SPECIAL USE REPORT

FILE #: 11-B-23-SU **AGENDA ITEM #: 17**

AGENDA DATE: 11/9/2023

APPLICANT:	**JAY PATEL**
OWNER(S):	Scott and Hope Davis
TAX ID NUMBER:	93 N C 009 **View map on KGIS**
JURISDICTION:	City Council District 2
STREET ADDRESS:	0 LONAS DR
LOCATION:	**West side of Lonas Dr, south side of Middlebrook Pike, north side of Kim Watt Dr**
APPX. SIZE OF TRACT:	**1.14 acres**
SECTOR PLAN:	Northwest City
GROWTH POLICY PLAN:	N/A (Within City Limits)
ACCESSIBILITY:	Access is via Middlebrook Pike, a 4-lane, median-divided, major arterial street within a 112-ft right-of-way; and via Lonas Drive, a major collector with a pavement width of 37 ft within a 60-ft right-of-way.
UTILITIES:	Water Source: Knoxville Utilities Board
	Sewer Source: Knoxville Utilities Board
WATERSHED:	Third Creek
ZONING:	**C-N (Neighborhood Commercial), HP (Hillside Protection Overlay)**
EXISTING LAND USE:	**Agriculture/Forestry/Vacant Land**
PROPOSED USE:	**Gas station with convenience store**
HISTORY OF ZONING:	None noted.
SURROUNDING LAND USE AND ZONING:	North: Right-of-way, agriculture/forestry/vacant land - AG (General Agricultural)
	South: Office, single family residential - O (Office), HP (Hillside Protection Overlay)
	East: Right-of-way, multifamily residential - RN-5 (General Residential Neighborhood), F (Floodplain Overlay)
	West: Single family residential - RN-1 (Single-Family Residential Neighborhood), HP (Hillside Protection Overlay)
NEIGHBORHOOD CONTEXT:	The subject property is located at the eastern edge of the Lonas Drive Community Association boundary. West of I-640, this section of Middlebrook Pike mostly comprises single family residences, low density multifamily developments, and undeveloped lands with very few nonresidential uses mixed in.

STAFF RECOMMENDATION:

Approve the request for a gas station with up to 12 fueling positions and a convenience store with up to 5,000 sqft of floor area, subject to 8 conditions.

1. Meeting the commercial districts design standards for the C-N zoning district (Section 5.4, Table 5-2).
2. Meeting the requirements of the principal use standards for gas stations (Article 9.3.O) of the City of Knoxville Zoning Ordinance.
3. Meeting the requirements of the City of Knoxville Zoning Ordinance, including but not limited to Article 10 (Site Development Standards), Article 11 (Off-Street Parking), Article 12 (Landscaping), and Article 13 (Signs).
4. Implementation of the recommended improvements outlined in the Shell Food Mart Transportation Impact Study prepared by AJAX Engineering (revised October 23, 2023), and as required by the City of Knoxville Department of Engineering and Tennessee Department of Transportation (TDOT). The design details and timing of the installation of the improvements shall be worked out with the City of Knoxville Department of Engineering and TDOT during permitting (see Exhibit A).
5. Meeting all applicable requirements of the City of Knoxville Department of Plans Review and Inspections.
6. Meeting all applicable requirements of the City of Knoxville Department of Engineering.
7. Meeting all applicable requirements of the Tennessee Department of Transportation.
8. Meeting all applicable requirements of the City of Knoxville Zoning Ordinance.

With the conditions noted above, this request meets the requirements of the C-N zoning district, the principal use standards for gas stations, and the criteria for approval of a special use.

COMMENTS:

This proposal is for a gas station with 12 fuel pumps and 5,000 sqft convenience store, with right-in, right-out access to Middlebrook Pike and full access to Lonas Drive.

STANDARDS FOR EVALUATING A SPECIAL USE (ARTICLE 16.2.F.2.)

1) THE USE IS CONSISTENT WITH ADOPTED PLANS AND POLICIES, INCLUDING THE GENERAL PLAN AND THE ONE-YEAR PLAN.
A. The subject property is in the NC (Neighborhood Commercial) land use classification in the One Year Plan and Northwest City Sector Plan. The location criteria for automobile-oriented uses in the NC land use (e.g. gas stations or convenience stores) should be located on an arterial street at the edge of neighborhoods.
B. The property is partially located in the HP (Hillside Protection) overlay district, however, it is exempt from those standards since the property had previously been disturbed.

2) THE USE IS IN HARMONY WITH THE GENERAL PURPOSE AND INTENT OF THIS ZONING CODE.
A. The C-N (Neighborhood Commercial) zoning district is intended to provide for an environment of integrated residential development and small-scale commercial and service uses, predominantly serving nearby residential neighborhoods. Low-intensity mixed-use is encouraged within the C-N District, with dwellings permitted above the ground floor, as well as multi-family and townhouse development located alongside select commercial uses.
B. The subject property is located at the northeastern edge of a residential district along Lonas Drive.

3) THE USE IS COMPATIBLE WITH THE CHARACTER OF THE NEIGHBORHOOD WHERE IT IS PROPOSED, AND WITH THE SIZE AND LOCATION OF BUILDINGS IN THE VICINITY.
A. The subject property is topographically separated from nearby residential uses.
B. There is no consistent architectural character in the vicinity of the subject site.

4) THE USE WILL NOT SIGNIFICANTLY INJURE THE VALUE OF ADJACENT PROPERTY OR BY NOISE, LIGHTS, FUMES, ODORS, VIBRATION, TRAFFIC, CONGESTION, OR OTHER IMPACTS DETRACT FROM THE IMMEDIATE ENVIRONMENT.
A. The subject property is adjacent to Middlebrook Pike and approximately 500 ft from the I-640 and 0.3 miles from the I-40 and I-640 interchange.
B. The closest residential house to the rear (north) is approximately 30 feet above the finished grade of the gas station.
C. The closest structures to the south were constructed as houses but appear to be used for commercial purposes. Kim Watt Road rises in elevation as it passes the site, providing natural screening to the side and rear of the structure.

5) THE USE IS NOT OF A NATURE OR SO LOCATED AS TO DRAW SUBSTANTIAL ADDITIONAL TRAFFIC THROUGH RESIDENTIAL STREETS.

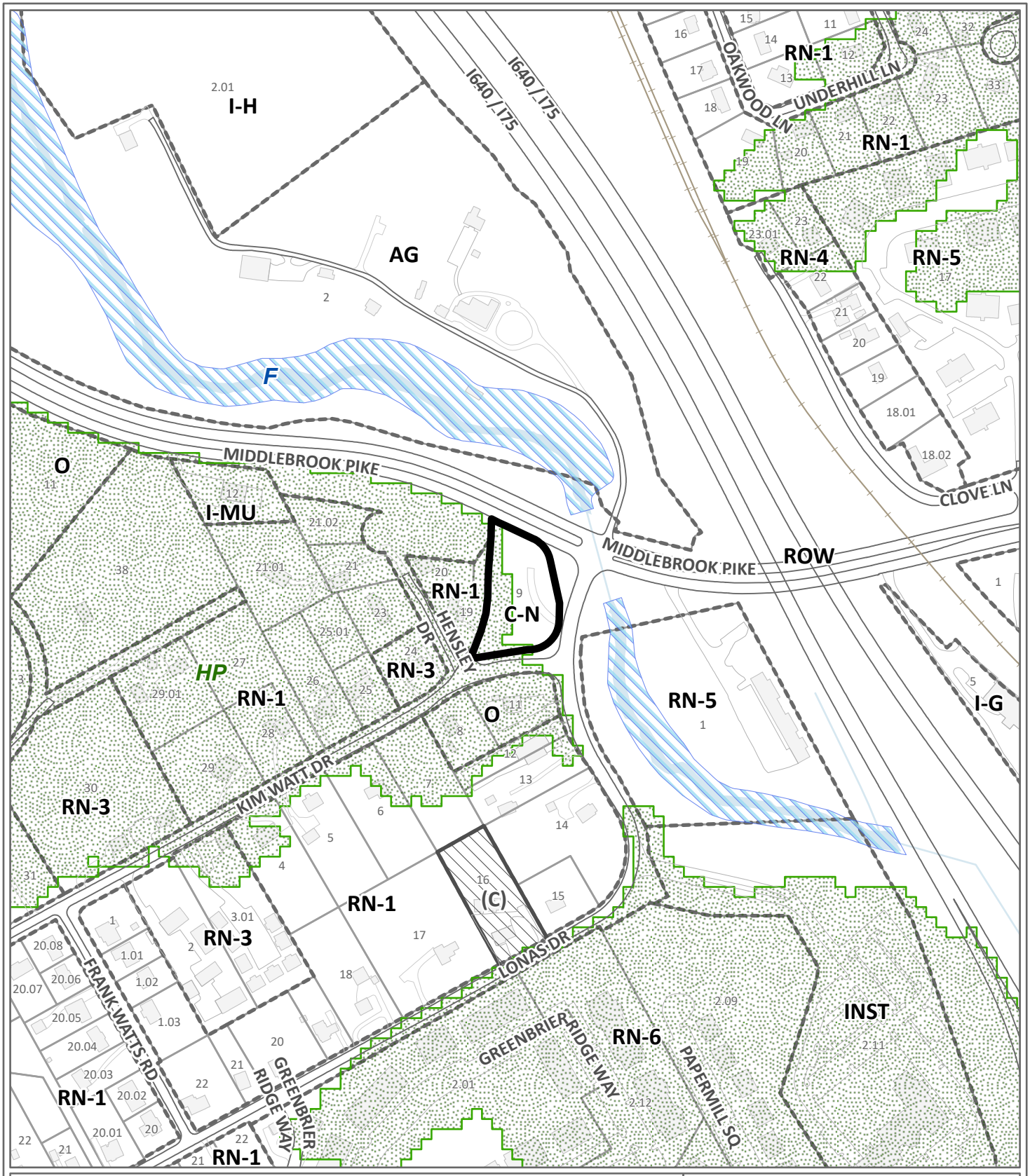
A. Additional traffic will not be drawn through residential streets because the property has direct access to Middlebrook Pike, a major arterial street, and Lonas Drive, a major collector street. Access to Kim Watt Road is not proposed.

6) THE NATURE OF DEVELOPMENT IN THE SURROUNDING AREA IS NOT SUCH AS TO POSE A POTENTIAL HAZARD TO THE PROPOSED USE OR TO CREATE AN UNDESIRABLE ENVIRONMENT FOR THE PROPOSED USE.
A. There are no known uses immediately surrounding the subject site that poses a potential hazard or undesirable environment for the proposed use.

ESTIMATED TRAFFIC IMPACT: A traffic impact study was prepared by the applicant. The findings of that study were used in formulating the recommendations of this staff report.

ESTIMATED STUDENT YIELD: Not applicable.

The Planning Commission's approval or denial of this request is final, unless the action is appealed to the Knoxville City Council. The date of the Knoxville City Council hearing will depend on when the appeal application is filed.



SPECIAL USE **11-B-23-SU**

Petitioner: Jay Patel

Gas station with convenience store in C-N (Neighborhood Commercial), HP (Hillside Protection Overlay)

Map No: 93
Jurisdiction: City

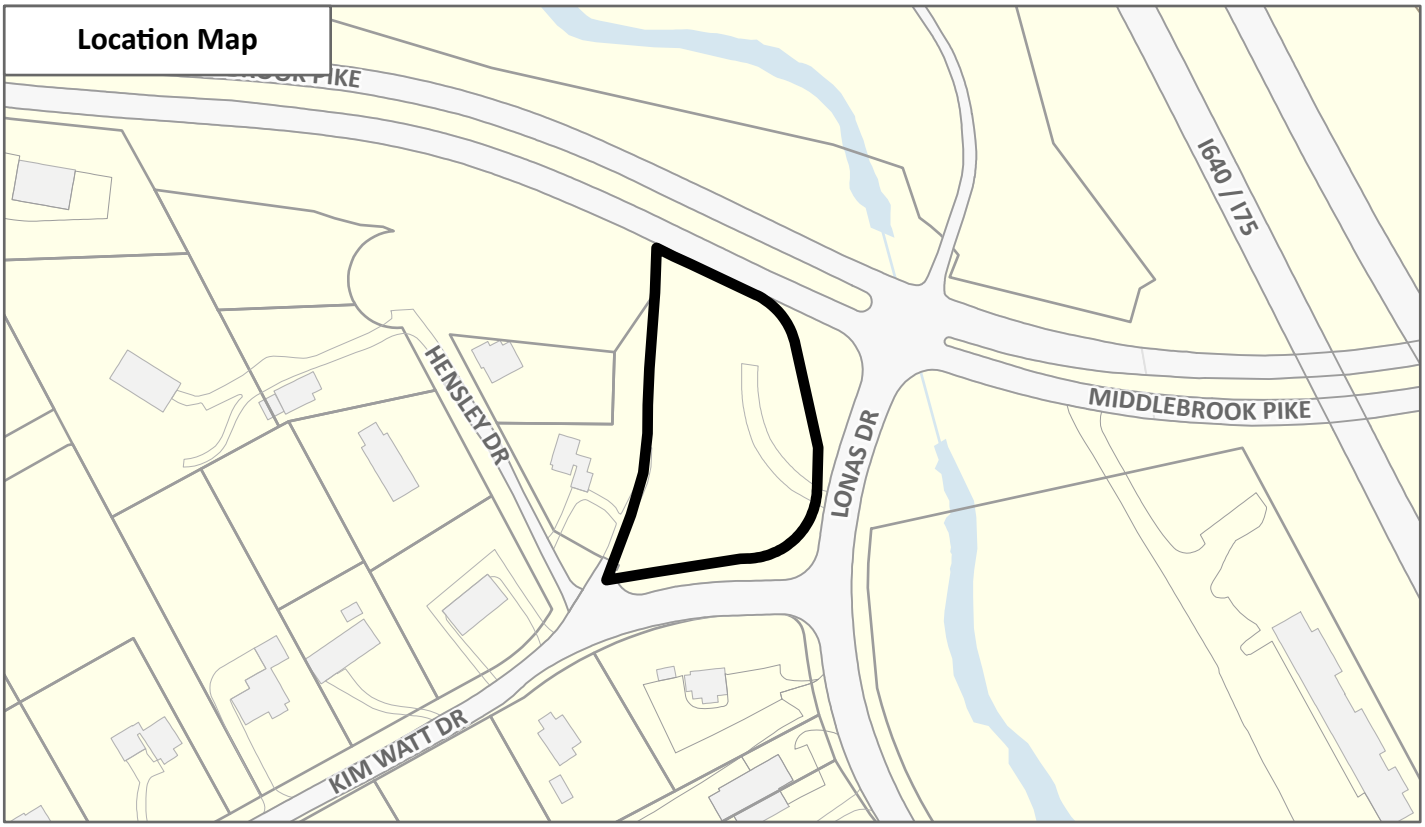
0 360
Feet

Original Print Date: 10/4/2023

*Knoxville - Knox County Planning Commission * City / County Building * Knoxville, TN 37902*

Exhibit A. Contextual Images

Location Map



Aerial Map

CONTEXTUAL MAPS 1 **11-B-23-SU**

Case boundary

0 220

Feet

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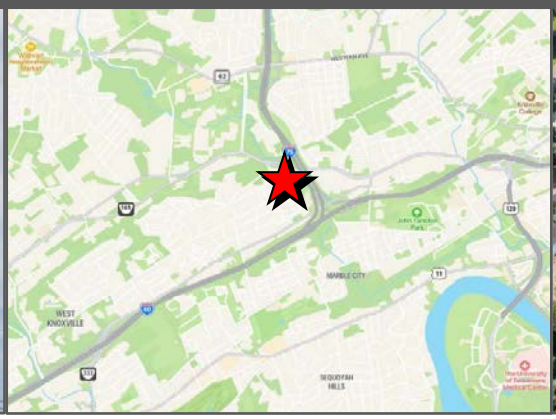
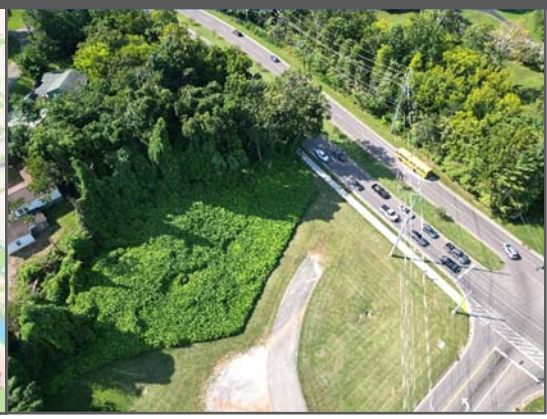
EXHIBIT A

AJAX ENGINEERING
CIVIL ENGINEERING / TRAFFIC ENGINEERING

Transportation Impact Study
Shell Food Mart
Knoxville, Tennessee

Revised October 2023

Prepared for:
Mr. Jay Patel
2607 Graham Hill Lane
Knoxville, TN 37932

ROBERT WILLIAM JANKS III
REGISTERED ENGINEER
AGRICULTURE
COMMERCE
No. 105730
STATE OF TENNESSEE
10/23/2023

11-B-23-SU
TIS Version 2
10/26/2023

11812 Black Road / Knoxville, TN 37932 • (865) 556-0042 • ajaxengineering@gmail.com

CONCLUSIONS & RECOMMENDATIONS

The following is an overview of recommendations to minimize the transportation impacts of the proposed Shell Food Mart development on the adjacent transportation system while attempting to achieve an acceptable traffic flow and improved safety.

1

Middlebrook Pike at Lonas Drive and Private Driveway: The projected 2025 level of service calculations for the intersection of Middlebrook Pike at Lonas Drive and Private Driveway resulted in reasonable vehicle delays for all the approaches except for the northbound approach of Lonas Drive, particularly in the PM peak hour. The trips generated by the proposed development are not expected to impact this intersection in the future appreciably. No specific recommendations are offered for this intersection due to the inclusion of the proposed development; however, it is believed that the calculated northbound vehicle delays could be reduced by modifying the existing signal timing.

The signal timing for the projected 2025 PM peak hour volumes was modified in the Synchro software to reduce vehicle delays for the northbound approach but kept the same cycle length of 110 seconds. Ten seconds of green time was added to the northbound approach to reduce the vehicle delay in the PM peak hour and subsequently reduced the green time for Middlebrook Pike's eastbound and westbound approaches, resulting in the mainline having slightly increased vehicle queue lengths.

Increasing the green time by 10 seconds for the northbound approach of Lonas Drive resulted in a significant delay reduction for the vehicles on this approach. The results of this modified PM signal timing are shown below. The capacity analysis results are included in Appendix G. The results in Tables 9 and 10 show the potential reduction in vehicle delays and queues in the PM peak hour for the northbound approach compared to the PM peak hour results (Tables 7 and 8) obtained by leaving the traffic signal timing as-is (the AM signal timing was not changed). Green and red denote the table changes, showing the decreases and increases, respectively.

TABLE 9
2025 INTERSECTION CAPACITY ANALYSIS RESULTS -
PROJECTED TRAFFIC CONDITIONS (WITH THE PROJECT) - REVISED SIGNAL TIMING

INTERSECTION	TRAFFIC CONTROL	APPROACH/ MOVEMENT	AM PEAK			PM PEAK		
			LOS [a]	DELAY [b] (seconds)	CHANGE [c] (seconds)	LOS [a]	DELAY [b] (seconds)	CHANGE [c] (seconds)
Middlebrook Pike (EB & WB) at Lonas Drive (NB) and Private Driveway (SB)	Signalized	Eastbound	B	13.4	NO CHANGES MADE	C	19.5	4.1
		Westbound	A	5.3		B	11.2	2.5
		Northbound	D	44.1		D	52.1	-56.2
		Southbound	A	0.0		D	54.0	0.0
		Summary	B	16.1		C	22.0	-8.2

Note: All analyses were calculated in Synchro 11 software and reported with HCM 2000 methodology
[a] Level of Service , [b] Average Delay (sec/vehicle)
[c] Difference between 2025 Projected Vehicle Delay (Table 7) versus 2025 Projected Vehicle Delay with Revised Signal Timing (Table 9)

TABLE 10
TURN LANE STORAGE & VEHICLE QUEUE SUMMARY -
2025 PROJECTED PEAK HOUR TRAFFIC (WITH THE PROJECT) - REVISED SIGNAL TIMING

INTERSECTION	APPROACH/ MOVEMENT	SIMTRAFFIC 95th PERCENTILE QUEUE LENGTH (ft)			
		AM PEAK HOUR	CHANGE [a] (feet)	PM PEAK HOUR	CHANGE [a] (feet)
Middlebrook Pike (EB & WB) at Lonas Drive (NB) and Private Driveway (SB)	Eastbound Left/Thru	199	NO CHANGES MADE	227	7
	Eastbound Thru/Right	209		208	-8
	Westbound Left	131		139	-19
	Westbound Thru	115		184	18
	Westbound Thru/Right	68		164	29
	Northbound Left	168		207	9
	Northbound Right	179		165	-13
Middlebrook Pike (EB) at Main Entrance (NB)	Northbound Right	59		46	-9
Lonas Drive (SB & NB) at Secondary Entrance (EB)	Eastbound Left/Right	90		99	-43

Note: 95th percentile queues were calculated in SimTraffic 11 software

Based on these results, the City of Knoxville is recommended to slightly modify the traffic signal timing to reduce the vehicle delays for the northbound approach on Lonas Drive for the existing and projected conditions. As shown in Table 10, this signal timing modification also decreased the projected vehicle queues for the eastbound exiting movements at the Secondary Entrance.

Furthermore, due to the projected vehicle queues on the Middlebrook Pike westbound left-turn lane at the signalized intersection calculated to extend past the provided lane

storage, even without the project being constructed, TDOT and the City should consider extending the storage an additional 65 feet minimum, for a total storage length of 175 feet. Also, in the future, with continued overall traffic growth, TDOT and the City may need to consider adding an exclusive eastbound right-turn lane on Middlebrook Pike at Lonas Drive and a second northbound left-turn lane on Lonas Drive due to existing and projected high left and right-turn vehicular volumes.

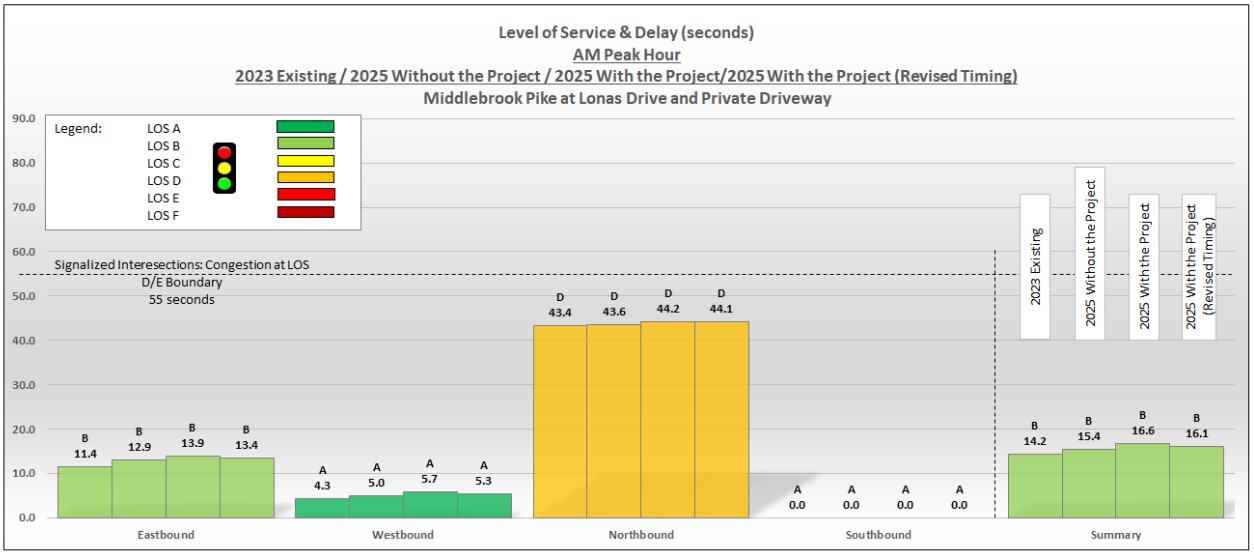
However, some drawbacks of providing an eastbound right-turn lane on Middlebrook Pike include costs and lack of vehicle storage availability. The expenses would include relocating underground utilities, including an existing fire hydrant, relocating the strain pole for the traffic signal at the intersection, and relocating a large pole for overhead electric power transmission. This overhead electric pole supports the powerlines that cross Lonas Drive and Middlebrook Pike. Adding a turn lane would also impact the location of the existing KAT bus stop. The distance between the Proposed Main Entrance exiting lane and Lonas Drive will be approximately 100 feet, which would provide minimal vehicle storage. The updated proposed site plan by Ardurra for the Shell Food Mart indicates that the site property could absorb a new eastbound right-turn lane on Middlebrook Pike but would require a modification of the proposed internal sidewalk from the existing Greenway to the building. Adding a turn lane on Middlebrook Pike would most likely also require modification of the Proposed Main Entrance's exiting lane. Adding an eastbound right-turn lane on Middlebrook Pike should not be determinantal to the site's driveway throat lengths or internal circulation.

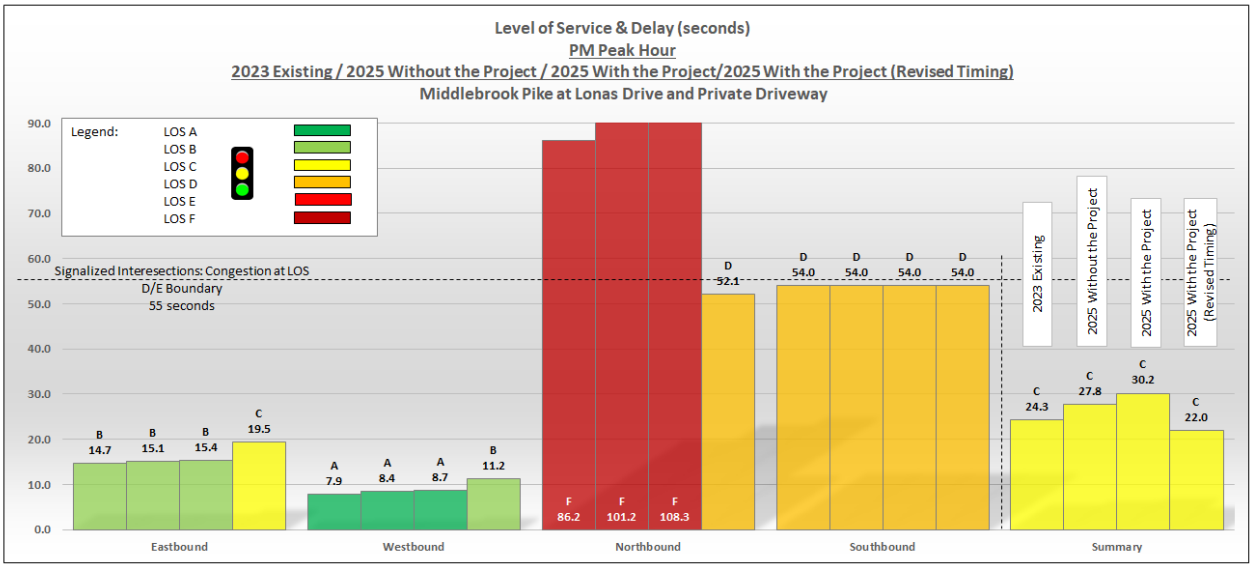
A summary of the Middlebrook Pike at Lonas Drive and Private Driveway intersection capacity analysis results is presented in Table 11. This table provides a side-by-side summary and comparison of the intersection for the 2023 existing conditions, projected conditions in 2025 without the project, the projected conditions in 2025 with the project, and the projected conditions in 2025 with the slightly modified signal timing in the PM peak hour.

TABLE 11
INTERSECTION CAPACITY ANALYSIS SUMMARY
MIDDLEBROOK PIKE AT LONAS DRIVE AND PRIVATE DRIVEWAY

APPROACH / PEAK HOUR MOVEMENT	2023 EXISTING			2025 WITHOUT THE PROJECT			2025 WITH THE PROJECT			2025 WITH THE PROJECT (REVISED TIMING)		
	LOS[a]	Delay[b]	v/c[c]	LOS[a]	Delay[b]	v/c[c]	LOS[a]	Delay[b]	v/c[c]	LOS[a]	Delay[b]	v/c[c]
AM Peak												
Eastbound	B	11.4		B	12.9		B	13.9		B	13.4	
Westbound	A	4.3		A	5.0		A	5.7		A	5.3	
Northbound	D	43.4		D	43.6		D	44.2		D	44.1	
Southbound	A	0.0		A	0.0		A	0.0		A	0.0	
Summary	B	14.2	0.620	B	15.4	0.660	B	16.6	0.700	B	16.1	0.680
PM Peak												
Eastbound	B	14.7		B	15.1		B	15.4		C	19.5	
Westbound	A	7.9		A	8.4		A	8.7		B	11.2	
Northbound	F	86.2		F	101.2		F	108.3		D	52.1	
Southbound	D	54.0		D	54.0		D	54.0		D	54.0	
Summary	C	24.3	0.710	C	27.8	0.770	C	30.2	0.810	C	22.0	0.780

Note: All analyses were calculated in Synchro 11 software and reported with HCM 2000 methodology
[a] Level of Service , [b] Average Delay (sec/vehicle) , [c] Volume-to-Capacity Ratio





2 **Middlebrook Pike at the Proposed Main Entrance**: The 2025 projected level of service calculations for this intersection resulted in low vehicle delays with the exit operating with RIRO only conditions. Based on the capacity analysis, the intersection will appropriately handle entering and exiting traffic. However, it should be noted that during peak hours, vehicles exiting this entrance will experience queues due to having to wait for gaps in the eastbound Middlebrook Pike streams and queues that form at the traffic signal. During the existing conditions, vehicle queues on the eastbound outside lane at the traffic signal were observed to extend past the proposed location of the Main Entrance and are expected to occur in future conditions.

2a) The 2025 projected eastbound right-turn volumes on Middlebrook Pike entering the Main Entrance are just over the threshold to warrant an exclusive eastbound right-turn lane based on TDOT's guidelines. However, the outside eastbound lane on Middlebrook Pike at the proposed Main Entrance location currently operates as a de facto right-turn lane for vehicles turning south onto Lonas Drive. In the AM peak hour, over 300 vehicles were observed turning right, which caused vehicle queues even when the eastbound approach had a green indication at the traffic signal and not just when there was a red (stop) indication due to the high number of right-turns. In general, a right-turn lane at a signalized intersection should be considered when the right-turn volume and adjacent thru-lane volumes are more than 300 vehicles per hour. Theoretically, the number of right-turning vehicles on Middlebrook Pike at Lonas Drive during peak hours currently justifies the need for an exclusive eastbound right-turn lane.

The primary purpose of warranting an exclusive right-turn lane is to reduce the potential for rear-end crashes and reduce the time that turning vehicles impacts the flow of thru vehicles. Since the outside eastbound lane on Middlebrook Pike is already operating as a de facto right-turn lane, an exclusive right-turn lane built just for the proposed development's Main Entrance is not justified. Any advantage of providing an exclusive right-turn lane specifically for the proposed development would be negated by the traffic flow blockage and turbulence already occurring from the high number of right-turns onto Lonas Drive.

2b) This entrance intersection will be designed as RIRO only. This entrance is proposed as RIRO due to the existing raised grassed center median on Middlebrook Pike. It is

recommended that the proposed Main Entrance follow TDOT driveway entrance guidelines, and the following should be considered in the design and construction:

i) The entering and exiting lanes should have a width and inner radius to facilitate the largest expected-sized vehicle entering and exiting at Middlebrook Pike, which is expected to be gas delivery trucks, most likely from the gas terminals located a mile west along Middlebrook Pike. The layout and elements of the intersection should follow all TDOT and City of Knoxville standards.

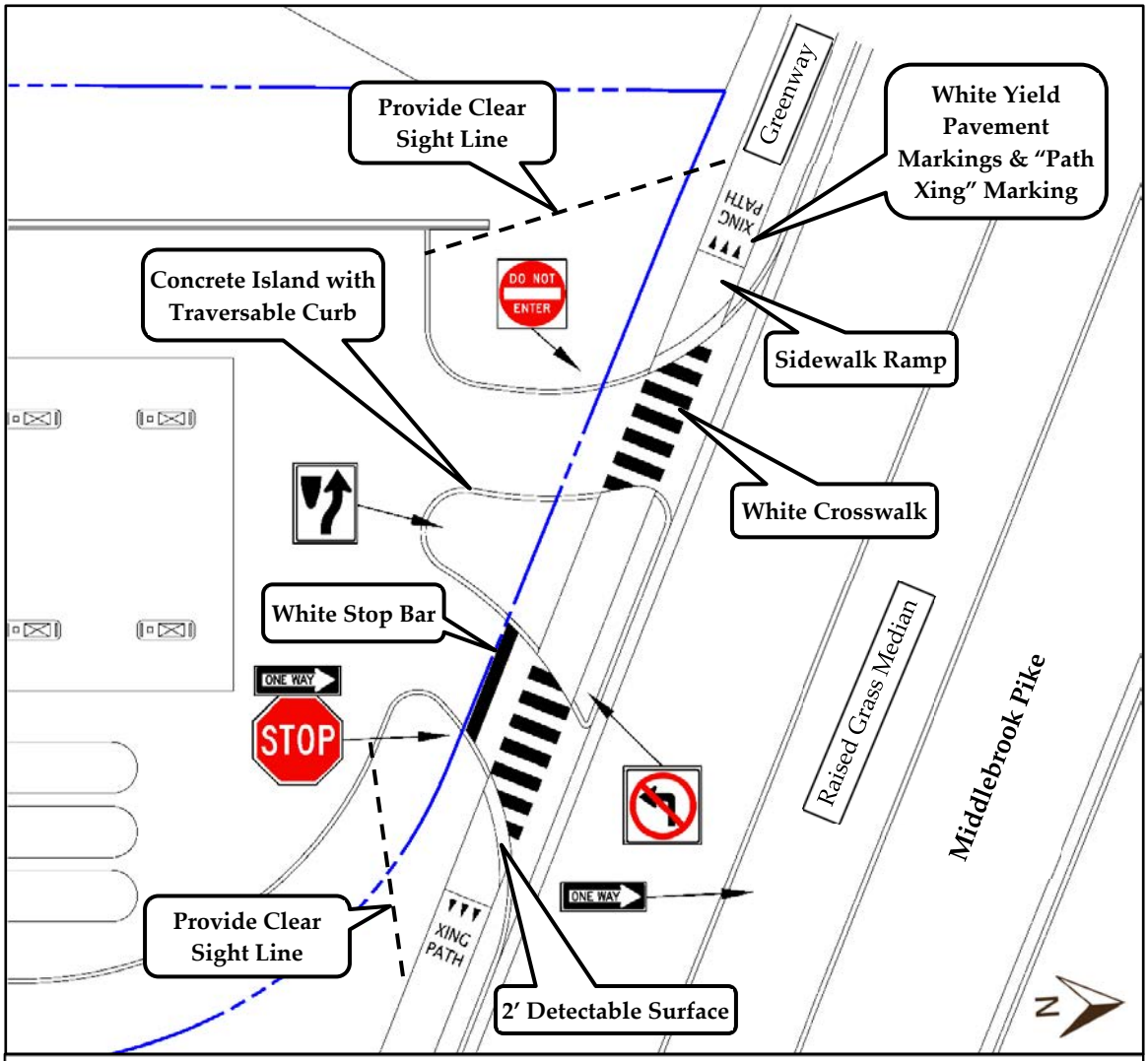
ii) The island separating the entering and exiting movements should be raised concrete with traversable curbs to facilitate large trucks delivering convenience market items and gasoline.

iii) The image below shows a revised site layout for the Main Entrance from what is shown in Figure 3. As shown below, traffic signage with breakaway posts at this intersection should include a Stop Sign (R1-1), a Keep Right Sign (R4-7), a No Left Turn Sign (R3-2), a Do Not Enter Sign (R5-1) and One Way Signs (R6-1R). These signs should be installed facing the appropriate direction. Three reflective raised pavement markers should be located at the island corner radius points – one in the center and 2-foot spacing on either side of the corners. The Stop Sign (R1-1) should be supplemented with a 24" white stop bar on the exiting lane approaching Middlebrook Pike, a minimum of 4 feet away from the proposed crosswalk for the sidewalk/greenway.

While it was not observed to be heavily traveled, the sidewalk (Middlebrook Greenway) has a high potential for pedestrian and bicyclist conflicts. The eastbound grade on Middlebrook Pike approaching the proposed Main Entrance is downhill, approximately 2%. With this road grade and a posted speed limit of 45 mph, right-turning vehicles into the Main Entrance could turn at a fairly high speed. It would be beneficial to reduce the entering curb radius to slow turning speeds; however, a larger radius (40') will be necessary to allow large trucks to enter the development, even with a traversable center island.

It is recommended that the sidewalk at the Main Entrance be installed with pavement markings and other items to reduce the potential turning vehicle conflicts with pedestrians and bicyclists on the Middlebrook Greenway. It is recommended that these pavement markings be installed with thermoplastic materials. The recommended pavement markings in the image include

designated white crosswalks, detectable surfaces, and advance pavement markings on the sidewalk/greenway. The pavement markings on the sidewalk are shown with white yield symbols and wording to include "Path Xing". Alternative sidewalk delineations across the entrance could include green-colored pavement. Details regarding the appropriate and desired treatments to reduce pedestrian and bicycle conflicts should be discussed during the detailed design review with TDOT and the City of Knoxville.



Proposed Main Entrance at Middlebrook Pike

2c) Intersection sight distance for pedestrians and motorists at the Main Entrance at Middlebrook Pike must not be impacted by future landscaping or signage. The sidewalk approaches to the Main Entrance should have clear sight lines to fully allow greenway users to see approaching entering and exiting vehicles.

Based on a posted speed limit of 45-mph on Middlebrook Pike, the required ISD is 430 feet, looking to the west for exiting right-turning vehicles at the Main Entrance. The available sight distance was visually estimated to be 375 feet to the west on Middlebrook Pike. The sight distance is reduced to the west due to vegetation growing from the adjacent cut slope along the south side of Middlebrook Pike. This vegetation must be removed or reduced to allow the maximum sight distance. A licensed land surveyor must measure the currently available sight distance to confirm the visual approximation and define the amount of vegetation removal needed to meet the required sight distance to the west. The site designer must also verify that this distance will be available based on the final site plans.

View of Vegetation Obstruction on the South Side of Middlebrook Pike and West of Proposed Main Entrance Location

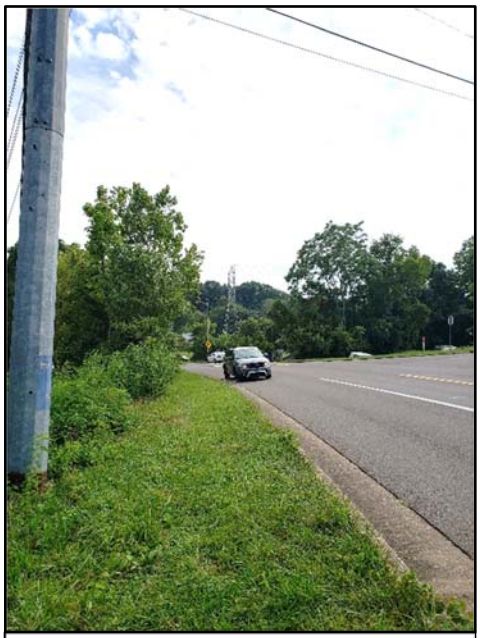
2d) The 95th percentile vehicle queue lengths were calculated for the exiting northbound approach at this intersection for the 2025 projected conditions with the project, and the calculated vehicle queues are reasonable. The northbound exiting lane at Middlebrook Pike will be right-turn-out only. The longest queue in the projected 2025 conditions (with the modified PM signal timing) is calculated to be 59 feet in the AM peak hour and 46 feet in the PM peak hour. These queue lengths translate to around two passenger vehicles at their maximum, assuming a passenger car length of 25 feet.

2e) The City of Knoxville requires specific corner clearance distances between intersecting streets. The proposed Main Entrance will be a private driveway located 190 feet (centerline to centerline) away from Lonas Drive. This distance exceeds the City of Knoxville spacing requirement of 150 feet from Lonas Drive, a collector street.

2f) The construction of the Main Entrance on Middlebrook Pike will require a TDOT Highway Entrance Permit. The developer will need to apply for this permit and coordinate with TDOT regarding their specific requirements for this entrance.

3 **Lonas Drive at the Proposed Secondary Entrance**: The 2025 projected level of service calculations for this intersection resulted in low vehicle delays with the exit operating with full turning movements. Based on the capacity analysis, the intersection will appropriately handle entering and exiting traffic. However, it should be noted that during peak hours, vehicles exiting this entrance will experience queues due to waiting for gaps in the northbound Lonas Drive streams and queues that form at the traffic signal to exit to the left towards Middlebrook Pike. During the existing conditions, vehicle queues on the northbound approach at the traffic signal were observed to extend past the proposed location of the Secondary Entrance and are expected in future conditions. Furthermore, vehicle queues during peak periods at this entrance may persuade exiting left-turning motorists to re-route to the Main Entrance.

3a) It is recommended that this entrance be constructed with different-sized radii. It is recommended that the entrance's southern edge radius be 15 feet to reduce the exiting vehicle speeds, thus reducing the potential of cut-thru traffic. On the entrance's northern side, it is recommended that the radius be constructed at 25 feet to help facilitate entering vehicles from the north. Due to the limited spacing between the proposed Secondary Entrance and the intersection of Middlebrook Pike at Lonas Drive, it is imperative that vehicles from the north not be hindered from entering. Any entering disruption could easily spill back to the signalized intersection operations. If curbs are constructed at this entrance, they should be traversable to allow for potential large trucks to enter and exit.



View of Vegetation Obstruction on the East Side of Lonas Drive and South of Proposed Secondary Entrance Location

3b) Sight distances from the proposed Secondary Entrance at Lonas Drive must not be impacted by future landscaping and signage.

The required ISD is 390 feet looking to the south and 170 feet to the north for exiting left and right-turning vehicles at the Secondary Entrance. The available sight distance was visually estimated to be 325 feet to the south on Lonas Drive. The sight distance is reduced to the south due to the

horizontal curvature of Lonas Drive and the vegetation growing on the east side of Lonas Drive. This vegetation must be removed or reduced to allow the maximum sight distance. A licensed land surveyor must measure the currently available sight distance to confirm the visual approximation and define the amount of vegetation removal needed to meet the required sight distance to the south. The site designer must also verify that this distance will be available based on the final site plans.

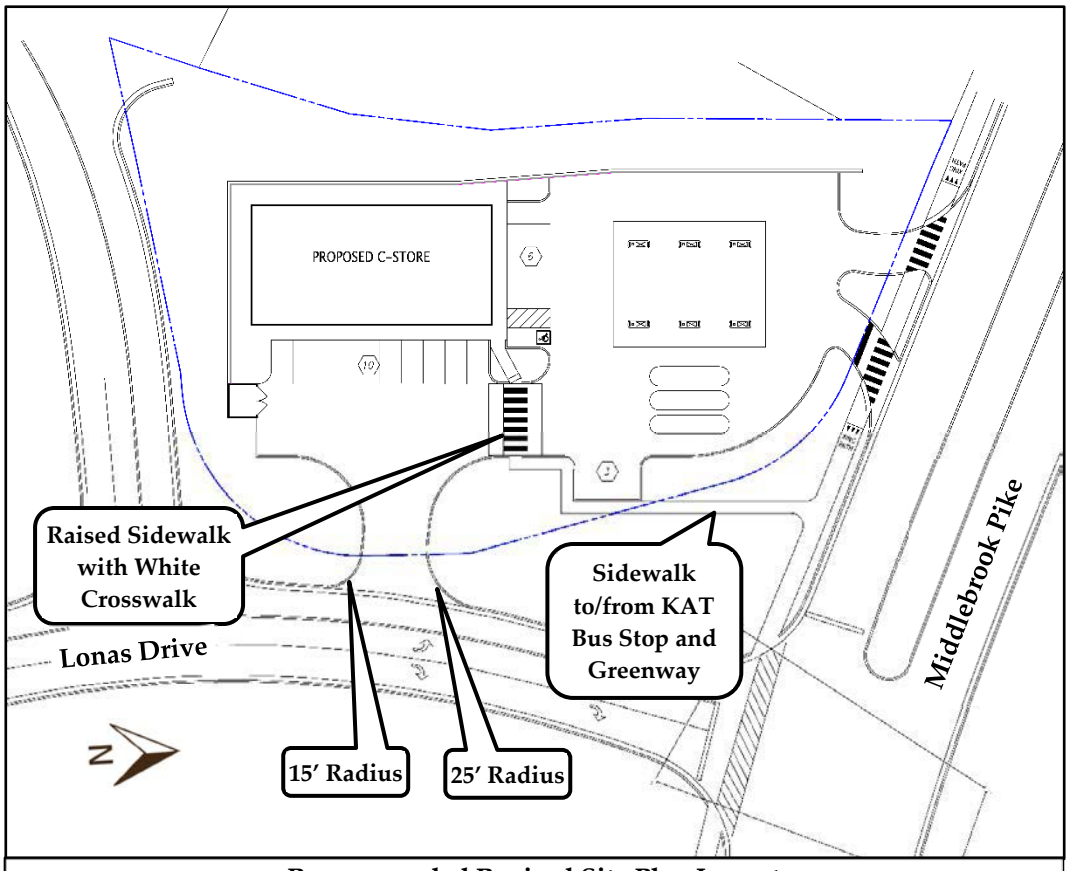
3c) The 95th percentile vehicle queue lengths were calculated for the exiting eastbound approach at this intersection for the 2025 projected conditions with the project, and the calculated vehicle queues are reasonable. The eastbound exiting lane at Lonas Drive will allow both left and right turns. The longest queue in the projected 2025 conditions (with the modified PM signal timing) is calculated to be 58 feet in the AM peak hour and 75 feet in the PM peak hour. These queue lengths translate to just under three passenger vehicles in the AM and three in the PM peak hour.

3d) The proposed Secondary Entrance will be a private driveway located 200 feet (centerline to centerline) away from Lonas Drive and 100 feet from the centerline of Kim Watt Drive. This distance exceeds the City of Knoxville spacing requirement of 150 feet from Middlebrook Pike, an arterial street, and 50 feet spacing required from Kim Watt Drive, a local street.

3e) It is not explicitly recommended that the Secondary Entrance not be constructed with dual exiting lanes, allowing separate left and right-turning movements. However, an additional exiting lane would help reduce vehicle queue lengths and delays, particularly for right-turning movements toward the south onto Lonas Drive. If a dual exiting lane is desired, it should be taken under advisement due to the proximity to the signalized intersection and the high-level decision-making required by exiting motorists to find gaps in the oncoming traffic. The horizontal curvature of Lonas Drive at the proposed location could be detrimental, and side-by-side vehicles in dual exiting lanes could restrict each other's sight distance.

4 **Shell Food Mart Internal Drives and Parking Areas:** The current site plan shows two entrance driveways constructed for the development with pavement areas to facilitate customers, market, and gasoline deliveries, as shown in Figure 3 and below. (Note: Ardurra has since updated the preliminary plan layout shown in Figure 3 to reflect the proposed minor layout modifications recommendations in this study; however, the preliminary plan is used in this report for illustrative purposes.)

4a) With the high number of existing eastbound right-turns occurring on Middlebrook Pike to Lonas Drive, the potential for cut-thru traffic at this location is very high. Cut-thru traffic would be potentially dangerous due to the nature of gas station/convenience market activities, which include walking customers, vehicles backing out of parking spaces, gas pump maneuvers, and delivery trucks. It is recommended that the site designer include a raised crosswalk that would dissuade motorists from cutting through the development. The most appropriate location for placing a raised crosswalk is shown in the image below. The site design layout has been slightly revised to fit the raised crosswalk at the location. The image below overall shows a revised site layout for the development from what is shown in Figure 3.



Recommended Revised Site Plan Layout

KAT Bus Stop on Middlebrook Pike at Lonas Drive – Route 13,

The revisions to the site layout included shifting the parking spaces adjacent to the store, the three parking spaces near the underground gasoline storage tanks, and modifying the sidewalk. Typically, a raised crosswalk consists of a 10-foot-wide raised pavement section with 6-foot ramped approaches on each end, and these dimensions were used in the revised layout shown in the image. The raised sidewalk should be at a height to allow the adjacent sidewalks outside the aisleway to be flush. The revised layout includes a sidewalk from the existing KAT bus stop on Middlebrook Pike to the convenience market building. Installing a sidewalk across the property to and from the building would facilitate pedestrian or bicycle traffic to and from the transit stop and the greenway without forcing these potential customers to cross the parking lot and internal drives, which would be hazardous due to potential vehicle conflicts.

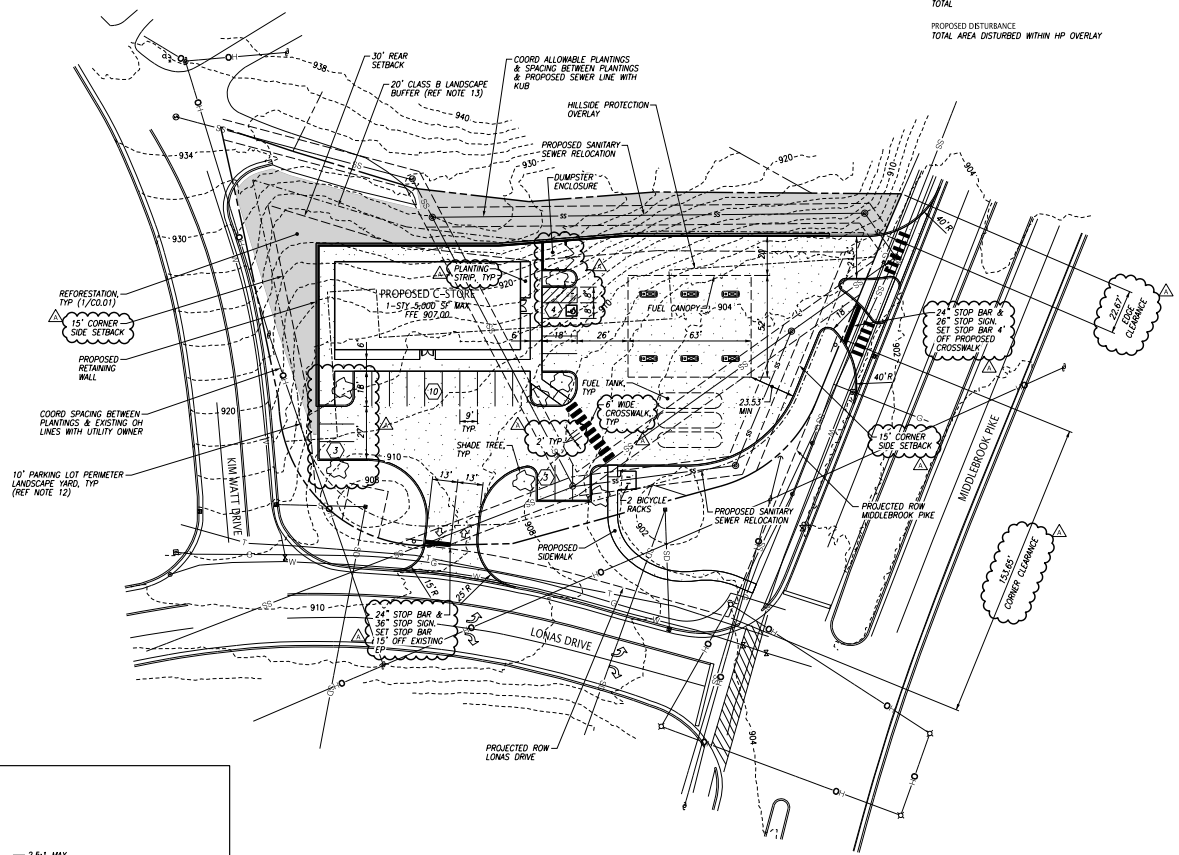
4b) Sidewalks are proposed along the front and adjacent to the convenience market and are recommended to be installed across the property to and from the KAT bus stop and greenway. Sidewalks should have appropriate ADA-compliant ramps at intersection corners, and the internal sidewalks are recommended to be 5 feet minimum in width to meet the City of Knoxville regulations. Sidewalk ramps must include detectable surfaces to meet ADA requirements.

4c) According to the City of Knoxville regulations, bicycle spaces must be provided for this proposed development. The number of spaces required is based on the land use category and the total required motor vehicle parking spaces. With nineteen vehicle parking spaces, four bicycle parking spaces are required for this proposed development. These spaces should be designed according to the regulations listed in Section 11.9 of the City of Knoxville's Zoning Code User's Manual.

4d) The construction of this development with the two entrances, with one restricted to RIRO, may lead to increased illegal U-turns occasionally occurring at this intersection from vehicles heading eastbound and turning back to the west. This movement is

already posted as being illegal. Unfortunately, for this location, increased law enforcement is the only reasonable means of reducing this illegal movement.

4e) All road grade and intersection elements should be designed to AASHTO, TDOT, and City of Knoxville specifications and guidelines to ensure proper transportation operations.



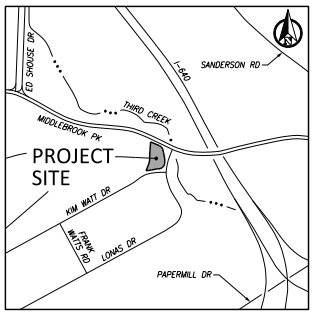
HILLSIDE PROTECTION SUMMARY

DISTURBANCE ALLOWED

0.08 AC @ 100% ALLOWABLE DISTURBANCE (<15% SLOPE) =	0.08 AC
0.12 AC @ 50% ALLOWABLE DISTURBANCE (15%-25% SLOPE) =	0.06 AC
0.22 AC @ 20% ALLOWABLE DISTURBANCE (25%-40% SLOPE) =	0.04 AC
0.08 AC @ 10% ALLOWABLE DISTURBANCE (> 40% SLOPE) =	0.01 AC
TOTAL	0.19 AC

PROPOSED DISTURBANCE

TOTAL AREA DISTURBED WITHIN HP OVERLAY	0.39 AC



LOCATION MAP
(NOT TO SCALE)

NOTES:

1. THE TOPOGRAPHIC & BOUNDARY DATA WAS TAKEN FROM PROFESSIONAL LAND SYSTEMS, DATED MARCH 1, 2023.
2. UNLESS NOTED OTHERWISE, DIMENSIONS ARE TAKEN FROM THE FENCE LINE, PROPERTY LINE, FACE OF CURB, EDGE OF PAVEMENT OR OUTSIDE FACE OF BUILDING.
3. THE MINERAL AGGREGATE BASE AND ASPHALTIC SURFACE COURSES SHALL MEET THE MATERIALS, EQUIPMENT, CONSTRUCTION, AND TESTING REQUIREMENTS OF THESE DRAWINGS, AND THE CITY OF KNOXVILLE DEPARTMENT OF ENGINEERING STANDARD SPECIFICATIONS.
4. CONCRETE CURB AND PAVEMENT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CONCRETE CURB AND PAVEMENT SHALL MEET THE MATERIALS, EQUIPMENT, AND CONSTRUCTION REQUIREMENTS OF THE CITY OF KNOXVILLE DEPARTMENT OF ENGINEERING STANDARD SPECIFICATIONS.
5. TRAFFIC CONTROL DEVICES AND PAVEMENT MARKING SHALL CONFORM TO THE FEDERAL HIGHWAY ADMINISTRATIONS "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES."
6. PROPERTY CONCERNED REFLECTS PARCEL 093NC009 AS SHOWN IN KNOX COUNTY CLT MAP 093. ZONING FOR THE PROPERTY IS C-N, NEIGHBORHOOD COMMERCIAL DISTRICT, CITY BLOCK NO 50330, WARD NO 48. TOTAL AREA = 1.13± AC.

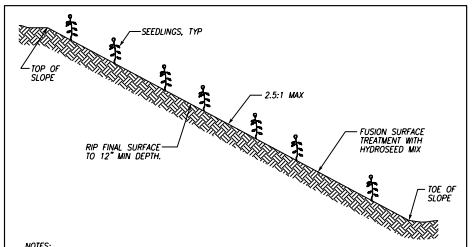
   OWNER: SCOTT & HOPE DAVIS
   PO BOX 11315
   KNOXVILLE, TN 37939
7. BUILDING SETBACKS ARE 0'-FT IN FRONT, 0'-FT ON SIDE, 15'-FT ON CORNER SIDE, AND 30'-FT IN REAR.
8. RETAINING WALLS TO BE DESIGNED AND SEALED BY AN ENGINEER LICENSED IN THE STATE OF TENNESSEE AND SUBMITTED FOR REVIEW AND APPROVAL PRIOR TO ISSUANCE OF A PERMIT. REFER TO VENDOR'S PLANS FOR RETAINING WALL AND RAILING DETAILS. RAILING SHALL BE PROVIDED FOR RETAINING WALL HEIGHTS THAT EQUAL OR EXCEED 30 INCHES.
9. REMOVE OVER-PAVEMENT OF ASPHALT AND STONE FROM UNDERNEATH LANDSCAPE AREAS UP TO THE LIMITS THAT HAVE BEEN SPECIFIED (REFER TO THE CURB DETAIL) IN ORDER TO PROVIDE A SOLID BASE FOR THE CONCRETE CURB.
10. REFER TO ARCHITECTURAL PLANS FOR ACTUAL BUILDING DIMENSIONS.
11. FUEL CANOPY SHALL HAVE 14' MINIMUM VERTICAL CLEARANCE.
12. PARKING LOT PERIMETER LANDSCAPE YARD SHALL BE PLANTED WITH A MINIMUM OF (3) SHADE AND/OR EVERGREEN TREES AND (10) SHRUBS FOR EVERY 100 LINEAR FEET. A MINIMUM OF 50% OF THE SHRUBS SHALL BE EVERGREEN.
13. CLASS B BUFFER YARD SHALL BE PLANTED WITH (1) SHRUB EVERY 3'. A MINIMUM OF 50% OF THE SHRUBS SHALL BE EVERGREEN. BUFFER SHALL ALSO BE PLANTED WITH (1) EVERGREEN TREE FOR EVERY 20' AND (1) SHADE TREE FOR EVERY 30'.

PARKING SUMMARY

REQUIRED PARKING (GAS STATION)	
5,000 SF @ 4 SP/1,000 SF GFA =	20 SPACES
MAXIMUM ALLOWED PARKING (GAS STATION)	
5,000 SF @ 8 SP/1,000 SF GFA =	40 SPACES
TOTAL PARKING PROVIDED	
STANDARD SPACES (9'x18')	19 SPACES
HANDICAP (1 VAN ACCESSIBLE)	1 SPACE
TOTAL	20 SPACES
BICYCLE PARKING	
<50 MOTOR VEHICLE PARKING SPACES REQUIRED	4 SPACES
BICYCLE SPACES PROVIDED	4 SPACES

LEGEND:

	CONCRETE PAVEMENT
	REFORESTATION
	SHADE TREE
1022	EXISTING CONTOUR
	PROPERTY LINE
9	NUMBER OF PARKING SPACES
(1/C2)	DETAIL REF. (DETAIL NO./SHT. NO.)
TYP	TYPICAL



NOTES:

1. SEEDLINGS SHALL BE A MIX OF AT LEAST 6 OF THE FOLLOWING SPECIES: AMERICAN PLUM, BLACKGUM, NORTHERN RED OAK, TULIP POPLAR, RED MAPLE, REDBUD, SCARLET OAK, SWEETGUM, SYCAMORE AND WHITE OAK. INSTALL ON 12' X 12' GRID OR 300 PER ACRE. PLANTING DATES RANGE FROM DECEMBER TO MID-APRIL.
2. HYDROSEED SLOPE WITH ERNST NC MOUNTAINS UPL MEADOW MIX (ERNMX 303). APPLY 20 LBS/AC. ADD FERTILIZER TO THE HYDROSEED MIX. USE 19-19-19 AND APPLIED AT A RATE OF 400 LBS/AC. ADD ANNUAL COVER CROP TO THE HYDROSEED MIX AS FOLLOWS: OATS (JANUARY TO FEBRUARY) APPLIED AT 30 LBS/AC; BROWNTOP MILLET (MARCH TO AUGUST) APPLIED AT 10 LBS/AC; WINTER RYE GRAIN (SEPTEMBER TO DECEMBER) APPLIED AT 30 LBS/AC.
3. APPLY FUSION SURFACE TREATMENT (JEN-HILL CONSTRUCTION MATERIALS) AT A RATE OF 4,500 LBS/AC ALONG WITH THE HYDROSEED MIX. OBTAIN A SOIL SAMPLE TO CONFIRM THE APPLICATION RATE. INSTALL PER THE MANUFACTURER'S RECOMMENDATIONS.
4. PROTECT FINISHED SLOPE FROM BEING DISTURBED.

1 / C0.01 REFORESTATION
NTS

11-B-23-SU
Revised: 10/26/2023

ARDURRA
COLLABORATE. INNOVATE. CREATE.
2160 Lakeside Centre Way, Suite 201
Knoxville, TN 37922
Phone: (865) 690-6419
www.Ardurra.com

JAY PATEL
2607 GRAHAM HILL LN
KNOXVILLE, TN 37932
lonasmiddlebrook@gmail.com
912-536-7890

NO.	DATE	REVISION	BY
A	10/26/23	REVISED PER PLANNING STAFF COMMENTS	JCM

LONAS & MIDDLEBROOK C-STORE
0 LONAS DRIVE

SPECIAL USE PLAN

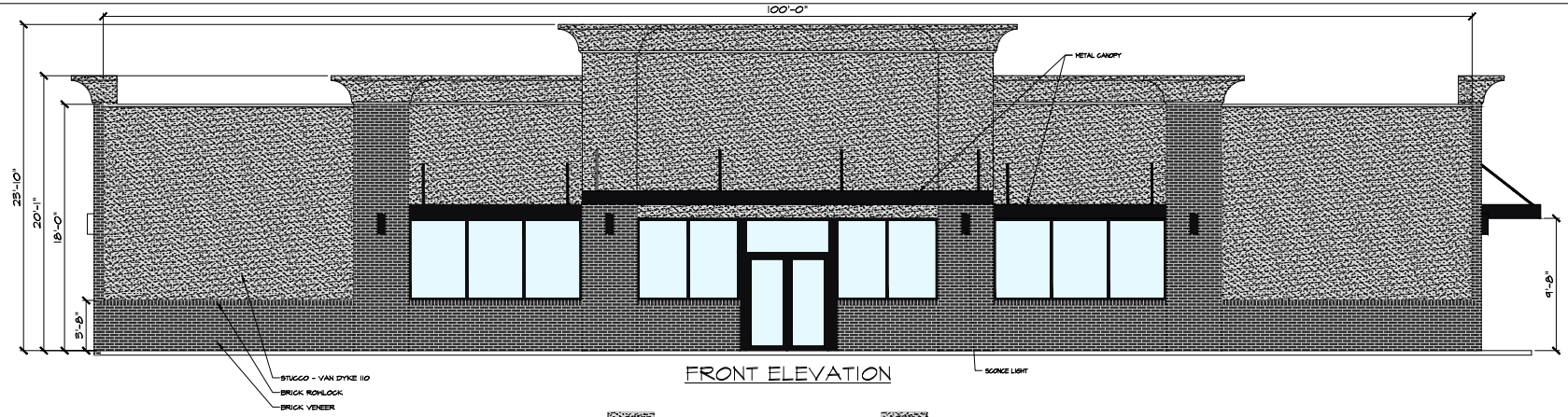
PRELIMINARY
NOT FOR
CONSTRUCTION

JOB NO: 671.001.1
DATE: 09/19/2023

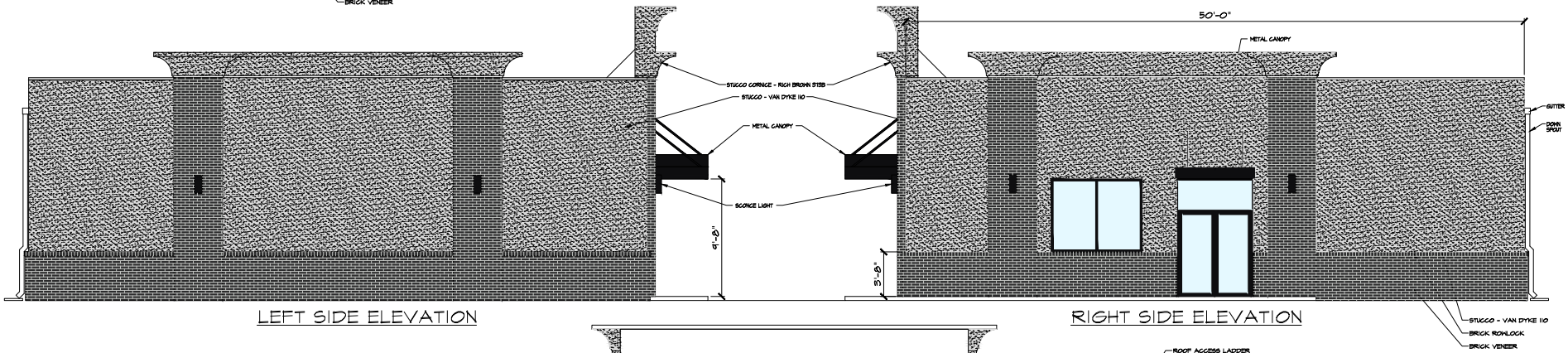
C0.01

SPECIAL USE PLAN
09/19/2023

File Name: J:\671\671.001\1_DWGS\Special Use\671001sp001.dgn
Plot Date: 10/26/2023

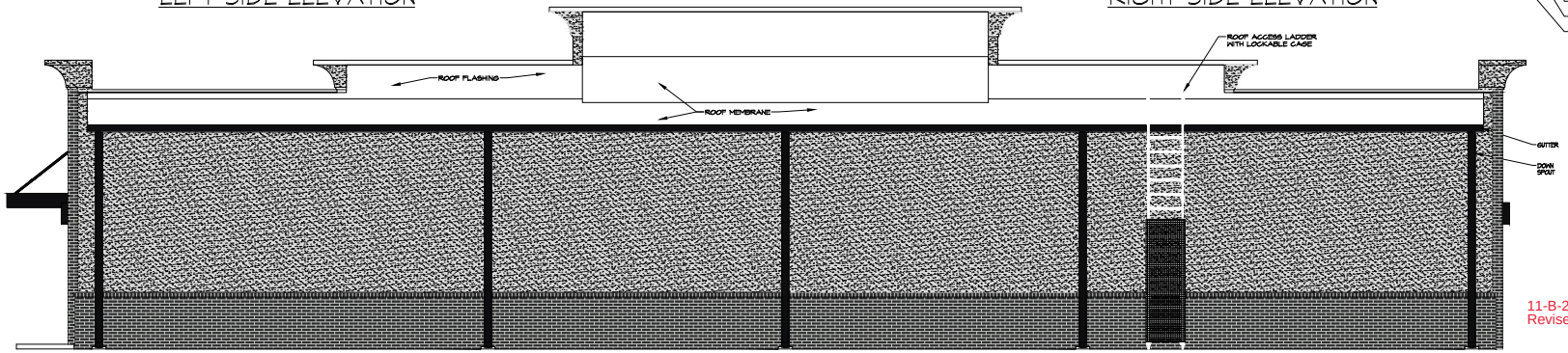


FRONT ELEVATION



LEFT SIDE ELEVATION

RIGHT SIDE ELEVATION

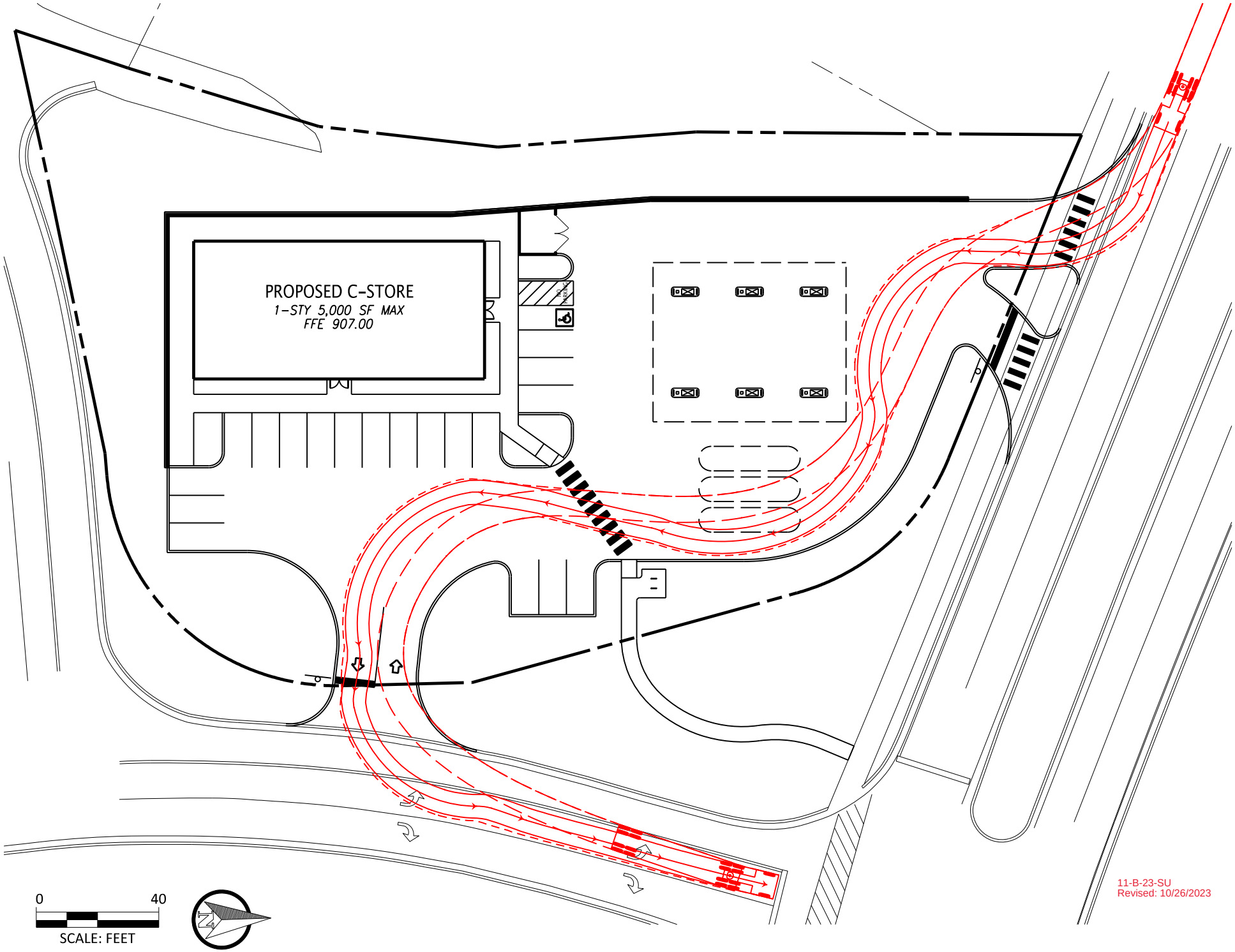


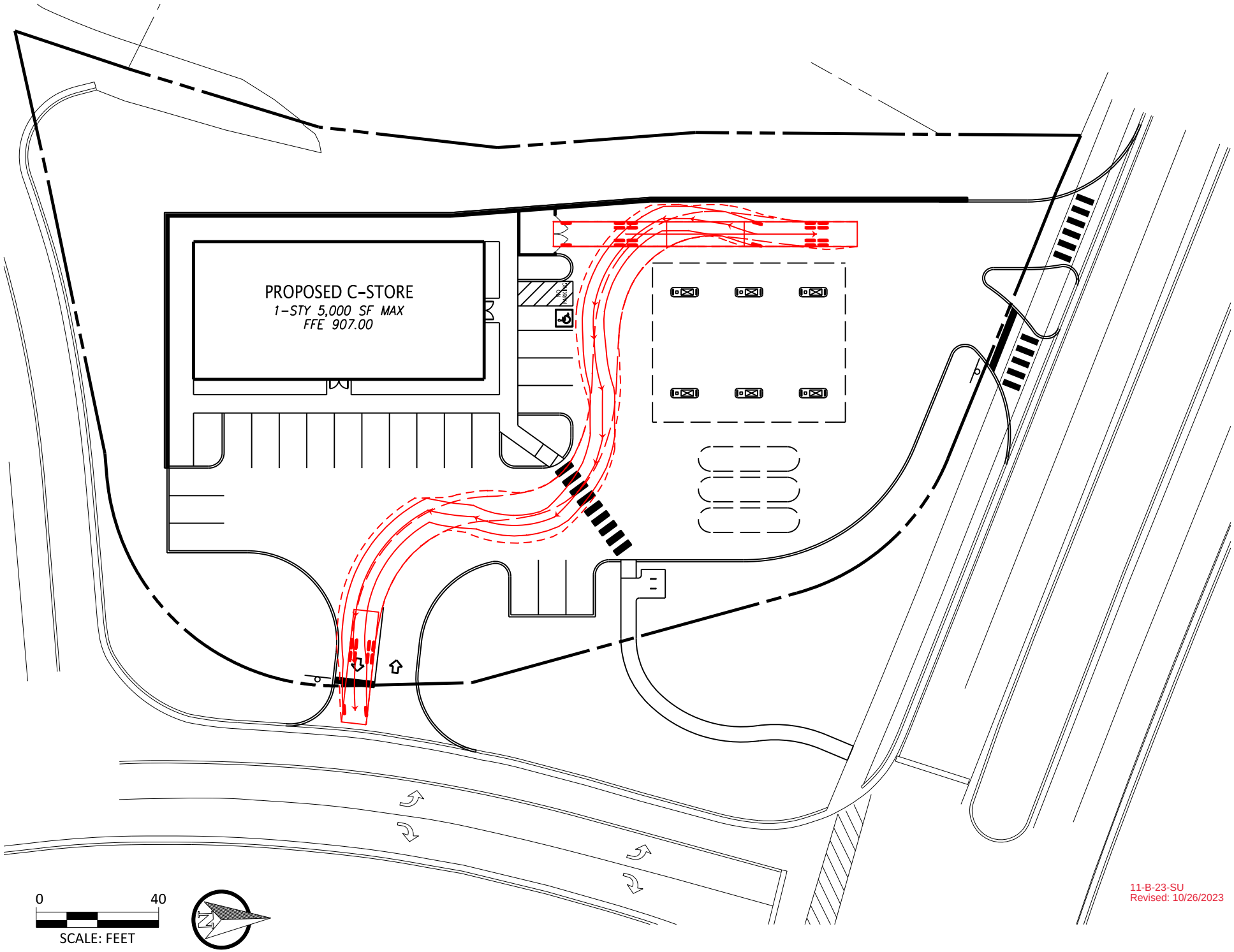
REAR ELEVATION

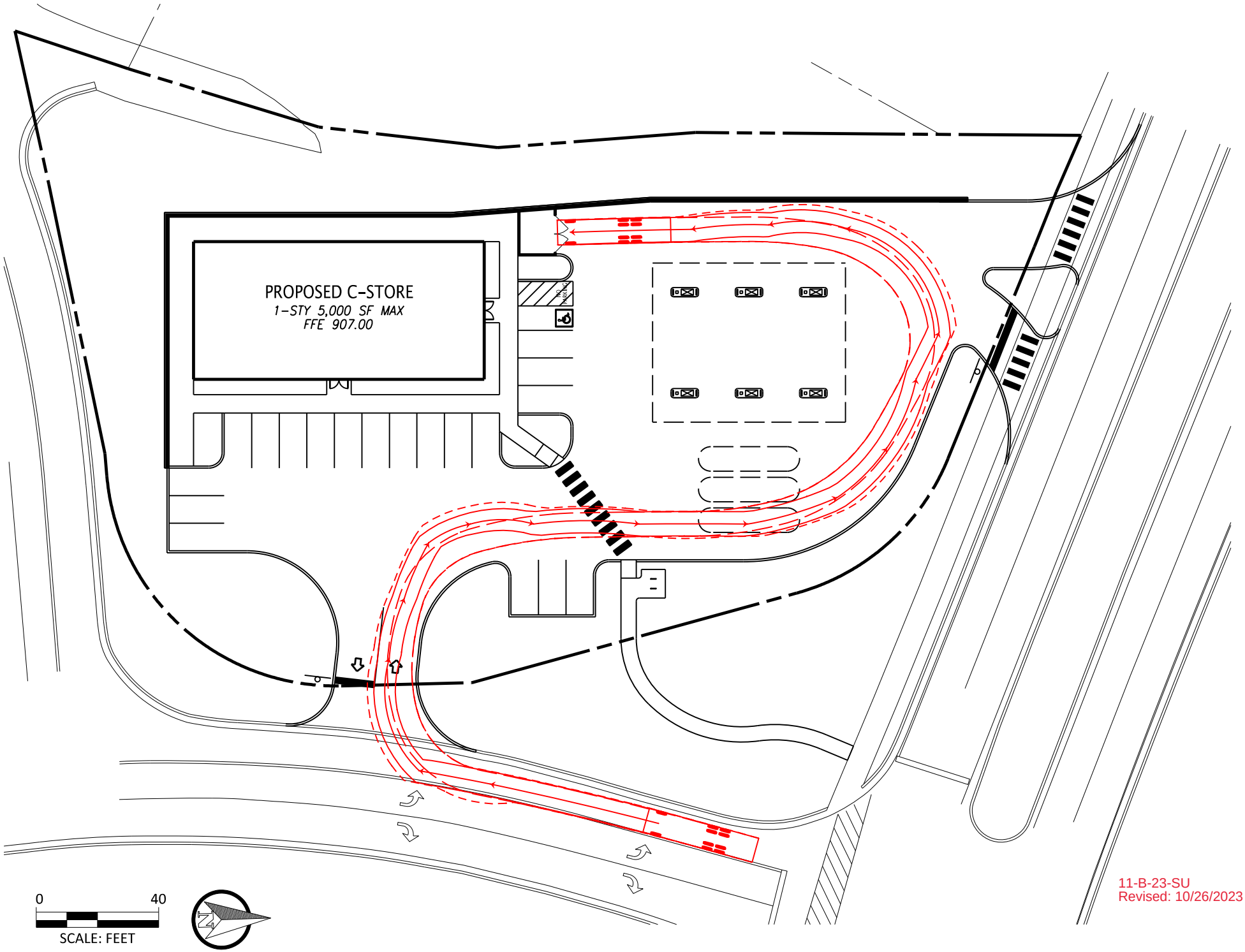
11-B-23-SU
Revised: 10/26/2023

Lonas & Middlebrook
NEW C-STORE

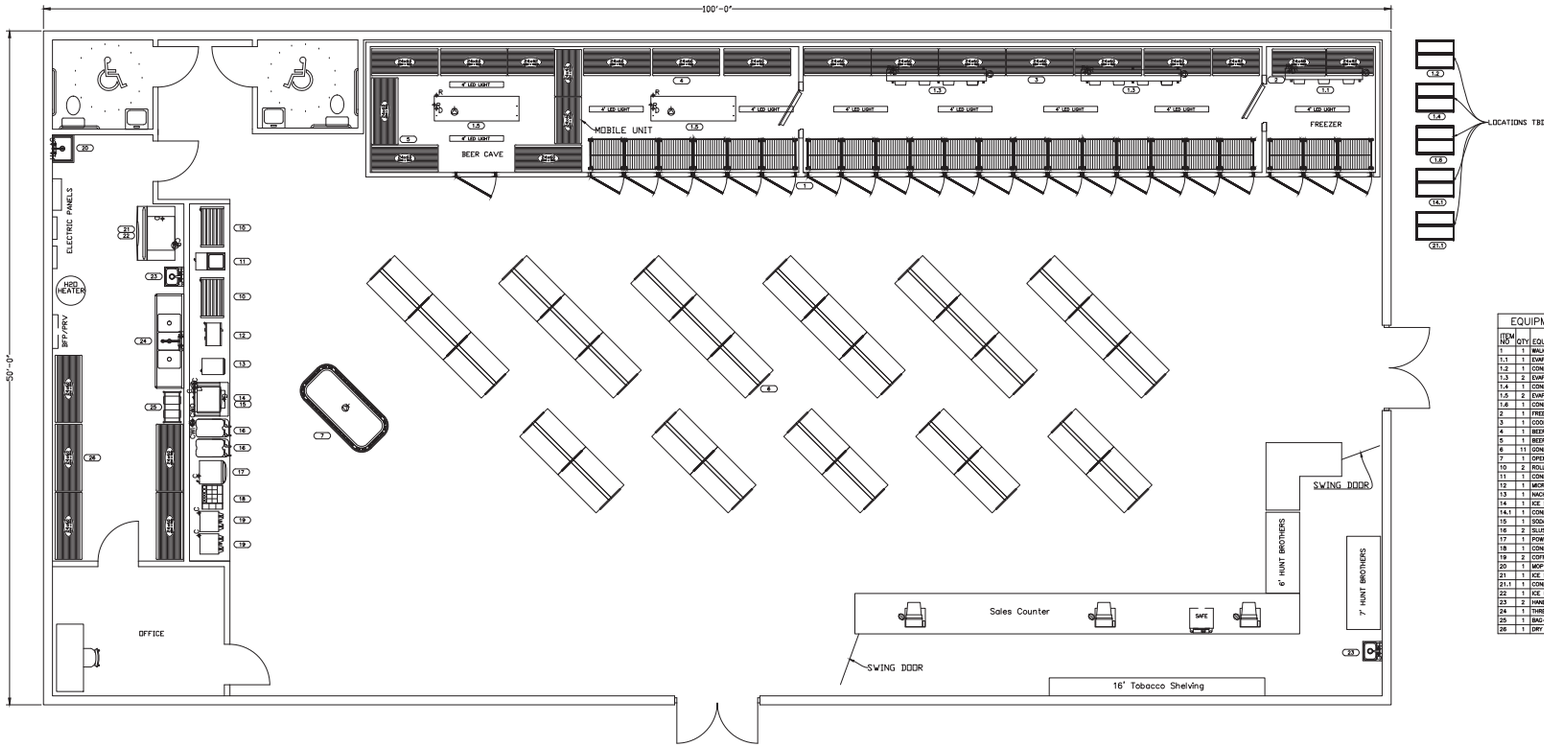
DEFINITIVE DESIGNS GROUP INC.
TEL# (706)860-6807 FAX# (706)860-2469
4270 BELAIR FRONTAGE RD
AUGUSTA, GA 30909


PROPOSED C-STORE
1-STY 5,000 SF MAX
FFE 907.00
0
40
SCALE: FEET
11-B-23-SU
Revised: 10/26/2023


PROPOSED C-STORE
1-STY 5,000 SF MAX
FFE 907.00
0
40
SCALE: FEET
11-B-23-SU
Revised: 10/26/2023



11-B-23-SU
Revised: 10/26/2023



EQUIPMENT SCHEDULE		
ITEM NO	QTY	EQUIPMENT CATEGORY
1	1	WALK-IN BEER CAVE/COOLER/FREEZER
1.1	1	EVAPORATOR COIL – FREEZER
1.2	1	CONDENSING UNIT – FREEZER
1.3	2	EVAPORATOR COIL – COOLER
1.4	1	CONDENSING UNIT – COOLER
1.5	2	EVAPORATOR COIL – BEER CAVE
1.6	1	CONDENSING UNIT – BEER CAVE
2	1	FREEZER SHELVING
3	1	COOLER SHELVING
4	1	BEER CAVE SHELVING
5	1	BEER CAVE SHELVING
6	11	GONDOLA SHELVING
7	1	OPEN AIR REFRIGERATED MERCHANDISER
10	2	ROLLER GRILL
11	1	CONVIENT HOLDER – REFRIGERATED
12	1	MICROWAVE
13	1	NACHO CHEESE DISPENSER
14	1	ICE MAKER
14.1	1	CONDENSING UNIT – ICE MAKER
15	1	SODA MACHINE
16	2	SLUSHY MACHINE
17	1	POWDERED DRINK DISPENSER
18	1	CONVIENT ORGANIZER
19	2	COFFEE BREWER
20	1	MOP SINK
21	1	ICE MAKER
21.1	1	CONDENSING UNIT – ICE MAKER
22	1	ICE BIN
23	2	HAND SINK
24	1	THREE COMPARTMENT SINK
25	1	BAG-IN-BOX RACK
26	1	DRY STORAGE SHELVING

11-C-23-SU
9/25/2023

FOR APPROVAL

PLEASE REVIEW ALL DRAWING ITEMS: NOTES, DIMENSIONS, EQUIPMENT PLACEMENT, ETC.

APPROVED ☐ NO CHANGES REQUIRED

APPROVED WITH CHANGES ☐ MAKE CHANGES AND ACCEPT AS APPROVED

NOT APPROVED ☐ REQUIRES CHANGES AND RESUBMISSION

DATE_____BY_____

NOTE: A SIGNED APPROVAL MUST BE RECEIVED BEFORE AN EQUIPMENT ORDER CAN BE PROCESSED

SCALE: NTS

DATE: 9/13/23

PROJECT: Lonas and Middlebrook

DRAWING / REVISION #: 91323-0

DRAWN BY: M Kaler

Windrock ENTERPRISES, INC.
1411 E. WEISGARBER RD.
KNOXVILLE, TN 37909
PHONE: 865-602-2238

Development Request

Planning
KNOXVILLE | KNOX COUNTY

DEVELOPMENT
- ☐ Development Plan
- ☐ Planned Development
- ■ Use on Review / Special Use
- ■ Hillside Protection COA

SUBDIVISION
- ☐ Concept Plan
- ☐ Final Plat

ZONING
- ☐ Plan Amendment ☐ SP ☐ OYP
- ☐ Rezoning

Applicant Name	Affiliation
Jay Patel	Option Holder

Date Filed	Meeting Date (if applicable)	File Number(s)
09/25/2023	November 9, 2023	11-B-23-SU

CORRESPONDENCE

All correspondence related to this application should be directed to the approved contact listed below.

■ Applicant ☐ Property Owner ☐ Option Holder ☐ Project Surveyor ☐ Engineer ☐ Architect/Landscape Architect

Name	Company		
Jay Patel			
Address	**City**	**State**	**ZIP**
2607 Graham Hill Lane	Knoxville	TN	37932
Phone	**Email**		
912.536.7890	lonasmiddlebrook@gmail.com		

CURRENT PROPERTY INFO

Property Owner Name (if different)	Property Owner Address	Property Owner Phone
Scott & Hope Davis	PO Box 11315 Knoxville, TN 37939	865.693.3356
Property Address	**Parcel ID**	
0 Lonas Drive	093NC009	
Sewer Provider	**Water Provider**	**Septic (Y/N)**
KUB	KUB	N

STAFF USE ONLY

General Location	Tract Size

☐ City ☐ County

District	Zoning District	Existing Land Use

Planning Sector	Sector Plan Land Use Classification	Growth Policy Plan Designation

DEVELOPMENT REQUEST

☐ Development Plan ■ Use on Review / Special Use ■ Hillside Protection COA

☐ Residential ■ Non-Residential

Home Occupation (specify) _____

Other (specify) Proposed gas station & convenience store

Related City Permit Number(s)

SUBDIVISION REQUEST

Proposed Subdivision Name

Related Rezoning File Number

Unit / Phase Number ☐ Combine Parcels ☐ Divide Parcel Total Number of Lots Created

☐ Other (specify) _____

☐ Attachments / Additional Requirements

ZONING REQUEST

☐ Zoning Change Proposed Zoning

Pending Plat File Number

☐ Plan Amendment Change Proposed Plan Designation(s)

Proposed Density (units/acre) Previous Rezoning Requests

☐ Other (specify) _____

STAFF USE ONLY

PLAT TYPE

☐ Staff Review ☑ Planning Commission

ATTACHMENTS

☐ Property Owners / Option Holders ☐ Variance Request

ADDITIONAL REQUIREMENTS

☐ Design Plan Certification *(Final Plat)*

☐ Use on Review / Special Use *(Concept Plan)*

☐ Traffic Impact Study

☐ COA Checklist *(Hillside Protection)*

Fee 1		Total
0405	$1,600.00	
Fee 2		$1,600.00
Fee 3		

AUTHORIZATION

■ ***I declare under penalty of perjury*** *the foregoing is true and correct:*
1) *He/she/it is the owner of the property AND* ***2)*** *The application and all associated materials are being submitted with his/her/its consent*

Applicant Signature | Jay Patel (Please Print) | 9/25/23 (Date)

912.536.7890 (Phone Number) | lonasmiddlebrook@gmail.com (Email)

Property Owner Signature | Scott & Hope Davis (Please Print) | 09/26/2023, SG (Date Paid)

Hope Davis POA | 9/25/23

Development Request

DEVELOPMENT
- ☐ Development Plan
- ☐ Planned Development
- ☑ Use on Review / Special Use
- ☐ Hillside Protection COA

SUBDIVISION
- ☐ Concept Plan
- ☐ Final Plat

ZONING
- ☐ Plan Amendment
  - ☐ Sector Plan
  - ☐ One Year Plan
- ☐ Rezoning

Applicant Name	Affiliation
Jay Patel	

Date Filed	Meeting Date (if applicable)	File Number(s)
9/26/2023	**11/9/2023**	**11-B-23-SU**

CORRESPONDENCE

All correspondence related to this application should be directed to the approved contact listed below.

Jay Patel
Name / Company

2607 Graham Hill Ln Knoxville TN 37932
Address

912-536-7890 / lonasmiddlebrook@gmail.com
Phone / Email

CURRENT PROPERTY INFO

Owner Name (if different)	Owner Address	Owner Phone / Email
Scott and Hope Davis	**PO Box 11315 Knoxville TN 37939**	**865-693-3356**

0 LONAS DR
Property Address

Parcel ID	Part of Parcel (Y/N)?	Tract Size
93 N C 009		**1.14 acres**

Sewer Provider	Water Provider	Septic (Y/N)
Knoxville Utilities Board	**Knoxville Utilities Board**	

STAFF USE ONLY

East side of Lonas Dr, south side of Middlebrook Pk, north side of Kim Watt Dr
General Location

	District	Zoning District	Existing Land Use
☑ City	**Council District 2**	**C-N (Neighborhood Commercial), HP (Hillside Protection Overlay)**	**Agriculture/Forestry/Vacant Land**
☐ County			

Planning Sector	Sector Plan Land Use Classification	Growth Policy Plan Designation
Northwest City	**NC (Neighborhood Commercial), HP (Hillside Protection)**	**N/A (Within City Limits)**

DEVELOPMENT REQUEST

☐ Development Plan ☐ Planned Development ☑ Use on Review / Special Use

☐ Hillside Protection COA ☐ Residential ☑ Non-residential

Related City Permit Number(s)

Home Occupation (specify)

Other (specify) **Gas station with convenience store**

SUBDIVSION REQUEST

Related Rezoning File Number

Proposed Subdivision Name

Unit / Phase Number

Total Number of Lots Created

Additional Information

☐ Attachments / Additional Requirements

ZONING REQUEST

☐ Zoning Change

Proposed Zoning

Pending Plat File Number

☐ Plan Amendment

Proposed Plan Designation(s)

Proposed Density (units/acre)

Previous Zoning Requests

Additional Information

STAFF USE ONLY

PLAT TYPE

☐ Staff Review ☐ Planning Commission

ATTACHMENTS

☐ Property Owners / Option Holders ☐ Variance Request

ADDITIONAL REQUIREMENTS

☐ COA Checklist (Hillside Protection)

☐ Design Plan Certification (Final Plat)

☑ Site Plan (Development Request)

☑ Traffic Impact Study

☐ Use on Review / Special Use (Concept Plan)

Fee 1	Total
$1,600.00	
Fee 2	
Fee 3	

AUTHORIZATION

☐ **I declare under penalty of perjury the foregoing is true and correct: 1) He/she/it is the owner of the property, AND 2) the application and all associated materials are being submitted with his/her/its consent.**

Jay Patel	**9/26/2023**
Applicant Signature	Please Print	Date

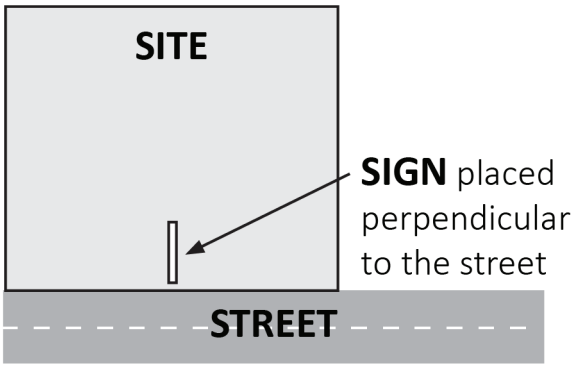
Phone / Email

Scott and Hope Davis	**9/26/2023**
Property Owner Signature	Please Print	Date

Sign Posting & Removal Requirement

Revised April 2021

The Administrative Rules and Procedures of the Knoxville-Knox County Planning Commission require a sign to be posted on the property for each application subject to consideration by the Planning Commission, including the following applications: rezoning, plan amendment, concept plan, use on review/special use, planned development, right-of-way closure, and name change.



The required public notice sign(s) will be provided by Planning to the applicant when an application is submitted. If an application is submitted electronically, Planning staff will post the required sign. If a replacement sign(s) is needed, the applicant is responsible for picking up the new sign(s) from Planning and will be charged $10 for each replacement.

LOCATION AND VISIBILITY

The sign must be posted on the nearest adjacent/frontage street and in a location clearly visible to vehicles traveling in either direction. If the property has more than one street frontage, the sign should be placed along the street that carries more traffic. Planning staff may recommend a preferred location for the sign to be posted at the time of application.

TIMING

The sign(s) must be posted **not less than 12 days prior to the scheduled Planning Commission public hearing** and must remain in place until the day after the meeting. In the case of a postponement, the sign can either remain in place or be removed and reposted not less than 12 days prior to the next Planning Commission meeting. The applicant is responsible for removing the sign after the application has been acted upon by the Planning Commission.

The individual below is responsible for posting and removing the sign(s) provided consistent with the above guidelines and between the dates of:

10/27/2023 and 11/10/2023

(applicant or staff to post sign) **(applicant to remove sign)**

Applicant Name: Jay Patel

Date: 09/26/2023

File Number: 11-B-23-SU

☒ Sign posted by Staff

☐ Sign posted by Applicant