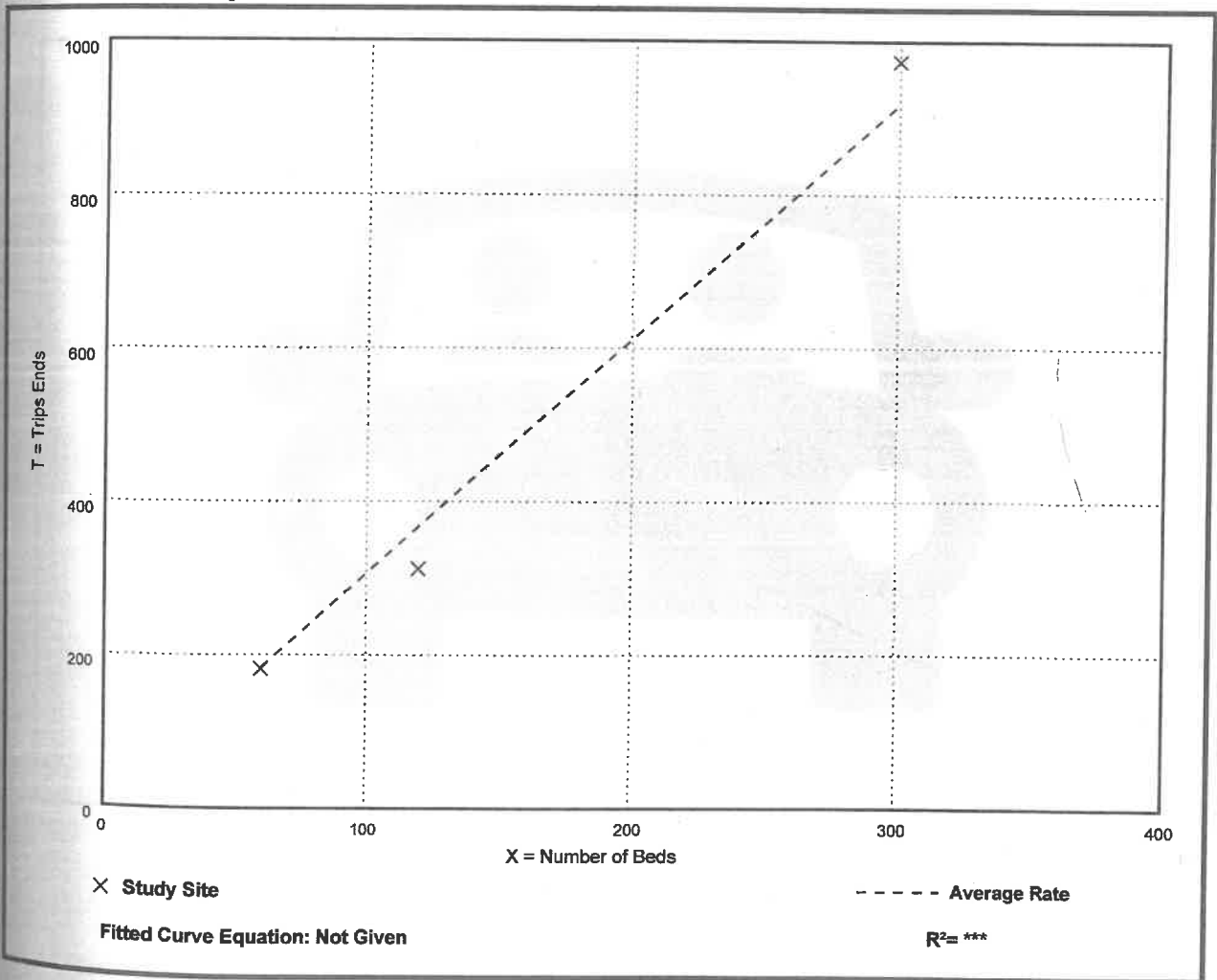
Avg. Num. of Beds: 160

Directional Distribution: 50% entering, 50% exiting

Vehicle Trip Generation per Bed

Average Rate	Range of Rates	Standard Deviation
3.06	2.60 - 3.25	0.33

Data Plot and Equation



Nursing Home (620)

Vehicle Trip Ends vs: Beds

On a: Weekday,

Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.

Setting/Location: General Urban/Suburban

Number of Studies: 8

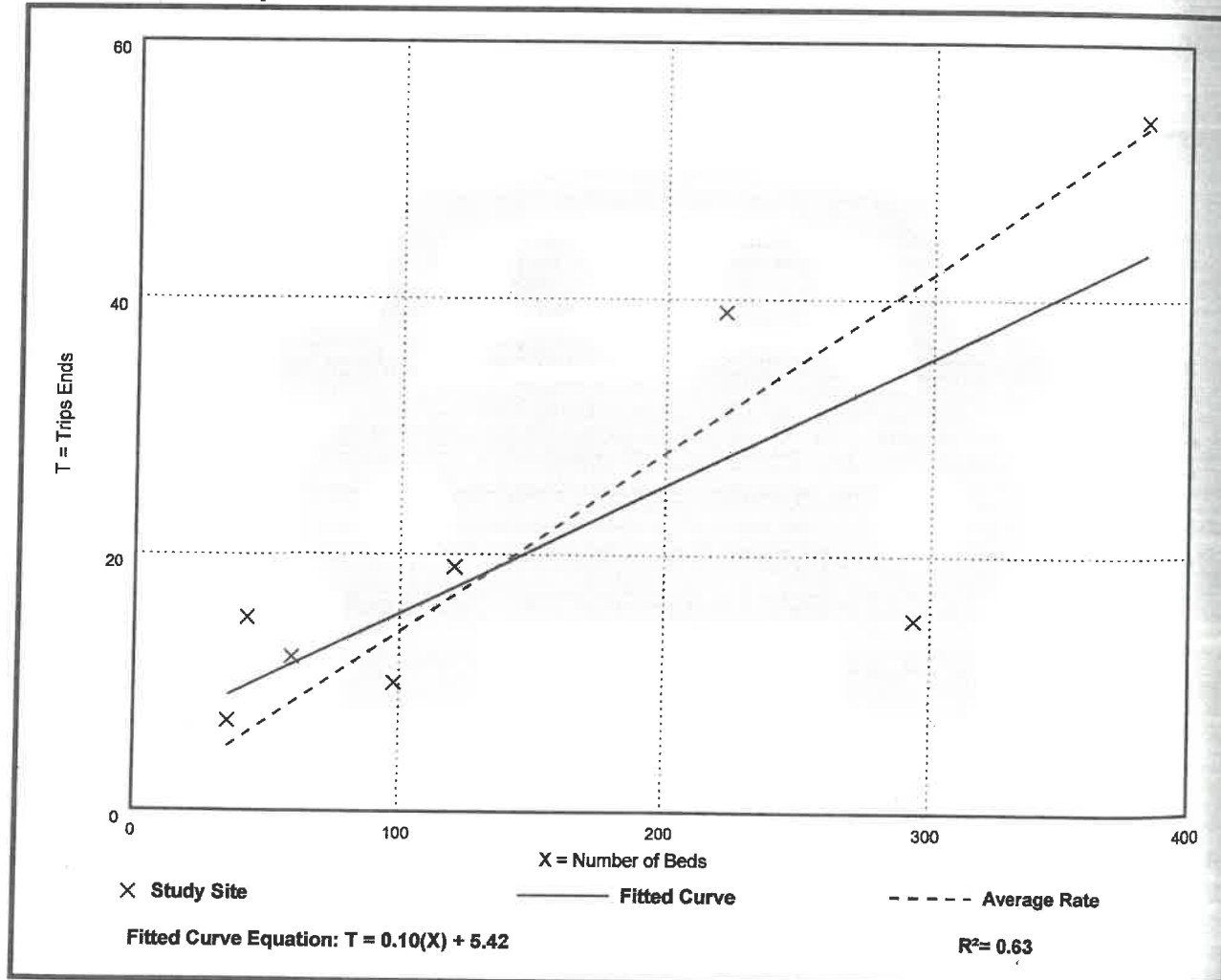
Avg. Num. of Beds: 157

Directional Distribution: 72% entering, 28% exiting

Vehicle Trip Generation per Bed

Average Rate	Range of Rates	Standard Deviation
0.14	0.05 - 0.35	0.07

Data Plot and Equation





CITY OF KEENE NEW HAMPSHIRE

ITEM #G.2.

Meeting Date: September 28, 2026

To: Planning Board

From: Megan Fortson, Planner

Through: Mari Brunner, Senior Planner

Subject: **PB-26-29 - Major Site Plan - Fast Food Restaurant, 348 Winchester St - Applicant Bohler Engineering, on behalf of owner Riverside Improvements LLC, proposes to demolish the former Rite Aid building and construct an ~4,576-sf fast food restaurant with a drive-thru on the parcel at 348 Winchester St (TMP #111-004-000). A waiver is requested from Section 21.6.2.B.2 to allow for the drive-through to be located along the western building facade adjacent to Winchester St. The building is located in Riverside Plaza, which is ~18.7-ac in size and is located in the Commerce District.**

Recommendation:

To review the attached staff report and application materials in preparation for the public hearing.

Attachments:

1. Staff Report
2. Application
3. Narrative
4. Engineering Staff Comments
5. Plan Set
6. Elevations & Renderings
7. Drainage Report
8. Flood Storage Exhibit
9. Traffic Study
10. Vehicle Turning Exhibit
11. Lighting Specification Sheets

Background:

The proposed area of redevelopment sits on the western portion of Riverside Plaza, which is located to the north of Routes 12 & 101 and to the east of Winchester St (Fig. 1). The shopping plaza is occupied by retail uses as well as a dental office, bank, and restaurant. Adjacent uses include the Keene State College (KSC) parking lot to the north; commercial businesses to the west; the Ashuelot Rail Trail and KSC athletic fields to the east; and undeveloped agricultural land to the south.

The Applicant proposes to demolish the ~10,000-sf former Rite Aid building and construct a new ~4,576-sf fast food restaurant with a drive-through. Waivers have been requested from Section 21.6.2.B & Section 21.7.4.B.1 of the Land Development Code (LDC) regarding the screening requirements for drive-through restaurants as well as the average illumination levels for canopy lighting.

STAFF REPORT

PB-26-29 – MAJOR SITE PLAN – FAST FOOD RESTAURANT, 348 WINCHESTER ST

Request:

Applicant Bohler Engineering, on behalf of owner Riverside Improvements LLC, proposes to demolish the former Rite Aid building and construct an ~4,576-sf fast food restaurant with a drive-thru on the parcel at 348 Winchester St (TMP #111-004-000). Waivers are requested from Section 21.6.2.B and Section 21.7.4.B.1 of the Land Development Code related to screening drive-thru lanes and canopy lighting. The property is ~18.7-ac and is in the Commerce District.

Background:

The proposed area of redevelopment sits on the western portion of Riverside Plaza, which is located to the north of Routes 12 & 101 and to the east of Winchester St (Fig. 1). The shopping plaza is occupied by retail uses as well as a dental office, bank, and restaurant. Adjacent uses include the Keene State College (KSC) parking lot to the north; commercial businesses to the west; the Ashuelot Rail Trail and KSC athletic fields to the east; and undeveloped agricultural land to the south.

The Applicant proposes to demolish the ~10,000-sf former Rite Aid building and construct a new ~4,576-sf fast food restaurant with a drive-through. Waivers have been requested from Section 21.6.2.B & Section 21.7.4.B.1 of the Land Development Code (LDC) regarding the screening requirements for drive-through restaurants as well as the average illumination levels for canopy lighting.



Fig. 1. Aerial imagery from 2025 showing the former Rite Aid building in Riverside Plaza at 348 Winchester St.

Determination of Regional Impact:

Staff have made a preliminary evaluation that the proposal does not appear to have the potential for “regional impact” as defined in RSA 36:55. The Board should make a final determination as to whether the proposal could have the potential for regional impact.

Completeness:

The Applicant has requested exemptions from submitting a historic evaluation and screening analysis. After reviewing these requests, Planning Staff have made the preliminary determination that granting the requested exemptions would have no bearing on the merits of the application and recommend that the Board accept the application as “complete.”

STAFF REPORT

Departmental Comments:

- **Building & Floodplain:**
 - The project is located in a special flood hazard area (SFHA) and will require a Floodplain Development Permit in accordance with Section 24.2.4 of the Land Development Code.
 - A building permit for the demolition and construction of the structure is required.
- **Zoning:**
 - Branded directional signage will need to be less than 4-sf in size to be exempt from the Sign Code. The Planning Board does not approve signage.
 - Verify that the parking stall and drive aisle widths comply with Table 9-3 of the Land Development Code.
- **Fire:** The building permit application will need to be reviewed for compliance with the NH State Fire Code.
- **Engineering:** Comments from the City Engineer are outlined in the attached memo dated September 17, 2026.

Application Analysis

- 21.2 Drainage:** The proposed stormwater measures include the construction of a bioretention system with an internal storage reservoir at the northwestern corner of the site. The new building and site modifications are designed to drain to the bioretention system via a conventional closed-pipe drainage system with cast basins with deep sumps and hooded outlets. Pretreatment of stormwater runoff not conveyed to the bioretention pond will be achieved by a hydrodynamic separator for stormwater flowing to the catchbasin at the southwestern corner of the site. The drainage report states that the volume of water being directed to the existing stormwater system will be reduced in the post-construction conditions.

At the time of this staff report, Planning Staff were waiting for the Applicant to submit an updated drainage report addressing the City Engineer's comments. An update on the status of this review will be provided during the public hearing for this application on September 28th.

- 21.3 Sediment & Erosion Control:** Proposed sediment and erosion control measures include the installation of catch basin inlet protection, a stabilized construction entrance at the northeastern corner of the site, and silt fencing along the proposed edge of pavement and detention pond adjacent to Winchester St. Planning Staff recommend that the Board include conditions of approval related to the submittal of a security to cover the cost of the sediment and erosion control measures as well as the inspection of all sediment and erosion control measures by Community Development Department Staff following their installation.
- 21.4 Snow Storage & Removal:** Snow storage areas are shown in five locations around the perimeter of the proposed building. This standard appears to be met.

STAFF REPORT

21.5 Landscaping: The proposed landscaping includes 14 shade trees, 22 arbor vitae plants, 148 shrubs, and 220 perennials around the building and perimeter of the project area (Fig. 2).

Landscaped areas to the north and south of the building will be planted with a mix of sugar maple and honey locust trees; inkberry, yew, and juniper bushes; and coneflower, foamflower, and catmint perennials. The landscaping adjacent to Winchester St will include a mix of 6 sour gum trees; 12 inkberry shrubs; 9 arborvitae; and 17 yew shrubs. The detention basin at the northwestern corner of the site will be stabilized with a basin seed mix over 6 inches of topsoil.

Planning Staff recommend that the Board include a condition of approval related to the submittal of a security to cover the cost of all landscaping as well as the completion of initial and final landscaping inspections.

21.6 Screening: The dumpster enclosure at the southwestern corner of the project area is proposed to be screened by a concrete masonry enclosure with metal gates, both of which will be finished in a dark brown color.

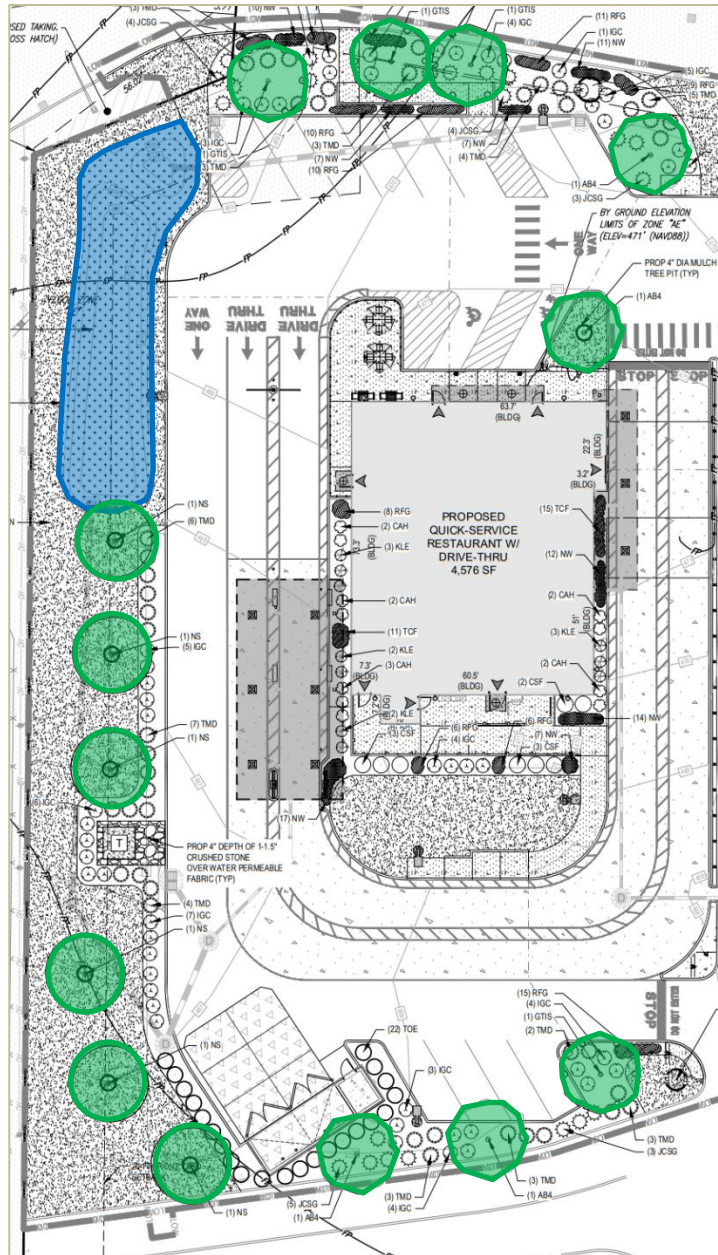


Figure 2. Excerpt from the proposed landscaping plan submitted by the applicant. The detention basin is shown shaded in blue, and the trees are shown shaded in green.

The drive-through lanes, which are located along the Winchester Street frontage, will be partially screened with evergreen shrubs (compact inkberry and dense yew) that will be between 2-2.5 feet at planting and 4 feet at maturity. The northern end of the drive-through lanes are adjacent to the proposed detention pond, leaving them visible from Winchester St. Section 21.6.2.B of the Land Development Code states that drive-throughs shall not be located along the building frontage or along a façade with a primary entrance and must be screened from view of the public right-of-way by an evergreen hedge that is at least 3

STAFF REPORT

feet tall at planting and 4 feet tall at maturity. The Applicant has requested a waiver to allow the northern section of the drive-through to remain visible from Winchester St. The submitted waiver request states that the drive-thru must be located along Winchester St. to minimize adverse impacts to flood storage in the floodplain.

In deciding whether to grant this request, the Board will need to determine if the waiver criteria detailed in Section 26.12.14 of the LDC have been satisfied:

"26.12.14 Waivers

A. *Unless otherwise set forth in this LDC, the Planning Board may grant a waiver from strict compliance with provisions of the Site Development Standards in Article 21 or site plan review standards in Section 26.12, on a case by-case basis, so long as the Board finds, by majority vote, that:*

1. *Strict conformity would pose an unnecessary hardship to the applicant and the waiver would not be contrary to the spirit and intent of the regulations; or,*
2. *Specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations.*
3. *In granting a waiver, the Planning Board may require any mitigation that is reasonable and necessary to ensure that the spirit and intent of the standard being waived will be preserved, and to ensure that no increase in adverse impacts associated with granting the waiver will occur."*

21.7 Lighting: The applicant proposes to install 5 pole lights, 11 building-mounted lights (4 downlights & 7 cylinder lights), and 9 canopy lights. The photometric calculations are shown in the table below in footcandles (fc).

	Max Light Levels (fc)		Ave Light Levels (fc)		Uniformity Ratio	
	Proposed	Required	Proposed	Required	Proposed	Required
North Parking Lot	3.8	N/A	1.52	Max 3.5	3:1	Max 5:1
South Parking Lot	5.1	N/A	2.14	Max 3.5	4.3:1	Max 5:1
Drive Thru Canopy	37.2	N/A	24.92	Max 12.5	1.8:1	N/A
Window Canopy	28.9	N/A	15.74	Max 12.5	3.2:1	N/A
North Walkway	3.4	Max 5	1.45	Min 0.5	14.5:1	N/A
South Walkway	3.9	Max 5	2.31	Min 0.5	4.6:1	N/A

The Applicant requests a waiver from Section 21.7.4.B.1 of the LDC to allow for an average light level of 24.9-fc where 12.5- fc are permitted for the drive-thru canopy adjacent to Winchester Street and an average light level of 15.74-fc where 12.5-fc is allowed for the window canopy on the east building façade. The waiver request states that above-average light levels are desired due to the potential for employees to take orders and deliver food to customers in the drive-through lanes during business hours from 6:30am-10pm.

For context, the Mobile Gas Station located at 219 West St has a canopy that is 15.5'-tall as measured from the ground to the underside of the structure. The photometric plan approved when the property was redeveloped in 2017 (SPR-578 Modification #1) shows

STAFF REPORT

an average light level of 5.17-fc and uniformity ratio (the ratio of the average to the minimum lighting levels) of 1.99.

Staff have concerns that the proposed canopy lighting will result in bright pockets of light on the site with darker zones around them. This is in conflict with the intent of the lighting standards in the LDC, which aim to provide lighting levels that are reasonably uniform to avoid very bright and very dark areas across a site for both pedestrian and motorist comfort and safety.

In deciding whether to grant the requested waiver, the Board will need to determine whether the waiver criteria in Section 26.12.14 have been met (listed above under "Screening").

At the time of this staff report, Planning Staff were waiting to hear back from the Applicant regarding the 7 cylinder lights proposed to be installed around the building perimeter. Per Section 21.7.2.B of the LDC, uplighting is prohibited. Planning Staff will share an update on the status of this item at the September 28th Planning Board meeting.

21.8 Sewer & Water: The Applicant proposes to connect to the existing City sewer and water utilities serving the former Rite Aid building. At the time of this report, the City Engineer had provided additional comments regarding the revised stormwater report, plan set, and response letter submitted by the applicant on September 14th. Planning Staff are waiting to see how the applicant plans on addressing these items and will share an update during the Planning Board meeting. It is recommended that the Board include a condition of approval related to the submittal of a security to cover the cost of as-built plans.

21.9 Traffic & Access Management: The existing building has three main access points: one along Winchester St to the south of the project area, a slip lane into the site from the Winchester St & Key Rd roundabout, and access from the east from the main plaza. The applicant proposes to close off the slip lane to the north of the existing building so that vehicles enter the site to the northeast of the new building and follow a one-way traffic pattern counter-clockwise around the site. Rite Aid currently has 25 parking spaces; however, the new retail use will only require 15 spaces. Fourteen of these spaces will be provided in the project area and the last space will be obtained using the overflow parking elsewhere in the plaza. Two accessible parking spaces will be installed along the northern building façade and crosswalks will be added to connect parking spaces to the north and east of the main restaurant entrance. A bike rack will be installed in the landscaping island at the northeastern corner of the project area.

The traffic study indicates that the former pharmacy use would have generated a range of 104-130 total trips between the weekday midday/afternoon and Saturday midday peak hours. The quick service restaurant is anticipated to generate a range of 268-340 total trips per weekday midday/afternoon and Saturday midday peak hours. When the number of pharmacy peak hour trips is subtracted from the fast food restaurant peak hour trips, the anticipated new traffic demand ranges from 148-236 new vehicle trips per weekday midday/afternoon and Saturday midday peak hours. The summary of this report is included as an attachment.

STAFF REPORT

- 21.10 Filling & Excavation:** The majority of the parcel is located within the 100-year flood zone, which is a special flood hazard area. All building design and site work will be reviewed for compliance with the Floodplain Development Regulations outlined under Article 24 of the LDC as part of the building permit process. This standard appears to be met.
- 21.11 Surface Waters & Wetlands:** There are no jurisdictional wetlands or surface waters present in the project area. This standard is not applicable.
- 21.12 Hazardous & Toxic Materials:** There are no hazardous or toxic materials involved as part of this project. This standard is not applicable.
- 21.13 Noise:** The narrative states that the proposed development will comply with the City's noise ordinance. This standard appears to be met.



Fig. 4. A rendering showing the proposed building design when looking southeast.

- 21.14 Architecture & Visual Appearance:** The building is proposed to be constructed with a two-tone white and brown color scheme featuring brick veneer and stucco finishes and dark bronze metal accents for the windows and trim (Fig. 4). The building will be ~22'-tall inclusive of a parapet that will range in height from 4'-7" to 5'-9" tall that will serve as screening for any potential rooftop units. The narrative states that the proposed building orientation has been largely dictated by the project area's placement within the 100-year floodplain. The Board will need to make a determination as to whether the proposed building design complies with the massing/scale, visual interest, and site design regulations outlined under this section of the code.

Recommended Motion: Planning Staff will provide a recommended motion at the Planning Board meeting on September 28, 2026.



MEMORANDUM

TO: Joey Fonseca, Bohler Engineering

FROM: Bryan Ruoff, City Engineer

THROUGH: Megan Fortson, Planner

DATE: September 17, 2026

SUBJECT: PB-26-29 – Major Site Plan – Additional City Engineering Comments – Fast Food Restaurant, 348 Winchester St

1. The culvert sizing appears to account for an open culvert condition not a closed interconnected stormwater condition as designed. It is unclear why the culverts are not included in the stormwater model. Additionally, the Bioretention Pond is modelled as a free flowing outlet but also connects to downstream culverts, if a tail water condition existed the pond might not be sufficiently sized for the hydraulic conditions, all culverts needed to be modelled in the Hydro CAD model in lieu of including sub catchment areas in the hydraulic model.
2. The preconstruction conditions for the stormwater model calculate the entire site runoff as one stormwater tributary but must be broken out to all of the discharge points to the existing system to confirm no increases to those discharge points.
3. The proposed domestic water service is in conflict with the ET&C lines, at a minimum 3' between utilities is required to be provided.
4. The stormwater model accounts for infiltration but the infiltration rate and groundwater level have not been determined to confirm this is feasible for the design. The Applicant's engineer has responded that a test pit will be performed prior to construction. Given that is the basis for the design of this drainage system, this is required to be confirmed as part of the design.
5. Based on the provided turning movements, it appears that emergency response and delivery vehicles cannot maneuver the site without impacting parked cars in the lot.
6. The responses to previous comment #14 references a yard hydrant detail but no detail for the hydrant is provided. Additionally, it should be clarified whether this is intended to be a hose bib, which is assumed to be based on the ¾" water service or a yard hydrant.
7. A large portion of the parking lot drainage area and building roof drains are directed to the existing drain infrastructure in the adjacent parking lot with no pre-treatment, which contradicts the drainage report. The Applicant's engineer has responded that this is an

existing condition; however, the existing condition is required to be corrected for the proposed development to provide treatment for the developed site.

8. The list of anticipated permits should be revised to include obtained permits and associated numbers. The required list of permits for construction should include Public Works Excavation & Utility Permits and a grease trap permit.
9. The Applicant's engineer has responded that a minimum of 12" of cover, the minimum pipe cover is recommended to be provided in accordance with pipe manufacturer's recommendations, or alternative pipes should be provided.
10. The plans provide a fire hydrant detail but the existing hydrant is specified as being reused. Please remove the detail or update the hydrant and gate valve details to match City of Keene's Public Works standards.
11. Site specific soils are required to be confirmed by a soil scientist licensed in the State of NH.
12. The hydraulic model demonstrates sufficient capacity for the 100-year storm event but is also required to provide 1-foot of freeboard without overtopping the 50-year storm event.

PROPOSED SITE PLAN DOCUMENTS

FOR

RIVERSIDE IMPROVEMENTS, LLC

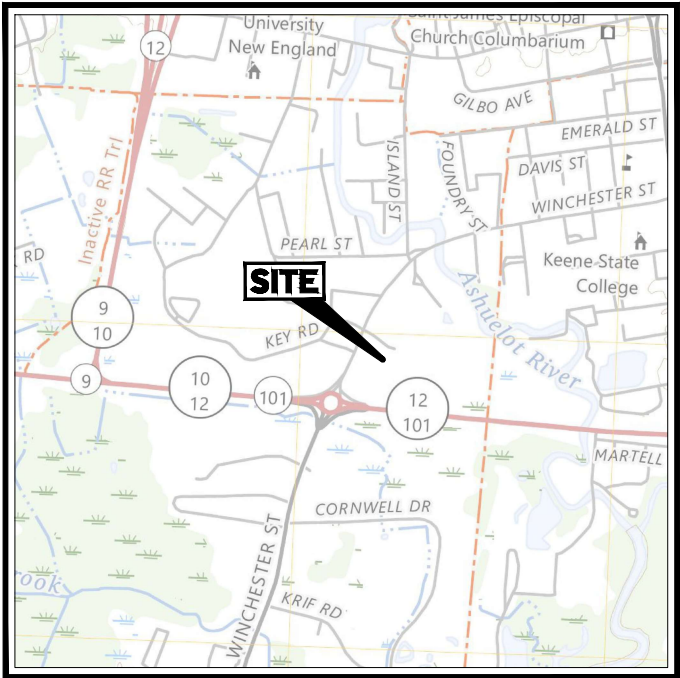
PROPOSED QUICK SERVICE RESTAURANT W/ DRIVE-THRU

LOCATION OF SITE
354 WINCHESTER STREET
TOWN OF KEENE, NH 03431
MAP #111, PARCEL #004

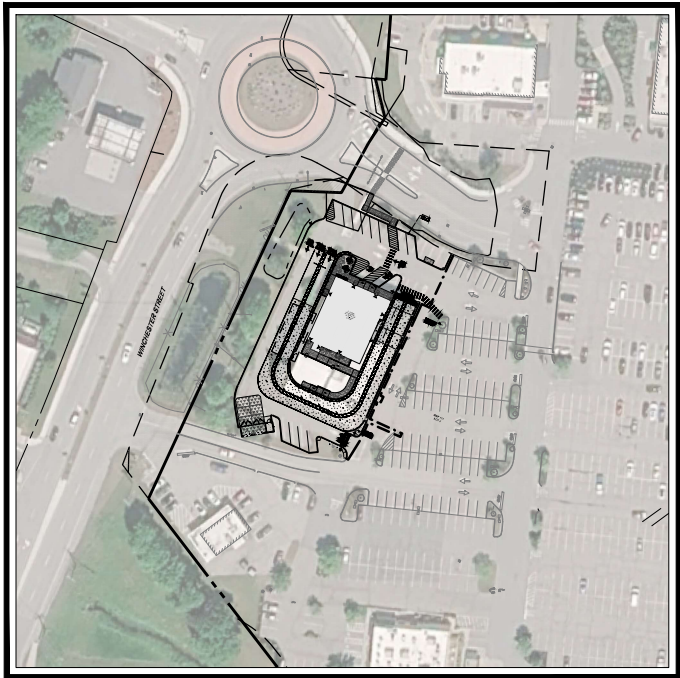
REFERENCES AND CONTACTS

- REFERENCES**
- BOUNDARY & TOPOGRAPHIC SURVEY:
CONTROL POINT ASSOCIATES, INC.
352 TURNPIKE ROAD
SOUTHBOROUGH, MA 01772
DATED: 05-18-2026
03-120087-00
ELEVATIONS: NAVD 1988
 - GEOTECHNICAL INVESTIGATION REPORT:
WHITESTONE ASSOCIATES, INC.
3 EXECUTIVE PARK DRIVE, SUITE 202
BEDFORD, NH 03110
DATED: 04-20-2026
 - ARCHITECTURAL PLAN:
HFA&E, LTD.
1705 S. WALTON BLVD., SUITE 3
BENTONVILLE, AR 72712
DATED: MMDDYY
- GOVERNING AGENCIES**
- PLANNING, ZONING COMMITTEE
3 WASHINGTON STREET
KEENE, NH 03431
PHONE: (603) 357-9804
FAX: N/A
 - BUILDING DEPARTMENT
3 WASHINGTON STREET
KEENE, NH 03431
PHONE: (603) 352-5440
FAX: N/A
 - FIRE DEPARTMENT
31 VERNON STREET
KEENE, NH 03431
PHONE: (603) 357-9861
FAX: (603) 283-5686
- ROW JURISDICTION**
- TRAFFIC, STORMWATER, WATER & SEWER
DEPARTMENT OF PUBLIC WORKS (DPW)
350 MARLBORO STREET
KEENE, NH 03431
PHONE: (603) 352-6590
FAX: N/A

THE ABOVE REFERENCED DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THESE PLANS. HOWEVER, BOHLER ENGINEERING DOES NOT CERTIFY THE ACCURACY OF THE WORK REFERENCED OR DERIVED FROM THESE DOCUMENTS, BY OTHERS.



USGS MAP
SCALE: 1" = 1,000'
SOURCE: KEENE, NH
USGS QUADRANGLE 2024



AERIAL MAP
SCALE: 1" = 100'
SOURCE: GRANTVIEW AERIAL IMAGERY 2021

SHEET INDEX

SHEET TITLE	SHEET NUMBER
COVER SHEET	C-000
GENERAL NOTES	C-001
JURISDICTIONAL NOTES AND LEGEND	C-002
ALTA SURVEY (3 SHEETS) (BY OTHERS)	C-100
DEMOLITION PLAN	C-101
SITE PLAN	C-200
GRADING PLAN	C-300
DRAINAGE PLAN	C-301
UTILITY PLAN	C-500
EROSION AND SEDIMENT CONTROL PLAN	C-800
EROSION AND SEDIMENT CONTROL DETAILS	C-801
CLIENT STANDARD DETAILS	C-900 - C-903
CONSTRUCTION DETAILS	C-904 - C-908
LANDSCAPE PLAN	L-100
LANDSCAPE NOTES AND DETAILS	L-101
LIGHTING PLAN	T-100
LIGHTING DETAILS	T-101
TOTAL SHEETS	26

ANTICIPATED PERMITS:

- 26.12 PLANNING BOARD SITE PLAN REVIEW
- 26.17 FLOODPLAIN DEVELOPMENT PERMIT
- 26.18 SIGN PERMIT
- BUILDING/HEALTH PERMIT

PREPARED BY

BOHLER

CONTACT: JOEY FONSECA

BOHLER

50 WASHINGTON ST., SUITE 2000
WESTBOROUGH, MA 01581
Phone: (508) 480-9900

www.BohlerEngineering.com

REVISIONS

REV	DATE	COMMENT	DRAWN BY
1	09/14/2026	PLANNING BOARD REVIEW COMMENTS	AEH
			JNF



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THIS DRAWING IS INTENDED FOR MUNICIPAL AND/OR AGENCY REVIEW AND APPROVAL. IT IS NOT INTENDED AS A CONSTRUCTION DOCUMENT UNLESS INDICATED OTHERWISE.

PROJECT No.: MAA260023,00-1A
DRAWN BY: AEH
CHECKED BY: JNF
DATE: 08/20/2026
CAD I.D.: P-PCVL-CNDS

PROJECT:

SITE DEVELOPMENT PLANS

FOR

**RIVERSIDE
IMPROVEMENTS, LLC**

PROPOSED QUICK SERVICE
RESTAURANT
354 WINCHESTER STREET
KEENE, NH 03431

SHEET TITLE:

**COVER
SHEET**

SHEET NUMBER:

C-000

REVISION 1 - 09/14/2026

SCHEDULE B, PART II

GENERAL EXCEPTIONS 1 THROUGH 6, ARE NOT SURVEY RELATED AND HAVE NOT BEEN COMMENTED ON AS A PART OF THIS SURVEY.

- SEWER EASEMENT TO THE CITY OF KEENE RECORDED IN VOLUME 342, PAGE 77 AS CITED WITHIN DEED DATED 5/8/46 AND RECORDED IN VOLUME 520, PAGE 82, AS AFFECTED BY RETURN OF LAYOUT OF WEST KEENE INTERCEPTOR SEWER DATED 10/15/59 AND RECORDED IN VOLUME 680, PAGE 537. NON LOCUS; SEWER EASEMENT LOCATED OVER A PORTION OF MAP 585, LOT 18 & MAP 111, LOT 1.
- FLOOD CONTROL EASEMENT TO THE CITY OF KEENE RECORDED IN VOLUME 587, PAGE 535. NON LOCUS; EASEMENT LOCATED EAST OF LOCUS PROPERTY ALONG ASHUELOT RIVER.
- COMMISSIONERS RETURN OF LAYOUT FOR THE KEENE BY-PASS AND EASEMENTS THEREIN RECORDED IN VOLUME 649, PAGE 277 AND VOLUME 678, PAGE 151. CURRENT LAYOUT OF ROUTES 12 & 101 & KEENE BYPASS TAKING SHOWN HEREON.
- RIGHTS ACQUIRED BY THE CITY OF KEENE IN RETURN OF LAYOUT OF DRAINAGE OF ASH SWAMP, TANNERY, WHITE AND BLACK BROOKS WATER SHED RECORDED IN VOLUME 679, PAGE 105. DRAINAGE EASEMENT SHOWN HEREON.
- COMMISSIONERS RETURN OF HIGHWAY LAYOUT FOR ROUTE 9, 10 AND 101 RECORDED IN VOLUME 706, PAGE 133. CURRENT LAYOUT OF ROUTES 12 & 101 SHOWN HEREON. (PER REF. #4, #7 & #10).

SCHEDULE B, PART II (CONTINUED)

- UTILITY EASEMENT TO PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE BY DEEDS RECORDED IN VOLUME 752, PAGE 209 AND VOLUME 870, PAGE 27. UTILITY EASEMENT SHOWN HEREON.
- SLOPE AND EMBANKMENT EASEMENT TO THE STATE OF NEW HAMPSHIRE BY NOTICE OF CONDEMNATION RECORDED IN VOLUME 1000, PAGE 481 AND BY DEED RECORDED IN VOLUME 1002, PAGE 415. SLOPE EASEMENT SHOWN HEREON. (PER REF. #8 & #10)
- UTILITY EASEMENT TO PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE AND NEW ENGLAND TELEPHONE AND TELEGRAPH COMPANY DBA NYNEX RECORDED IN VOLUME 1549, PAGE 572. UNABLE TO LOCATE, REFERENCED UTILITY PLAN NOT PROVIDED. UTILITY POLE REFERENCED AS POB IN DOCUMENT NOT FOUND.
- GROUNDWATER MANAGEMENT PERMITS RECORDED IN VOLUME 1726, PAGE 277; BOOK 1767, PAGE 493; AND BOOK 1978, PAGE 154. SPECIAL PERMIT APPROVAL; NOT PLOTTABLE.
- PERMANENT EASEMENT. RIGHTS IN DEED RECORDED IN VOLUME 2113, PAGE 210. PARCELS D1, D2, D3, E1 & E2 SHOWN HEREON.
- SLOPE EASEMENT AGREEMENT RECORDED IN VOLUME 2502, PAGE 889. WINCHESTER STREET, SLOPE EASEMENT & CONSTRUCTION EASEMENT SHOWN HEREON.

SCHEDULE B, PART II (CONTINUED)

- NOTICE OF LEASE BY AND BETWEEN EDF RIVERSIDE PLAZA, LLC AND MAXI DRUG, INC., DBA BROOKS PHARMACY AS REFERENCED IN ASSIGNMENT AND ASSUMPTION AGREEMENTS RECORDED IN VOLUME 2376, PAGE 147 AND VOLUME 2445, PAGE 536. BLANKET IN NATURE; MAP 111, LOT 4, SHOWN HEREON.
- RIGHTS OF TENANTS IN POSSESSION UNDER UNRECORDED LEASES. NOT PLOTTABLE.
- RECORDED LEASES:
 - TERMS AND CONDITIONS OF LEASE TO SHAW'S SUPERMARKET AS EVIDENCED BY NOTICE OF LEASE RECORDED IN VOLUME 1407, PAGE 875. BLANKET IN NATURE; MAP 111, LOT 4, SHOWN HEREON. SEE NOTE 17.
 - TERMS AND CONDITION OF LEASE TO BRADLEES STORES, INC. AS EVIDENCED BY NOTICE OF AMENDED LEASE AT VOLUME 1553, PAGE 724, AND ORIGINAL LEASE AT VOLUME 917, PAGE 556. BLANKET IN NATURE; MAP 111, LOT 4, SHOWN HEREON. SEE NOTE 17.

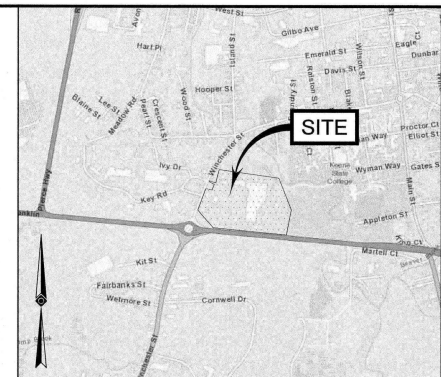
SCHEDULE B, PART II (CONTINUED)

- TERMS AND CONDITIONS OF LEASE TO HOMEGOODS, INC AS EVIDENCED BY NOTICE OF LEASE RECORDED IN VOLUME 3035, PAGE 484. BLANKET IN NATURE; MAP 111, LOT 4, SHOWN HEREON. SEE NOTE 17.
- TERMS AND CONDITIONS OF LEASE TO HARBOR FREIGHT TOOLS USA, INC. AS EVIDENCED BY NOTICE OF LEASE RECORDED IN VOLUME 3057, PAGE 329. BLANKET IN NATURE; MAP 111, LOT 4, SHOWN HEREON. SEE NOTE 17.
- TERMS AND CONDITIONS OF LEASE TO SIERRA TRADING POST INC AS EVIDENCED BY NOTICE OF LEASE RECORDED IN VOLUME 3085, PAGE 654. BLANKET IN NATURE; MAP 111, LOT 4, SHOWN HEREON. SEE NOTE 17.

EXHIBIT "A"
LEGAL DESCRIPTION

A CERTAIN TRACT OR PARCEL OF LAND LOCATED IN KEENE, CHESHIRE COUNTY, NEW HAMPSHIRE DESCRIBED IN VOLUME 2444, PAGE 656. EXCEPTING THAT PORTION OF THE PROPERTY CONVEYED TO THE STATE OF NEW HAMPSHIRE AT VOLUME 2113, PAGE 210, AND DEPICTED AS PARCELS D1, D2, AND D3 ON PLAN RECORDED IN CABINET 12, DRAWER 9, #123.

DESCRIPTION TO BE REVISED UPON RECEIPT OF PROPOSED LEASEHOLD DESCRIPTION.



NOTES:

- PROPERTY KNOWN AS LOT 4 AS SHOWN ON THE CITY OF KEENE, CHESHIRE COUNTY, STATE OF NEW HAMPSHIRE, MAP NO. 111.
- AREA = 921,742 SQUARE FEET OR 21.160 ACRES.
- LOCATION OF UNDERGROUND UTILITIES ARE APPROXIMATE. THE LOCATION OF ALL UNDERGROUND UTILITIES SHOWN ARE BASED UPON MARKOUT PROVIDED BY VISIONARY SUBSURFACE SOLUTIONS. USING GROUND PENETRATING RADAR AND ELECTROMAGNETIC DETECTION EQUIPMENT. ALL LOCATIONS AND SIZES ARE BASED ON UTILITY MARK-OUTS, ABOVE GROUND STRUCTURES THAT WERE VISIBLE & ACCESSIBLE IN THE FIELD, AND THE MAPS AS LISTED IN THE REFERENCES AVAILABLE AT THE TIME OF THE SURVEY. BEFORE ANY EXCAVATION IS TO BEGIN, ALL UNDERGROUND UTILITIES SHOULD BE VERIFIED AS TO THEIR LOCATION, SIZE, AND TYPE BY THE PROPER UTILITY COMPANIES. CONTROL POINT ASSOCIATES, INC. DOES NOT GUARANTEE THE UTILITIES SHOWN COMPRISE ANY OR ALL SUCH UTILITIES IN THE AREA EITHER IN SERVICE OR ABANDONED.

A QUALITY LEVEL SYSTEM IS UTILIZED TO IDENTIFY THE SOURCE OF THE UNDERGROUND UTILITY INFORMATION. THE METHOD OF DETERMINATION IS BASED ON CONTRACTUAL AGREEMENT WITH THE CLIENT AND IS DEPICTED ON THE SURVEY BY THE LINE TYPES SHOWN IN THE DRAWING LEGEND, FOR REFERENCE. THE QUALITY LEVELS ARE AS FOLLOWS:

- QUALITY LEVEL D - UTILITIES SHOWN BASED UPON REFERENCE MAPPING OR ORAL HISTORY. NOT FIELD VERIFIED.
- QUALITY LEVEL C - LOCATION OF UTILITY SURFACE FEATURES SUPPLEMENTS REFERENCE MAPPING. INCLUDES MARKOUT BY OTHERS.
- QUALITY LEVEL B - UTILITY LOCATION DATA IS COLLECTED THROUGH GEOPHYSICAL SENSING TECHNOLOGY TO SUPPLEMENT SURFACE FEATURES AND/OR REFERENCE MAPPING. INCLUDES MARKOUT BY CONTROL POINT ASSOCIATES, INC.
- QUALITY LEVEL A - HORIZONTAL AND VERTICAL LOCATION OF UTILITIES ARE OBTAINED USING VACUUM EQUIPMENT EXCAVATION OR OTHER METHODS TO EXPOSE THE UTILITY. LOCATION SHOWN AT SINGLE POINT WHERE EXCAVATION OCCURRED UNLESS UTILITY WAS LOCATED PRIOR TO FILLING.

ALL FOUR TYPES MAY NOT BE PRESENT ON THIS SURVEY.

- THIS PLAN IS BASED ON A SURVEY PREPARED IN THE FIELD BY CONTROL POINT ASSOCIATES, INC. (THE SURVEYOR), INFORMATION PROVIDED BY THE CLIENT AND OTHER REFERENCE MATERIAL AS LISTED HEREON. CHANGES TO THE PROPERTY AFTER THE FIELD DATE ARE NOT THE RESPONSIBILITY OF THE SURVEYOR.
- THIS SURVEY IS PREPARED WITH REFERENCE TO AN COMMITMENT FOR TITLE INSURANCE PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. NH260029FTN, WITH A COMMITMENT DATE OF MARCH 5, 2026. SEE EXCEPTIONS LIST FOR SURVEY RELATED EXCEPTIONS THAT APPEAR IN SCHEDULE B, PART II.

THIS SURVEY DOES NOT ADDRESS OWNERSHIP AND POSSIBLE RIGHTS OF ADJOINING PROPERTIES.

THIS SURVEY IS THE OPINION OF THE SURVEYOR AND IS NOT A LEGAL DECISION REGARDING PROPERTY BOUNDARY OR RIGHTS.

- BY GRAPHIC PLOTTING ONLY PROPERTY IS PARTIALLY LOCATED IN FLOOD HAZARD ZONE X-UNSHADED (AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN), PARTIALLY LOCATED IN FLOOD HAZARD ZONE X-SHADED (AREAS OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD) & PARTIALLY LOCATED IN FLOOD HAZARD ZONE AE (SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD, BASE FLOOD ELEVATIONS DETERMINED), ELEV = 471' (NAVD83), PER REF. #2.
- THE EXISTENCE OF UNDERGROUND STORAGE TANKS, IF ANY, WAS NOT KNOWN AT THE TIME OF THE FIELD SURVEY. SURVEY DOES NOT ADDRESS ENVIRONMENTAL CONDITIONS OR LAND SUITABILITY.
- ELEVATIONS REFER TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), BASED ON GPS/GNSS OBSERVATIONS UTILIZING THE THE KEYSTONE VRS NETWORK (KEYNETGPS). TEMPORARY BENCHMARKS SET:
 - BTM-A: X-CUT SET IN CONCRETE BASE OF LIGHT POLE. ELEVATION= 471.44'

SEVEN (7) DAYS PRIOR TO CONSTRUCTION IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY THAT THE BENCHMARKS ILLUSTRATED ON THIS SURVEY HAVE NOT BEEN DISTURBED AND THEIR ELEVATIONS HAVE BEEN CONFIRMED. ANY CONFLICTS MUST BE REPORTED PRIOR TO CONSTRUCTION. SURVEYOR IS NOT RESPONSIBLE FOR CONTRACTOR'S FAILURE TO COMPLY.

- THE OFFSETS SHOWN ARE NOT TO BE USED FOR THE CONSTRUCTION OF ANY STRUCTURE, FENCE, PERMANENT ADDITION, ETC.
- ANY DISCREPANCIES FOUND ON THE SURVEY SHOULD BE REPORTED TO THE SURVEYOR IMMEDIATELY.

- THIS SURVEY WAS PREPARED FOR THE CLIENT, & BOHLER, LLC AND INTENDED ONLY FOR THE USE BY THE CLIENT AS CONTRACTED FOR THE PROJECT AND THE PURPOSE ORIGINALLY INTENDED. NO FURTHER PARTIES OTHER THAN THOSE CERTIFIED HEREON SHALL RELY ON IT FOR ANY PURPOSE.
- THE PROPERTY HAS DIRECT VEHICULAR AND PEDESTRIAN ACCESS TO WINCHESTER STREET (VARIABLE WIDTH, PUBLIC RIGHT OF WAY).

- PROPOSED LEASE AREA NOT PROVIDED.
- THE LAND SHOWN ON THIS SURVEY IS THE SAME AS THAT DESCRIBED IN A TITLE REPORT PREPARED BY FIDELITY NATIONAL TITLE INSURANCE COMPANY, COMMITMENT NO. NH260029FTN, WITH AN EFFECTIVE DATE OF MARCH 5, 2026.

- BUILDING DIMENSIONS SHOWN HEREON ARE MEASURED AT GROUND LEVEL OF BUILDING EXTERIOR.
- THERE ARE A TOTAL OF 111 DESIGNATED PARKING SPACES, INCLUDING 02 HANDICAP SPACES. WITHIN THE TOPOGRAPHIC AREA SURVEY.

- ONLY LIMITED IMPROVEMENTS HAVE BEEN SHOWN FOR THE REMAINDER OF THE PROPERTY OUTSIDE OF THE TOPOGRAPHIC SURVEY AREA ON SHEET 2, OTHER IMPROVEMENTS HAVE NOT BEEN SHOWN.

WINCHESTER STREET
(PUBLIC - VARIABLE WIDTH ROW)
(AKA KEENE BY PASS)
(ASPHALT ROADWAY)

REFERENCES:

- THE TAX ASSESSOR'S MAP OF THE CITY OF KEENE, CHESHIRE COUNTY, MAP 111.
- MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM. FIRM FLOOD INSURANCE RATE MAP, CHESHIRE COUNTY, NEW HAMPSHIRE, (ALL JURISDICTIONS), PANEL 266 OF 610", MAP NUMBER 33005C0266E, EFFECTIVE DATE: MAY 23, 2006.
- MAP ENTITLED "ALTA / ACSM LAND TITLE SURVEY, PREPARED BY HOLDEN ENGINEERING & SURVEYING, DATED FEBRUARY 12, 2007, LAST REVISED MARCH, 2007, SHEET 2 OF 2.
- MAP ENTITLED "WINCHESTER STREET, RIGHT OF WAY PLAN OF A PORTION OF WINCHESTER STREET IN KEENE, N.H., PREPARED BY G&M ASSOCIATES, INC., DATED JULY 8, 2020, LAST REVISED OCTOBER 27, 2020. RECORDED WITH CHESHIRE COUNTY REGISTRY OF DEEDS AS PLAN # 21001. FIVE SHEETS.
- MAP ENTITLED "THOMAS J. & M. DORIS SHEEHAN 'WHITCOMB FARM', KEENE, NEW HAMPSHIRE," PREPARED BY R.K. PIPER, DATED SEPTEMBER, 1962.
- MAP ENTITLED "UNDERGROUND UTILITY FIELD SKETCH, 348 WINCHESTER STREET, KEENE, N.H., PREPARED BY VISIONARY SUBSURFACE SOLUTIONS, SUE PROJECT # 17-260299-00, DATED APRIL 17, 2026.
- MAP ENTITLED "PLAN OF LAND IN KEENE NEW HAMPSHIRE, PREPARED BY VANASSE HANGEN BRUSTLIN, INC., DATED FEBRUARY 23, 2004, LAST REVISED OCTOBER 27, 2020. RECORDED WITH CHESHIRE COUNTY REGISTRY OF DEEDS AS PLAN CAB 12 DR 9 # 123.
- MAP ENTITLED "3 LOT SUBDIVISION PREPARED FOR GRANITE BANK, PREPARED BY CLOUGH, HARBOUR & ASSOCIATES, DATED NOVEMBER 16, 1992, LAST REVISED JANUARY 28, 1993. RECORDED WITH CHESHIRE COUNTY REGISTRY OF DEEDS AS CAB 11 DR # 876.
- MAP ENTITLED "UTILITY PLAN, PREPARED BY CROSSMAN ENGINEERING, INC., DATED JULY, 2002, LAST REVISED JUNE 17, 2003.
- MAP ENTITLED "WINCHESTER STREET, KEY ROAD RELOCATION, NEW HAMPSHIRE PROJECT No. C-2433-C ROW PLAN, PREPARED BY DUFRESNE - HENRY ENGINEERING, CORP., DATED MARCH 14, 1979. SHEETS 4 AND 5 OF 9.

REFERENCES: (CONTINUED)

- MAP ENTITLED "ALTA / NSPS LAND TITLE SURVEY, RAISING CANE'S RESTAURANT, LLC, 348 WINCHESTER STREET, KEENE, N.H., PREPARED BY CONTROL POINT ASSOCIATES, INC., DATED APRIL 2, 2025.



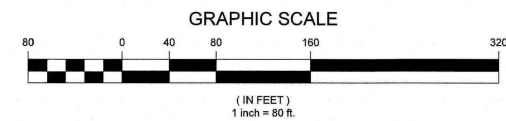
THE STATE OF NEW HAMPSHIRE REQUIRES NOTIFICATION BY EXCAVATORS, DESIGNERS, OR ANY PERSON PREPARING TO DISTURB THE EARTH'S SURFACE ANYWHERE IN THE STATE.

THIS SURVEY WAS PRODUCED WITH THE COLLABORATION AND SUPPORT OF THE FOLLOWING COMPANY:
UNDERGROUND UTILITY INFORMATION AND MARKOUT PERFORMED BY:
VISIONARY
SUBSURFACE SOLUTIONS

NEW HAMPSHIRE STATE
HIGHWAY ROUTE 12 & 101
(AKA KEENE BY PASS)
(PUBLIC - VARIABLE WIDTH ROW)

TWO WAY
TRAFFIC
(ASPHALT ROADWAY)

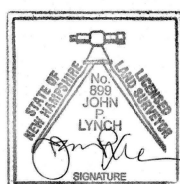
SEE SHEET 2 THRU 3 OF 3 FOR SITE FEATURES, TOPOGRAPHY & UTILITIES



THIS SURVEY IS CERTIFIED TO:
RIVERSIDE IMPROVEMENTS, LLC
FIDELITY NATIONAL TITLE INSURANCE COMPANY

THIS IS TO CERTIFY THAT THIS MAP OR PLAT AND THE SURVEY ON WHICH IT WAS BASED WERE MADE IN ACCORDANCE WITH THE "2026 MINIMUM STANDARD DETAIL REQUIREMENTS FOR ALTA/NSPS LAND TITLE SURVEYS", JOINTLY ESTABLISHED AND ADOPTED BY ALTA AND NSPS, AND INCLUDES ITEMS 2, 3, 4, 5, 7(a), 7(b), 7(c), & 9, 11(b), 13 & 14 OF TABLE A THEREOF. THE FIELD WORK WAS COMPLETED ON APRIL 21, 2026.

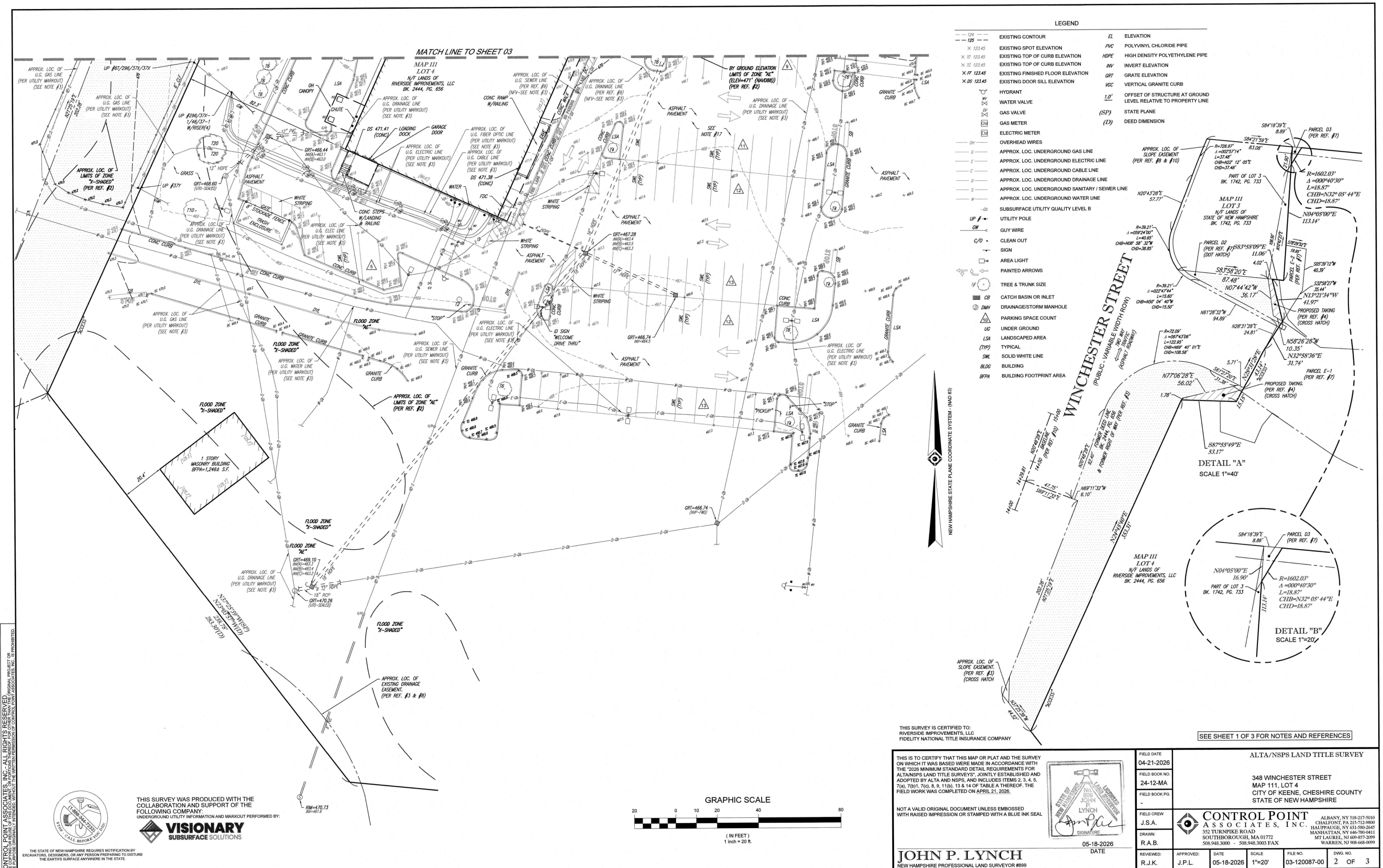
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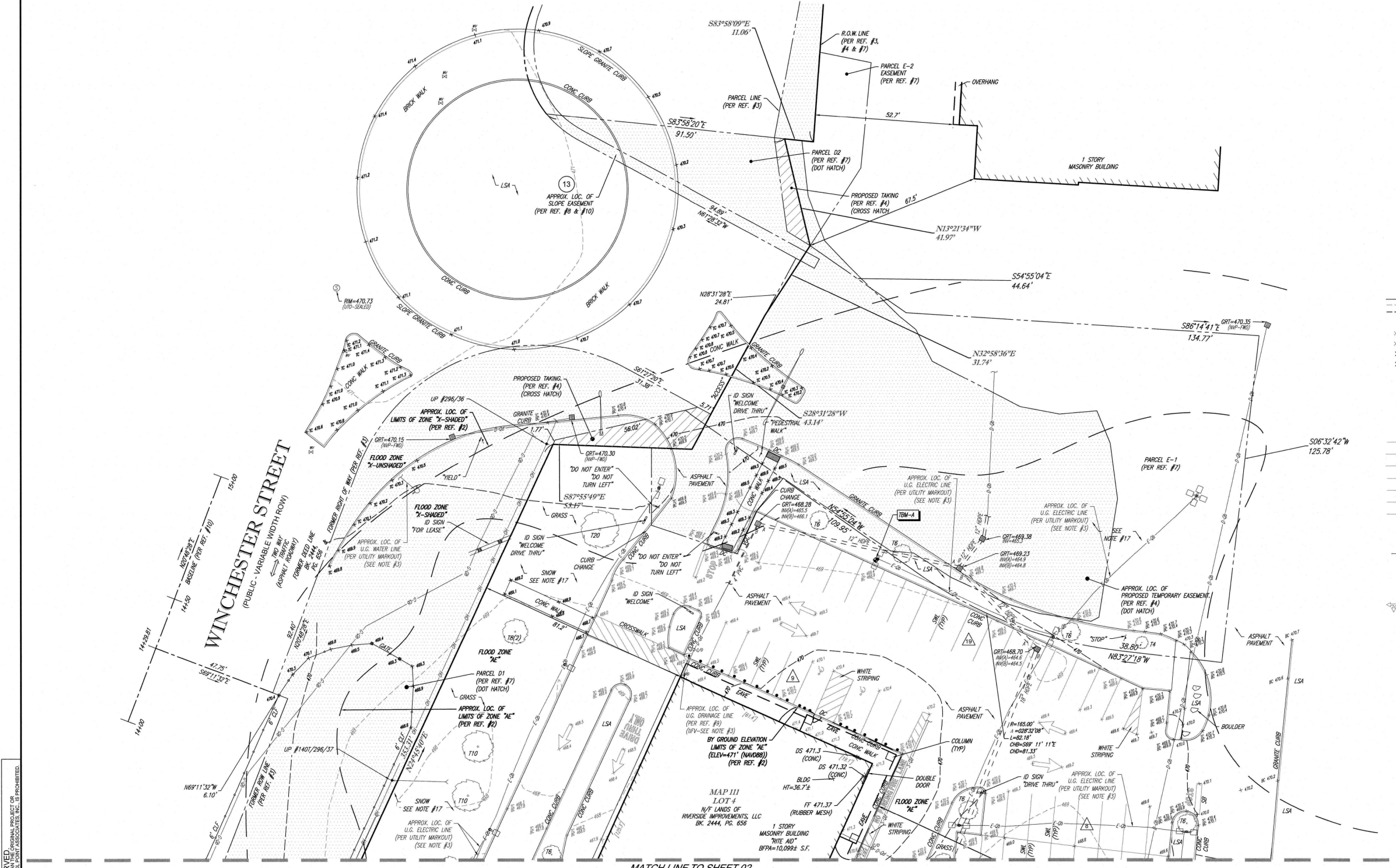


05-18-2026
DATE

JOHN P. LYNCH
NEW HAMPSHIRE PROFESSIONAL LAND SURVEYOR #899

ALTA/NSPS LAND TITLE SURVEY			
FIELD DATE	04-21-2026	348 WINCHESTER STREET MAP 111, LOT 4 CITY OF KEENE, CHESHIRE COUNTY STATE OF NEW HAMPSHIRE	
FIELD BOOK NO.	24-12-MA		
FIELD BOOK PG.	-		
FIELD CREW	J.S.A.	CONTROL POINT ASSOCIATES, INC. 352 TURNPIKE ROAD SOUTH BORO, MA 01772 508.345.3000 - 508.345.3005 FAX	
DRAWN	R.A.B.		
REVIEWED	R.J.K.		
APPROVED	J.P.L.	DATE	05-18-2026
SCALE	1"=80'	FILE NO.	03-120087-00
DWG. NO.	1 OF 3		





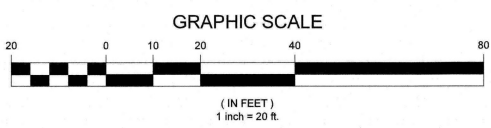
LEGEND		
---	EXISTING CONTOUR	EL ELEVATION
X 123.45	EXISTING SPOT ELEVATION	PVC POLYVINYL CHLORIDE PIPE
X TC 123.45	EXISTING TOP OF CURB ELEVATION	HDPE HIGH DENSITY POLYETHYLENE PIPE
X TC 123.45	EXISTING TOP OF CURB ELEVATION	INV INVERT ELEVATION
X FF 123.45	EXISTING FINISHED FLOOR ELEVATION	GRT GRATE ELEVATION
X DS 123.45	EXISTING DOOR SILL ELEVATION	VGC VERTICAL GRANITE CURB
HY	HYDRANT	1.0' OFFSET OF STRUCTURE AT GROUND LEVEL RELATIVE TO PROPERTY LINE
WV	WATER VALVE	(SP) STATE PLANE
GV	GAS VALVE	(D) DEED DIMENSION
GM	GAS METER	
EM	ELECTRIC METER	
OH	OVERHEAD WIRES	
---	APPROX. LOC. UNDERGROUND GAS LINE	
---	APPROX. LOC. UNDERGROUND ELECTRIC LINE	
---	APPROX. LOC. UNDERGROUND CABLE LINE	
---	APPROX. LOC. UNDERGROUND DRAINAGE LINE	
---	APPROX. LOC. UNDERGROUND SANITARY / SEWER LINE	
---	APPROX. LOC. UNDERGROUND WATER LINE	
---	SUBSURFACE UTILITY QUALITY LEVEL B	
UP	UTILITY POLE	
GW	GUY WIRE	
C/O	CLEAN OUT	
---	SIGN	
---	AREA LIGHT	
---	PAINTED ARROWS	
---	TREE & TRUNK SIZE	
CB	CATCH BASIN OR INLET	
DMH	DRAINAGE/STORM MANHOLE	
10	PARKING SPACE COUNT	
UG	UNDER GROUND	
LSA	LANDSCAPED AREA	
(TYP)	TYPICAL	
SWL	SOLID WHITE LINE	
BLDG	BUILDING	
BFP	BUILDING FOOTPRINT AREA	

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VISIONARY SUBSURFACE SOLUTIONS

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MATCH LINE TO SHEET 02

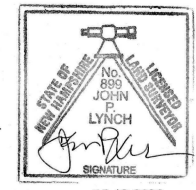


THIS SURVEY IS CERTIFIED TO:
RIVERSIDE IMPROVEMENTS, LLC
FIDELITY NATIONAL TITLE INSURANCE COMPANY

SEE SHEET 1 OF 3 FOR NOTES AND REFERENCES

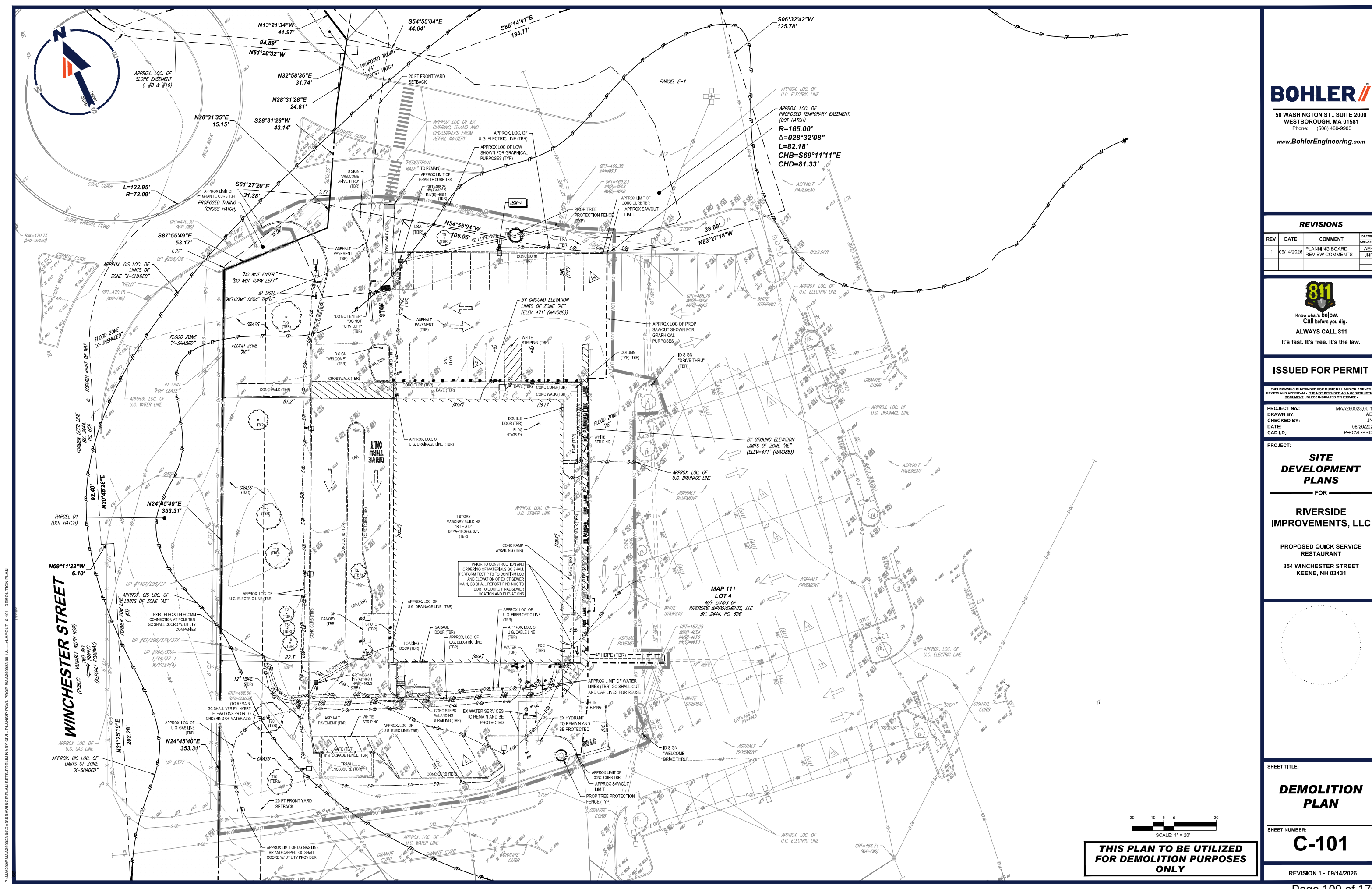
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JOHN P. LYNCH
NEW HAMPSHIRE PROFESSIONAL LAND SURVEYOR #899

FIELD DATE 04-21-2026		ALTA/NSPS LAND TITLE SURVEY			
FIELD BOOK NO. 24-12-MA		348 WINCHESTER STREET MAP 111, LOT 4 CITY OF KEENE, CHESHIRE COUNTY STATE OF NEW HAMPSHIRE			
FIELD BOOK PG. -					
FIELD CREW J.S.A.		 CONTROL POINT ASSOCIATES, INC. 352 TURNPIKE ROAD SOUTHBOROUGH, MA 01772 508.948.3000 - 508.948.3003 FAX		ALBANY, NY 518-217-5010 CHALFONT, PA 215-712-9600 HAUPPAUGE, NY 631-580-2645 MANHATTAN, NY 646-780-0411 MT LAUREL, NJ 608-857-2009 WARREN, NJ 908-668-0099	
DRAWN: R.A.B.					
REVIEWED: R.J.K.	APPROVED: J.P.L.	DATE 05-18-2026	SCALE 1"=20'	FILE NO. 03-120087-00	DWG. NO. 3 OF 3



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REV	DATE	COMMENT	DRAWN BY	CHECKED BY
1	09/14/2026	PLANNING BOARD REVIEW COMMENTS	AEH	JNF

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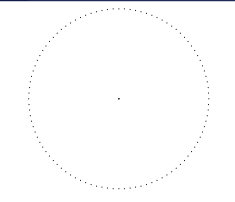
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PROJECT No.: MAA260023.00-1A
DRAWN BY: AEH
CHECKED BY: JNF
DATE: 08/20/2026
CAD I.D.: P-PCVL-PROP

PROJECT:
SITE DEVELOPMENT PLANS
FOR
RIVERSIDE IMPROVEMENTS, LLC

PROPOSED QUICK SERVICE RESTAURANT
354 WINCHESTER STREET
KEENE, NH 03431



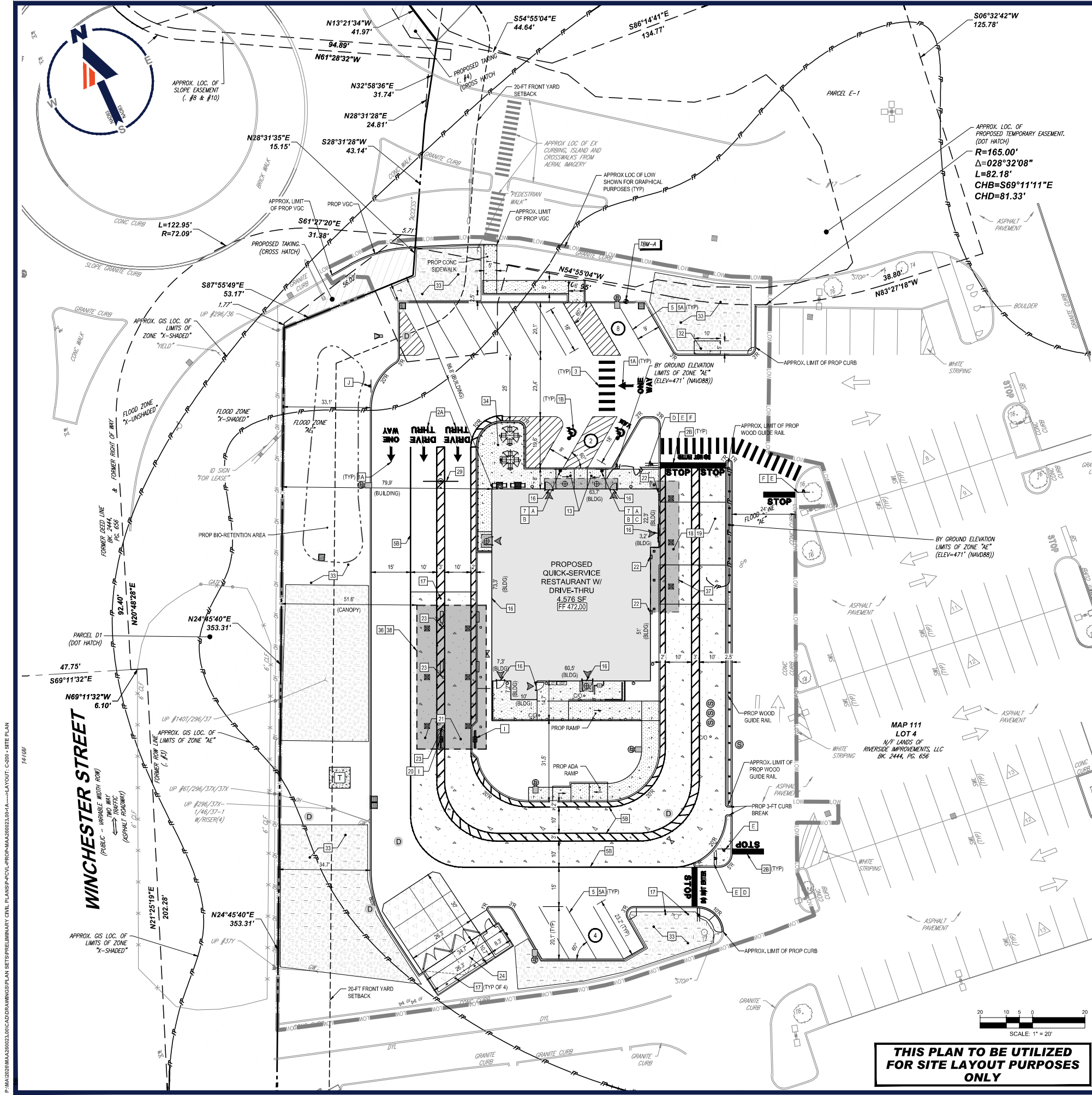
SHEET TITLE:
DEMOLITION PLAN

SHEET NUMBER:
C-101

REVISION 1 - 09/14/2026

THIS PLAN TO BE UTILIZED FOR DEMOLITION PURPOSES ONLY

P:\MAA260023\00-1A\DRAWINGS\PLAN SETS\PRELIMINARY CIVIL\PLANS\PROP-PCVL-PROP-MAA260023.00-1A-DEMOLITION PLAN



HATCH LEGEND

[Symbol]	BUILDING
[Symbol]	CANOPY
[Symbol]	CONCRETE SIDEWALK AND IRRIGATION PROTECTION
[Symbol]	PAVEMENT DRIVE-THRU LANE
[Symbol]	CONCRETE APRON AT TRASH ENCLOSURE
[Symbol]	SNOW STORAGE AREA

SIGN LEGEND

- ** CONTRACTOR TO REFER TO THE SIGNAGE PACKAGE FOR PLACEMENT AND SPECIFICATIONS OF ALL SIGNS
- A HANDICAP PARKING SIGN: MUTCD R7-8, 12" X 18" (TYP)
 - B HANDICAP PARKING FINE SIGN: 6" X 12" (TYP)
 - C "VAN ACCESSIBLE" SIGN: MUTCD R7-8P, 6" X 12" (TYP)
 - D "DO NOT ENTER" SIGN: MUTCD R5-1, 24" X 24" (TYP)
 - E "STOP" SIGN: MUTCD R1-1, 30" X 30" (TYP)
 - F RESTAURANT BRANDED PEDESTRIAN CROSSING SIGN
 - G FLAG POLE
 - H RESTAURANT BRANDED MONUMENT OR PYLON SIGN
 - I DIGITAL DRIVE-THRU MENU BOARDS
 - J "ONE WAY" SIGN

KEYNOTE LEGEND

- 1A DIRECTIONAL ARROW
- 1B 48" ACCESSIBLE SYMBOL
- 2A DRIVE-THRU
- 2B STOP BAR
- 3 CROSSWALK MARKINGS
- 4A MULTI-LANE SPLIT
- 4B MULTI-LANE MERGE
- 5 PARKING STALL LAYOUT AND STRIPING
- 5A 4" SOLID WHITE STRIPING
- 5B 4" SOLID YELLOW STRIPING
- 5C 4" SKIP DASH YELLOW STRIPING
- 6 SOLID PLASTIC WHEEL STOP
- 7 BOLLARD MOUNTED SIGN
- 8 CURB RAMP w/ SHORT FLARED SIDES
- 9 CURB RAMP w/ FLARED SIDES
- 10 RETURNED CURB HANDICAP RAMP
- 11 CURB OPENING
- 12 CURB TRANSITION
- 13 SIDEWALK ACCESSIBLE RAMP
- 14 DETECTABLE WARNING DEVICE
- 15 TYPICAL ADA RAMP AND HANDRAIL
- 16 ENTRY DOOR FROST SLAB
- 17 CONCRETE BOLLARD
- 18 DRIVE-THRU PLAN - FLUSH WITH FFE
- 19 DRIVE-THRU ISOMETRIC
- 20 DRIVE-THRU ORDER POINT ISLAND
- 21 MENU BOARD LOOP DETECTION SYSTEM
- 22 BUILDING DOWNSPOUT CONNECTION
- 23 CANOPY DOWNSPOUT CONNECTION
- 24 SCREENED REFUSE ENCLOSURE (REFER TO ARCH PLANS FOR ADDITIONAL DETAILS)
- 25 CLEAN-OUT (OUTSIDE OF BUILDING)
- 26 TRENCH BACKFILL
- 27 STORM STRUCTURE WEEP HOLE DETAILS
- 28 ALUMINUM HANDRAIL (REFER TO ARCH PLANS)
- 29 DRIVE-THRU CLEARANCE BAR (REFER TO SIGNAGE PACKAGE)
- 30 GREASE TRAP (REFER TO ARCH PLANS)
- 31 PROPOSED TRANSFORMER
- 32 BIKE RACK
- 33 LANDSCAPED AREA
- 34 TYPICAL LOCATION FOR OUTDOOR TABLES (REFER TO ARCH PLANS)
- 35 CONCRETE PAD FOR OPTIONAL CASH STATION
- 36 FREE-STANDING ORDER POINT CANOPY (REFER TO CANOPY PLANS)
- 37 FREE-STANDING OUTSIDE MEAL DELIVERY CANOPY (REFER TO CANOPY PLANS)
- 38 ORDER POINT PLAN

ZONING TABLE				
ZONE: COMMERCE USE: QUICK-SERVE RESTAURANT MAP: 111 LOT(S): 004				
APPLICANT/ OWNER INFORMATION				
PROPERTY OWNER:	RIVERSIDE IMPROVEMENTS, LLC 354 WINCHESTER STREET KEENE, NH 03431			
BULK REQUIREMENTS				
ITEM	CODE	PERMITTED	EXISTING	PROPOSED
MIN LOT AREA	5.1,2	15,000 SF (0.34 AC)	899,023 SF (20.64 AC)	NO CHANGE
MIN LOT FRONTAGE	5.1,2	50.0'	268.0'	NO CHANGE
MIN YARD SETBACKS				
FRONT YARD	5.1,2	20.0'	81.2'	79.9'
SIDE YARD	5.1,2	20.0'	87.2'	86.8'
REAR YARD	5.1,2	20.0'	N/A	N/A
MAX PERMITTED HEIGHT	5.1,2	42.0' (3 STORIES)	1 STORY	1 STORY
MAX LOT COVERAGE	5.1,2	80%		
MIN PARKING SETBACKS				
FRONT	9.4,2 (9-2)	10.0'	78.9'	45.3'
SIDE/REAR	9.4,2 (9-2)	8.0'	34.3'	11.6'
			KEY =	VARIANCE REQUIRED

PARKING REQUIREMENTS				
ITEM	CODE	REQUIRED	EXISTING	PROPOSED
MIN STALL SIZE	§ 9.4,2 TABLE 9-1	9' X 18'	9' X 18'	9' X 18'
MIN ADA STALL SIZE		8' X 18'	8' X 18'	8' X 18'
MIN NUMBER OF STALLS	§ 9.2 TABLE 9-1	15	98	15+
MIN NUMBER OF ADA STALLS		2	2	2
RESTAURANT: REQUIRED FOR USE = 1 SPACE / 5 SEATS 74 TOTAL SETS * 1 SPACE / 5 SEATS = 14.8 = 15 TOTAL SPACES REQUIRED				

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REV	DATE	COMMENT	DRAWN BY
1	09/14/2026	PLANNING BOARD REVIEW COMMENTS	AEH

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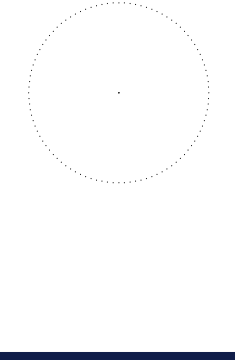
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PROJECT No.:	MAA260023,00-1A
DRAWN BY:	JNF
CHECKED BY:	JNF
DATE:	08/20/2026
CAD I.D.:	P-PCVL-PROP

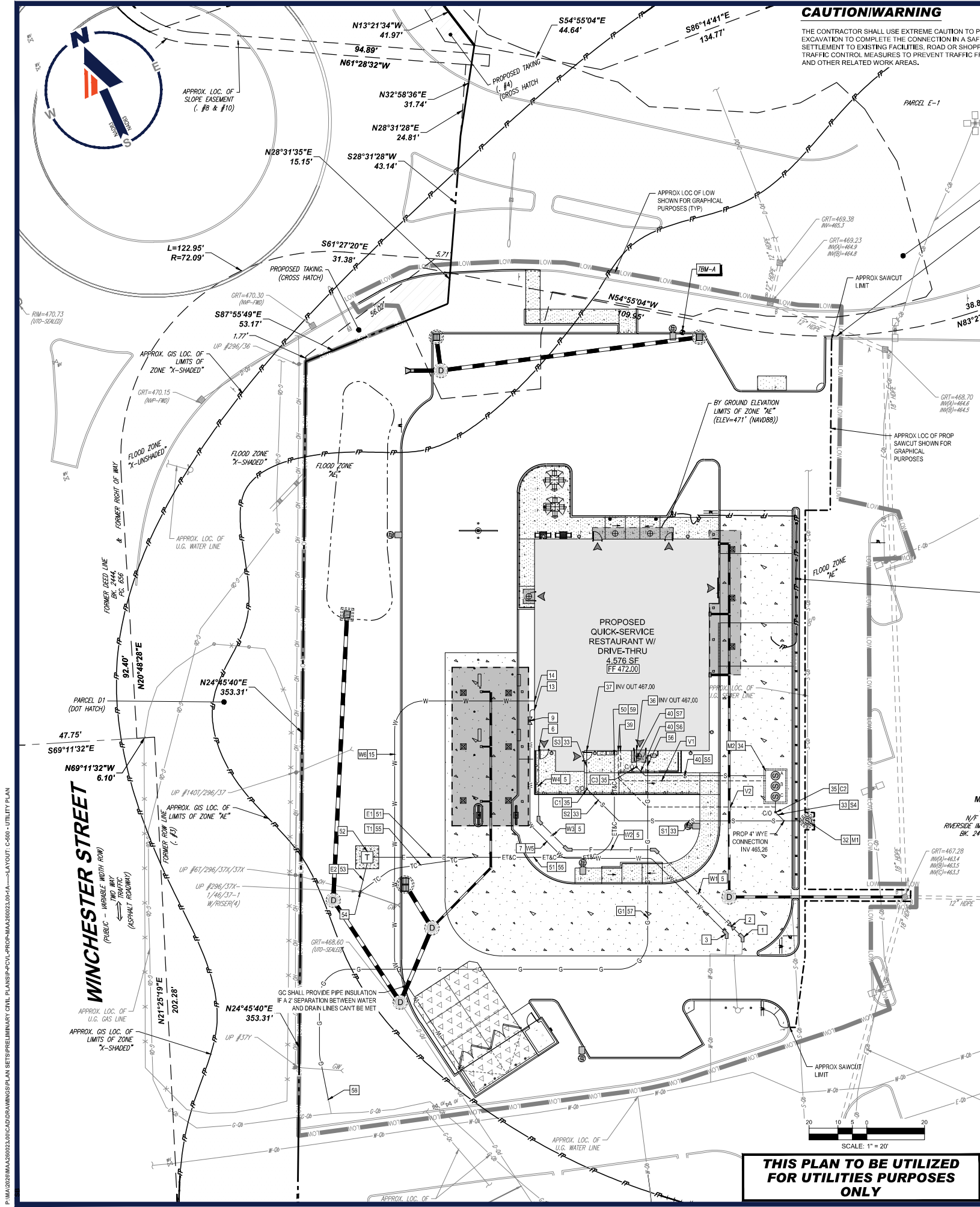
PROJECT: **SITE DEVELOPMENT PLANS** FOR

RIVERSIDE IMPROVEMENTS, LLC

PROPOSED QUICK SERVICE RESTAURANT
354 WINCHESTER STREET
KEENE, NH 03431



SHEET TITLE: **SITE PLAN**
SHEET NUMBER: **C-200**
REVISION 1 - 09/14/2026



CAUTION/WARNING

THE CONTRACTOR SHALL USE EXTREME CAUTION TO PROPERLY SHEET, SHORE, AND DEWATER EXCAVATION TO COMPLETE THE CONNECTION IN A SAFE MANNER, AND WITHOUT DAMAGE OR SETTLEMENT TO EXISTING FACILITIES, ROAD OR SHOPPING CENTER DRIVE, PROVIDE THE NECESSARY TRAFFIC CONTROL MEASURES TO PREVENT TRAFFIC FROM DRIVING TOO CLOSE TO THE EXCAVATIONS AND OTHER RELATED WORK AREAS.

UTILITY NOTES:

- PRIOR TO THE CONSTRUCTION OF OR CONNECTION TO ANY STORM DRAIN, SANITARY SEWER, WATER MAIN OR ANY OF THE DRY UTILITIES, THE CONTRACTOR SHALL HAND EXCAVATE, VERIFY AND CALCULATE ALL POINTS OF CONNECTION AND ALL UTILITY CROSSINGS AND INFORM THE OWNER/DEVELOPER OF ANY CONFLICT OR REQUIREMENTS FROM THE PLAN. NOTIFICATION TO THE CITY OF KEENE SHALL BE MADE A MINIMUM OF 48 HOURS PRIOR TO CONSTRUCTION, OWNER/DEVELOPER AND ARCHITECT SHALL BE HELD HARMLESS IN THE EVENT THAT THE CONTRACTOR FAILS TO MAKE SUCH NOTIFICATION.
- LOCATION OF ALL EXISTING AND PROPOSED UTILITY LOCATIONS ARE APPROXIMATE AND MUST BE CONFIRMED INDEPENDENTLY WITH LOCAL UTILITY COMPANIES PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION OR EXCAVATION. SANITARY SEWER AND ALL OTHER UTILITY SERVICES CONNECTION POINTS SHALL BE CONFIRMED INDEPENDENTLY BY THE CONTRACTOR INFELD PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. ALL DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE ENGINEER. CONSTRUCTION SHALL COMMENCE BEGINNING AT THE LOWEST POINTS, CROSSINGS WITH EXISTING UNDERGROUND INSTALLATIONS SHALL BE FIELD VERIFIED BY TEST PIT PRIOR TO COMMENCEMENT OF CONSTRUCTION.
- ALL UTILITY DISCONNECTIONS SHALL BE COORDINATED WITH THE DESIGNATED UTILITY COMPANIES. DISCONNECTIONS SHALL NOT BE CONDUCTED BY CONTRACTOR, ALL STORM DRAIN, WATER, SEWER AND PRODUCT PIPING UTILITIES SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF KEENE, NH STANDARDS AND SPECIFICATION FOR UTILITY CONSTRUCTION.
- A MINIMUM VERTICAL SEPARATION OF 12 INCHES SHALL BE MAINTAINED BETWEEN SANITARY SEWER LINES AND STORM LINES OR WATER LINES. IF THIS MINIMUM CLEARANCE CANNOT BE MAINTAINED, A CONCRETE ENCASEMENT SHALL BE PROVIDED.
- ANY SEDIMENT CONTROL MEASURES REMOVED FOR THE PURPOSE OF UTILITY CONSTRUCTION SHALL BE REPLACED AT THE END OF THE DAY BY THE UTILITY CONTRACTORS.
- SANITARY CLEANOUT TOPS TO BE ADJUSTED TO MATCH CROSS-PITCH AND SLOPE OF PROPOSED GRADES. CLEANOUT TOPS TO BE IDENTIFIED AS SANITARY CLEANOUTS, THREADED AND CONTAIN COUNTERSUNK PLUGS.
- WATER SERVICES SHALL BE INSTALLED IN ACCORDANCE WITH NFPA AND BURIED A MINIMUM 48" BELOW GRADE.
- WATER SERVICE SHALL BE A 1-1/2" INCH TYPE "K" COPPER TUBING. SANITARY SEWER PIPE SHALL BE A 36 (8) INCH PVC SCH 40 AT CONNECTION OF KITCHEN WASTE AND RESTROOM WASTE. SEWER SERVICES TO BE 4 (4) INCH PVC SCH 40 AT CONNECTIONS AT BUILDING. WATER AND SEWER SERVICES SHALL BE COORDINATED WITH THE BUILDING CONTRACTOR FOR HORIZONTAL AND VERTICAL ALIGNMENT AND CONNECTIONS.
- ALL FILL, COMPACTION AND BACKFILL MATERIALS REQUIRED FOR UTILITY INSTALLATION SHALL BE AS PER THE RECOMMENDATIONS PROVIDED IN THE GEOTECHNICAL REPORT AND SHALL BE COORDINATED WITH THE APPLICABLE UTILITY COMPANY SPECIFICATIONS.
- SEE ARCHITECTURAL PLANS FOR GREASE TRAP DETAILS.
- ALL PIPES UNDER PRESSURE SHALL BE CONNECTED WITH WATER TIGHT JOINTS. INSPECTOR SHALL VERIFY MATERIALS AND INSPECT PRESSURE TREATED PIPE PRIOR TO COVERING UP OR PRESSURE TEST PIPE PER COUNTY STANDARDS.

FINISHED GRADING COORDINATION

THE SITE UTILITY CONTRACTOR SHALL COORDINATE THE INSTALLATION OF NEW UTILITIES WITH FINISHED GRADING AND DRAINAGE FACILITIES AS INDICATED ON THE SITE GRADING AND DRAINAGE PLAN. MINOR ADJUSTMENTS TO THE TOP ELEVATION OF NEW UTILITIES MAY BE NECESSARY.

NOTICE:

THE CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS FOR THE EXACT LOCATION AND DIMENSIONS OF VESTIBULE, EXIT PORCHES, DOORS, RAMPS, SERVICE AREA, BUILDING DIMENSIONS AND THE EXACT LOCATION OF UTILITY CONNECTIONS.

NOTICE: INSTALLATION OF BLANK CONDUIT

BLANK CONDUIT SLEEVES SHALL BE FOUR (4) INCH SCH 40 PVC UNLESS NOTED OTHERWISE. SLEEVES SHALL BE BURIED A MINIMUM OF 24 INCHES BELOW FINISHED GRADE. DEEPER BURIAL SHALL BE SPECIFICALLY COORDINATED WITH ALL EXISTING OR PROPOSED UNDERGROUND UTILITIES AND DRAINAGE FACILITIES AT ALL CROSSINGS. CONDUITS SHALL BE PROVIDED WITH REMOVABLE PLUG AT EACH END, MARK EACH END WITH 2" X 4" POST AT EACH END (PAINTED YELLOW).

NOTICE: EXISTING UTILITY LOCATIONS

PRIOR TO EXCAVATION AND INSTALLATION OF ANY UNDERGROUND UTILITY, STORM DRAINAGE FACILITIES, GRADING AND PAVING, AND OTHER RELATED CONSTRUCTION ACTIVITY, THE CONTRACTOR SHALL CONTACT THE LOCAL UTILITY LOCATING COMPANY. THE CONTRACTOR SHALL ALSO BE REQUIRED TO COORDINATE DIRECTLY (AS NECESSARY) WITH EACH APPLICABLE UTILITY AGENCY FOR APPROPRIATE FIELD LOCATION MARKING. THE CONTRACTOR SHALL BE RESPONSIBLE TO ASSURE THAT ALL EXISTING UTILITIES HAVE BEEN LOCATED AND MARKED TO PERFORM THE WORK IN A SAFE MANNER WITHOUT DAMAGE TO EXISTING UTILITIES.

THE CONTRACTOR SHALL VERIFY THE LOCATION, DIAMETER, PIPE MATERIAL AND ELEVATION OF EXISTING UTILITIES AND STRUCTURES, AS APPLICABLE, PRIOR TO CONSTRUCTION.

PIPE DATA TABLE

PIPE #	PIPE TYPE/SIZE	PIPE LENGTH	SLOPE
W1	PROPOSED 6" DIP WATER MAIN	43 LF	N/A
W2	PROPOSED 6" DIP WATER MAIN	30 LF	N/A
W3	PROPOSED 6" DIP WATER MAIN	14 LF	N/A
W4	PROPOSED 6" DIP WATER MAIN	24 LF	N/A
W5	PROPOSED 2" PE WATER MAIN	124 LF	N/A
W6	PROPOSED 3" SERVICE	188 LF	N/A
S1	PROPOSED 4" PVC SANITARY PIPE	65 LF	2.00%
S2	PROPOSED 4" PVC SANITARY PIPE	16 LF	2.00%
S3	PROPOSED 4" PVC SANITARY PIPE	14 LF	2.00%
S4	PROPOSED 4" PVC SANITARY PIPE	8 LF	2.00%
S5	PROPOSED 4" PVC SANITARY PIPE	42 LF	2.50%
S6	PROPOSED 4" PVC SANITARY PIPE	51 LF	2.50%
S7	PROPOSED 4" PVC SANITARY PIPE	6 LF	2.50%
V1	PROPOSED 2" PVC VENT DISCHARGE PIPE	60 LF	N/A
V2	PROPOSED 2" PVC VENT DISCHARGE PIPE	69 LF	N/A
E1	PROPOSED SECONDARY ELECTRIC SERVICE LINE	115 LF	N/A
E2	PROPOSED PRIMARY ELECTRIC SERVICE LINE	11 LF	N/A
T1	PROPOSED TELEPHONE LINE	121 LF	N/A
G1	PROPOSED GAS SERVICE LINE	222 LF	N/A

WATER UTILITY KEYNOTE LEGEND

- PROPOSED 6" TAPPING SLEEVE, CONTRACTOR SHALL COORDINATE WITH THE CITY OF KEENE FOR INSTALLATION OF WATER SERVICE TAP, CONTRACTOR'S BID PRICE SHALL INCLUDE THE COST OF THE WORK PERFORMED BY THE CITY (INCLUDING TAP FEES), TAPS SHALL BE MADE INITIALLY IN CONTRACTOR'S NAME AND TRANSFERRED AT PROJECT COMPLETION.
- PROPOSED 6" GATE VALVE
- PROPOSED 2" TAPPING SLEEVE
- PROPOSED 6" DDCVA
- PROPOSED 6" DIP WATER LINE FOR SPRINKLER SYSTEM (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED FIRE SERVICE POC FOR SPRINKLER LINE (SEE ARCH PLANS FOR CONTINUATION)
- PROPOSED 2" PE WATER MAIN (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED 2"X2" TEE
- PROPOSED 2" GATE VALVE
- PROPOSED 1.5" WATER METER FOR DOMESTIC WATER SUPPLY, CONTRACTOR SHALL COORDINATE WITH THE KEENE WATER DEPARTMENT FOR INSTALLATION OF WATER SERVICE TAP, WATER METER, AND METER BOX. CONTRACTOR'S BID PRICE SHALL INCLUDE THE COST OF THE WORK PERFORMED BY THE CITY (INCLUDING TAP FEES), TAPS SHALL BE MADE INITIALLY IN CONTRACTOR'S NAME AND TRANSFERRED AT PROJECT COMPLETION. DOMESTIC WATER LINE SHALL BE TYPE K COPPER.
- PROPOSED 1.5" BACKFLOW PREVENTER, THE CONTRACTOR SHALL INSTALL A BACKFLOW PREVENTER (FBCO, WATTS, OR APPROVED EQUAL) FOR EACH WATER SERVICE LINE AS INDICATED ON THE DRAWINGS. INSTALLATION SHALL INCLUDE BOX OR VAULT, AS APPLICABLE. THE CONTRACTOR SHALL COORDINATE WITH THE KEENE WATER DEPARTMENT FOR INSPECTION, TESTING, AND CERTIFICATION OF ALL BACKFLOW PREVENTERS. ALL BACKFLOW DEVICES SHALL BE INSTALLED IN ACCORDANCE WITH THE KEENE DPW STANDARDS/SPECIFICATIONS. CONTRACTOR'S BID PRICE SHALL INCLUDE ALL COSTS ASSOCIATED WITH DEVICE INSTALLATION, INSPECTION, TESTING, CERTIFICATION, ETC., TO INCLUDE ANY FEES REQUIRED BY THE CITY OF KEENE, NH.
- PROPOSED 2" DOMESTIC WATER SERVICE LINE CONNECTION LOCATION AT BUILDING, SITE UTILITY CONTRACTOR SHALL INSTALL DOMESTIC WATER SERVICE LINE FROM THE EXISTING WATER MAIN TO THE MAIN BUILDING CUTOFF VALVE, (SEE ARCHITECT PLUMBING PLAN), (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED 2" WATER SERVICE POC, (SEE ARCH PLANS FOR CONTINUATION)
- PROPOSED 3/4" WATER SERVICE POC, (SEE ARCH PLANS FOR CONTINUATION)
- PROPOSED 3/4" CW TO DUMPSTER POST HYDRANT, (PLEASE SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED 2" 90° BEND
- PROPOSED 1" WATER METER ASSEMBLY FOR IRRIGATION WATER SUPPLY, ON-SITE IRRIGATION LINES AND MATERIALS SHALL BE INSTALLED BY THE IRRIGATION CONTRACTOR AS INDICATED ON THE IRRIGATION PLAN.
- PROPOSED 1.5" BACKFLOW PREVENTER FOR IRRIGATION SERVICE.

SANITARY UTILITY KEYNOTE LEGEND

- PROPOSED CONNECTION TO EXISTING SANITARY MANHOLE, THE CONTRACTOR SHALL PROVIDE THE NECESSARY FITTINGS TO CONNECT THE NEW SERVICE LINE EXTENSION TO THE EXISTING SEWER MANHOLE. THE CONTRACTOR SHALL VERIFY SIZE, LOCATION, MATERIAL AND INVERT ELEVATION PRIOR TO INSTALLING ANY SEWER FACILITIES, MINOR ADJUSTMENTS TO THE NEW SERVICE LINE INVERT ELEVATION MAY BE NECESSARY DEPENDING UPON FIELD MEASUREMENTS.
- PROPOSED 6" PVC SCH 40 SANITARY SERVICE LINE (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED 4" DIA SANITARY MANHOLE (SEE STRUCTURE DATA TABLE FOR ELEVATION DETAILS)
- PROPOSED 4" SEWER SERVICE LINE AND CLEANOUT FROM RESTROOM FACILITIES TO BE INSTALLED BY SITE UTILITY CONTRACTOR, COORDINATE INSTALLATION WITH BUILDING CONTRACTOR AND ARCHITECTURAL PLUMBING PLANS. SHALL BE PASS GREASE TRAP AND CONNECT BEYOND THE OUTLET SIDE, (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED GREASE TRAP TO BE INSTALLED BY SITE UTILITY CONTRACTOR, COORDINATE INSTALLATION WITH BUILDING CONTRACTOR AND ARCHITECTURAL PLUMBING PLANS. CONNECT RESTROOM SERVICE LINE DOWNSTREAM OF GREASE TRAP OUTLET SIDE AT INVERT ELEVATION INDICATED, COORDINATE TOP ELEVATION OF GREASE TRAP WITH DRIVEWAY PAVEMENT ELEVATION.
- PROPOSED SANITARY CLEAN OUT, USE TRAFFIC RATED CLEANOUT IN ALL PAVEMENT AREAS AS REQUIRED, (SEE STRUCTURE DATA TABLE FOR ELEVATION DETAILS)
- PROPOSED GREASE TRAP SERVICE POC, (SEE ARCH PLANS FOR CONTINUATION)
- PROPOSED SANITARY SERVICE POC, (SEE ARCH PLANS FOR CONTINUATION)
- PROPOSED 2" VENT LINE TO BE INSTALLED BY SITE UTILITY CONTRACTOR, (SEE ARCHITECT PLUMBING PLANS) (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED 2" VENT POC, (SEE ARCH PLANS FOR CONTINUATION)
- PROPOSED 4" KITCHEN WASTE LINE, INSTALL CLEANOUT APPROXIMATELY 6' FROM FACE OF BUILDING, COORDINATE WITH BUILDING CONTRACTOR AND ARCHITECTURAL PLUMBING PLANS, (SEE PIPE DATA TABLE FOR LENGTHS)

ELECTRIC/GAS UTILITY KEYNOTE LEGEND

- PROPOSED ELECTRIC SERVICE POC, (SEE ARCH PLANS FOR CONTINUATION), ELECTRICAL SERVICE LINE CONNECTION AT BUILDING, CONTRACTOR SHALL INSTALL 4" DIAMETER SCH 40 PVC CONDUIT WITH PULL WIRE FROM EXISTING ELECTRICAL FACILITIES WITHIN THE RIGHT-OF-WAY TO THE TRANSFORMER AND ELECTRICAL PULL BOX LOCATED BEHIND THE SERVICE AREA, COORDINATE CROSSING OF OTHER UTILITIES. CONDUIT SHALL BE BURIED A MINIMUM OF 36" BELOW FINISHED GRADE. ABRUPT BENDS SHALL NOT BE ALLOWED, USE LONG SWEEP ELBOWS AND OTHER NECESSARY FITTINGS TO PROVIDE GRADUAL CHANGES IN DIRECTION, ELECTRIC SERVICE INSTALLATION TO BE COORDINATED WITH LOCAL ELECTRIC COMPANY.
- PROPOSED SECONDARY ELECTRIC SERVICE LINE, 4" DIAMETER, SCH 40 PVC CONDUIT (TYP), SEE BLANK CONDUIT INSTALLATION NOTE, (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED TRANSFORMER AND PAD
- PROPOSED PRIMARY ELECTRIC SERVICE LINE, 4" DIAMETER, SCH 40 PVC CONDUIT (TYP), SEE BLANK CONDUIT INSTALLATION NOTE, (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED CONNECTION TO EXISTING TELEPHONE/ELECTRIC POLE
- INSTALL 2" SCH 40 PVC CONDUIT WITH PULL WIRE AND PULL BOX FOR TELEPHONE SERVICE LINE INSTALLATION, USE LONG SWEEP RADIUS AT 90° AND 45° BENDS TO AVOID ABRUPT CHANGES IN DIRECTION, COORDINATE WITH TELEPHONE COMPANY FOR SPECIFIC LOCATION OF CONDUIT AT THE EXISTING PEDESTAL, (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED GAS SERVICE POC, (SEE ARCH PLANS FOR CONTINUATION)
- GAS SERVICE LINE AND METER INSTALLATION LOCATION, SEE ARCHITECTS PLUMBING PLANS FOR SIZE REQUIREMENTS AND EXACT CONNECTION LOCATION, COORDINATE WITH GAS COMPANY FOR GAS SERVICE LINE INSTALLATION, (SEE PIPE DATA TABLE FOR LENGTHS)
- PROPOSED CONNECTION TO EXISTING GAS LINE, (CONTRACTOR TO VERIFY SIZE AND LOCATION PRIOR TO MAKING CONNECTION)
- TELEPHONE SERVICE CONNECTION LOCATION AT BUILDING, COORDINATE WITH BUILDING CONTRACTOR AND ARCHITECTURAL PLANS.

IRRIGATION KEYNOTE LEGEND

- BLANK CONDUIT SLEEVE FOR IRRIGATION SERVICE, (REFER TO IRRIGATION PLANS FOR FULL DESIGN)

STRUCTURE DATA TABLE

STRUCTURE #	STRUCTURE TYPE/SIZE	GRATE/RIM ELV	INV ELV IN	INV ELV OUT
M1	PROPOSED 4" DIA SANITARY MANHOLE	468.43'	465.10'	465.00± (VIF)
M2	PROPOSED 1,500 GAL GREASE TRAP	A 468.34' B 468.22' C 469.11'	465.67'	465.42'
C1	PROPOSED SANITARY CLEAN OUT (CAST IRON)	471.86'	466.72'	466.72'
C2	PROPOSED SANITARY CLEAN OUT (CAST IRON)	468.91'	465.35'	465.35'
C3	PROPOSED SANITARY CLEAN OUT (CAST IRON)	471.93'	466.85'	466.85'

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REV	DATE	COMMENT	DRAWN BY	CHECKED BY
1	09/14/2026	PLANNING BOARD REVIEW COMMENTS	AEH	JNF



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PROJECT No.: MA260023.00-1A
DRAWN BY: ACH
CHECKED BY: JNF
DATE: 08/20/2026
CAD I.D.: P-PCV-PROP

PROJECT:

SITE DEVELOPMENT PLANS

RIVERSIDE IMPROVEMENTS, LLC

PROPOSED QUICK SERVICE RESTAURANT

354 WINCHESTER STREET
KEENE, NH 03431

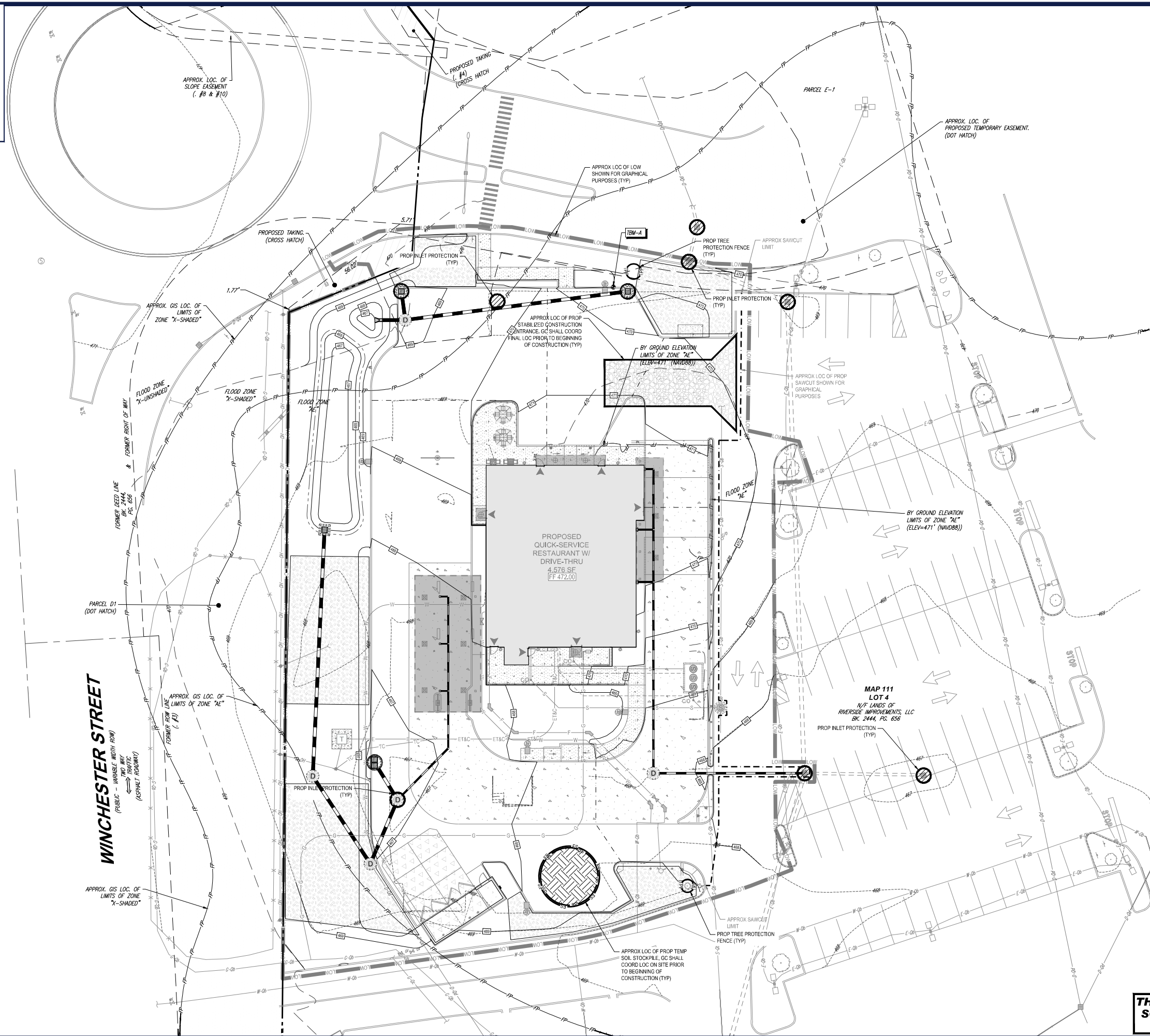
SHEET TITLE:

UTILITY PLAN

SHEET NUMBER:

C-500

REVISION 1 - 09/14/2026



 STABILIZED CONSTRUCTION ENTRANCE
 SOIL STOCKPILE AREA
 CATH BASIN INLET PROTECTION

**50 WASHINGTON ST., SUITE 2000
WESTBOROUGH, MA 01581**
Phone: (508) 480-9900

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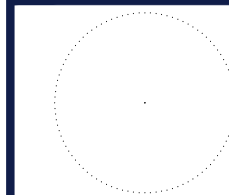
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**RIVERSIDE
IMPROVEMENTS, LLC**

**PROPOSED QUICK SERVICE
RESTAURANT**

**354 WINCHESTER STREET
KEENE, NH 03431**



SHEET TITLE:

EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER:

C-800

REVISION 1 - 09/14/2026

\\MA12026\MAA260023.00\CAD\DRAWINGS\PLAN SETS\PRELIMINARY CIVIL PLANS\PROP-MAA260023.00-1A---->LAYOUT: C-800 - EROSION AND SEDIMENT CONTROL PLAN

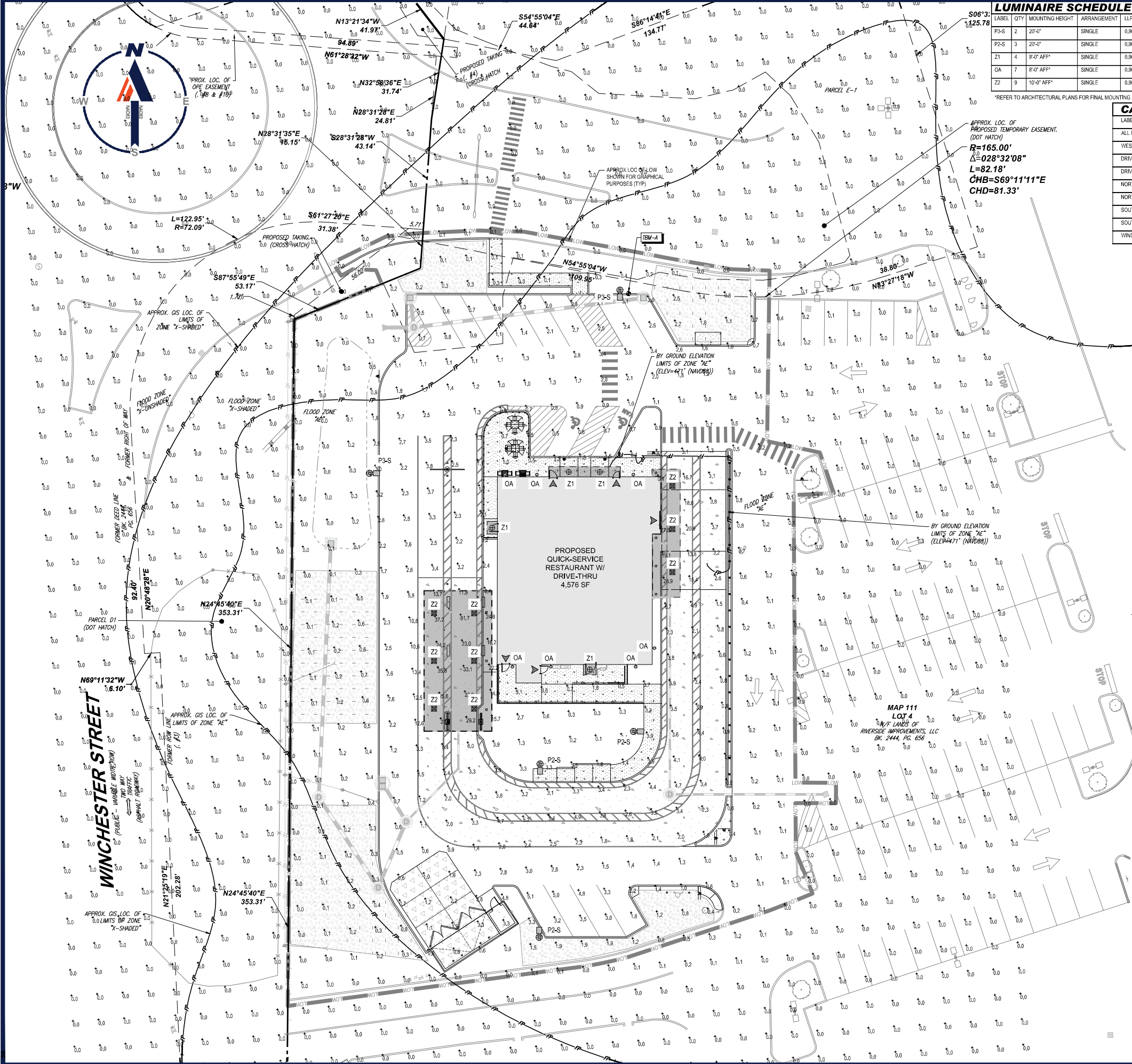


PLANT SCHEDULE						
CODE	QTY	BOTANICAL NAME	COMMON NAME	SIZE	MATURE SIZE	CONTAINER
CANOPY TREES						
AB4	4	ACER SACCHARUM 'BONFIRE'	BONFIRE SUGAR MAPLE	3-3.5' CAL.	35-50' W X 50-65' H	B&B
GTS	4	GLEDITSIA TRACHANTHOS 'NERUS SHADENMASTER'	SHADENMASTER HONEY LOCUST	3-3.5' CAL.	35' W X 45-60' H	B&B
NS	6	NYSSA SYLVATICA	SOUR GUM	3-3.5' CAL.	25-30' W X 35-50' H	B&B
EVERGREEN TREES						
TOE	22	THUJA OCCIDENTALIS 'SMARAGO'	EMERALD GREEN ARBORVITAE	6-8'	4' W X 15' H	B&B
SHRUBS						
CAH	11	CLETHRA ALNIFOLIA 'HAMMINGSBRO'	HAMMINGSBRO SUMMERSWEET (DWARF)	24-30"	4' W X 4' H	CONTAINER
CSF	8	CORULUS STOLONIFERA 'FARROW'	ARCTIC PINE RED TWIG DOGWOOD	24-30"	4' W X 4' H	CONTAINER
ISC	32	'LEY GLABRA' COMPACTA	COMPACT INBERRY	24-30"	4' W X 4' H	CONTAINER
JKSG	21	JUNIPERUS CHIRENSIS 'SEA GREEN'	SEA GREEN JUNIPER	24-30"	5-6' W X 4-6' H	CONTAINER
KLE	10	'KALIBA LANTICOLA' ELF	DWARF MOUNTAIN LAUREL	24-30"	2-4' W X 2-4' H	CONTAINER
TMD	48	TAXUS MEDIA 'DENSIFORMIS'	DENSE WEED	24-30"	4-7' W X 4' H	CONTAINER
PERENNIALS						
NW	85	'NEPETA X WALKER'S LOW'	WALKER'S LOW CATMINT	1 GAL.	2-3' W X 2-5' H	CONTAINER
RFG	96	RUBROCOCA FULGIDA 'SUNLIT ANV' GOLDSTURM'	GOLDSTURM CONIFLOWER	1 GAL.	1-5-2' W X 2-3' H	CONTAINER
TCF	39	'TARELLA COROFLA'	FOAMFLOWER	1 QT.	5-7' W X 1-5' H	CONTAINER

1. THESE LANDSCAPE PLANS ARE TO BE READ IN CONJUNCTION WITH THE LANDSCAPE SPECIFICATIONS, AND ASSOCIATED DETAILS FOUND ON THE LANDSCAPE DETAILS SHEET. THE GENERAL NOTES, FOUND ON THE NOTES PAGE OF THIS PLAN SET, ARE TO BE READ FIRST. ANY MATERIALS OR METHODS NOT SPECIFIED HEREIN MUST BE IN ACCORDANCE WITH THE LANDSCAPE SPECIFICATIONS AND DETAILS DESCRIBED HEREIN. ON THE LANDSCAPE PLANS AND IN THE LANDSCAPE DETAILS SHEET:
- A. ALL DISTURBED UNPAVED AREAS, EXCLUDING PLANTING BEDS, ARE TO BE INSTALLED AS LAWN IN ACCORDANCE WITH THE "MATERIALS" SECTION OF THE LANDSCAPE SPECIFICATIONS, UNLESS OTHERWISE SPECIFICALLY STATED ON THIS PLAN.
- B. ALL PLANTING BEDS AND STEEP SLOPE STALLS SHALL BE INSTALLED TO ALLOW A CLEARANCE OF TWO FEET FROM FACE OF CURB TO ALLOW FOR BUMPER OVERHANG.
2. PLANT MATERIAL SUBSTITUTIONS MUST BE FORMALLY SUBMITTED TO BOHLER AND THE MUNICIPALITY'S ENGINEERING AND TREE CONSULTANTS FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION.
3. WITHOUT EXCEPTION, THE CONTRACTOR SHALL NOT INSTALL ANY STORMWATER FACILITY, INCLUDING RANGEDENS, INFILTRATION TRENCHES, VEGETATIVE SWALES AND STORMWATER BASINS.
4. IF IRRIGATION IS REQUIRED BY THE OWNER OR APPROVING MUNICIPALITY, THE CONTRACTOR SHALL PROVIDE AN IRRIGATION SYSTEM, INCLUDING WATER METER, PUMP, MAINLINE AND LATERALS, AND SUFFICIENT WATER MAIN TO ACCOMMODATE LAWN AND BED AREAS EACH UNDER SEPARATE ZONES TO MAXIMIZE WATER EFFICIENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SECURING ANY PERMITS REQUIRED FOR THE INSTALLATION OF AN IRRIGATION SYSTEM.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE MAINTENANCE OF ALL LANDSCAPING UNTIL PROJECT MAINTENANCE IS TURNED OVER TO THE CITY OF BOHLER. THE OWNER'S OBLIGATION FOR MAINTENANCE OF LANDSCAPING IS LIMITED TO THE CARE, WATERING, AND MAINTENANCE OF ALL PLANT MATERIAL, LAWN MOWING, AND SEASONAL MAINTENANCE.

SCALE: 1" = 20'

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LUMINAIRE SCHEDULE						
LABEL	QTY	MOUNTING HEIGHT	ARRANGEMENT	LLF	LUMENS	DESCRIPTION
P3-S	2	20'-0"	SINGLE	0.900	11626	COOPER LUMARK PREVAL DISCRETE LED AREA LUMINAIRE, TYPE 3, WITH HOUSE-SIDE SHIELD, 0 UP-LIGHT (PRV-PA2A-730-x-T3-x-BK-HSS)
P3-S	3	20'-0"	SINGLE	0.900	11013	COOPER LUMARK PREVAL DISCRETE LED AREA LUMINAIRE, TYPE 2 URBAN, WITH HOUSE-SIDE SHIELD, 0 UP-LIGHT (PRV-PA2A-730-x-T2U-X-BK-HSS)
Z1	4	9'-0" AFF	SINGLE	0.900	875	COOPER HALO SMX EDGELESS 4" ROUND SURFACE MOUNT LED DOWNLIGHT, 0 UP-LIGHT (SMX4RLSFS02W-800LM-3000K)
OA	7	8'-0" AFF	SINGLE	0.900	830	PROGRESS LIGHTING LED WALL SCONCE LUMINAIRE (P5675-3130K)
Z2	9	10'-0" AFF	SINGLE	0.900	10457	LSI CRUS SCOTTSDALE LED CANOPY LUMINAIRE, 0 UP-LIGHT (CRUS-SC-LED-LW-30-x-BLK)

*REFER TO ARCHITECTURAL PLANS FOR FINAL MOUNTING HEIGHTS AND LOCATIONS

CALCULATION SUMMARY								
LABEL	CALCTYPE	UNITS	AVG	MAX	MIN	AVGMIN	MAXMIN	MAXAVG
ALL POINTS	ILLUMINANCE	FC	0.66	37.2	0.0	N.A.	N.A.	N.A.
WEST PROPERTY LINE	ILLUMINANCE	FC	0.01	0.1	0.0	N.A.	N.A.	N.A.
DRIVE THRU CANOPY	ILLUMINANCE	FC	24.92	37.2	13.7	1.82	2.72	1.49
DRIVE THRU	ILLUMINANCE	FC	2.58	5.4	0.6	4.30	9.00	2.09
NORTH PARKING	ILLUMINANCE	FC	1.52	3.8	0.5	3.04	7.80	2.50
NORTH WALKWAY	ILLUMINANCE	FC	1.45	3.4	0.1	14.50	34.00	2.34
SOUTH PARKING	ILLUMINANCE	FC	2.14	5.1	0.5	4.28	10.20	2.38
SOUTH WALKWAY	ILLUMINANCE	FC	2.31	3.9	0.5	4.62	7.80	1.69
WINDOW CANOPY	ILLUMINANCE	FC	16.74	28.9	4.9	3.21	5.90	1.84

CITY OF KEENE, NEW HAMPSHIRE LIGHTING REQUIREMENTS		
SECTION	REQUIREMENT	PROPOSED
\$21.7.3 A - SHIELDING	ALL OUTDOOR LIGHTS, INCLUDING FREESTANDING AND WALL MOUNTED, SHALL BE FULLY-SHIELDED AND/OR DARK SKIES COMPLIANT (INTERNATIONAL DARK SKY ASSOCIATION SEAL OF APPROVAL OR EQUIVALENT) FIXTURES WITH NO PORTION OF THE BULB VISIBLE.	PROVIDED TO EXTENT POSSIBLE
\$21.7.3 B - GLARE	LIGHTING SHALL BE INSTALLED AND DIRECTED IN SUCH A MANNER AS TO PREVENT GLARE AT ANY LOCATION, ON OR OFF THE PROPERTY.	PROVIDED
\$21.7.3 C - LIGHT TRESPASS	THE MAXIMUM LIGHT LEVEL OF ANY LIGHT FIXTURE CANNOT EXCEED 0.1-FOOTCANDLE MEASURED AT THE PROPERTY LINE AND CANNOT EXCEED 1-FOOTCANDLE MEASURED AT THE RIGHT-OF-WAY LINE OF A STREET.	PROVIDED
\$21.7.3 D - ILLUMINATION	ALL ILLUMINATION SHALL BE OF A WHITE LIGHT AND SHALL HAVE A COLOR RENDERING INDEX (CRI) GREATER THAN 70. THE COLOR-TEMPERATURE OR CORRELATED COLOR TEMPERATURE (CCT) OF LIGHTING SHALL NOT EXCEED 3,500 KELVINS.	PROVIDED TO EXTENT POSSIBLE
\$21.7.3 E - HEIGHT	THE MOUNTING HEIGHT OF FIXTURES, AS MEASURED FROM THE FINISHED GRADE TO THE TOP OF THE FIXTURE OR POLE (INCLUSIVE OF FIXTURE) SHALL NOT EXCEED THE MAXIMUM HEIGHT LISTED IN TABLE 20-1. MAX HEIGHT FOR COMMERCE ZONE: 30 FT	PROVIDED
\$21.7.4 A - PARKING LOTS	OUTDOOR LIGHTING OF PARKING LOTS AND RELATED CIRCULATION AREAS AS WELL AS THE UNENCLOSED AREAS OF PARKING STRUCTURES SHALL COMPLY WITH THE FOLLOWING STANDARDS.	PROVIDED
	1. AVERAGE ILLUMINATION LEVELS OF PARKING LOT LIGHTING SHALL NOT EXCEED 3.5-FOOTCANDLES. 2. THE RATIO OF THE AVERAGE TO THE MINIMUM ILLUMINATION LEVEL (ALSO KNOWN AS THE UNIFORMITY RATIO) SHALL NOT EXCEED 5:1 IN FOOTCANDLES.	PROVIDED
\$21.7.4 C - WALKWAYS	LIGHTING OF OUTDOOR WALKWAYS, ALLEYS, AND PEDESTRIAN PATHS SHALL COMPLY WITH THE FOLLOWING STANDARDS.	PROVIDED
	1. THE AVERAGE ILLUMINATION LEVEL ON A WALKWAY OR PATHWAY SURFACE SHALL NOT BE LESS THAN 0.5-FOOTCANDLES. 2. THE AREA OVER WHICH THE AVERAGE ILLUMINATION LEVEL IS COMPUTED SHALL ONLY INCLUDE THE WALKWAY SURFACE PLUS AN AREA ON EACH SIDE NOT MORE THAN 5-FT IN WIDTH. 3. LIGHTING FIXTURES OTHER THAN FULL CUT-OFF FIXTURES MAY BE USED BUT SHALL BE DESIGNED TO MINIMIZE GLARE, DIRECT ILLUMINATION DOWNWARD, AND SHALL HAVE AN INITIAL OUTPUT OF NO MORE THAN 1,200 INITIAL LUMENS.	PROVIDED PROVIDED PROVIDED

- GENERAL LIGHTING NOTES:**
- THE GENERAL NOTES, FOUND ON THE NOTES PAGE OF THIS PLAN SET, MUST BE INCLUDED AS PART OF THIS ENTIRE DOCUMENT PACKAGE AND ARE PART OF THE CONTRACT DOCUMENTS. THE ELECTRICAL CONTRACTOR MUST BECOME FAMILIAR WITH, REFER TO AND FULLY COMPLY WITH THESE NOTES, IN THEIR ENTIRETY.
 - THE ELECTRICAL CONTRACTOR MUST COMPLY WITH ALL APPLICABLE CONTRACTOR REQUIREMENTS INDICATED IN THIS LIGHTING PLAN, INCLUDING BUT NOT LIMITED TO GENERAL NOTES, GRADING AND UTILITY NOTES, SITE SAFETY, AND ALL APPLICABLE AGENCY AND GOVERNMENTAL REGULATIONS. THE LIGHTING PLAN DEPICTS PROPOSED, SUSTAINED ILLUMINATION LEVELS CALCULATED USING DATA PROVIDED BY THE NOTED MANUFACTURER(S). ACTUAL SUSTAINED SITE ILLUMINATION LEVELS AND PERFORMANCE OF LUMINAIRES MAY DIFFER FROM THE VALUES DEPICTED ON THIS PLAN DUE TO VARIATIONS IN WEATHER, ELECTRICAL VOLTAGE, TOLERANCE IN LAMPS, MAINTENANCE, THE SERVICE LIFE OF EQUIPMENT AND LUMINAIRES, EXISTING AMBIENT LIGHT SOURCE ON AND OFF SITE, AND OTHER RELATED VARIABLE FIELD CONDITIONS.
 - THE LIGHTING VALUES AND CALCULATION POINTS DEPICTED ON THIS PLAN ARE ANALYZED ON A HORIZONTAL GEOMETRIC PLANE AT GROUND LEVEL UNLESS OTHERWISE NOTED. ILLUMINATION LEVELS ARE SHOWN IN FOOTCANDLES (FC).
 - THE LIGHTING PLAN IS INTENDED TO SHOW THE LOCATIONS AND TYPE OF LUMINAIRES, POWER SYSTEM, CONDUITS, WIRING, CONTROLS, AND OTHER ELECTRICAL COMPONENTS ARE SOLELY THE ARCHITECTS, ELECTRICAL ENGINEERS AND/OR ELECTRICAL CONTRACTORS RESPONSIBILITY. AS INDICATED IN THE CONSTRUCTION CONTRACT DOCUMENTS, THE CONTRACTOR MUST COORDINATE WITH THE PROJECT ARCHITECT AND/OR ELECTRICAL ENGINEER REGARDING ANY AND ALL POWER SOURCES AND TIMING DEVICES NECESSARY TO MEET THE DESIGN INTENT. THESE ITEMS MUST BE INSTALLED AS REQUIRED BY FEDERAL, STATE AND LOCAL REGULATIONS. CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION OF LIGHTING FIXTURES AND APPURTENANCES IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) AND ALL APPLICABLE BUILDING AND LOCAL ELECTRICAL CODES.
 - THE ELECTRICAL CONTRACTOR MUST BRING IMMEDIATELY, IN WRITING, ANY LIGHT LOCATIONS THAT CONFLICT WITH DRAINAGE, UTILITIES, OR OTHER STRUCTURE(S) TO THE PROFESSIONAL OF RECORD'S ATTENTION, PRIOR TO THE START OF CONSTRUCTION.
 - THE ELECTRICAL CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL LIGHTING IS INSTALLED PER THIS LIGHTING PLAN, INCLUDING THE LOCATION, ORIENTATION, SHIELDING, AND/OR ROTATED OPTICS IN ORDER TO ACHIEVE THE LIGHTING LEVELS DEPICTED ON THIS PLAN. EXISTING POLES AND FOUNDATIONS ARE NOT TO BE REUSED.
 - UPON OWNER'S ACCEPTANCE OF THE COMPLETED PROJECT, THE OWNER SHALL BE RESPONSIBLE FOR ALL MAINTENANCE, SERVICING, REPAIR AND INSPECTION OF THE LIGHTING SYSTEM AND ALL OF ITS COMPONENTS AND RELATED SYSTEMS. THE LUMINAIRES, LAMPS AND LENSES MUST BE REGULARLY INSPECTED/MAINTAINED TO ENSURE THAT THEY FUNCTION PROPERLY. THIS WORK SHOULD INCLUDE, BUT IS NOT LIMITED TO, VISUAL OBSERVATION, CLEANING OF LENSES, AND OTHER MAINTENANCE SPECIFIED BY THE MANUFACTURER. FAILURE TO FOLLOW THE ABOVE STEPS COULD RESULT IN IMPROPER LIGHT DISTRIBUTION AND FAILURE TO COMPLY WITH THE APPROVED DESIGN.
 - THE LIGHT LOSS FACTORS (LLF) DEPICTED IN THE LUMINAIRE SCHEDULE ON THIS PLAN ARE BASED ON DATA PROVIDED BY THE MANUFACTURER FOLLOWING IES LM-80-21 TESTING (OR MOST RECENT EDITION). THE LIGHT LEVELS DEPICTED ON THIS PLAN WERE CALCULATED BASED ON THE LLF LISTED IN THE LUMINAIRE SCHEDULE.
 - PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE SUBMITTALS TO BOHLER FOR REVIEW AND APPROVAL. SUBSTITUTION REQUESTS MUST BE ACCOMPANIED BY A HORIZONTAL PHOTOMETRIC STUDY DEMONSTRATING THAT THE LUMINAIRE(S) IN QUESTION WILL MEET THE DESIGN INTENT OF THIS PLAN. SUBSTITUTION REQUESTS WITHOUT A PHOTOMETRIC STUDY WILL BE REJECTED.
 - LIGHT POLE FOUNDATIONS ARE SHOWN ON THE PLAN IN THE INTENDED LOCATION BASED ON THE LIGHTING CALCULATIONS. UNLESS OTHERWISE NOTED, LIGHT SYMBOLS ARE SHOWN LARGER THAN ACTUAL SIZE. HOWEVER FOUNDATION SIZE IS SHOWN AT ACTUAL SIZE.

**THIS PLAN TO BE UTILIZED
FOR LIGHTING PURPOSES
ONLY**



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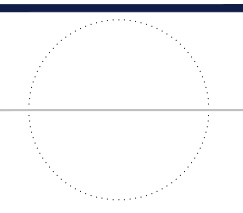
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SITE DEVELOPMENT PLANS
FOR
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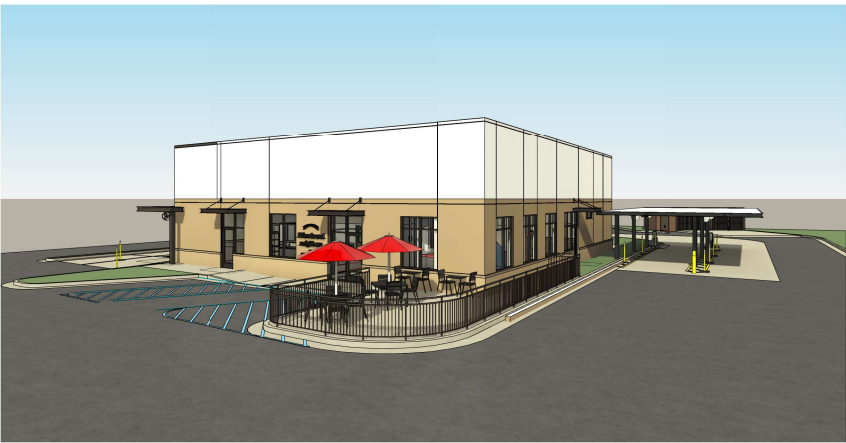
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354 WINCHESTER STREET
KEENE, NH 03431



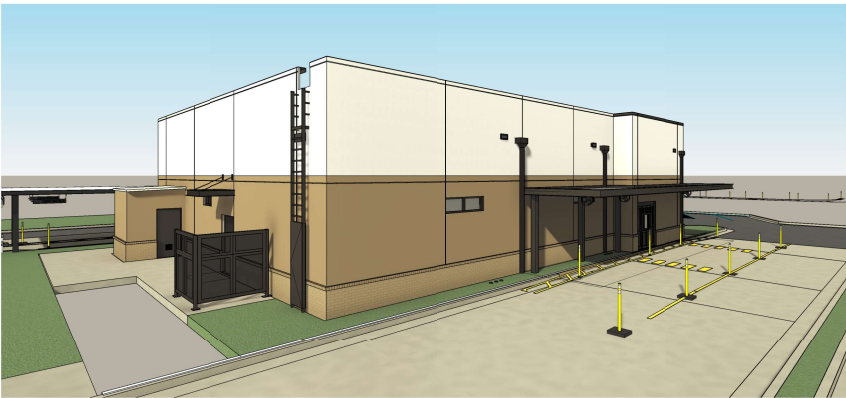
SHEET TITLE:
LIGHTING PLAN

SHEET NUMBER:
T-100

REVISION 1 - 09/14/2026



PERSPECTIVE VIEW - REAR LEFT



PERSPECTIVE VIEW - REAR RIGHT



PERSPECTIVE VIEW - ENTRY



PERSPECTIVE VIEW - FRONT RIGHT

PROJECT DATA			
Prototype Edition:	SE	Playground	LARGE
Exterior Finish Type:	TOWER STUCCO	Landscaping Type:	STANDARD
Wall Framing Type:	WOOD STUD	LEED Rating:	NOT CERTIFIED
Kitchen Type:	CENTERLINE 3.0	Drive Thru Number of Approach Lanes:	2
Water Filtration Type:	TYPE A	Drive Thru Number of Ordering Lanes:	2
Industrialized Construction:	NO	Drive Thru Number of Fulfillment Lanes:	1
Number of Parking Spaces:	18	Drive Thru Dedicated Bypass Lane:	YES
Number of Accessible Parking Spaces:	2	Drive Thru Door:	YES
Cross Parking:	YES	Canopy Structure:	STEEL
Menu Board - Interior:	YES	Canopy Type - Order Point:	DOUBLE
Menu Board - Interior - Count:	4	Canopy Type - Meal Delivery:	SINGLE
Menu Board - Interior - Type:	DIGITAL	Seat Count - Interior:	74
Menu Board - Walk-up:	NO	Seat Count - Exterior:	12
Menu Board - Walk-up - Count:	0	Number of Walk-up Windows:	0
Menu Board - Walk-up - Type:	N/A	Number of Registers:	3
Menu Board - Order Point:	YES	Building Area Square Footage:	4576
Menu Board - Order Point - Count:	4		
Menu Board - Order Point - Type:	DIGITAL		
Planned Classification:	BASE		

DESIGN APPROVAL

☐ MAP ☐ SD ☐ DD ☐ CD

☐ NOT APPROVED - REVISION AND RESUBMIT

☐ APPROVED AS NOTED - REVISION AND RESUBMIT

☐ APPROVED FOR DESIGN INTENT

INITIAL: DATE:

PROJECT NOTES

Record any personal notes with text, views, or schedules

HFA

HFA-AE, L T D.

1705 S. Walcott Blvd., Suite 3
Bentonville, Arkansas 72712
www.hfa-ae.com

NOT FOR CONSTRUCTION

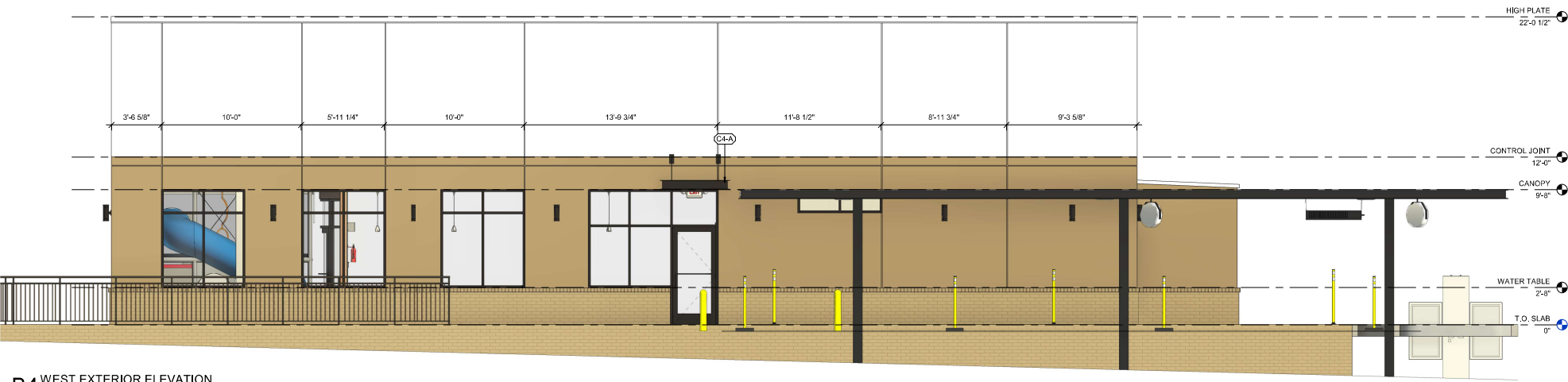
NEW RESTAURANT
354 WINCHESTER STREET
KEENE, NH 03431

BUILDING TYPE / SIZE:
RELEASE:
PRINTED FOR:
PROJECT STATUS
REVISION SCHEDULE
NO. DATE DESCRIPTION

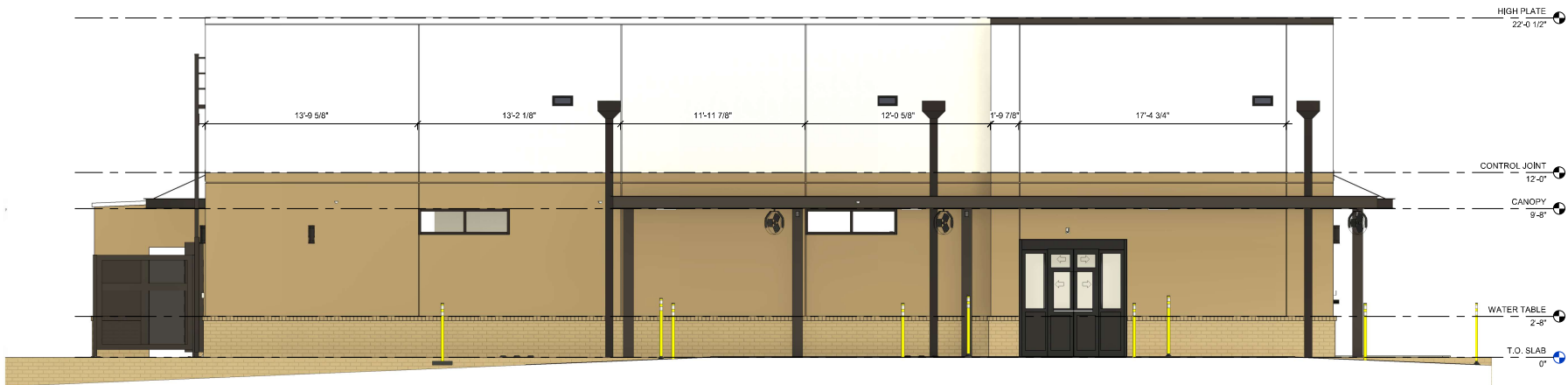
CONSULTANT PROJECT #
DATE
DRAWN BY
SHEET
DESIGN OVERVIEW
SHEET NUMBER

X-900

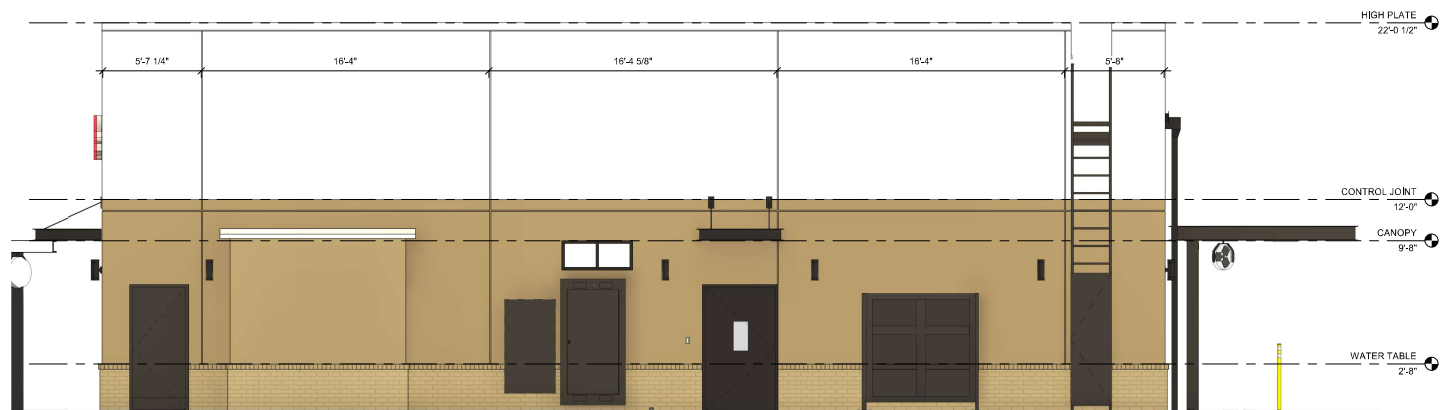
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10-SE-16-26-00025-A-301-EXTERIOR ELEVATIONS



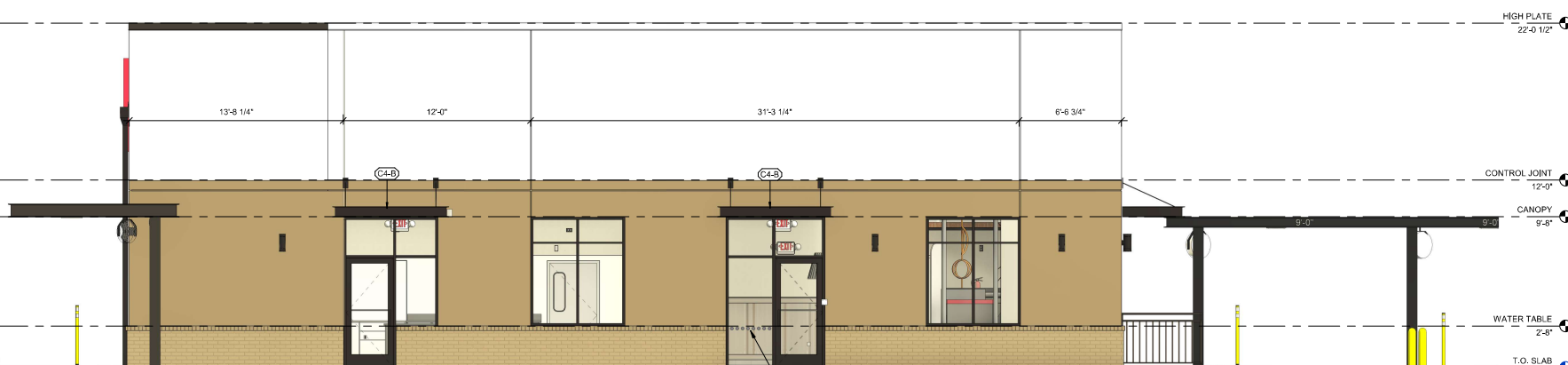
B4 WEST EXTERIOR ELEVATION
1/4" = 1'-0"



A4 EAST EXTERIOR ELEVATION
1/4" = 1'-0"



D4 SOUTH EXTERIOR ELEVATION
1/4" = 1'-0"



C4 NORTH EXTERIOR ELEVATION
1/4" = 1'-0"

FINISH SCHEDULE - EXTERIOR					
MARK	DESCRIPTION	MANUFACTURER	MODEL NAME	COLOR	NOTE
BR-A	BRICK VENEER (PRIMARY)	*	MODULAR	*	*SEE APPROVED BRICK ALTERNATES
BR-B	BRICK VENEER (ACCENT)	*	MODULAR	*	*SEE APPROVED BRICK ALTERNATES
CM-1	WOOD COMPOSITE MATERIAL	RESYSTA INTERNATIONAL	FACADE CLADDING 7CH		
CR-1	CANOPY METAL FASCIA		DURA COAT	DARK BRONZE	OIL RUBBED BRONZE METALLIC TEXTURE PVD
CR-2	CANOPY METAL DECK			WHITE	SMOOTH WHITE, HIGH GLOSS
EC-1	PARAPET WALL COPING	DUROLAST / EXCEPTIONAL		DARK BRONZE (MATTE)	
PT-100	EXTERIOR PAINT	SHERWIN WILLIAMS	SHER-CRYL HIGH PERFORMANCE ACRYLIC #R06-350	ROCKWOOD	REFUSE ENCLOSURE, FINISH: SEMI-GLOSS ON DOOR FRAMES, SATIN ON WALLS
PT-113	EXTERIOR PAINT	SHERWIN WILLIAMS	SHER-CRYL HIGH PERFORMANCE ACRYLIC #R06-350	DARK BRONZE	FINISH: SEMI-GLOSS
SC-1	STUCCO	STO	POWERWALL	STO WHITE	FINISH: SAND MEDIUM
SC-2	STUCCO	STO	POWERWALL	STO BROWN	FINISH: SAND MEDIUM
ST-1	STOREFRONT	YKK	YES 45	DARK BRONZE (MATTE)	

GENERAL NOTES
1. ALL SIGNAGE PROVIDED BY OTHERS
2. REF FLOOR PLAN AND WINDOW LEGEND FOR STOREFRONT INFORMATION

BUILDING MOUNTED CANOPIES - 8" THICK CANOPY - KYNAR FINISH OF STRUCTURE, FASCIA, & DECKING TO MATCH (SC-2)

COLUMN MOUNTED CANOPIES - 10" THICK CANOPY - FINISH OF STRUCTURE TO BE (SC-2) - FINISH OF DECKING TO BE (SC-2)

ATTACHED CANOPY SCHEDULE

Mark	Description	Count	Overall Width	Overall Depth	Tie Back Mounting (Offset From Top)	Integral Lighting
CA-A	Exterior Canopy	2	6'-0"	4'-0"	1'-6"	Yes
CA-B	Exterior Canopy	2	7'-5"	4'-0"	1'-5"	Yes
Grand total		4				

APPROVED BRICK ALTERNATES (SEE NATIONAL ACCOUNTS LIST FOR CONTACT INFORMATION)					
FINISH	MANUFACTURER	MODEL	MORTAR	PLANT LOCATION	PREFERRED REGION(S)
BR-A (PRIMARY BRICK)					
BR-02	ACME BRICK	PALOMA GRAY	ARGOS, SAN TAN	ELGIN, TX	SOUTHWEST
BR-18	MUTUAL MATERIALS	IMPERIAL GRAY	ARGOS, SAN TAN	MICA, WA	WEST
BR-20	GLEN-GERY	KHAKI MATT	ARGOS, SAN TAN	CHESWICK, PA	ATLANTIC, NORTHEAST, MIDWEST
BR-30	CHEROKEE BRICK	LIGHT GRAY SMOOTH	ARGOS, SAN TAN	MACON, GA	SOUTHEAST
BR-B (ACCENT BRICK)					
BR-03	ACME BRICK	RUSTIC WHITE	ARGOS, SAN TAN	MALVERN, AR	SOUTHWEST
BR-19	MUTUAL MATERIALS	DESERT WHITE	ARGOS, SAN TAN	MICA, WA	WEST
BR-26	GLEN-GERY	WHITEHALL	ARGOS, SAN TAN	CHESWICK, PA	ATLANTIC, NORTHEAST, MIDWEST
BR-31	CHEROKEE BRICK	OATMEAL SMOOTH	ARGOS, SAN TAN	MACON, GA	SOUTHEAST

LEGEND			
	EXPANSION JOINT, SEALANT COLOR TO MATCH MORTAR COLOR, RE: SPECIFICATIONS		OIL EXTRACTION PORT ACCESS BOX
	CARD READER BY SECURITY VENDOR - RE: ELEC		CO2 FILL BOX - RE: KITCHEN
	SCUPPER - (C-13) SEE		LIGHT FIXTURE - RE: ELECTRICAL
	DOWNSPOUT - (C-13) SEE		GT CABINET - (C-13) RE: ELECTRICAL
	MDP - (C-13) RE: ELECTRICAL		

BUILDING TYPE / SIZE:
RELEASE:
PRINTED FOR:
PROJECT STATUS

REVISION SCHEDULE
NO. DATE DESCRIPTION
N/A N/A

CONSULTANT PROJECT # 16-26-00025
DATE MM/DD/YY
DRAWN BY
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SHEET EXTERIOR ELEVATIONS
SHEET NUMBER

HFA
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c 479.273.7780
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Bentonville, Arkansas 72712
www.hfa-ac.com

NOT FOR CONSTRUCTION

NEW RESTAURANT
354 WINCHESTER STREET
KEENE, NH 03431

A-301

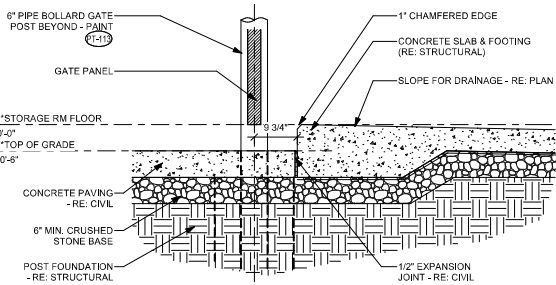
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10-SE-16-26-0025-A-103-REFUSE ENCLOSURE



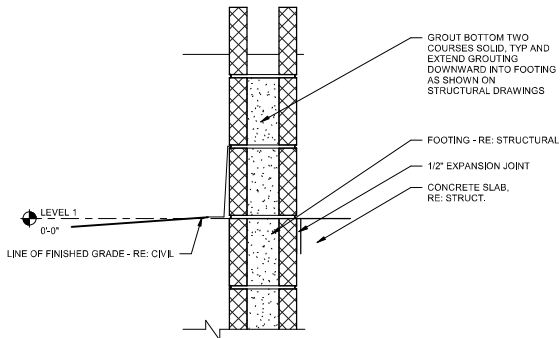
REF. ENCLOSURE FINISHES	
	EXTERIOR PAINT SW BRONZETONE
	EXTERIOR PAINT SW 2807 ROOKWOOD

REFUSE ENCLOSURE NOTES

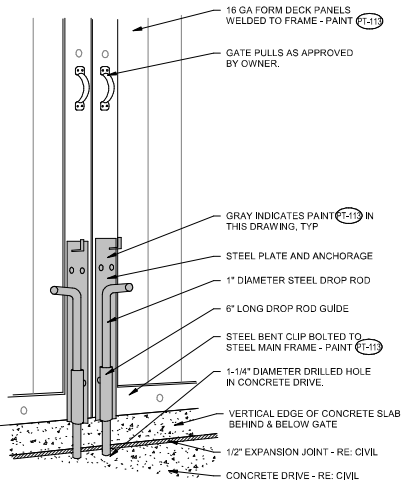
1. ** IN THE ARCHITECTURAL DRAWINGS, REFUSE ENCLOSURE AND MAIN BUILDING ARE BOTH NOTED WITH FINISH SLAB AT 0'-0". ACTUAL FINISH SLAB HEIGHTS WILL VARY BETWEEN MAIN BUILDING AND REFUSE ENCLOSURE. REFER TO CIVIL FOR ALL FINISH SLAB HEIGHTS.



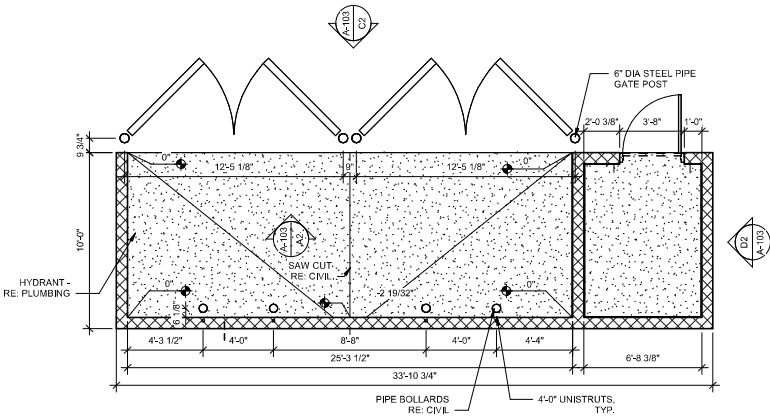
C4 REFUSE PAD AT CONCRETE PAVING DETAIL
3/4" = 1'-0"



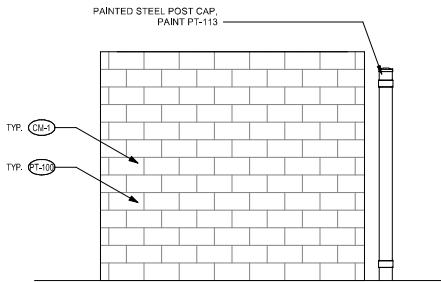
C3 REFUSE ENCLOSURE BASE DETAIL
1 1/2" = 1'-0"



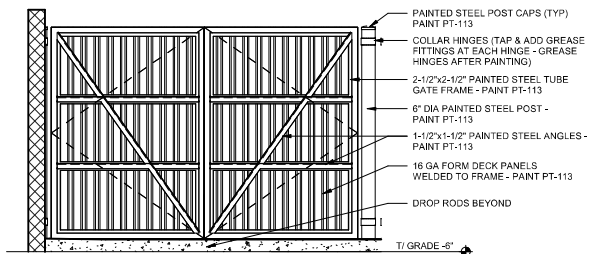
A3 REFUSE ENCLOSURE DROP ROD 3-D DECK PANEL DETAIL
1/2" = 1'-0"



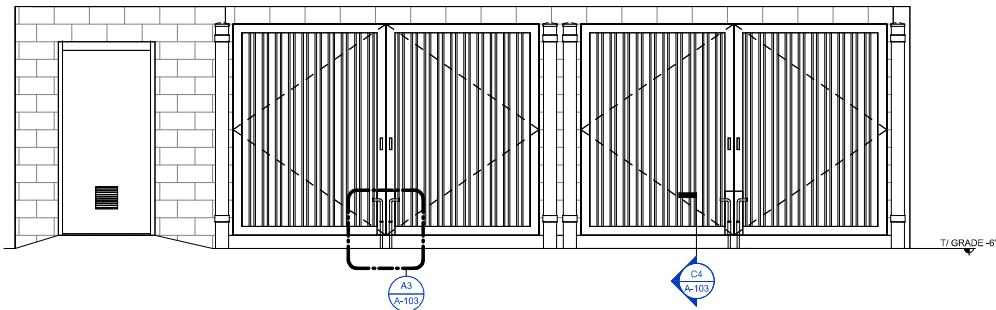
C1 REFUSE ENCLOSURE PLAN
1/4" = 1'-0"



D2 REFUSE ENCLOSURE ELEVATION
3/8" = 1'-0"



A2 REFUSE ENCLOSURE ELEVATION
3/8" = 1'-0"



C2 REFUSE ENCLOSURE ELEVATION
3/8" = 1'-0"

HFA

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Bentonville, Arkansas 72712
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NOT FOR CONSTRUCTION

NEW RESTAURANT

354 WINCHESTER STREET
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REVISION SCHEDULE
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CONSULTANT PROJECT # 16-26-60025
DATE MM/DD/YY
DRAWN BY Author
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SHEET
REFUSE ENCLOSURE

SHEET NUMBER

A-103

August 21, 2026 (rev. 9/17/26)

Community Development Department
3 Washington Street
Keene, NH 03431

Attn: Mari Brunner, Senior Planner, Community Development Department

**RE: Major Site Plan Review
Proposed QSR with drive-through
354 Winchester Street
Keene, NH**

Project Narrative:

The existing site consists of a 21.16 acre property along the easterly side of Winchester Street and the northerly side of NH State Route 12 & 101 in the City of Keene, New Hampshire. The site consists of an existing shopping plaza containing a Walmart, Sierra, HomeGoods, and other various users. The focus of this project is limited to the standalone former Rite Aid building on the westerly side of the property adjacent to Winchester Street.

The proposed project consists of a razing the existing Rite Aid building and construction of a 4,576 square foot Quick-Service Restaurant with drive-through. The proposed project also consists of modifications to the existing parking area, including but not limited to, providing one-way circulation around the building and drive-through area, as well as modifications to landscaping areas directly surrounding the proposed restaurant building, which overall provides a net decrease in impervious surfaces. Additional site modifications consist of proposed utility service connections and stormwater management system modifications and improvements.

The proposed project is in compliance with the Site Development Standards stated in Article 21 of the Land Development Code. The below sections of Article 21 have been broken out to individually describe how the standards have been met:

- **21.1 – Drainage & Stormwater Management:** The site is in compliance with the Drainage & Stormwater Management Standards as there is a net decrease in impervious area, which as a result decreases the overall volume and velocity of stormwater runoff. The stormwater quality is also being enhancements through stormwater quality devices and bioretention areas. Please refer to the Drainage Report prepared by Bohler and submitted as part of this application for additional information.
- **21.3 – Sediment & Erosion Control:** The proposed site plan documents include an Erosion & Sediment Control Plan Sheet which goes into detail on the erosion and sediment controls to be in place before and during construction to prevent erosion and sediment runoff on site.
- **21.4 – Snow Storage Removal:** The proposed site plan documents include locations of snow storage areas on site which are shown in a way to prevent erosion of drainage runoff and prevent and impediment of parking spaces.
- **21.5 – Landscaping:** The proposed site plan documents include a Landscape Plan Sheet and Landscape Detail Sheet which conforms to the requirements set forth in Section 21.5. Also, the table included within Landscape Sheet L-100 lists the landscape requirements for Section 9.4.4. and how these requirements are met.

For Section 21.5.1.C, Turfgrass is being proposed at a minimum given the location and existing surrounding area. There is currently a side lawn area between the parcel and Winchester St. This

area is mostly covered in proposed landscape materials but does incorporate some lawn areas to blend in with the surrounding. The landscape island that is currently south of the proposed building along the entrance drive off of Winchester will be converted from all grass/lawn to landscaped. The proposed landscaping generally complies with this section providing additional screening but also blending in with the existing lawn areas.

The Proposed Landscape Plan includes a table that lists all requirements of article 9 and how the project complies. Refer to Sheet L-100

For Section 21.6.2.B.2 & 3 of the LDC, the landscaping being proposed with a mixture of Sour Gum trees and various shrubs along the drive-aisle adjacent to the drive-thru lane. A small portion along the drive-thru entrance will not contain the same treatment due to the small detention basin required for the proposed development. There is an area between the bioretention basin and the property boundary, however there are overhead power lines in close proximity to the parcel boundary that .

- **21.6 – Screening:** The proposed site plan documents provide appropriate screening for specific areas as described in Section 21.6. That includes but is not limited to screening for the trash enclosure, screening the drive-through lane along Winchester Street, and screening of the parking lot. Please refer to the included Landscape Plans and submitted as part of the application.
- **21.7 – Lighting:** The proposed site plan documents include a Lighting Plan Sheet and Lighting Detail Sheet which conforms to the requirements set for in Section 21.7. The existing light fixtures within the plaza have yet to be identified and our office is currently working to obtain that information. Once we are able to model those fixtures, a revised lighting plan will be submitted.
- **21.8 – Sewer & Water:** The proposed sewer & water connections as shown on the Utility Plan Sheet comply with the City's Utility Standards. The services will connect to the existing utilities that served the former Rite-Aid.
- **21.9 – Traffic & Access Management:** The Traffic Report has been prepared by Bowman Consulting and has been included in with the application submittal.
- **21.10 – Filling & Excavation:** All filling and excavation taking place as part of the development will be in compliance with both the Earth Excavation Regulations and the Floodplain Regulations as a portion of the development falls within the floodplain.
- **21.11 – Surface Waters & Wetlands:** All wetland and surface water regulations are met. The development does not fall within any jurisdictional areas.
- **21.12 – Hazardous & Toxic Materials:** There is no proposed work anticipated that will involve receiving, handling, storing or processing hazard or toxic substances.
- **21.13 – Noise:** The proposed development will comply with the City's Noise Ordinance and City Code of Ordinances as it relates to minimizing sound or noise impacts.
- **21.14 – Architectural & Visual Appearance:** Color Architectural Renderings with materials and color indicated prepared by HFA have been submitted as part of this application.

Visually, the building is a two-tone brick façade for visual interest. The overall building height is ±22-feet including the parapet wall to block the roof top units. The proposed building materials and color are also similar to the surrounding plaza out parcel buildings. Due to the site constraints including floodplain, the proposed front door is orientated similar to the former Rite-Aid building in order to limit the cut/fills onsite. The building façade facing Winchester Street has incorporated additional windows as opposed to a mostly brick façade in their prototype.

Due to the slight taper of the roof, the parapet wall will vary from approximately 5'-9" to 4'-7" above the flat roof surface. The architects are currently working on a few site views to confirm the wall height, and this will be provided to the Planning Board.

Waiver Requests:

Screening Drive-thru Businesses. Section 21.6.2.B.1. - Drive-through windows and lanes shall not be located along the building frontage or along a building facade with a primary entrance.

Waiver being requested due to the site being located within the FEMA Floodplain. In an effort to minimize cut/fills and maintain flood storage volumes for this area of the parcel, the restaurant's front door is being proposed in a similar location to the former Rite-Aid. This orientation will require the drive-thru to be located along the frontage, Winchester Street. The landscape plan has been prepared to add additional landscape screening between the drive-through and Winchester St.

Waiver Criteria 1: Please describe how strict conformity would pose an unnecessary hardship to the applicant and the waiver would not be contrary to the spirit and intent of the regulations.

Given the site location and the nature of the quick service restaurant, the drive-through along Winchester St is unavoidable. The former Rite-Aid also had the drive-through located along Winchester St.

Waiver Criteria 2: Please describe how specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations.

Due to the FEMA Floodplain location, the proposal requires the restaurant's front door be located in close proximity to the existing door location of the Rite-Aid. This results in less cut/fill disturbances in order to maintain Floodplain storage volumes.

Screening Drive-thru Businesses. Section 21.6.2.B.2. - Where allowed, drive-through lanes shall be screened from any adjacent public rights-of-way (not including alleys), existing residential property, or residential zoning districts.

Waiver being requested as a portion of the proposed stormwater basin prevents a portion of the drive-thru entrance from being screened along Winchester Street.

Waiver Criteria 1: Please describe how strict conformity would pose an unnecessary hardship to the applicant and the waiver would not be contrary to the spirit and intent of the regulations.

Due to the stormwater requirements and providing additional pre-treatment, the size of the stormwater basin limits area to amount of landscape screening in this portion of the site. With the parcel being located within the floodplain, areas for stormwater improvements are very limited as well. Removing the stormwater basin would not provide the stormwater quality enhancements that this project will be providing to the area.

Waiver Criteria 2: Please describe how specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations.

Overhead powerlines also exist along the property boundary that would prevent any screening material from being proposed between the basin and the property boundary. The majority of the drive-thru does contain a mixture of trees and shrubs to meet these requirements.

Site Lighting Standards. Section 21.7.4.B.1 - Areas around pump islands and under canopies shall be illuminated so that the average illuminance at grade level does not exceed 12.5-footcandles.

Waiver being requested to allow for the lighting values as shown under the proposed canopies which are greater than 12.5-foot candles. The canopy lighting is recessed cans within the ceiling and the canopy height is only 9-ft (as opposed to much higher gas station canopies.). Employees may be located within these canopy areas, and the tenant requires these areas to be well lit as there will be moving vehicles.

Waiver Criteria 1: Please describe how strict conformity would pose an unnecessary hardship to the applicant and the waiver would not be contrary to the spirit and intent of the regulations.

With employees under these canopies taking orders and delivering meals, the tenant requests a waiver from these standards to provide a well-lit area to perform these tasks within a drive-thru.

Waiver Criteria 2: Please describe how specific circumstances relative to the site plan, or conditions of the land in such site plan, indicate that the waiver will properly carry out the spirit and intent of the regulations.

The canopy lighting consists of recessed cans and will be turned off during off-hours. During operating hours and as mentioned above, since there is a potential for employees to be under these canopies with car moving through the drive-thru, we request the area be well lit. They will add additional light spill for the right of way along Winchester St as these canopies only have a height of 9-ft.

Should you have any questions or require additional information please do not hesitate to contact me at 508-480-9900. We appreciate your consideration and review of the proposed site development plans, and I look forward to discussing the project further with you.

Sincerely,

Bohler, LLC



Joey Fonseca

TRAFFIC IMPACT STUDY PROPOSED QUICK SERVICE RESTAURANT

354 Winchester Street
Keene, NH

Prepared by

Bowman Consulting Group, Ltd.

350 Myles Standish Boulevard, Suite 103

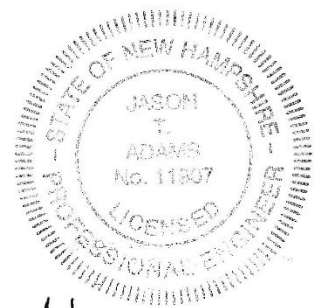
Taunton, MA 02780

508.823.2245

Prepared for

Bohler

August 2026



A handwritten signature in black ink, appearing to be "JA" with a stylized flourish.

August 20, 2026

Jason Adams, PE, PTOE

NH PE License Number 11907

Introduction

Bowman Consulting Group Ltd. (Bowman) has completed a Traffic Impact Study (TIS) for the proposed Quick Service Restaurant (hereinafter referred to as the Project) to be located at 354 Winchester Street in Keene, NH, as shown in Figure 1. The Project would include an approximate 4,576 square foot (sf) quick service restaurant with a drive-through component. The purpose of this TIS is to evaluate existing and projected traffic operations and safety conditions associated with the Project within the study area.

The scope of this TIS is based on a review of existing traffic data, and the anticipated trip-generating characteristics of the Project. This study examines existing and projected traffic operations (both with and without the Project) at key intersections in the vicinity of the Project site. The study area was selected based on conversations with the City of Keene Engineering Department. This study provides a detailed analysis of traffic operations during the weekday midday, weekday afternoon, and Saturday midday peak hours, when the combination of adjacent roadway volumes and Project trips is expected to be the greatest.

Based on the analysis presented in this TIS, the Project is not shown to have a significant impact on the safety and operations of the area roadways. The following report documents these findings.

Project Description

The existing site at 354 Winchester Street in Keene, NH consists of a vacant building which was formerly occupied by a Rite Aid pharmacy that closed in spring 2025. The Project would include the demolition of the existing structure and the construction of a new approximately 4,576 sf quick service restaurant building with a drive-through. The Project site is located within the Riverside Plaza and is situated at the southeast corner of the roundabout of Winchester Street at Key Road/Riverside Plaza Main Driveway. The site is bounded by the surface parking lot to the east, Winchester Street to the west, Riverside Plaza Main Driveway to the north, and Riverside Plaza Secondary Driveway to the south. Access to the site would continue to be provided via both the Riverside Plaza Main Driveway and the Riverside Plaza Secondary Driveway on Winchester Street. The existing enter-only driveway located on the southeast leg of the Winchester Street at Key Road/Riverside Plaza Main Driveway roundabout, would be closed as part of the proposed redevelopment.

Two (2) drive-through lanes would be provided and would circulate in a counterclockwise direction around the building, starting at the northwest side of the building and ending at the pick-up window along the northeast side of the building. A bypass lane would also be provided, terminating at the southeast side of the building where the bypass lane would connect to the plaza's internal drive aisle.

Parking for the existing site is located within the surface lot that is shared with the Riverside Plaza. With the Project in place, the parking area surrounding the building would be modified resulting in a net loss of eight (8) parking spaces. Two (2) accessible parking spaces would be provided on the north side of the proposed building.

Study Methodology

This TIS evaluates existing and projected traffic operations within the study area for the weekday midday, weekday afternoon, and Saturday midday peak hour traffic conditions, when the combination of the adjacent roadway volumes and estimated Project trips would be expected to be the greatest.

The study was conducted in three steps. The first step consisted of an inventory of existing traffic conditions within the Project study area. As part of this inventory, turning movement counts were collected in the vicinity of the Project site during the weekday midday, weekday afternoon, and Saturday midday peak periods. A field visit was also completed to document the intersection and roadway geometries.

The second step of the study builds on the data collected in the first step to establish the basis for evaluating potential transportation impacts associated with the projected future conditions. During the second step, the projected traffic demands associated with any planned future developments that could influence traffic volumes at the study area intersections were assessed. Consistent with NHDOT traffic study guidelines, 2026 Existing traffic volumes were forecasted to the opening year of 2027, to establish the 2027 Opening Year No Build (without Project) and 2027 Opening Year Build (with Project) conditions. The volumes were then forecasted to the design year 2037, to establish the 2037 Design Year No Build (without Project) and 2037 Design Year Build (with Project) conditions.

The third step of this study determined if measures were necessary to improve existing or future traffic operations and safety, minimize potential traffic impacts, and provide safe and efficient access to the proposed Project site.

Study Area Intersections

The following study area intersections were selected for analysis:

- Winchester Street at Island Street/Pearl Street (Roundabout)
- Winchester Street at Key Road/Riverside Plaza Main Driveway (Roundabout)
- Winchester Street at Riverside Plaza Secondary Driveway (Unsignalized)
- Riverside Plaza Main Driveway at Riverside Plaza Internal Drive Aisle (Unsignalized)

The TIS documents existing and future traffic conditions for the study area intersections noted above.

Existing Conditions

The existing conditions assessment included in this study consists of an inventory of intersection and roadway geometries, an inventory of traffic control devices and the collection of peak period traffic volumes. The existing conditions in the vicinity of the Project site are summarized below.

Roadway Network

Winchester Street

Winchester Street runs in a general north-south direction within the study area and transitions to an east-west direction northeast of the study area. Winchester Street is classified as an Urban Minor Arterial under the City of Keene's jurisdiction. Winchester Street generally provides access to commercial land uses. In the vicinity of the site, Winchester Street provides two travel lanes in each direction, each measuring approximately 12-13 feet wide. In the vicinity of the site, Winchester Street provides shoulders on both sides of the roadway, and an approximately eight-foot-wide concrete sidewalk is provided on the west side of the roadway. The posted speed limit on Winchester Street in the vicinity of the site is 30 miles per hour (mph).

Island Street

Island Street runs in a north-south direction from Winchester Street to West Street. Island Street is classified as an Urban Major Collector under the City of Keene's jurisdiction. Island Street provides access to residential and commercial land uses. Island Street provides one approximately 11-foot-wide travel lane in each direction with marked shoulders. Sidewalks are provided on both sides of Island Street. The posted speed limit on Island Street is 30 miles per hour (mph).

Pearl Street

Pearl Street runs in an east-west direction from Winchester Street to the west and then transitions to a north-south roadway connecting to West Street in the north. Pearl Street is classified as a local roadway under the City of Keene's jurisdiction. Pearl Street provides access to residential land uses. Pearl Street provides one approximately 11-foot-wide travel lane in each direction with marked shoulders. Sidewalks are provided on both sides of Pearl Street within the study area. The posted speed limit on Pearl Street is 30 miles per hour (mph).

Key Road

Key Road runs in a general east-west direction from Winchester Street to Meadow Road. Key Road is classified as a local roadway under the City of Keene's jurisdiction. Key Road provides access to the Key Road Plaza Shopping Center, restaurants, and hotels. Key Road provides one approximately 12-foot-wide travel lane in each direction with marked shoulders. Sidewalks are provided on both sides of Key Road within the study area. There is no posted speed limit along Key Road.

Unsignalized Intersections

The following unsignalized intersections are included in the study area:

Winchester Street at Island Street/Pearl Street

Winchester Street at Island Street/Pearl Street forms a five-legged roundabout intersection with Winchester Street forming the east and south legs, Island Street forming the north leg, Pearl Street forming the west leg, and the Winchester Parking Lot Driveway forming the southeast leg. The Winchester Street northbound approach consists of a shared left-turn/through lane and an exclusive right-turn lane. The Winchester Street westbound approach consists of an exclusive left-turn lane and a shared through/right-turn lane. The Island Street southbound approach consists of a shared left-turn/through lane and a shared through/right-turn lane. The Pearl Street eastbound approach consists of one general purpose lane. The Winchester Parking Lot Driveway is one-way road and consists of a single general purpose approaching lane to the roundabout. All approaches to the roundabout operate under YIELD control. A concrete median is provided along the Winchester Street approaches, and the Island Street southbound approach. A painted median is provided along the Pearl Street eastbound approach. Concrete sidewalks measuring approximately eight (8) feet wide are provided at all corners of the roundabout. Marked crosswalks are provided across all legs of the roundabout. RRFBs are provided for the crosswalks across the eastern and southern legs. No bicycle lanes are provided at the roundabout.

Winchester Street at Key Road/Riverside Plaza Main Driveway

Winchester Street at Key Road/Riverside Plaza Main Driveway forms a four-legged roundabout intersection with Winchester Street forming the north and south legs, Key Road forming the west leg, and Riverside Plaza Main Driveway forming the east leg. The Winchester Street northbound and southbound approaches, and the Riverside Plaza Main Driveway westbound approach each consist of a shared left-turn/through lane and a shared through/right-turn lane. The Key Road eastbound approach consists of a shared left-turn/through lane and an exclusive right-turn lane. All approaches to the roundabout operate under YIELD control. A concrete median is provided on all approaches. Concrete sidewalks measuring approximately eight (8) feet wide are provided at all corners of the roundabout, with the exception of the southeast corner. Marked crosswalks are provided across the eastern, western, and northern legs. The crosswalk across the northern leg is equipped with a Rectangular Rapid Flashing Beacon (RRFB). No bicycle lanes are provided at the roundabout.

Winchester Street at Riverside Plaza Secondary Driveway

The intersection of Winchester Street at Riverside Plaza Secondary Driveway forms a three-legged unsignalized intersection and is located approximately 270 feet south of the Winchester Street at Key Road/Riverside Plaza Main Driveway roundabout. Winchester Street forms the north and south legs, and the Riverside Plaza Secondary Driveway forms the east leg. The Winchester Street northbound approach consists of a through lane and a shared through/right-turn lane. The Winchester Street southbound approach consists of two through lanes and is separated by a curbed median with no access provided to/from the Riverside Plaza Secondary Driveway. The Riverside Plaza Secondary Driveway westbound approach consists of an exclusive right-turn lane under STOP control. No crosswalks or bicycle lanes are provided at the intersection.

Riverside Plaza Main Driveway at Riverside Plaza Internal Drive Aisle

The intersection of Riverside Plaza Main Driveway at the Riverside Plaza Internal Drive Aisle forms a three-legged unsignalized intersection and is located approximately 190 feet east of the Winchester Street at Key Road/Riverside Plaza Main Driveway roundabout. The Riverside Plaza Internal Drive Aisle forms the north and south legs, and the Riverside Plaza Main Driveway forms the west leg, which connects to the roundabout to the

west. The Internal Drive Aisle northbound approach consists of a shared left-turn/through lane under STOP control. The Internal Drive Aisle southbound approach consists of a through lane under STOP control and a channelized right-turn lane under YIELD control. The Riverside Plaza Main Driveway eastbound approach consists of an exclusive left-turn lane and an exclusive right-turn lane under STOP control. A crosswalk is provided across the western leg. No bicycle lanes are provided.

Area Transit Services

Public transportation is provided in Keene, NH by City Express via fixed Bus Route 1 (Red Route) and Bus Route 5 (Black Route). Bus Routes 1 and 5 operate on a loop system when buses depart from and return to the downtown Transportation Center. Both routes serve major hubs across the city, including Cheshire Medical Center, downtown shops, and major retail centers. Both routes provide a stop within the Riverside Plaza. The City Express buses operate between 8:00 AM and 4:30 PM on weekdays.

Existing Traffic Volumes

To assess peak hour traffic conditions, turning movement counts (TMCs) were conducted at the study area intersections during the weekday midday, weekday afternoon, and Saturday midday peak periods.

TMCs were conducted on Thursday, July 16, 2026, from 11:00 AM to 1:00 PM and from 3:00 PM to 6:00 PM, and on Saturday, July 18, 2026, from 11:00 AM to 2:00 PM. The results of the turning movement counts are tabulated by 15-minute periods and are provided in Appendix A of this TIS. The four highest consecutive 15-minute intervals during the weekday midday, weekday afternoon and Saturday midday peak periods constitute the peak hours that are the basis of the traffic analysis provided in this TIS. Based on a review of the peak period traffic data, the weekday midday peak hour occurs between 11:45 AM and 12:45 PM, the weekday afternoon peak hour occurs between 4:00 PM and 5:00 PM, and the Saturday midday peak hour occurs between 11:30 AM and 12:30 PM.

Seasonal Variation

To account for seasonal variation in traffic volumes, the NHDOT's 2024 Seasonal Adjustment Data was reviewed. Based on the seasonal data reviewed, July traffic volumes for urban highways like Winchester Street are shown to be approximately 1% lower than a peak month. Therefore, the July volumes were adjusted upward by 1% to reflect peak month conditions, consistent with the NHDOT guidelines. The NHDOT 2024 Seasonal Adjustment Data is provided in Appendix B of this TIS.

The resulting 2026 Existing weekday midday, weekday afternoon, and Saturday midday peak hour traffic volumes are presented in the traffic projection model provided in Appendix C and are presented in Figure 2, Figure 3, and Figure 4, respectively.

Future Conditions

To establish future traffic demands on the study area roadways and intersections, the 2026 Existing traffic volumes were projected to the opening year of 2027 and to the future design year of 2037, in accordance with NHDOT guidelines. Traffic volumes on the study area roadways in 2027 and 2037 are considered to include existing traffic, as well as new traffic resulting from general growth in the study area and from other planned development projects, independent of the Project. The potential background traffic growth, unrelated to the Project, was considered in the development of the 2027 Opening Year No Build (without Project) peak hour traffic volumes and the 2037 Design Year No Build (without Project) peak hour traffic volumes. The estimated traffic increases associated with the Project were included in the composition of the 2027 Opening Year Build (with Project) and 2037 Design Year Build (with Project) traffic conditions. A more detailed description of the development of the 2027 Opening Year No Build, 2027 Opening Year Build, 2037 Design Year No Build, and 2037 Design Year Build traffic volume networks is presented below.

Planned Roadway Improvements

Planned roadway improvement projects can impact travel patterns and future traffic operations. To develop an understanding of future area roadway operations, the NHDOT project information center was reviewed, as well as the City of Keene's Planning Department and the Department of Public Works were contacted. No planned roadway improvement projects were identified in the vicinity of the Project site, which would be anticipated to impact future traffic volumes or patterns.

Background Traffic Growth

Traffic growth is generally a function of changes in motor vehicle use and planned land development within the vicinity of the site. To establish the rate at which traffic volumes on the surrounding roadway network can be expected to grow during the one-year (to 2027 opening year) and opening year plus a ten-year forecast period (to 2037 design year), both planned area developments and historic traffic growth were reviewed.

Historical Traffic Growth

Background traffic growth accounts for changes in traffic volumes associated with general changes in population and other developments that are not known at this time. An annual background traffic growth rate of 1% per year, compounded annually, was established for the study area based on coordination with the City of Keene's Department of Public Works to growth the 2026 traffic volumes to 2027 and then 2027 traffic volumes to the future year of 2037.

Site-Specific Growth

The City of Keene's Planning Department was contacted to inquire about known additional developments in the area. No planned or under-construction projects were identified that would be expected to have an impact on the traffic patterns within the study area.

2027 Opening Year No Build Traffic Volumes

To establish the 2027 Opening Year No Build peak hour traffic volumes, the 2026 Existing volumes were grown by 1% per year for one year. The resulting 2027 Opening Year No Build weekday midday, weekday afternoon, and

Saturday midday peak hour traffic volumes are documented in the traffic projection model presented in Appendix C of this TIS and illustrated in Figure 5, Figure 6, and Figure 7, respectively.

2037 Design Year No Build Traffic Volumes

To establish the 2037 Design Year No Build peak hour traffic volumes, the 2027 Opening Year No Build volumes were grown by 1% per year for ten years. The resulting 2037 Design Year No Build weekday midday, weekday afternoon, and Saturday midday peak hour traffic volumes are documented in the traffic projection model presented in Appendix C of this TIS and illustrated in Figure 8, Figure 9, and Figure 10, respectively.

Trip Generation

To estimate the number of vehicle trips associated with the proposed quick service restaurant, the Institute of Transportation Engineers' (ITE) publication, *Trip Generation Manual, 12th Edition*, was referenced. ITE is a national research organization of transportation professionals, and the *Trip Generation Manual, 12th Edition*, provides traffic generation information for various land uses compiled from studies conducted by members nationwide. This reference establishes vehicle trip rates based on actual traffic counts conducted at similar types of existing land uses. Vehicle trip estimates for the proposed Project were developed based on data presented for Land Use Code (LUC) 929 (High-Volume Fast-Food Restaurant), based on 4,576 sf. Updates to the 12th Edition of the *Trip Generation Manual* include this new LUC 929, which shows trips being generated at a higher rate than other fast-food restaurant LUCs.

Internal Capture Trips

A portion of the trips to and from the proposed quick service restaurant would be expected to be drawn from vehicles already visiting the Riverside Plaza. Vehicles already traveling within the Riverside Plaza and interacting with multiple land uses that could include the proposed Project, are considered to be "internal capture" trips that do not represent additional vehicle trips on the adjacent roadway network. Based on data provided by the National Cooperative Highway Research Program (NCHRP), the internal capture rate between a restaurant of this size and adjacent retail uses within the same shopping plaza is approximately 29%. In order to present a more conservative assessment of the Project impact on the surrounding roadway network, a lower internal capture rate of 20% was applied to the trip generation projections associated with the Project.

Pass-by Trips

A significant portion of the total trips attracted to quick service restaurant land uses are considered "pass-by" trips, as not all trips to quick service restaurants are "new trips". Since pass-by traffic is already part of the adjacent roadway network, this portion of the total estimated vehicle trips is included in the existing base traffic volumes and does not represent new traffic on the roadways. Therefore, the total estimated trips associated with the Project are reduced by the pass-by volume to estimate the net "new" traffic generated by the Project.

ITE does not provide pass-by information for LUC 929, so pass-by rates from the similar LUC 934 (Fast-Food Restaurant with Drive-Through Window) were used. For LUC 934, approximately 50% of weekday morning peak hour and approximately 55% of weekday afternoon peak hour trips are attributed to pass-by trips. As ITE does not provide pass-by data specific to weekday midday or Saturday midday peak hour, the 50% pass-by rate was applied. A summary of the peak hour trip generation estimates for the Project is shown in Table 2 below.

Table 1: Vehicle Trip Generation Summary

Description	Weekday Midday Peak Hour			Weekday Afternoon Peak Hour			Saturday Midday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Total Quick Service Restaurant Trips ¹	161	161	322	134	134	268	170	170	340
-Internal Capture Trips ²	-32	-32	-64	-27	-27	-54	-34	-34	-68
External Trips	129	129	258	107	107	214	136	136	272
-Pass-by Trips ³	-64	-64	-128	-59	-59	-118	-68	-68	-136
Net New Quick Service Restaurant Trips	65	65	130	48	48	96	68	68	136

1 ITE Land Use Code 929 (High-Volume Fast-Food Restaurant), based on 4,576 square feet.

2 NCHRP estimates an internal capture rate of 29%. To be conservative, an internal capture rate of 20% was applied to peak hour trips.

3 ITE does not provide pass-by information for LUC 929, so pass-by data associated with LUC 934 (Fast-Food Restaurant with Drive-Through) was used. LUC 934 indicates that approximately 50% of weekday morning and 55% of weekday afternoon trips are attributed to pass-by trips. ITE does not provide pass-by data specific to weekday midday or Saturday midday so the 50% pass-by rate is applied.

As shown in Table 1 above, the Project is estimated to result in approximately 130 net new trips (65 entering vehicles and 65 exiting vehicles) during the weekday midday peak hour, approximately 96 net new trips (48 entering vehicles and 48 exiting vehicles) during the weekday afternoon peak hour, and approximately 136 net new trips (68 entering vehicles and 68 exiting vehicles) during the Saturday midday peak hour. A summary of the trip generation calculations based on the ITE *Trip Generation Manual* is provided in Appendix D.

The vehicle trip generation associated with the former Rite Aid pharmacy was developed for comparison purposes based on LUC 881 (Pharmacy/Drugstore with Drive-Through Window). The trip generation associated with the former Rite Aid pharmacy was used solely for the comparison of trip generation between the previous and proposed land uses. The trip generation estimates for the proposed quick service restaurant that were applied to the traffic analysis were not reduced based on the previous use.

The peak hour trip generation for the proposed quick service restaurant and the former Rite Aid pharmacy are shown in Table 2.

Table 2: Vehicle Trip Generation Comparison

Description	Weekday Midday Peak Hour			Weekday Afternoon Peak Hour			Saturday Midday Peak Hour		
	Enter	Exit	Total	Enter	Exit	Total	Enter	Exit	Total
Total Proposed Quick Service Restaurant Trips ¹	161	161	322	134	134	268	170	170	340
-Total Former Rite Aid Pharmacy Trips ²	-65	-65	-130	-60	-60	-120	-51	-53	-104
Additional Project Trips	96	96	192	74	74	148	119	117	236

1 ITE Land Use Code 929 (High-Volume Fast-Food Restaurant), based on 4,576 square feet. This is the total number of vehicle trips including new trips, pass-by trips, and internal capture trips; see Table 1 above for information on the Project trip generation.

2 ITE Land Use Code 881 (Pharmacy/Drugstore with Drive-Through Window), based on 11,650 square feet. This is the total number of vehicle trips including new trips, pass-by trips, and internal capture trips

As shown in Table 2, the former Rite Aid land use generated approximately 130 total vehicle trips during the weekday midday peak hour, approximately 120 total vehicle trips during the weekday afternoon peak hour, and approximately 104 total vehicle trips during the Saturday midday peak hour. The proposed quick service restaurant is projected to generate more trips than the former Rite Aid, but as shown in Table 1, a large portion of those vehicle trips are considered to be internal capture trips or pass-by trips already traveling on the adjacent roadway network. As the former Rite Aid pharmacy is currently closed and not generating trips, these numbers were not used for further analysis in this TIS.

Trip Distribution and Assignment

The traffic estimated to be generated by the Project was distributed onto the study area roadways and intersections based on the existing travel patterns of the adjacent roadways. The resulting arrival and departure patterns are presented in Figure 11 and are documented in the traffic projection model located in Appendix C.

The Project-related traffic was assigned to the surrounding roadway network based on the trip distribution patterns shown in Figure 11. The new distributed Project trips are illustrated in Figure 12 for the weekday midday peak hour, Figure 13 for the weekday afternoon peak hour, and Figure 14 for the Saturday midday peak hour.

2027 Opening Year Build Traffic Volumes

The 2027 Opening Year Build traffic volumes were established by distributing the new Project trips on the 2027 Opening Year No Build traffic volumes network. The resulting 2027 Opening Year Build weekday midday, weekday afternoon, and Saturday midday peak hour traffic volumes are documented in the traffic projection model presented in Appendix C and presented in Figure 15, Figure 16, and Figure 17, respectively.

2037 Design Year Build Traffic Volumes

The 2037 Design Year Build traffic volumes were established by distributing the new Project trips on the 2037 Design Year No Build traffic volumes network. The resulting 2037 Design Year Build weekday midday, weekday afternoon, and Saturday midday peak hour traffic volumes are documented in the traffic projection model presented in Appendix C and presented in Figure 18, Figure 19, and Figure 20, respectively.

Traffic Operations Analysis

In previous sections of this TIS, the quantity of traffic at the study area intersections has been discussed. This section describes the overall quality of the traffic flow at the study area intersections during the weekday midday, weekday afternoon, and Saturday midday peak hours. To complete this assessment, intersection capacity analysis was conducted using Synchro 12 capacity analysis software for unsignalized intersections and using SIDRA capacity analysis software for the roundabout intersections under the 2026 Existing, 2027 Opening Year No Build, 2037 Design Year No Build, 2027 Opening Year Build, and 2037 Design Year Build scenarios for the three peak hour traffic conditions. The analysis is based on Synchro methodologies and procedures contained in the Highway Capacity Manual, 7th Edition (HCM). A discussion of the evaluation criteria and a summary of the results of the capacity analysis are presented below.

Operational Criteria

The SIDRA and Synchro capacity analysis software provide methodologies for evaluating intersection performance based on operational parameters including vehicle delay, volume-to-capacity (v/c) ratio, and vehicle queuing. At unsignalized and roundabout intersections, delay calculations depend primarily on conflicting volumes, gap acceptance, and intersection control type. The calculated average vehicle delay is reported as a level-of-service (LOS) on a scale of A to F. LOS A represents delays of 10 seconds or less, while LOS F represents delays in excess of 50 seconds for unsignalized intersections. Table 3 below summarizes the average vehicle delay associated with each LOS.

Table 3: Level of Service	
Level of Service	Average Vehicle Delay
	Unsignalized Intersection
A	≤10
B	>10-15
C	>15-25
D	>25-35
E	>35-50
F	>50

The v/c ratio reflects vehicle demand relative to available capacity, incorporating intersection control and capacity for vehicular movements. Queue length estimation uses models based on arrival patterns and potential residual queues to estimate vehicle queues under the 95th percentiles of traffic volumes during a peak hour.

Capacity Analysis Results

Intersection capacity analysis was completed for the study area intersections to evaluate the 2026 Existing, 2027 Opening Year No Build, 2037 Design Year No Build, 2027 Opening Year Build, and 2037 Design Year Build conditions during the weekday midday, weekday afternoon, and Saturday midday peak hours. The peak hour traffic volumes utilized as part of this analysis are provided in the traffic projection model, attached in Appendix C of this TIS.

The detailed capacity analysis results for the 2026 Existing, 2027 Opening Year No Build, 2037 Design Year No Build, 2027 Opening Year Build, and 2037 Design Year Build traffic conditions are presented in Appendix E, Appendix F, Appendix G, Appendix H, and Appendix I, respectively. The capacity results at the study area intersections during the weekday midday, weekday afternoon, and Saturday midday peak hour are presented in Table 4, Table 5, and Table 6, respectively. The results of the specific capacity analysis at the study area intersections are discussed below, with a more detailed summary of the capacity analysis for the study area intersections provided in Appendix J.

Table 4: Capacity Analysis Summary – Weekday Midday Peak Hour

Intersection	Movement	2026 Existing			2027 Opening Year No Build			2027 Opening Year Build			2037 Design Year No Build			2037 Design Year Build		
		LOS ¹	Delay ²	V/C ³	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Winchester Street at	EB LTR	B	10.5	0.28	B	10.7	0.28	B	11.2	0.29	B	12.8	0.34	B	13.5	0.36
Island Street/	WB L	B	12.9	0.64	B	13.2	0.65	B	14.4	0.68	C	17.2	0.75	C	19.2	0.78
Pearl Street	TR	A	4.7	0.13	A	4.7	0.13	A	4.8	0.13	A	5.0	0.15	A	5.1	0.15
(Roundabout)	NB LT	A	5.0	0.26	A	5.0	0.27	A	5.1	0.28	A	5.3	0.30	A	5.4	0.31
	R	A	5.8	0.34	A	5.8	0.35	A	5.9	0.36	A	6.3	0.39	A	6.4	0.40
	SB LT	A	8.9	0.28	A	9.0	0.28	A	9.4	0.30	B	10.5	0.34	B	11.0	0.35
	TR	A	8.2	0.28	A	8.3	0.28	A	8.6	0.30	A	9.6	0.34	B	10.0	0.35
	NEB LTR	A	5.5	0.02	A	5.6	0.02	A	5.7	0.02	A	6.0	0.02	A	6.2	0.02
	Overall	A	8.6	0.64	A	8.8	0.65	A	9.3	0.68	B	10.6	0.75	B	11.3	0.78
Winchester Street at	EB LT	C	19.0	0.57	C	19.4	0.58	D	25.3	0.66	D	25.3	0.67	D	34.9	0.77
Key Road/	R	A	9.4	0.24	A	9.5	0.24	B	10.4	0.25	B	10.7	0.28	B	11.8	0.30
Plaza Main Driveway	WB LT	C	18.2	0.51	C	18.5	0.52	C	21.9	0.61	C	23.1	0.58	D	28.5	0.69
(Roundabout)	TR	B	10.7	0.25	B	10.8	0.26	B	13.2	0.40	B	12.5	0.29	C	15.6	0.44
	NB LT	B	10.9	0.51	B	11.1	0.52	B	12.3	0.54	B	13.0	0.58	B	14.7	0.61
	TR	B	10.6	0.51	B	10.7	0.52	B	11.9	0.54	B	12.6	0.58	B	14.1	0.61
	SB LT	C	16.9	0.64	C	17.2	0.65	C	21.4	0.72	C	22.0	0.74	D	28.9	0.81
	TR	C	15.6	0.64	C	15.9	0.65	C	19.7	0.72	C	20.3	0.74	D	26.5	0.81
	Overall	B	14.3	0.64	B	14.5	0.65	C	17.5	0.72	C	18.0	0.74	C	22.7	0.81
Winchester Street at	WB R	B	13.3	0.13	B	13.4	0.13	B	13.7	0.14	B	14.0	0.14	B	14.4	0.15
Plaza Secondary Driveway	NB TR	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
(Unsignalized)	SB T	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
Plaza Main Driveway at	EB L	A	9.6	0.13	A	9.6	0.13	B	10.1	0.14	A	9.6	0.13	B	10.1	0.14
Plaza Internal Drive Aisle	R	A	8.9	0.23	A	8.9	0.23	B	10.7	0.36	A	8.9	0.23	B	10.7	0.36
(Unsignalized)	NB LT	B	11.2	0.41	B	11.2	0.41	C	15.8	0.62	B	11.2	0.41	C	15.8	0.62
	SB TR	A	7.7	0.08	A	7.7	0.08	A	8.3	0.09	A	7.7	0.08	A	8.3	0.09

¹ Level-of-Service

² Average vehicle delay, in seconds

³ Volume to capacity ratio

As shown in Table 4 above, during the weekday midday peak hour, the Winchester Street at Island Street/Pearl Street roundabout is projected to operate at overall LOS A under the 2026 Existing conditions. Under both the

2027 Opening Year No Build and 2027 Opening Year Build conditions, the roundabout is expected to continue operating at overall LOS A. Under the 2037 Design Year, the roundabout is projected to operate at overall LOS B under both the No Build and Build conditions.

The Winchester Street at Key Road/Riverside Plaza Main Driveway roundabout is projected to operate at overall LOS B under the 2026 Existing and 2027 Opening Year No Build conditions. Under the 2027 Opening Year Build, 2037 Design Year No Build, and 2037 Design Year Build conditions, the roundabout is projected to operate at overall LOS C.

The stop-controlled westbound approach at the Riverside Plaza Secondary Driveway intersection to Winchester Street is projected to operate at LOS B during the weekday midday peak hour under all analysis scenarios.

At the all-way stop-controlled intersection of Riverside Plaza Main Driveway at Riverside Plaza Internal Drive Aisle, the eastbound left-turn and right-turn movements are projected to operate at LOS A under the 2026 Existing, 2027 Opening Year No Build, and 2037 Design Year No Build conditions. Under both 2027 Opening Year and 2037 Design Year Build conditions, these eastbound movements are expected to operate at LOS B. The northbound approach is projected to operate at LOS B under the 2026 Existing and both No Build conditions, and is projected to operate at LOS C under both Build conditions. The southbound approach is projected to operate at LOS A under all scenarios analyzed during the weekday midday peak hour.

Table 5: Capacity Analysis Summary – Weekday Afternoon Peak Hour

Intersection	Movement	2026 Existing			2027 Opening Year						2037 Design Year					
		LOS ¹	Delay ²	V/C ³	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Winchester Street at	EB LTR	B	10.6	0.31	B	10.8	0.31	B	11.2	0.33	B	13.1	0.38	B	13.5	0.39
Island Street/ Pearl Street (Roundabout)	WB L	B	12.5	0.63	B	12.8	0.64	B	13.8	0.67	C	16.6	0.73	C	17.9	0.76
	TR	A	4.8	0.13	A	4.8	0.13	A	4.9	0.13	A	5.1	0.15	A	5.2	0.15
	NB LT	A	5.1	0.27	A	5.1	0.27	A	5.3	0.29	A	5.4	0.30	A	5.5	0.31
	R	A	5.8	0.34	A	5.9	0.34	A	6.0	0.35	A	6.4	0.38	A	6.5	0.39
	SB LT	A	8.7	0.27	A	8.8	0.27	A	9.1	0.29	B	10.2	0.33	B	10.5	0.34
	TR	A	8.0	0.27	A	8.0	0.27	A	8.3	0.29	A	9.3	0.33	A	9.6	0.34
	NEB LTR	A	5.4	0.01	A	5.5	0.01	A	5.6	0.01	A	5.9	0.01	A	6.0	0.01
	Overall	A	8.5	0.63	A	8.6	0.64	A	9.1	0.67	B	10.4	0.73	B	10.9	0.76
Winchester Street at Key Road/ Plaza Main Driveway (Roundabout)	EB LT	B	14.2	0.40	B	14.4	0.41	C	16.8	0.46	C	17.3	0.48	C	20.5	0.53
	R	A	8.3	0.15	A	8.4	0.15	A	9.0	0.16	A	9.3	0.18	A	10.0	0.19
	WB LT	B	13.1	0.43	B	13.3	0.43	B	14.7	0.50	C	15.5	0.48	C	17.5	0.55
	TR	A	8.6	0.24	A	8.7	0.25	A	9.9	0.34	A	9.8	0.27	B	11.2	0.37
	NB LT	A	7.8	0.40	A	7.9	0.40	A	8.4	0.42	A	8.7	0.45	A	9.4	0.47
	TR	A	7.8	0.40	A	7.9	0.40	A	8.4	0.42	A	8.7	0.45	A	9.4	0.47
	SB LT	C	15.2	0.63	C	15.5	0.64	C	18.2	0.69	C	19.3	0.72	C	23.5	0.78
	TR	B	14.3	0.63	B	14.5	0.64	C	17.0	0.69	C	18.1	0.72	C	22.0	0.78
	Overall	B	11.7	0.63	B	11.9	0.64	B	13.6	0.69	B	14.2	0.72	C	16.7	0.78
Winchester Street at Plaza Secondary Driveway (Unsignalized)	WB R	B	12.3	0.08	B	12.3	0.08	B	12.5	0.09	B	12.8	0.09	B	13.0	0.10
	NB TR	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
	SB T	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
Plaza Main Driveway at Plaza Internal Drive Aisle (Unsignalized)	EB L	A	9.7	0.13	A	9.7	0.13	B	10.1	0.14	A	9.7	0.13	B	10.1	0.14
	R	A	9.0	0.23	A	9.0	0.23	B	10.6	0.35	A	9.0	0.23	B	10.6	0.35
	NB LT	B	11.8	0.46	B	11.8	0.46	C	16.0	0.62	B	11.8	0.46	C	16.0	0.62
	SB TR	A	7.9	0.10	A	7.9	0.10	A	8.4	0.11	A	7.9	0.10	A	8.4	0.11

1 Level-of-Service

2 Average vehicle delay, in seconds

3 Volume to capacity ratio

As shown in Table 5 above, during the weekday afternoon peak hour, the Winchester Street at Island Street/Pearl Street roundabout is projected to operate at overall LOS A under the 2026 Existing conditions. Under both the 2027 Opening Year No Build and 2027 Opening Year Build conditions, the roundabout is expected to continue operating at overall LOS A. Under the 2037 Design Year, the roundabout is projected to operate at overall LOS B under both the No Build and Build conditions.

The Winchester Street at Key Road/Riverside Plaza Main Driveway roundabout is projected to operate at overall LOS B under the 2026 Existing, 2027 Opening Year No Build, 2027 Opening Year Build, and 2037 Design Year No Build conditions. The roundabout is projected to operate at overall LOS C under the 2037 Design Year Build condition.

The stop-controlled westbound approach at the Riverside Plaza Secondary Driveway intersection with Winchester Street is projected to operate at LOS B during the weekday afternoon peak hour under all analysis scenarios.

At the all-way stop-controlled intersection of Riverside Plaza Main Driveway at Riverside Plaza Internal Drive Aisle, the eastbound left-turn and right-turn movements are projected to operate at LOS A under the 2026 Existing, 2027 Opening Year No Build, and 2037 Design Year No Build conditions. Under both Build conditions, the eastbound movements are expected to operate at LOS B. The northbound approach is projected to operate at LOS B under the 2026 Existing and both No Build conditions and is projected to operate at LOS C under both Build conditions. The southbound approach is projected to operate at LOS A under all scenarios analyzed during the weekday afternoon peak hour.

Table 6: Capacity Analysis Summary – Saturday Midday Peak Hour

Intersection	Movement	2026 Existing			2027 Opening Year No Build			2027 Opening Year Build			2037 Design Year No Build			2037 Design Year Build		
		LOS ¹	Delay ²	V/C ³	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C	LOS	Delay	V/C
Winchester Street at Island Street/ Pearl Street (Roundabout)	EB LTR	A	7.5	0.18	A	7.6	0.18	A	8.0	0.19	A	8.7	0.22	A	9.1	0.23
	WB L	A	9.0	0.48	A	9.1	0.48	A	9.7	0.51	B	10.6	0.55	B	11.4	0.58
	TR	A	4.0	0.06	A	4.0	0.06	A	4.0	0.06	A	4.2	0.07	A	4.2	0.07
	NB LT	A	4.7	0.25	A	4.7	0.25	A	4.8	0.26	A	5.0	0.28	A	5.1	0.29
	R	A	4.9	0.27	A	5.0	0.28	A	5.0	0.29	A	5.3	0.31	A	5.4	0.32
	SB LT	A	7.0	0.23	A	7.1	0.24	A	7.4	0.25	A	7.9	0.27	A	8.3	0.29
	TR	A	6.5	0.23	A	6.6	0.24	A	6.9	0.25	A	7.4	0.27	A	7.7	0.29
	NEB LTR	A	4.9	0.01	A	5.0	0.01	A	5.1	0.01	A	5.3	0.01	A	5.5	0.01
	Overall	A	6.6	0.48	A	6.6	0.48	A	6.9	0.51	A	7.4	0.55	A	7.8	0.58
Winchester Street at Key Road/ Plaza Main Driveway (Roundabout)	EB LT	C	15.9	0.47	C	16.1	0.48	C	20.2	0.56	C	19.5	0.55	D	25.2	0.64
	R	A	8.3	0.17	A	8.4	0.17	A	9.2	0.18	A	9.2	0.20	B	10.0	0.20
	WB LT	C	17.8	0.56	C	18.1	0.57	C	22.6	0.67	C	22.4	0.63	D	29.5	0.74
	TR	A	9.5	0.27	A	9.7	0.27	B	11.1	0.35	B	11.0	0.30	B	12.7	0.39
	NB LT	A	9.5	0.46	A	9.6	0.47	B	10.9	0.50	B	10.8	0.52	B	12.5	0.56
	TR	A	9.4	0.46	A	9.5	0.47	B	10.8	0.50	B	10.8	0.52	B	12.4	0.56
	SB LT	C	16.7	0.63	C	17.0	0.64	C	21.1	0.70	C	21.4	0.72	D	27.9	0.79
	TR	C	15.5	0.63	C	15.8	0.64	C	19.5	0.70	C	19.8	0.72	D	25.7	0.79
	Overall	B	13.3	0.63	B	13.5	0.64	C	16.5	0.70	C	16.3	0.72	C	20.7	0.79
Winchester Street at Plaza Secondary Driveway (Unsignalized)	WB R	B	12.8	0.11	B	12.9	0.11	B	14.1	0.21	B	13.5	0.12	B	14.9	0.23
	NB TR	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
	SB T	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00	A	0.0	0.00
Plaza Main Driveway at Plaza Internal Drive Aisle (Unsignalized)	EB L	A	10.0	0.14	A	10.0	0.14	B	10.6	0.15	A	10.0	0.14	B	10.6	0.15
	R	B	10.8	0.37	B	10.8	0.37	B	14.4	0.53	B	10.8	0.37	B	14.4	0.53
	NB LT	B	14.9	0.58	B	14.9	0.58	C	25.0	0.78	B	14.9	0.58	C	25.0	0.78
	SB TR	A	8.4	0.12	A	8.4	0.12	A	9.1	0.13	A	8.4	0.12	A	9.1	0.13

1 Level-of-Service

2 Average vehicle delay, in seconds

3 Volume to capacity ratio

As shown in Table 6 above, during the Saturday midday peak hour, the Winchester Street at Island Street/Pearl Street roundabout is projected to operate at overall LOS A under all the scenarios analyzed.

The Winchester Street at Key Road/Riverside Plaza Main Driveway roundabout is projected to operate at overall LOS B under the 2026 Existing and 2027 Opening Year No Build conditions. Under the 2027 Opening Year Build, 2037 Design Year No Build, and 2037 Design Year Build conditions, the roundabout is projected to operate at overall LOS C.

The stop-controlled westbound approach at the Riverside Plaza Secondary Driveway intersection with Winchester Street is projected to operate at LOS B during the Saturday midday peak hour under all analysis scenarios.

At the all-way stop-controlled intersection of Riverside Plaza Main Driveway at Riverside Plaza Internal Drive Aisle, the eastbound left-turn movement is projected to operate at LOS A under the 2026 Existing, 2027 Opening Year No Build, and 2037 Design Year No Build conditions. Under both Build conditions, this movement is expected to operate at LOS B. The eastbound right-turn movement is projected to operate at LOS B during the Saturday midday peak hour under all scenarios analyzed. The northbound approach is projected to operate at LOS B during the 2026 Existing, 2027 Opening Year No Build, and 2037 Design Year No Build conditions. Under both Build conditions, this movement is expected to operate at LOS C. The southbound approach is projected to operate at LOS A under all scenarios analyzed during the Saturday midday peak hour.

Site Access and Circulation

Access to the site would continue to be provided via both the Riverside Plaza Main Driveway and the Riverside Plaza Secondary Driveway via Winchester Street. The existing enter-only driveway located on the southeast leg of the Winchester Street at Key Road/Riverside Main Plaza Driveway roundabout would be closed as part of the proposed redevelopment.

Two (2) drive-through lanes would circulate in a counterclockwise direction around the restaurant, starting at the northwest side of the building and ending at the pick-up window along the northeast side of the building. A bypass lane would also be provided, terminating at the southeast side of the building where the bypass lane would connect to the plaza's internal drive aisle. Two-way circulation would be provided along the north side of the building as well as within the existing parking areas east of the site. A STOP line supplemented with signs would be provided at the drive-through exits, as well as the bypass exit. Additional STOP lines supplemented with signs would be provided east of the building along the drive aisle to ensure safe circulation around the Project site.

Parking for the Project would continue to be provided within the surface lot shared with the Riverside Plaza. With the Project in place, the parking area surrounding the building would be modified resulting in a net loss of eight (8) parking spaces. Two (2) accessible spaces would be provided on the north side of the proposed building.

Sight Distance

A field review of the available sight distance was conducted at the Riverside Plaza Secondary Driveway on Winchester Street. The American Association of State Highway and Transportation Officials (AASHTO) publication, *A Policy on Geometric Design, 2018 Edition*, defines minimum and recommended sight distances at intersections and was used to conduct this review.

The minimum sight distance is based on the required stopping sight distance (SSD) for vehicles traveling along the main road. The SSD is the length of roadway required for a driver along the main road to see ahead in order to stop safely and avoid colliding with an object within their path of travel.

The required SSD based on the posted speed limit and the corresponding field-measured sight distances are reported below in Table 7.

Table 7: Stopping Sight Distance Summary

Location	Approaching	Posted Speed (mph)	SSD¹ Required (ft)	SSD Measured (ft)	Meets Required SSD?
Riverside Plaza Secondary Driveway at Winchester Street	Northbound	30	200	> 300	Yes

¹ Stopping sight distance (see AASHTO equations 3-2 and 3-3) based on the posted speed limit.

As shown in Table 7 above, the available SSD for vehicles traveling northbound on Winchester Street towards the Riverside Plaza Secondary Driveway exceeds the minimum SSD requirements for the posted speed limit.

The AASHTO-recommended sight distance allows vehicles to enter the main street traffic flow without requiring the mainline traffic to slow to less than 70% of their speed and is referred to as intersection sight distance (ISD). Additionally, according to AASHTO, "If the available sight distance for an entering or crossing vehicle is at least equal to the appropriate stopping sight distance for the major road, then drivers have sufficient time to anticipate and avoid collisions." The required and recommended sight distances for vehicles exiting Riverside Plaza Secondary Driveway and the field-measured ISDs are reported in Table 8 below.

Table 8: Intersection Sight Distance Summary

Driveway Location	Looking	Posted Speed (mph)	ISD¹ Recommended (ft)	ISD Measured (ft)	Meets Recommended ISD?
Riverside Plaza Secondary Driveway at Winchester Street	Left (South)	30	290	> 300	Yes

¹ Intersection sight distance (see AASHTO equations 9-1 and 9-2) based on the posted speed limit.

As shown in Table 8, for vehicles turning right to exit from Riverside Plaza Secondary Driveway onto Winchester Street, the ISD is available beyond the AASHTO-recommended distance.

Additionally, sight distance at the existing internal driveways within the Riverside Plaza was also evaluated. The available SSD and ISD for vehicles approaching and exiting at the existing locations was observed to be adequate and meet AASHTO's requirements.

Conclusion

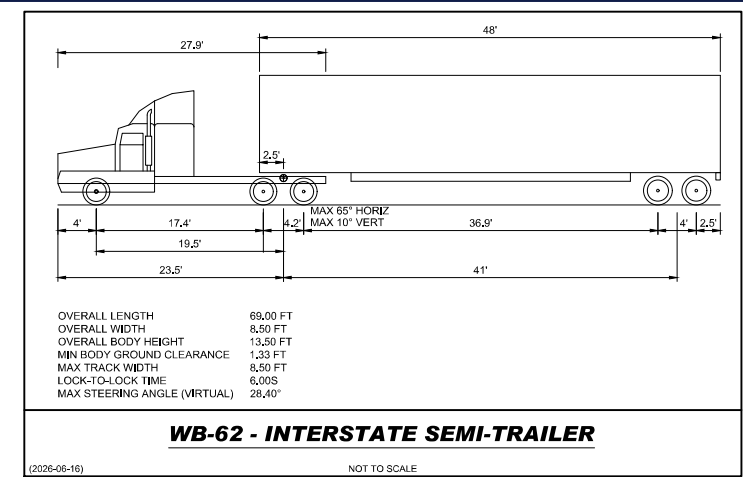
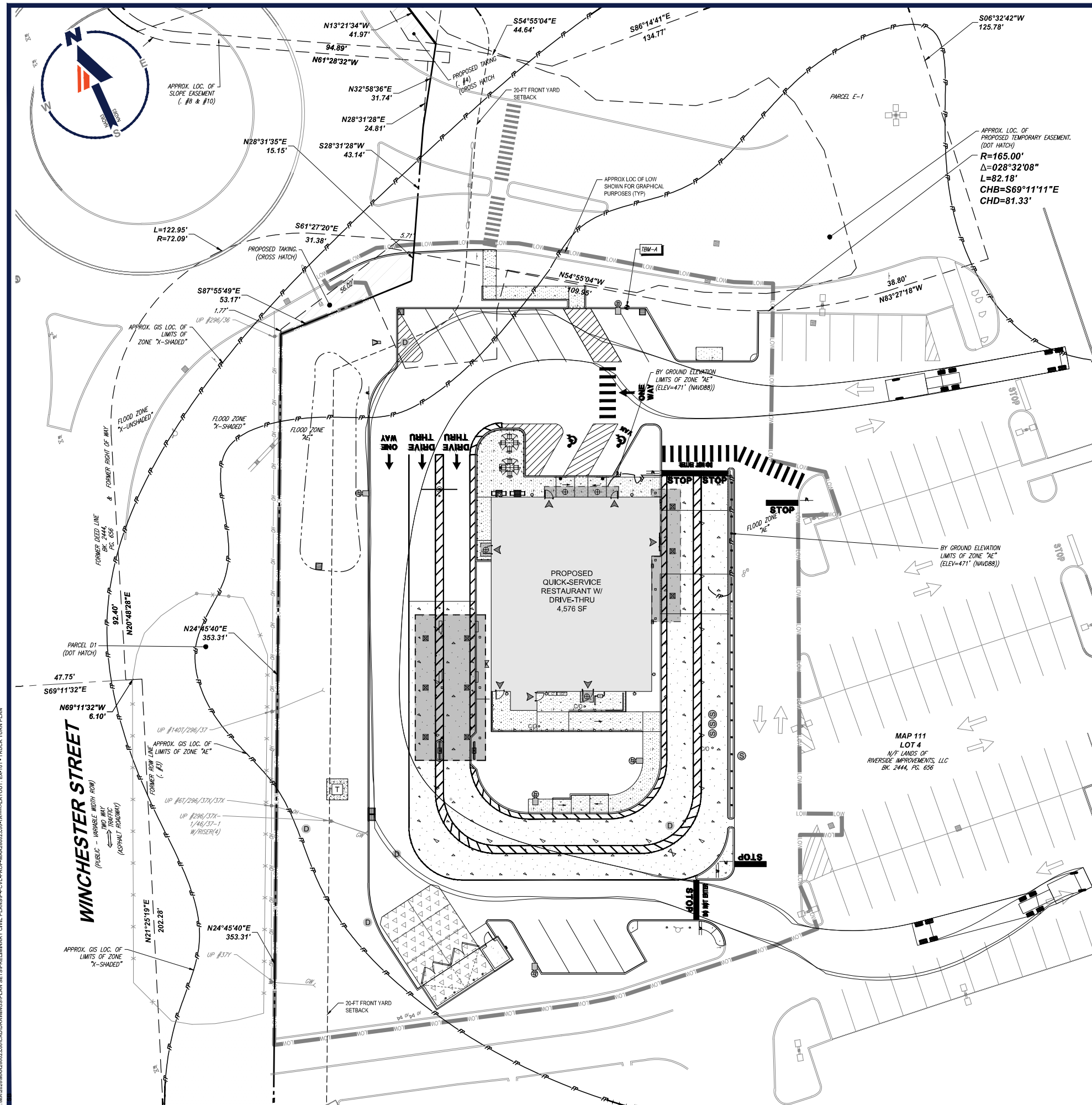
The Project would include the demolition of the existing structure and the construction of a new approximately 4,576 sf Quick Service Restaurant building with two (2) drive-through lanes and a bypass lane. Access to the site would continue to be provided via both the Riverside Plaza Main Driveway and the Riverside Plaza Secondary Driveway on Winchester Street. The existing enter-only driveway located on the southeast leg of the Winchester Street at Key Road/Riverside Main Plaza Driveway roundabout would be closed.

A significant portion of the total trips attracted to quick service restaurant land uses are considered pass-by trips, as not all trips to such land uses are new trips. The Project is estimated to result in approximately 130 net new trips (65 entering vehicles and 65 exiting vehicles) during the weekday midday peak hour, approximately 96 net new trips (48 entering vehicles and 48 exiting vehicles) during the weekday afternoon peak hour, and approximately 136 net new trips (68 entering vehicles and 68 exiting vehicles) during the Saturday midday peak hour.

Under the 2037 Design Year Build conditions, the roundabout of Winchester Street at Island Street/Pearl Street is projected to operate at an overall LOS B or better during the weekday midday, weekday afternoon and Saturday midday peak hours. With the Project in place, the roundabout of Winchester Street at Key Road/Riverside Plaza Main Driveway is projected to operate at an overall LOS C or better during the weekday midday, weekday afternoon and Saturday midday peak hours.

The movements at the all-way stop-controlled intersection of Riverside Plaza Main Driveway at Riverside Plaza Internal Drive Aisle are projected to operate at LOS C or better during the weekday midday, weekday afternoon and Saturday midday peak hours.

Based on a review of the analysis contained within this traffic impact study, the proposed redevelopment is shown to have minor impacts on the overall traffic operations at the study area intersections.



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CHECKED BY:	JNF
DATE:	08/20/2026
CAD I.D.:	P-PCVL-PROP

SITE DEVELOPMENT PLANS

FOR

**RIVERSIDE
IMPROVEMENTS, LLC**

**PROPOSED QUICK SERVICE
RESTAURANT**

**354 WINCHESTER STREET
KEENE, NH 03431**

SHEET TITLE:

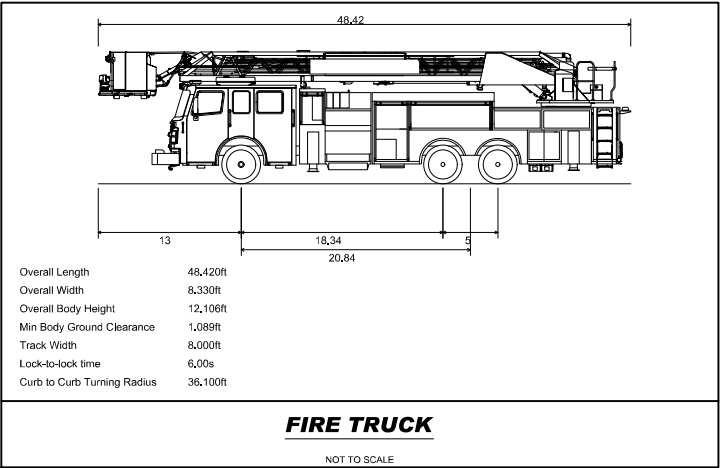
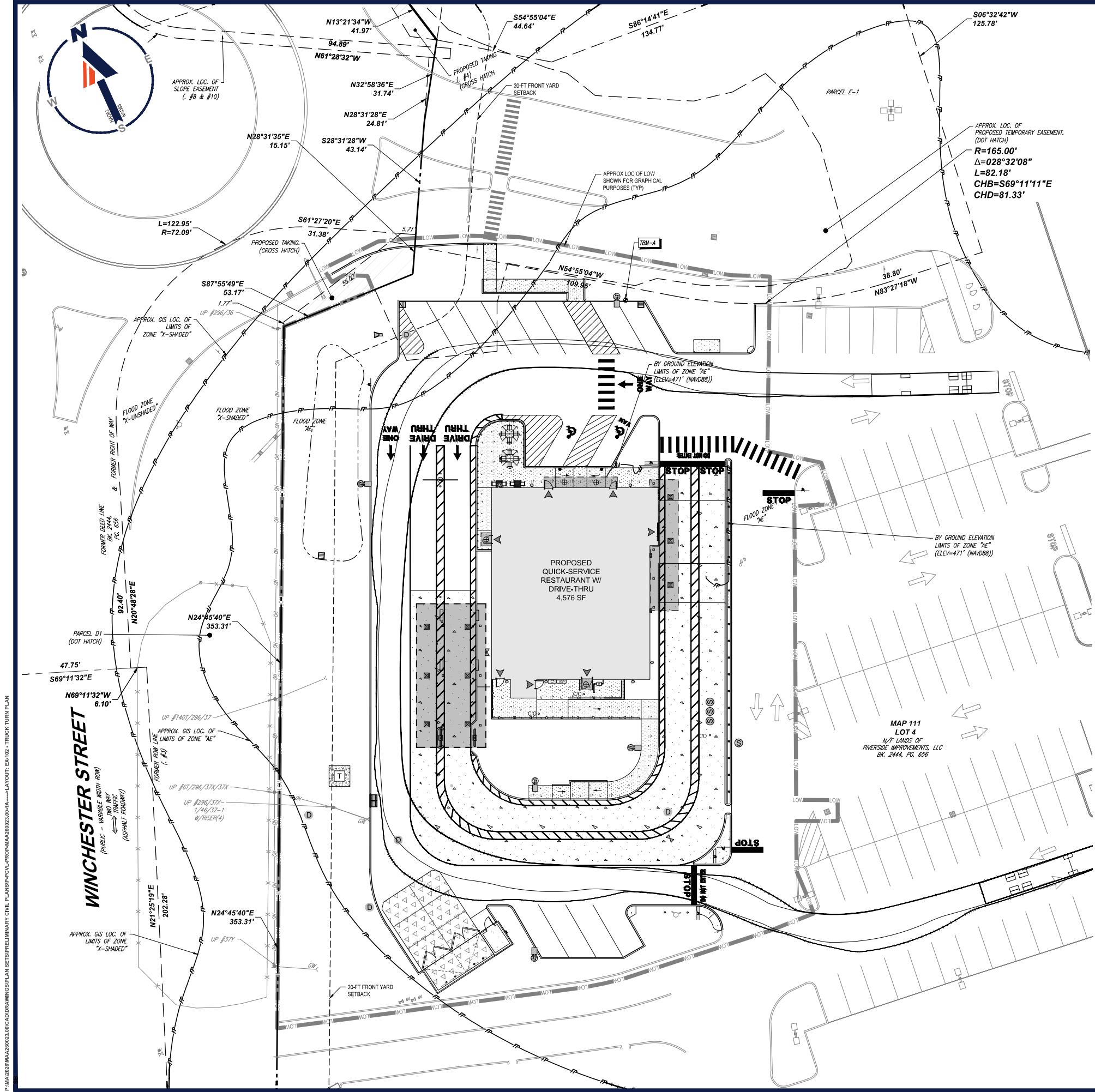
***DELIVERY
TRUCK TURN
EXHIBIT***

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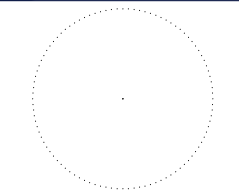
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DRAWN BY: AEH
CHECKED BY: JNF
DATE: 08/20/2026
CAD I.D.: P-PCVL-PROP

PROJECT:
SITE DEVELOPMENT PLANS
FOR

RIVERSIDE IMPROVEMENTS, LLC

PROPOSED QUICK SERVICE RESTAURANT
354 WINCHESTER STREET
KEENE, NH 03431



SHEET TITLE:
FIRE TRUCK TURN EXHIBIT

SHEET NUMBER:
C-203

REVISION 1 - 09/14/2026

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DRAINAGE REPORT

For

RIVERSIDE IMPROVEMENTS, LLC

PROPOSED

Quick Service Restaurant w/ Drive-Thru

***354 Winchester Street
Keene, Cheshire County, New Hampshire***

Prepared by:

BOHLER ENGINEERING
50 Washington Street, Suite 2000
Westborough, MA 01581
(508)-480-9900 TEL.



J.A. Kucich
New Hampshire P.E. Lic. # 15476

BOHLER //

September 14th, 2026 – Rev. 1a
#MAA260023.00

PROJECT NARRATIVE

I. Description

Riverside Improvements, LLC ("Applicant") proposes to redevelop 354 Winchester Street (Map 111, Lot 4) in Keene, New Hampshire. Redevelopment efforts consist of constructing a new quick-serve restaurant w/ drive thru with associated parking, landscape, and stormwater improvements.

II. Pre-Development Conditions

The subject site is a 21.16± acre parcel of land, denoted as Lot 4 on Assessor's Map 111. The site is located on Winchester Street within the Commerce District. The site is primarily surrounded by wooded areas with commercial businesses to the west, Route 101 to the south, and Winchester Street to the east. The site consists of an existing commercial development with multiple retail tenants, parking, and landscaping, and can be accessed by two curb cuts from by Winchester Street.

The site is located in other areas Zone X (areas of minimal flood hazard) and special flood hazard area Zone AE (base flood elevation determined) per map entitled "National Flood Insurance Program Flood Insurance Rate Map, Cheshire County, New Hampshire, (All Jurisdictions), Panel 266 of 610, Map Number 33005C0266E, with a map revision date of May 23, 2006.

Most of the on soils are mapped as Occum fine sandy loam which are classified by the Natural Resource Conservation Service (NRCS) as Hydrologic Soil Group (HSG) "A".

The site primarily drains to existing catch basins within the parking areas which collect runoff and convey flows through a subsurface stormwater network to a detention basin south of the project.

III. Post-Development Conditions

The project proposes the construction of a single 4,576± square foot (SF) quick-serve restaurant w/ drive-thru with associated paved parking areas, driveways, landscaping, utilities, and stormwater management systems. The site will be served by public water, sanitary sewer, and gas. The electric and communication services are proposed by connections to existing infrastructure proximate to the site frontage.

There is a net decrease in impervious area of 118 square feet and total disturbance of 1.08 acres.

The stormwater management system has been designed in accordance with the standards described in Env-Wq 1500.

The stormwater control measure (SCMs formerly best management practices (BMPs)) incorporated is a bioretention system with internal storage reservoir. The proposed development area has been designed to drain to the SCMs via a conventional closed-pipe drainage system with catch basins with deep sumps and hooded outlets. Pretreatment of stormwater runoff not conveyed to the bioretention pond is achieved by a hydrodynamic separator for stormwater flowing to catch basin A-21. Under existing conditions, a large portion of the parking area and building roof area directed stormwater to the existing stormwater infrastructure within the plaza with no pre-treatment. Under the proposed condition, the total area that is being directed to the existing stormwater system is being reduced. The remaining portions of the site will have improved stormwater quality through the proposed bio-retention basin and water quality device.

Please refer to the enclosed Site Plan Documents and HydroCAD for additional detail regarding the proposed stormwater management features included as part of the project.

IV. Drainage Analysis

The analysis was completed with HydroCAD, utilizing the SCS TR-20 Runoff Method, 24-hour duration NRCS Type III storm distribution, and rainfall depths from NOAA ATLAS 14 for the site location.

Pipes have been designed for the 25-year storm using the Rational Method. Outlet Protection in the form of riprap apron or riprap scour hole is provided at each outfall and designed for the 25-year storm for stormwater basin inflows. A pipe sizing table can be found in Appendix F.

The table below summarizes the pre-development versus post-development peak discharge rates at the design point (DP), where DP1 is the existing stormwater system.

Peak Flow Discharge in cubic feet per second (cfs)																					
	1-year			2-year			5-year			10-year			25-year			50-year			100-year		
	Pre-	Post-	Delta	Pre-	Post-	Delta	Pre-	Post-	Delta	Pre-	Post-	Delta	Pre-	Post-	Delta	Pre-	Post-	Delta	Pre-	Post-	Delta
DP1	2.04	1.79	-0.25	2.44	2.14	-0.30	3.10	2.70	-0.40	3.66	3.19	-0.47	4.61	4.00	-0.61	5.39	4.67	-0.72	6.44	5.56	-0.88

In accordance with NHDES Env-Wq 1500: Alteration of Terrain, New Hampshire Stormwater Manual, the following criteria is met.

Env-Wq 1507.03 - Pollutant Discharge Minimization

This criterion is met by providing WQV in the SCM and by treating WQF (for pretreatment). Refer to the SCM worksheets enclosed for additional detail. The project includes a LID practice (Bioretention) and a proprietary treatment unit (Contech CDS) to treat runoff prior to discharge into the existing stormwater system.

Env-Wq 1507.04 - Groundwater Recharge

The redevelopment results in a net decrease of impervious area from existing conditions, therefore GRV calculations are not provided.

Env-Wq 1507.05 - Channel Protection

This criterion is met as the site complies with 1507.05(b)(1)b. A separate HydroCAD link is included representing the proposed disturbance areas other than the basin outflows. The hydrograph from the basin outflows and this link represents the proposed disturbance areas and reports <2cfs from the 2-yr storm event.

- 1507.05(b)(1) *The 2-year, 24-hour post-development peak flow rate generated from the proposed disturbance shall be equal to or less than the 2-year, 24-hour pre-development peak flow rate and:*
 - a. *The 2 year, 24-hour post-development storm volume, directed to a channel, downstream receiving water, or wetland has not increased over the pre-development volume by more than 0.1 acre-feet;*

Channel Protection			
Volume Discharge in acre-feet (af) from 72-hr Time Span			
2-year			
	Pre-	Post-	Delta
DP1	0.20	0.20	0.00

Env-Wq 1507.06 - Peak Runoff Control

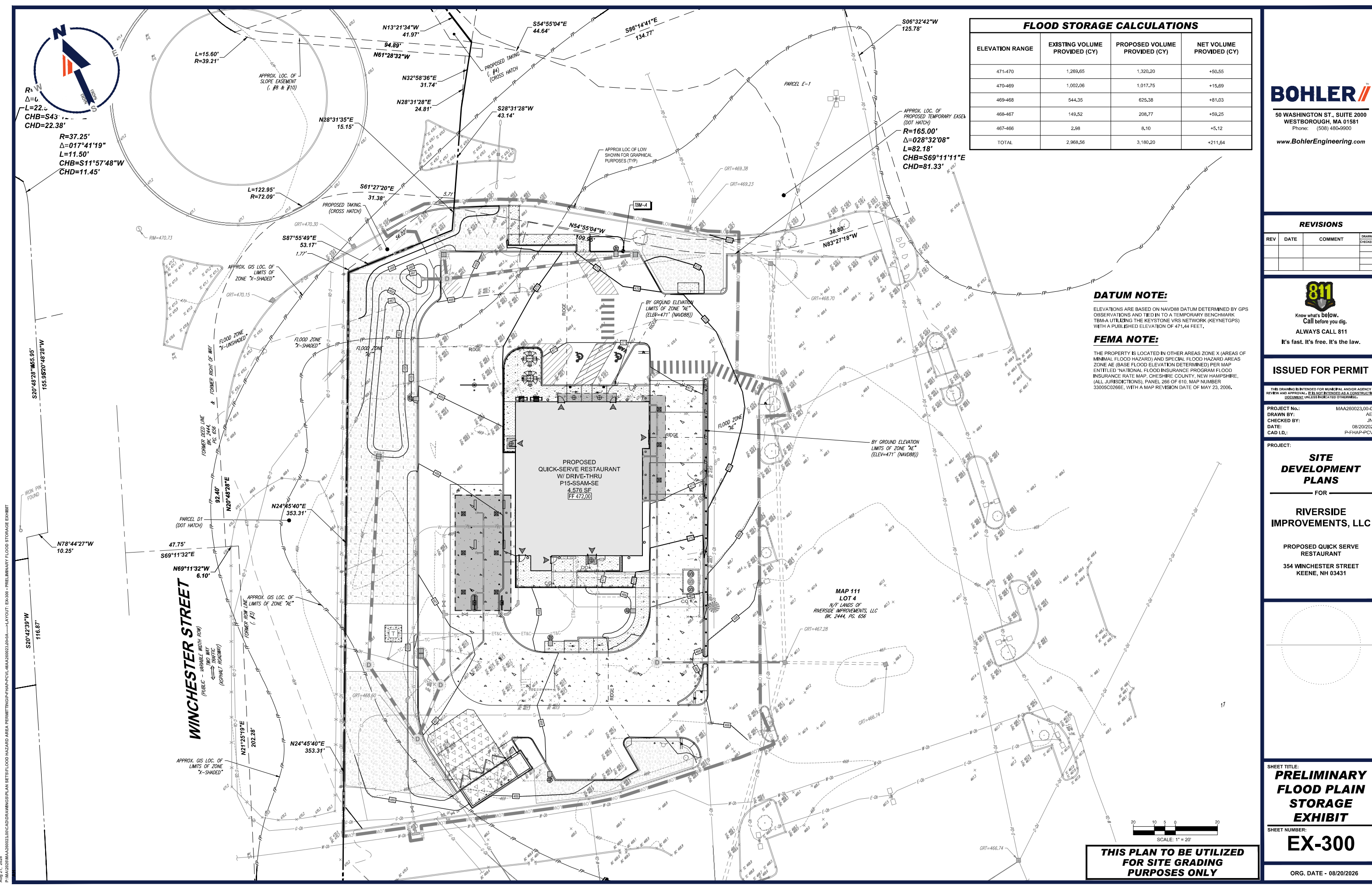
The table above demonstrates the attenuation of peak rates of post-development runoff for the 1, 2, 5, 10, 25, 50 and 100 yr events.

Env-Wq 1507.07 – Long-Term Maintenance

An Operation and Maintenance Plan is enclosed.

V. Erosion and Sediment Control Measures

The project proposes temporary and permanent erosion and sedimentation controls. A complete description of the controls can be found on the accompanying plans and detail sheets. The project is subject to the NPDES Stormwater Permit Program requirements. A SWPPP will be developed prior to the start of construction and modified as needed throughout the construction period.



FLOOD STORAGE CALCULATIONS			
ELEVATION RANGE	EXISTING VOLUME PROVIDED (CY)	PROPOSED VOLUME PROVIDED (CY)	NET VOLUME PROVIDED (CY)
471-470	1,269.65	1,320.20	+50.55
470-469	1,002.06	1,017.75	+15.69
469-468	544.35	625.38	+81.03
468-467	149.52	208.77	+59.25
467-466	2.98	8.10	+5.12
TOTAL	2,968.56	3,180.20	+211.64

DATUM NOTE:

ELEVATIONS ARE BASED ON NAVD88 DATUM DETERMINED BY GPS OBSERVATIONS AND TIED IN TO A TEMPORARY BENCHMARK TBM-A UTILIZING THE KEYSTONE VRS NETWORK (KEYNETGPS) WITH A PUBLISHED ELEVATION OF 471.44 FEET.

FEMA NOTE:

THE PROPERTY IS LOCATED IN OTHER AREAS ZONE X (AREAS OF MINIMAL FLOOD HAZARD) AND SPECIAL FLOOD HAZARD AREAS ZONE AE (BASE FLOOD ELEVATION DETERMINED) PER MAP ENTITLED "NATIONAL FLOOD INSURANCE PROGRAM FLOOD INSURANCE RATE MAP, CHESHIRE COUNTY, NEW HAMPSHIRE, (ALL JURISDICTIONS), PANEL 266 OF 610, MAP NUMBER 33005C0268E, WITH A MAP REVISION DATE OF MAY 23, 2006.

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DRAWN BY: ASH
CHECKED BY: JNF
DATE: 08/20/2026
CAD I.D.: P-FHAP-PCVL

PROJECT: **SITE DEVELOPMENT PLANS**
FOR **RIVERSIDE IMPROVEMENTS, LLC**

PROPOSED QUICK SERVE RESTAURANT
354 WINCHESTER STREET
KEENE, NH 03431

SHEET TITLE: **PRELIMINARY FLOOD PLAIN STORAGE EXHIBIT**

SHEET NUMBER: **EX-300**

ORG. DATE - 08/20/2026

Project		Catalog #		Type	
Prepared by		Notes		Date	



Lumark

Prevail Discrete LED

Area / Site Luminaire

Product Features



Product Certifications



Interactive Menu

- Ordering Information page 2
- Mounting Details page 3, 4
- Optical Configurations page 5
- Product Specifications page 5
- Energy and Performance Data page 6
- Control Options page 8

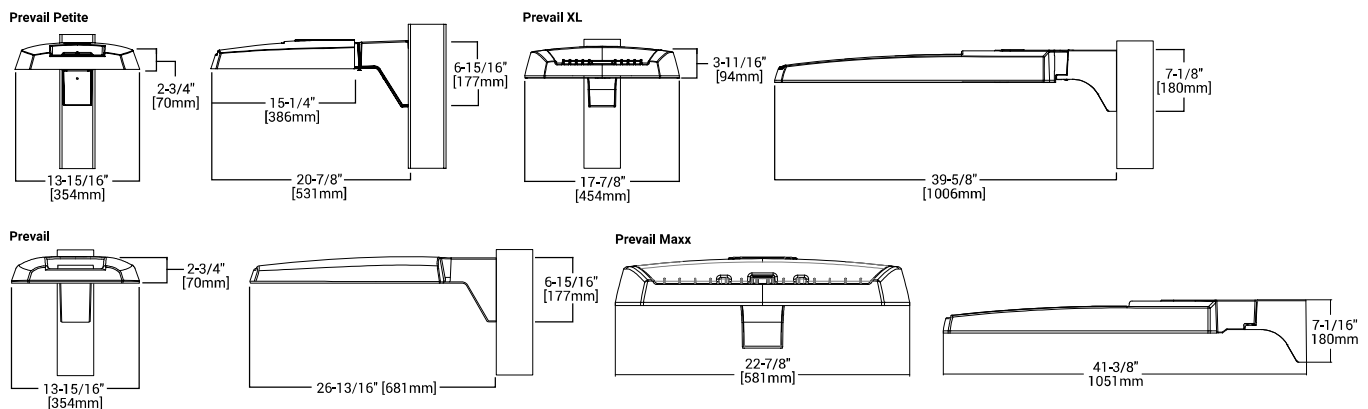
Quick Facts

- Direct-mounted discrete light engine for improved optical uniformity and visual comfort
- Lumen packages range from 4,300 - 68,000 nominal lumens (30W - 550W)
- Replaces 70W up to 1,000W HID equivalents
- Efficacies up to 157 lumens per watt
- Standard universal quick mount arm with universal drill pattern

Connected Systems

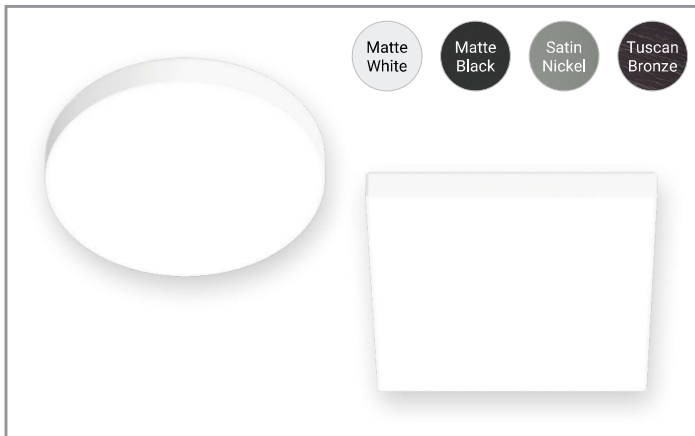
- WaveLinx PRO Wireless
- WaveLinx LITE Wireless

Dimensional Details



NOTES:
 1. Visit <https://www.designlights.org/search/> to confirm qualification. Not all product variations are DLC qualified.
 2. IDA Certified for 3000K CCT and warmer only.

Project		Catalog #		Type	
Prepared by		Notes		Date	



HALO

SMX4 Edgeless Surface Mount LED Downlight

The SMX series redefines the surface downlighting experience. With a fully luminous lens face, this series provides exceptional light quality with a sleek, edgeless design that blends effortlessly into any ceiling. The SMX fixtures are engineered to offer a versatile downlighting solution with selectable lumens and color temperatures including dim-to-warm in flicker-free phase cut or 0-10V dimming options. The innovative mounting method ensures a hassle-free installation that seats the fixture securely against the ceiling in either junction boxes or recessed housings. Upgrade your lighting experience with the SMX series and enjoy a seamless blend of style and functionality.

Typical Applications

Residential - Multifamily - Hospitality - Healthcare - Retail

Interactive Menu

- Order Information page 2
- Product Specifications page 4
- Energy Data page 5
- Photometric Data page 6
- Product Warranty



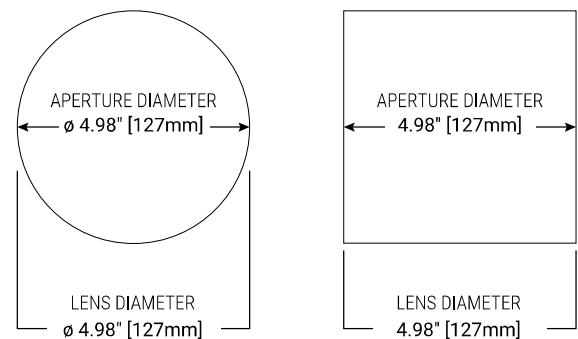
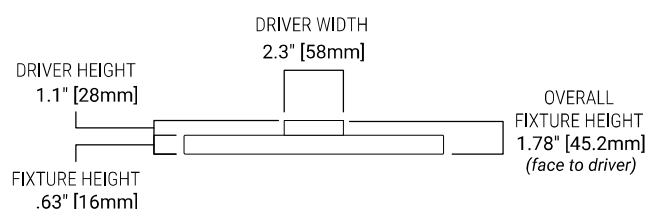
Refer to ENERGY STAR® Certified Products List.
Can be used to comply with California Title 24 High Efficacy requirements.¹
Certified to California Appliance Efficiency Database under JAB. ¹



Top Product Features

- 4" Surface Mount Edgeless Design in Round or Square
- Fully luminous edge-to-edge lens with no front face flange
- Field-SeleCCTable (90+ CRI):**
 - Phase Cut Versions:** 6-Position Switch with 5 CCT (27/30/35/40/5000K) + Dim-to-Warm (3000K dims to 1800K)
 - 0-10V Versions:** 5 CCT (27/30/35/40/5000K)
- Brightness:** Lumen Select 650/800/1000 lm (nominal)
- Dimming:** Dims to less than 5% with compatible dimmers in either phase cut LE/TE (120V) or 0-10V (120-277V)
- Mounting hardware, orange LED Quick Connect and E26 adapter included
- Edgeless Decorative Overlays (sold separately)
- AIR-TITE, wet location-listed, IC-rated, and ENERGY STAR® certified
- 50,000 hrs of maintenance-free operation
- 5-year warranty

Dimensional and Mounting Details



Cylinder

Wall Mounted • Damp Location Listed **PROGRESS LED**

Description:

5" LED up down wall cylinder - wall lantern in Black. The P5675 Series are ideal for a wide variety of interior and exterior applications including residential and commercial. The Cylinders feature a 120V alternating current source and eliminates the need for a traditional LED driver. This modular approach results in an encapsulated luminaire that unites performance, cost and safety benefits. Specify P860045 top cover lens for use in wet locations.

Specifications:

- Black finish.
- Powder coat finish.
- Die-cast aluminum construction with durable powder coated finish
- 1,100 lumens 26 lumens/watt per module (delivered)
- 3000K color temperature, 90+ CRI
- Meets California Title 24 high efficacy requirements for outdoor use only.
- Dimmable to 10% with many ELV dimmers
- Dimmable to 10% brightness (See Dimming Notes)
- Back plate covers a standard 4" recessed outlet box: 4.5 in W., 4.5 in ht., 2.95 in depth
- Mounting strap for outlet box included
- 6 in of wire supplied

Performance:

Number of Modules	2
Input Power	17 W
Input Voltage	120 V
Input Frequency	60 Hz
Lumens/LPW (Down-Source)	795/46 (LM-82) per module
Lumens/LPW (Up-Source)	795/46 (LM-82) per module
Lumens/LPW (Source)	795/46 (LM-82)
Lumens/LPW (Delivered)	1,100/26 (LM-79)
CCT	3000 K
CRI	90 CRI
Life (hours)	60000 (L70/TM-21)
EMI/RFI	FCC Title 47, Part 15, Class B
Max. Operating Temp	30 °C
Warranty	5-year Limited Warranty
Labels	cCSAus Damp Location Listed

P5675-31/30K



Dimensions:

Width: 5 in
Height: 14 in
Depth: 8-7/8 in
H/CTR: 8 in



Scottsdale® Legacy (CRUS)

LED Canopy Luminaire



OVERVIEW

Lumen Package (lm)	5,000 - 22,000
Wattage Range (W)	38 - 152
Efficacy Range (LPW)	114 -156
Weight lbs (kg)	23 (10.4)

QUICK LINKS

FEATURES & SPECIFICATIONS

Construction

- Features a ultra-slim 11/16" profile die-cast housing, with flat clear or diffused tempered glass lens. Unit is water-resistant, sealed and IP66 rated. Integral designed heat sink does not trap dirt and grime, ensuring cool running performance over the life of the fixture.
- Standard color is white and is finished with LSI's DuraGrip® polyester powder coat process. DuraGrip withstands extreme weather changes without cracking or peeling.
- Luminaire assembly incorporates a pressure stabilizing vent breather to prevent seal fatigue and failure.

Optical System

- Features an array of select, mid-power, high brightness, high efficiency LED; 3000K, 4000K, 5000K color temperature, 80 CRI (nominal).
- Choice of Symmetric or Asymmetric distribution. Asymmetric provides a wider distribution pattern. Optional symmetric with diffused lens also available.
- Forward Throw distribution provides an industry leading unique distribution pattern that illuminates the area under the gas canopy and beyond. The forward through optic directs the light to the forecourt from the gas canopy eliminating the need for supplemental floodlights and extensive perimeter lighting.
- Diffuse lens available as an option to soften brightness of the luminaire.
- Six Lumen Packages: 5,000, 9,000, 10,000, 13,000, 18,000 and 22,000 Lumens.

Electrical

- High performance factory programmable driver features over-voltage, under voltage, short-circuit and over temperature protection with integral 6kV surge protection that meets IEEE C62.41.2 and ANSI C82.77-5 Location Category C Low standards. Additional field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2). Custom lumen and wattage packages available.
- Driver components are fully encased in potting for moisture resistance. Complies with IEC and FCC standards. 0-10 V dimming supplied standard with all drive currents.
- Die-cast aluminum, wet location rated driver/electrical enclosure is elevated above canopy deck to prevent water entry, provide easy "knock-out" connection of primary wiring and acts as the primary heatsink ensuring cool operation of internal components for longer life. Seals to optical housing via one-piece molded silicone gasket.
- Universal voltage power supply, 120-277 VAC, 50/60 HZ and 347-480 VAC, 50/60 HZ input.
- -40°C to 55°C (-40°F to 131°F) ambient operating temperature. (Varies based on lumen package and mounting style see performance data for specifics.)
- Minimum 60,000 to 100,000 hours depending upon the ambient temperature of the installation location (see performance data for specifics.)

Hazardous Location

- Designed for lighter than air fuel applications. Product is suitable for Class 1 Divisions 2 only when properly installed per LSI installation instructions. See Isicorp.com for specific guidance. Not available on SLW.

Installation

- One-person installation.
- Installs in a 12" or 16" deck pan. Deck penetration consists of a 4" hole, simplifying installation and water sealing. Unit is designed to quickly retrofit into existing Scottsdale (4") hole as well as openings for Encore and Encore Top Access and to reconnect wiring for the SC/ECTA without having to relocate the conduit.
- Retro panels are available for existing Encores as well as kits for recessed and 2x2 installations (see separate spec sheets). Support brackets are provided standard, to prevent sagging of deck.

Warranty

- LSI luminaires carry a 5-year limited warranty. Refer to <https://www.isicorp.com/resources/terms-conditions-warranty/> for more information.

Listings

- UL and ETL listed to UL 1598, UL 8750 and other U.S. and International safety standards. Suitable for wet locations.
- DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.
- Meets Buy American Act requirements.
- IDA compliant with 3000K or lower color temperature.





CITY OF KEENE NEW HAMPSHIRE

ITEM #H.1.

Meeting Date: September 28, 2026

To: Planning Board

From: Mari Brunner, Senior Planner

Through: Paul Andrus, Community Development Director
Amanda Palmeira, City Attorney

Subject: **City Council Referral** - Request for written findings from the Planning Board to support a temporary moratorium on data centers and cryptocurrency mining facilities.

Recommendation:

To develop written findings in accordance with NH RSA 674:23 to support a temporary moratorium on Data Centers and Cryptocurrency Mining Facilities.

Attachments:

1. Council Action - Request for Consideration of a Moratorium
2. White Paper: Data Center 101 for Urban Planners

Background:

New Hampshire municipalities have the authority under NH RSA 674:23 to enact a temporary moratorium on the issuance of building permits or the granting of subdivision or site plan approval for up to one year when there are unusual circumstances that affect the ability of the municipality to provide adequate services. On September 17, 2026 the City Council voted unanimously to refer a request for consideration of an ordinance establishing a temporary moratorium on data centers and cryptocurrency mining facilities to the Planning Board.

The role of the Planning Board is to make written findings which:

- a. Describe the unusual circumstances that justify the ordinance.
- b. Recommend a course of action to correct or alleviate such circumstances.

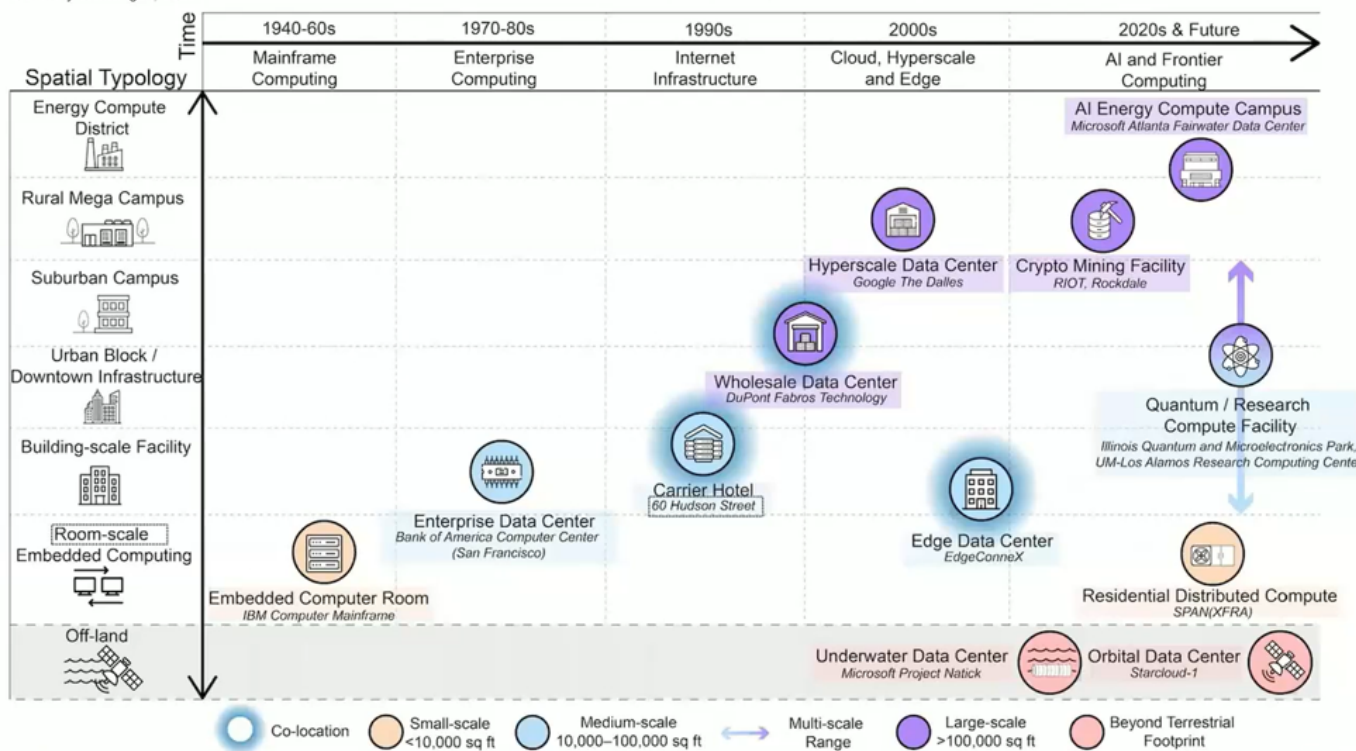
Unusual Circumstances

Data centers have been around since the 1940s and 1950s (Fig. 1). However, due to rapid technological advancements, the size and resource needs of these facilities along with the pace of development has accelerated significantly in the last few years. The City's current definition and zoning requirements for data centers do not adequately account for hyperscaler data centers,

cryptomining facilities, AI energy computing campuses, or other large scale (>100,000 square feet, >100 MW) facilities that consume vast amounts of land, energy, and water. These large-scale facilities also produce significant volumes of truck traffic during construction and during power outages, when fuels are delivered to power backup generators, as well as noise pollution, light pollution, air pollution from backup generators, and visual impacts.

Image Credit: Xiaofan Liang, Mujie Sui,
University of Michigan, 2026

Evolution of Data Centers



Course of Action

A temporary moratorium would provide time for staff to adequately research the potential impacts of large-scale data centers on municipal services and develop appropriate regulations in response to those impacts. Regulations for large-scale data centers should address continuous-operation noise and light standards, water use disclosure requirements, decommissioning requirements, and off-site impacts to public infrastructure, among other issues.

Recommended Motion:

If the Planning Board is in favor of issuing written findings in support of a temporary moratorium on data centers or similar uses, the following language is recommended for a motion:

"Move to recommend City Council pursue an ordinance enacting a one-year moratorium on data centers or similar uses based on the following findings:

A. New or rapidly evolving land use

Data centers represent a new and rapidly expanding form of industrial land use at a scale that is not specifically addressed in the City's current Land Development Code.

B. Inadequacy of existing regulations

The current zoning framework:

- *Does not differentiate between traditional and emerging large-scale (or “hyperscale”) Data Centers*
- *Does not define or regulate Cryptocurrency Mining Facilities*
- *Does not include conditions or performance standards reflecting their unique impacts*
- *Does not address the potential scale and/or intensity of these facilities*

As a result, without a moratorium, development could proceed in a manner inconsistent with the City’s goals and needs before regulations are put in place.

C. Potential impacts require further consideration

The Planning Board has identified several areas of concern:

- *Water resources, including impacts on aquifers and groundwater*
- *Public and environmental health, including from waste heat generation, noise, and pollution*
- *Energy needs, including uniquely high demand and potential need for new infrastructure*
- *Fiscal impacts, especially the uncertainty related to the relative municipal tax revenue and municipal costs resulting from the use*
- *Transportation concerns, including traffic resulting from construction or during power outages.*

D. Risk of premature development

Absent a moratorium, there is a substantial risk that data center projects may be proposed under existing regulations. Such projects could vest development rights inconsistent with future regulation and with the 2025 Comprehensive Master Plan, and the City’s ability to thoughtfully plan its long-term future would be compromised.

E. Consideration of the Master Plan

The proposed moratorium is consistent with the following goals in the 2025 Comprehensive Master Plan:

Thriving Economy Pillar:

- *Prioritize economic sustainability and resiliency*

Connected Mobility Pillar:

- *Create a connected and accessible network of multi-modal transportation infrastructure*
- *Prioritize vulnerable road users in infrastructure design, operations, and maintenance*
- *Expand and promote environmentally sustainable mobility options that are convenient and attractive*

Vibrant Neighborhoods Pillar:

- *Support a built environment that encourages social connections and interactions*
- *Foster a high quality of life for all residents*
- *Ensure safe and efficient movement around town*

Adaptive Workforce Pillar:

- *Meet quality of life needs and reduce workforce barriers, such as housing availability, childcare, and transportation*
- *Prioritize workforce and community health and wellness*

Flourishing Environment Pillar:

- *Promote smart land use and development*
- *Prioritize environmental protection and sustainability*
- *Implement the Sustainable Energy Plan:*
 - *Meet 100% of the electricity needs of all Keene residents, businesses, and other electricity customers with renewable sources of energy by 2030.*
 - *Meet the community's transportation, heating, and cooling needs using renewable sources of energy by 2050."*



CITY OF KEENE NEW HAMPSHIRE

ITEM #D.2.

Meeting Date: September 17, 2026

To: Mayor and Keene City Council

From: Planning, Licenses and Development Committee, Standing Committee

Through:

Subject: Councilor Jones - Request for Consideration of an Ordinance Establishing a Temporary Moratorium on Data Centers and Cryptocurrency Mining Facilities

Council Action:

In City Council September 17, 2026.

Voted unanimously to carry out the intent of the report.

A true record;

Attest:


City Clerk

Recommendation:

On a vote of 5 to 0, the Planning, Licenses and Development Committee recommends that the Request for Consideration of an Ordinance Establishing a Temporary Moratorium on Data Centers and Cryptocurrency Mining Facilities be referred to the Planning Board.

Attachments:

None

Background:

Chair Filiault welcomed comments from the petitioner, Councilor Philip Jones. Vice Chair Jones said he first got thinking about this when he was up in the Statehouse and there was a bill before the house. It was Senate Bill 439, which would have allowed these entities to happen in any industrial or commercial zones of a municipality. Fortunately, it was tabled at the House and never brought back, so it died on the table, he said thankfully. He said that got his mind going about this. He noted it had been in the news a lot lately. He cited that Arizona had 180 of these data centers suddenly; they decided they wanted to be reactive, and they are suddenly finding out there are a lot of things they do not like about them, so they are putting a moratorium on them. Vice Chair Jones explained that Texas was inviting them to come to their state. Now, just this week, Governor Scott decided that they need to have regulations. The Governor of New York just introduced a two-year moratorium so they can create more regulations. The City of Lowell, Massachusetts, has the largest data center in New

England and Councilor Jones said they were going through lots of problems with the neighbors, for example. They have 28 generators running all day long with long diesel spewing fumes, with the diesel motors going all the time (air conditioners on the roof are humming all the time because they must keep it cool). So, he said it is bad quality of life for the people in Lowell, and they are finding out the hard way.

Vice Chair Jones said the reason for suggesting a two-year moratorium is an indefinite sunset. He was asking for the two weeks so the Committee could be educated; there is a lot on social media, and they do not know what to believe. He called the keyword *impact*. He thought one way they could educate people on this would be to have a presentation or report from the Energy and Climate Committee on how this would impact Keene's Sustainable Energy Plan, the 2015 Greenhouse Gas Emissions report, and how it would affect Keene adapting to climate change. He wondered how it would affect Keene's 2004 Climate Action Plan. He also thought about the Community Development perspective and how the data centers would affect Keene's Master Plan; the Building, Health, and Fire Codes; the Water Department; and the Assessing Department and certain neighborhoods. He thought it would be great to hear from the Monadnock Economic Development Corporation because they might have another side to it: they might have the features and benefits to the City, especially ratables and employ-ables. He also thought the Council should hear from Southwest Region Planning Commission because this should be a regional issue. Vice Chair Jones added input from the New Hampshire Department of Environmental Services would be beneficial because they may already have some restrictions and they could help the City to write some restrictions or regulations. He also believes that the New Hampshire Public Utilities Commission already has some regulations that would be great for the Council to hear. He suggested hearing from Eversource and Liberty Utilities as well about what is available for power (e.g., some of these places run off propane gas). He said there is a lot to be learned about all of this. Finally, he said the Council should hear from the public about this because it could affect their neighborhoods. He was not saying the City should not have data centers, he was just saying the Council should be proactive and not reactive.

Vice Chair Jones said he asked City staff whether a resolution or an ordinance would be more appropriate, because an ordinance creates a law and a resolution creates a policy. Chair Filiault said he spoke with City Attorney Palmeira about that today and her recommendation was that the next step should be to send this to the Planning Board. Chair Filiault asked if that would be the correct procedure. City Attorney Palmeira said there is a specific channel to go through for the process they would recommend for the moratorium. There is a state statute on moratoria, and it is specifically for all the reasons Vice Chair Jones just described; these are all the various areas of information we want to adhere to while regulating it.

The City Attorney said it would take a lot of research and a lot of understanding. She stated that a moratorium is the tool to freeze the status quo and to prevent any development while the City is doing that research. She said the moratorium does get referred to the Planning Board and first, the Planning Board by statute makes a recommendation of the need for a moratorium on the specific categories of use. Then, that recommendation would come to the legislative body, our City Council, to pass an ordinance. So, the City Attorney noted that the statute says that it would go through an ordinance. She also wanted to flag that the statute states a time frame for a moratorium of no more than one year, so the City would try to get all its work done in that time period.

Chair Filiault recalled that the City would not set a precedent here because as mentioned, the Town of Nottingham, New Hampshire, and others have already made moratoria. That reminded Vice Chair Jones that there was a recent announcement that the Governor of New Hampshire was going to

request a moratorium because of Nottingham and now Bow, New Hampshire, dealing with issues. He said unfortunately, the Governor is putting it through the budget process, which means it would go to House Bill 2, which is the "Christmas Tree Bill" where everybody puts their "ornaments" on it. It would not even be heard until April 2027, and it would not be finished until June 2027. Vice Chair Jones thought that was too much time. He thought Keene should get something on the books before that happens because there is no guarantee she would even be the Governor; there is no guarantee what the House and Senate would do.

Councilor Haas thought there was a process laid out where it goes through the Planning Board and he imagined this Committee would make that recommendation. Reviewing the Land Development Code as the Committee had, Councilor Haas said there were virtually no limitations as such right now. The LDC does define data centers, but they are widely permitted with no special restrictions. He appreciated the City Attorney's guidance.

Councilor Williams said he had a few thoughts. First was that he was not terribly concerned about data centers opening in Keene soon because our price of electricity is so expensive. He said they are opening in Texas and Arizona, which are places with ample solar renewable energy, and that is really what these things are moving into to take advantage of. Councilor Williams added that data centers have some very negative environmental effects. He cited particular concern about the effect on water: not just that it uses water, but that it heats water up, which is terrible for an ecosystem if it is then released into the environment. Nevertheless, he said he was not super concerned about them opening in Keene. He said we could see that here. Which was not to say he was against a moratorium. Yet he wanted to make sure it is not "bigfooting a lot of the, I wouldn't call them a data center." He compared these giga scale centers with their own power plants to the office where he works, which has a server room and several racks of servers. He would like to continue being able to have a server room and several racks of servers. He would like to be able to build that without too much hassle anywhere in Keene. Councilor Williams said he recognized there is a certain scale at which the City would probably want to say, "let's not do that," but he wanted to understand what that scale is before agreeing to a moratorium.

Vice Chair Jones added that at the Joint Planning Board-Planning, Licenses and Development (PB-PLD) Committee meeting he would have a request for definitions to use for zoning purposes. He said it would be a little bit different than how they are identified as uses within certain zones. He thought they would probably be conditional uses or overlays, where they can be regulated and not put up against neighborhoods (e.g., like the City did with casinos). Vice Chair Jones asked whether the Planning Board (PB) would make a recommendation that would come back to the Council, because the Planning Board cannot create an ordinance, the Council can. The City Attorney said that is right.

The City Attorney said, to Councilor Williams' question, part of the City Council's requirement for creating a moratorium is identifying categories of development to which the ordinance applies. She said staff spoke internally about how data centers are already defined and the City's own IT Department was a little concerned about prohibiting its own servers. So, there would be an intent to narrow it down to not prohibit what the City wants and have it really serve as a temporary definition while staff do the work for the Zoning Ordinance. To Vice Chair Jones, the City Attorney said he was correct and that his letter would be coming up at the Joint PB-PLD Committee, starting the conversation of how the City is going to define data centers for more of a permanent Zoning Ordinance, not the temporary one that would be in the moratorium. The City Attorney's office will be at the Joint Committee to talk about that, and their recommendation is going to be if this Council does suggest going forward with a moratorium, then the Joint Committee should put that on more time

while the moratorium gets in place. Then, that would be the trigger to start the long-term work for the regulation. Vice Chair Jones said that was exactly the way he would like to see it and thanked the City Attorney.

Mayor Jay Kahn (of Mountain View Drive) said it was good to hear the one-year guard rail. He thought it was helpful that there would be some standard established across the state. He thought there would be a lot of evidence that comes from legislation, regardless of whether it is finalized in April, but he thought Keene was clearly in an investigative point in our country. He did not think that anybody wanted to act out of fear in prohibition because this is progress and we ought to be trying to set up what are the appropriate guardrails to that progress. The Mayor shared a story about being on Dan Mitchell's radio show and discussing data centers in Keene. He agreed with Councilor Williams about questioning the definition of a data center. Mayor Kahn said there are lots of potential data centers: there is a website on WMUR listing about one dozen in New Hampshire; four of those are under the name of First Light and one of those First Light locations is in Keene. There is also one in Lebanon, Portsmouth, and Manchester. The Mayor said the City does not want to put a prohibition or a moratorium on existing data centers; they are not causing much harm currently and he has not heard complaints. So, Mayor Kahn said the City's definitions really need to be forthcoming. He suspected if this went to the PB, there would be a Public Hearing. There is not necessarily action to be taken following a Public Hearing but at least the Council would get more perspective on what the definitions ought to be. Mayor Kahn called it a good question that Vice Chair Jones raised. The Mayor said the City does not want to make guidelines that inhibit current uses because its definitions were not accurate enough.

Al Smith (of Keene) has lived in Keene for one year and has 30 years' experience in the data center industry working for a private company, which wrapped up with the design and build of data centers globally (a private company; they were all very small). The question Mr. Smith kept coming back to is "what is a data center?" He worked with ASHRAE and some other significant industry experts and said no one can answer the question because they range from a small telecom closet to in the case of Lowell, 350,000 square foot buildings, which is a reuse of an old factory. Mr. Smith called the latter a great opportunity, but it does come with the negatives: the noise, the diesel exhaust. In the company he worked for, they ran generator tests every single week on a Tuesday morning and they knew not to park their cars near the exhaust, or they would be covered in diesel soot. He provided other examples of how neighbors might have been disrupted on the weekends. He explained the noise that comes from the commercial locations, which could be next to residential locations, and it is very concerning because the noise carries. He shared experience of being at "data center row" in Ashburn, VA, stating that they never get a break. Mr. Smith commented on how the background humming noise is still there even when the cicadas go away. He said to imagine that in this nice valley, stating that it would be all anyone hears in the background: there would never be another quiet night.

Mr. Smith continued that most companies who are building a data center are going to get a deal with an electric company because they are buying a lot of power, so they get a better price, and that is something else to be concerned with as well, because that raises the demand. If they are getting a better price, then the people who are just living in a house that are not making a big payment are not going to get the same deal. Those are the concerns Mr. Smith has as a resident. He continued about when you start talking about the thousands of gallons of water. It is not always cooling; sometimes it adds humidity to keep the equipment running. He pointed out that Keene is not heavily connected. Unlike Lowell, Keene does not have a main heavy duty fiber connection into Boston. That is why Lowell was a potential connection. So, Mr. Smith said there are a lot of negatives. He knew one of

the big pluses was that states like Texas and Arizona were convincing companies to move there. He said that does not make sense when you look at the water requirement, and they promise jobs. Mr. Smith wanted to warn people, having worked in a couple of data centers that were 50,000 plus square feet, he said they minimize the number of people on the floor: there are not a lot of jobs actually on site, they are remote workers doing things, possibly in another country sending the instructions to those servers. He said for every positive that is sold there is a negative. He added that they are great for construction jobs in the short term, but he did not think there were any companies in Keene that were experts at building data centers; they would come in from outside as well.

Vice Chair Jones asked, when Mr. Smith said Keene does not have the connection, was he talking about the data connection? Mr. Smith said yes, the heavy-duty fiber connectivity to bring in gigabits of data transfer, which would be more in the metropolitan areas. He discussed the subsea cables that come across the Atlantic Ocean, terminating in Virginia, making Ashburn, Virginia, the perfect spot for data centers. Boston has some of that connectivity as well, in addition to New York. Without access to subsea cables, Mr. Smith said it would be less likely that companies would move heavy duty colocation facilities like the one in Lowell, Massachusetts, to Keene, New Hampshire. It would involve a lot of heavy-duty trenching and underground work. Mr. Smith shared an experience building a remote site in Western Maryland and leasing cables that were run already along Route 70 all the way up to Colorado. The big telecommunication companies have already put these in; they generally stick to the major highways. He said Brattleboro is closer to Hwy-91, so those commercial facilities would be more readily available to connect than Keene's. Mr. Smith called it something to think about, stating it was nothing to do with the moratorium and more to do with education. He closed by stating the four things needed for data centers: (1) water, (2) power, (3) cooling, and (4) connectivity. Vice Chair Jones appreciated Mr. Smith as an excellent resource.

Councilor Williams reiterated what Mr. Smith said about connectivity. Councilor Williams investigated hosting servers in Keene. It is far more expensive because of the lack of connectivity.

Chuck Redfern (of 9 Colby Street) thanked Mr. Smith for providing great information. In Mr. Redfern's opinion, stating he is no expert at this, but he thought Mr. Smith did throw a bit of a cautionary tale not to jump into it with blinders. Mr. Redfern said that feeds into the need for a moratorium, not to stop it, but to give us a chance to figure it out. Technology is moving at a rapid rate, just like so many things in the technology field, but this is one that we need to grasp where in Keene a data center would likely go. He said a lot of things in the "unknown" column end up in the East Keene neighborhood, where he resides. So, Mr. Redfern had some concerns that he wanted addressed during the moratorium. He would like to look at the other towns that were mentioned and do an AI of the pros/cons on the subject. He mentioned considerations like noise generated from the AC units on roof fixtures. He asked why to be the first in the area to implement it. He asked what would be wrong with a relatively short moratorium of one year, which he hoped would be two years; he felt one year was short. Mr. Redfern said the output value to the community has got to be the bottom-line question. He said we must somehow limit the output from these facilities (i.e., water use, which is precious). Mr. Redfern cited a Mayoral study from a few years ago about trends occurring with the water supply and change in the environment with global warming. Mr. Redfern said this is something that must be careful and well thought out. He said none in the room were experts; the closest was probably Councilor Jones. Mr. Redfern asked whether this would be going to the Joint PB-PLD Committee, and Vice Chair Jones said no, the Planning Board. The City Attorney clarified that Vice Chair Jones submitted two letters so there were two tracks: (1) if this Committee recommended to the City Council to refer this to the PB, (2) if that gets carried out the second letter from Vice Chair Jones, would be at the Joint PB-PLD Committee, concerning definitions for a data center. Mr. Redfern

concluded by stating that he does question the value of cryptocurrency and whether it is a value to our society or not. He suggested a moratorium to do some more serious research on this.

Robin Walden (157 Pako Avenue) said she has a lot of concerns around data centers in our community. First, electricity. Also, a lot of times when data centers install new plants, substations, and lines, often those costs get downshifted to residential customers. Ms. Walden cited water usage; any research she had done, or news reports, showed that communities near these data centers do not have water pressure. She asked what would happen if that occurred in Keene? Next, she cited the constant noise of the data centers. Ms. Walden stated that she has lived a blessed and quiet life at her home for the last 29 years and she is not looking to change that. She said the diesel generators emit fumes and fine particle pollutants that harm local air quality and human health: the decibels emitted from these generators can reach 90 decibels and levels over 85 are harmful to hearing. Ms. Walden mentioned lower property values and the taxes: "if I ever go to sell my house and there's a data center near me, that's not going to happen.

I'm not going to recoup what I've put in." Her research agreed that there are far fewer jobs after data centers are built. For the case in Lowell, Massachusetts, she believed they had 12 people on site for that massive facility. So, she thought that advertising more jobs to Keene would be a false narrative. She also read that public health researchers have started evaluating how the broader environmental and structural footprints of data centers, specifically emissions from generators, cooling chemicals, and resource strain, could indirectly act as risk factors for reproductive health. Finally, Ms. Walden mentioned wildlife: we are disrupting their ecosystems, pulling water from rivers, and disrupting all of that. Ms. Walden stated that she would love the whole thing kiboshed but would be happy if the Council at least did a moratorium to look into this further. She does not think the City should put progress ahead of human health and quality of life.

Councilor Laura Tobin (of Center Street) said she, like a lot of people, has concerns. She thought there were a lot of unanswered questions. She cited a couple of things she hoped the Council would consider if it chose to do a moratorium. She cited the City's renewable energy goals and how that would fit in with this. She noted that a lot of people are using AI now, and she wondered what the City's fair share is of carrying that infrastructure. She wondered how that fit in with the PB's Process. She does not want to be the City that says we have to just build somewhere else; she felt that the City had been there with a lot of other things too.

Eli [last name not given] (of Keene) said his concern is about the ecosystem and the environment. He has some knowledge in that as a fisherman. He said the biggest thing is studying and knowing your environment and how the ecosystem works. He noted there are a lot of great ecosystems locally in and around Keene, and if you are pulling water from the watersheds to cool that down, possible pollutants could easily cripple some of the great ecosystems we have. Let alone he said it is probably not the best for animals or human consumption on top of that if it produces a noise. He noted that high humming and everything else is not the best for anyone's health, from animals to people, and could lead to some different syndromes. Still, Eli said the biggest thing is the not the water being cooled but the pollutants that cripple the ecosystem and make it a lot rougher for outdoorsmen especially to make money from guiding and everything else that is very fragile. It could very well impact the environments locally too. Eli said that is the biggest thing to keep in mind when doing research into it: it is something that a lot of the outdoorsman would want the Council to keep in mind. He said on top of whether this is something that we should allow in our communities or not.

Councilor Michele Chalice said she received two calls about this, so she thanked Councilor/State

Representative Jones for bringing this to the Council's attention. The two calls Councilor Chalice received were requests to add U.S. Department of Human Services Immigration and Customs Enforcement (ICE) detention centers to the list of data centers and cryptocurrency mining facilities due to the fact that a large facility would be potentially having similar impacts to our natural resources: water quality, water quantity, air quality, and potential sound disturbances. They were specifically requesting that if the Council were going to go through all this research that they would make sure they cover all their bases of potential large impacts to our community by these larger developments. Vice Chair Jones stated that detention centers were in his request to the PB-PLD Committee for definitions.

Jeannie Kingsbury (of Spruce Street) was glad to be having this meeting on data centers and about these broader impacts that can be called progress, but she questioned whether progress is so great when we live in a bowl. So, she said all that noise and pollution is trapped here with all of us; it is foggy, you can smell things, and you can see the pollution. She said they already get poor air quality alerts on their phones, and this would have an impact. She said these other places like Texas and Arizona are large, big, flat areas with a lot less populace, where the noise is less of a problem. Whereas in Keene, with the populace the noise and pollution would be a problem. She said it would not bring in jobs, citing the example from Lowell. She said these data centers are meant to replace people and jobs nationwide, which is why the people with the money are pushing for them. So, Ms. Kingsbury said the Council has to look at what kind of community we want here in Keene: do you want a welcoming community to manufacturers or companies that are actually going to employ people or places that are actually going to work to get rid of people. She was glad that the City was saying that it needs to slow down on this and look at what is going on. She agreed that there are businesses with server rooms, yes, but said those businesses employ a lot of people, using the hospital as a prime example. In the big scheme of things she said they were talking about impacts to people, to public lands and animals, and the environment. Ms. Kingsbury was glad Keene was saying to investigate this a little bit more. She said we cannot just let these companies steamroll themselves in saying progress, because progress is not always a good thing. Chair Filiault agreed.

Terry Clark (of 14 Barrett Avenue) did not come to necessarily speak for or against data centers, AI, or any of that, because as been noted, data centers and AI have been around here for a long time. The data centers especially. He thought the reason that we had been hearing so much about it is the dramatic increase in the interest in AI and in the number of companies that have that have formed to get into it in a big way. Mr. Clark is a member of the Nonpartisan National Association of Counties, Energy, and Land Use Steering Committee, which has been helping to craft a resolution urging protection of local authority over data centers, data privacy processing facilities, and which include cryptocurrency mining operations. He said the reason they got involved is because President Trump, in March of 2026, issued an executive order 14-318 titled Accelerating Federal Permitting of Data Center Infrastructure that was directing federal agencies to ease regulatory burdens and rapidly build out large data center projects. He said the translation of that is to cut local governments out of the regulatory loop and forego the usual impact studies that could identify problems and implement solutions. State and federal lawmakers have already proposed or enacted legislation that limits or prohibits local governments from regulating the development of these energy and water hungry facilities, and it had been noted about the price of electricity around these data centers. Mr. Clark said utility customers in Maryland and Washington, DC, are some of the first in the country to see the effects of the data center boom show up on their residential electricity bills. Much of that price increase is due to the anticipation of future demand. That is the way the pricing works and is a part of the reason we have very high energy costs in New England data centers; they can be built faster than new supply resources like power plants, so the market is not competitive because projected

demand exceeds supply and new supply cannot be timely built to restrain the prices.

Mr. Clark said the Nonpartisan National Association of Counties, Energy, and Land Use Steering Committee's proposal urges Congress to pass legislation to protect the authority of local governments to regulate, restrict, or ban data centers within their jurisdictions. The National Association of Counties, Energy, and Land Use Steering Committee is a 3,600-county strong organization that has been very effective in influencing the actions of Congress. So, Mr. Clark said the technology is here to stay, and he does not really oppose it; in fact, it can be beneficial if applied with proper safeguards. He said that if we do not let technology get ahead of the society curve. We will have a medical breakthrough and implement something just to find out that this miracle drug causes mass addiction, for example. So, he said we must be careful to slow things down, so that we can understand them before we start acting with them. Mr. Clark thanked the Councilman for bringing it all up because we really need time to sort all these things out. He said there are a lot of really serious questions: who owns and benefits from the technology and the centers, and where are they best located? How do we safeguard our electrical grid and water supplies? Most importantly, who makes those decisions? Mr. Clark was glad the Council was getting involved because this was really taking off at the County level and he hoped the City would be successful.

Vice Chair Jones agreed with motion but first wanted to ask the City Manager if the various entities, boards, departments, and so on that he mentioned in the beginning could be notified and asked if they would like to present some data that the Council or Planning Board could use in their research. The City Manager thought we would want to invite them to the Planning Board for their process when they are considered. Vice Chair Jones said that was what he was asking: for the Planning Board Public Hearing.

The following motion by Vice Chair Jones was duly seconded by Chair Filiault.

On a vote of 5 to 0, the Planning, Licenses and Development Committee recommends that the Request for Consideration of an Ordinance Establishing a Temporary Moratorium on Data Centers and Cryptocurrency Mining Facilities be referred to the Planning Board.

From Infrastructure to Implications: Data Center 101 for Urban Planners

February 2026 (Last Updated)

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As data centers proliferate, urban planners play a key role in permitting associated land uses and anticipating their system-wide impacts on the built environment and urban life. Yet the current information landscape is fragmented across the energy, water, and regulatory sectors, with uneven quality and sometimes contradictory claims. Much of this confusion stems from insufficient attention to the diversity of data center types, local context, and infrastructure design choices. The long development timelines of data center projects, combined with rapid advances in computing, energy, and cooling technologies, also make it difficult to forecast and track impacts over time. As a result, planners often struggle to distinguish generalizable lessons from singular cases.

This white paper addresses a central question: what are data centers' implications for the urban life and built environment, and how are those implications anchored in specific data center infrastructure components? It begins by introducing major data center types, the concept of redundancy, and typical infrastructure configurations, including a visual schematic of a stylized, simplified hyperscale data center. It then examines the energy, water, land use, quality of life, economic, and environmental implications of data centers.

The writing draws on desktop research using high-quality sources and interviews with nine industry stakeholders, including data center developers, urban planners, elected officials, and contractors. Together, the paper provides a "Data Centers 101" mental model to help planners see the big picture and engage more confidently with data center proposals.

This white paper is a living document that can integrate further feedback and new questions you'd like to see addressed. Please email xfliang@umich.edu.

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1. Introduction to Data Center

A data center is a fixed, purpose-built facility (standalone or within a larger building) that houses servers, storage, and networking equipment to process, store, and transmit digital information for users and other systems.¹ They are crucial for supporting digital life, including online shopping and digital payments, video streaming, cloud document storage, navigation and ride-hailing, social media and messaging, and business operations that depend on real-time data exchange.

There are various types of data centers, and they can be classified through scales, purposes, or redundancy. Scales are typically defined by energy consumptions or square footage. The scale of the data center also has implications on its infrastructure setup. Only medium-size enterprise data centers or hyperscale data centers will require dedicated on-site transmission lines and electrical substations. By scale, four types of data centers are common.

Hyperscale data centers are the largest facilities, built to serve massive cloud/IT service workloads; they often occupy whole buildings or campuses and are typically defined by very large scale (e.g., thousands of servers, $\geq 100,000$ sq ft, and power draw that can exceed 100 MW). These are the “cloud factories” of big tech companies like Amazon and Google.²

Enterprise data centers are owned and operated by a single organization to run its own IT infrastructure, rather than serving multiple external customers. These facilities can range 1-5 MW for smaller facilities and up to 100 MW with larger sites³; 100 MW of electric power is roughly equivalent to electricity needs of 80,000 U.S. households.⁴ Non-commercial research data centers, such as the one proposed by University of Michigan and Los Alamos National Laboratory, may be considered enterprise data centers as it is governed by a single institution⁵. Despite serving public interests and research purposes, these research data centers may have similar physical footprint and built environment implications as commercial data centers.

¹ *Data Centers and Their Energy Consumption: Frequently Asked Questions*. (2025, August 26). Congress.gov. Retrieved January 12, 2026, from <https://www.congress.gov/crs-product/R48646>

² What is a hyperscale data center? (2025, November 17). IBM. Retrieved January 11, 2026 from <https://www.ibm.com/think/topics/hyperscale-data-center>

³ *What Is a Data Center? What Are Different Types of Data Centers?* (2022, October 13). The Equinix Blog. Retrieved January 12, 2026, from <https://blog.equinix.com/blog/2022/10/13/what-is-a-data-center-what-are-different-types-of-data-centers/>

⁴ U.S. Energy Information Administration. (2023, March 29). *EIA releases consumption and expenditures data from the Residential Energy Consumption Survey*. Retrieved January 11, 2026, from <https://www.eia.gov/pressroom/releases/press530.php>

⁵ University of Michigan x Los Alamos Supercomputing Research Center. University of Michigan. Retrieved February 3rd, 2026 from <https://research.umich.edu/research-at-michigan/lanl/>

Edge data centers are smaller facilities intentionally placed closer to end users or data sources to reduce latency and improve performance for time-sensitive, data-intensive applications. These are the “neighborhood” or “local” data centers⁶

Colocation data centers are shared facilities operated by third parties where multiple organizations rent space, power, and cooling for their servers.⁷ These function like a data-center apartment building or co-working space, where many tenants share the same infrastructure instead of building their own. Colocation data center can be leased to a single tenant, thereby making it effectively an enterprise data center.



Figure 1.1: a) A vacant Bank of American enterprise data center⁸; b) A rendering of Related Digital’s planned hyperscaler data center in Saline Township, Michigan⁹; c) A CoreSite Colocation Data Center, Virginia¹⁰; d) An edge data center by the Atlanta Mercedes Benz Stadium in the city center.¹¹

⁶ Ibid

⁷ Ibid

⁸ Swinhoe, D. (2025, June 16). *Former banking data center in Connecticut set to be demolished after funds secured from state*. Data Center Dynamics. Retrieved January 11, 2026, from <https://www.datacenterdynamics.com/en/news/former-banking-data-center-in-connecticut-set-to-be-demolished-after-funds-secured-from-state/>

⁹ RELATED DIGITAL. (n.d.). RELATED DIGITAL. Retrieved January 12, 2026, from <https://www.related-digital.com/michigan>

¹⁰ Fluet, J. (2021, July 22). Data Centers Evolved: A Primer for Planners. *American Planning Association Planning Magazine*. <https://www.planning.org/planning/2021/summer/data-centers-evolved-a-primer-for-planners/>

¹¹ Ibid

Data Center Infrastructure Components by Scale

Component Configuration Comparison Table

Scale	Server Hall	Backup Diesel Generator	Cooling System	Transmission Line	Switching Substation	Electrical Substation
 Enterprise	 1	 2-4 units	 5-10 units	 Connects to existing distribution	 None (uses utility switching)	 May not have dedicated
 Mid-sized	 2	 10-20 units	 20-60 units	 1	 1	 1
 Hyperscale	 3-6+	 50-200+ units	 100-300 units	 2-4	 2	 2-4

Figure 1.2: Data Center Infrastructure Components by Scale.

Classified by purposes, **data centers used for AI training and inference** have different energy and water footprints than **general purpose data centers**. AI-driven data centers often demand higher levels of electricity and cooling capacity, require larger sites, cluster more intensely, and deepen their interconnections with regional urban systems, which pushed them to the forefront of public debate. Even in long-established data center hubs such as Loudoun County, Virginia and rural counties in Oregon, interviewed local officials and planners still feel underprepared to understand, anticipate, and manage these impacts.

In design, engineering, and construction standards, data centers could also be classified by their redundancy. **Redundancy** means providing extra, independent capacity in critical systems (e.g., power, cooling, and networking), so the facility can continue operating in events of natural disaster, power outage, equipment failure, or human actions. Data centers need to run 24/7 and any down time will cost a significant financial loss to clients using the service. Power redundancy typically includes diesel generators and alternative utility feeds for power; water redundancy includes independent water towers and multiple cooling system designs; network redundancy includes additional fiber optic cables or routes; computing redundancy includes backup storage or even a second data center in a geographically diverse location.¹²

¹² Pacheco, M. (2024, January 2). *A Deep Dive into Data Center Redundancy*. TierPoint. Retrieved January 12, 2026, from <https://www.tierpoint.com/blog/data-center-redundancy/>

A redundancy-based standard to classify data centers uses N to denote the capacity required to run a facility at full load—whether for power, backup power, or cooling. Under this standard, $N+1$ or $N+2$ means the facility installs one or two additional units beyond what is strictly required (for example, if it needs N generators, it installs $N+1$ or $N+2$).¹³ The highest redundancy level, $2N$, provides two fully independent systems, each capable of carrying 100% of the workload on its own. In general, a Tier I data center aligns with N redundancy, Tier II with $N+1$, Tier III (the most common) with $N+1$ or $N+2$, and Tier IV (often represent high-risk data centers such as enterprise financial institutions) with $2N$ and minimal downtime.

For zoning, permitting, and community engagement, the tier and redundancy system often provides the clearest signal of local, near-term impacts. Tier levels translate directly into the configuration of physical infrastructure on a site, such as the number of diesel generators, cooling plants, and electrical substations, which in turn shape land consumption, noise, air emissions, visual impacts, and emergency operations. When residents ask why a project requires multiple generators, large cooling towers, or extended testing hours, tier classification offers a standardized way to explain how reliability requirements drive infrastructure intensity and why those design choices matter locally.

By contrast, for long-range planning and infrastructure forecasting, distinctions based on data center type and function become more important. Large hyperscale or AI-training data centers need large amounts of electricity and space, so they usually locate where land is cheaper and high-voltage power lines or substations already exist, often on the urban edge or in rural areas. Smaller edge, colocation, or AI-inference data centers need to be close to people and businesses so digital services respond quickly, which means they are more likely to locate inside cities or near population centers. AI-training data centers can also expand very quickly when new computing hardware is installed, causing sudden jumps in electricity and cooling demand, as compared with inference or storage-focused facilities, which typically exhibit slower, more predictable growth patterns. This difference matters: gradual growth can be planned for, while rapid jumps are more challenging to anticipate.

2. Data Center Infrastructure

Energy Infrastructure Components

Data centers require enormous amounts of energy (electricity) to operate IT equipment and cooling systems.¹⁴ Most large facilities need dedicated high-voltage, on-site or adjacent **transmission lines** and **electrical substations** to step voltage down for safe distribution, while

¹³ *Uptime Institute Tier Classification System*. (n.d.). Uptime Institute. Retrieved January 12, 2026, from <https://uptimeinstitute.com/tiers>

¹⁴ *Data Centers and Their Energy Consumption: Frequently Asked Questions*. (2025, August 26). Congress.gov. Retrieved January 12, 2026, from <https://www.congress.gov/crs-product/R48646>

smaller sites may simply connect to existing grid infrastructure without new buildouts. **Backup diesel generators** provide immediate emergency power when the grid is unavailable or unstable, because large-scale data centers can tolerate only minimal downtime.

Water Infrastructure Components

Water in data centers is primarily used for removing heat from servers and mechanical equipment while a small portion could be used for office and restroom operation. **Cooling system** choice strongly shapes local water impacts, as water demand varies widely across technologies. If designed with evaporative cooling systems, data centers often require redundant water supplies, such as on-site **independent water storage** or backup cooling strategies to manage short-term outages. These requirements drive the need for dedicated water infrastructure, including high-capacity **water lines and connections to municipal or on-site treatment systems**.

Fiber Infrastructure Components

Data centers rely on **fiber-optic cables** to move data into and out of the facility, and these cables are typically installed underground within existing road rights-of-way (ROW) for easier access and maintenance.

Land Use Infrastructure Components

Enterprise or hyperscale data centers require a large piece of industrial **land** (or agricultural land rezoned to industrial) that could exceed traditional slotting for other industrial use. The ideal land will also be close to energy and water sources, fiber backbones, and existing roadways. **Landscape screening** is a common practice to buffer visual, noise, and light disturbance to nearby residential communities.

Operation Infrastructure Components

Data Centers run 24/7 and require on-site staff. Thus, **street lights, parking, and office/support space** is necessary for employees. The **server halls** host computer equipment. The **loading bay** is near the back of the data center to offload equipment and may be used to park fuel delivery trucks. **Security perimeter** is common to prevent any disruptions to critical digital infrastructure, which can have wide-ranging consequences well beyond the site itself.

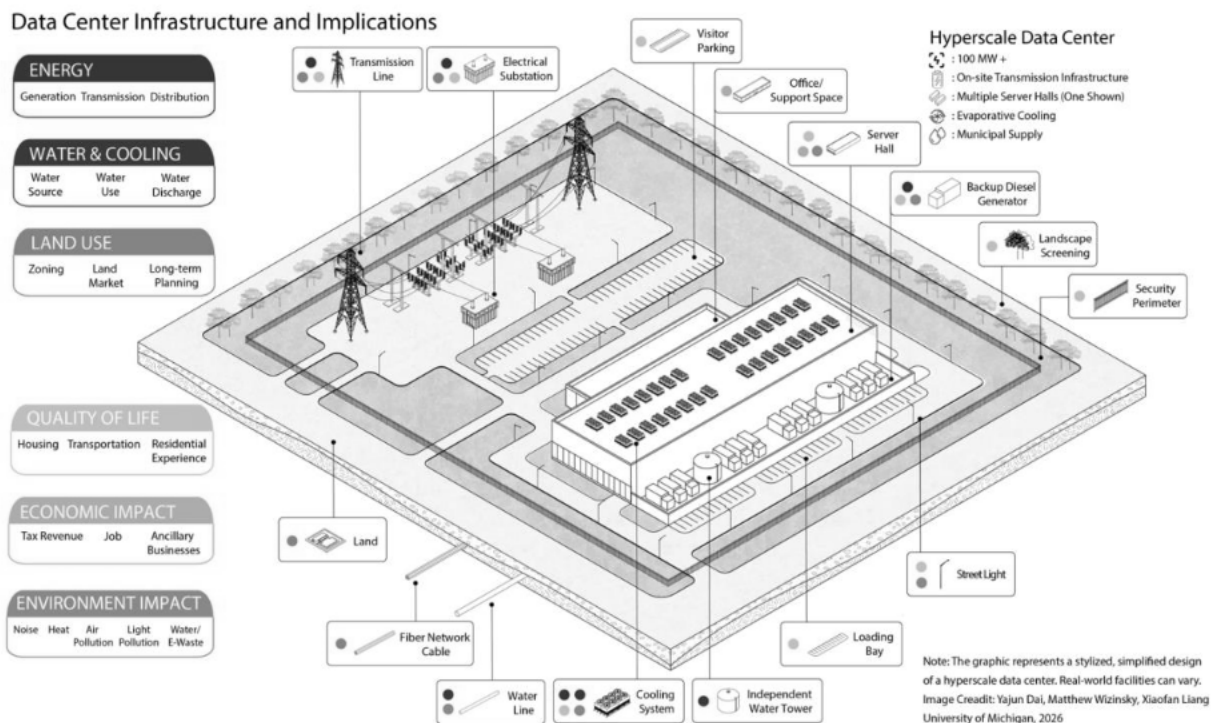


Figure 2.1: Data Center Infrastructure Components and Associated Implications. The graphic represents a stylized, simplified design of an infrastructure module for a hyperscale data center, referencing Meta's Princeville Data Center¹⁵. A typical hyperscale data center will have multiple server halls and a large campus, increasingly deploying closed loop rather than evaporative cooling systems. Image Credit: Yajun Dai, Matthew Wizinsky, Xiaofan Liang.

3. Energy (Generation, Transmission, Distribution)

Data centers introduce a new type of infrastructure demand: large, continuous electricity loads that are shaped by computing needs and **cooling system** design and served through **transmission lines**, **electrical substations**, and on-site backup energy systems such as **diesel generators**, batteries, or microgrids. The large load can trigger upgrades to these infrastructures which further reshape regional power planning, influence clean-energy transitions, and affect how reliability risks are managed during extreme events. At the local level, data center interconnections may compete with housing, electrification, and economic development for limited grid capacity, while the costs of new infrastructure may be shared across ratepayers in complex ways. Associated facilities can also change community landscapes through visual impacts, noise, traffic, and air pollution. For planners, these implications matter because they shape land-use compatibility, infrastructure investment

¹⁵ Zuckerberg, M. (2017, October). We are building our 11th major data center in Henrico, Virginia. Retrieved February 4th from: https://www.facebook.com/zuck/photos/were-building-our-11th-major-data-center-in-henrico-virginia-like-all-our-new-da/10104084311463881/?_rdr

priorities, and the fairness of who bears the costs and risks of accommodating this new form of growth.

3.1 How are Data Centers Powered? Power Supply and On-Site Energy Strategies

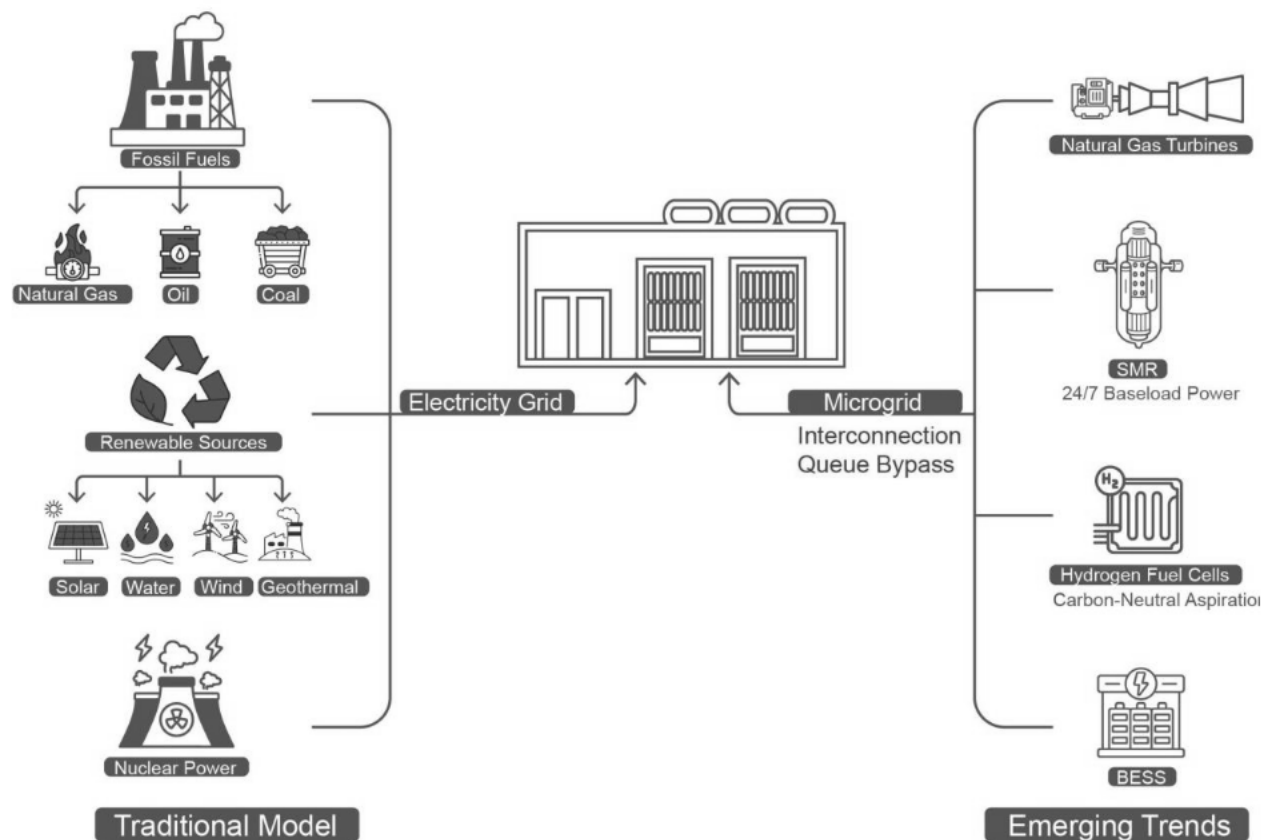


Figure 3.1: How Data Centers are Powered (Image Credit: Yajun Dai).

Energy is one of the most important factors of data center siting. Developers typically engage local utilities early to assess whether existing capacity can support a proposed facility, what upgrades may be required, and whether dedicated on-site infrastructure is needed. These factors often determine whether a site is feasible and place upper limits on facility size.

A small data center may consume 500 kilowatts (kW) to 2 megawatts (MW) at any given time, while large or hyperscale facilities can draw 100MW or more.¹⁶ Actual demand depends on

¹⁶ Ensuncho, M. H. (2025, July 1). *Data Centers Power Requirements*. MOST Policy Initiative. Retrieved January 11, 2026, from <https://mostpolicyinitiative.org/science-note/data-centers-power-requirements/>

factors such as facility size, server density, cooling design (see Water-Power tradeoff at Section 4.2), redundancy requirements, and utilization rates.

Most data centers rely on the electricity grid for power, which draws from a mix of sources, including fossil fuels (e.g. natural gas, oil, coal), renewable sources (e.g. solar, hydro, wind, geothermal), and nuclear power. In regions where the grid is constrained, either by limited capacity or limited operational flexibility, operators may rely on fast-ramping fossil-fuel generation during peak demand, slowing local clean-energy transitions, as seen in Loudoun County, Virginia.^{17 18}

The surge in energy demands from AI data centers has outpaced grid infrastructure expansion, which then prompted major investments in on-site power generation beyond traditional grid connections. Data centers need two types of power: baseload power that supports continuous operation and backup power that ensures reliability during an emergency (see Section 1 for explanations on redundancy). Backup power typically includes uninterruptible power supplies (UPS), which provide instantaneous, short-duration power to bridge the transition from grid disconnection to on-site generation, as well as longer-duration on-site generation such as diesel or gas-fired systems.

Natural gas turbines are currently among the few viable options for providing stable, on-site (baseload or backup) power at scale for some small- to medium-sized data centers, yet the demand for the turbines is growing faster than the market could react and supply. Nuclear power, particularly through Small Modular Reactors (SMRs), has emerged as another potential source for 24/7 baseload power with high reliability and zero operational emissions.^{19 20} SMRs, typically around 300 MW per unit, could potentially be co-located with data centers to avoid long-distance transmission losses.

Hydrogen Fuel Cells and Battery Energy Storage Systems (BESS) can supply alternative short-term on-site power generation.^{21 22} Green hydrogen offers a pathway to carbon-neutral and pollutant-free operation. Biodiesel and renewable diesel could be used in diesel generators as

¹⁷ Halper, E. (2024, October 12). A utility promised to stop burning coal. Then Google and Meta came to town. Retrieved January 11, 2026, from <https://www.washingtonpost.com/business/2024/10/08/google-meta-omaha-data-centers/>

¹⁸ Turner, M. (2025, October 20). *Loudoun County, Virginia: Data Center Capital of the World*. Retrieved January 11, 2026, from <https://www.loudoun.gov/ArchiveCenter/ViewFile/Item/13979>

¹⁹ Morley, D. (n.d.). *Managing AI Build-Out in a Winner-Take-Most World*. American Planning Association Blogs. Retrieved January 11, 2026, from <https://www.planning.org/blog/9319236/managing-ai-build-out-in-a-winner-take-most-world/>

²⁰ Hiller, J. (2025, October 15). AI Data Centers, Desperate for Electricity, Are Building Their Own Power Plants. *The Wall Street Journal*. <https://www.wsj.com/business/energy-oil/ai-data-centers-desperate-for-electricity-are-building-their-own-power-plants-291f5c81>

²¹ Turner, M. (2025, October 20). *Loudoun County, Virginia: Data Center Capital of the World*. Retrieved January 11, 2026, from <https://www.loudoun.gov/ArchiveCenter/ViewFile/Item/13979>

²² Ross, B., & Vadali, M. (2024, March). *Battery Energy Storage Systems*. American Planning Association. Retrieved January 12, 2026, from <https://planning.org/zoningpractice/2024/march/battery-energy-storage-systems/>

alternative to fossil diesel. BESS stores excess power improves reliability, helps manage grid interconnection constraints, and enables better use of renewable energy by storing excess power, which provides critical backup during grid disturbances.

Together, this expanding mix of generation technologies creates new governance and land-use challenges. These systems are often regulated through fragmented approval processes across energy, environmental, and land-use authorities, making cumulative impacts difficult for local governments to evaluate.²³ Increasingly, developers bundle data centers with on-site renewables and storage into microgrid-style “energy parks” to enhance redundancy and reliability, manage energy costs, and, in some cases, reduce reliance on constrained interconnection queues. While these systems can improve operational resilience, they also shift aspects of power system control and planning closer to private actors.²⁴

3.2 How Do Data Centers Reshape Regional Power Systems? Bulk Power Infrastructure and Transmission-Level Impacts

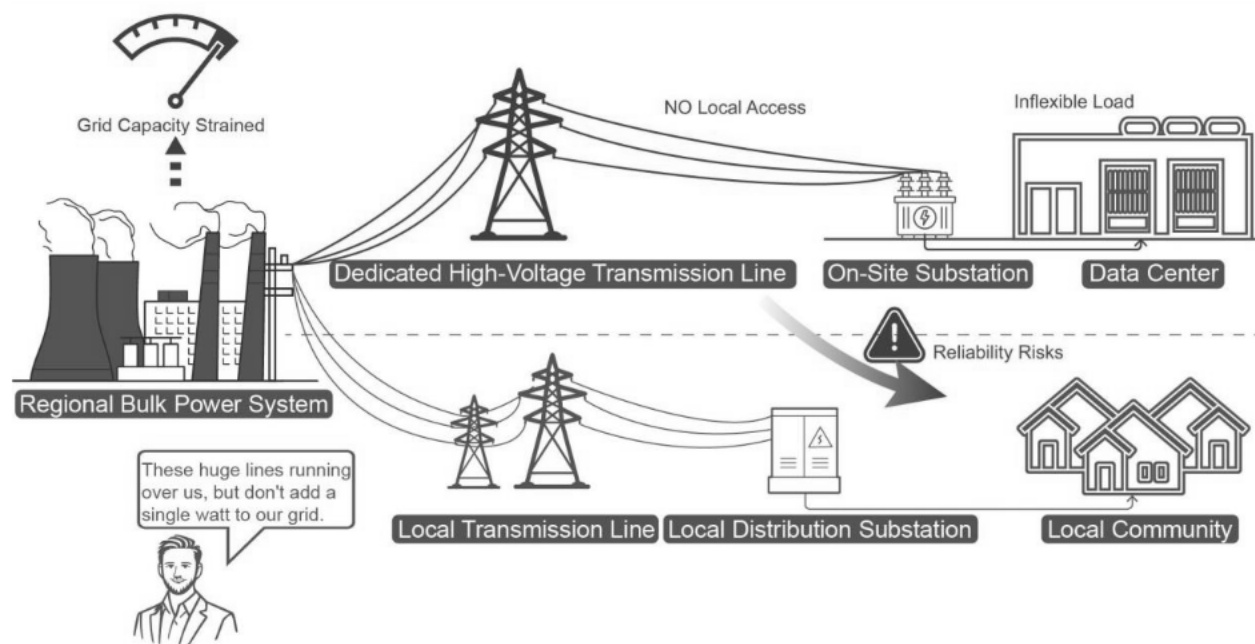


Figure 3.2: Data centers' impacts on regional power systems (Image Credit: Yajun Dai).

Hyperscale and enterprise data centers place exceptionally large and concentrated demands on regional transmission systems. Existing grid infrastructure, interconnection processes, and

²³ Nichols, C. (2025, October 1). *The Physical Footprint of Artificial Intelligence*. American Planning Association. Retrieved January 12, 2026, from <https://www.planning.org/publications/document/9318086/>

²⁴ Howland, E. (2024, December 11). Google, Intersect Power to develop co-located energy parks with \$20B of renewables, storage. *Utility Dive*. <https://www.utilitydive.com/news/google-intersect-power-co-located-energy-park-data-center-ferc/735198/>

planning timelines have struggled to keep pace with the rapid growth of AI-related electricity demand.

To serve these facilities, utilities may need to construct new high-voltage transmission lines and large on-site or adjacent substations. These facilities operate at voltages far above what residential or commercial customers can directly use, meaning the new lines built for data centers often may not expand local access to electricity even as they reshape the landscape.

Data center loads are typically large and can peak in a short timeframe and maintain high usage over hours and days. During peak demand periods, such large loads and the uncertainty in load behaviors can push transmission systems close to operational limits, reducing system flexibility and increasing the risk of cascading failures²⁵. In this sense, data centers may function as regional growth constraints rather than growth catalysts, particularly in fast-developing areas.

Because outages can have major economic and system-wide repercussions, data centers may desire to be treated as “critical infrastructure,” similar to hospitals or emergency facilities. Thus, it is important for local utilities and local governments to have an honest conversation with data center developers about handling outages during storms, heat waves, or cold snaps. If energy load planning was not coordinated well, prioritizing data center operation can exacerbate inequities, as reliability risks may be shifted onto other communities, which are often those already facing environmental or socioeconomic vulnerabilities.

One solution to ease data centers’ strain on local grid and reduce emission is to make data center loads flexible. General purpose data centers or those that can tolerate latency are more capable to shift non-urgent compute tasks (e.g., processing a YouTube video) during grid stress while those focus on AI training are less likely to be flexible. Some industry leaders (e.g., Google) have implemented demand response practices to shift data center loads by tasks and across geography, which can help stabilize the local grid as well²⁶. Flexible loads can also benefit developers and grid operators by cutting costs²⁷. Another pathway is to allow data centers to use backup power generation during extreme events. For instance, a recent Department of Energy order permits data centers to deploy backup generation during winter storm Fern²⁸, which in turn, complicates air pollution governance if diesel generators are used

²⁵ NERC (2025, July). Characteristics and Risks of Emerging Large Loads. *Large Loads Task Force White Paper*. <https://www.nerc.com/globalassets/who-we-are/standing-committees/rstc/whitepaper-characteristics-and-risks-of-emerging-large-loads.pdf>

²⁶ Terrell, M. (2025, October). Flexible data centers can reduce costs – if not emissions. *MIT Management Sloan School*. <https://mitsloan.mit.edu/ideas-made-to-matter/flexible-data-centers-can-reduce-costs-if-not-emissions>

²⁷ Walsh, D. (2025, August). How we’re making data centers more flexible to benefit power grids. *Google*. <https://blog.google/innovation-and-ai/infrastructure-and-cloud/global-network/how-were-making-data-centers-more-flexible-to-benefit-power-grids/>

²⁸ Department of Energy (2026, January). Energy Secretary Issues Emergency Orders to Deploy Backup Generation in the Mid-Atlantic and Carolinas Following Winter Storm Fern. *DOE*.

(see Section 8.3). In reality, it is unclear how many data centers follow the load flexibility practices and there are little market incentives to do so.²⁹

At the regional scale, the key challenge for local governments and planners is that transmission planning is largely opaque, centralized, and insulated from local land-use decision-making. While regional infrastructure decisions can lock in long-term spatial patterns, local governments often have limited visibility into how cumulative transmission commitments may have community impacts (see Section 6 for quality-of-life impacts).

3.3 How Does Data Center Demand Affect Local Power Delivery and Communities? Distribution Systems, Rates, and Everyday Impacts

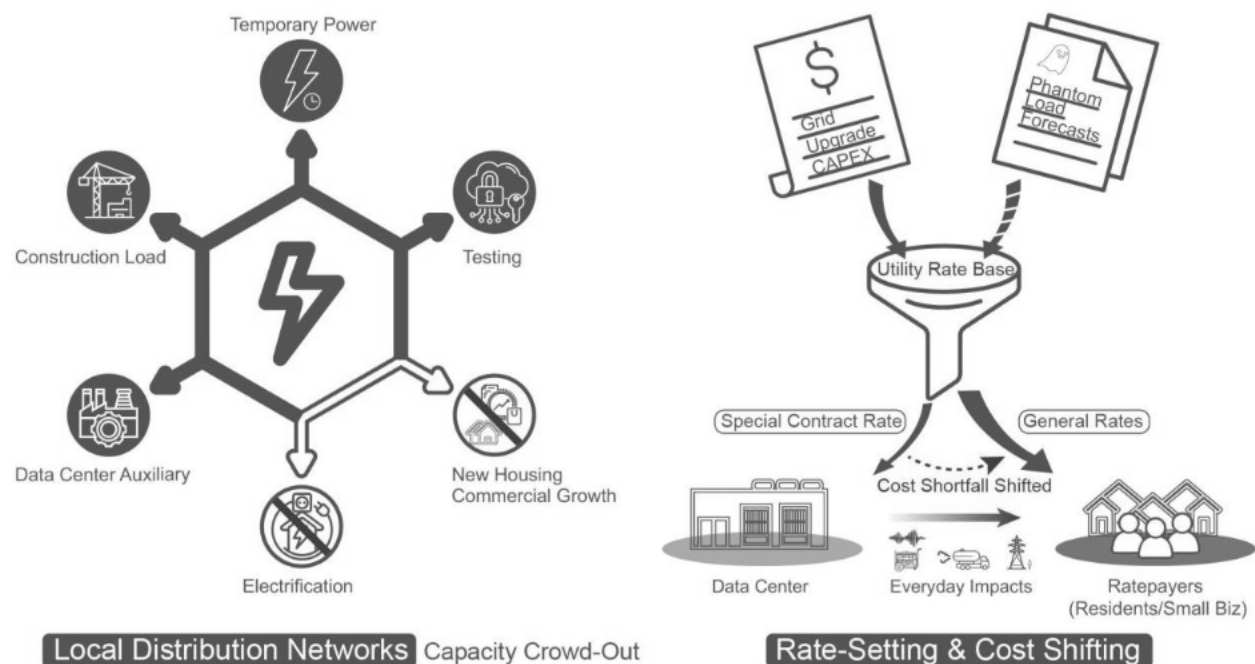


Figure 3.3: Data Centers' impact on local development and electrification and residential utility price. (Image Credit: Yajun Dai)

Data center growth can crowd out local development or delay electrification goals. Even when data centers are primarily served at the transmission level, they still interface with local distribution networks for some services (auxiliaries, construction load, temporary power, testing). A major new grid load can reduce headroom on distribution circuits, limiting capacity for

<https://www.energy.gov/articles/energy-secretary-issues-emergency-orders-deploy-backup-generation-mid-atlantic-and>

²⁹ Borenstein, S. (2025, April). Can Data Centers Flex Their Power Demands? *Energy Institute at HAAS*. <https://energyathaas.wordpress.com/2025/04/14/can-data-centers-flex-their-power-demand/>

new housing, commercial growth, or electrification (e.g., electric truck charging depots).³⁰ While similar constraints can arise from other sources of load growth, such as electrification, air-conditioning adoption in older building stock, or unanticipated neighborhood development, large data center interconnections may exacerbate these pressures in some locations. Local utilities may delay or deny new neighborhood connections if feeders are near limits, though empirical evidence on these impacts remains limited.

Data centers may affect residential electricity bills through cost-allocation and rate design, but isolating their causal contribution remains difficult. New or upgraded transmission and distribution infrastructure required to serve large loads may enter rate-setting calculations under existing Federal Energy Regulatory Commission (FERC) frameworks, in which certain capital costs are rolled into general transmission or distribution rates and shared among utility customers rather than assigned solely to the data center. Some data centers negotiate special rates outside of a rate case.³¹ When the special contract rate is lower than the utility's service cost to data centers, the cost shortfall is shifted to other ratepayers classes. Data center developers are also known to produce "phantom" load forecasts, where they submit speculative or duplicate requests to connect to the electricity grid, which distorts load forecasts for utility, leading to the construction of unnecessary infrastructures which capital expenditures are ultimately shifted to other ratepayers.³²

It is important to note that multiple factors can contribute to the rise of retail electricity prices beyond data centers, including extreme weathers and distribution investments (e.g., replacing old equipment).³³ "Many discussions of the rising electricity prices refer to wholesale market prices, which are strongly shaped by natural gas prices and weather-driven demand, not solely by load growth."³⁴

On the positive side, utility companies favor data center development because they significantly expand the rate base and guarantee recovery of costs. In theory, this can help spread fixed grid costs across more customers, which may explain empirical observations such as reduced

³⁰ Westhoff, G. (2025, November 18). *Electrification 101: Enabling Truck Charging with Flexible Service Connections*. RMI. Retrieved January 12, 2026, from <https://rmi.org/electrification-101-enabling-truck-charging-with-flexible-service-connections/>

³¹ Martin, E., & Peskoe, A. (2025, March). *Extracting Profits from the Public: How Utility Ratepayers Are Paying for Big Tech's Power*. Harvard Law School. Retrieved January 12, 2026, from <https://eelp.law.harvard.edu/wp-content/uploads/2025/03/Harvard-ELI-Extracting-Profits-from-the-Public.pdf>

³² Muir, M., (2025, November 14). *'Phantom' data centres muddy forecasts for US power needs*. Large Public Power Council. Retrieved January 12, 2026, from <https://www.lppc.org/news/phantom-data-centres-muddy-forecasts-for-us-power-needs>

³³ Wiser, R., O'Shaughnessy, E., Barbose, G., Cappers, P., & Gorman, W. (2025). Factors influencing recent trends in retail electricity prices in the United States. *The Electricity Journal*, 38(4), 107516. <https://emp.lbl.gov/publications/factors-influencing-recent-trends>

³⁴ Aniti, L. (2026, February). U.S. wholesale day-ahead electricity prices rose in 2025 with higher natural gas prices. U.S. Energy Information Administration. <https://www.eia.gov/todayinenergy/detail.php?id=67106>

averaged electricity price with state-level load growth.³⁵ In response to cost-shifting risks, some states' Public Utility Commissions (PUCs) and Public Service Commissions (PSCs) have revised rate-setting rules to better align infrastructure costs with beneficiaries.^{36 37} For regulated utilities, the rate increase decisions do not occur unilaterally: PUCs/PSCs are responsible for reviewing and approving retail rates through formal rate-case processes, and they can reject, reduce, or require significant revisions to utility proposals. Some utilities have begun implementing separate large user rate structures for data centers.³⁸ Microsoft recently announced that they will cover all costs for infrastructure upgrades directly.³⁹

Power-related infrastructure can also affect daily community life. Transmission corridors, substations, and backup generators can introduce visual impacts, noise, local air pollution, and truck traffic from diesel fuel deliveries during emergencies (see Section 6 and 8 for quality of life and environmental impacts).

4. Water (Water Source, Water Use, Water Discharge)

Water is central to remove heat from server operation. Data centers draw from municipal systems and, in some cases, groundwater sources via dedicated **water lines**, while wastewater from cooling systems are routed to local treatment plants. Because water is inherently local and cannot be transmitted across regions like electricity, large data center demands can strain regional water supplies and trigger costly infrastructure upgrades. These upgrades are often required late in the development process, placing financial and operational pressure on water utilities, especially in smaller or rural communities. Water use varies significantly by **cooling system** design and the tradeoff between water and energy efficiency. Data centers that rely on evaporative cooling can consume substantial volumes of water, with much of it lost to the atmosphere, and may require additional storage such as **independent water towers**. For urban planners, the central challenge is that cooling technology choices directly shape energy efficiency, water uses, and environmental impacts, which then affect long-term water resource planning and infrastructure investment needs. Planners can respond by coordinating with water utilities early, requiring transparent disclosure of projected water demand, and, where

³⁵ Wisner, R., O'Shaughnessy, E., Barbose, G., Cappers, P., & Gorman, W. (2025). Factors influencing recent trends in retail electricity prices in the United States. *The Electricity Journal*, 38(4), 107516.

³⁶ Next Generation Energy Act (Public Utilities–Electricity Generation Planning–Procurement, Permitting, and Co–Location), H.B. 1035, 2025 Reg. Sess. (Md. 2025). https://mgaleg.maryland.gov/2025rs/bills_noln/hb/fhb1035.pdf

³⁷ Ohio Public Utilities Commission. (2025, July 9). *PUCO orders AEP Ohio to create data center specific tariff*. Ohio Public Utilities Commission. Retrieved January 12, 2026, from <https://puco.ohio.gov/news/puco-orders-aep-ohio-to-create-data-center-specific-tariff>

³⁸ SCC. (2025, November). In Biennial Review Ruling, SCC creates new class for large-scale energy users. *Virginia State Corporation Commission*. <https://www.scc.virginia.gov/about-the-scc/newsreleases/release/scc-issues-order-on-dev-biennial-review-2025/scc-rules-in-dev-biennial-review-case.html>

³⁹ Smith, B. (2026, January). Building Community-first AI Infrastructure. *Microsoft*. <https://blogs.microsoft.com/on-the-issues/2026/01/13/community-first-ai-infrastructure/>

appropriate, setting cooling-system standards or conditions in zoning and site-plan review to align data center growth with local water capacity and resilience goals.

4.1 Where Do Data Centers Get Their Water?

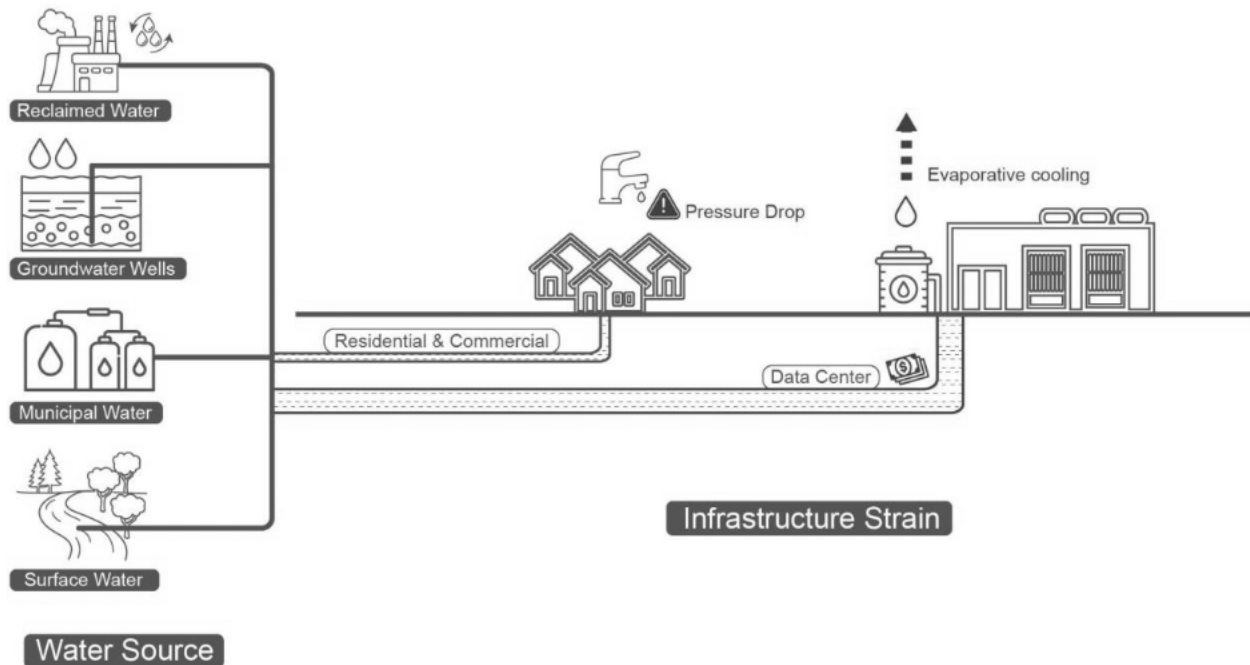


Figure 4.1: Data Center Water Sources (Image Credit: Yajun Dai).

Data centers may draw water from multiple local sources to support their cooling systems, including municipal water supplies, groundwater wells, surface waters like nearby lakes or rivers, or reclaimed water (i.e., wastewater that has been treated for reuse).^{40 41} In particular, the use of municipal reclaimed water for cooling systems is a well-established practice among large technology companies, allowing data centers to reduce reliance on limited freshwater supplies in dry areas while supporting sustainability goals.⁴²

Governance of data center water use requires regional, long-term water planning and regulatory coordination. Unlike electricity where generation capacity can be expanded and transmitted across regions, water is inherently local, drawn from nearby reservoirs, rivers, lakes, or aquifers.

⁴⁰ McCauley, P., & Scanlan, M. (2025, August 19). Data centers consume massive amounts of water – companies rarely tell the public exactly how much. *The Conversation*. <https://theconversation.com/data-centers-consume-massive-amounts-of-water-companies-rarely-tell-the-public-exactly-how-much-262901>

⁴¹ Badruzzaman, M., Anazi, J., Al-Wohaib, F., Al-Malki, A., & Jutail, F. (2022, December 22). Municipal reclaimed water as makeup water for cooling systems: Water efficiency, biohazards, and reliability. *Water Resources and Industry*, 28. ScienceDirect. <https://doi.org/10.1016/j.wri.2022.100188>

⁴² Yañez-Barnuevo, M. (2025, June 25). *Data Centers and Water Consumption*. environmental and energy study institute. Retrieved January 11, 2026, from <https://www.eesi.org/articles/view/data-centers-and-Water-consumption>

When evaporative cooling systems are used, up to 80% of water withdrawn by data centers evaporates and does not return to local water systems, while only the remaining portion is discharged to wastewater facilities, where reuse may be possible.⁴³

Large data center water loads can affect both nearby communities and regional water systems. News reports have documented cases where data center construction coincided with reduced household water pressure, dry taps, or sediment buildup in nearby residences.⁴⁴ Although the broader social and ecological impacts of data center water use remain understudied, empirical evidence shows that data center water demand, like energy demand, peaks during hot summer periods, when regional water supplies are often most constrained, exacerbating system vulnerability.⁴⁵

Despite water being a critical input, an interview with a regional water resource planner suggests that water utilities are frequently involved late in the data center development process. In many cases, projects advance through zoning and land-use approvals before water utilities are consulted, requiring water departments to reactively plan costly infrastructure upgrades such as upsizing transmission mains or installing booster pumps to maintain system pressure. These upgrades can entail investments of tens of millions of dollars, sometimes covered through negotiated cost-sharing or direct developer contributions.

Thus, local governments and water utilities should prepare for data center related water conversations early. Questions may involve the existing water capacity the city can accommodate, how data centers may change the forecasted regional water needs for the future, what is the amount of water lost from the rivers, what water infrastructure investments are needed, and what governance structure should be put in place to permit and check data center water uses and regulate associated environmental impacts.

This challenge is compounded by mismatches in planning horizons. Water utility master plans typically span decades, while data center lifespans and cooling technologies may change more rapidly. Utilities risk overbuilding capacity that may become underutilized if a data center relocates or shifts to less water-intensive cooling systems. While large cities may absorb such risks through existing infrastructure and diverse demand, smaller or rural utilities may face significant financial strain if forced to expand capacity on short notice and operate oversized systems long after demand declines.

⁴³ Ren, S., Li, P., Yang, J., & Islam, M. (2025, March 26). *Making AI Less “Thirsty”: Uncovering and Addressing the Secret Water Footprint of AI Models*. arXiv. Retrieved January 12, 2026, from <https://arxiv.org/pdf/2304.03271>

⁴⁴ Tan, E., & Chambers, D. (2025, July 16). Meta Built a Data Center Next Door. The Neighbors' Water Taps Went Dry. *The New York Times*. <https://www.nytimes.com/2025/07/14/technology/meta-data-center-water.html>

⁴⁵ Scanlan, M., McCauley, P., & McLennon, D. (2025, March 5). *Inside ESG Reporting: Thirsty Data Centers Reveal Limits to Transparency*. SSRN. Retrieved January 11, 2026, from https://papers.ssrn.com/sol3/papers.cfm?abstract_id=5169836

Finally, regulatory authority over large industrial water users varies widely across states. For example, a Georgia water resource planner noted that water use above 100,000 gallons per day requires permitting, giving local jurisdictions authority to meter and regulate usage. In many other states, however, comparable oversight may be absent, allowing data center developers to withdraw large volumes of water without formal reporting or approval, posing challenges for coordinated regional water planning.

4.2 How Do Data Centers Use Water?

Water demand from data centers can vary based on cooling system design. Data center cooling can be understood through three interconnected levels: how heat is removed from servers, how water or coolants circulate on the building level, and how heat is ultimately released from buildings into the environment. The choice of a cooling system also involves a fundamental trade-off between water and energy consumption. Understanding these nuances helps planners evaluate a project's real impact on water use, energy consumption, and whether the facility could provide benefits such as waste heat to the community (see Section 8.1). There are two common approaches to move heat from buildings to the outside environment.

Evaporative cooling relies on water to absorb and remove heat. When water evaporates, it carries away large amount of heat energy very efficiently. This approach consumes a lot of water. A medium-sized facility may consume up to 110 million gallons annually for cooling, comparable to annual water usage of approximately 1,000 households, while a large data center can consume up to 1.8 billion gallons, usage equivalent to a town of 10,000 to 50,000 people.⁴⁶ To make these magnitudes more legible, corporate sustainability reports sometimes compare data center water use to other water-intensive activities; for instance, the Google 2025 Environmental Report frames its total annual data center water consumption (8.1 billion gallons) as equivalent to irrigating 54 golf courses in the U.S. Southwest.⁴⁷ While such comparisons help convey scale, they do not resolve questions of local water availability, competing uses, or equity.

Water consumption increases with larger facility size, campus-scale development, AI or high-performance computing workloads (as opposed to basic data storage), and high, continuous energy demand. A significant portion of this water evaporates into the air and does not return to local water sources (i.e., up to 80% of evaporated water may be lost to the atmosphere and may not return to local rivers and lakes)⁴⁸. While these systems can place heavy demands on local

⁴⁶ Yañez-Barnuevo, M. (2025, June 25). *Data Centers and Water Consumption*. environmental and energy study institute. Retrieved January 11, 2026, from <https://www.eesi.org/articles/view/data-centers-and-Water-consumption>

⁴⁷ Google. (2025). *Environmental Report*. Retrieved January 11, 2026, from <https://www.gstatic.com/gumdrop/sustainability/google-2025-environmental-report.pdf>

⁴⁸ Ren, S., Li, P., Yang, J., & Islam, M. (2025, March 26). *Making AI Less "Thirsty": Uncovering and Addressing the Secret Water Footprint of AI Models*. arXiv. Retrieved January 12, 2026, from <https://arxiv.org/abs/2304.03271>

water supplies, they are energy-efficient, affordable, and widely used. They are most often considered for data centers located near abundant water resources.

Dry cooling rejects heat through fans, consumes minimal water, yet requires more energy to operate and works less efficiently, especially in hot weather. This system is more commonly considered for non-AI data centers in cooler, water-stressed regions, as it relies on the temperature difference between indoor and outdoor air to remove heat.

For years, most data centers chose evaporative cooling because electricity was expensive while water was cheap and abundant. Climate change, drought, and growing competition for water resources are now forcing the industry to reconsider this choice. Hybrid systems that combine evaporative and dry cooling are also becoming more popular. Whether a facility can practically use dry cooling instead of evaporative cooling at the building level depends in part on how a data center cools its servers.

At the server level, **air cooling** uses fans to blow air over servers. The heat produced through this method tends to be at a lower, near-ambient temperature, closer to the outside environment, which makes dry cooling inefficient and therefore often requires evaporative cooling systems.

Liquid cooling circulates coolant through pipes or metal plates attached directly to servers to absorb heat. **Immersion cooling** submerges entire servers in specialized cooling fluid. Both methods capture heat at higher temperatures, making dry cooling systems more feasible.

At the building level, **a closed-loop water system** refers to how these coolant flows operate, typically through sealed pipes that recirculate coolant back to the servers. When these designs are combined with dry cooling, which dissipates heat to the outside environment through air rather than water, the overall system can consume minimal water. The main trade-offs are higher electricity use, higher capital costs, and larger physical footprints, as these systems rely more on fans and mechanical equipment rather than evaporation.

In practice, data centers can use a mix of these technologies under energy and water cost tradeoff, surface climate, capital costs, or infrastructure retrofit constraints. It is possible that data centers have updated technologies at the server levels to conserve water (e.g., liquid / immersion cooling) but still use evaporative cooling systems to reject heat to the outside environment.

Rapid innovation in data center cooling technologies has produced mixed messages for local governments and communities. While some developers and local planners claim that water use is not a concern, others express ongoing uncertainty in terms of scope of work, workforce, and community capacity, particularly when projected water demand remains speculative during construction and early operation.

To address this disconnect, best practice calls for early, transparent negotiation between water utilities and data center developers, in which utilities clearly define the volume of water they can reliably supply and developers disclose expected cooling demand. Such coordination allows both parties to determine whether evaporative cooling is feasible or whether closed-loop systems are required, ensuring that cooling choices align with local water availability and reducing the risk of overcommitting scarce resources. Complementing this approach, utilities should adopt long-term master plans and support zoning ordinances that enforce limits on water-intensive cooling technologies (e.g., DeKalb County’s zoning amendment mandating closed-loop systems for new data centers).⁴⁹

4.3 What are Implications of Data Centers’ Water Discharge?

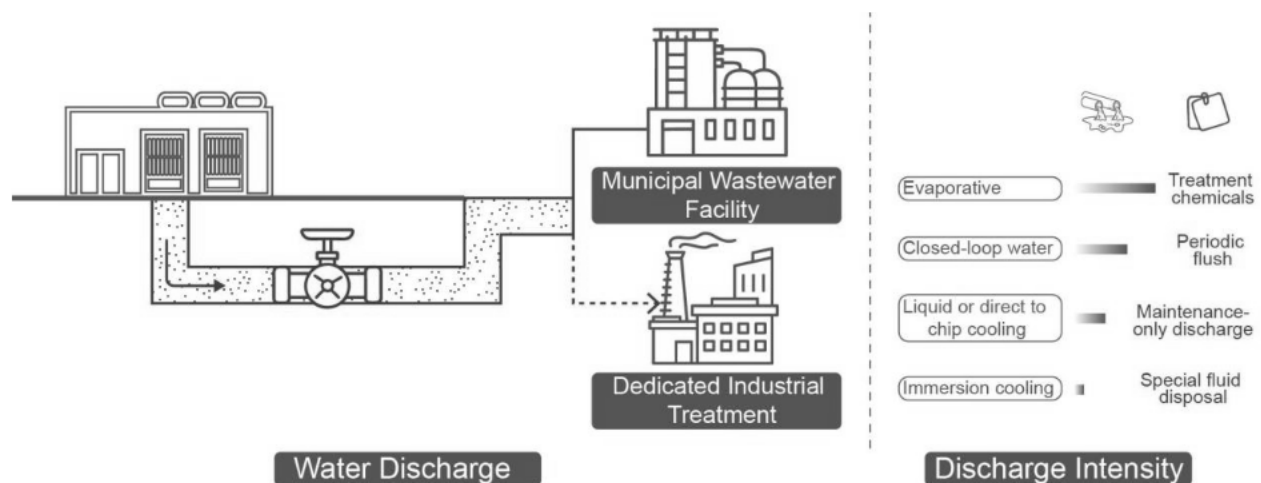


Figure 4.3: Data Centers’ Water Discharge (Image Credit: Yajun Dai)

Regardless of what water-based cooling systems data centers use, periodic flushing of cooling water is required at the building level to remove accumulated minerals, chemicals, and contaminants. The volume and composition of wastewater therefore depend on both how heat is rejected to the environment and whether cooling water is recirculated in open-loop or closed-loop systems at the building level.

Evaporative systems, which rely on open-loop water evaporation to reject heat, typically discharge 20 percent of water used to the sewer system.⁵⁰ This wastewater often contains chemical additives such as biocides and anti-scaling agents used to control biological growth and corrosion.

⁴⁹ DeKalb County. (2025, December 3). *Data Center Text Amendment*. Retrieved January 11, 2026, from <https://engagedekalb.dekalbcountyga.gov/data-center-text-amendment>

⁵⁰ Ren, S., Li, P., Yang, J., & Islam, M. (2025, March 26). *Making AI Less “Thirsty”: Uncovering and Addressing the Secret Water Footprint of AI Models*. arXiv. Retrieved January 12, 2026, from <https://arxiv.org/abs/2304.03271>

Dry cooling systems, in contrast, reject heat to the atmosphere using air rather than water and generate little to no routine wastewater discharge.

Closed-loop water systems, which circulate treated cooling water within the building, release far smaller volumes but still require periodic flushing of chemically treated water that must be managed through industrial pretreatment. Because cooling water is intentionally treated to maintain system performance, it is generally unsuitable for human consumption or agricultural reuse.

At the server level, cooling technologies further influence wastewater generation indirectly by shaping how much cooling water is required at the building scale. **Liquid cooling** or **direct-to-chip cooling** reduces overall cooling water demand by capturing heat more efficiently, resulting in wastewater discharge that occurs primarily during scheduled maintenance or coolant replacement. **Immersion cooling**, which submerges servers in dielectric fluids, produces little to no routine water discharge, though the specialized fluids used in these systems require careful handling and disposal through industrial waste channels.

Depending on local discharge regulations, wastewater from cooling systems may fall under a utility's industrial pretreatment program. A water resource manager interviewed noted that many jurisdictions require data centers to obtain industrial pretreatment permits to protect public sewer infrastructure by limiting pollutant concentrations and, in some cases, requiring on-site wastewater treatment prior to discharge.

The volume and chemical composition of data center wastewater can also impose capacity and treatment challenges for local water treatment facilities, sometimes necessitating costly infrastructure upgrades. These demands can arise as early as the construction phase, leaving local governments limited time to respond. An EPA case study from Quincy, Washington documents how multiple data centers prompted the city to construct a separate industrial wastewater treatment facility so cooling-system blowdown could be treated separately from municipal sewage and then reused.⁵¹ Despite such examples, the downstream wastewater impacts of data centers remain underexamined in the broader literature.

For data centers located in small, rural areas without access to municipal sewer and water systems, they must self-provide water supply and management system, such as drilling individual wells or extend nearby industrial facilities' water system and building on-site lagoons and septic system to manage industrial and employee wastewater (e.g., toilets, sinks, kitchens) respectively. Interviewed local planners also recite that these data centers may also apply for land application permits, allowing treated wastewater to flow to agricultural land as a positive, regulated reuse (see Section 5.2 on impacts on farmland transactions).

⁵¹ *Water Reuse Case Study: Quincy, Washington | US EPA*. (2025, July 17). EPA. Retrieved January 12, 2026, from <https://www.epa.gov/waterreuse/water-reuse-case-study-quincy-washington>

5. Land Use (Zoning, Land Market, Long-term Planning)

Data centers require proximity to **electrical substations**, **transmission lines**, and **fiber-optic backbones**, which can introduce new **land uses** associated with these supporting infrastructures and reshaping how land is zoned, valued, and developed. Local zoning frameworks determine where and how these facilities are permitted, but data centers often do not fit neatly into existing industrial or commercial categories due to their scale, infrastructure demands, and operational characteristics. Their development can trigger farmland conversion, land-value speculation, competition for industrial land, and the siting of associated facilities such as substations, transmission corridors, and water infrastructure. Over time, the land-use footprint of data centers shapes not only the feasibility of individual sites but also broader questions about strategic co-location of mutually beneficial uses, land-value speculation, growth management, compatibility with surrounding development, and the long-term end use or reuse of such large, single-purpose facilities. For planners, the central challenge is navigating uncertain and rapidly evolving industry needs while accounting for implications for land markets, community compatibility, and future reuse.

5.1 How are Data Centers Regulated through Zoning?

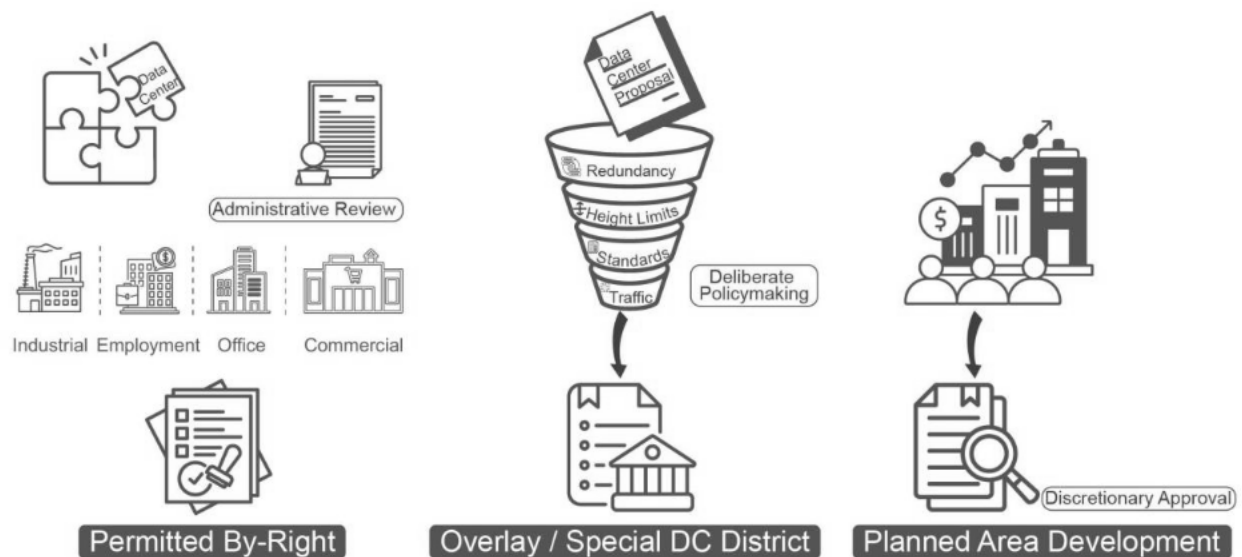


Figure 5.1: Three Zoning Approaches to Data Centers (Image Credit: Yajun Dai).

Data centers typically fall into light/heavy industrial (e.g., Hillsboro, Oregon), or employment/office/commercial zoning districts (e.g., New Albany, Ohio)^{52 53}. When zoning codes do not explicitly distinguish data centers from other industrial uses, they are often permitted by right. This means the proposal does not require discretionary approval and must be approved administratively as long as it meets objective development standards (e.g., height, setbacks). If a use is permitted by right, the city cannot deny the project based on the use itself; the review is administrative, not political.

However, data centers feature different characteristics, such as height, traffic, redundancy, and large energy and water consumption, that may not fit neatly within existing industrial categories. Whether data centers should be regulated separately from other industrial uses remains contested. As some planners noted, if a data center, a potato processing plant, and a beer factory produce similar externalities, it is not immediately obvious why zoning codes have to treat them differently. Local jurisdictions have adopted a range of approaches to regulate these characteristics more precisely.

One approach is to establish a dedicated overlay or special zoning district that explicitly governs data centers with tailored standards (e.g., Prince William County, Albemarle County, and Loudoun County in Virginia)^{54 55 56}. This method is common in jurisdictions with a large number of data center proposals, as it streamlines by-right approval for qualifying projects. Yet defining the new district requires deliberate policymaking to ensure its standards match local infrastructure capacities and community expectations.

A second approach relies on case-by-case review through a Planned Area Development (PAD) or similar master-planned zoning designation (e.g., Chandler, Arizona)⁵⁷, or established specific zoning restrictions for data centers and require special use permits that mandate public review

⁵² City of Hillsboro. (2024, March 5). *City of Hillsboro Community Development Code*. Retrieved January 11, 2026, from <https://ecode360.com/44406061>

⁵³ New Albany Planning Commission. (2025, March 3). *New Albany Planning Commission Meeting Agenda*. Retrieved January 11, 2026, from <https://newalbanyohio.org/wp-content/uploads/2025/02/25-0303-PC-Meeting-Packet.pdf>

⁵⁴ Prince William County. (n.d.). *Prince William County, VA Municode Codification: Chapter 32—Zoning, Article V—Overlay Districts, Part 509—Data Center Opportunity Zone Overlay District*. Retrieved January 11, 2026, from https://library.municode.com/va/prince_william_county/codes/code_of_ordinances?nodeId=CH32ZO_ARTV_OVDI_PT509DACEOPZOOVDI

⁵⁵ Albemarle County Community Development Department. (2025, July 11). *Data Center Ordinance Review*. Retrieved January 11, 2026, from https://engage.albemarle.org/data-center-regulations/news_feed/read-the-draft-ordinance

⁵⁶ Loudoun County. (n.d.). *Loudoun County Zoning Ordinance Chapter 3*. Retrieved January 11, 2026, from <https://online.encodeplus.com/regs/loudouncounty-va-crosswalk/doc-viewer.aspx#secid-43>

⁵⁷ Chandler, Arizona. (n.d.). *Code of Ordinances*. Retrieved January 11, 2026, from https://library.municode.com/az/chandler/codes/code_of_ordinances?nodeId=PTVIPL_CH35LAUSZO_ARTXXIIADHEARRE_35-2214DACE

and council approval (e.g., Atlanta).⁵⁸ In these frameworks, developers propose customized development standards subject to discretionary approval. This approach offers flexibility and becomes increasingly popular as local jurisdictions want to exercise discretion and hold power levers.

In places where zoning codes do not explicitly mention data centers, interpretation gaps and soft regulations may arise. For example, Santa Clara, California does not automatically permit data centers in any zoning district but notes in a planning commission opinion that they may be allowed with a use permit.⁵⁹ This ambiguity can lead to unintended consequences if planners are unfamiliar with data center infrastructure needs. For instance, some industrial zoning districts may not permit diesel generators, which effectively rule out data center uses because diesel generators are required infrastructure components.⁶⁰ Other jurisdictions also creatively place limits within industrial or employment districts, such as capping their cumulative total area, or only allowing data centers as secondary uses attached to another primary use, effectively prohibiting hyperscale or enterprise data centers.

Local communities can also assert their preferences by amending zoning documents to impose specific requirements on data centers, such as restricting certain types, mandating closed-loop cooling systems, or establishing enhanced setbacks near residential areas. For example, DeKalb County's zoning amendment mandates closed-loop systems for new data centers.

Local communities can also voice opposition through the rezoning public process.⁶¹ An increasing number of data center proposals seek to rezone agricultural land into industrial use due to lower land prices and the shrinking availability of suitable industrial lands. Yet rezoning is a legislative rather than administrative action and therefore requires a public process involving City Council hearings, during which community opposition can emerge and ultimately lead to the denial of the rezoning request, and, by extension, of the data center itself. There have even been controversies in which data center developers threaten to sue local jurisdictions after rezoning denials.⁶²

⁵⁸ City of Atlanta. (n.d.). *Ordinance 25-O-1063*. Retrieved January 11, 2026, from https://atlantacityga.ig2.com/Citizens/Detail_LegiFile.aspx?ID=37303

⁵⁹ City of Santa Clara. (2024, January 31). *Public hearing: Action on environmental impact report, general plan amendment, and use permit to allow the construction of a new four-story, 244,068-square-foot data center with a substation at 2805 Bowers Avenue*. Retrieved January 11, 2026, from <https://santaclara.legistar.com/LegislationDetail.aspx?ID=6563785&GUID=DA282979-0FE8-4B1C-9650-54F48227DC96>

⁶⁰ Fluet, J. (2021, July 22). Data Centers Evolved: A Primer for Planners. *American Planning Association Planning Magazine*. <https://www.planning.org/planning/2021/summer/data-centers-evolved-a-primer-for-planners/>

⁶¹ DeKalb County. (2025, December 3). *Data Center Text Amendment*. Retrieved January 11, 2026, from <https://engagedekalb.dekalbcountyga.gov/data-center-text-amendment>

⁶² Allnut, B. (2025, September 18). Data center developer takes Saline Township to court over rezoning decision. *Planet Detroit*. <https://planetdetroit.org/2025/09/saline-township-data-center-lawsuit/>

Data center developers typically confirm with local planners early on the zoning designation of a targeted site and assess whether rezoning is feasible. This decision is critical, as it determines the subsequent approval process (e.g., rezoning requires a public process and broader stakeholder engagement) and the design constraints for data center construction. Based on our interviews, developers ideally prefer the land to be rezoned before acquisition, but they also work closely with landowners to submit rezoning applications and, in some cases, collaborate with inexperienced jurisdictions to update zoning codes to better accommodate data centers. The specific approach to data center zoning also shapes the role of urban planners, either limiting them to “check-box” compliance with land-use standards or allowing them to exercise discretion in balancing economic development goals with community needs.

5.2 How Does Data Center Affect Other Land Use and Land Transactions?

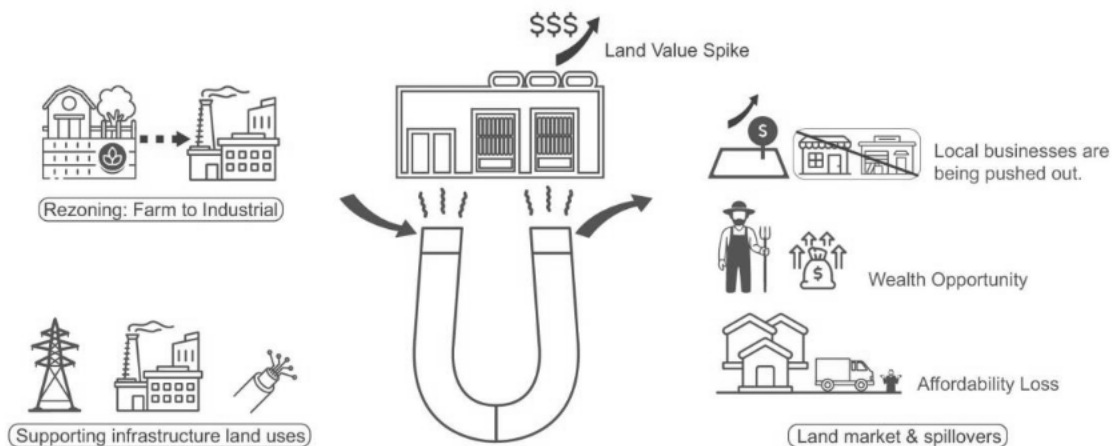


Figure 5.2: Data Centers’ Impact in Land Uses and Land Transactions (Image Credit: Yajun Dai).

Data centers increasingly compete with agricultural land because farmland is cheaper and industrial land is limited. In Morrow County, Oregon, eight out of nine data centers are located outside city limits. For municipalities intent on prioritizing farmland preservation, one legal tool is to define data centers as a distinct use and explicitly prohibit them in agricultural districts, as implemented in Prince William County, VA.⁶³ A more likely outcome is the implementation of stricter requirements within existing regulations, as well as negotiations for agricultural

⁶³ Prince William County. (n.d.). *Prince William County, VA Municode Codification: Chapter 32—Zoning, Article V—Overlay Districts, Part 509—Data Center Opportunity Zone Overlay District*. Retrieved January 11, 2026, from https://library.municode.com/va/prince_william_county/codes/code_of_ordinances?nodeId=CH32ZO_ARTV_OVDI_PT509DACEOPZOVDI

preservation funds from developers, as seen in Saline Township, MI.⁶⁴ On the other hand, some municipalities, as brought up during interviews, have expanded municipal boundaries to incorporate rural agricultural land and rezone it as industrial land. However, municipalities need to consider the environmental consequences of using nearby farmland, as well as potential legal limitations in expanding the urban growth boundary based on state statute.

Data centers often induce additional power, water, fiber, and business-related land uses, such as transmission lines, electrical substations, renewable energy facilities, water storage towers, treatment plant expansions, and coordinated rights-of-way for water lines, fiber bundles, and sewers. A planner in a rural town with data centers reported spending 15–20% of their time reviewing transmission line applications alone. Interviewed developers also argue that many data centers are located in commercial districts where fiber lines are readily available and could stimulate auxiliary business that serve the staff or the operation for data centers.

Data centers can also increase land values and thus have spilled over effects on other uses. Data center developers typically look to construct several data centers within the same general area, for both the purpose of lower latency rates between data centers and ease of working with a familiar approval process. In these targeted areas, sites of open land that are viable for data center development can see significant increase in value because of developers' willingness to pay. In Loudoun County, the data center capital of the world, viable land is selling at \$6 million an acre.⁶⁵ While Loudoun is an extreme example, other areas are experiencing surging land prices. For farmers or people who own industrial land that they wish to sell, this is an incredible opportunity to build wealth, but it makes land purchases less attainable for locals or other businesses that don't have the same financial resources as data center developers. For farmers who want to purchase or rent farmlands, data centers motivate speculation on land values in farmland market. A rural town planner shared an observation that many commercial trucks for farming communities are parked on residential districts because they cannot find commercial and industrial land that they can afford due to the land price increase induced by data centers.

⁶⁴ Allnutt, B. (2025, October 21). Saline Township settles with data center developer: 'Lesser of two evils'. *Planet Detroit*. Retrieved January 11, 2026, from <https://planetdetroit.org/2025/10/saline-data-center-settlement/>

⁶⁵ Graham, D., & Styer, N. K. (2025, November 7). Data Center Sale Sets New Loudoun Price Record. *Loudoun Now*. Retrieved January 11, 2026, from https://www.loudounnow.com/business/data-center-sale-sets-new-loudoun-price-record/article_d392a250-e672-46c2-b2d2-f0ad3424a100.html

5.3 What Are Long-term Land Use Planning Considerations?

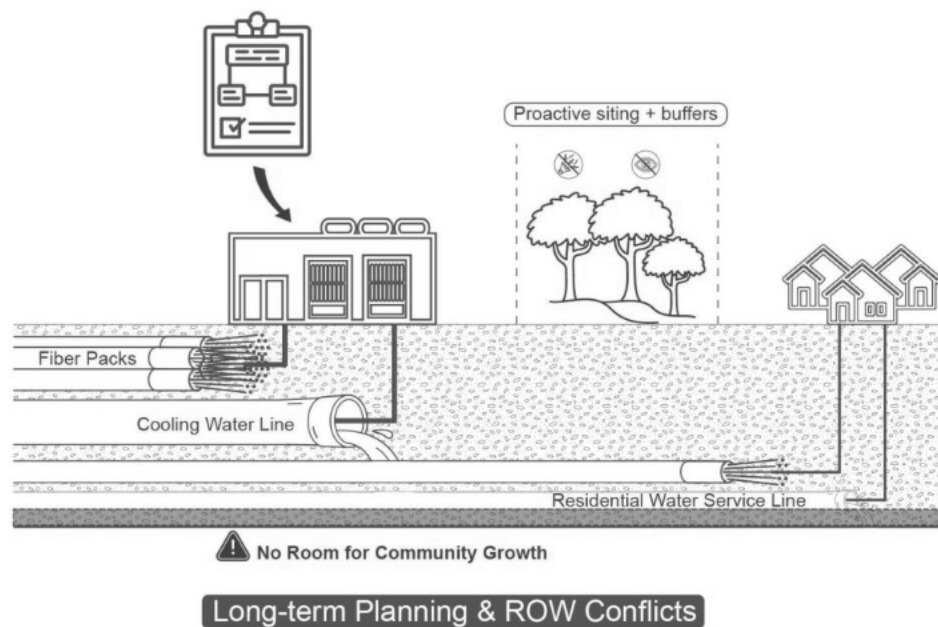


Figure 5.3: Long-term planning consideration on limited right-of-way headrooms due data centers' underground infrastructure (Image Credit: Yajun Dai).

A long-term challenge associated with data center development is that, given the uncertainty and rapid change in the AI industry, communities may experience a short-term oversupply of data centers, many of which could fall out of use over the long term.⁶⁶ To address the end use question, municipalities can draw inspiration from retrofitting big-box retail development or single-use, large-format buildings that have increasingly fallen out of favor in the internet age.

Solutions, particularly for enterprise or hyperscale data center proposals, typically include requiring developers to post a security bond covering demolition costs or requiring submission of an adaptive reuse plan, or both. For example, Ferndale, Washington requires developers of single-purpose structures over 50,000 square feet to either submit an adaptive reuse plan or post a bond equal to 150 percent of estimated demolition costs.⁶⁷ However, an interviewed planner raised concerns that mandatory decommissioning requirements for data centers may need to be considered carefully, as similar long-term land-use implications apply to many other industrial uses, and singling out data centers might be problematic.

⁶⁶ Morley, D. (n.d.). *Managing AI Build-Out in a Winner-Take-Most World*. American Planning Association Blogs. Retrieved January 11, 2026, from <https://www.planning.org/blog/9319236/managing-ai-build-out-in-a-winner-take-most-world/>

⁶⁷ City of Ferndale, WA. (n.d.). *Ferndale Municipal Code, Title 18 (Zoning), Chapter 18.58: Retail Design Guidelines and Standards*. <https://www.codepublishing.com/WA/Ferndale/#!/Ferndale18/Ferndale1858.html>

Several interviewees stressed the importance of thinking ahead about where data centers *should* go long before development pressures arrive. Siting decisions made early can prevent future conflicts with residential neighborhoods, which often struggle with noise, viewshed issues, or the presence of large substations and transmission lines. Interviewed planners described the need for intentional buffers, such as parks, forests, open space, to keep high-voltage infrastructure from discouraging nearby housing.

Coordinating with power companies is also essential. As one planner noted, knowing where utilities expect to extend transmission lines in the next five or ten years helps planners understand which areas are likely to be suitable, or unsuitable, for new homes. Fiber infrastructure presents a different challenge: it is buried, expensive, and invisible to residents. Although essential to data centers, it can be hard to communicate its value to the public and elected officials.

Data centers may also strain the public right-of-way (ROW). Large water lines, dense fiber-optic bundles, and other utility corridors must all fit within limited space. One planner described a non-potable “cooling water” line built to serve several data center campuses that now occupies much of a key roadway corridor, raising questions about where future municipal water or wastewater lines will go. Similar issues arise with fiber. Data centers require high-capacity “fiber packs,” which can crowd out room for community-serving utilities. In many jurisdictions, large fiber projects can also proceed through administrative ROW permits handled by public works or engineering, with limited planning commission review or public input. And there is a mismatch between what data centers need and what residents can use: data-center-grade fiber is not directly compatible with household broadband fiber. Unless communities negotiate local access or form partnerships with data centers to provide free access, those living near data centers may still struggle with slow or unreliable internet.⁶⁸

However, data centers can be synergistic for community land use development. Some communities have converted aging malls or big-box stores into data centers, making use of structures that are otherwise hard to repurpose.⁶⁹ Others are exploring co-location models, pairing data centers with greenhouses that can use their waste heat, or placing them alongside renewable energy facilities because these uses often target the same types of land and can provide clean energies to residents in return.⁷⁰

⁶⁸ Banks, R. (2024, March 19). *Data Centers Enable Our Digital World—and Thriving Communities*. The Equinix Blog. Retrieved January 11, 2026, from <https://blog.equinix.com/blog/2024/03/19/data-centers-enable-our-digital-world-and-thriving-communities/>

⁶⁹ Datacenters.com. (2025, October 31). *From Retail to Racks: How Malls and Big-Box Stores Are Becoming Data Center Real Estate*. Retrieved January 11, 2026, from <https://www.datacenters.com/news/from-retail-to-racks-how-malls-and-big-box-stores-are-becoming-data-center-real-estate>

⁷⁰ Datacenters.com. (2024, September 19). *From Byproduct to Resource: How Data Centers are Turning Waste Heat into Valuable Energy*. Retrieved January 11, 2026, from <https://www.datacenters.com/news/from-byproduct-to-resource-how-data-centers-are-turning-waste-heat-into-valuable-energy>

6. Quality of Life (Housing, Transportation, Residential Experience)

Data centers can affect nearby residents' quality of life through noise from **diesel generators** and **cooling fans**, light pollution from **24/7 street lighting** for security, neighborhood traffic disruptions during construction or emergency fueling, including activity around **visitor parking** areas and equipment **loading bays**, and visual impacts from large, windowless **server hall** buildings, expanded **transmission lines and substations**, and fortified **security perimeters**. **Landscape screening** is a common though limited mitigation strategy to soften these visual effects. While construction-related traffic may decline once facilities are operational, other impacts, such as noise, lighting, and large-scale physical infrastructure, often persist for the life of the facility once permitted and installed. Over the longer term, local housing demand increases as construction and operations workers seek nearby living options. For planners, the central challenge is anticipating and managing these cumulative, place-based impacts on housing markets, transportation systems, and everyday residential experience when many effects emerge gradually, cross jurisdictional boundaries, and are difficult to reverse once facilities and supporting infrastructure are in place.

6.1 How Might Data Centers Impact Housing?



Figure 6.1: Data centers' long term employees and temporary construction workers bring housing pressures to local communities (Image Credit: Yajun Dai).

Although data centers do not house many employees, the workforce they draw during both construction and operation requires nearby housing, food options, and neighborhood amenities.

Even small facilities generate secondary employment (delivery, food services, maintenance), increasing residential demand as workers seek to live close to where they are based. This places localized pressure on housing markets in areas that were not expected to absorb significant population growth. As AI and larger computing clusters push site selection toward more remote, infrastructure-sparse locations, commuting becomes less feasible, and workforce housing emerges as a logistical constraint, one that was not typically examined in data center planning.

Data centers also introduce large, multi-year construction cycles, and tend to follow previously built out facilities (i.e., cluster in the same region). Workers initially assumed to be temporary often choose to stay permanently, gradually absorbing available housing stock. Local planners we interviewed acknowledged that the scale of this shift became apparent only over time: construction workers filled vacant units, became long-term residents as new data center phases continued to open, and contributed to sustained housing pressure that the region had not anticipated.

In places like Loudoun County, an interviewed elected official reported that power constraints and limited land availability are pushing the county to prioritize residential development over additional data centers. Residents migrating from high-cost metros (e.g., DC) intensify demand for housing in suburban counties like Loudoun, making elected officials more sensitive to housing pressures.

Data centers can also have mixed impacts on the local housing market. One study found no evidence that data centers in Northern Virginia negatively affect property values.⁷¹ Loudoun county's 2025 budget summary reported 4.53% and 22.56% increase in residential and commercial property value due to new and expanding data centers in the county, which then contributes to extremely high housing prices.^{72 73} Another interviewee described unprecedented apartment rents in a rural town experiencing data center growth. However, it remains unclear whether these patterns generalize to regions with different market conditions and concentrations of data centers. The quality of life for residents living near data centers may also influence housing desirability. As a policy response, Henrico County, Virginia has begun directing data center tax revenues into an affordable housing trust fund.⁷⁴

⁷¹ Waters, K., & Clower, T. (2025, August). *Data Centers and 2023 Home Sales in Northern Virginia*. Retrieved January 11, 2026, from https://cra.gmu.edu/wp-content/uploads/2025/08/NoVa_DataCenters.pdf

⁷² Loudoun County. (n.d.). *Loudoun County FY 2025 Adopted Budget*. Retrieved January 11, 2026, from <https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/1958598/FY%202025%20Adopted%20Budget%20-%20Volume%201.pdf>

⁷³ Chernicoff, D., & Vincent, M. (2025, February 15). *The Future of Property Values and Power in Virginia's Loudoun County and 'Data Center Alley'*. Retrieved January 11, 2026, from <https://www.datacenterfrontier.com/site-selection/article/55266317/the-future-of-property-values-and-power-in-virginias-loudoun-county-and-data-center-alley>

⁷⁴ Stacy, C. P. (2025, October 27). *Turning Data Center Revenues into Affordable Homes*. Retrieved January 11, 2026, from <https://www.urban.org/urban-wire/turning-data-center-revenues-affordable-homes>

6.2 How Might Data Centers Impact Transportation?

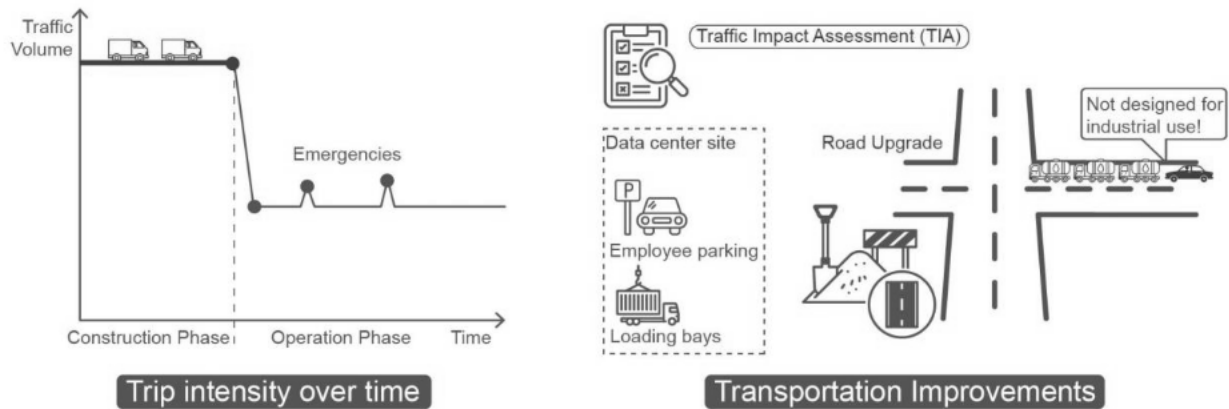


Figure 6.2: Data Center's Traffic and Transportation Infrastructure Considerations (Image Credit: Yajun Dai).

Transportation considerations tend to surface early in the data center development process. Developers told us that one of their first steps is simply looking at whether the roads are wide enough to handle heavy trucks and increased trips during construction. A regional water resource planner also noted that transportation impacts are often what first bring a proposed data center to the attention of regional planning commissions, because road congestion quickly becomes a regional concern.

Data centers create intense, short-term trips during the construction period, even though they may generate few daily trips once they are operating. Interviewed rural town planners reported that residents may not immediately connect these changes to a new data center, but over time the steady buildup of congestion becomes hard to ignore.

Therefore, many local governments now require developers to submit traffic impact assessments before a rezoning or site plan can move forward. Developers typically hire national transportation consulting firms to study trip generation, access points, road design standards, and potential safety concerns. Because many local officials are not engineers, these studies often serve as the primary tool for explaining expected impacts and shaping mitigation strategies. State and county transportation departments may join the review process if a proposed site sits near a highway or a state-maintained intersection.

In practice, accommodating a data center often means upgrading local roads. New access roads may be needed, or existing ones may require infrastructure upgrades. Developers sometimes absorb these costs, but not always. When improvements extend beyond the immediate site, questions arise about who pays and who benefits. Interviewees emphasized that in remote areas, where roads were never designed for industrial-scale use, local roads could deteriorate quickly.

Parking and staging create another layer of transportation challenges. Construction sites can have hundreds of workers but only a limited number of spaces, forcing developers to secure remote parking lots and run shuttles. In places where local ordinances prohibit construction vehicles from using neighborhood streets, staging becomes even more complicated.

Transportation pressures also persist during emergencies. One developer described fuel trucks lining up along a public street during a regional power outage because generator refueling could not occur on-site, which is technically legal but nonetheless disruptive for nearby residents.

Even after construction ends, data centers continue to generate transportation activities. Large campuses may host security staff, office tenants, delivery drivers, and vendors, all of whom add daily trips. Workers may also choose to live nearby, gradually increasing residential traffic and service demand in surrounding communities.

Given these pressures, transportation improvements are increasingly written into community benefit agreements or mitigation packages. These might include sidewalks, paved shoulders, multimodal paths, safer intersections, or upgrades at key interchanges. In some cases, developers help fund improvements on road infrastructure to meet safety standards. Regional review processes, such as Georgia's Development of Regional Impact review, also flag large data center proposals early to capture regional traffic impacts.⁷⁵

6.3 How Might Data Centers Affect Residential Experience?



Figure 6.3: Data centers' light, noise, and air pollution impacts to nearby residences (Image Credit: Yajun Dai).

Residents often become more vocal in opposing data centers once the facilities and their supporting infrastructure become visible and their effects are felt close to home. Not-In-My-Backyard (NIMBY) sentiments intensify as large transmission lines, substations, and

⁷⁵ Hansen, Z., & Brimmer, A. V. (2025, November 20). Data centers to get regional review, public notice on key Georgia website. *The Atlanta Journal-Constitution*. <https://www.ajc.com/business/2025/11/data-centers-to-get-regional-review-public-notice-on-key-georgia-website/>

windowless server halls, and security perimeters appear, which many view as visually intrusive. For some residents, these structures are perceived as eyesores and as visible signs of the data center's impact on the local grid. These visual disruptions clash with landscape aesthetics, diminish rural character, and signal long-term development. These physical reminders tend to prompt communities to mobilize, question approvals, and push back more intensely.

Beyond changes in visual character, residents may experience day-to-day noise, light, air pollution, and traffic impacts at the neighborhood scale (see Section 8 for environmental impacts). Interviewed developers described receiving frequent complaints from nearby residences about noise and light. Although backup generators operate infrequently, they produce a high level of noise when activated. Fans and cooling towers operate continuously and, at scale, can create a low-frequency hum that carries beyond property lines. Light pollution can also affect nearby homes: because data centers operate 24 hours a day, security or construction lighting may unintentionally spill into adjacent yards and windows.

While air pollution and noise are regulated and mitigated through Environmental Planning Agency (EPA) and local noise ordinances, persistent disturbances can still become quality-of-life issues for neighbors. The noise and light pollution could lead to health issues where some residents reported hypertension and insomnia.^{76 77}

Developers can offer minor adjustments, such as landscape screening to soften visual impacts, redirecting lighting or generator exhaust, or informing local governments in advance when generators will be tested so they can coordinate communication with residents. In good faith, many developers do want to be good neighbors. However, as one interviewed developer explained, once a generator or cooling system has been legally permitted and installed, local governments have little authority to require substantive changes or removals, even if residents continue to raise concerns.

7. Economic Benefits (Tax Revenue, Job, Ancillary Businesses)

Data centers contribute significant tax revenues to local governments, from real estate and property taxes on infrastructure investments to business and sales taxes generated by daily operations and computer equipment in **server halls**. They also create direct and indirect jobs in **office** and site operations. The job counts tend to be higher during the construction phase than

⁷⁶ Judge, P. (2021, July 22). *Chicago residents complain of noise from Digital Realty data center*. Data Center Dynamics. Retrieved January 11, 2026, from <https://www.datacenterdynamics.com/en/news/chicago-residents-complain-of-noise-from-digital-realty-data-center/>

⁷⁷ Monserrate, S. G., & Burrington, I. (2022, January 27). *The Cloud Is Material: On the Environmental Impacts of Computation and Data Storage*. MIT Case Studies in Social and Ethical Responsibilities of Computing. Retrieved January 12, 2026, from <https://mit-serc.pubpub.org/pub/the-cloud-is-material/release/2>

in ongoing operations. Data centers' high tax yield per capita can make them attractive to jurisdictions seeking new revenue sources, yet the relatively small number of permanent jobs raises questions about the depth and distribution of local economic benefits. These dynamics are further complicated by tax incentives, negotiated abatements, and uneven bargaining power across jurisdictions, which can shape how much value communities ultimately retain. For planners, the central challenge is evaluating whether the fiscal gains, employment opportunities, and secondary economic activity justify the long-term land, infrastructure, and public resource commitments, especially when benefits are immediate and visible, but costs and tradeoffs unfold over decades and vary widely across communities.

7.1 What Tax Revenue and Community Investments Do Data Centers Generate?

Data centers can bring significant tax growth. These taxes include property taxes from real estate and infrastructure investment, business taxes from operations or equipment, and sales tax on equipment purchases.⁷⁸ For instance, Loudoun County, Virginia reported \$670 million in tax revenue on data centers' computer equipment alone, which constitutes 41% of all property tax.⁷⁹ These revenues can be used to fund community programs such as education, parks, or recreational facilities, infrastructure upgrades, sustainability initiatives and even affordable housing funds (see examples from Loudoun County, VA).⁸⁰ The large revenue inflow makes data centers attractive for elected officials and smaller, rural townships that lack public funds and economic opportunities.

Most interviewees reported that data centers generate substantial local tax revenue even after tax breaks, but these benefits remain controversial because they vary widely across states depending on tax abatement policies and local negotiation capacity. Critics often argue that the fiscal gains are far smaller than they could be.⁸¹ In many cases, tax incentives are negotiated quietly at the state level through economic development offices without input from local planners or utilities, and smaller or less experienced jurisdictions may accept deals or sell industrial lands before they realize who they are selling to and how much more value they could have bargained. Several interviewees noted that before 2020, developers routinely expected generous tax incentives and negotiated aggressively by threatening to move to competing

⁷⁸ Metropolitan North Georgia Water Planning District. (2025, October 16). *Data Center Trends in Metro Atlanta and Considerations for Local Communities*. Retrieved January 12, 2026, from https://northgeorgiawater.org/wp-content/uploads/2025/10/2025_10_16_DataCenters_Community-Considerations.pdf

⁷⁹ Loudoun County. (n.d.). *Loudoun County FY 2025 Adopted Budget*. Retrieved January 11, 2026, from <https://lfportal.loudoun.gov/LFPortalInternet/0/edoc/1958598/FY%202025%20Adopted%20Budget%20-%20Volume%201.pdf>

⁸⁰ Loudoun County. (n.d.). *Data Centers - Tax Revenues and the County Budget*. Frequently Asked Questions. Retrieved January 12, 2026, from <https://www.loudoun.gov/m/faq?cat=241>

⁸¹ Ramadan, L., & Brownstone, S. (2024, August 4). How a Washington Tax Break for Data Centers Snowballed Into One of the State's Biggest Corporate Giveaways. *ProPublica*. <https://www.propublica.org/article/washington-data-centers-tech-jobs-tax-break>

jurisdictions. As market demand for data center sites has grown and local opposition has risen, jurisdictions are no longer pressured to offer the steepest tax incentives.

Some data center developers may offer micro-grants or community benefits programs tailored to local needs. For instance, at Saline Township, MI, the developers offered “\$2 million for a farmland preservation trust fund, \$2 million for a community investment fund that can be used for community projects, township buildings, children’s buildings, and maintenance of cemeteries, 5 million to invest in the fire department in trucks, facilities, and more”.⁸² Many local jurisdictions also include affordable housing and transportation impact mitigation requirements in their agreements (see Section 6.1 on housing-related impacts).

7.2 How Many Jobs Do Data Centers Create?

Data centers can bring jobs in different domains. The U.S. Census reported that employment in data centers have increased more than 60% nationally from 2016 to 2023. Direct jobs include roles involved in designing, engineering, and operating facilities.⁸³ Typical local positions include business support, facility managers, IT professionals, engineering and maintenance staff, security personnel, and cleaning staff.

The highest concentration of jobs occurs during construction. When construction takes place outside major metropolitan areas, these jobs often spill over into nearby regions, while operational jobs tend to remain local. However, once a data center becomes operational, the number of jobs decreases sharply. This reduction became controversial when tax incentives were justified on the premise of job creation. For example, a ProPublica investigation reported that Microsoft employed 417 people across its Washington data centers as of July 2024 while receiving \$68.4 million in tax abatements in 2023, which is a stark ratio of public subsidy to jobs created.⁸⁴ Another study found that a Google hyperscale data center could support 1,500 to 2,000 full-time workers during its 18 to 24-month construction period, but only 150 to 250 full-time jobs once operational.⁸⁵ In Michigan, reporters documented that a data center near Grand Rapids provided only 74 full-time, potentially low-wage jobs in 2019, despite public claims of

⁸² Longmoore, T. (2025, October 1). Saline Township Board Approves Consent Agreement to Avoid Lawsuit, Awaits Response. *The Saline Post*. <https://thesalinepost.com/q/saline-mi/n/336585/saline-township-board-approves-consent-agreement-avoid-lawsuit-awaits-response>

⁸³ Foote, A., & Wilkie, C. (2025, January 6). *Data Centers Growing Fast and Reshaping Local Economies*. U.S. Census Bureau. Retrieved January 12, 2026, from <https://www.census.gov/library/stories/2025/01/data-centers.html>

⁸⁴ Ramadan, L., & Brownstone, S. (2024, August 4). How a Washington Tax Break for Data Centers Snowballed Into One of the State’s Biggest Corporate Giveaways. *ProPublica*. <https://www.propublica.org/article/washington-data-centers-tech-jobs-tax-break>

⁸⁵ Vicki, M. (2023, February 22). When do we go from here? Data center infrastructure labor, jobs, and work in economic development time and temporalities. *New Media & Society*, 25(2). SAGE Journals. <https://doi.org/10.1177/14614448221149947>

creating 1,000 jobs over the coming decades, raising questions about what counts as a “job” attributable to data center development.⁸⁶

One interviewed developer argued that this post-construction job shrinkage may actually benefit smaller communities: data centers generate high tax revenue per capita while requiring only a modest workforce, reducing demands on public services and lowering the need for extensive workforce training. Although the number of permanent jobs may seem small, they can represent a meaningful increase for rural towns. Another interviewed planner noted that these jobs sometimes could be repetitive and boring yet often pay higher wages than typical local employment. At the same time, planners observed that construction workers may stay in the region, especially when multiple data center projects overlap for years, contributing to population growth, which can bring further business opportunities as well as housing pressures (see Section 6.1 for housing impacts).

7.3 How Do Data Centers Stimulate Secondary Businesses and Regional Economic Activity?

Many data centers are built close to cities where energy, water, and fiber infrastructure are more readily available, and sometimes even within downtown districts or office parks. As a result, data center construction and operation workers generate additional demand for nearby shops, restaurants, and housing. PwC estimated that every direct job in the data center industry could lead to six additional jobs elsewhere in the economy through indirect and induced effects, though independent empirical validation of this multiplier remains limited.⁸⁷ One interviewed developer described constant hiring of outside vendors, such as HVAC contractors and Original Equipment Manufacturers (OEMs) that produce industrial chillers and backup generators to fill ongoing workforce gaps. Infrastructure expansions that support data centers, including new transmission lines and electrical substations, also create additional local work opportunities.

At the regional scale, data centers are often treated as infrastructure projects, meaning that upgrades, such as improved digital connectivity or increased demand for renewable energy, can attract other businesses and support broader economic development. Yet reporters cautioned that public policy and tax incentives must be designed strategically to ensure that potential social benefits are realized.⁸⁸ This includes prioritizing support for construction rather than ownership and ensuring that the infrastructural gains brought by data centers translate meaningfully to nearby communities.

⁸⁶ McVicar, B. (2019, November 22). Lawmakers gave big tax breaks to Switch data center. Are they working? *MLive*. <https://www.mlive.com/news/grand-rapids/2019/11/lawmakers-gave-big-tax-breaks-to-switch-data-center-are-they-working.html>

⁸⁷ PwC. (2025). *Economic contributions of U.S. data centers, 2017-2023*. 2025 PwC Report. Retrieved January 12, 2026, from <https://www.centerofyourdigitalworld.org/2025-impact-study>

⁸⁸ Leahey, A. (2024, August 13). Tax Breaks For Data Centers Bring Few Jobs. *Forbes*. <https://www.forbes.com/sites/andrewleahey/2024/08/13/tax-breaks-for-data-centers-bring-few-jobs/>

8. Environment (Air & Heat, Water & Waste, Governance)

Data centers create layered environmental impacts. Heat from **server halls** is released through **cooling systems**. Air pollution is driven largely by **backup diesel generators** that emit PM2.5 and NOx during testing and outages, while water and chemical risks depend on how cooling systems are designed and managed. In addition, 24/7 **street lighting** for security can contribute to light pollution and nighttime skyglow, especially near residential areas and sensitive habitats. Over time, rapid equipment turnover in **server halls** generates substantial e-waste, potentially implicating persistent chemicals such as Pfas. Regulation is strongest for air emissions and wastewater permits, but far weaker for localized heat and light externalities, making environmental outcomes highly dependent on how these infrastructure components are designed, monitored, and governed. For planners, the central challenge is navigating fragmented regulatory authority across local, state, and federal levels, alongside scientific uncertainty, while making land-use decisions that embed long-term environmental externalities, many of which are incremental, dispersed, and not fully captured by existing permitting frameworks.

8.1 How Do Data Centers Affect Thermal Conditions and Local Air Quality?

A major output of data centers' energy and water-cooling systems is heat. Most heat originates from the computers inside server halls. Understanding the heat implications of data centers therefore requires distinguishing among server-level heat generation, building-level cooling and heat transport, and environment-level heat release. Cooling technologies operate across these levels, and their combined configuration determines whether heat is concentrated, dissipated, reused, or discharged into the local environment, as well as the associated air pollution impacts (see Section 4.2 on more explanations on each cooling technology and tradeoffs with water and energy).⁸⁹

At the server level, **air-cooling** uses fan to remove heat from computer equipment and generates relatively low-temperature waste heat that must be moved in large volumes. **Liquid cooling and immersion** cooling removes heat by bringing liquid coolants into direct contact with computer components, absorbing heat at its source with higher temperature.

At the building level, cooling systems transport heat from servers to the facility boundary and prepare it for release or reuse. **Air-based cooling systems**, common in smaller or older data centers, move heat through air handlers and exhaust it directly outdoors, functioning similarly to large air-conditioning units and creating localized warming that can raise microclimate

⁸⁹ Yuan, X., Liang, Y., Hu, X., Xu, Y., Chen, Y., & Kosonen, R. (2023, December). Waste heat recoveries in data centers: A review. *Renewable and Sustainable Energy Reviews*, 188. <https://doi.org/10.1016/j.rser.2023.113777>

temperatures. These systems also rely on chemical refrigerants called HFCs, which are extremely powerful greenhouse gases that contribute to global warming.⁹⁰

Closed-loop cooling systems collect heat through a chilled-water or glycol loop within sealed pipes and transport it to outdoor heat exchangers. These systems reduce water consumption and improve energy efficiency compared to open-loop approaches, while still releasing heat to the surrounding air. Closed-loop systems are commonly used in hyperscale data centers and involve higher upfront capital costs, but they moderate both thermal discharge and air pollution relative to air-based cooling.

At the **environment level**, heat is ultimately released, or in some cases, reused through specific heat rejection technologies. **Evaporative cooling systems** reject heat using water, which is then evaporated (i.e., typically around 80%) into the atmosphere. The remaining heated water can pose a risk of thermal pollution if it is discharged directly into nearby waterbodies. In practice, however, most heated water is routed through wastewater treatment and sewage systems, where it cools significantly before discharge, resulting in minimal remaining heat and limited risk to the environment. These systems do not significantly increase local air temperature but do increase humidity and have minimal direct air pollution impacts. As a result, evaporative cooling primarily shifts thermal and environmental impacts toward water systems rather than air. They are widely used in the industry, moderately priced, water-intensive, energy-efficient, and require proper wastewater management.

Dry cooling systems, often paired with closed-loop circulation, reject heat directly to the atmosphere using fans and air-cooled heat exchangers. These systems produce moderate localized heat discharge, but minimal water use and limited air pollution. Their effectiveness depends on ambient temperatures, making them more suitable for cooler climates or water-constrained regions.

When paired with liquid or immersion cooling at the server level, building- and environment-level systems can more easily support **heat reuse**, such as supplying nearby buildings or district energy networks. Because heat is captured at higher temperatures, these systems can more easily support heat reuse for nearby buildings or facilities, reducing how much heat is exhausted outdoors. As a result, these systems generate the least external heat waste, cause minimal warming around the data center, and have negligible air pollution impacts. Although this technology is emerging and the most expensive to deploy, it is highly efficient in both water and energy use and requires appropriate disposal of spent coolants.

Beyond cooling systems, backup diesel generators are another major contributor to air pollution, emitting significant amounts of PM2.5 and nitrogen oxides (NOx) when operated. Although

⁹⁰ Honeywell. (n.d.). *Design for more efficient data centers*. Retrieved January 12, 2026, from <https://www.honeywell.com/content/dam/honeywellbt/en/documents/downloads/hon-corp-design-for-more-efficient-data-centers-whitepaper.pdf>

generators are used infrequently during outages, their cumulative impacts warrant caution. According to EPA's COBRA modeling tool, emissions from Virginia's data center backup generators impose an annual public health cost of approximately \$200-300 million.⁹¹ The air pollution could also be worsen as local policies prioritize grid resilience during extreme weather and permits more operation hours for backup diesel generators to lower demands on grid connections (see Section 8.3 for details).

8.2 How Do Data Centers Handle Wastewater and E-Waste?

For **evaporative water systems**, wastewater can contain concentrated minerals and treatment chemicals. A key public health concern is the microbial contaminant *Legionella pneumophila*, which can cause the deadly Legionnaires' disease.⁹² In an interview, a developer reported conducting routine testing for Legionella when evaporative cooling is used to monitor potential public health risks.

For **closed-loop or immersion cooling systems**, the water-glycol mixture and chemical coolants are fixed in sealed pipes and are typically disposed of as industrial waste rather than discharged directly into sewage systems. While wastewater risks are minimal, coolant leaks and end-of-use disposal can pose additional environmental concerns.

Data centers also generate substantial e-waste as computer equipment is upgraded every two to three years. Reporters have noted that large amounts of Pfas are used in manufacturing these components and cooling systems.^{93 94} Because Pfas chemicals do not break down in the environment, they can pose serious and long-lasting environmental health risks.

8.3 How are Data Centers' Environmental Impacts Regulated?

The largest environmental impacts of data centers involve energy and water consumption, which can have deep ecological consequences for the generation, maintenance, and distribution of these resources. At the regional scale, air pollution and waste impacts are dispersed, while at the neighborhood scale, heat, noise, and light pollution are more visible and immediate (see Section 6.3 for residential experience impact).

⁹¹ Wierman, A. (2025, November 5). *Mitigating the Public Health Impacts of AI Data Centers*. Harvard Business Review. Retrieved January 12, 2026, from <https://hbr.org/2025/11/mitigating-the-public-health-impacts-of-ai-data-centers>

⁹² Falkinham III, J. O., Hilborn, E. D., Arduino, M. J., Pruden, A., & Edwards, M. A. (2015). Epidemiology and ecology of opportunistic premise plumbing pathogens: *Legionella pneumophila*, *Mycobacterium avium*, and *Pseudomonas aeruginosa*. *Environmental health perspectives*, 123(8), 749.

⁹³ Perkins, T. (2025, October 4). Advocates raise alarm over Pfas pollution from datacenters amid AI boom. *The Guardian*. <https://www.theguardian.com/environment/2025/oct/04/pfas-pollution-data-centers-ai>

⁹⁴ Clean Water Action. (2025, March 2). *Data Centers - A Threat To Minnesota's Water*. Retrieved January 12, 2026, from <https://cleanwater.org/publications/data-centers-threat-minnesotas-water>

Environmental review requirements vary widely across states.⁹⁵ Some states require environmental impact statements that scrutinize energy demand, water use, and emissions, while others lacking such frameworks may overlook these impacts entirely. Overall, air pollution, wastewater, and noise are the most clearly regulated at federal or local levels, whereas impacts like heat and light are more ambient and difficult to isolate and quantify. Local governments and planners must therefore understand what federal law covers and what falls outside its scope, and proactively develop local approaches to address these externalities.

Air Pollution. The Environmental Protection Agency (EPA), along with state environmental agencies, regulates air pollution from data centers under the Clean Air Act, which requires permits for diesel generators and other stationary emission sources.⁹⁶ In 2025, EPA issued new guidance allowing emergency generators to operate up to 50 hours per year in non-emergency situations.⁹⁷ Yet evidence shows that some data centers have been able to circumvent EPA regulations to increase generator operation hours during summer peaks, raising public concerns.⁹⁸

Waste. For data centers using evaporative cooling systems, if wastewater is discharged into a waterbody that qualifies as a “Water of the United States” under the Clean Water Act, they must obtain a permit under the National Pollutant Discharge Elimination System (NPDES). If wastewater is discharged into municipal systems, facilities must comply with the Clean Water Act’s National Pretreatment Program. E-waste and specialized chemicals, such as specialized coolants and certain electronic materials, may also fall under the EPA’s Toxic Substances Control Act (TSCA), which has recently expedited reviews for emerging chemicals used in data center projects.⁹⁹

Noise. Noise from diesel generators and cooling systems is typically regulated through local noise ordinances rather than by EPA. Interviewed developers noted that noise regulation has become increasingly common, especially when data centers are located near residential neighborhoods or in downtown areas. Even though data centers may have complied with noise

⁹⁵ Nichols, C. (2025, October 1). *The Physical Footprint of Artificial Intelligence*. American Planning Association. Retrieved January 12, 2026, from <https://www.planning.org/publications/document/9318086/>

⁹⁶ United States Environmental Protection Agency. (2025). *Clean Air Act Resources for Data Centers*. Retrieved January 12, 2026, from <https://www.epa.gov/stationary-sources-air-pollution/clean-air-act-resources-data-centers>

⁹⁷ United States Environmental Protection Agency. (2025, May 1). *EPA Issues Clarification to Help Power Data Centers, Ensure U.S. Is the AI Capital of the World*. EPA Press Office. Retrieved January 12, 2026, from <https://www.epa.gov/newsreleases/epa-issues-clarification-help-power-data-centers-ensure-us-ai-capital-world>

⁹⁸ Piedmont Environmental Council. (n.d.). *Data Centers, Diesel Generators and Air Quality – PEC Web Map*. Retrieved January 12, 2026, from <https://www.pecva.org/uncategorized/data-centers-diesel-generators-and-air-quality-pec-web-map/>

⁹⁹ United States Environmental Protection Agency. (2025, September 18). *EPA Prioritizes Review of New Chemicals Used in Data Center Projects, Supporting American Manufacturing and Technological Advancement*. Retrieved January 12, 2026, from <https://www.epa.gov/newsreleases/epa-prioritizes-review-new-chemicals-used-data-center-projects-supporting-american>

ordinance and produce noise below the threshold, residents may still perceive this as a quality-of-life issue (see Section 6.3 for more details on noise impacts).

Light Pollution. There is no federal regulation on light, but local governments can regulate light pollution through zoning code or site plan review such as imposing shielding, fixture, and curfew requirements to minimize light impacts on nearby residents. Some states have outdoor lighting ordinances, though not targeted toward data centers. Developers may also be willing to do minor adjustments on the facilities to reduce noise and light impacts.¹⁰⁰

Heat. EPA does not regulate heat exhaust from data centers, and the ecological implications of localized heat islands or microclimate warming remain largely unknown. Most modern data centers do not discharge heated water directly into natural water bodies, so they rarely trigger Clean Water Act's thermal regulation. On the other hand, data center operators begin to explore heat export as a way to capture and reuse the waste heat generated on-site, providing nearby communities with a productive energy source rather than releasing it into the atmosphere.¹⁰¹ Some Nordic countries have started to pair computer processing facilities with district heating systems to minimize environmental impacts.¹⁰²

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¹⁰⁰ *Outdoor Lighting Ordinances - DesignLights*. (n.d.). DesignLights Consortium. Retrieved January 12, 2026, from <https://designlights.org/outdoor-lighting-ordinances/>

¹⁰¹ *What Is Data Center Heat Export and How Does it Work?* (2024, June 5). The Equinix Blog. Retrieved January 12, 2026, from <https://blog.equinix.com/blog/2024/06/05/what-is-data-center-heat-export-and-how-does-it-work/>

¹⁰² Paulsson, L., Lundgren, K., & Pohjanpalo, K. (2025, May 13). Finland's Data Centers Are Heating Cities, Too. *Bloomberg.com*. https://www.bloomberg.com/news/features/2025-05-14/finland-s-data-centers-are-heating-cities-too?utm_source=chatgpt.com

