RECEIVED
89881
FEB 02 2024
BOONE COUNTY
PLANNING COMMISSION

CONCEPT DEVELOPMENT PLAN
BOONE COUNTY PLANNING COMMISSION

Seven (7) copies of submitted drawings are required

An application consists of all fees paid in full, submitted drawings, and a completed application form

SECTION A: (To be completed by applicant)

1. Type of review (check one):
   - [x] Concept Development Plan (includes Utilization of an Underlying Zone in a Planned Development)
   - [ ] Change in an Approved Concept Development Plan
   - [ ] Long Range Planning Committee Review (as stated in the Houston-Donaldson Study)
   - [ ] Long Range Planning Committee Review (as stated in the Union Town Plan)
   - [ ] Zone Change Committee Review of previously approved Concept Development Plan Conditions or Zoning Map Amendment Conditions
   - [ ] Zoning Administrator Review (as stated in the Central Florence Strategic Plan, An Update of the Parkway Corridor Study)
   - [ ] Zoning Administrator Review (as stated in the Mall Road District Study)
   - [ ] Zoning Administrator Review (as stated in the I-275/Graves Road Interchange Study)
2. Name of Project: Hebron Station - commercial lots
3. Location of Project: Southeast corner of Hebron Station and KY 237/North Bend Road
4. Total Acreage of Project: 4.1 acres
5. Current Zoning of Property: C-2/PD/CD
6. Date of previous zoning map amendment or Approved Concept Development Plan (if applicable): 10-11-2022 Ordinance 2022-23
7. Is the site subject to a specialized Land Use Study approved by the Boone County Planning Commission [ ] Yes [x] No
   If yes, indicate the name of the study: ______
8. Proposed Use(s) (specify each use):
   Convenience store with gasoline filling station and Eating and drinking establishment
9. Proposed Building Intensities (specify for each building):
   Convenience store - 5,920 +/- SF; Eating and drinking establishment - 6,630 +/- SF
10. Have you submitted a Concept Development Plan: [x] Yes [ ] No
11. Are you applying for any of the following (check all that apply):
    [ ] Conditional Use Permit [ ] Variance
12. Current Owner: BRG Hebron Station LLC

    Address: 7265 Kenwood Road, Suite 111

City	State	Zip Code
Cincinnati	OH	45236

    Phone Number: 513-237-3408 Fax Number: 513-936-4151

    Email: rcroswell@brgapartments.com
13. Applicant: Anchor Properties (Nate Stark)

Address: Anchor Properties, Inc. 128 E. 2nd Street

Covington	KY	41011
City	State	Zip Code

Phone Number: 859-578-2628 Fax Number: 859-578-2629

Email: nstark@anchor-prop.com

14. Are there any existing buildings on the site: ☐ Yes ☑ No
If yes, indicate how many: ______

15.

714	70	2007
Deed Book	Page Number	Group Number

16. Have you had a pre-application meeting with the BCPC staff: ☑ Yes ☐ No

17. Have you met or discussed your proposed development with any of the following organizations/agencies (check all that apply):

Prior to construction of improvements, the applicant is recommended to submit copies of the Site Plan to the appropriate organizations/agencies prior to approval by the Boone County Planning Commission.

- ☐ Boone County Building Department
- ☐ Boone County Public Works Department
- ☑ Boone County Water District
- ☐ Cincinnati Bell
- ☐ Cincinnati/Northern Kentucky International Airport (Kentucky Airport Zoning Commission for height restrictions near the airport)
- ☐ Duke Energy
- ☐ Florence Public Services Department
- ☐ Kentucky Division of Water
- ☑ Kentucky Transportation Cabinet
- ☐ Local Fire District
- ☐ Local School District
- ☐ Northern Kentucky Health Department
- ☐ Owen Cooperative Electric, Inc.
- ☑ Sanitation District No. 1
- ☐ USDA NRCS/Boone County Conservation District
- ☐ Other: ______

18. Concept Development Plan Jurisdiction/Location (check all that apply):
☑ Unincorporated Boone ☐ Florence ☐ Walton ☐ Union

19. Waiver of 60 Day Time Requirement by Originator for Final Planning Commission Action:

In accordance with the provisions of KRS 100.211, the applicant(s) and property owner(s) or originator(s) hereby waive the 60 day time limit for the Boone County Planning Commission to take final action on my (our) Zoning Map Amendment/Concept Development Plan application. This time limit waiver is considered effective immediately upon receipt by the Boone County Planning Commission and expires on April 18, 2024

BRG Hebron Station, LLC
By: BRG Realty Group, LLC
Its: Manager

Property Owner's Signature: [signature]
Andrew R Giannetta, VP

ANCHOR PROPERTIES, INC.

Applicant's Signature: [signature] V.P.

SECTION B: (To be completed by Planning Commission staff)

1. Date Received: 2/2/2024 Fee Received: $2398.00 Receipt #: 89881

2. Number of Copies Received: ____________

3. Has the following been submitted (check all that apply):

- [ ] Completed Application
- [ ] Concept Development Plan
- [ ] Legal Description
- [ ] Names and Mailing Addresses of Adjacent Property Owners

4. Date the application is Administratively Complete (as defined in KRS 100.211): ____________

5. Staff Reviewer: M. Schwartz

6. Committee Chairperson: S. Harper

7. Scheduled Public Hearing Date: 3/20/2024

8. Boone County Planning Commission Action: Date of Action: 4/17/2024

____________ Approved

✓ Approved with Conditions

____________ Denial

____________ Other

Boone County Planning Commission
Boone County Administration Building
2950 Washington Street, Room 317
P.O. Box 958
Burlington, Kentucky 41005
Phone: 859-334-2196 Fax: 859-334-2264
plancom@boonecountyky.org
www.boonecountyky.org

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BOONE COUNTY PLANNING COMMISSION

ZONING MAP AMENDMENT
BOONE COUNTY PLANNING COMMISSION

Seven (7) copies of submitted drawings are required

An application consists of all fees paid in full, submitted drawings, and a completed application form

SECTION A: (To be completed by applicant)

1. Name of Project: Hebron Station Commercial Lots Special Sign District
2. Location of Project: Southeast corner of Hebron Station and KY 237/North Bend Road
3. Total Acreage of Project: 4.1 acres
4. Current Zoning of Property: C-2/PD/CD
5. Proposed Zoning of Property (classification being requested): C-2/PD/CD - Special Sign District
6. Proposed Use(s) (specify each use):
   Convenience store with gasoline filling station and Eating and drinking establishment
7. Proposed Building Intensities (specify for each building):
   Convenience store - 5,920 +/- SF; Eating and drinking establishment - 6,630 +/- SF
8. Are you applying for any of the following (check all that apply):
   ☐ Conditional Use Permit ☐ Variance
9. Current Owner: BRG Hebron Station LLC
   Address: 7265 Kenwood Road, Suite 111
   City: Cincinnati State: OH Zip Code: 45236
   Phone Number: 513-237-3408 Fax Number: 513-936-4151
   Email: rcroswell@brgapartments.com
10. Applicant: Anchor Properties (Nate Stark)
    Address: Anchor Properties, Inc., 128 E. 2nd Street
    City: Covington State: KY Zip Code: 41011
    Phone Number: 859-578-2628 Fax Number: 859-578-2629
    Email: nstark@anchor-prop.com
11. Are there any existing buildings on the site: ☐ Yes ☑ No
    If yes, indicate how many:

12. 714 — Deed Book; 70 — Page Number; 2007 — Group Number

13. Have you had a pre-application meeting with the BCPC staff: ☑ Yes ☐ No

14. Have you submitted a Concept Development Plan: ☑ Yes ☐ No

15. Have you met or discussed your proposed development with any of the following organizations/agencies (check all that apply):

- ☐ Boone County Building Department
- ☐ Boone County Public Works Department
- ☑ Boone County Water District
- ☐ Cincinnati Bell
- ☐ Cincinnati/Northern Kentucky International Airport (Kentucky Airport Zoning Commission for height restrictions near the airport)
- ☐ Duke Energy
- ☐ Florence Public Services Department
- ☐ Kentucky Division of Water
- ☑ Kentucky Transportation Cabinet
- ☐ Local Fire District
- ☐ Local School District
- ☐ Northern Kentucky Health Department
- ☐ Owen Cooperative Electric, Inc.
- ☑ Sanitation District No. 1
- ☐ USDA NRCS/Boone County Conservation District
- ☐ Other: ______

16. Concept Development Plan Jurisdiction/Location (check all that apply):
☑ Unincorporated Boone ☐ Florence ☐ Walton ☐ Union

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BRG Hebron Station, LLC
By: BRG Realty Group, LLC
Its: Manager

Property Owner's Signature: [signature]
Andrew R. Giannella, VP

ANCHOR PROPERTIES, INC.

Applicant's Signature: [signature] V.P.

EXHIBIT

"A"

STAFF REPORT

#1

Request of **Anchor Properties, per Nate Stark (applicant)** for **BRG Hebron Station, LLC, per BRG Realty Group, LLC (owner)** for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The submitted request is to allow: (1) the construction of a convenience store with gasoline pumps and an eating and drinking establishment; and (2) to allow alternative signage.

March 20, 2024

REQUEST

A. The submitted request is for a Change of Concept Development Plan to:

1. Allow the construction of a 5,915 square foot convenience store with eight (8) gasoline pumps (WaWa).

2. Allow the construction of a 6,626 square foot eating and drinking establishment with a 2,067 square foot outside patio (Longnecks).

3. To allow signage that is currently not allowed under the C-2/PD sign regulations

SITE HISTORY

2022 On October 11, 2022, the Boone Fiscal Court adopted Ordinance Number 2022-23, approving a zoning map amendment changing the site to the C-2/PD district to allow the development of Hebron Station, subject to several conditions including: (1) that a Concept Development Plan be submitted for any development within the proposed commercial area and that the Concept Development Plan follow the same review process as a zoning map amendment; (2) all signage shall meet the requirements of the zoning regulations; (3) that a Buffer Yard B be provided along the east property line(s) of the commercial development(s); and (4) the property owners/developer of the commercial component shall conduct a traffic impact study prior to the development of the commercial area to determine whether traffic improvements are needed. If the traffic impact study recommends any improvements, the property owners/developer, at their expense, shall make such improvements. All improvements must be approved by the County (R-22-025-A).

2023 On June 28, 2023, the Boone County Planning Commission approved an Improvement Plan for the Hebron Station development.

APPLICABLE REGULATIONS

A. Section 302 of the Boone County Zoning Regulations states that a Concept Development Plan is to be submitted as part of a zoning map amendment.

B. Section 311 of the Boone County Zoning Regulations states that major amendments to the terms of an approved Zoning Map Amendment, including a Concept Development Plan, that involve substantial or significant changes in the development concept, uses, intensity, supplemental conditions of approval, or other plan elements of substantive effect must be submitted to the Planning Commission and shall conform to the procedure and as it was originally approved.

C. Section 505.3 of the Boone County Zoning Regulations identifies 'eating and drinking establishment', 'gasoline filling station', and 'convenience store' as principally permitted uses in the C-2 district.

D. Section 1506 of the Boone County Zoning Regulations provides for the following planned development criteria:

1. Mixed Use Development and Pedestrian Orientation: Planned Developments shall generally have a mixed use orientation (combination of differing types of residential, commercial, public or civic, and/or industrial uses) both within the development itself and relative to the relationship between the proposed planned development and adjacent sites. The additional intensity allowed in a Planned Development by Section 1501 shall only be permitted when a true mixed use and/or an amenity - oriented development with community and recreation facilities as described in this standard is provided.

2. In general, Planned Developments shall have a pedestrian orientation, where it is possible to live, work, shop, and play in the same immediate vicinity without a required dependence on the automobile. This may be accomplished through the use of comprehensive pedestrian circulation networks including multipurpose paths and walks along main routes and open spaces such as stream corridors, between major destinations within the development and adjoining areas, secondary walk connections to the multi-purpose paths, the creation of a designed pedestrian environment including street trees in addition to other required landscaping, decorative street lights and other street furniture, and seating areas, and the use of integral curb walks where appropriate along streets. Disruptions in major paths due to street and drive intersections shall be minimal. Additionally in commercial areas, pedestrian orientation can be accomplished by placing buildings in close proximity to the street with parking areas to the side and rear of buildings, mixing uses within the same multi-story buildings, building entrances directly facing streets with reduced setbacks, architectural design which employs display windows, projecting signs, and awnings at street level, and designed outdoor seating and gathering spaces at the street level. Each development proposal must demonstrate in detail how the project will be made walkable throughout.

3. Compatibility of Uses: Measures shall be taken to assure compatibility of land

uses within a Planned Development itself and adjacent sites. Such measures may include the provisions of buffer zones, common open space areas and landscape features, transitional land uses, or a mixed-use development in which no specific type of land use is dominate. When applicable, the design methods recommended in the "Development Layout, Lot Sizes, and Setbacks" section of the Comprehensive Plan's Land Use Element shall be employed. Compatibility measures/mitigation measures shall exceed the usual minimum standards of these regulations when needed to address impacts of the proposed development.

4. Open Space: Useable open space(s), in an amount over and above setback and buffer yard areas and open areas required by the underlying district, shall be provided. These spaces may be provided in the form of parks, plazas, arcades, commons, trails, sports courts or other athletic and recreational areas, outdoor areas for the display of sculptural elements, etc. Land reservations for community facilities may be considered in lieu of useable open space. The use of single loaded streets to provide multi-purpose paths, park areas, or to protect stream corridors, may be proposed for this purpose. Open Space areas are encouraged to have street frontage and visibility. Any site proposed to be publicly dedicated or donated for park or open space purposes shall comply with the appropriate legislative body's requirements for acceptance of such dedications or donations.

5. Multi-Modal Transportation System: Planned Developments shall incorporate multi-modal transportation elements through the development, depending on the foreseeable needs of future residents and users of the site, and the relationship of the project site to the community at large. Such multi-modal elements may include provisions for mass transit stops or stations, car pooling lots, pedestrian and bicycle paths and lanes, bicycle parking areas, etc. Multi-modal facilities are encouraged to be combined with the pedestrian systems and open spaces described in Sections 1 and 4. Multi-modal facilities should connect to existing and future facilities that lie outside of the site.

6. Preservation of Existing Site Features: Existing topography, significant tree cover, tree lines along property lines, cemeteries, and water courses and water bodies shall be largely preserved and incorporated into the project design, where appropriate and consistent with the remainder of this article. The retention of such features may also fulfill portions of the requirements in Section 4 "Open Space" and Section 7 "Landscaping."

7. Landscaping: Substantial landscaping shall be provided in a Planned Development with emphasis given to street scape areas, buffer zones, and the provision of significant landscaping (in terms of size of landscape areas, and quantity and quality of landscape materials) within the developed portions of the site. The use of landscape design guidelines is required for multi-phased projects. The retention of existing healthy, substantial trees should occur wherever possible. Properly designed street tree plantings may be permitted to fulfill some landscaping requirements as part of an overall amenity package.

8. Architecture: Sites which are subject to architectural requirements through

adopted overlay districts or land use studies shall follow said requirements. For all other sites, a consistent architectural theme shall be provided in planned developments. The theme shall largely use traditional, regionally influenced architectural forms and elements and shall allow variations within it. Traditional styles such as Georgian, Federal, I-House, Cape Cod, Craftsman, Tudor, Queen Anne, Italianate, early 20th century commercial structures, and local farm structures may be used as models. Contemporary or transitional styles of comparable quality may also be considered. The architectural theme shall also relate to existing structures on the project site and adjacent sites, especially if such existing structures are historic.

9. For attached or multi-family residential developments and commercial or office developments, the predominant building materials shall have a solid appearance, such as could be achieved with brick, stone, and architectural grade cast concrete products designed to replicate natural materials. Roof designs shall have a finished appearance through the use of three dimensional pitched roof forms with architectural grade roofing and/or the use of defined parapets with cornice lines. Long building facades and roof planes shall be interrupted through the use of three dimensional jogs in the building footprint and secondary roof forms such as hips, dormers, and gables. Such buildings shall include architectural detailing for cosmetic enhancement, largely use natural colors, and use a consistent design treatment on all facades. The use of architectural guidelines or building prototypes is required for all multi-phased projects. Developments should be mixed-use in character with multi-level buildings where commercial services are proposed. Walkability must be planned for when locating commercial and residential uses in proximity to each other. Office and residential uses are strongly advocated above commercial uses in business districts to decrease dependence on the automobile.

10. Historic and Prehistoric Features: Historic and prehistoric features on the project site shall be retained, utilized, and incorporated into the overall project design if physically and economically feasible.

11. Signage: A consistent signage theme shall be provided within a Planned Development. Building mounted signs shall be the predominate signage on the project site. Freestanding signs shall be monument style and of a limited size and height. Signage shall visually correlate to the planned architectural theme by the use of consistent design details, materials, and colors. The use of signage design guidelines is required for multi-phased projects.

12. Transportation Connections and Entry Points: The provision of transportation connections (street connections, pedestrian paths, multi-purpose trails, sidewalks, and bicycle facilities) shall be provided in all planned development unless physically unfeasible or unsafe. This shall include connections to adjoining properties and developments, and inter-connectivity within the development itself, and contain minimal use of cul-de-sacs or other dead-end types of streets only when necessary. Transportation connections shall account for the County's adopted Transportation Plan and any adopted bikeway and/or pedestrian plans. In addition, the various entry points

(streets, paths, etc.) into a Planned Development shall be marked or otherwise defined through the use of landscaping, low-key signage on retaining walls, architectural or sculptural elements, archways, markers, etc. Any structures used to demarcate entry points shall visually correlate to the planned architectural theme by the use of consistent design details, materials, and colors.

13. Conformance with Comprehensive Plan: All Planned Developments shall conform to the provisions of the adopted Comprehensive Plan and take into account the limitations of existing or planned infrastructure.

14. Further, Concept Development Plan proposals within areas that are subject to a specific land use or corridor study shall be evaluated against the criteria or requirements of such study as well as the criteria in this section.

15. A Planned Development and its uses, buildings or structures shall be minimally subject to the supplemental performance and development standards of this order, unless superseded by any special requirements, conditions, variances or other particulars imposed by the Planning Commission during the concept or preliminary application and hearing phases described in this article. Such special conditions may include provisions governing, common open space, lands or facilities, disposition of open land, infrastructure provisions including any physical design and/or any other requirement found to be necessary, appropriate or desirable for the purposes of this district.

E. Section 3410 of the Boone County Zoning Regulations allows for the creation of special sign districts.

F. Section 3410.C of the Boone County Zoning Regulations provides criteria for the approval of a Special Sign District:

1. A Special Sign District shall be approved only if the legislative body finds that the proposed plan meets all of the standards set out in this article. If the legislative body finds that the proposed plan substantially meets such standards, it may approve the proposed plan subject to conditions that will cause it to meet these standards. Otherwise, the legislative body shall deny the application for plan approval:

   a. Each proposed sign generally conforms with all applicable standards of this article.
   b. The total amount of signage proposed for any building, wall, site, or portion of a site, generally conforms with all applicable standards of this article.
   c. The proposed allocation of allowed signage among eligible tenants, which shall be proportional to one of or a combination of the following criteria:

      (1) The number of public entrances to space leased to or controlled by each tenant or occupant;

(2) The linear feet of frontage of the space leased to or controlled by each tenant or occupant along the wall(s) containing public entrances; and/or

(3) The façade area of the building elevation(s) containing the public entrances to the spaces leased to or controlled by each tenant or occupant.

d. All proposed signs shall be part of a common design scheme, meeting at least the following criteria:

(1) The materials and design of all wall signs shall follow one design scheme;

(2) The materials and design of freestanding signs bearing commercial messages shall follow one design scheme, which may or may not be the same as the design scheme for wall signs;

(3) Each design scheme shall require consistency among signs for at least three of the following criteria: lighting design; color schemes; materials; shape; proportion; and/or type faces;

(4) If the design schemes for the wall signs and freestanding signs are different, they shall have in common at least two of the following criteria: lighting design; color schemes; materials; proportion; and

(5) The design scheme for freestanding signs shall use building materials, colors and, where applicable, architectural design features consistent with the materials, colors and architectural design features of the principal building on the site.

e. A determination shall be made that any signage that is proposed as part of a Special Sign District that does not conform to the requirements of this Article must be superior to the signage allowed under this Article.

<u>SITE CHARACTERISTICS</u>

A. The approximate 4 acre site is located at the southeast corner of the newly constructed intersection of North Bend Road with Hebron Station Drive.

B. The site is currently vacant.

C. Topographically, the site is being graded for development.

D. The site is located within the 55 day/night noise level of the airport.

ADJACENT LAND USES AND ZONING

North: Hebron Fire Station (PF)

South: 256 multi-family apartments (Hebron Station under construction) (C-2/PD)

East: 256 multi-family apartments (Hebron Station under construction) (C-2/PD)

West: Kroger (C-2/PD and industrial (I-1)

RELATIONSHIP TO COMPREHENSIVE PLAN

A. Our Boone County – Plan 2040 "2040 Future Land Use Plan" designates the site for "Commercial" and "Public/Institutional" uses which is described as follows:

   1. Public/Institutional – - Government offices, schools, libraries, churches, cemeteries, fairgrounds, maintenance areas, etc.
   2. Commercial - Retail, corporate and professional office, interchange commercial, indoor commercial recreation, restaurants, services, etc.

B. North Bend Road is a state maintained arterial street providing for two way traffic within four driving lanes and dedicated turn lanes. Hebron Station Drive is being constructed as a County maintained subcollector street providing for two way traffic within two driving lanes. As part of the new intersection, an exclusive right-turn lane is being constructed on northbound North Bend Road.

PROPOSED CONCEPT PLAN

A. The applicant is proposing the following:

   1. Construction of a convenience store with gasoline pumps:

      a. 5,915 square foot building
      b. 8 gasoline pumps providing for 16 filling stations

   2. Construction of an eating and drinking establishment:

      a. 6,626 square foot building with a 257 person seating capacity
      b. 2,067 square foot outside patio

   3. Access from a right-turn only curb cut onto Hebron Station Drive.
   4. Access from three curb cuts onto the internal private street.
   5. Provision for forty-five (45) off-street parking spaces on the WaWa site.
   6. Provision for one hundred sixty (160) off-street parking spaces on the Longnecks site.
   7. Provision for landscape buffers.

B. The applicant has submitted a project narrative and a traffic impact study

STAFF COMMENTS

A. The following is an analysis of the proposed concept development plan against the zoning regulations:

1. Section 3111 requires a minimum side yard setback of ten (10) feet. The proposed Longnecks building will have a side yard setback of seven (7) feet (this requirement can be modified under the PD regulations).

2. Section 3153.A states that accessory structures shall be placed in the side or rear yard only. The submitted plan indicates that the proposed trash enclosures will be located within corner side yards (this requirement can be modified under the PD regulations).

3. Section 3221.A.2 states that there shall be one access point for every five hundred (500) feet of lot frontage. The submitted plan indicates that the proposed WaWa site will have less than five hundred (500) feet of frontage along the internal street and that there will be two curb cuts (this requirement can be modified under the PD regulations).

4. Section 3230.A states that the maximum width of a curb cut for an urban commercial use shall not exceed thirty-five (35) feet. The submitted concept plan indicates that the two curb cuts onto the internal street will each have a width of forty (40) feet (this requirement can be modified under the PD regulations).

5. Section 3316.A.3 states that site lighting shall not exceed one (1) footcandle at all property lines. The submitted concept plan indicates that lighting for the WaWa site will exceed this requirement along a portion of the east property line (this requirement can be modified under the PD regulations).

6. Section 3620.A requires a Buffer Yard A, having a minimum depth of ten (10) feet, to be provided along all street frontages. The submitted concept plan shows that a portion of the street frontage along North Bend Road will have a buffer yard depth of less than ten (10) feet (this requirement can be modified under the PD regulations).

7. The following table provides a summary of the sign regulations versus the proposed sign package:

   a. WaWa

Free Standing

	Allowed	Proposed (S7)	Proposed (S8)
Type	Monument or Architectural	Monument	Monument
Number	1	1	1
Maximum Sign Area	200 sq. ft.	81 sq. ft.	62 sq. ft.
EMC Reader Board	20% or 20 sq. ft.	30%/24 sq. ft.	21%/13 sq. ft.
Maximum Height	30 ft.	20 ft.	10 ft.

Directional

	Allowed	Proposed
Maximum Sign Area	6 sq. ft.	3 sq. ft.
Maximum Height	5 ft	2'-10"

Canopy

	Allowed	Proposed
Number	3 sides	1 side
Maximum Sign Area	25% of fascia	5% of fascia
Location	Not above or below fascia	39 sq. ft. signs below fascia

Building Mounted

	Allowed	Proposed
Front Elevation		
Number	1	4
Maximum Sign Area	182 sq. ft	182 sq. ft.
Rear Elevation		
Number	1	3
Maximum Sign Area	91 sq. ft.	99 sq. ft.
Side Elevation		
Number	1	1
Maximum Sign Area	70 sq. ft.	43 sq. ft.
Side Elevation		
Number	0	1
Maximum Sign Area	0 sq. ft.	43 sq. ft.

b. Longnecks

Free Standing

	Allowed	Proposed
Type	Monument or Architectural	Architectural
Number	1	2
Maximum Sign Area	200 sq. ft.	56 sq. ft.
Manual Reader Board	50% max.	50%
Maximum Height	30 ft.	10 ft.

Building Mounted

	Allowed	Proposed
Front Elevation		
Number	1	1
Maximum Sign Area	240 sq. ft.	48 sq. ft.
Side Elevation		
Number	1	1
Maximum Sign Area	55 sq. ft.	24 sq. ft.

STAFF CONCERNS

A. The following modifications are being requested under the use of the PD regulations:

1. Reduction of the side yard setback for the Longnecks building from ten (10) feet to seven (7) feet.
2. Allow dumpster enclosures to be located within corner side yards.
3. Allow two access points onto the internal street for the WaWa site.
4. Increase the width of curb cuts from thirty-five (35) feet to forty (40) feet.
5. Allow external lighting to exceed one (1) footcandle along the east property line of the WaWa site.
6. Reduce the Buffer Yard A width from ten (1) feet to five (5) feet for a portion of the Longnecks site along North Bend Road.

B. Section 1506.A.8 and Section 1506.A.9 (Planned Development Criteria), address the need for enhanced architecture, building design, and façade treatment for commercial buildings within Planned Development (PD) districts.

The submitted building elevations for the proposed Longnecks building are void of any windows, façade articulation, or interrupted roof planes. The applicant should address these inadequacies and how they intend to modify the east and west building facades to better address the required standards.

C. The west building façade (facing North Bend Road) of the WaWa building should be provided with a defined base, mid-section, and top or cap. The applicant should address what modifications can be made to this façade to accomplish this design criteria.

D. The following comments are from Rob Franxman, County Engineer:

1. Spacing of Drive A from KY 237 should be verified to ensure spacing meets subdivision regulations. Pedestrian traffic should be considered at this location and sight distances should be verified during the encroachment permit process.
2. KYTC should comment on the spacing of Drive A and the interaction with performance of the signal.
3. KYTC should comment on alterations to the signal and phasing modifications.

CONCLUSION

A. The request for the proposed change of concept development plan and special sign district needs to be evaluated by the Boone County Planning Commission and Boone Fiscal Court in terms of Articles 3, 15 and 34 of the Boone County Zoning Regulations, the appropriate planning documents noted herein, and the potential impacts on existing and planned uses in the area.

Respectfully submitted,

Michael D. Schwartz
Director, Zoning Services

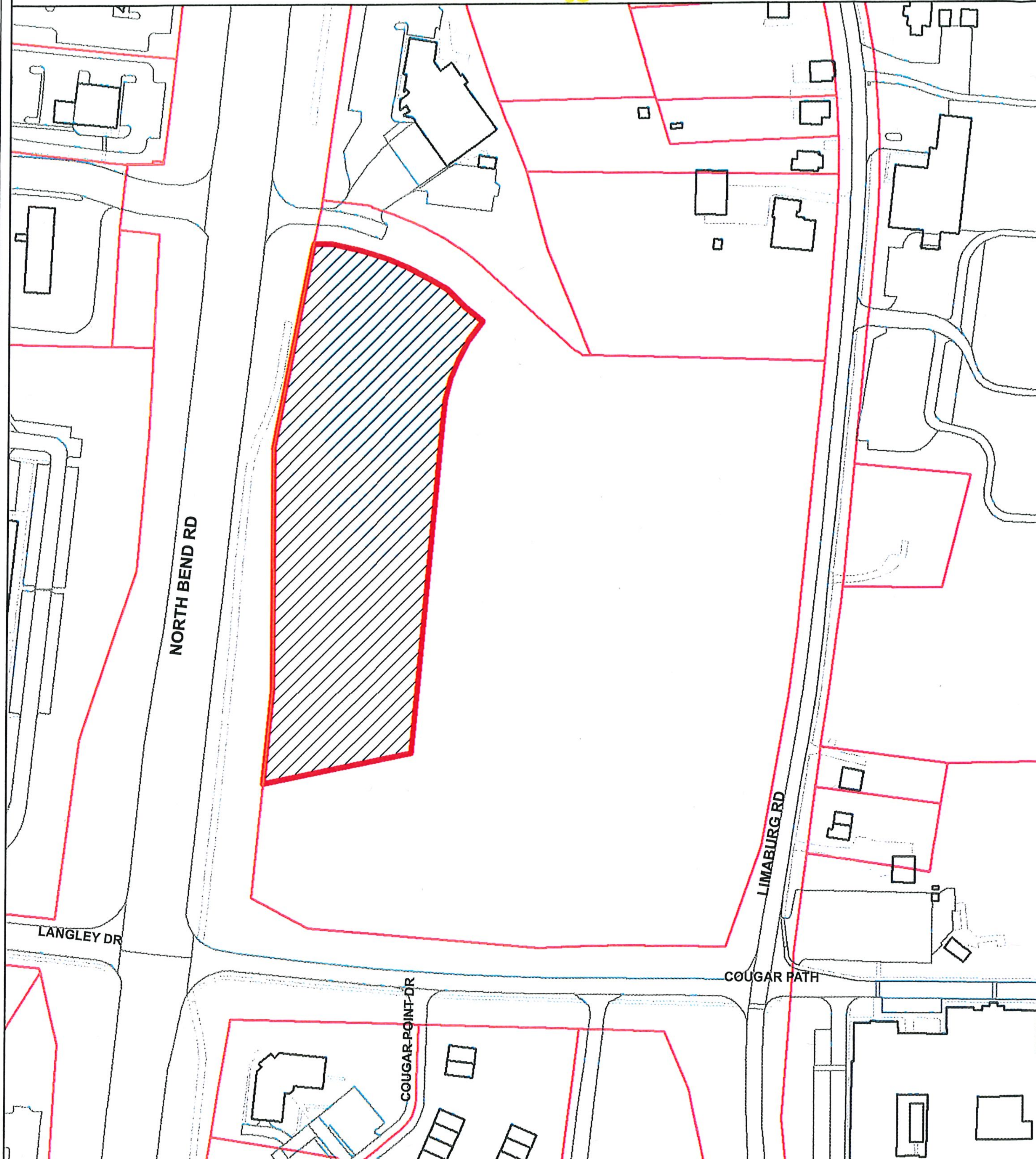
MDS/ss

Attachments:

*Vicinity Map
*Aerial Map
*Topographic Map
*Zoning Map
*2040 Future Land Use Map
*Noise Contour Map
*Previously Approved Concept Development Plan
*Overall Concept Development Plan
*Application
*Project Narrative
*Traffic Impact Study
*Concept Development Plan

Vicinity Map

www.boonecountygis.com



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0 100 200 400 600 800 Feet

1 inch = 200 feet

N W E S

Boone County GIS - Putting Northern Kentucky on the Map

Map Created: xx/xx/2022

ArcMap Document: *.mxd

Aerial Map

www.boonecountygis.com

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0 100 200 400 600 800 Feet

1 inch = 200 feet

N S E W

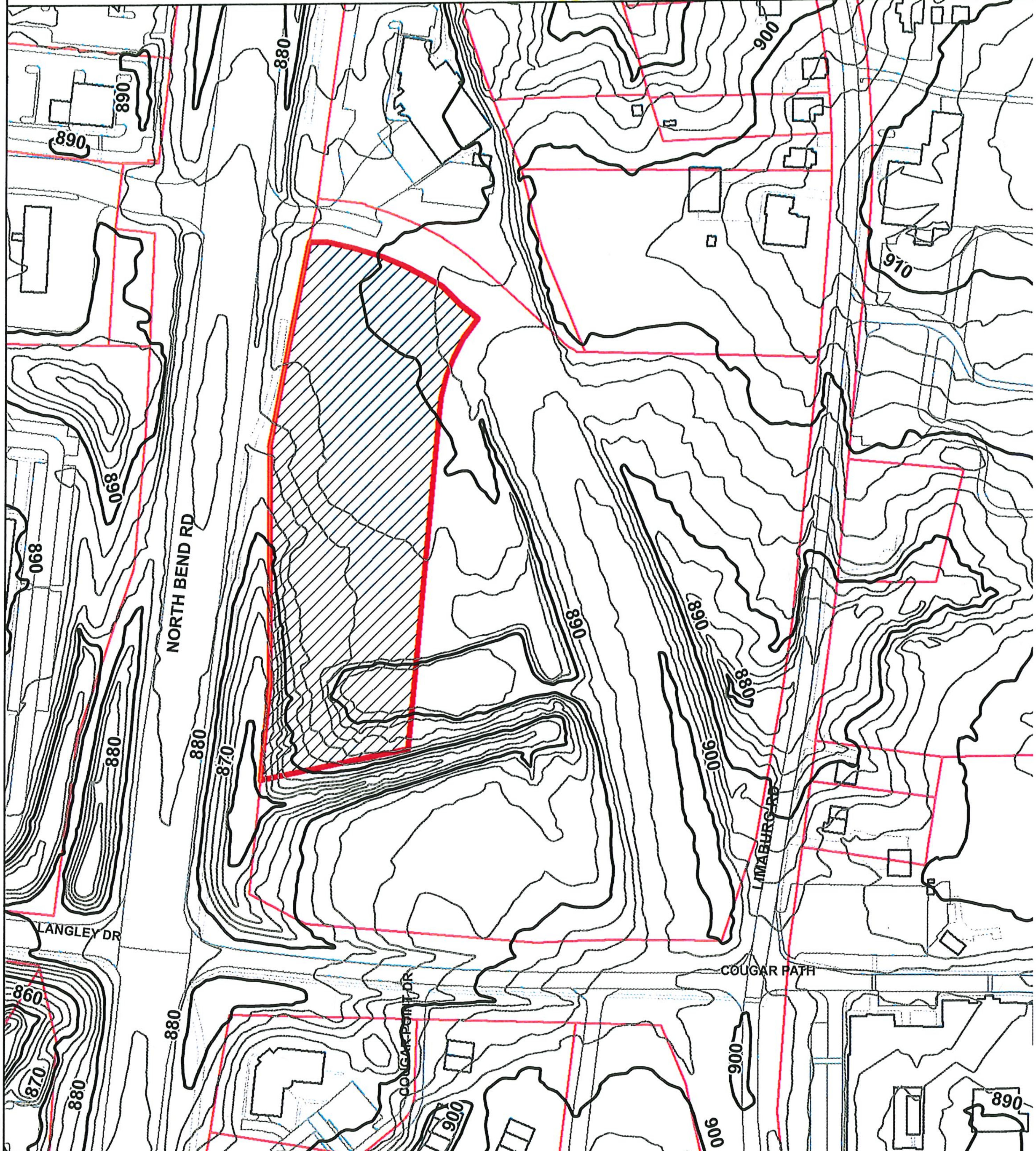
Boone County GIS - Putting Northern Kentucky on the Map

Map Created: xx/xx/2022

ArcMap Document: *.mxd

Topographic Map

www.boonecountygis.com



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1 inch = 200 feet

N W E S

Boone County GIS - Putting Northern Kentucky on the Map

Map Created: xx/xx/2022

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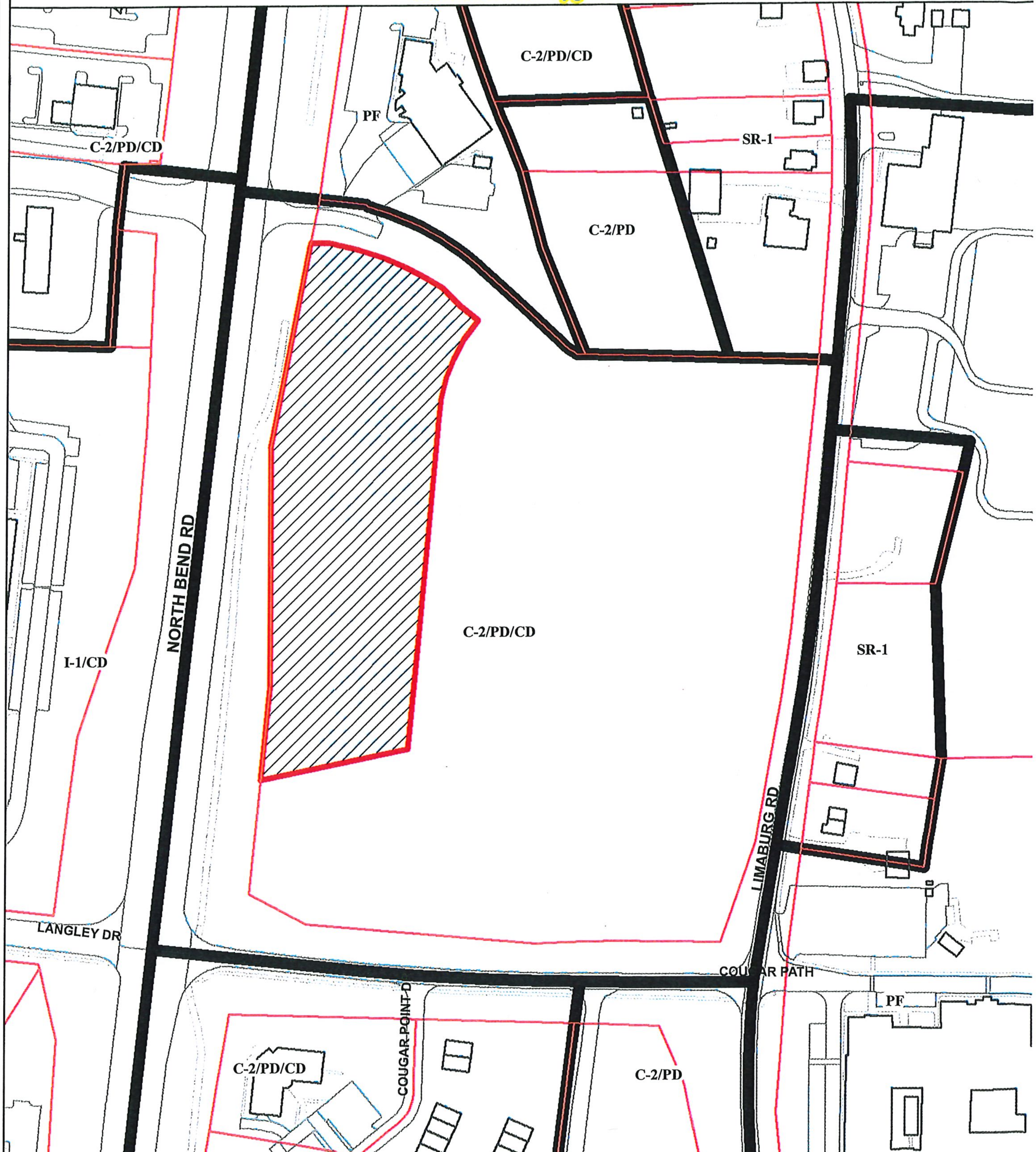
Zoning Map

www.boonecountygis.com



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1 inch = 200 feet

N W E S

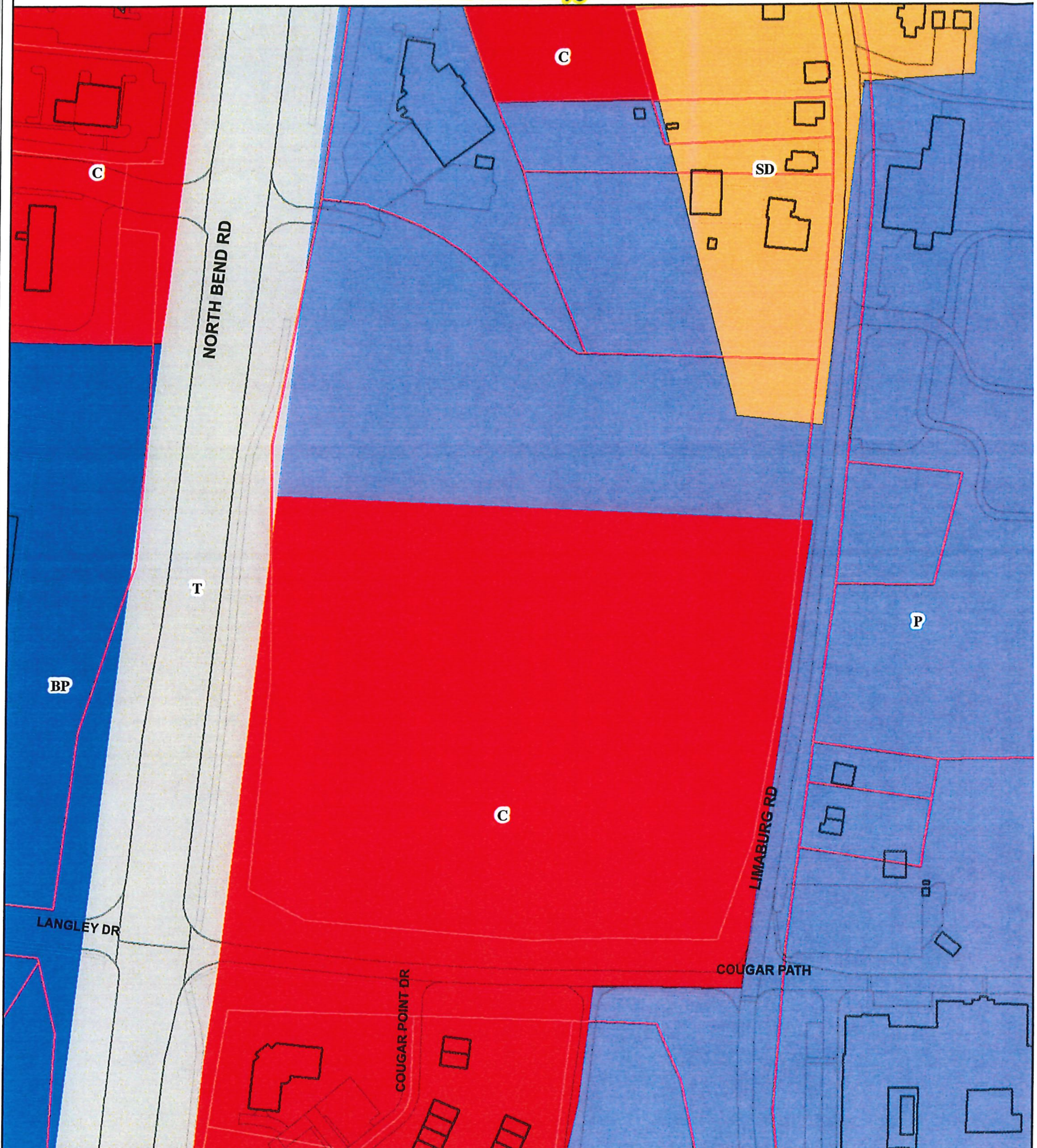
Boone County GIS - Putting Northern Kentucky on the Map

Map Created: xx/xx/2022

ArcMap Document: *.mxd

2040 Future Land Use Map

www.boonecountygis.com



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N W E S

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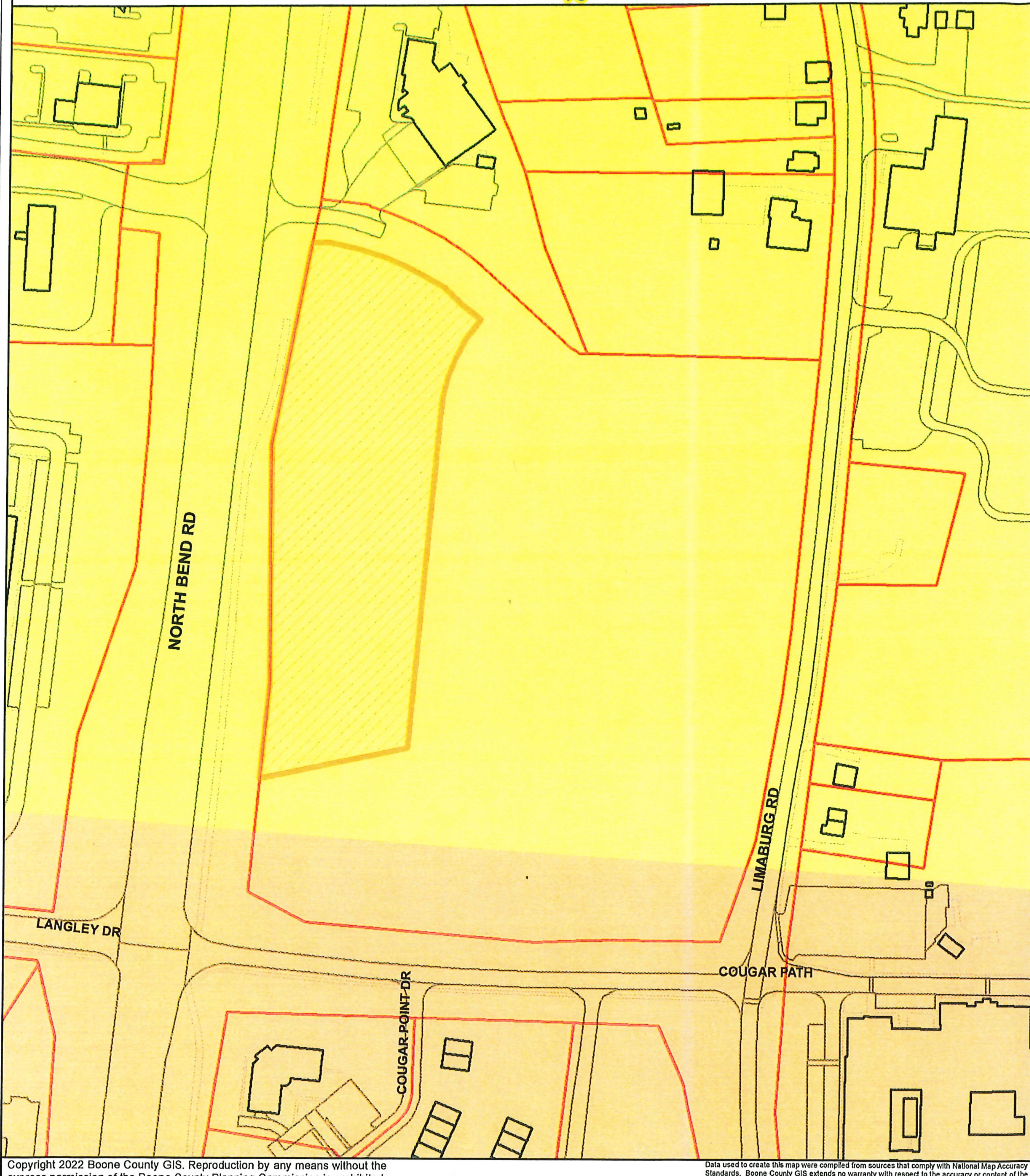
ArcMap Document: *.mxd

Noise Contour Map

www.boonecountygis.com



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0 100 200 400 600 800 Feet

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N W E S

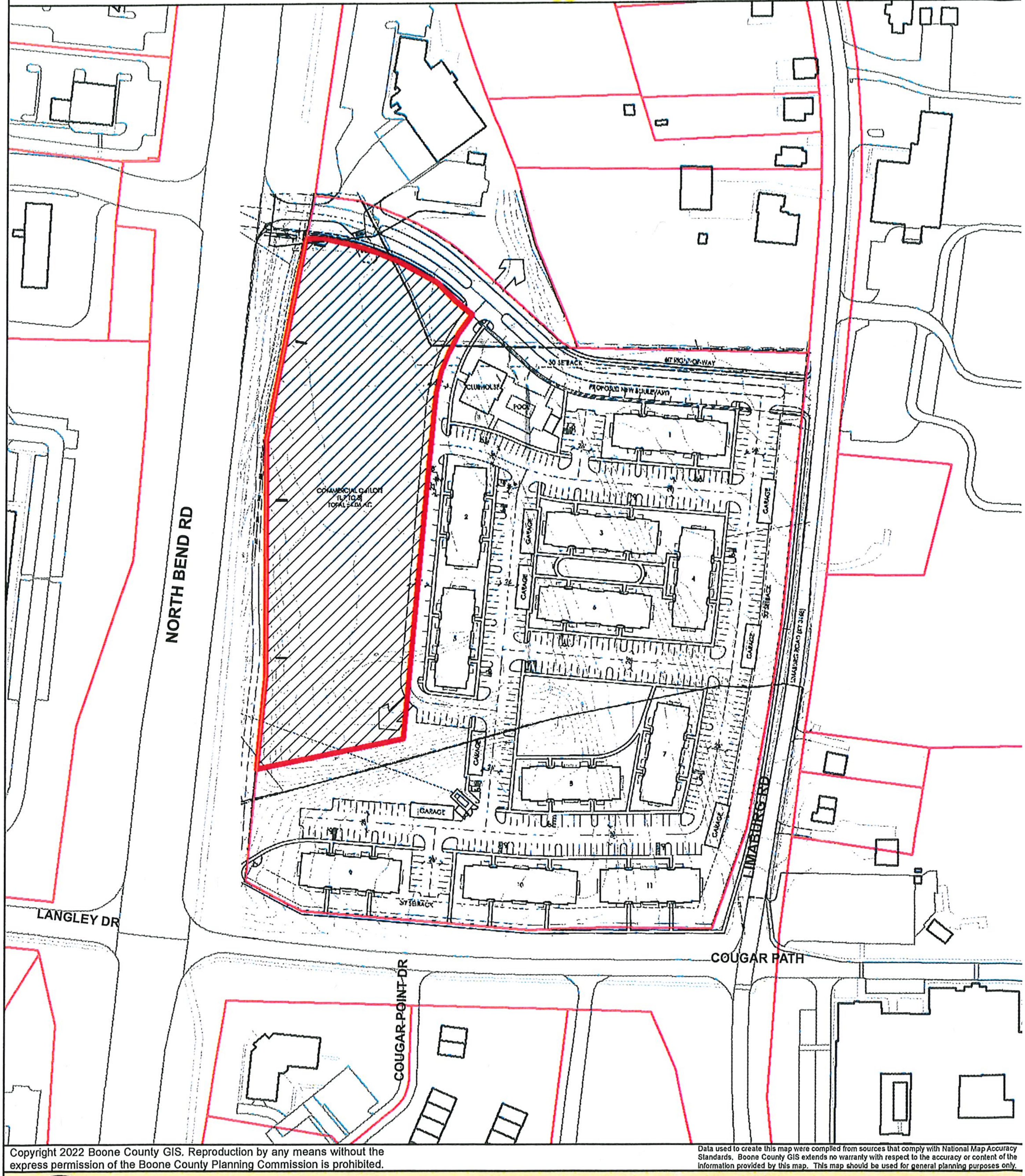
Boone County GIS - Putting Northern Kentucky on the Map

Map Created: xx/xx/2022

ArcMap Document: *.mxd

Previously Approved Concept Development Plan

www.boonecountygis.com



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0 100 200 400 600 800 Feet

1 inch = 200 feet

N W E S

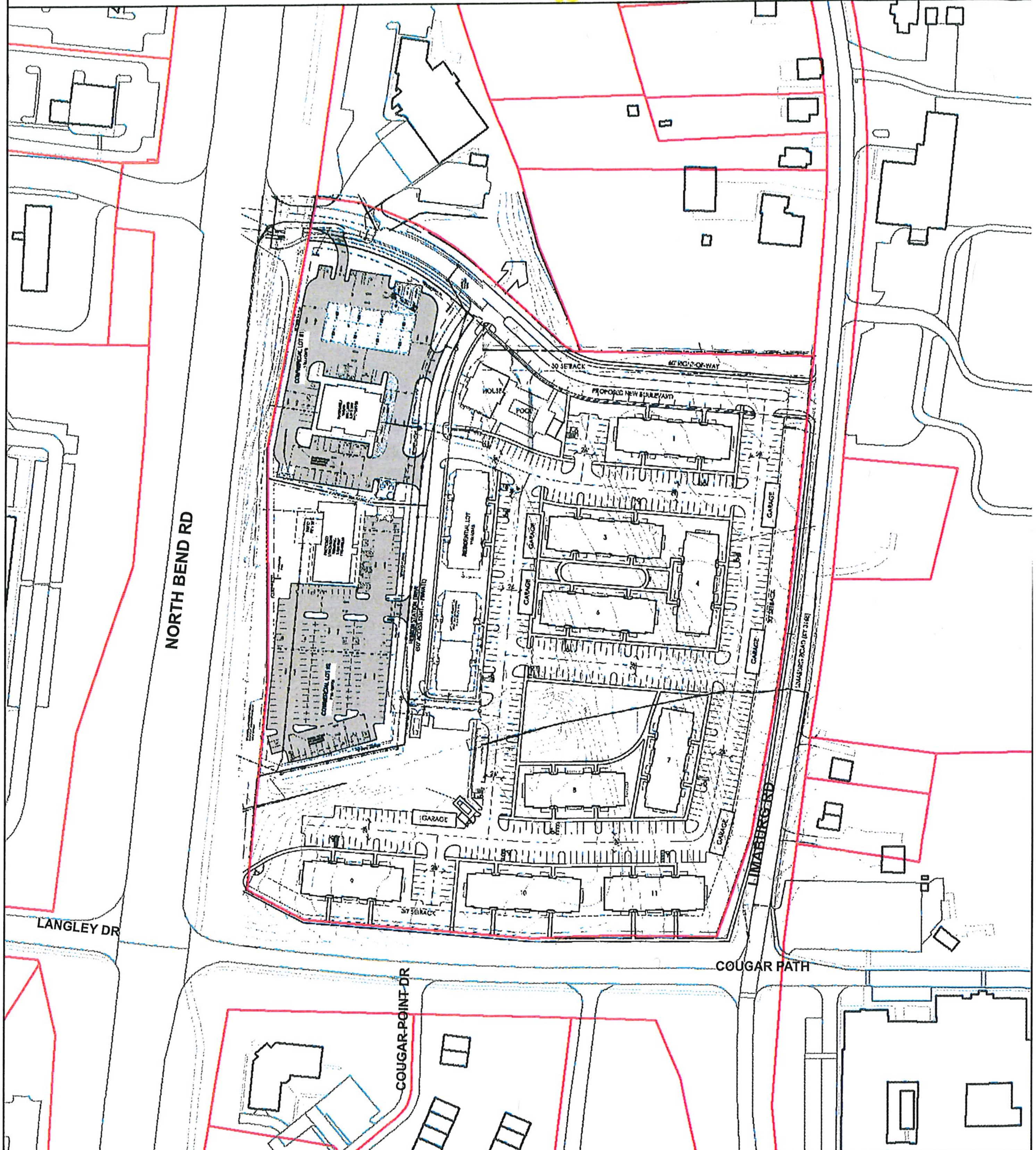
Boone County GIS - Putting Northern Kentucky on the Map

Map Created: xx/xx/2022

ArcMap Document: *.mxd

Overall Concept Development Plan

www.boonecountygis.com



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1 inch = 200 feet

N W E S

Boone County GIS - Putting Northern Kentucky on the Map

Map Created: xx/xx/2022

ArcMap Document: *.mxd

CONCEPT DEVELOPMENT PLAN
BOONE COUNTY PLANNING COMMISSION

RECEIVED
89881
FEB 02 2024
BOONE COUNTY
PLANNING COMMISSION

Seven (7) copies of submitted drawings are required

An application consists of all fees paid in full, submitted drawings, and a completed application form

SECTION A: (To be completed by applicant)

1. Type of review (check one):
   - [✓] Concept Development Plan (includes Utilization of an Underlying Zone in a Planned Development)
   - [ ] Change in an Approved Concept Development Plan
   - [ ] Long Range Planning Committee Review (as stated in the Houston-Donaldson Study)
   - [ ] Long Range Planning Committee Review (as stated in the Union Town Plan)
   - [ ] Zone Change Committee Review of previously approved Concept Development Plan Conditions or Zoning Map Amendment Conditions
   - [ ] Zoning Administrator Review (as stated in the Central Florence Strategic Plan, An Update of the Parkway Corridor Study)
   - [ ] Zoning Administrator Review (as stated in the Mall Road District Study)
   - [ ] Zoning Administrator Review (as stated in the I-275/Graves Road Interchange Study)
2. Name of Project: Hebron Station - commercial lots
3. Location of Project: Southeast corner of Hebron Station and KY 237/North Bend Road
4. Total Acreage of Project: 4.1 acres
5. Current Zoning of Property: C-2/PD/CD
6. Date of previous zoning map amendment or Approved Concept Development Plan (if applicable): 10-11-2022 Ordinance 2022-23
7. Is the site subject to a specialized Land Use Study approved by the Boone County Planning Commission [ ] Yes [✓] No
   If yes, indicate the name of the study: ______
8. Proposed Use(s) (specify each use):
   Convenience store with gasoline filling station and Eating and drinking establishment
9. Proposed Building Intensities (specify for each building):
   Convenience store - 5,920 +/- SF; Eating and drinking establishment - 6,630 +/- SF
10. Have you submitted a Concept Development Plan: [✓] Yes [ ] No
11. Are you applying for any of the following (check all that apply):
    [ ] Conditional Use Permit [ ] Variance
12. Current Owner: BRG Hebron Station LLC

    Address: 7265 Kenwood Road, Suite 111

Cincinnati	OH	45236
City	State	Zip Code

    Phone Number: 513-237-3408 Fax Number: 513-936-4151

    Email: rcroswell@brgapartments.com
13. Applicant: Anchor Properties (Nate Stark)

Address: Anchor Properties, Inc. 128 E. 2nd Street

Covington	KY	41011
City	State	Zip Code

Phone Number: 859-578-2628 Fax Number: 859-578-2629

Email: nstark@anchor-prop.com

14. Are there any existing buildings on the site: ☐ Yes ☑ No
If yes, indicate how many: __________

714	70	2007
Deed Book	Page Number	Group Number

15. (see above)

16. Have you had a pre-application meeting with the BCPC staff: ☑ Yes ☐ No

17. Have you met or discussed your proposed development with any of the following organizations/agencies (check all that apply):

Prior to construction of improvements, the applicant is recommended to submit copies of the Site Plan to the appropriate organizations/agencies prior to approval by the Boone County Planning Commission.

- ☐ Boone County Building Department
- ☐ Boone County Public Works Department
- ☑ Boone County Water District
- ☐ Cincinnati Bell
- ☐ Cincinnati/Northern Kentucky International Airport (Kentucky Airport Zoning Commission for height restrictions near the airport)
- ☐ Duke Energy
- ☐ Florence Public Services Department
- ☐ Kentucky Division of Water
- ☑ Kentucky Transportation Cabinet
- ☐ Local Fire District
- ☐ Local School District
- ☐ Northern Kentucky Health Department
- ☐ Owen Cooperative Electric, Inc.
- ☑ Sanitation District No. 1
- ☐ USDA NRCS/Boone County Conservation District
- ☐ Other: __________

18. Concept Development Plan Jurisdiction/Location (check all that apply):
☑ Unincorporated Boone ☐ Florence ☐ Walton ☐ Union

19. Waiver of 60 Day Time Requirement by Originator for Final Planning Commission Action:

In accordance with the provisions of KRS 100.211, the applicant(s) and property owner(s) or originator(s) hereby waive the 60 day time limit for the Boone County Planning Commission to take final action on my (our) Zoning Map Amendment/Concept Development Plan application. This time limit waiver is considered effective immediately upon receipt by the Boone County Planning Commission and expires on April 18, 2024

BRG Hebron Station, LLC
By: BRG Realty Group, LLC
Its: Manager

Property Owner's Signature: Andrew N Yunnelli
Andrew R. Yunnelli, VP

ANCHOR PROPERTIES, INC.

Applicant's Signature: Nate Stark V. P.

SECTION B: (To be completed by Planning Commission staff)

1. Date Received: 2/2/2024 Fee Received: $2398.00 Receipt #: 89881

2. Number of Copies Received: ____________

3. Has the following been submitted (check all that apply):

   ☐ Completed Application
   ☐ Concept Development Plan
   ☐ Legal Description
   ☐ Names and Mailing Addresses of Adjacent Property Owners

4. Date the application is Administratively Complete (as defined in KRS 100.211): ____________

5. Staff Reviewer: ____________

6. Committee Chairperson: ____________

7. Scheduled Public Hearing Date: ____________

8. Boone County Planning Commission Action: Date of Action: ____________

   ____________ Approved

   ____________ Approved with Conditions

   ____________ Denial

   ____________ Other

Boone County Planning Commission
Boone County Administration Building
2950 Washington Street, Room 317
P.O. Box 958
Burlington, Kentucky 41005
Phone: 859-334-2196 Fax: 859-334-2264
plancom@boonecountyky.org
www.boonecountyky.org

ZONING MAP AMENDMENT
BOONE COUNTY PLANNING COMMISSION

RECEIVED
FEB 02 2024
BOONE COUNTY PLANNING COMMISSION

Seven (7) copies of submitted drawings are required.

An application consists of all fees paid in full, submitted drawings, and a completed application form

SECTION A: (To be completed by applicant)

1. Name of Project: Hebron Station Commercial Lots Special Sign District
2. Location of Project: Southeast corner of Hebron Station and KY 237/North Bend Road
3. Total Acreage of Project: 4.1 acres
4. Current Zoning of Property: C-2/PD/CD
5. Proposed Zoning of Property (classification being requested): C-2/PD/CD - Special Sign District
6. Proposed Use(s) (specify each use): Convenience store with gasoline filling station and Eating and drinking establishment
7. Proposed Building Intensities (specify for each building): Convenience store - 5,920 +/- SF; Eating and drinking establishment - 6,630 +/- SF
8. Are you applying for any of the following (check all that apply):
   ☐ Conditional Use Permit ☐ Variance
9. Current Owner: BRG Hebron Station LLC
   Address: 7265 Kenwood Road, Suite 111
   Cincinnati (City) OH (State) 45236 (Zip Code)
   Phone Number: 513-237-3408 Fax Number: 513-936-4151
   Email: rcroswell@brgapartments.com
10. Applicant: Anchor Properties (Nate Stark)
    Address: Anchor Properties, Inc., 128 E. 2nd Street
    Covington (City) KY (State) 41011 (Zip Code)
    Phone Number: 859-578-2628 Fax Number: 859-578-2629
    Email: nstark@anchor-prop.com
11. Are there any existing buildings on the site: ☐ Yes ☑ No
    If yes, indicate how many:

12. 714 — Deed Book; 70 — Page Number; 2007 — Group Number

13. Have you had a pre-application meeting with the BCPC staff: [x] Yes [ ] No

14. Have you submitted a Concept Development Plan: [x] Yes [ ] No

15. Have you met or discussed your proposed development with any of the following organizations/agencies (check all that apply):

- [ ] Boone County Building Department
- [ ] Boone County Public Works Department
- [x] Boone County Water District
- [ ] Cincinnati Bell
- [ ] Cincinnati/Northern Kentucky International Airport (Kentucky Airport Zoning Commission for height restrictions near the airport)
- [ ] Duke Energy
- [ ] Florence Public Services Department
- [ ] Kentucky Division of Water
- [x] Kentucky Transportation Cabinet
- [ ] Local Fire District
- [ ] Local School District
- [ ] Northern Kentucky Health Department
- [ ] Owen Cooperative Electric, Inc.
- [x] Sanitation District No. 1
- [ ] USDA NRCS/Boone County Conservation District
- [ ] Other: ______

16. Concept Development Plan Jurisdiction/Location (check all that apply):
[x] Unincorporated Boone [ ] Florence [ ] Walton [ ] Union

17. Waiver of 60 Day Time Requirement by Originator for Final Planning Commission Action:

In accordance with the provisions of KRS 100.211, the applicant(s) and property owner(s) or originator(s) hereby waive the 60 day time limit for the Boone County Planning Commission to take final action on my (our) Zoning Map Amendment/Concept Development Plan application. This time limit waiver is considered effective immediately upon receipt by the Boone County Planning Commission and expires on April 18, 2024

BRG Hebron Station, LLC
By: BRG Realty Group, LLC
Its: Manager

Property Owner's Signature: [signature]
Andrew R. Giannella, VP

ANCHOR PROPERTIES, INC.

Applicant's Signature: [signature] V.P.

SECTION B: (To be completed by Planning Commission staff)

1. Date Received: 2/2/2024 Fee Received: $2000 – Receipt #: ~~[illegible]~~ 89882

2. Number of Copies Received: ______

3. Has the following been submitted (check all that apply):

   - ☐ Completed Application
   - ☐ Concept Development Plan
   - ☐ Legal Description
   - ☐ Names and Mailing Addresses of Adjacent Property Owners

4. Date the application is Administratively Complete (as defined in KRS 100.211): ______

5. Staff Reviewer: ______

6. Committee Chairperson: ______

7. Scheduled Public Hearing Date: ______

8. Boone County Planning Commission Action: Date of Action: ______

   ______ Approved

   ______ Approved with Conditions

   ______ Denial

   ______ Other

9. Resolution Number: ______

Boone County Planning Commission
Boone County Administration Building
2950 Washington Street, Room 317
P.O. Box 958
Burlington, Kentucky 41005
Phone: 859-334-2196 Fax: 859-334-2264
plancom@boonecountyky.org
www.boonecountyky.org

McBride DALE CLARION

February 1, 2024

Michael Schwartz
Zoning Administrator
Boone County Planning Commission
2950 Washington Street, Room 317
Burlington, Kentucky 41005

Overnight Delivery

RE: Concept Development Plan Application – Hebron Station Commercial Lots – KY 237/North Bend Road, Boone County, KY

Mr. Schwartz:

I am transmitting this letter and the enclosed materials requesting approval of a Concept Development Plan for the commercial lots in the Hebron Station development. The Concept Development Plan is for two lots containing a total of 4.1 acres at the southeast corner of Hebron Station Drive and KY 237/North Bend Road. The property is owned by BRG Hebron Station LLC. Anchor Properties has a contract to purchase 1.99 acres and plans to build a Wawa convenience store with fuel sales on the northern commercial lot, and Longnecks has a contract to purchase 2.07 acres and plans to build a new Longnecks Sports Grill on the southern commercial lot.

The property is currently zoned C-2/PD/CD by Ordinance 2022-23 and is approved for a mixed use commercial and multi-family development. The approved multi-family apartments are currently under construction, including the construction and extension of Hebron Station Drive from North Bend Road to Limaburg Road. The Concept Development Plan application proposes development of the western commercial portion of the Hebron Station project for a 5,920 SF +/- Wawa store with 8 fuel dispenser islands on proposed commercial lot #1, and a 6,630 SF +/1 Longnecks Sports Grill eating and drinking establishment on proposed commercial lot #2. A project description is enclosed.

I am transmitting the following information:

- A Concept Development Plan Application with original signatures.
- 7 copies of the Project Description for the Concept Development Plan.
- Adjoining property owners list.
- Legal description.
- 7 full sized and 1 reduced 8.5x11 copies of the 2-page Concept Development Plan.
- 7 full sized and 1 reduced 8.5x11copies of proposed building elevations and floor plans for the Longnecks and Wawa store.
- 7 full sized and 1 reduced 8.5x11 copies of lighting plans for the Wawa store.
- A copy of the traffic impact study.
- A check in the amount of $2,398.00 for fees associated with this request.
- A flash drive containing PDFs of the enclosed material.

It is my understanding that the application will be reviewed by the Boone County Planning Commission at a public hearing on March 6, 2024. Please transmit a copy of the meeting agenda and staff report when available.

Please review and contact me if additional information is needed. Please copy me on correspondence related to this application so that I can coordinate with the project team. I can be reached at 513-561-6232x4 or jwocher@mcbridedale.com. Thank you for your assistance and our team looks forward to working with you.

Sincerely,

Jonathan Wocher

Jonathan Wocher, AICP, LEED GA
MDC #4894

Copy: Anchor Properties, Longnecks and Cardinal Engineering

McBride DALE CLARION

February 1, 2024

Michael Schwartz
Zoning Administrator
Boone County Planning Commission
2950 Washington Street, Room 317
Burlington, Kentucky 41005

Overnight Delivery

RE: Special Sign District Application – Hebron Station Commercial Lots – KY 237/North Bend Road, Boone County, KY

Mr. Schwartz:

I am transmitting this letter and the enclosed materials requesting the creation of a Special Sign District for the commercial lots in the Hebron Station development. The Special Sign District is for two lots containing a total of 4.1 acres at the southeast corner of Hebron Station Drive and KY 237/North Bend Road. The property is owned by BRG Hebron Station LLC. Anchor Properties has a contract to purchase 1.99 acres and plans to build a Wawa convenience store with fuel sales on the northern commercial lot, and Longnecks has a contract to purchase 2.07 acres and plans to build a new Longnecks Sports Grill on the southern commercial lot.

The property is currently zoned C-2/PD/CD by Ordinance 2022-23 and is approved for a mixed use commercial and multi-family development. A description of the Special Sign District is included explaining the proposed signs for the Wawa and Longnecks Sports Grill.

I am transmitting the following information:

- A signed Zone Map Amendment Application for the Special Sign District.
- 7 copies of the Project Description for the Special Sign District.
- Adjoining property owners list.
- Legal description.
- 7 full sized and 1 reduced 8.5x11 copies of the Concept Development Plan (highlighting proposed ground sign locations) and building elevations for Longnecks and Wawa.
- 7 11x17 and 1 reduced 8.5x11copies of proposed Wawa sign plans.
- 8 8.5x11copies of proposed Longnecks sign plans.
- A check in the amount of $2,000.00 for fees associated with this request.
- A flash drive containing PDFs of the enclosed material.

It is my understanding that the application will be reviewed by the Boone County Planning Commission at a public hearing on March 6, 2024. Please transmit a copy of the meeting agenda and staff report when available.

Please review and contact me if additional information is needed. Please copy me on correspondence related to this application so that I can coordinate with the project team. I can be

5721 Dragon Way Suite 300 ▪ Cincinnati, Ohio 45227 ▪ (513)561.6232 ▪ fax: (513)561.1615

reached at 513-561-6232x4 or jwocher@mcbridedale.com. Thank you for your assistance and our team looks forward to working with you.

Sincerely,

Jonathan Wocher, AICP, LEED GA
MDC #4894

Copy: Anchor Properties, Longnecks and Cardinal Engineering

College of Engineering
Kentucky Transportation Center

TECHNOLOGY TRANSFER PROGRAM

TRAFFIC IMPACT STUDY COURSE
Certificate of Completion (3.5 PDH)

Jamal Adhami
KY PE License No. 23473

Completed: 06/17/2022
Expires: 06/17/2026
Company: University of Kentucky

TIM THARPE
Tim Tharpe, KYTC
Director of Traffic Operations

Adam Kirk, Instructor

The official status of this certificate can be verified with the KYTC Division of Traffic Operations

UPDATED TRAFFIC IMPACT STUDY

FOR

FLICK PROPERTY

HEBRON, BOONE COUNTY, KY

Prepared For:
Anchor Properties, Inc.
128 E. 2nd Street
Covington, KY 41011

Prepared By:
Jamal Adhami, PE, PTOE
SHA Engineering, LLC
August 02, 2022
Revised January 04, 2024

Table of Content

Figures

Tables

List of Appendices

1. Introduction

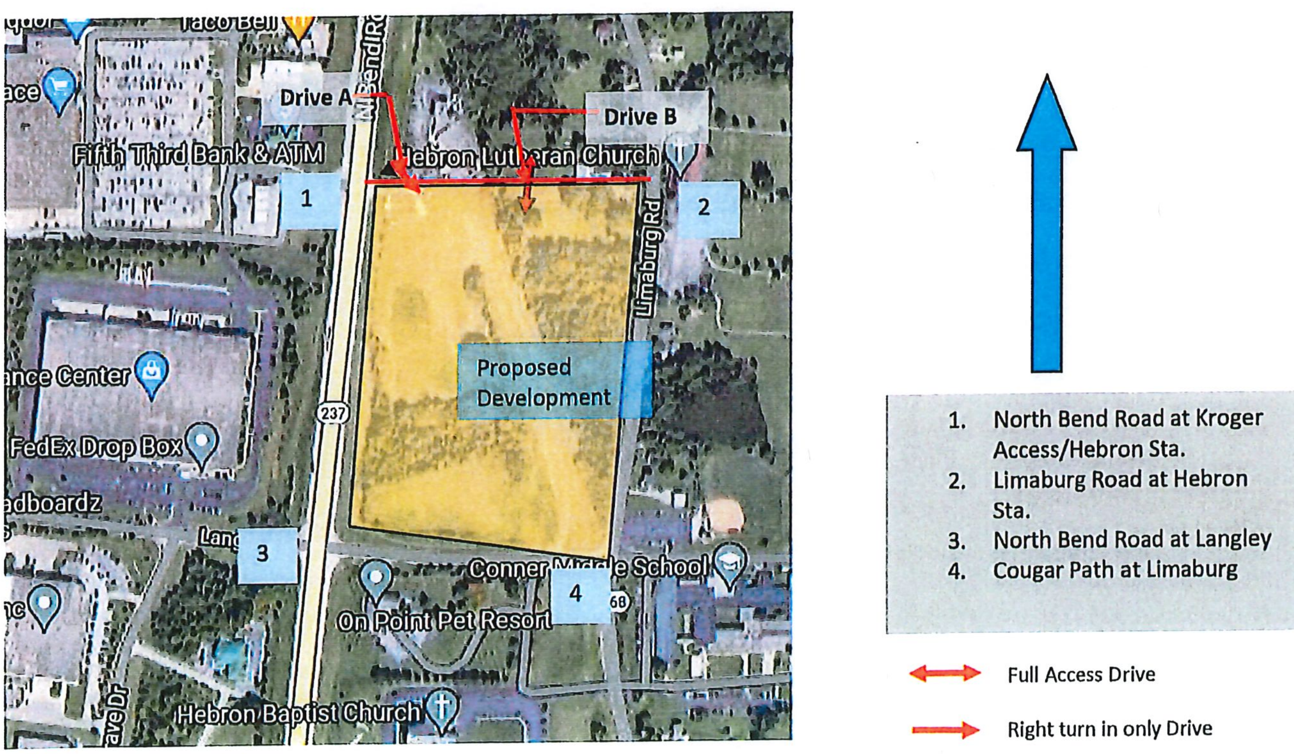
The purpose of this Traffic Impact Study (TIS) is to:

- *Provide an update to the previous TIS (dated August 02, 2022) to include specific users for the commercial portion of the development.*
- *Describe and measure the impact of traffic generated by the proposed residential and commercial development on the adjacent roadway network.*
- *Provide a list of conclusions and recommendations related to traffic operations and analysis at the intersections included in the study area including the access location for the new development.*

The development is proposed north of Cougar Path. The east side of the development abuts Limaburg Road. The intended development includes approximately 264 dwelling units of multifamily residential, a Convenience Market with Fuel stations with 16 pumps and a 5455 SFT Sit Down Restaurant. The access to the new development is proposed through driveways on Hebron Station Drive, a new road currently under construction. Access Drive A will operate as right turn in only and Access Drive B will be a full access driveway. The access locations on Hebron Station Drive will provide connection to the adjacent roadway network at the intersection of North Bend Road and Kroger/Hebron Station Drive and a new intersection proposed on Limaburg Road to the east.

The location of the site is shown in Figure 1 and the site plan is included in Appendix A.

Figure 1 – Location Map



2. Scope of Services

SHA Engineering prepared a Memorandum of Understanding (MOU) and submitted it to KYTC on May 12, 2022. A TIS was completed and approved by KYTC in August 2022. The scope of work included in this report is to update the Traffic Analysis and Report for the updated site plan. The details of the changes are explained in section 4 of this report.

3. Existing Conditions

North Bend Road (KY 237) is a 4-lane roadway with 2 lanes serving the northbound and southbound movements. It is posted at 55 mph. To the north it provides access to interstate 275, and to the south it provides connection with KY 18. Limaburg Road runs parallel to North Bend Road. It is a 2-lane roadway with a lane each for the northbound and southbound movements. It is posted at 35 mph. To the north it provides access to KY 20.

The intersection of North Bend Road and Kroger Access Drive/Fire Station is operating with a traffic signal. There are existing exclusive lanes for the left turns on the northbound and southbound approaches on North Bend Road. The southbound and eastbound approaches are operating with an exclusive lane for the right turns.

The intersection of North Bend Road and Langley Drive/Cougar Path is operating with a traffic signal. There are exclusive lanes for the left turns on the northbound, southbound, and eastbound approaches. An exclusive lane for the right turns exists on the northbound and southbound approaches on North Bend Road.

The intersection of Limaburg Road and Cougar Path is operating as an All Way stopped control intersection. The new intersection of Hebron Station Drive at Limaburg Road will operate with stop control on the eastbound approach on the Hebron Station Drive.

The existing turning movement counts were completed on May 18, 2022. The counts were completed for the AM and PM Peak hours. Based on the recorded counts, the AM peak hour was established from 7:00 to 8:00 AM and PM peak hour was established from 4:15 to 5:15 PM.

The observed 2022 AM and PM Peak Hour traffic counts are shown in Figure 2. Figure 3 shows 2024 AM and PM peak hours No Build traffic volumes. Figure 4 shows 2034 AM and PM Peak Hour No Build scenarios. Please note that in the future year traffic volumes are estimated using a growth rate of 1.53%/year.

The traffic data is included in Appendix C.

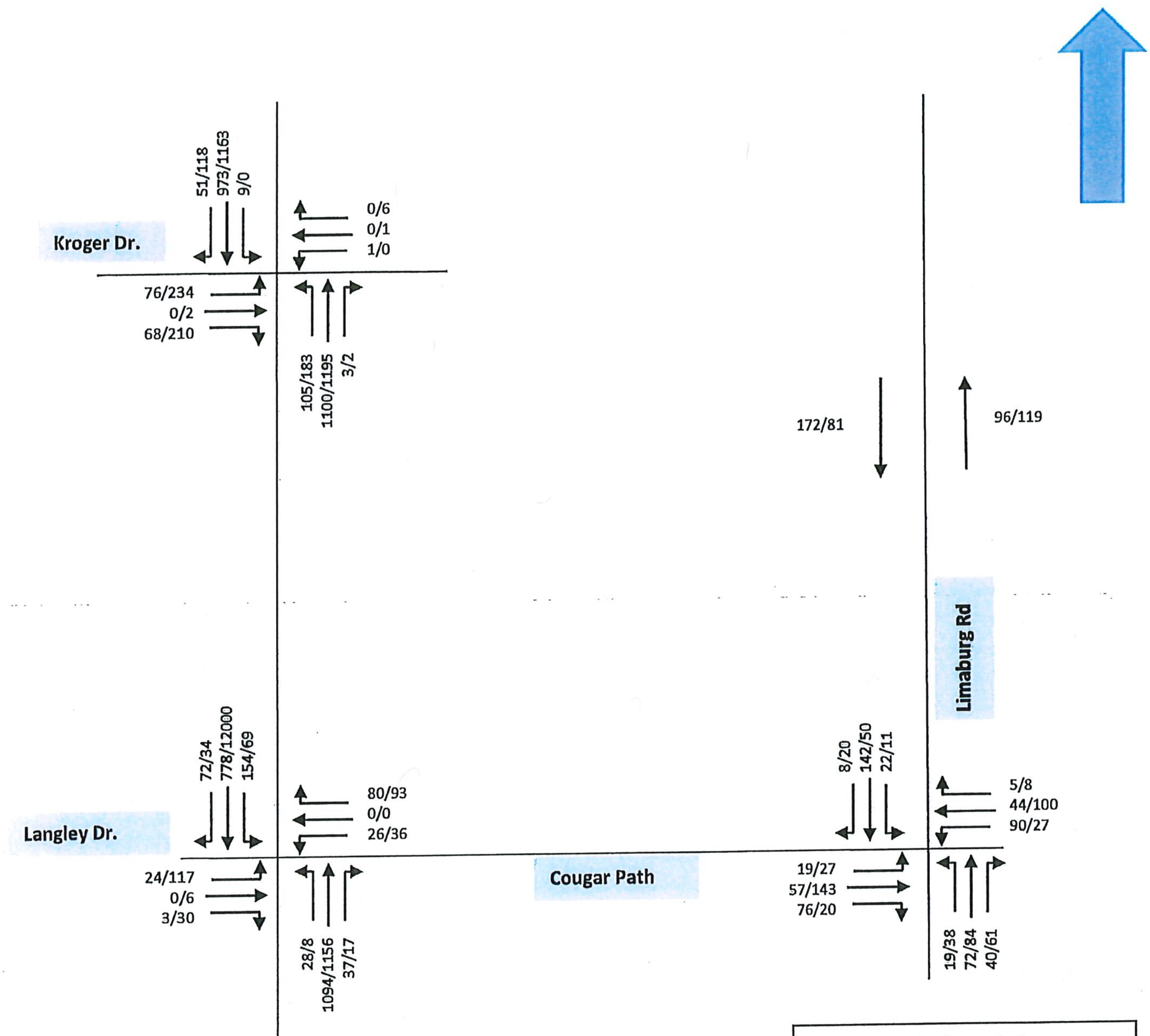


Figure 2 – 2022 Recorded. Traffic Counts

AM/PM xxx/xxx

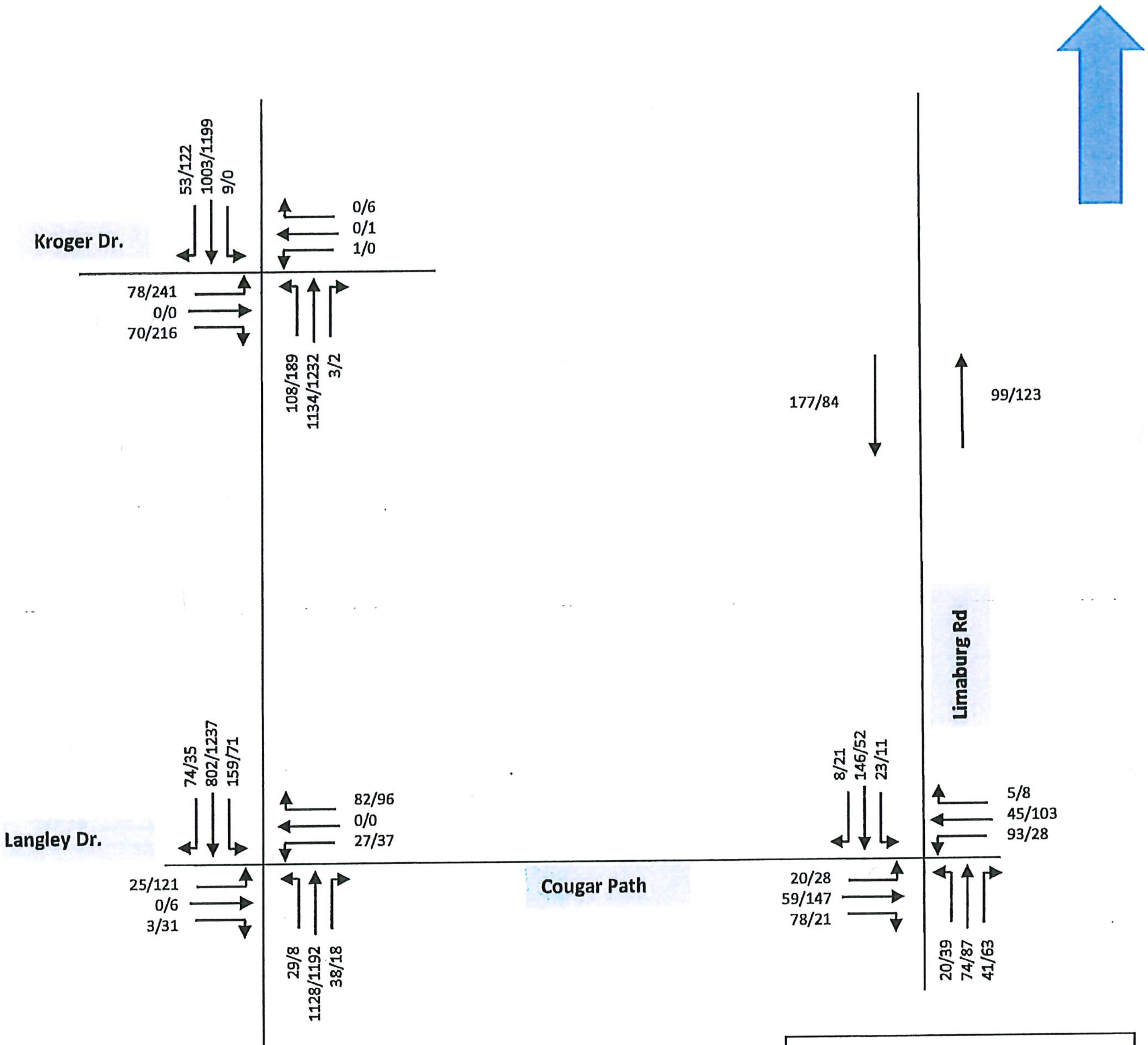


Figure 3 – 2024 No Build Traffic

AM/PM xxx/xxx

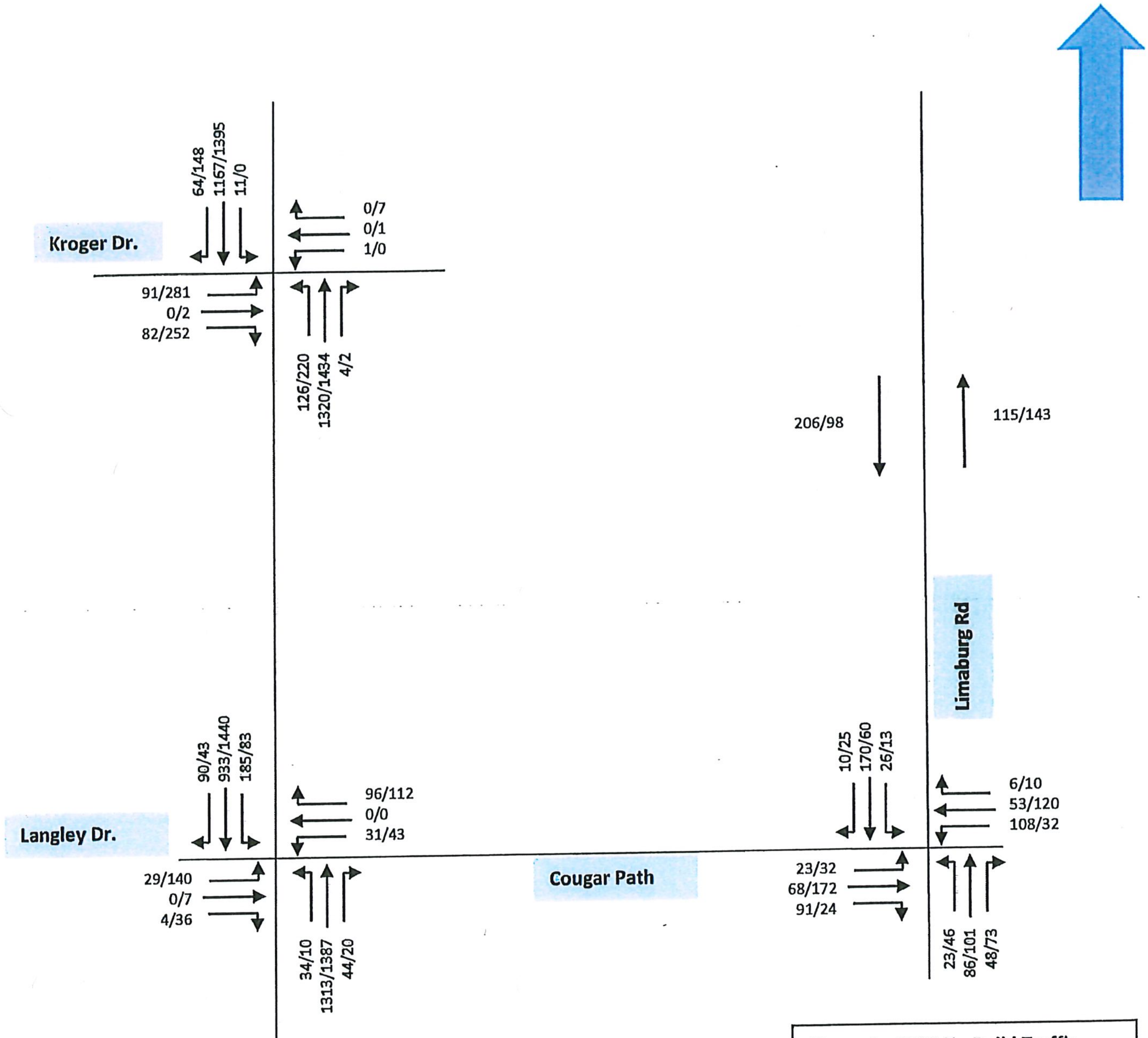


Figure 4 – 2034 No Build Traffic

AM/PM xxx/xxx

4. Proposed Development

The new development is proposed north of Cougar Path. The east side of the development abuts Limaburg Road. The development includes about 264 dwelling units of multifamily residential units and 3 out lots. In the previous version of the traffic study the out lots included the following uses.

- Sit Down Restaurant 3500 SFT
- Coffee/Donut Shop 2000 SFT
- Retail Center 8000 SFT

The site plan is modified, and the three out lots are replaced with the following uses.

- Convenience Market with Fuel Pumps - 16 Fueling Locations (5,915 SF)
- High Turnover Sit Down Restaurant - 5455 SF

The access to the development is proposed through two Access Drives on Hebron Station Drive. The first access, Access Drive A, will operate as right turn in only and will serve Convenience Market and Fuel Pumps. The second access, Access Drive B, will operate as a full access drive between the commercial outlots and residential development. Driveways serving the residential development, restaurant and the convenience market are located along the access road. The updated site plans showing the location of the Access Road and various parts of the development are shown in the updated site plans included in Appendix A.

5. Trip Generation and Distribution

The Trip generation estimates are based on the ITE Trip Generation Manual, 11th Edition. The summary of estimated trips is provided in Table 1 below. Trip Generation summary details are included in Appendix D.

Table 1 – Estimated New Trips

Land Use	Units	Total	Weekday			AM Peak Hour			PM Peak Hour		
			Ent.	Exit	Tot.	Ent.	Exit	Tot.	Ent.	Exit	Tot.
220 - Multi Family - Low Rise	DW	264				29	71	100	97	64	161
	Pass-by Trips										
945 – Convenience Market with Fuel Pump	Fuel Loc	16				253	253	506	215	215	430
	Pass-by Trips					158	158	316	136	136	272
932 - High Turnover Sit Down Restaurant	GFA (SFT)	5455				29	23	52	30	19	49
									10	10	20
New Trips						311	347	658	342	298	640
Pass-by Trips						158	158	316	146	146	292
Net- New Trips						**153**	**189**	**342**	**196**	**152**	**348**

The existing traffic counts were used for estimating the trip distribution of the new trips. The trip distribution for the new development is based on the following assumptions.

To/from the south on North Bend Road	= 35%
To/from the north on North Bend Road	= 30%
To/from north on Limaburg Road	= 20%
To/from south on Limaburg Road	= 10%
To/from west on Kroger Access Drive	= 5%

Figures 5 shows the new trip distribution percent, and the estimated new trips are shown in Figure 6 and 7. Figure 8 shows the Pass-by trip distribution and estimated Pass-by trips are shown in Figure 9. Year 2024 and 2034 Build traffic volumes are shown in Figures 10 and 11.

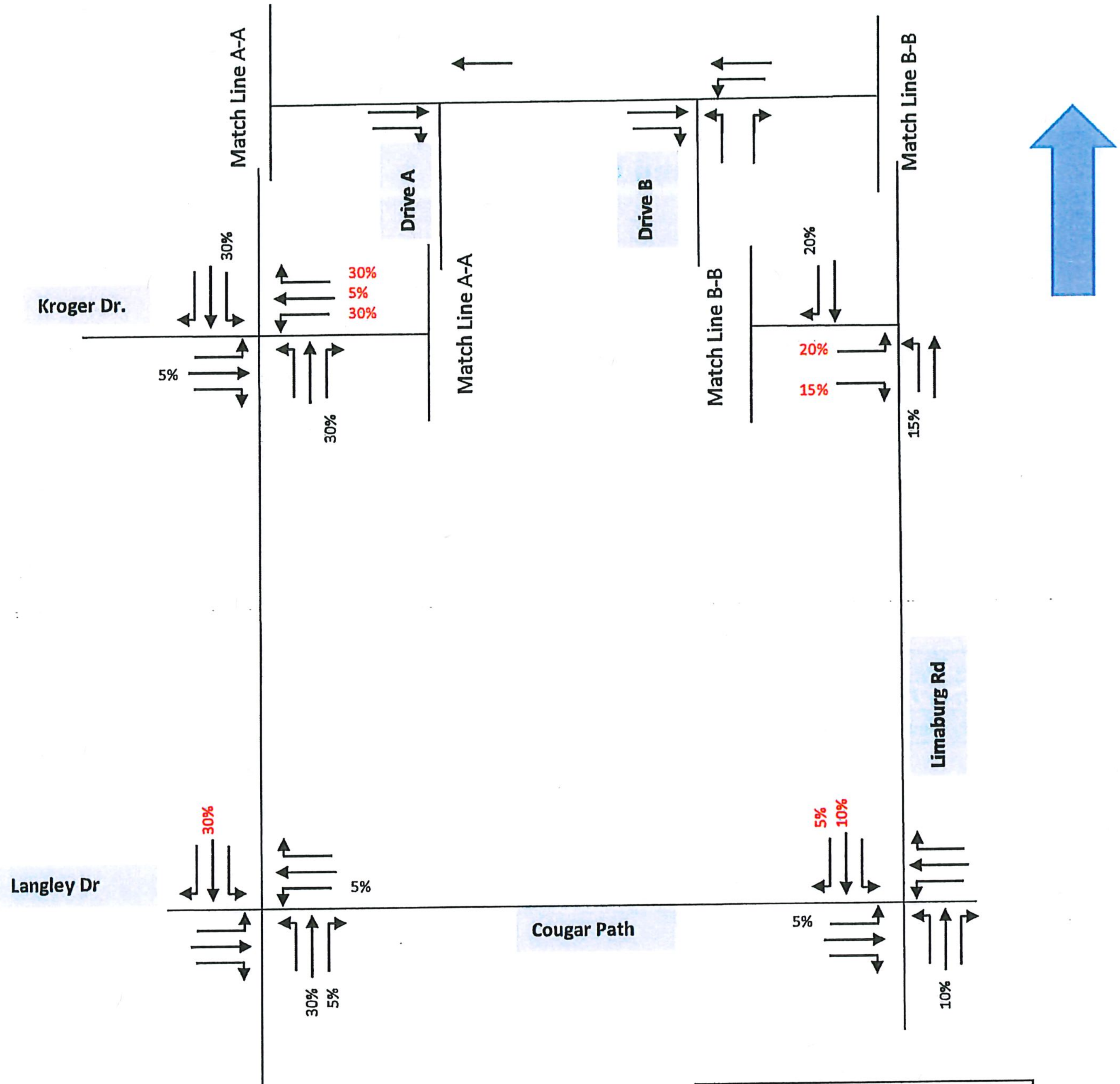


Figure 5 – Trip Distribution (Percent)
AM/PM xxx/xxx

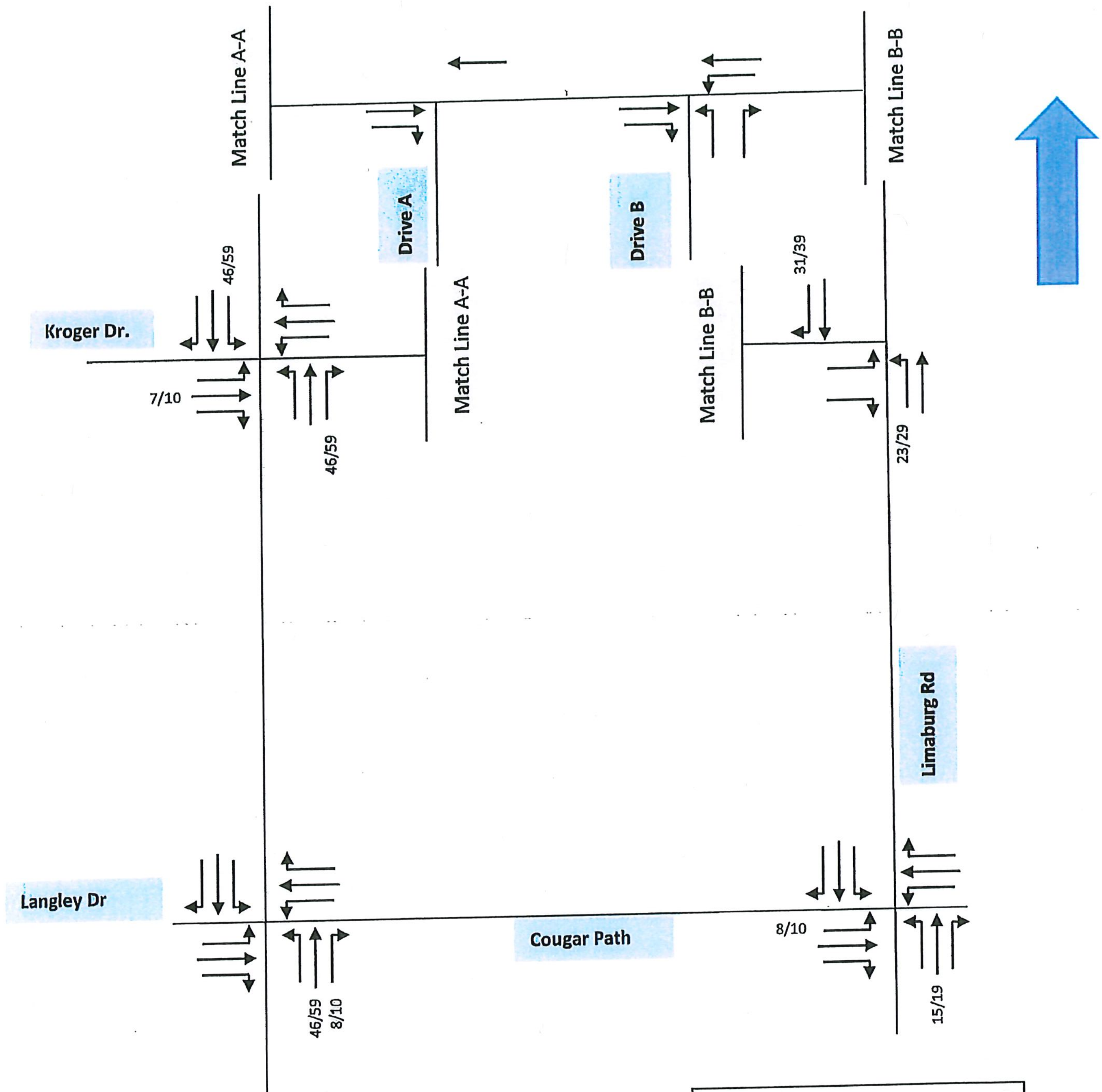
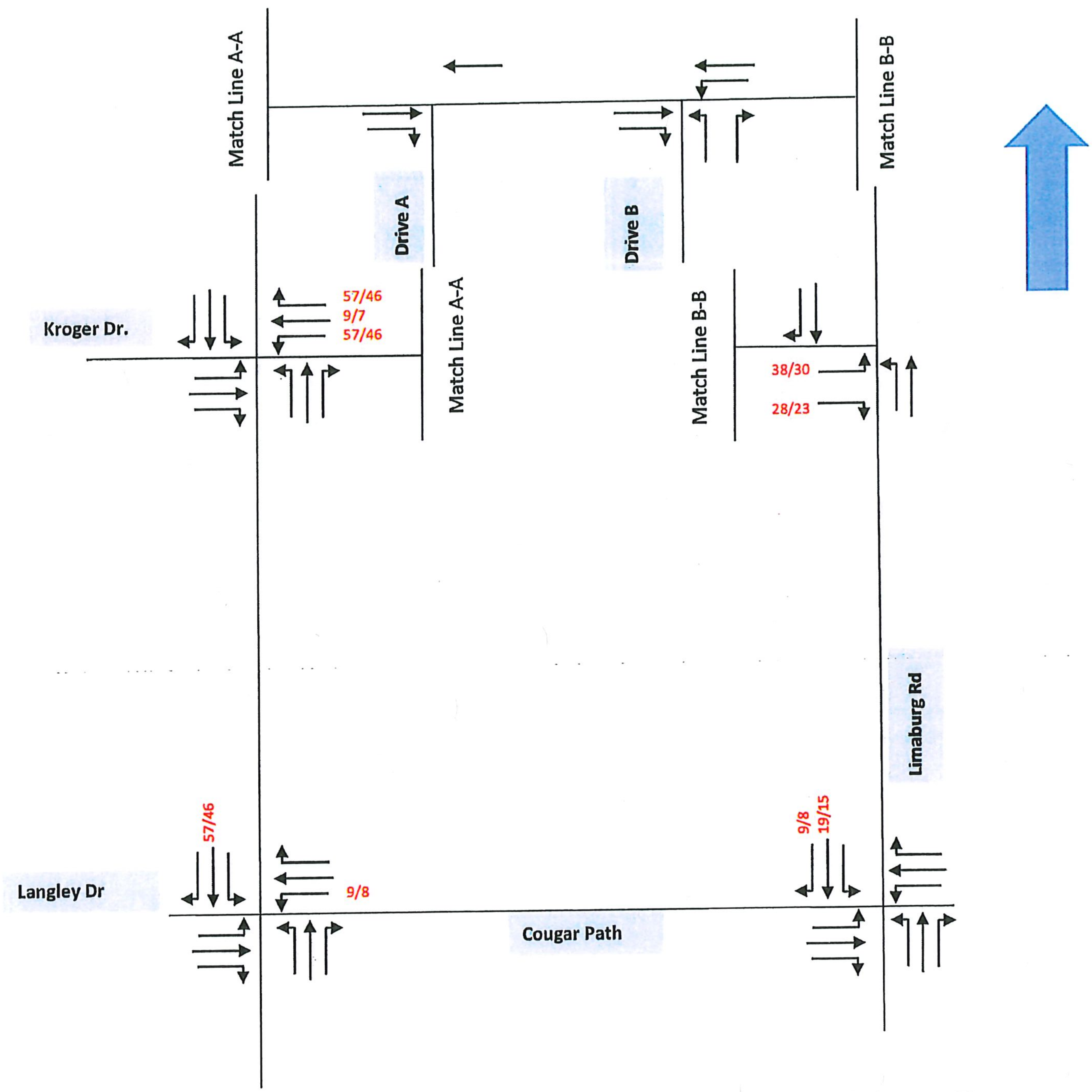


Figure 6 – Entering Trips
AM/PM xxx/xxx

Estimated New Trips – Primary Trips	Enter	Exit	Total
AM Peak	153	189	342
PM Peak	196	152	348



Estimated New Trips – Primary Trips

	Enter	Exit	Total
AM Peak	153	189	342
PM Peak	196	152	348

Figure 7- Estimated Exiting New Trips

AM/PM xxx/xxx

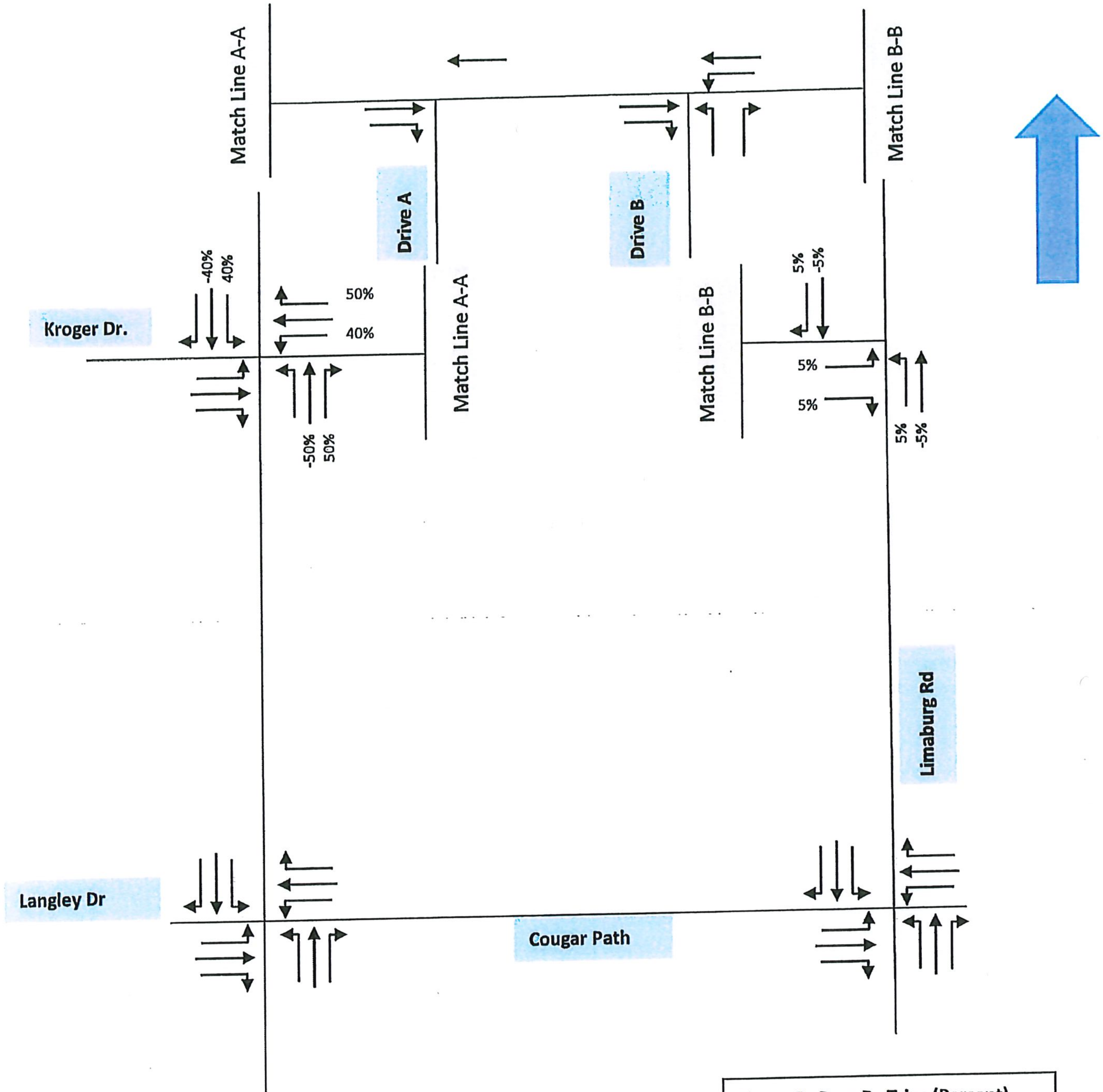


Figure 8 –Pass-By Trips (Percent)

AM/PM xxx/xxx

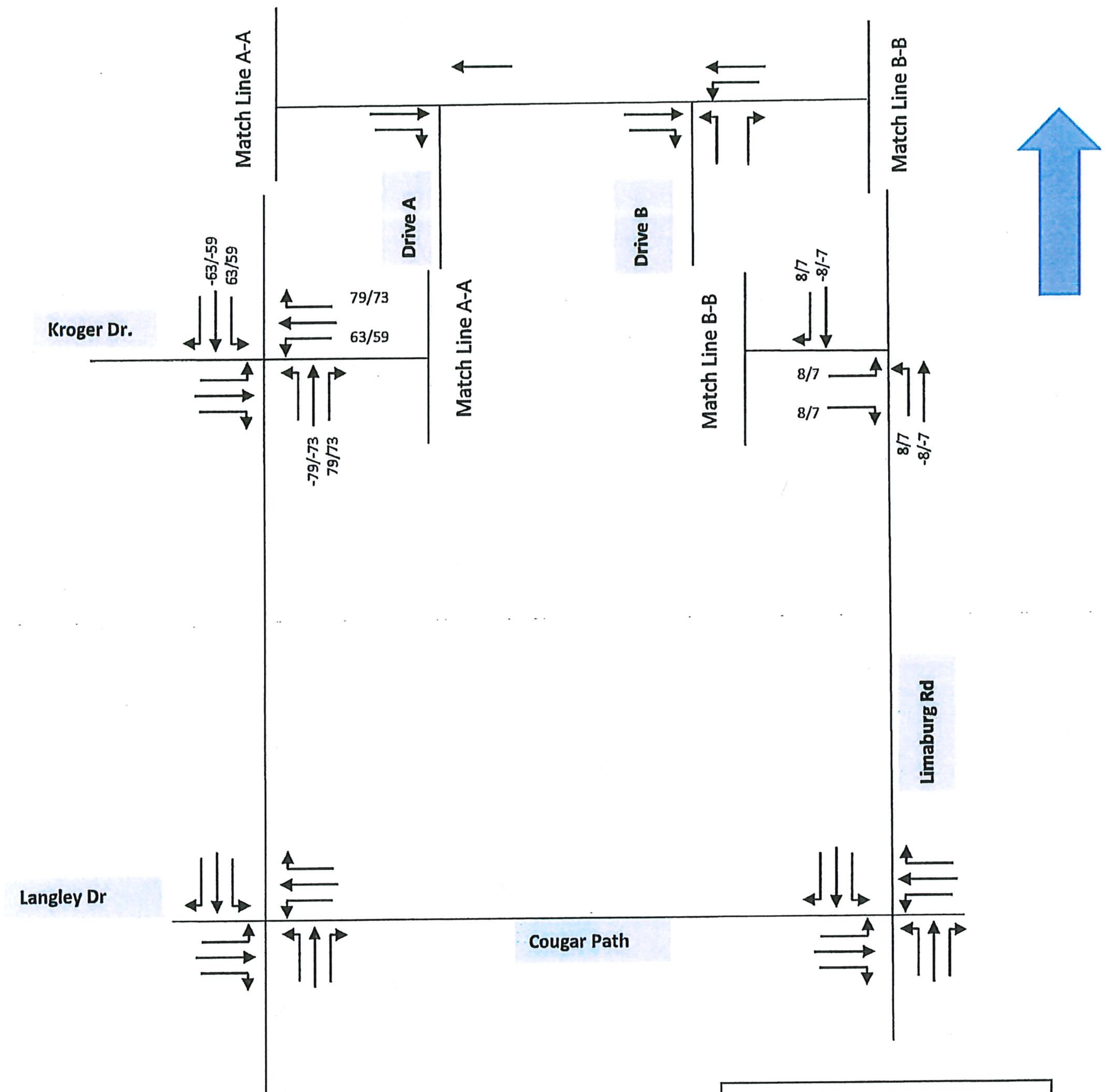


Figure 9 –Pass-By Trips

AM/PM xxx/xxx

Estimated Pass-by Trips

	Enter	Exit	Total
AM Peak	158	158	316
PM Peak	146	146	292

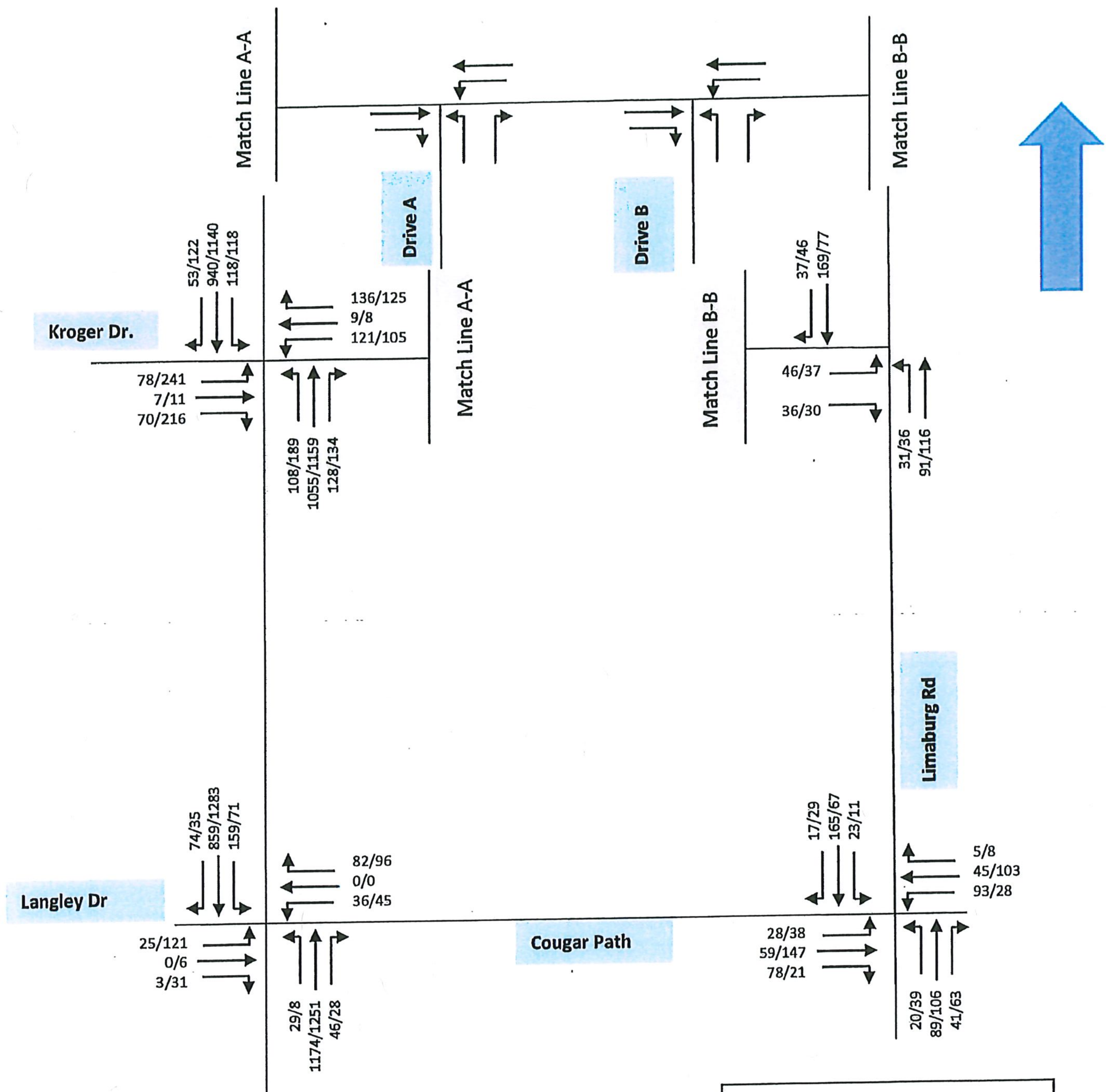


Figure 10 –2024 Build

AM/PM xxx/xxx

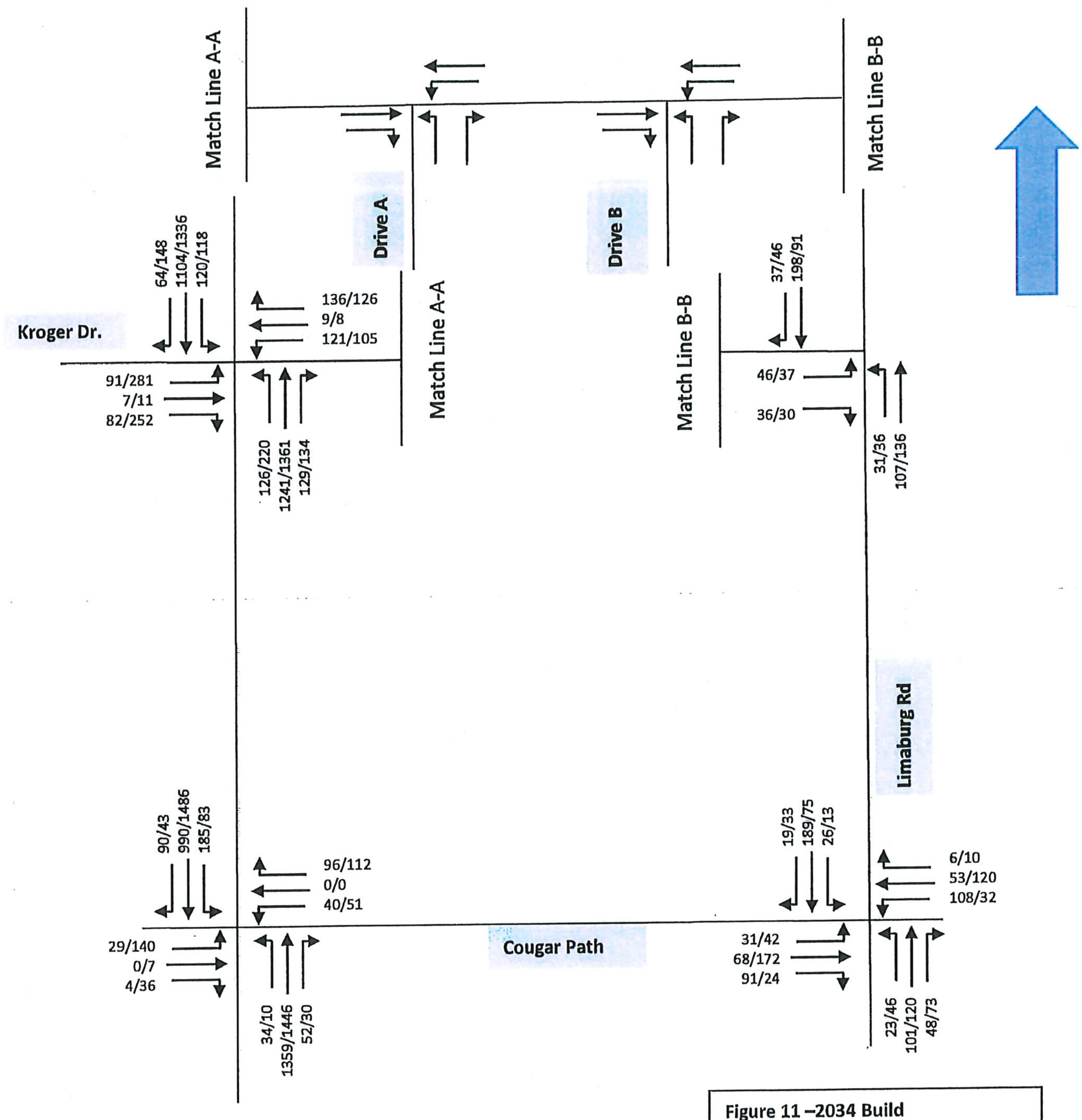


Figure 11 –2034 Build

AM/PM xxx/xxx

6. Analysis

The analysis presented in this section includes four intersections. (Two existing intersections on North Bend Road, an intersection of Cougar Path and Limaburg Road and new intersection of Hebron Station Drive and Limaburg). The access to the new development is proposed on Hebron Station Drive. There is no exiting traffic on Hebron Station Drive. Only traffic at the two access locations is either entering or exiting traffic from the new development. Therefore, traffic analysis at the two Access Drives on Hebron Station Drive and not completed. However, these access drives will be designed as per the standards followed by KYTC.

Turn Lane Warrants

The turn lane warrants were completed using the procedure followed by KYTC. The turn lane warrants were analyzed for the Hebron Station Drive and Limaburg Road. The turn lane assessment for other intersections is based on the capacity analysis completed at the intersection. The results of the turn lane warrants are summarized below, and detailed warrants are included in Appendix E.

Hebron Station Drive at Limaburg Road.

- The southbound right turn lane from Limaburg Road to westbound on Hebron Station Drive ***is not warranted.***
- The northbound left turn lane from Limaburg Road to westbound on Hebron Station Drive ***is not warranted.***

Capacity Analysis

Capacity analyses were performed for the intersections as indicated in the previous sections of this report. All the analyses were completed for Build traffic using Highway Capacity Software (HCS). Capacity of an intersection is quantified by the Level of Service (LOS) which is based upon the amount of delay a vehicle experience while at an intersection. The criterion for both signalized and unsignalized intersections are listed below as defined in Chapter 18 and 19 of the Highway Capacity Manual (HCM 2010), Volume 3.

Table 2 – Signalized/Unsignalized Intersection LOS Criteria (Exhibit 18-4 HCM)

Level of Service	Control Delay - Signalized Intersections (seconds/vehicle)	Control Delay – Unsignalized Intersections (seconds/vehicles)
A	*0-10*	*< 10*
B	*>10 – 20*	*>10 – 15*
C	*>20 – 35*	*>15 – 25*
D	*>35 – 55*	*>25 – 35*
E	*>55 – 80*	*>35 – 50*
F	*>80*	*>50*

The following is a list of code definitions that are used in the capacity analysis results:

EB/WB/NB/SB – Eastbound/Westbound/Northbound/Southbound
L – Left Turn Movement (exclusive left-turn lane or lanes)
T – Through Movement (exclusive through lane or lanes)
R – Right Turn Movement (exclusive right turn lane or lanes)
LT– Shared left turn and through movement lane
LTR – This provides movements in all directions.
TR – Shared through and right turn movement lane.

The summary of the capacity analysis completed for the intersections in the study area is provided below and the results of the capacity analysis are included in Appendix F.

North Bend Road at Kroger Access/Hebron Station Drive

The intersection is operating with a traffic signal. The existing traffic signal is operating with a cycle length of 110 seconds during the AM Peak Period and 130 seconds during the PM Peak Period. The analysis for the intersection is summarized in Tables 3, 4 and 5. Please note that the analysis with Build scenarios includes an exclusive lane for the northbound right turn to be built as part of the recommendations and coordination with KYTC during the completion of the previous version of Traffic Study for the site.

The analysis completed for AM Peak Hour scenarios shows LOS C for the intersection. All movements show LOS C or better. A comparison of analysis for the 2024 No Build and Build scenario shows an increase of 0.4 seconds/vehicles in average delay at the intersection. Similarly, a comparison of 2034 No Build and Build scenarios shows an increase of 1.7 seconds/vehicle in average delay at the intersection.

Table 3 – North Bend Rd at Kroger Access/Fire Station Dr. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - AM Peak – No Build - Signalized Conditions

Ex.	EB (Kroger Access)				WB (Hebron Sta. Dr.)				NB (North Bend Rd)				SB (North Bend Rd.)				
Lane Use	LT	-	R	App.		LTR		App.	L	T	TR	App	L	2T	R	App.	Intersection
2024 No-Build	C		C	C		C		C	B	B	B	B	C	C	B	C	C
	27.6		27.2	27.4		25.9		25.9	18.2	17.3	17.3	17.3	23.2	27.8	18.5	27.3	22.3
	73		64			1			65	375	375		8	431	40		
2034-No Build	C		C	C		C		C	C	B	B	B	C	C	B	C	C
	29.4		29.0	29.2		27.3		27.3	20.6	17.9	17.9	18.1	25.6	29.1	17.5	28.5	23.3
	88		79			1			73	439	439		11	509	47		
Mod.	EB (Kroger Access)				WB (Hebron Sta.)				NB (North Bend Rd)				SB (North Bend Rd				
Geo	LT	-	R	App.		LTR		App.	L	2T	R	App	L	2T	R	App.	
2024-Build	C		C	C		C		C	B	B	B	B	D	C	B	C	C
	27.1		25.8	26.5		30.1		30.1	18.6	17.4	12.5	17.0	40.5	28.7	19.7	29.5	23.7
	80		62			255			68	356	77		157	412	42		
2034-Build	C		C	C		C		C	C	B	B	B	D	C	B	C	C
	29.2		27.5	28.4		32.0		32.0	20.6	17.9	11.5	17.5	54.8	30.0	18.7	31.8	25.0
	97		76			262			77	420	74		194	49	49		

The capacity analysis at the intersection with PM Peak Hour scenarios shows LOS C for the intersection for the 2024 No Build and Build traffic volumes. The analysis with 2034 No Build and Build scenarios shows LOS D. A LOS E is observed for the northbound left turns for 2034 No Build traffic and LOS E for the southbound left turn and eastbound left and through lane with 2034 Build traffic volumes. All other movements show LOS D or better. A comparison of analysis for the 2024 No Build and Build scenario shows no change in the LOS for the intersection. A comparison of 2034 No Build and Build scenarios shows an increase of 1.7 seconds/vehicle in average delay at the intersection.

Since there is significant increase in the southbound left turn volumes at the intersection, an alternative is analyzed with protected permissive left turn phase for the southbound left turns. The results of the analysis with alternative are shown in Table 5. The analysis with alternative shows reduction in the delay and 95th percentile queue for the southbound left turns. All movements with alternative show LOD D or better. Please note the intersection is equipped with the hardware to operate with protected-permissive southbound left turn phase.

Table 4 – North Bend Rd at Kroger Access/Fire Station Dr. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build - Signalized Conditions

Ex. Lane Use	EB (Kroger Access)				WB (Fire Sta. Dr.)				NB (North Bend Rd)				SB (North Bend Rd.)				
	LT	-	R	App.		LTR		App.	L	T	TR	App	L	2T	R	App.	Intersection
2024 No-Build	C		C	C		C		C	E	C	C	C	*	D	C	C	C
	34.7		33.1	34.0		28.3		28.3	59.8	22.4	22.4	27.4	*	36.0	22.5	34.8	31.3
	274		240			8			226	508	508		*	633	115		
2034-No Build	D		D	D		C		C	E	C	C	C	*	D	C	D	D
	43.3		39.9	41.7		32.4		32.4	70.0	20.4	20.4	27.0		44.4	22.4	42.3	35.4
	349		300			10			242	559	559			807	141		
Mod. Geo	EB (Kroger Access)				WB (Hebron Sta.)				NB (North Bend Rd)				SB (North Bend Rd				
	LT	-	R	App.		LTR		App.	L	2T	R	App	L	2T	R	App.	
2024 Build	D		D	D		D		D	C	B	B	B	D	D	C	D	C
	44.3		35.5	40.7		35.8		35.8	28.0	18.7	12.8	19.3	48.9	41.1	25.7	40.4	31.3
	324		248			270			149	441	90		192	640	125		
2034-Build	E		D	D		D		D	D	B	B	C	E	D	C	D	D
	57.6		39.4	49.1		37.9		37.9	49.4	19.2	11.7	22.5	69.8	49.1	24.7	48.4	37.1
	416		298			279			200	524	85		230	808	149		

Table 5 – North Bend Rd at Kroger Access/Fire Station Dr. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build - Signalized Conditions – Alternative 1

Mod. Geo	EB (Kroger Access)				WB (Hebron Sta.)				NB (North Bend Rd)				SB (North Bend Rd				
	LT	-	R	App.		LTR		App.	L	2T	R	App	L	2T	R	App.	
2034-Build	D		D	D		D		D	D	C	B	C	C	D	C	D	D
	54.5		38.3	47.0		37.1		37.1	53.5	32.8	18.8	34.3	28.7	50.9	25.1	46.9	41.1
	406		294			276			211	686	114		100	819	150		

North Bend Road at Langley Drive/Cougar Path

The intersection is operating with a traffic signal. The existing traffic signal is operating with cycle length of 110 seconds during the AM Peak Period and 130 seconds during the PM Peak Period. The analysis for the intersection is summarized in Tables 6 and 7.

The analysis completed for AM Peak Hour scenarios shows LOS C for the intersection. All movements show LOS D or better. A comparison of analysis for the 2024 No Build and Build scenario shows an increase of 0.7 seconds/vehicles in average delay at the intersection. Similarly, a comparison of 2034 No Build and Build scenarios shows an increase of 3.0 seconds/vehicle in average delay at the intersection.

Table 6 – North Bend Rd at Langley Dr./Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - AM Peak – No Build - Signalized Conditions

Ex. Lane Use	EB (Langley Dr)				WB (Cougar Path)				NB (North Bend Rd)				SB (North Bend Rd.)				
	L	TR		App.		LTR		App.	L	2T	R	App	L	2T	R	App.	Intersection
2024 No-Build	C	C		C		C		C	B	C	B	C	C	B	B	B	C
	31.1	26.3		30.6		28.3		28.3	19.4	31.3	18.6	30.6	23.8	13.7	11.5	14.9	23.4
	25	3				104			24	510	29		104	246	84		
2034-No Build	C	C		C		C		C	B	C	B	C	D	B	A	B	C
	34.2	28.1		35.5		30.6		30.6	19.2	34.1	17.2	33.2	35.3	13.1	9.7	16.3	25.7
	30	4				127			28	613	32		144	274	46		
2024 Build	C	C		C		C		C	B	C	B	C	C	B	B	B	C
	32.0	26.7		31.4		28.9		28.9	19.2	32.0	18.4	31.2	24.9	13.8	10.4	15.2	24.1
	25	3				114			24	535	35		104	262	39		
2034-Build	D	C		D		D		D	B	D	B	D	D	B	A	B	C
	40.4	31.8		39.4		25.4		35.4	17.9	40.6	15.8	39.1	42.6	11.4	7.8	15.7	28.7
	33	4				149			27	690	36		155	269	40		

The capacity analysis at the intersection with PM Peak Hour scenarios shows LOS C for the intersection for the 2024 and 2034 No Build and Build scenarios. All movements show LOS D or better. A comparison of analysis for the 2024 No Build and Build scenario shows an increase of 0.8 seconds/vehicles in average delay at the intersection. Similarly, a comparison of 2034 No Build and Build scenarios show an increase of 0.3 seconds/vehicle in average delay at the intersection.

Table 7 – North Bend Rd at Langley Dr./Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build - Signalized Conditions

Ex. Lane Use	EB (Langley Dr)				WB (Cougar Path)				NB (North Bend Rd)				SB (North Bend Rd.)				
	L	TR		App.		LTR		App.	L	2T	R	App	L	2T	R	App.	Intersection
2024 No-Build	D	C		D		C		C	C	D	C	D	C	C	B	C	C
	38.2	29.2		36.1		31.2		31.2	32.6	36.4	20.7	36.2	23.8	21.4	12.8	21.3	29.0
	153	39				149			10	634	16		51	505	23		
2034-No Build	D	C		D		C		C	D	D	B	D	C	C	B	C	C
	42.9	31.0		40.1		33.7		33.7	37.4	41.4	19.3	41.0	27.7	22.4	11.8	22.4	31.8
	190	47				182			14	779	17		58	602	27		
2024 Build	D	C		D		C		C	C	D	C	D	C	C	B	C	C
	39.3	29.5		31.8		31.8		31.8	33.6	37.9	20.6	37.5	24.9	21.7	12.6	21.6	29.8
	155	39				160			10	676	25		50	527	23		
2034-Build	D	C		D		D		D	D	D	B	D	C	C	B	C	C
	45.1	32.1		42.0		35.1		35.1	37.3	42.0	18.7	41.5	28.1	21.9	11.1	21.9	32.1
	194	48				195			14	817	25		60	613	26		

Limaburg Road at Cougar Path

The intersection is operating as an All Way Stop Control intersection. The capacity analysis is summarized in Tables 8 and 9.

The capacity analysis at the intersection during the AM Peak Hour shows LOS A for the intersection for all scenarios except 2034 Build, which shows LOS B for the intersection. No significant increase in the average delay was observed for the Build scenarios compared to the No Build scenarios.

Table 8 – Limaburg at Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - AM Peak – No Build – All Way Stop Control

Ex. Lane Use	EB (Cougar Path)		WB (Cougar Path)		NB (Limaburg Road)		SB (Limaburg Road.)		
	LTR	App.	LTR	App.	LTR	App.	LTR	App.	
2024 No-Build	A	A	A	A	A	A	A	A	A
	9.1	9.1	9.6	9.6	9.1	9.1	9.7	9.7	9.4
	23		20		18		28		
2034-No Build	A	A	B	B	A	A	B	B	B
	9.9	9.9	10.4	10.4	9.8	9.8	10.6	10.6	10.2
	28		28		23		35		
2024 Build	A	A	A	A	A	A	B	B	A
	9.5	9.5	9.9	9.9	9.4	9.4	10.3	10.3	9.8
	25		23		23		33		
2034-Build	B	B	B	B	B	B	B	B	B
	10.4	10.4	10.8	10.8	10.3	10.3	11.4	11.4	10.8
	30		30		28		43		

The capacity analysis at the intersection during the PM Peak Hour shows LOS A for the intersection for the analysis with 2024 No Build and Build traffic volumes. The analysis with 2034 No Build and Build scenarios show LOS B. No significant increase in the average delay was observed for the Build scenarios compared to the No Build scenarios.

Table 9 – Limaburg at Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build – All Way Stop Control

Ex. Lane Use	EB (Cougar Path)		WB (Cougar Path)		NB (Limaburg Road)		SB (Limaburg Road.)		
	LTR	App.	LTR	App.	LTR	App.	LTR	App.	
2024 No-Build	A	A	A	A	A	A	A	A	A
	9.8	9.8	9.3	9.3	9.6	9.6	8.8	8.8	9.5
	30		20		28		10		
2034-No Build	B	B	A	A	B	B	A	A	B
	10.8	10.8	10.0	10.0	10.6	10.6	9.3	9.3	10.3
	40		25		38		15		
2024 Build	B	B	A	A	B	B	A	A	A
	10.3	10.3	9.6	9.6	10.1	10.1	9.1	9.1	9.9
	33		20		33		15		
2034-Build	B	B	B	B	B	B	A	A	B
	11.4	11.4	10.4	10.4	11.3	11.3	9.7	9.7	10.9
	45		28		43		18		

Limaburg Road at Hebron Station Drive

The intersection will operate with stop control on the eastbound approach on the Hebron Station Drive. The results of the capacity analysis are summarized in Tables 10 and 11.

The results of the capacity analysis with the AM Peak Hour traffic volumes show LOS B on the eastbound approach on Hebron Station. The northbound left turns show LOS A.

Table 10 – Limaburg at Hebron Station Drive - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) -
AM Peak – No Build – All Way Stop Control

Ex. Lane Use	EB (Hebron Sta. Dr.)				WB (N/A)				NB (Limaburg Road)				SB (Limaburg Road.)				
		LR		App.					L								
2024 Build		B		B					A								
		11.0		11.0					7.8								
		10							3								
2034-Build		B		B					A								
		11.4		11.4					7.8								
		13							3								

The results of the capacity analysis with the PM Peak Hour traffic volumes show LOS B for the eastbound approach on Hebron Station Drive. The northbound left turns show LOS A.

Table 11 – Limaburg at Hebron Station Drive - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) -
PM Peak – No Build – All Way Stop Control

Ex. Lane Use	EB (Hebron Sta. Dr.)				WB (N/A)				NB (Limaburg Road)				SB (Limaburg Road.)				
		LR		App.					L								
2024 Build		B		B					A								
		10.2		10.2					7.6								
		8							3								
2034-Build		B		B					A								
		10.5		10.5					7.6								
		8							3								

7. Findings

The preceding analysis and recommendations listed below are based on the typical procedure used for evaluating the impact of the proposed development on the adjacent roadway infrastructure and usual customary traffic engineering standards.

Hebron Station Drive will be built as part of this development. There is no existing traffic on Hebron Station Drive in the vicinity of proposed Access Drives. The majority of the volumes at Access Drives includes vehicles entering or exiting from the development. The total volume at these access locations is less than 200 vehicles during peak hour. Therefore, the intersection of Hebron Station Drive at two Access Drive will have adequate capacity. Also, with no through traffic on Hebron Station Drive exclusive turn lanes are not required.

The results of the analysis completed at each intersection in the study area are summarized below.

North Bend Road and Kroger Access Drive/Hebron Station Drive

The intersection is operating with a traffic signal. The analysis completed at the intersection shows acceptable flow of traffic at the intersection for all scenarios with the exception of southbound left turns showing LOS E for the 2034 PM Peak Hour Build scenario. An alternative is analyzed with modification in the traffic signal phasing for the southbound left turns to protected plus permissive. The alternative shows a reduction in the delay for the southbound left turns as well as significant reduction in the 95th percentile queue (from 230 feet to 100 feet). The existing signal hardware is equipped to operate with protected-permissive phase for the southbound left turns.

The intersection is equipped with preemption for the emergency vehicles exiting the adjacent Fire Station. Preemption at the intersections allows safe movement for the emergency vehicles heading north or south on North Bend Road. The new development will add more vehicles on the westbound approach. However, emergency preemption is not expected to cause delays for the emergency vehicles at the intersection. Once the preemption is activated, this will allow to clear the vehicles on the westbound approach. The emergency vehicles should be able to move without delay. The intersection should be monitored after implementation of the development to evaluate the operations of emergency vehicles.

North Bend Road at Langley Drive/Cougar Path

The intersection is operating with a traffic signal. The analysis completed at the intersection shows acceptable flow of traffic at the intersection for all scenarios. The existing geometry and traffic signal operations are adequate to handle additional traffic generated by the new development.

Limaburg Road and Cougar Path

The intersection is operating as an All Way Stop Control intersection. Capacity analysis completed for the intersection shows acceptable flow of traffic at the intersection. The estimated trips generated by the new development will have no significant impact on the flow of traffic at the intersection.

Limaburg Road at Hebron Station Drive

The intersection will be built to provide access for the development to the north and south on Limaburg Road. Capacity analysis completed at the intersection shows acceptable flow of traffic on the eastbound approach on Hebron Station Drive.

The turn lane warrants completed show that exclusive lanes for the northbound left turns and southbound right turns are not warranted.

Recommendations

All improvements to be made as per the recommendations in this study shall be completed following Standards published by the Kentucky Transportation Cabinet.

Hebron Station Drive at Limaburg Road

- The Hebron Station Drive shall be built as a 2-lane with a lane for the eastbound and westbound traffic. The eastbound approach shall be built with stop control.

Access Drive A at Hebron Station Drive

- Access Drive A shall be built with single inbound only lane allowing only right turns from Hebron Station Drive to Access Drive. This Access Drive A will only serve the Convenience Market with Fuel Pumps.

Access Drive B at Hebron Station Drive

- Access Drive B shall be built with single inbound and outbound lanes.
- The northbound approach shall be built with stop control.

North Bend Road at Kroger Access Drive/Hebron Station Drive

The current signal operation at the intersection is adequate. The existing traffic signal hardware is adequate to operate with preferred southbound left turn phase (Protected-Permissive left turns).

A northbound right turn lane at the intersection is being built at the intersection. Also, a traffic signal modification plan was completed to provide pedestrian signal heads and pedestrian crossing along the east side of the intersection. The traffic signal modification plans should be updated to include signal head modification for the southbound approach that will allow protected-permissive phase for the southbound left turns. The east leg of the intersection should be monitored ensuring the added traffic on the westbound is not impeding the movement of emergency vehicles from the Fire Stations. If delays are observed, the development team should coordinate with the Fire Department and KYTC and appropriate mediation should be implemented.

NOTES:

1. OWNER OF SUBJECT PROPERTY IS BRG REALTY GROUP, LLC.
2. EXISTING ZONE OF SUBJECT PROPERTY IS C-2/PD/CD COMMERCIAL TWO/PLANNED DEVELOPMENT DISTRICT/CONCEPT DEVELOPMENT PLAN. (AUGUST 2022 ZMA APPROVAL)
3. EXISTING USE OF SUBJECT PROPERTY: UNDEVELOPED LAND.
4. NO EXISTING BUILDINGS ON SUBJECT PROPERTY.
5. PROPOSED LAND USES FOR SUBJECT PROPERTY INCLUDE COMMERCIAL USE (C-2/PD/CD) PER THE AUGUST 2022 ZMA APPROVAL.
6. BUILDING AREA OF SUBJECT PROPERTY LIES WITHIN FLOOD ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN AS SHOWN ON FEMA MAP NUMBER 21015C0113C AS REVISED LAST ON JUNE 4, 2007.
7. SOILS PRESENT WITHIN SUBJECT PROPERTY PER USDA INCLUDE: RsC (ROSSMOYNE SILT LOAM) AND RsB (ROSSMOYNE SILT LOAM).
8. ACCESS TO SUBJECT PROPERTY WILL BE OFF THE PRIVATE DRIVE TO THE EAST OF THE PROPERTY WITH A SINGLE RIGHT IN ACCESS POINT ON THE NEWLY CONSTRUCTED HEBRON STATION DRIVE AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE KENTUCKY DEPARTMENT OF TRANSPORTATION AND BOONE COUNTY ENGINEER.
9. AREA OF SUBJECT PROPERTY INCLUDES 4.0582 ACRES.
10. ELECTRIC, TELEPHONE & CABLE TO BE INSTALLED UNDERGROUND PER DUKE ENERGY.
11. TYPICAL PROPOSED PARKING STALL DIMENSIONS ARE 9' WIDE BY 18' LONG UNLESS NOTED OTHERWISE ON THE PLANS.

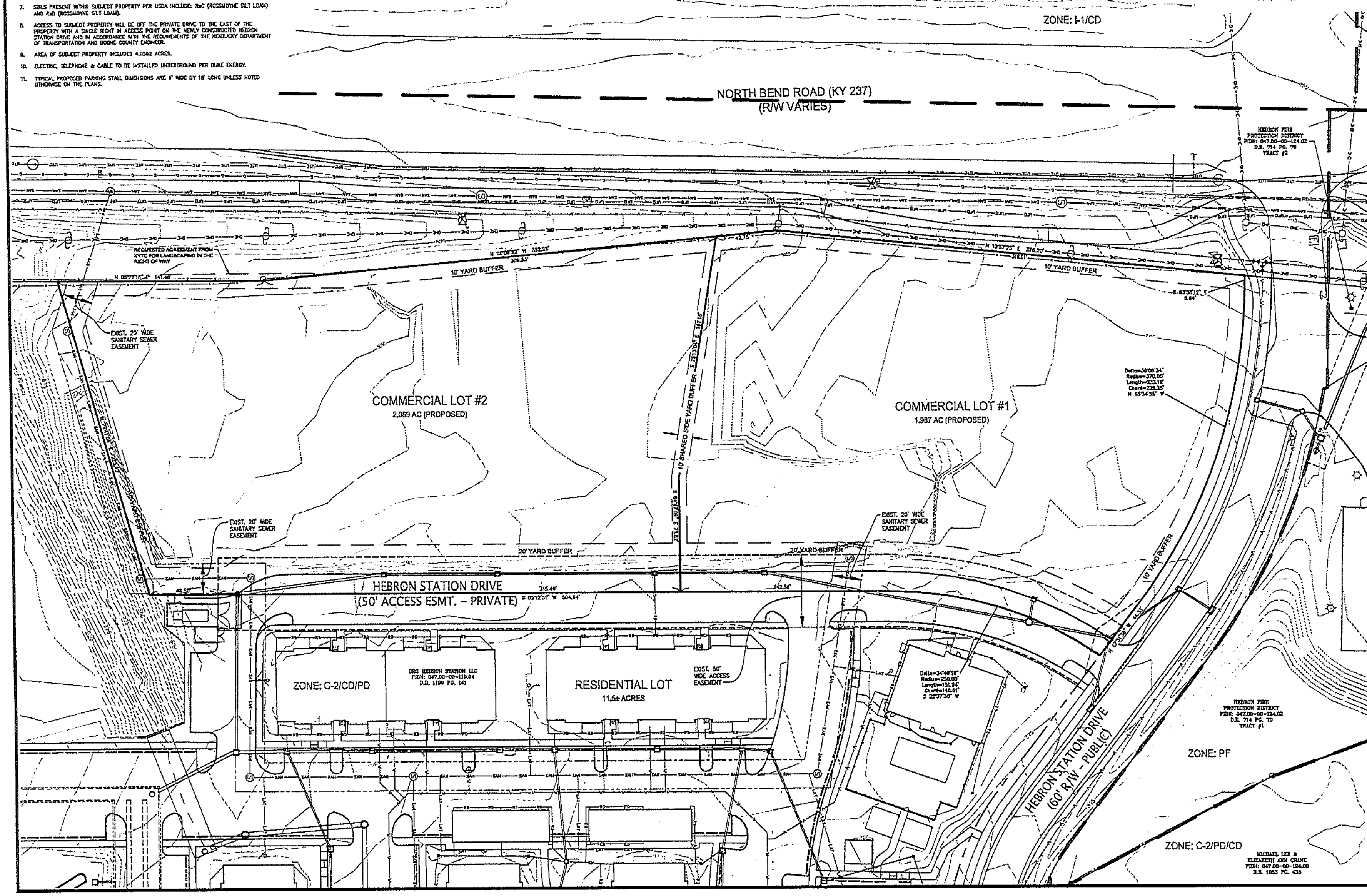
ZONE INFORMATION

C-2/PD/CD, COMMERCIAL TWO / PLANNED DEVELOPMENT/CONCEPT DEVELOPMENT	
MINIMUM FRONTAGE:	FIFTY (50) FEET
MINIMUM FRONT SETBACK:	THIRTY (30) FEET
MINIMUM REAR SETBACK:	TWENTY (20) FEET/FIFTY (50) FEET*
MINIMUM SIDE SETBACK:	TEN (10) FEET/FIFTY (50) FEET*
MAXIMUM BUILDING HEIGHT:	FIFTY (50) FEET

* WHEN ADJOINING ANY OF THE FOLLOWING ZONING DISTRICTS: A-1, A-2, R, CONS, RSE, RS, SR-1, SR-2, SR-4, UR-1, UR-2, UR-3, MHP AND R1F

BEARINGS ARE BASED ON THE KENTUCKY STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD 83.

GRAPHIC SCALE (IN FEET) 1 inch = 30 ft.



REVISIONS
DATE # ITEM

CARDINAL ENGINEERING LAND SURVEYING

PROJECT: CONCEPT DEVELOPMENT PLAN
HEBRON STATION - COMMERCIAL SITE
NORTH BEND ROAD & COUGAR PATH

CLIENT: ANCHOR PROPERTIES, INC.
128 E. 2ND ST., COVINGTON, KY 41011
LONGNECKS SPORTS GRILL, LLC
544 CLAY RIDGE RD., ALEXANDRIA, KY 41001

DRAWN BY: BTL
CHECKED BY: DES
PROJECT MANAGER: DES
SEAL

PROJECT NO. 21-166-03
SCALE 1" = 30'
DATE 01/22/2024

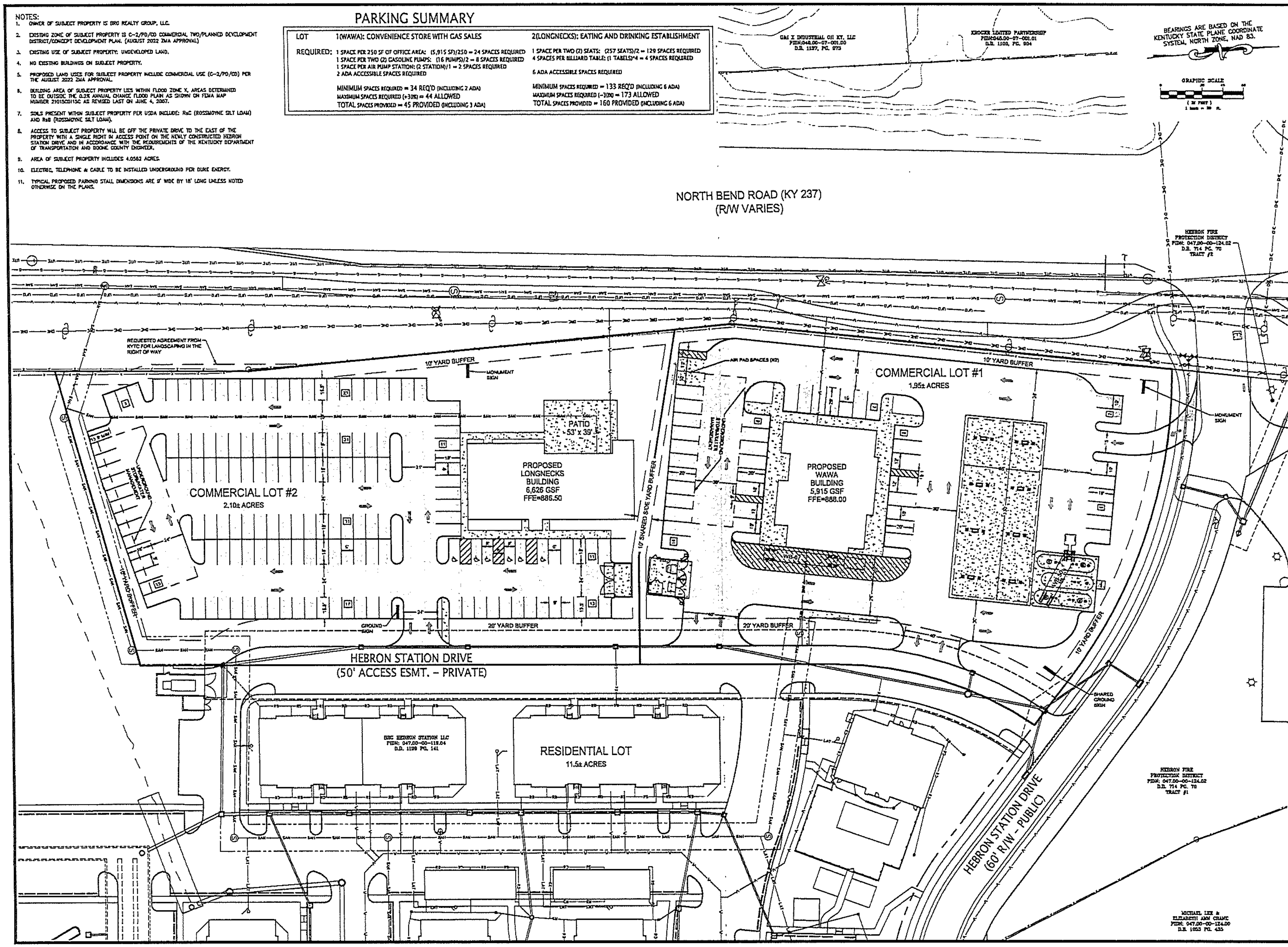
EXISTING SITE PLAN

SHEET C-1

NOTES:
1. OWNER OF SUBJECT PROPERTY IS BRG REALTY GROUP, LLC.
2. EXISTING ZONE OF SUBJECT PROPERTY IS C-2/PD/CD COMMERCIAL TWO/PLANNED DEVELOPMENT DISTRICT/CONCEPT DEVELOPMENT PLAN. (AUGUST 2022 ZMA APPROVAL)
3. EXISTING USE OF SUBJECT PROPERTY: UNDEVELOPED LAND.
4. NO EXISTING BUILDINGS ON SUBJECT PROPERTY.
5. PROPOSED LAND USES FOR SUBJECT PROPERTY INCLUDE COMMERCIAL USE (C-2/PD/CD) PER THE AUGUST 2022 ZMA APPROVAL.
6. BUILDING AREA OF SUBJECT PROPERTY LIES WITHIN FLOOD ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN AS SHOWN ON FEMA MAP NUMBER 21015C0115C AS REVISED LAST ON JUNE 4, 2007.
7. SOILS PRESENT WITHIN SUBJECT PROPERTY PER USDA INCLUDE: RsC (ROSSMOYNE SILT LOAM) AND RsB (ROSSMOYNE SILT LOAM).
8. ACCESS TO SUBJECT PROPERTY WILL BE OFF THE PRIVATE DRIVE TO THE EAST OF THE PROPERTY WITH A SINGLE RIGHT IN ACCESS POINT ON THE NEWLY CONSTRUCTED HEBRON STATION DRIVE AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE KENTUCKY DEPARTMENT OF TRANSPORTATION AND BOONE COUNTY ENGINEER.
9. AREA OF SUBJECT PROPERTY INCLUDES 4.0562 ACRES.
10. ELECTRIC, TELEPHONE & CABLE TO BE INSTALLED UNDERGROUND PER DUKE ENERGY.
11. TYPICAL PROPOSED PARKING STALL DIMENSIONS ARE 9' WIDE BY 18' LONG UNLESS NOTED OTHERWISE ON THE PLANS.

PARKING SUMMARY

LOT	1(WAWA): CONVENIENCE STORE WITH GAS SALES	2(LONGNECKS): EATING AND DRINKING ESTABLISHMENT
REQUIRED:	1 SPACE PER 250 SF OF OFFICE AREA: (5,915 SF)/250 = 24 SPACES REQUIRED 1 SPACE PER TWO (2) GASOLINE PUMPS: (16 PUMPS)/2 = 8 SPACES REQUIRED 1 SPACE PER AIR PUMP STATION: (2 STATION)/1 = 2 SPACES REQUIRED 2 ADA ACCESSIBLE SPACES REQUIRED	1 SPACE PER TWO (2) SEATS: (257 SEATS)/2 = 129 SPACES REQUIRED 4 SPACES PER BILLIARD TABLE: (1 TABELS)*4 = 4 SPACES REQUIRED 6 ADA ACCESSIBLE SPACES REQUIRED
	MINIMUM SPACES REQUIRED = 34 REQ'D (INCLUDING 2 ADA) MAXIMUM SPACES REQUIRED (+30%) = 44 ALLOWED TOTAL SPACES PROVIDED = 45 PROVIDED (INCLUDING 3 ADA)	MINIMUM SPACES REQUIRED = 133 REQ'D (INCLUDING 6 ADA) MAXIMUM SPACES REQUIRED (+30%) = 173 ALLOWED TOTAL SPACES PROVIDED = 160 PROVIDED (INCLUDING 6 ADA)



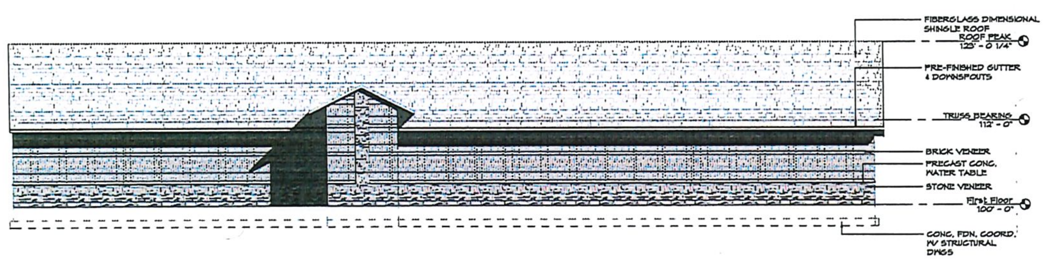
REVISIONS	
DATE #	ITEM

CARDINAL
ENGINEERING
LAND SURVEYING

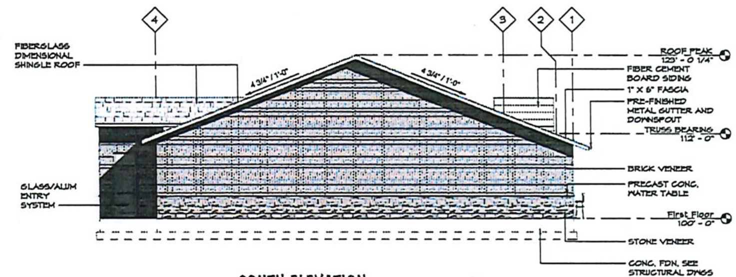
PROJECT:
CONCEPT DEVELOPMENT PLAN
HEBRON STATION - COMMERCIAL SITE
NORTH BEND ROAD & COUGAR PATH

CLIENT:
ANCHOR PROPERTIES, INC.
128 E. 2ND ST., COVINGTON, KY 41011
&
LONGNECKS SPORTS GRILL, LLC
544 CLAY RIDGE RD., ALEXANDRIA, KY 41001

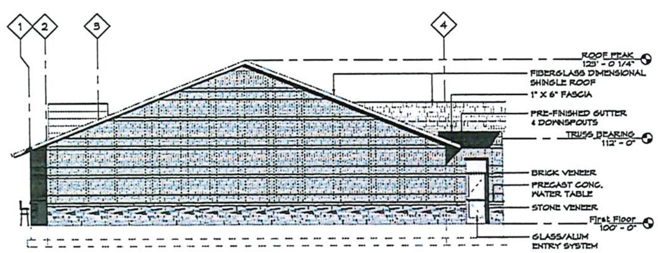
DRAWN BY:	STL
CHECKED BY:	DES
PROJECT MANAGER:	DES
SEAL	
PROJECT NO.	21-166-03
SCALE	1" = 30'
DATE	01/22/2024
SITE CONCEPT PLAN	
SHEET	C-2



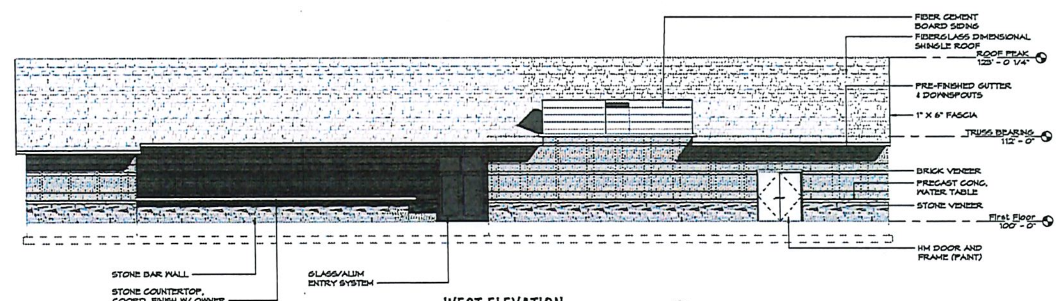
EAST ELEVATION
SCALE: 1/8" = 1'-0"
3 A2.1



SOUTH ELEVATION
SCALE: 1/8" = 1'-0"
1 A2.1



NORTH ELEVATION
SCALE: 1/8" = 1'-0"
4 A2.1



WEST ELEVATION
SCALE: 1/8" = 1'-0"
2 A2.1

K|B|A INCORPORATED
ARCHITECTS

29 HIGH STREET
Milford, OH 45150
513.752.7800
www.kbainc.com

SHEET CONTENTS:
ELEVATIONS

Proposed Building For:

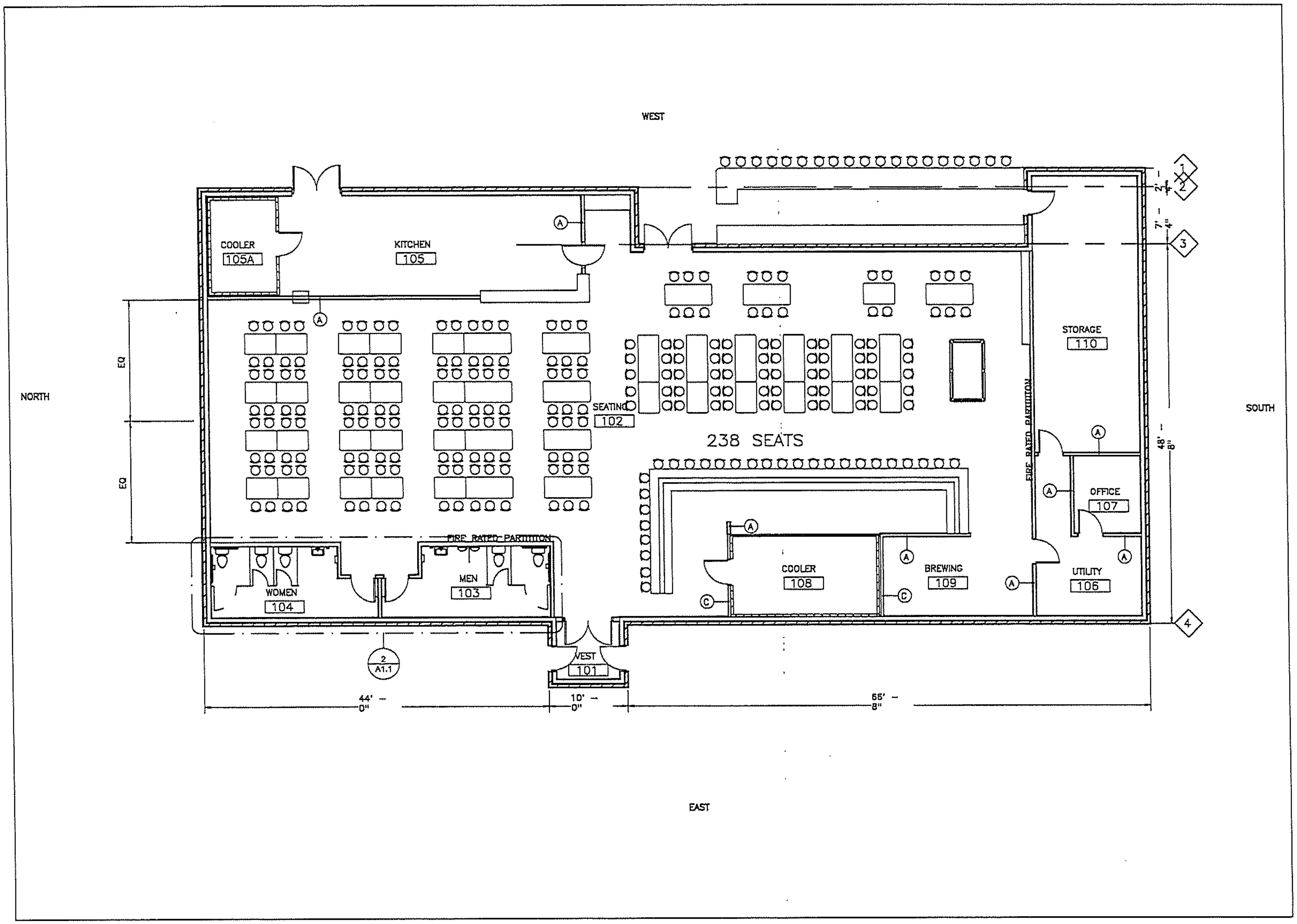
Hebron, Kentucky

REV. DATE CKD

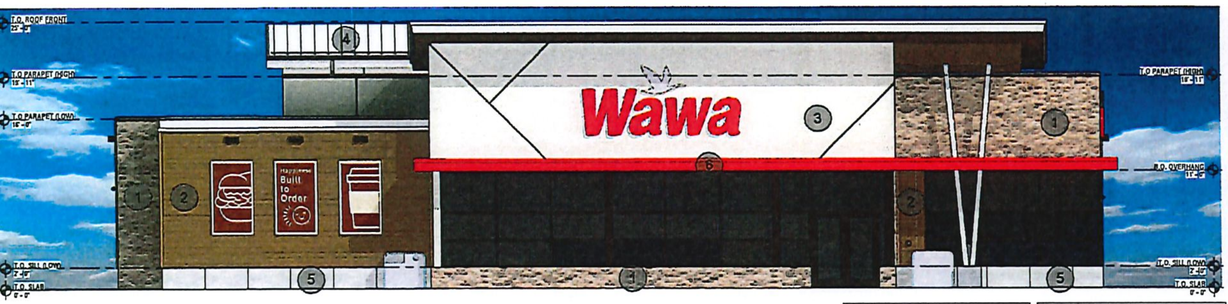
Drawn By: CWS Checked By: WNS

Date: 01.19.24 Job No: 24.009

A2.1



WEST
NORTH
SOUTH
EAST
COOLER
105A
KITCHEN
105
SEATING
102
238 SEATS
STORAGE
110
FIRE RATED PARTITION
OFFICE
107
UTILITY
106
BREWING
109
COOLER
108
WOMEN
104
MEN
103
VEST
101
2
A1.1
EQ
EQ
44' - 0"
10' - 0"
65' - 8"
48' - 8"
2' - 4"
7' - 4"
1
2
3
4



① FRONT ELEVATION
3/16" = 1'-0"

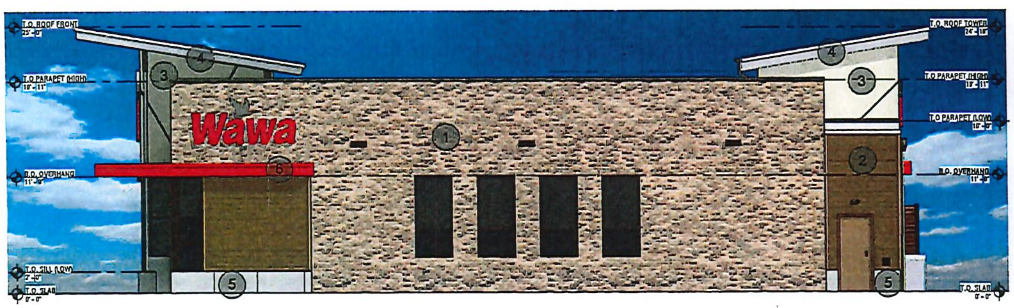
GLAZING CALCS - FRONT ELEVATION:	
CLEAR GLAZING - 410 SQFT	21%
SPANDREL GLAZING - 123 SQFT	6%
TOTAL GLAZING - 533 SQFT	27%
TOTAL BUILDING - 1,984 SQFT	
GLAZING - 533/1,984 = 27%	

MATERIAL CALCS - FRONT ELEVATION:	
BRICK-1 - 313 SQFT	16%
COMPOSITE SIDING - 383 SQFT	19%
STUCCO/EIFS - 586 SQFT	29%
TILE - 89 SQFT	5%
METAL OVERHANG - 80 SQFT	4%
TOTAL MATERIAL - 1,451 SQFT	

② REAR ELEVATION
3/16" = 1'-0"

GLAZING CALCS - REAR ELEVATION:	
CLEAR GLAZING - 68 SQFT	4%
SPANDREL GLASS - 181 SQFT	9%
TOTAL GLAZING - 249 SQFT	13%
TOTAL MATERIAL - 1,741	
TOTAL BUILDING - 1,990 SQFT	
GLAZING - 249/1,990 = 13%	

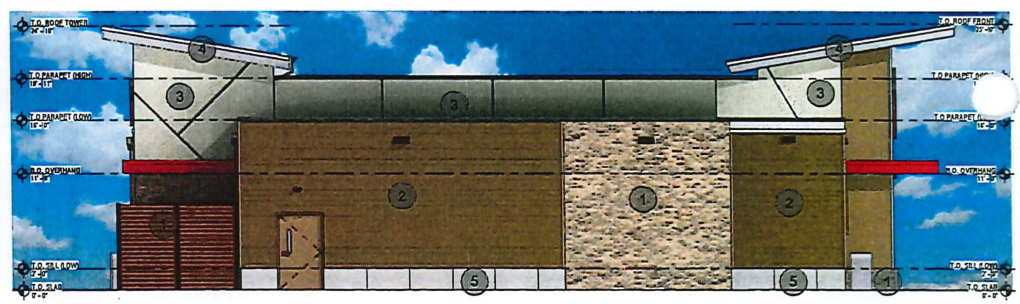
MATERIAL CALCS - REAR ELEVATION:	
BRICK-1 - 676 SQFT	36%
COMPOSITE SIDING - 543 SQFT	27%
STUCCO/EIFS - 408 SQFT	21%
TILE - 69 SQFT	4%
METAL OVERHANG - 45 SQFT	2%
TOTAL MATERIAL - 1,741 SQFT	



③ SIDE ELEVATION
3/16" = 1'-0"

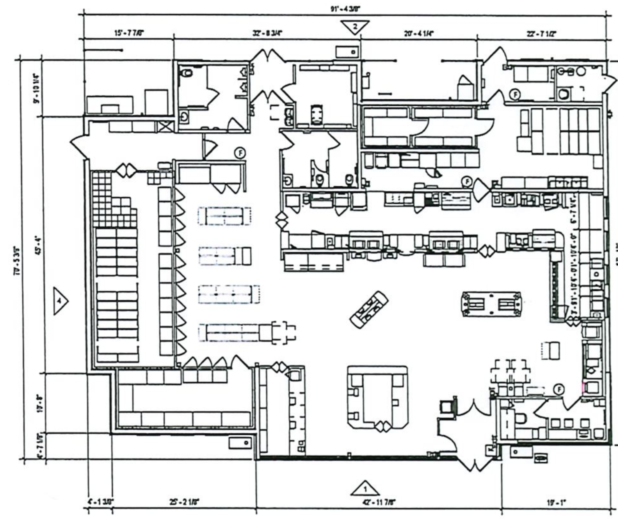
GLAZING CALCS - SIDE ELEVATION:	
CLEAR GLAZING - 104 SQFT	7%
SPANDREL GLAZING - 48 SQFT	3%
TOTAL - 152 SQFT	10%
TOTAL MATERIAL - 1,437 SQFT	
TOTAL BUILDING - 1,589 SQFT	
GLAZING - 152/1,589 = 10%	

MATERIAL CALCS - SIDE ELEVATION:	
BRICK-1 - 970 SQFT	61%
COMPOSITE SIDING - 164 SQFT	10%
STUCCO/EIFS - 213 SQFT	13%
TILE - 63 SQFT	4%
METAL OVERHANG - 27 SQFT	2%
TOTAL MATERIAL - 1,437 SQFT	



④ SIDE ELEVATION
3/16" = 1'-0"

MATERIAL CALCS - SIDE ELEVATION:	
BRICK - 381 SQFT	22%
COMPOSITE - 552 SQFT	34%
STUCCO/EIFS - 601 SQFT	37%
TILE - 87 SQFT	5%
MTL OVERHANG- 24 SQFT	2%
TOTAL - 1,625 SQFT	



⑤ FLOOR PLAN
1" = 10'-0"

MATERIALS:

EXTERIOR FINISH PACKAGE: BRICK-1

HFA

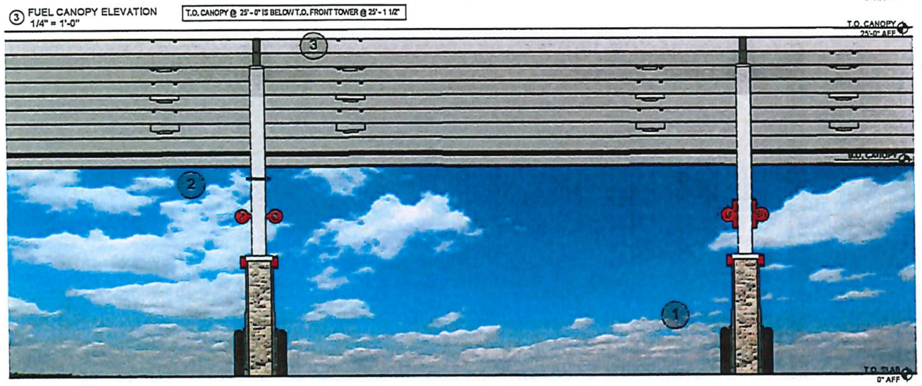
WAWA U59FB-L

NORTH BEND ROAD
HEBRON, KY

Wawa

③ FUEL CANOPY ELEVATION
1/4" = 1'-0"

T.O. CANOPY @ 25'-0" IS BELOW T.O. FRONT TOWER @ 25'-1 1/2"

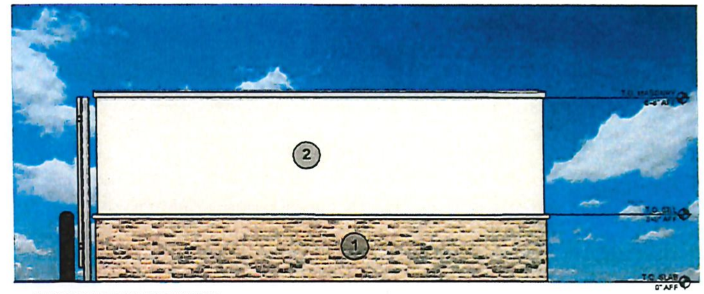


② FUEL CANOPY ELEVATION - LONG
1/4" = 1'-0"

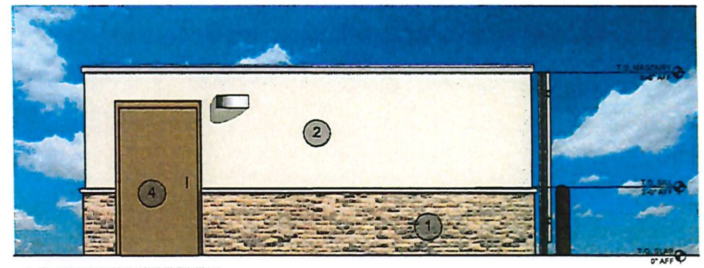
① FUEL CANOPY PERSPECTIVE

MATERIALS:

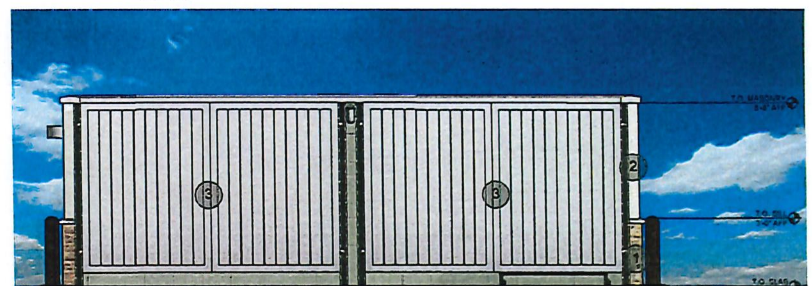
① BRICK	① BRICK
② METAL: WHITE	② EIFS OR STUCCO
③ ROOF: TITANIUM	③ METAL: WHITE
	④ DOOR TO MATCH BUILDING



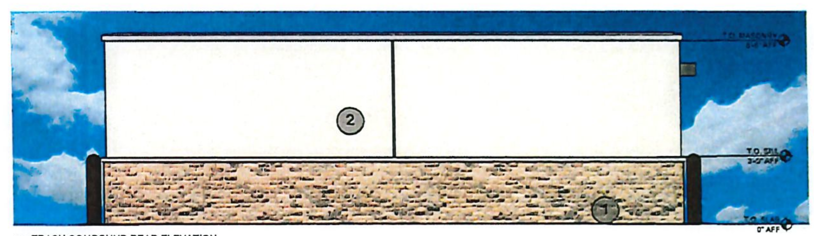
⑦ TRASH COMPOUND SIDE ELEVATION
3/8" = 1'-0"



⑥ TRASH COMPOUND SIDE ELEVATION
3/8" = 1'-0"



TRASH COMPOUND FRONT ELEVATION
⑤ 3/8" = 1'-0"



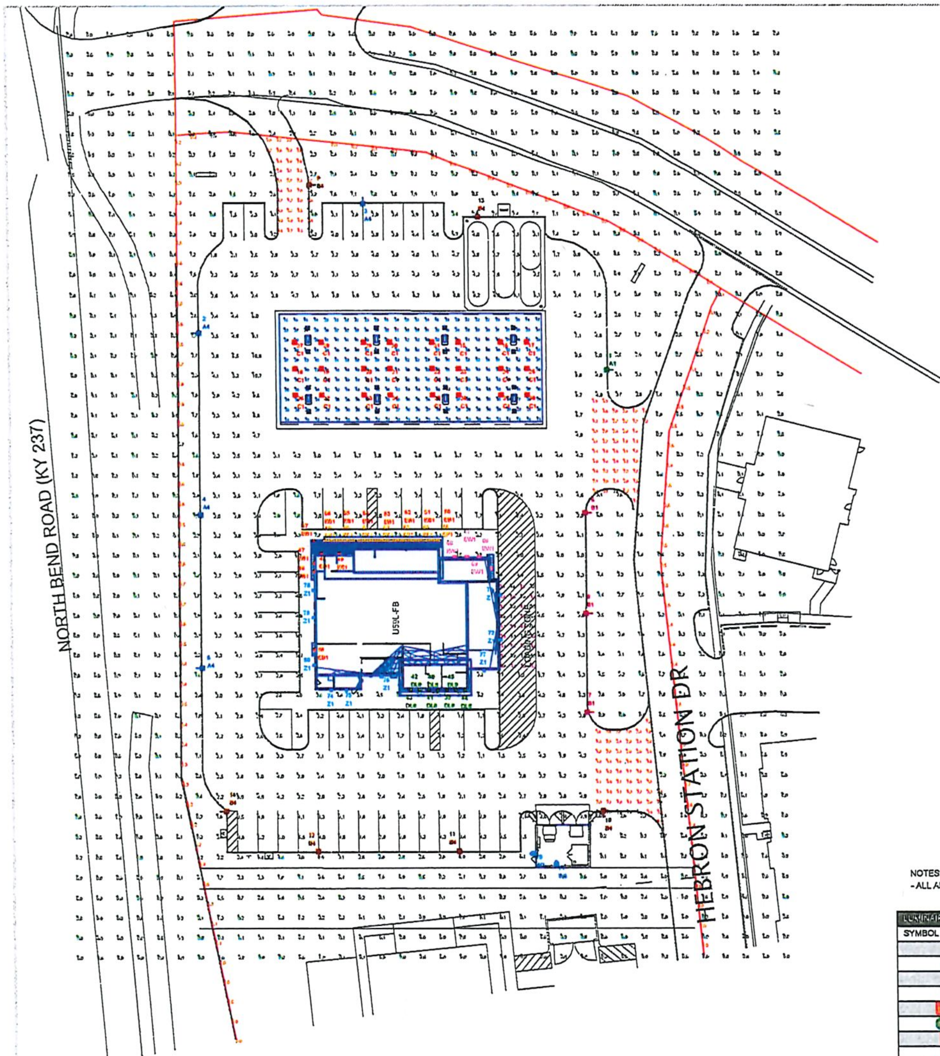
④ TRASH COMPOUND REAR ELEVATION
3/8" = 1'-0"

HFA

WAWA STRAIGHT 10 FUEL CANOPY - TRASH COMPOUND

2327 GRAVES ROAD & WILLIAMS RD
HEBRON, KY (BOONE COUNTY)

Wawa®



THIS SITE IS LOCATED IN A REGION WHERE LIGHTING IS REGULATED BY LOCAL ORDINANCES

LUMINAIRE LOCATION SUMMARY

LUM NO.	LABEL	MTG. HT.
1	A1	20.5
2	A4	20.5
3	A4	20.5
4	A4	20.5
5	A4	20.5
6	B1	20.5
7	B1	20.5
8	B1	20.5
9	B4	20.5
10	B4	20.5
11	B4	20.5
12	B4	20.5
13	B4	20.5
14	B4	20.5
15	C1	17.11
16	C1	17.11
17	C1	17.11
18	C1	19.32
19	C1	19.32
20	C1	19.32
21	C1	19.32
22	C1	19.32
23	C1	19.32
24	C1	19.32
25	C1	19.32
26	C1	21.53
27	C1	17.11
28	C1	17.11
29	C1	17.11
30	C1	17.11
31	C1	17.11
32	C1	21.53
33	C1	21.53
34	C1	21.53
35	C1	21.53
36	C1	21.53
37	C1	21.53
38	C1	21.53
39	DL8	11
40	DL8	11

LUMINAIRE LOCATION SUMMARY

LUM NO.	LABEL	MTG. HT.
41	DL8	11
42	DL8	11
43	DL8	11
44	DL8	11
45	DL8	11
46	EB1	11
47	EB1	11
48	EB1	11
49	EB1	11
50	EB1	10.5
51	EB1	10.5
52	EB1	10.5
53	EB1	10.5
54	EB1	10.5
55	EB1	10.5
56	EB1	10.5
57	EB1	10.5
58	EB1	14
59	EF1	11.833
60	EF1	11.833
61	EF1	11.833
62	EF1	11.833
63	EF1	11.833
64	EF1	11.833
65	EF1	11.833
66	EW1	14
67	EW1	14
68	EW1	14
69	EW1	14
70	W3	8
71	W3	8
72	Z1	14
73	Z1	14
74	Z1	14
75	Z1	14
76	Z1	14
77	Z1	14
78	Z1	14
79	Z1	14
80	Z1	14

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES

LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
CANOPY	36.14	58	14	2.58	4.14
DELIVERY AREA	4.76	5.4	3.5	1.36	1.54
ENTRANCES & EXIT DRIVES	3.26	5.5	1.2	2.72	4.58
PARKING & INTERIOR DRIVE AISLES	3.65	10.9	0.9	4.06	12.11
PROPERTY LINES	0.38	1.0	0.0	N.A.	N.A.
UNDEFINED	0.61	28.4	0.0	N.A.	N.A.

NOTES:
- ALL AREA LIGHTS ON 20 FT. POLES MOUNTED ON 6 IN. CONCRETE BASES

LUMINAIRE SCHEDULE

SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	1	A1	SINGLE	12019	1.030	B3-U0-G3	134.2	134.2	Cree Lighting	ARE-EDG-3M-DA-06-E-UL-XX-700-57K
	4	A4	SINGLE	8891	1.030	B1-U0-G2	134	536	CREE, INC.	ARE-EDG-3MB-DA-06-E-UL-XX-700-57K
	3	B1	SINGLE	12678	1.030	B3-U0-G2	134	402	Cree Inc.	ARE-EDG-4M-DA-06-E-UL-XX-700-57K
	6	B4	SINGLE	9549	1.030	B1-U0-G2	134	804	CREE, INC.	ARE-EDG-4MB-DA-06-E-UL-XX-700-57K
	24	C1	SINGLE	13251	1.030	B3-U0-G1	134	3216	CREE, INC.	CAN-304-SL-RD-06-E-UL-XX-700-57K
	7	DL8	Single	1121	1.000	B1-U0-G0	11.5	80.5	Juno Lighting	2LEDTG2C-830F-WWH w_ 2LEDDRVG2-10-120
	13	EB1	Single	1388	1.000	B1-U1-G0	19	247	WAC Lighting	WP-LED119-30
	7	EF1	SSL-4_1	992	1.000	B1-U1-G0	17.444	488.432	FC Lighting	CVLWET1.5-4-4K-80CRI-1040
	4	EW1	Single	500	1.000	B0-U0-G0	10.5	42	CARIBONI GROUP	WS-W2509-3000K-BZ
	2	W3	SINGLE	1557	1.030	B0-U0-G1	25	50	CREE, INC.	SEC-EDG-3MB-WM-02-E-UL-XX-350-57K
	9	Z1	Single	2710	1.000	B0-U0-G1	25.31	227.79	COOPER LIGHTING SOLUTIONS - McGRAW-	ISC-AF-450-LED-E1-SL4-WH

RED LEONARD ASSOCIATES
1340 Kemper Meadow Dr, Forest Park, OH 45240
513-574-9500 | redleonard.com

REV.	BY	DATE	DESCRIPTION
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.	.	.	.
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SCALE: 1" = 30'
LAYOUT BY: LMP
DWG SIZE: D
DATE: 12/08/23

PROJECT NAME:
WAWA
HEBRON, KY
DRAWING NUMBER:
RL-9321-S1

Wawa

AREA

QTY	LABEL	DESCRIPTION
1	A1	RE-EDG-3M-DA-06-E-UL-XX-700-57K
4	A4	ARE-EDG-3MB-DA-06-E-UL-XX-700-57K
3	B1	ARE-EDG-4M-DA-06-E-UL-XX-700-57K
6	B4	ARE-EDG-4MB-DA-06-E-UL-XX-700-57K

CANOPY

QTY	LABEL	DESCRIPTION
24	C1	CAN-304-SL-RD-06-E-UL-XX-700-57K

DOWNLIGHT

QTY	LABEL	DESCRIPTION
7	DL8	2LEDTG2C-830F-WWH W_ 2LEDDRVG2-10-120

WALL MOUNTED

QTY	LABEL	DESCRIPTION
13	ED1	WP-LED110-30

COVELINE

QTY	LABEL	DESCRIPTION
7	EF1	CVLWET1.5-4-4K-80CRI-1040

ADDITIONAL FIXTURE INFO

THE EDGE® Series

CREE ÷ LIGHTING

ADDITIONAL FIXTURE INFO

304 Series™

CREE ÷ LIGHTING

Juno

2" IC 600 AND 1000 LUMENS LED ROUND DOWNLIGHT CONE 2LEDTRIM G2 DC

2 5/8" CEILING CUTOUT
2" APERTURE

2" IC 600 AND 1000 LUMENS LED ROUND DOWNLIGHT CONE 2LEDTRIM G2 DC

FIN - model: WP-LED1
Endurance Wallpack

WAC LIGHTING
Responsible Lighting®

Fixture Type:

Catalog Number:

Project:

Location:

SSL

COVELINE WET 1.5

COVELINE WET 1.5

Ordering Information

REDLEONARD ASSOCIATES
1340 Kemper Meadow Dr, Forest Park, OH 45240
513-574-9500 | redleonard.com

PROJECT NAME
WAWA
HEBRON, KY
DRAWING NUMBER
RL-9321-S1

Wawa

	QTY	LABEL	DESCRIPTION
WALL MOUNTED	4	EW1	WS-W2509-3000K-BZ

	QTY	LABEL	DESCRIPTION
WALL MOUNTED	2	W3	SEC-EDG-3MB-WM-02-E-UL-XX-350-57K

	QTY	LABEL	DESCRIPTION
WALL MOUNTED	9	Z1	ISC-AF-450-LED-E1-SL4-WH

ADDITIONAL FIXTURE INFO

WAC LIGHTING

Rubix

Wall Mount 3000K

THE EDGE® Series

CREE ◆ LIGHTING

McGraw-Edison

Impact Elite LED

Wall Mount Luminaire

Quick Facts

- 16 Optical Distributions
- Lumen packages range from 2,459 to 11,480 (20W – 95W)
- Efficacy up to 149 lumens per watt

COOPER

McGraw-Edison Impact Elite LED

CREE ◆ LIGHTING

COOPER

REDLEONARD ASSOCIATES

1340 Kemper Meadow Dr, Forest Park, OH 45240

513-574-9500 | redleonard.com

PROJECT NAME

WAWA

HEBRON, KY

DRAWING NUMBER

RL-9321-S1

Wawa

Hebron Station Commercial Lots – Special Sign District
North Bend Road at Hebron Station Drive

BRG Hebron Station LLC owns approximately 4.1 acres located at the southeast corner of KY 237/North Bend Road and Hebron Station Drive. Anchor Properties has a contract to purchase 1.99 acres and plans to build a Wawa convenience store with fuel sales on the proposed northern commercial lot (Lot #1). Longnecks has a contract to purchase 2.07 acres and plans to build a new Longnecks Sports Grill on the proposed southern commercial lot (Lot #2).

A Special Sign District is requested for the 4.1 acre commercial development, Lots 1 and 2, for Hebron Station for the Wawa store and Longnecks Sports Grill. The proposed sign standards are described below.

> *Proposed signs for both uses have been submitted. The proposed Special Sign District standards have been crafted based on our assessment of Article 34. We request that staff modify the proposed standards for the Special Sign District if it is determined that additional modifications to the sign regulations are needed to allow the proposed signs.*

Hebron Station Commercial Lots Special Sign District Standards

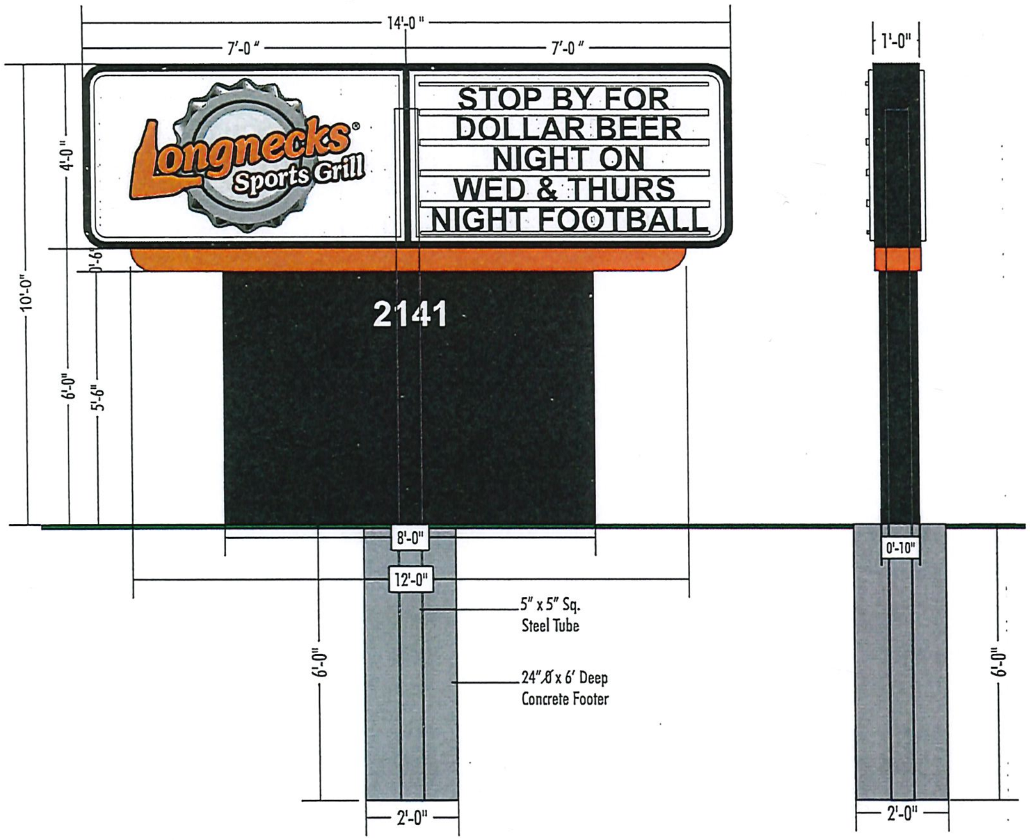
The proposed signs for the Hebron Station Commercial Lots will meet Boone County Zoning Regulations Article 34 for the C-2 District **except as modified below**:

1. Each lot/parcel will be allowed 2 freestanding signs per parcel.
2. The maximum height for freestanding signs along the KY 237/North Bend Road frontage shall be 20 feet.
3. The maximum height for freestanding signs not along the KY 237/North Bend Road frontage shall be 10 feet.
4. Freestanding signs on Lot 1 may include information for both Lots 1 and 2 – i.e. signs can have content for both Wawa and Longnecks.
5. Lot 1 shall be permitted to have digital fuel price signs on the freestanding signs.
6. Lot 1 shall be permitted to have wall signs on 4 building elevations.
7. Lot 1 shall be permitted to have wall sign area on the south building elevation of up to 100 square feet.
8. Lot 1 shall be permitted to have a sign on the north fascia of the proposed fuel canopy.
9. Lot 1 shall be permitted to have "spanner" signs between the fuel canopy columns on the west and east sides of the fuel canopy as shown on the Wawa sign plans.
10. Lot 1 shall be permitted to have fuel notification signs on the fuel canopy and dispensers as shown on the Wawa sign plans.
11. Lot 1 shall be permitted directional signs as shown on the Wawa sign plans.

We believe that the proposed Hebron Station Commercial Lots have unique characteristics that support the proposed Special Sign District. The commercial lots have frontage on North Bend Road, but no access to the road. The primary access will be from a private street (along the east side of the lots). Allowing 2 signs per parcel will provide visibility needed for circulation and access to both lots. We believe that the proposed signs for Lot 1/Wawa are necessary for the convenience store and fuel center operation, and that the signs requested are part of a coordinated overall design theme and identify for Wawa.

Double Face Monument Sign

Longnecks Sports Grill - Richwood, Ky



Furnish and install one (1) internally illuminated monument sign

Cabinet/reveal/pole cover-To be aluminum construction

- -Sign cabinet - painted black
- -Reveal - painted orange to match faces
- -Pole cover painted black with 6" white vinyl address numerals applied

Faces- To be panned Lexan

- -Logo faces to be painted white with 'Longnecks' logo (multiple colors)
- -Changeable copy faces to be white with five lines of track for 6" copy

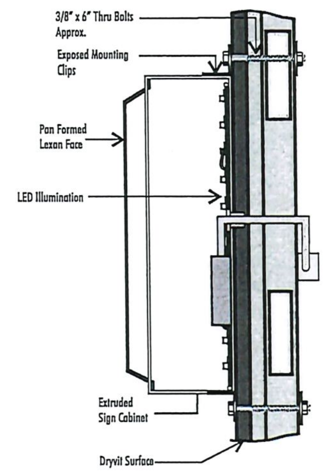
Illumination - HO Fluorescent Lamps

UL Listed and Labeled

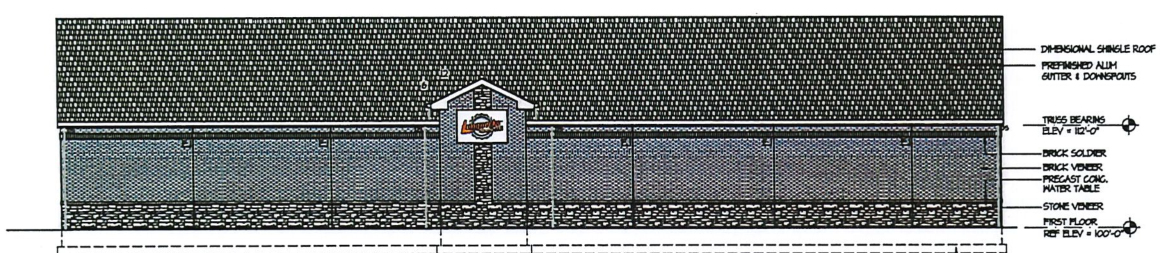
PMS 021 ORANGE

Wall Signs

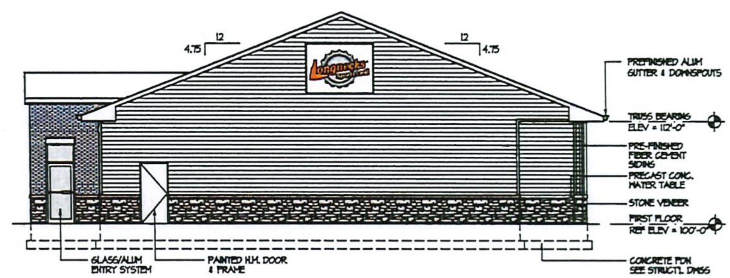
Longnecks Sports Grill - Richwood, Ky



Furnish and install two (2) internally illuminated wall signs
-Sign cabinet - extruded aluminum painted black
-Faces- To be pan formed Lexan with printed logo
Illumination - white LEDs
UL Listed and Labeled

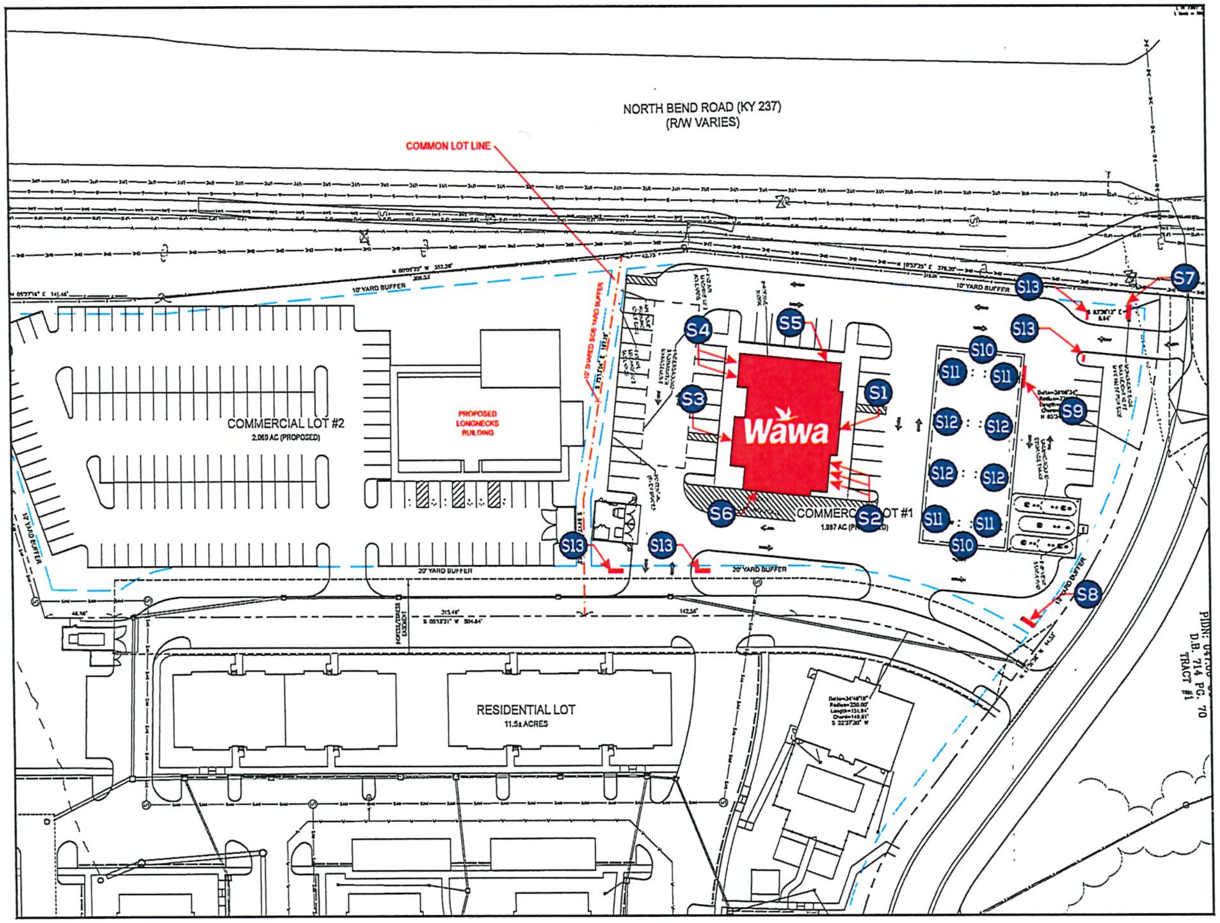


SOUTH ELEVATION



EAST ELEVATION

EXTERIOR SIGNAGE SITE PLAN



SIGN ID	DESCRIPTION	QTY
S1	WAWA CHANNEL LETTERS WITH GOOSE	1
S2	WALL PANELS (SETS OF 3)	1
S3	WAWA CHANNEL LETTERS WITH GOOSE	1
S4	WALL PANELS (SETS OF 2)	1
S5	WAWA CHANNEL LETTERS WITH GOOSE	1
S6	WAWA CHANNEL LETTERS WITH GOOSE	1
S7	DOUBLE FACED PYLON SIGN	1
S8	DOUBLE FACED MONUMENT SIGN	1
S9	GAS CANOPY SIGN	1
S10	CANOPY SPANNERS	2
S11	PUMP INDICATORS	4
S12	PUMP INDICATORS	4
S13	DIRECTIONAL SIGNS	4

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Wawa

WaWa
3120 North Bend Road,
Hebron, KY

STORE #
C-05893

Issue Date: 11/17/2023
Drawn By: Mike C.

REV	DATE	DESCRIPTION
2	11/22/23	UPDATE AS PER REQUEST
3	11/27/23	UPDATE AS PER REQUEST
4	11/28/23	UPDATE AS PER REQUEST

Rev: 4
Date: 11/28/2023
Doc #: AD-WAW_110263_Hebron_REV4
Blair Project #: 110263
Blair Sales Order #: TBD

Blair Image Elements
5107 Kissell Avenue
Altoona, PA 16601
P: (814) 949.8287
blairimage.com

blair IMAGE ELEMENTS™

Wall Signs	ALLOWED total sf	CURRENTLY INSTALLED	PROPOSED	CODE	VARIANCE (Y/N)
S1	182 SF		97.4 SF	• Primary elevation: 2 SF per lineal foot of building width • Other elevations: 1 SF per lineal foot of building width • Signs on awnings are considered in the total SF of building mounted signs permitted for that elevation • SF allotted to any one elevation may be divided into 3 separate sign areas	N
S3	91 SF		42.5 SF		N
S5	70 SF		42.5 SF		N
S6	70 SF		42.5 SF		N
TOTAL					

Free Standing Signs	ALLOWED total sf	CURRENTLY INSTALLED	PROPOSED	CODE	VARIANCE (Y/N)
S7	113 SF		58.5 SF	• Max number of monument signs: 1 • 1 sign for each parcel regardless of the number of business establishments or road frontages • Max height: 10 feet • Max SF: 1/2 SF per lineal foot of road frontage, NTE 100 SF (226' 6-3/4" of road frontage) • Street number/address number shall be displayed on the sign (does not count as part of the permitted sign area)	Y
S8	113 SF		61.75 SF		
TOTAL					

COMMENTS

For Directional Signs:

- 1 directional sign permitted near each entrance
  - o Each sign: Max area of 6 SF and max height 5 FT
- Signs directing/guiding traffic, e.g. drive-thru lanes:
  - o Each sign: Max area of 10 SF and max height of 5 FT

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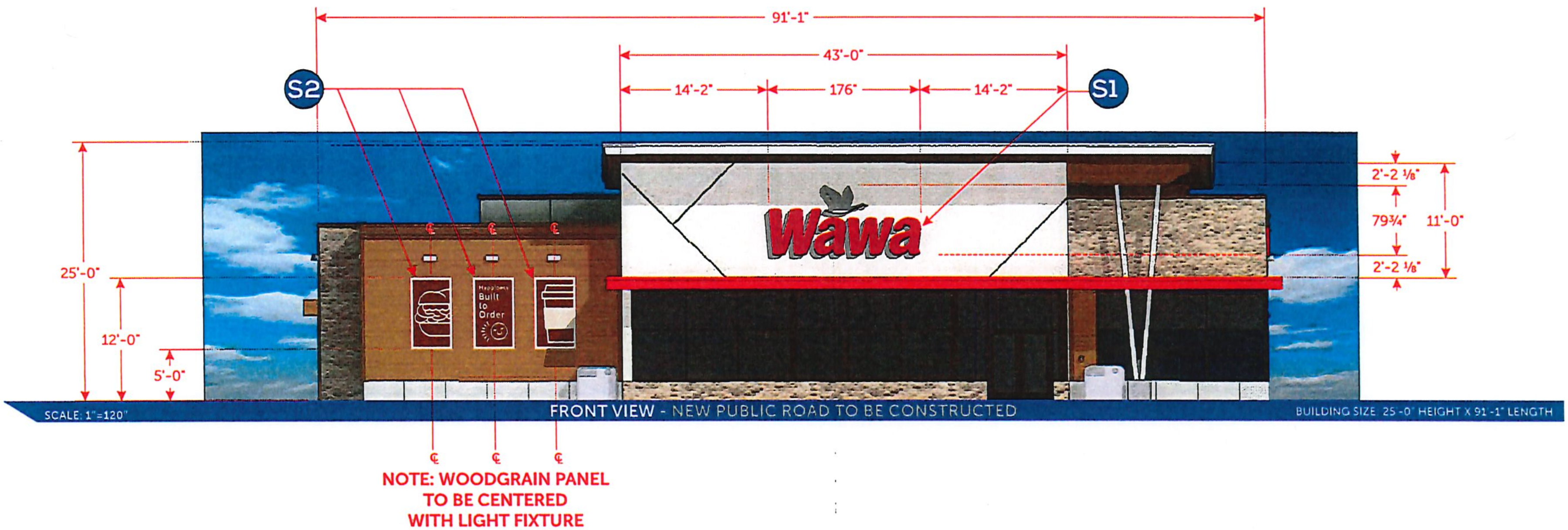

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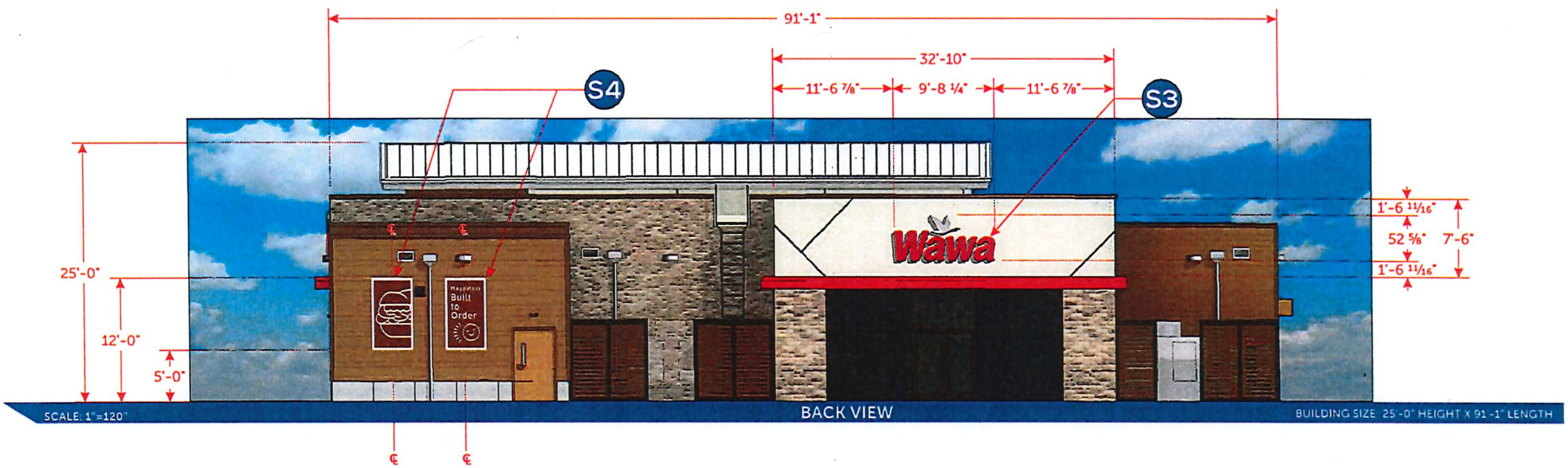

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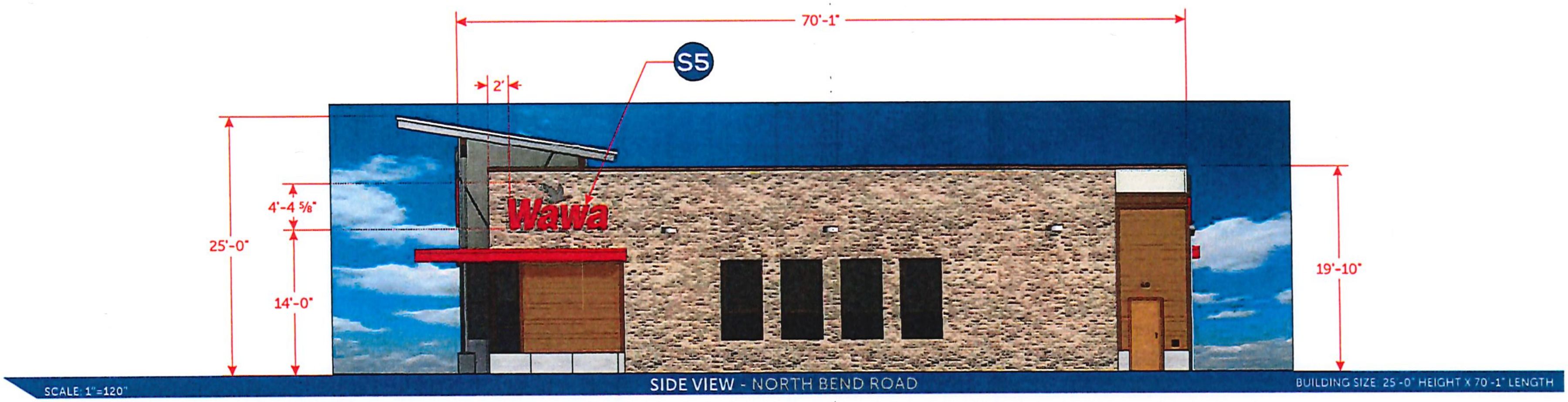
S5 - PROPOSED RENDERING



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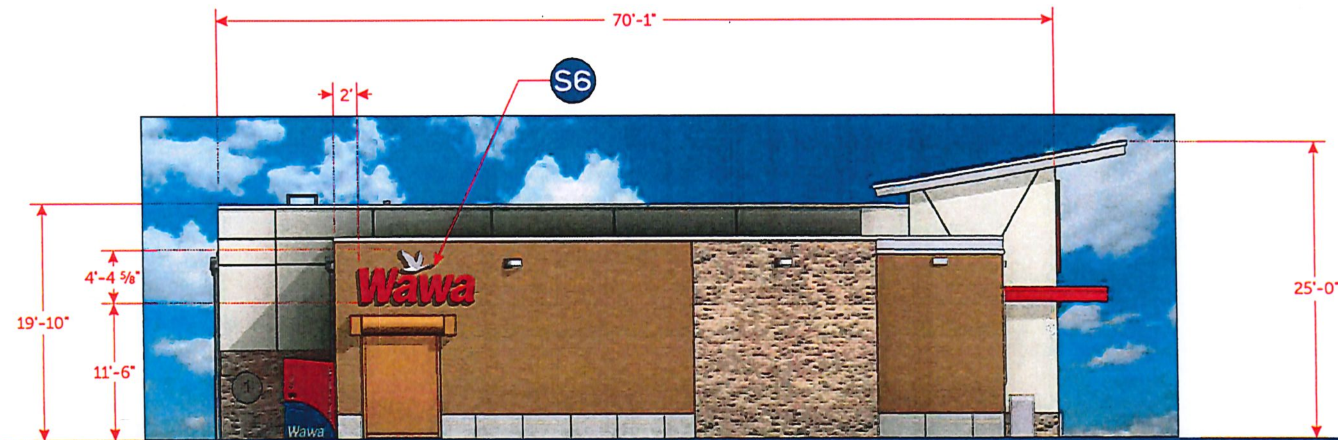
Wawa WaWa 3120 North Bend Road, Hebron, KY	STORE # C-05893	Issue Date: 11/17/2023 Drawn By: Mike C. REV DATE DESCRIPTION 2 11/22/23 UPDATE AS PER REQUEST 3 11/27/23 UPDATE AS PER REQUEST 4 11/28/23 UPDATE AS PER REQUEST	Page 8	Rev: 4 Date: 11/28/2023 Doc #: AD-WAW_110263_Hebron_REV4 Blair Project #: 110263 Blair Sales Order #: TBD	Blair Image Elements 5107 Kissell Avenue Altoona, PA 16601 P: (814) 949.8287 blairimage.com blair IMAGE ELEMENTS™

S6 - PROPOSED RENDERING



SCALE: 1"=120" SIDE VIEW BUILDING SIZE: 25'-0" HEIGHT X 70'-1" LENGTH

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Wawa

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Hebron, KY

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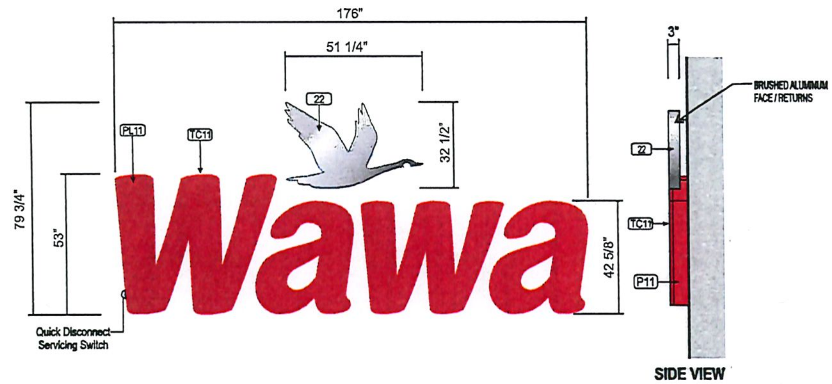
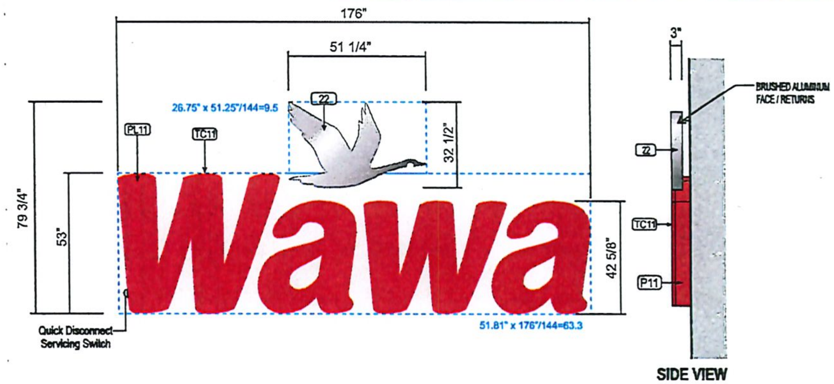


X 53" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO

SCALE: NTS

QTY: 1
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of ONE(1) GEOMETRIC SHAPE = **97.4 SQ FT**



X 53" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO

SCALE: NTS

QTY: 1
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of TWO(2) GEOMETRIC SHAPES = **72.8 SQ FT**

WALL MATERIAL:
to vary per site

INSTALL:
Logo: Thru bolted w/ 2" stand off from wall
Letters Thru bolted flush; all w/ min 3/8" dia all thread
into approved blocking; spacers provided for logo painted to match wall

QUANTITY:
(1) one set required

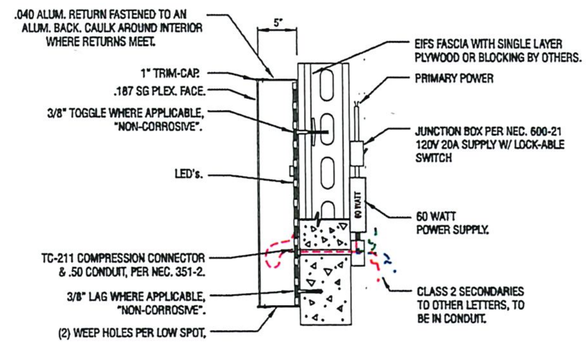
COLOR PALETTE

LOGO: 22
#12 Brushed Alum.
Metal finish

LETTER RETURNS: P11
Pantone 186 Red

TRIMCAP: TC11
Jewelite Red

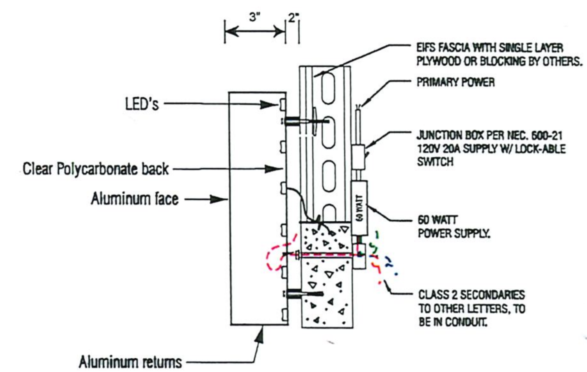
FACES: PL11
2793 Red acrylic



SECTION @ FACE-LIT CHANNEL LETTER

SCALE: NTS

Note: The power supply location shown in this detail in no way reflects the actual location when installed. In the field GC / Installer to determine appropriate mounting locations at site.



SECTION @ HALO-LIT GOOSE LOGO

SCALE: NTS

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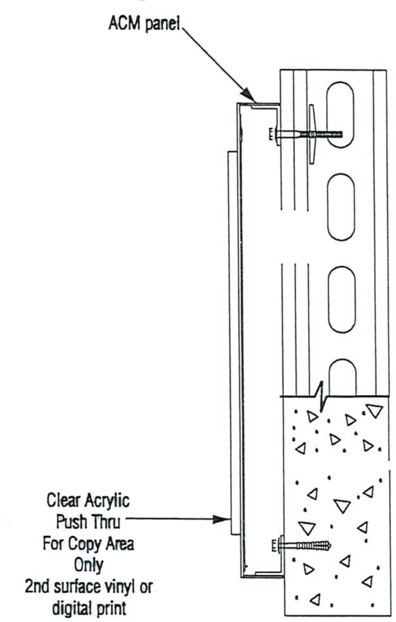
FRONT VIEW
SCALE: 1"=18" 28 SQ.FT.

FRONT VIEW
SCALE: 1"=18" 28 SQ.FT.

FRONT VIEW
SCALE: 1"=18" 28 SQ.FT.

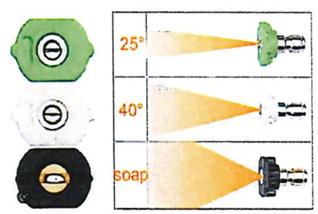


SECTION @ Non Lit ACM Push Thru

SCALE: NTS

CLEANING CRITERIA

Pressure Wash Acceptable.
If using 25° tip and over.
Use ONLY mild detergent soap and water.



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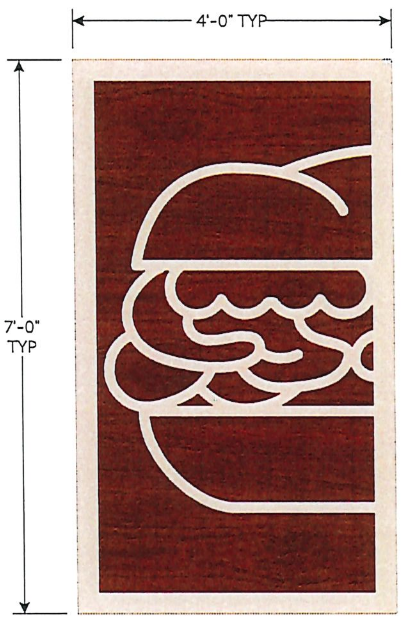
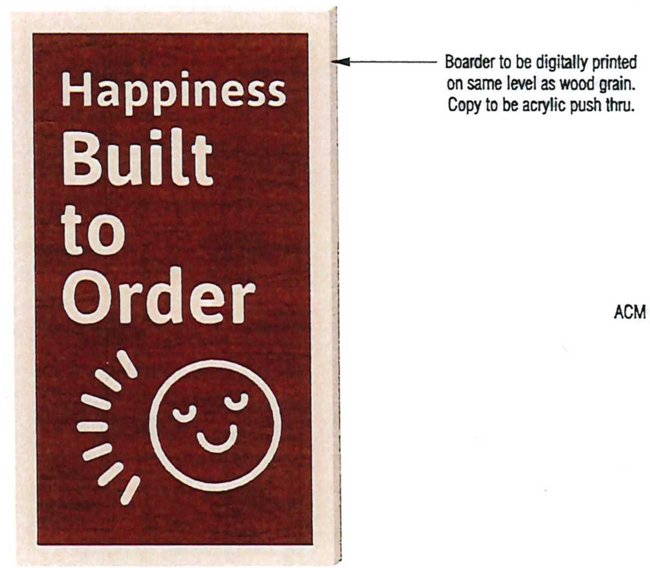


FRONT VIEW
SCALE: 1"=18" 28 SQ.FT.

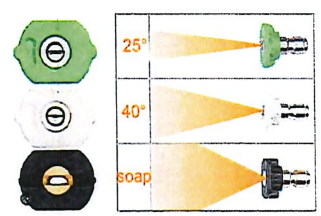
ISOMETRIC VIEW

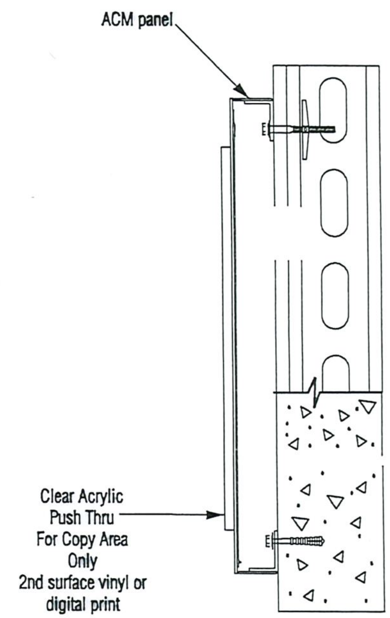


FRONT VIEW
SCALE: 1"=18" 28 SQ.FT.

CLEANING CRITERIA

Pressure Wash Acceptable.
If using 25° tip and over.
Use ONLY mild detergent soap and water.





SECTION @ Non Lit ACM Push Thru
SCALE: NTS

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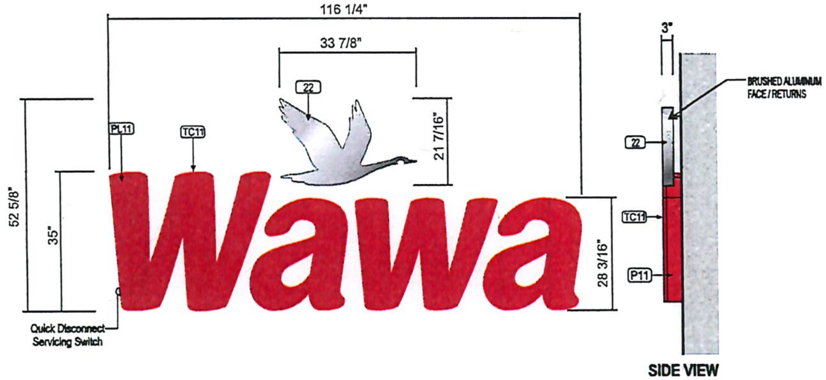
P: (814) 949.8287
blairimage.com

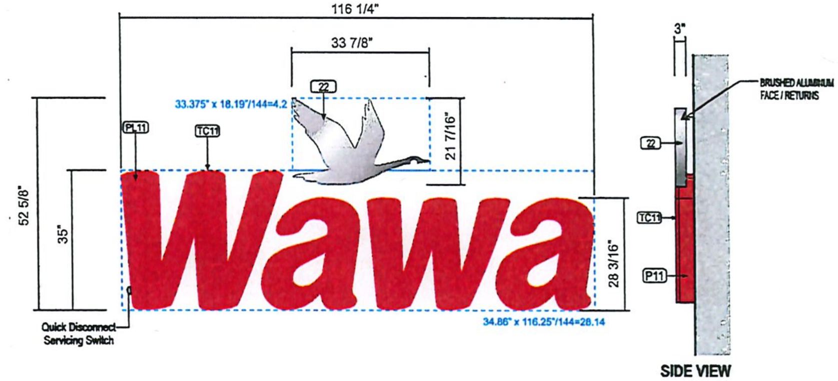
S3/S5/S6 - 35" CHANNEL LETTERS AND GOOSE LOGO



X 35" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO

QTY: 1
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of ONE(1) GEOMETRIC SHAPE = **42.5 SQ FT**

SCALE: 3/8"=1'-0"



X 35" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO

QTY: 1
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of TWO(2) GEOMETRIC SHAPES = **32.34 SQ FT**

SCALE: 3/8"=1'-0"

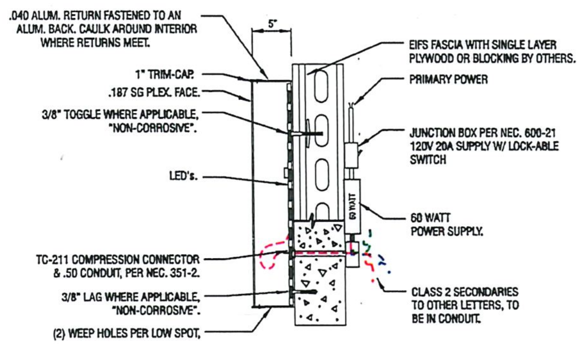
WALL MATERIAL:
to vary per site

INSTALL:
Logo: Thru bolted w/ 2" stand off from wall
Letters Thru bolted flush; all w/ min 3/8" dia all thread into approved blocking; spacers provided for logo painted to match wall

QUANTITY:
(1) one set required

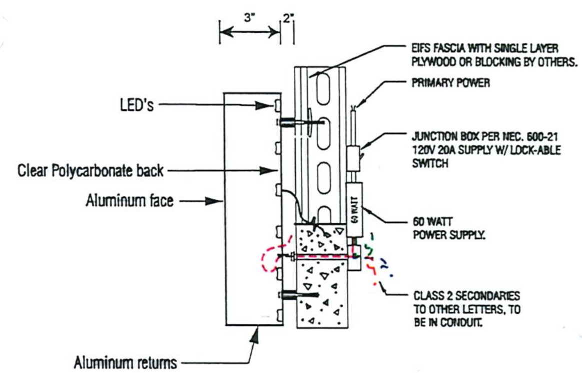
COLOR PALETTE

- LOGO: 22 — #12 Brushed Alum. Metal finish
- LETTER RETURNS: P11 — Pantone 186 Red
- TRIMCAP: TC11 — Jewelite Red
- FACES: PL11 — 2793 Red acrylic



SECTION @ FACE-LIT CHANNEL LETTER
SCALE: NTS

Note: The power supply location shown in this detail in no way reflects the actual location when installed. In the field GC / Installer to determine appropriate mounting locations at site.



SECTION @ HALO-LIT GOOSE LOGO
SCALE: NTS

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P: (814) 949.8287
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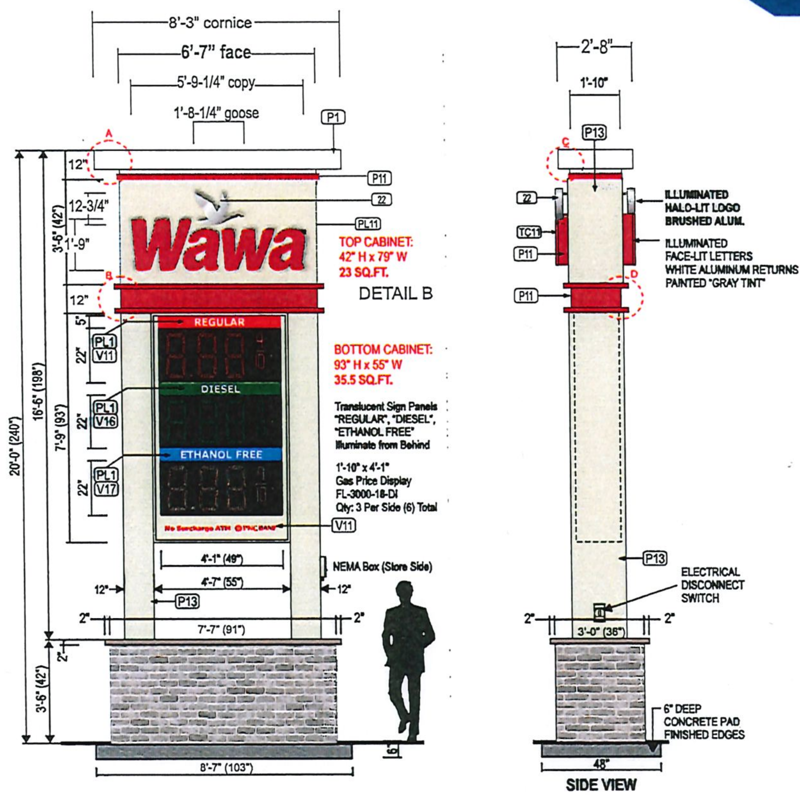
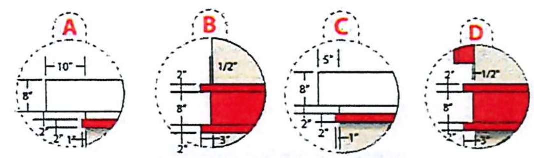


18" / 3 PRODUCT
P-50 D/F ILLUMINATED PYLON SIGN (58.5 SQ. FT.)

STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY — SCALE: 1/4"=1'-0"

COLOR REFERENCE

Code	Description
P11	Paint to Match PMS 186 C
TC11	Jewelite 'Red' Trim Cap
PL11	#2793 Red Acrylic
V11	3M 3630-83 "Regal Red" *Translucent*
V16	3M 3630-153 "Vivid Green" *Translucent*
V17	3M 3630-57 "Olympic Blue" *Translucent*
P13	RAL #1013 OYSTER WHITE
P1	Painted White Smooth Satin
20	Limestone Cap By Others
21	Stone/Masonry Base By Others
22	Brushed Aluminum Metal Finish w/ Protective Clear Coat



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Wawa

WaWa
3120 North Bend Road,
Hebron, KY

STORE #
C-05893

Issue Date: 11/17/2023
Drawn By: Mike C.

REV	DATE	DESCRIPTION
2	11/22/23	UPDATE AS PER REQUEST
3	11/27/23	UPDATE AS PER REQUEST
4	11/28/23	UPDATE AS PER REQUEST

Rev: 4
Date: 11/28/2023
Doc #: AD-WAW_110263_Hebron_REV4
Blair Project #: 110263
Blair Sales Order #: TBD

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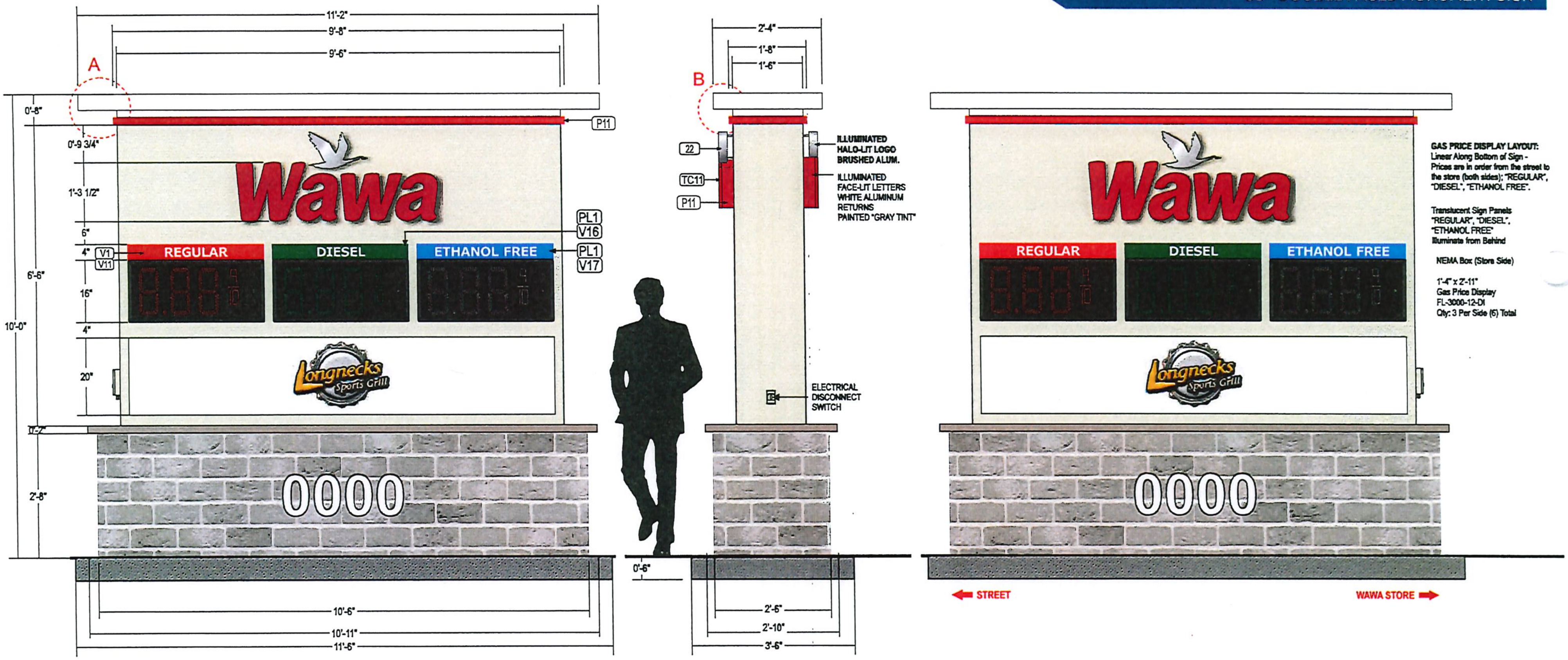
S8 - DOUBLE FACED MONUMENT SIGN



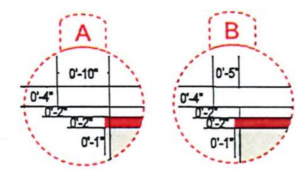
30" & 12"/ 3 Product
CUSTOM M-50 D/F ILLUMINATED MONUMENT SIGN (61.75 SQ. FT.)

STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

SCALE: 1/2"=1'-0"

COLOR REFERENCE

P11	V1	TC11	PL11	V11	V16	P13	P1	20	21	22
Paint to Match PMS 186 C	3M 7725-10 "White" *Opaque*	Jewelite 'Red' Trim Cap	#2793 Red Acrylic	3M 3630-83 "Regal Red" *Translucent*	3M 3630-153 "Vivid Green" *Translucent*	RAL #1013 OYSTER WHITE	Painted White Smooth Satin	Limestone Cap By Others	Stone/Masonry Base By Others	Brushed Aluminum Metal Finish w/ Protective Clear Coat



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Hebron, KY

STORE #
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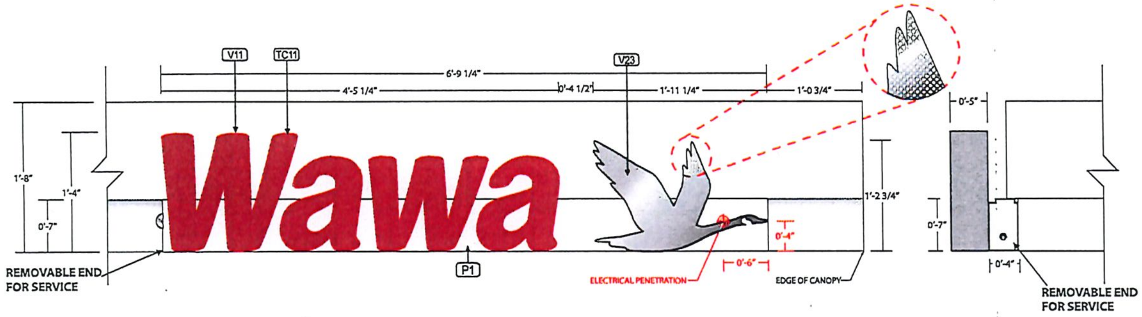


X 5" DEEP FRONT LIT LED ILLUMINATED LETTERS & LOGO (ON 4" X 7" EXTRUDED RACEWAY) - RIGHT SIDE

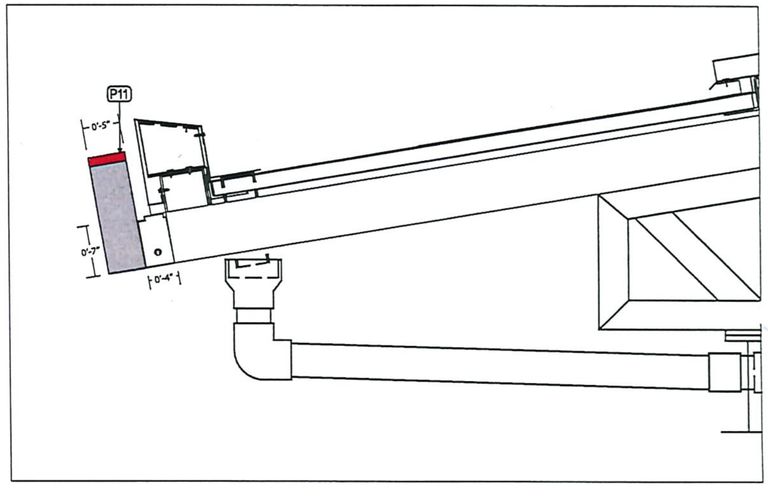
9.02 SQ.FT.

SCALE: 3/4=1'-0"

QTY: 1
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
END OF RACEWAY TO BE REMOVABLE TO ALLOW FOR SERVICING.

COLOR REFERENCE

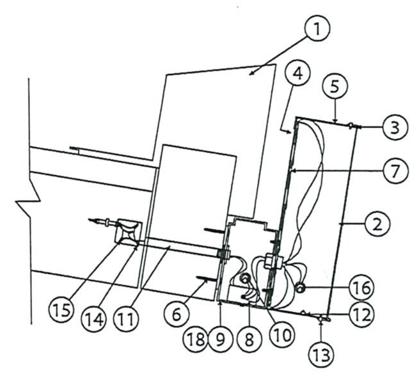
P11	TC11	PL11	V23	P1	PL2
Paint to Match PMS 186 C	Jewelite 'Red' Trim Cap	#2793 Red Acrylic	3M 3635-210 Printed to match 'Wawa Grey'	PAINTED WHITE SMOOTH SATIN	#2447 Milky White Acrylic



SELF-CONTAINED FLUSH MOUNT CANOPY SIGN (SIDE VIEW)

SCALE: 3/4"=1'-0"

CHANNEL LETTERS ON RACEWAY



1. EXISTING CANOPY
2. ACRYLIC FACES
3. 1" JEWELITE TRIM CAP
4. ALUMINUM BACKS
5. ALUMINUM RETURNS PAINTED
6. WALL FASTENERS (AS REQUIRED)
7. LED LIGHTS
8. LED POWER SUPPLY
9. EXTRUDED ALUMINUM RACEWAY
10. 120V LISTED DISCONNECT SWITCH
11. PRIMARY ELECTRICAL SOURCE 1/2" MIN CONDUIT, LIQUID TIGHT SHOWN)
12. DRAIN HOLES WITH LIGHT COVERS IF OUTDOORS
13. TECH SCREW ATTACHMENT OF FACES
14. BRANCH CIRCUIT (WIRING HOT TO HOT, NEUTRAL TO NEUTRAL, GROUND/ BOND TO GROUND)
15. UL RATED WIRENUTS
16. WEATHERPROOF DISCONNECT SWITCH
18. REMOVABLE RACEWAY END TO ALLOW SERVICE

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Wawa

WaWa
3120 North Bend Road,
Hebron, KY

STORE #
C-05893

Issue Date: 11/17/2023
Drawn By: Mike C.

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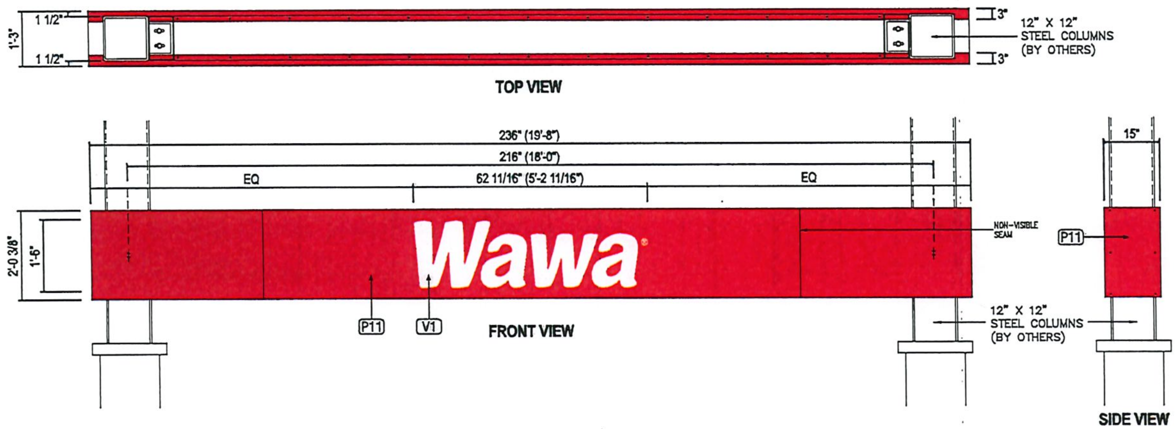
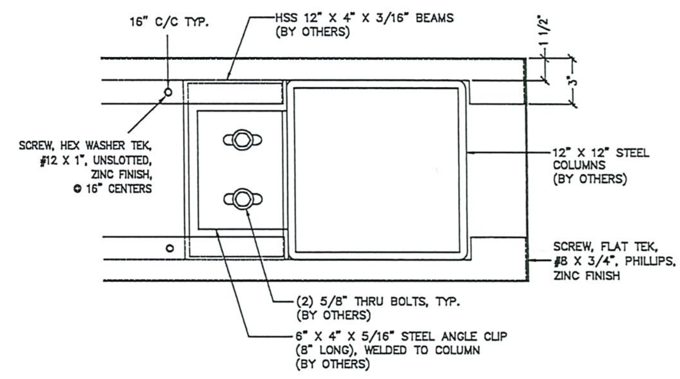


2'-0 3/8" X 19'-8" NON-ILLUMINATED GAS PUMP SPANNER (STACKED PUMPS)

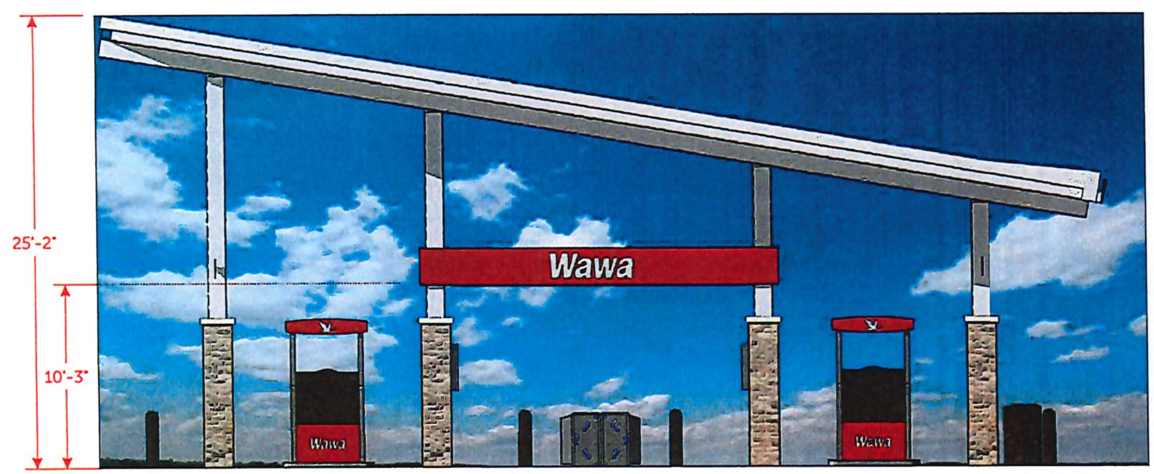
QTY: 2
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

SCALE:3/8"=1'-0"



DETAIL @ TOP VIEW

SCALE:1 1/2"=1'-0"



CANOPY END ELEVATION (STACKED PUMPS)

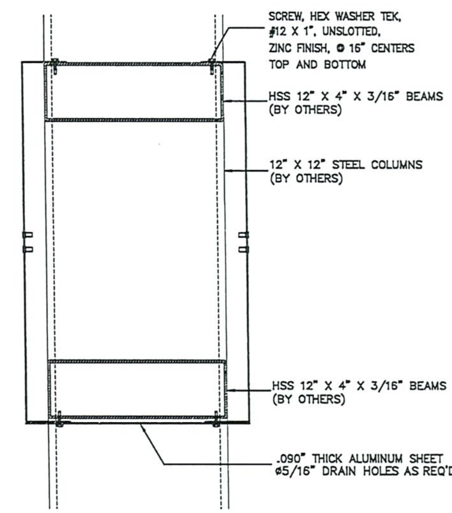
COLOR REFERENCE

P11	V1
Paint to match PMS 186 C	3M 7725-10 'White' *Opaque*

AREA/WEIGHT
SIGN SQUARE FOOTAGE: 39.3 sq. ft.
ESTIMATED SIGN WEIGHT: 170 Lb. (HEADER)

TOLERANCE: ± 1/16" ON ALL DIMENSIONS

DESIGN LOADS:
170 MPH WIND LOAD
RISK CATEGORY II, EXPOSURE C.
FLORIDA BUILDING CODE 6TH EDITION (2017)



SECTION @ SPANNER SIGN

SCALE:1 1/2"=1'-0"

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Wawa

WaWa
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Hebron, KY

STORE #
C-05893

Issue Date: 11/17/2023
Drawn By: Mike C.

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Rev: 4
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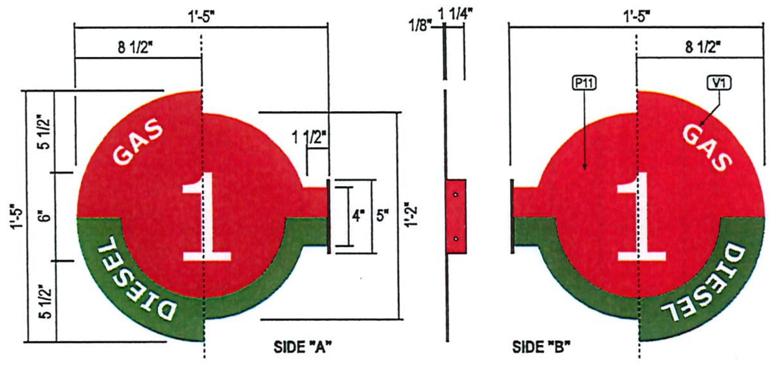


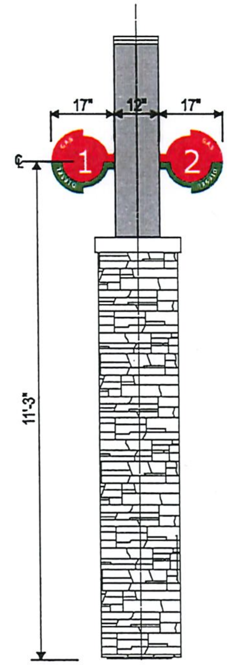
DETAIL @ D/F PUMP INDICATOR SIGN - GAS & DIESEL

QTY: TBD
ALUMINUM FACES PAINTED RED & GREEN.
WHITE VINYL COPY & NUMBERS.
FONT STYLE: VERDANA

Paint to match PMS 186 C

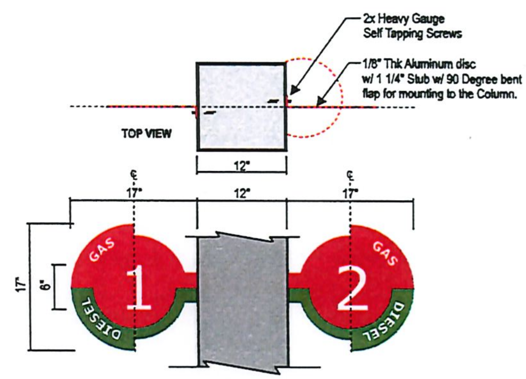
Paint to match PMS 377C GREEN

SCALE: 1 1/2"=1'-0"



SIDE ELEVATION DETAIL @ CANOPY COLUMN

SCALE: 3/8"=1'-0"



ATTACHMENT DETAIL @ D/F PUMP INDICATOR SIGN

SCALE: 3/4"=1'-0"

DETAIL @ WHITE VINYL PUMP NUMBERS - GAS & DIESEL

QTY: NUMBERS 1 - 16 x 2 (for D/F SIGNS)
WHITE VINYL NUMBERS.
FONT STYLE: VERDANA

SCALE: 3/4"=1'-0"

*** NOTE: CONFIRM PUMP NUMBER SEQUENCE PRIOR TO MANUFACTURING**

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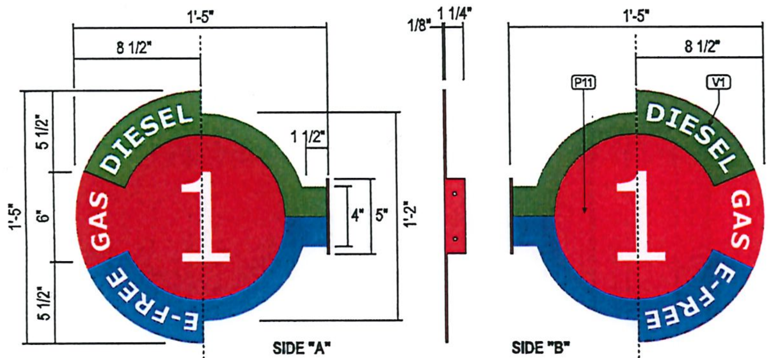


DETAIL @ D/F PUMP INDICATOR SIGN - E-FREE, GAS & DIESEL

QTY: TBD
ALUMINUM FACES PAINTED RED, BLUE AND GREEN.
WHITE VINYL COPY & NUMBERS.
FONT STYLE: VERDANA

SCALE: 1 1/2"=1'-0"

Paint to match PMS 186 C

Paint to match PMS 377C GREEN

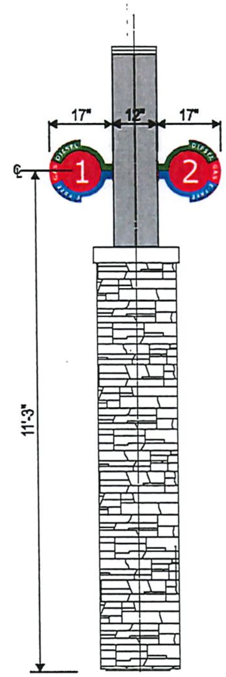
PMS 7468C BLUE

DETAIL @ WHITE VINYL PUMP NUMBERS - E-FREE, GAS & DIESEL

QTY: NUMBERS 1 - 16 x 2 (for D/F SIGNS)
WHITE VINYL NUMBERS.
FONT STYLE: VERDANA

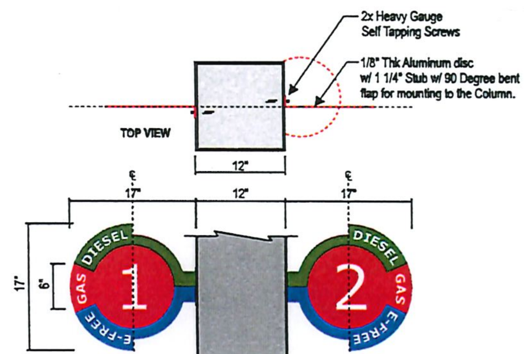
SCALE: 3/4"=1'-0"

*** NOTE: CONFIRM PUMP NUMBER SEQUENCE PRIOR TO MANUFACTURING**



SIDE ELEVATION DETAIL @ CANOPY COLUMN

SCALE: 3/8"=1'-0"



ATTACHMENT DETAIL @ D/F PUMP INDICATOR SIGN

SCALE: 3/4"=1'-0"

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Wawa	WaWa 3120 North Bend Road, Hebron, KY	STORE # C-05893	Issue Date: 11/17/2023 Drawn By: Mike C. REV DATE DESCRIPTION 2 11/22/23 UPDATE AS PER REQUEST 3 11/27/23 UPDATE AS PER REQUEST 4 11/28/23 UPDATE AS PER REQUEST	Page 19	Rev: 4 Date: 11/28/2023 Doc #: AD-WAW_110263_Hebron_REV4 Blair Project #: 110263 Blair Sales Order #: TBD	Blair Image Elements 5107 Kissell Avenue Altoona, PA 16601 P: (814) 949.8287 blairimage.com

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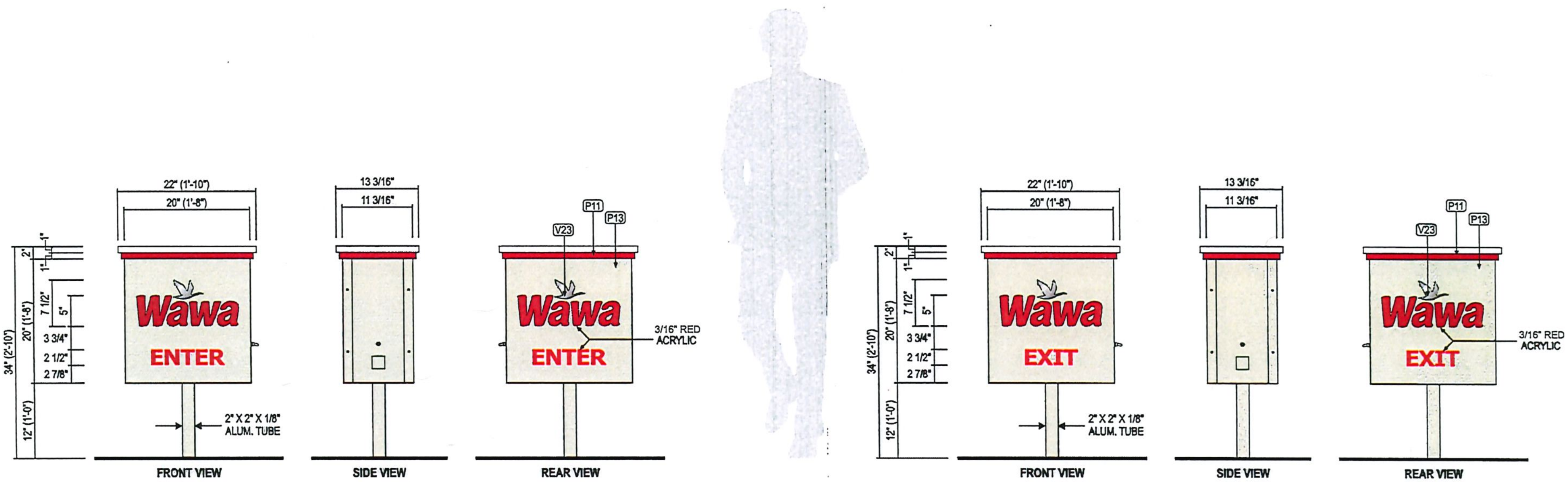

20"
D/F VEHICULAR DIRECTIONAL / ILLUMINATED SQ. FT = 2.7
QTY: 1 SCALE: 3/4"=1'-0"
ALUMINUM SIGN FACE IS ROUTED OUT AND BACK UP.
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

20"
D/F VEHICULAR DIRECTIONAL / ILLUMINATED SQ. FT = 2.7
QTY: 1 SCALE: 3/4"=1'-0"
ALUMINUM SIGN FACE IS ROUTED OUT AND BACK UP.
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

COLOR REFERENCE

P11	V11	V23	P13	P1
Paint to Match PMS 186 C	3M 3630-83 'Regal Red' Trans.	3M 3630-121 'Silver' Trans.	To match building stucco	PAINTED WHITE SMOOTH SATIN

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EXHIBIT
"B"

ZONE CHANGE/CONCEPT PLAN COMMITTEE REPORT

TO: Boone County Planning Commission

FROM: Steve Harper, Chairman

DATE: April 17, 2024

RE: Request of **Anchor Properties, per Nate Stark (applicant)** for **BRG Hebron Station, LLC, per BRG Realty Group, LLC (owner)** for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The submitted request is to allow: (1) the construction of a convenience store with gasoline pumps and an eating and drinking establishment; and (2) to allow alternative signage.

REMARKS:

1. We, the Committee Members were present at the Committee Meeting and voted on the above request or else were absent from voting. Further, based upon the vote, the Committee directs the Staff to draft the finding of fact and conditions, if deemed necessary, to complete the Committee Report.

2. We, the Committee, recommend approval of the above referenced Change of Concept Development Plan and Zoning Map Amendment for a Special Sign District based on the following findings of fact:

FINDINGS OF FACT:

1. The Committee concluded that the proposed Change of Concept Development Plan is consistent with the original vision for the development and is therefore reasonable and appropriate.

    a. The legislative action approving the Concept Development Plan included the principally permitted uses of the C-2 district and gasoline station and eating and drinking establishment are listed as a principally permitted uses within the C-2 district.

    b. The proposed uses and design, except as noted under conditions, meets the applicable requirements of Section 1506 of the zoning regulations (Planned Development Criteria).

2. The Committee concluded that the proposed sign package, except as noted under conditions, meets the purpose and intent of the special sign regulations.

3. Given the double frontage nature of the site, the Committee concluded that all of the Planned Development modifications and the special signage is reasonable. In making

this finding, the committee notes that the proposed design provides for better internal circulation with access from an internal private driveway and that there is excessive right-of-way along the east side of North Bend Road, fronting the site in question.

4. The Committee concluded the attached conditions are necessary to achieve consistency with the Our Boone County Plan 2040. The Committee also concluded that the attached conditions are necessary to mitigate any foreseeable community impacts that may be created by the development. The property owner has signed a letter demonstrating agreement with the condition:

CONDITIONS:

1. Development shall be consistent with the revised Concept Plan drawings submitted at the April 3, 2024 Zone Change Committee meeting.

2. All sound and video from the gasoline pump monitors shall be turned off between the hours of 10:00 pm and 6:00 am.

3. The proposed monument sign located at the intersection of Hebron Station Drive with the internal private driveway (S8) shall have a maximum sign area of fifty (50) square feet and a maximum height of eight (8) feet.

4. The proposed free standing sign for Longnecks, to be located along the private driveway, shall be a monument sign having a maximum sign area of twenty-five (25) square feet and a maximum height of eight (8) feet.

5. The buffer yard along the east property line shall have the minimum width for a Buffer Yard B and the plant material for a Buffer Yard A.

6. A privacy fence, berm, or combination thereof, shall be installed to provide a visual buffer between the site in question and the property located at 3135 Limaburg Road (Crane property), consistent with submitted cross-section drawing, to be maintained by the property owner of the apartment/commercial development.

7. Additional faux windows shall be incorporated into the west building elevation of Longneck's.

8. A crosswalk shall be provided in the vicinity of the clubhouse to the site in question.

9. A pedestrian connection shall be provided between the WaWa site and the Longneck's site.

A copy of the Public Hearing minutes accompanies the findings and recommendation serving as a summary of the evidence and testimony presented by the proponents and opponents of this request. Attached is the signature page for the Zone Change/Concept Development Plan Committee Vote.

BOONE COUNTY PLANNING COMMISSION
BOONE COUNTY ADMINISTRATION BUILDING
BOONE COUNTY FISCAL COURTROOM
PUBLIC HEARINGS
MARCH 20, 2024
7:00 P.M.

Chairman Rolfsen opened the Public Hearings at 7:07 p.m. and welcomed the audience to the Planning Commission's March 20, 2024 Public Hearings.

COMMISSION MEMBERS PRESENT:

Mr. Randy Bessler
Mrs. Kathy Clark
Mrs. Pamela Goetting
Ms. Corrin Gulick, Vice Chairwoman
Mr. Steve Harper, Temporary Presiding Officer
Mr. Rick Lunnemann
Mr. Charlie Rolfsen, Chairman
Mr. Bob Schwenke
Mr. Tom Szurlinski
Mr. Steve Turner
Mr. Kenny Vaught

COMMISSION MEMBERS NOT PRESENT:

Mr. David Hincks
Mrs. Janet Kegley
Mr. Eric Richardson
Mrs. Jackie Steele, Secretary/Treasurer

LEGAL COUNSEL PRESENT:

Mr. Dale Wilson

STAFF MEMBERS PRESENT:

Mr. Kevin P. Costello, AICP, Executive Director
Mr. Michael Schwartz, Director, Zoning Services
Mr. Todd K. Morgan, AICP, Senior Planner

Chairman Rolfsen introduced the first item on the Agenda:

CONCEPT DEVELOPMENT PLAN/ZONING MAP AMENDMENT FOR A SPECIAL SIGN DISTRICT, Michael Schwartz, Staff

1. Request of **Anchor Properties, per Nate Stark (applicant)** for **BRG Hebron Station, LLC, per BRG Realty Group, LLC (owner)** for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The submitted request is to allow: (1) the construction of a convenience store with gasoline pumps and an eating and drinking establishment; and (2) to allow alternative signage.

Staff member, Michael Schwartz, referred to his PowerPoint presentation (see Staff Report). The 4 acre site is located at the southeast corner of North Bend Road and Hebron Station Drive. On October 11, 2022, the site was rezoned to C-2/PD to allow the development of an apartment complex with the remaining land reserved for commercial uses. The first part of the request is to allow a 5,915 square foot convenience store with 8 gasoline pumps and a 6,626 square foot eating and drinking establishment with a 2,067 square foot outside patio. The second part of the request is for a Special Sign District. The previous request required a Concept Development Plan be submitted to the Planning Commission for development of the commercial area. Pages 2-6 of the Staff Report provide the pertinent regulations that apply to the request. The 2040 Future Land Use Map identifies the site to be developed for Commercial (C) and Public/Institutional (P) uses. North Bend Road is a State maintained arterial street. Hebron Station Drive is a County maintained subcollector street. Mr. Schwartz showed photographs of the site and the submitted Concept Development Plan. The proposal is a Wawa Convenience Store with gas pumps and a Longnecks restaurant with a seating capacity of 257 people. Access is through a right turn in only off Hebron Station Drive and 3 curb cuts from the internal driveway. There is a provision for 45 parking spaces for the Wawa site and 160 spaces for the Longneck's site. The applicant is requesting a buffer yard modification under the PD overlay. The applicant wants to reduce the plant material along the east property line (internal driveway) from Buffer Yard B to Buffer Yard A. The width of the buffer is still going to be 20 feet but they just want less plant material. The applicant has submitted a project narrative and a Traffic Impact Study. It is attached to the Staff Report. Page 8 of the Staff Report provides an analysis of the submitted Concept Development Plan against the Zoning Regulations. All of the deficiencies can be modified by applying the PD overlay.

Mr. Schwartz showed the building elevations of the proposed restaurant. The PD requirements stress the need for enhanced building architecture and design as well as façade treatments for commercial buildings. The building elevations for the proposed Longneck's show no windows or façade articulations. The applicant should address these inadequacies especially the east and west sides of the building. Mr. Schwartz showed building elevations of the proposed Wawa. The west building façade should have a defined base, mid-section and a top or cap. The applicant should address these concerns.

In terms of the Special Sign District, Page 10 of the Staff Report includes 2 tables for the freestanding and building mounted signs for Longneck's- what is allowed and what is proposed. The major difference is that the applicant is requesting 2 free standing signs. Why is a Special Sign District needed? One sign is located on the North Bend Road side and one is located on the internal road side. The building mounted signage is minimal and meets the underlying zone requirements.

Page 9 of the Staff Report provides 4 tables and 4 types of signage for the proposed Wawa. Again, the tables consist of what is allowed and what is proposed. On the front side, one sign is allowed and the applicant is proposing 4 signs, which include 3 signs. Are these signs static and permanent or will they be changed out? The maximum sign area for these four signs does not exceed what is allowed. The same concern rests for the rear building elevation. This sign area exceeds the requirement by 8 square feet. No sign is allowed on the east elevation because it exceeds 3 sides having building mounted signs. In terms of free-standing signage, Wawa proposes 2 signs. One is a taller sign and a monument sign. Why does the applicant need two of them? The canopy signs are okay but the proposed signs by the pumps are not allowed because they are below the fascia. Two are being proposed. Mr. Schwartz stated that Staff received a letter from Ms. Joan Holiday. He read it. (See Exhibit A). She expressed a concern if there would be access to the site across the street from McDonald's. It would be a major traffic issue. Mr. Schwartz stated that one is not planned.

Chairman Rolfsen asked if the applicant was present and wanted to proceed with their presentation?

Mr. John Wocher, stated he was representing Anchor Properties and Longneck's. Anchor Properties is buying the Wawa site and Longneck's is buying the remaining parcel. The proposed convenience store and fuel pumps fall into the C-2/PD category. The site has unique access as it has frontage on North Bend Road but doesn't have direct access to it. Access to the site is from Hebron Station Drive. Hebron Station Drive was built by BRG and connects North Bend Road with Limaburg Road. Longneck's will have a seating capacity of 235 customers. It will also have a patio facing North Bend Road. The Wawa building will be located on the northern portion of the site. Mr. Wocher showed the location of the fuel pumps and canopy. The site will have underground detention on the Wawa site. The proposed curb cut off Hebron Station Drive is a right turn in only. A Traffic Study was submitted and is being reviewed by the State. The request includes the Concept Development Plan and the Special Sign District.

In response to the Staff Comments, Mr. Wocher stated that they will assess the 7 foot side yard setback for the Longneck's building. It is appropriate since it is adjacent to the commercial lot where Wawa customers will be parking. He felt that the dumpster locations are appropriate considering the site can be seen from 3 roads. Both dumpsters will have masonry enclosures and landscaping. The dumpster location works with their internal circulation. The two proposed curb cuts serving Wawa is based upon internal circulation and needing proper access off the internal private drive. There is no exit off to the main drive near KY 237. The two access points serve for the delivery of fuel and grocery items. The width of the driveways for the Wawa is 40 feet to accommodate truck traffic. Mr. Wocher noted that they will adjust the foot candles for site lighting to make sure all lighting stays on the site and is zero at the property line. There is a short section on the west side of the site where they can't meet the 10' wide landscape buffer on the Longneck's site. They will plant the same number of plantings and may be able to move plantings in the State right of way. In addition, the applicant is requesting a reduction in the amount of landscaping material on the east side of the site. The width of the buffer will remain 20 feet wide but would like to install Buffer Yard A instead of B. It is a commercial lot. BRG supports their request.

In terms of the Special Sign District application, the applicant would like each user to have two free-standing signs – one along North Bend Road (20 foot height) and the second at their entrance (10 foot height) along the internal road. The 20 foot figure is consistent with other free-standing signs in the area. The proposed sign at the intersection of Hebron Station Drive and the internal drive is planned to be a shared monument sign with 2 panels advertising Wawa and Longneck's. Longneck's would also have their free-standing signs as well. Fuel prices will be posted at two locations – by North Bend Road and the internal drive. The proposed Wawa building mounted signs complement the building architecture. The five signs on the Wawa building are art panels and not signs. They would not be changeable copy signs. They are part of the image of Wawa. It is typical now to have signs on the fuel canopy. One is being proposed along with 2 spanner signs located near the fuel pumps. It regard to building elevations, he stated that he would work with Longneck's to see about some design modifications. They have concerns about lighting since they are a sports bar with a lot of tvs. Perhaps there could be more articulation. Mr. Wocher stated that he met with Mr. & Mrs. Crane to discuss headlights. They offered to install some fencing and landscaping on the fire station property to mitigate any potential impact. There is a berm already in place so landscaping can be installed on the berm.

Mr. Don Stegman, Cardinal Engineering, stated that his company also did the work for the apartment complex. The original Traffic Study had some commercial uses on the site. The result of it was a 650 foot right turn lane requirement to be built on KY 237. The original Study was updated and was reviewed by the State. Hebron Station Drive was widened to 3 lanes at the intersection. The Fire Department has a preemption signal at North Bend Road for emergency use. There is also access to Limaburg Road. The County Engineer made some recommendations and Mr. Stegman is addressing them. The right turn in only will facilitate a faster way to get to Wawa. No outbound traffic will be allowed.

Mr. Patrick Warnement, Wawa, gave a brief history of the company. They sell more food than fuel. They have over 1,000 stores. He will address all the comments and suggestions at the Committee Meeting. There will be 40 employees at the facility.

Chairman Rolfsen asked if anyone in the audience would like to speak in favor or against the request or had any questions?

Mr. Mike Crane, 3135 Limaburg Road, stated that he was opposed to the gas station. There are already 5-6 gas stations located on the KY 237 corridor. All of those are located next to commercial buildings. This one is next to residential buildings. He thought they were getting more restaurants. It is open 24 hours a day. The height of the store and canopy will be 25 feet. The one canopy sign will face KY 237. He would like to see zero foot candles. He would like to see fencing and landscaping to screen the site from his property. He would like to see the fence extended on the fire district property to screen the commercial area particularly the Kroger lights. He asked if the sound and lighting from the fuel pumps can be controlled? The privacy fence will help with traffic exiting onto Limaburg Road. It doesn't seem right to be open 24 hours in a residential area versus an industrial/commercial area. A shorter time period makes more sense. He also thinks that the proposed sign heights are too much. The buildings are recognizable.

Mr. Warnement responded that from KY 18 to I-275, there are no gas stations on the east side of North Bend Road. They are filling an enormous hole in the market. He also stated that they can dim the lights and sound.

Chairman Rolfsen asked if the Commissioners had any questions or comments?

Mr. Costello asked if there was a connection from the new multi-use path to the site without having to go to the intersection? He noted that new residents have moved in the townhomes next to the old library site. Is there a shorter way for people to access the site to get to the restaurant and convenience store if they are walking? Mr. Stegman replied that he would look at some options.

Ms. Gulick inquired if there was a safe pedestrian connection between the commercial lots and the apartments? Is there a sidewalk proposed along the private Hebron Station Drive? Mr. Wocher replied there is one sidewalk proposed on the private drive (apartment side). Mr. Wocher responded that he would look at the issue to assure safe pedestrian access.

Mr. Schwenke stated that the proposed restaurant building looks like the one located on the Frogtown Road Connector. It looks like a barn. It needs windows and possibly a break in the roof line. Maybe the applicant can use window shades or tinted glass. Mr. Wocher replied that they will take another look at it. The current Hebron location will close when this one opens.

Mr. Harper asked the applicant to provide a truck circulation plan at the Committee Meeting.

Chairman Rolfsen asked if the images on the building are the same? Mr. Ormond replied they are because the building has a front and back. It is a coffee cup, a sandwich and some wording. It doesn't advertise Wawa. Wawa is the number one Tesla charging partner in the United States. Tesla normally comes in with a separate application. Chairman Rolfsen asked if Wawa was going in on Williams Road. Mr. Warnement replied that it was going through the permitting process.

Dr. Clark stated that she visited a Wawa in Naples, Florida and went there for food.

Mrs. Goetting asked if Wawa is considering any other sites in Boone County? Mr. Ormond responded none that they have submitted for review.

Ms. Gulick asked what Wawa does to deal with sound at night from the speakers? Mr. Ormond replied that they can control the sound. They can turn it off between certain times such as 10:00 p.m. and 6:00 a.m. He doesn't think anyone will hear it because of the distance.

Mr. Lunnemann stated that a 20 foot sign is high. He would like to see it lower. Mr. Schwartz noted that the 20 foot high sign is currently allowed. Mr. Lunnemann asked how the Buffer Yard B is detrimental? Mr. Wocher replied that it would make it difficult to see their properties. Buffer Yard A would be more appropriate and would match the one planned for Hebron Station Drive. The Longneck's site will have underground detention.

Seeing no further questions or comments, Chairman Rolfsen announced that the Committee Meeting for this item will be on April 3, 2024 at 5:00 P.M. This item will be on the Agenda for the Business Meeting on April 17, 2024 at 7:00 p.m. in the Fiscal Courtroom. Chairman Rolfsen closed the Public Hearing at 8:17 p.m.

APPROVED:

Charlie Rolfsen
Chairman

Attest:

Kevin P. Costello, AICP
Executive Director

Exhibit A – Letter from Ms. Joan Holiday

ZONE CHANGE/CONCEPT PLAN COMMITTEE VOTE

TO: Boone County Planning Commission

FROM: Steve Harper, Chairman

DATE: April 3, 2024

REMARKS:

We, the Committee Members were present at the Committee Meeting and voted on the above request or else were absent from voting. Further, based upon the vote, the Committee directs the Staff to draft the findings of fact and conditions if deemed necessary in order to complete the Committee Report.

CONCEPT DEVELOPMENT PLAN/ZONING MAP AMENDMENT FOR A SPECIAL SIGN DISTRICT, Steve Harper, Chairman, Michael Schwartz, Staff

3. Request of **Anchor Properties, per Nate Stark (applicant)** for **BRG Hebron Station, LLC, per BRG Realty Group, LLC (owner)** for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The submitted request is to allow: (1) the construction of a convenience store with gasoline pumps and an eating and drinking establishment; and (2) to allow alternative signage.

Janet Kegley

For Project ✓ Absent____
Against Project ____
Abstain ____ Deferred ____

Corrin Gulick

For Project x Absent____
Against Project ____
Abstain ____ Deferred ____

Rick Lunnemann

For Project ✓ Absent____
Against Project ____
Abstain ____ Deferred ____

Kathy Clark (Alternate)

For Project ____ Absent____
Against Project ____
Abstain Deferred

Steve Harper (Chairman)
For Project ✓ Absent____
Against Project ____
Abstain ____ Deferred ____

Steve Turner (Alternate)

For Project ____ Absent____
Against Project ____
Abstain ____ Deferred ____

David Hincks

For Project ____ Absent____
Against Project ____
Abstain ____ Deferred ____

Jackie Steele (Alternate)

For Project ____ Absent____
Against Project ____
Abstain ____

TOTAL: - DEFERRED 4 FOR PROJECT 1 ABSENT

- AGAINST PROJECT - ABSTAIN

BOONE COUNTY PLANNING COMMISSION
BOONE COUNTY ADMINISTRATION BUILDING
BOONE COUNTY FISCAL COURTROOM
PUBLIC HEARINGS
MARCH 20, 2024
7:00 P.M.

Chairman Rolfsen opened the Public Hearings at 7:07 p.m. and welcomed the audience to the Planning Commission's March 20, 2024 Public Hearings.

COMMISSION MEMBERS PRESENT:

Mr. Randy Bessler
Mrs. Kathy Clark
Mrs. Pamela Goetting
Ms. Corrin Gulick, Vice Chairwoman
Mr. Steve Harper, Temporary Presiding Officer
Mr. Rick Lunnemann
Mr. Charlie Rolfsen, Chairman
Mr. Bob Schwenke
Mr. Tom Szurlinski
Mr. Steve Turner
Mr. Kenny Vaught

COMMISSION MEMBERS NOT PRESENT:

Mr. David Hincks
Mrs. Janet Kegley
Mr. Eric Richardson
Mrs. Jackie Steele, Secretary/Treasurer

LEGAL COUNSEL PRESENT:

Mr. Dale Wilson

STAFF MEMBERS PRESENT:

Mr. Kevin P. Costello, AICP, Executive Director
Mr. Michael Schwartz, Director, Zoning Services
Mr. Todd K. Morgan, AICP, Senior Planner

Chairman Rolfsen introduced the first item on the Agenda:

CONCEPT DEVELOPMENT PLAN/ZONING MAP AMENDMENT FOR A SPECIAL SIGN DISTRICT, Michael Schwartz, Staff

1. Request of **Anchor Properties, per Nate Stark (applicant)** for **BRG Hebron Station, LLC, per BRG Realty Group, LLC (owner)** for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The submitted request is to allow: (1) the construction of a convenience store with gasoline pumps and an eating and drinking establishment; and (2) to allow alternative signage.

Staff member, Michael Schwartz, referred to his PowerPoint presentation (see Staff Report). The 4 acre site is located at the southeast corner of North Bend Road and Hebron Station Drive. On October 11, 2022, the site was rezoned to C-2/PD to allow the development of an apartment complex with the remaining land reserved for commercial uses. The first part of the request is to allow a 5,915 square foot convenience store with 8 gasoline pumps and a 6,626 square foot eating and drinking establishment with a 2,067 square foot outside patio. The second part of the request is for a Special Sign District. The previous request required a Concept Development Plan be submitted to the Planning Commission for development of the commercial area. Pages 2-6 of the Staff Report provide the pertinent regulations that apply to the request. The 2040 Future Land Use Map identifies the site to be developed for Commercial (C) and Public/Institutional (P) uses. North Bend Road is a State maintained arterial street. Hebron Station Drive is a County maintained subcollector street. Mr. Schwartz showed photographs of the site and the submitted Concept Development Plan. The proposal is a Wawa Convenience Store with gas pumps and a Longnecks restaurant with a seating capacity of 257 people. Access is through a right turn in only off Hebron Station Drive and 3 curb cuts from the internal driveway. There is a provision for 45 parking spaces for the Wawa site and 160 spaces for the Longneck's site. The applicant is requesting a buffer yard modification under the PD overlay. The applicant wants to reduce the plant material along the east property line (internal driveway) from Buffer Yard B to Buffer Yard A. The width of the buffer is still going to be 20 feet but they just want less plant material. The applicant has submitted a project narrative and a Traffic Impact Study. It is attached to the Staff Report. Page 8 of the Staff Report provides an analysis of the submitted Concept Development Plan against the Zoning Regulations. All of the deficiencies can be modified by applying the PD overlay.

Mr. Schwartz showed the building elevations of the proposed restaurant. The PD requirements stress the need for enhanced building architecture and design as well as façade treatments for commercial buildings. The building elevations for the proposed Longneck's show no windows or façade articulations. The applicant should address these inadequacies especially the east and west sides of the building. Mr. Schwartz showed building elevations of the proposed Wawa. The west building façade should have a defined base, mid-section and a top or cap. The applicant should address these concerns.

In terms of the Special Sign District, Page 10 of the Staff Report includes 2 tables for the freestanding and building mounted signs for Longneck's- what is allowed and what is proposed. The major difference is that the applicant is requesting 2 free standing signs. Why is a Special Sign District needed? One sign is located on the North Bend Road side and one is located on the internal road side. The building mounted signage is minimal and meets the underlying zone requirements.

Page 9 of the Staff Report provides 4 tables and 4 types of signage for the proposed Wawa. Again, the tables consist of what is allowed and what is proposed. On the front side, one sign is allowed and the applicant is proposing 4 signs, which include 3 signs. Are these signs static and permanent or will they be changed out? The maximum sign area for these four signs does not exceed what is allowed. The same concern rests for the rear building elevation. This sign area exceeds the requirement by 8 square feet. No sign is allowed on the east elevation because it exceeds 3 sides having building mounted signs. In terms of free-standing signage, Wawa proposes 2 signs. One is a taller sign and a monument sign. Why does the applicant need two of them? The canopy signs are okay but the proposed signs by the pumps are not allowed because they are below the fascia. Two are being proposed. Mr. Schwartz stated that Staff received a letter from Ms. Joan Holiday. He read it. (See Exhibit A). She expressed a concern if there would be access to the site across the street from McDonald's. It would be a major traffic issue. Mr. Schwartz stated that one is not planned.

Chairman Rolfsen asked if the applicant was present and wanted to proceed with their presentation?

Mr. John Wocher, stated he was representing Anchor Properties and Longneck's. Anchor Properties is buying the Wawa site and Longneck's is buying the remaining parcel. The proposed convenience store and fuel pumps fall into the C-2/PD category. The site has unique access as it has frontage on North Bend Road but doesn't have direct access to it. Access to the site is from Hebron Station Drive. Hebron Station Drive was built by BRG and connects North Bend Road with Limaburg Road. Longneck's will have a seating capacity of 235 customers. It will also have a patio facing North Bend Road. The Wawa building will be located on the northern portion of the site. Mr. Wocher showed the location of the fuel pumps and canopy. The site will have underground detention on the Wawa site. The proposed curb cut off Hebron Station Drive is a right turn in only. A Traffic Study was submitted and is being reviewed by the State. The request includes the Concept Development Plan and the Special Sign District.

In response to the Staff Comments, Mr. Wocher stated that they will assess the 7 foot side yard setback for the Longneck's building. It is appropriate since it is adjacent to the commercial lot where Wawa customers will be parking. He felt that the dumpster locations are appropriate considering the site can be seen from 3 roads. Both dumpsters will have masonry enclosures and landscaping. The dumpster location works with their internal circulation. The two proposed curb cuts serving Wawa is based upon internal circulation and needing proper access off the internal private drive. There is no exit off to the main drive near KY 237. The two access points serve for the delivery of fuel and grocery items. The width of the driveways for the Wawa is 40 feet to accommodate truck traffic. Mr. Wocher noted that they will adjust the foot candles for site lighting to make sure all lighting stays on the site and is zero at the property line. There is a short section on the west side of the site where they can't meet the 10' wide landscape buffer on the Longneck's site. They will plant the same number of plantings and may be able to move plantings in the State right of way. In addition, the applicant is requesting a reduction in the amount of landscaping material on the east side of the site. The width of the buffer will remain 20 feet wide but would like to install Buffer Yard A instead of B. It is a commercial lot. BRG supports their request.

In terms of the Special Sign District application, the applicant would like each user to have two free-standing signs – one along North Bend Road (20 foot height) and the second at their entrance (10 foot height) along the internal road. The 20 foot figure is consistent with other free-standing signs in the area. The proposed sign at the intersection of Hebron Station Drive and the internal drive is planned to be a shared monument sign with 2 panels advertising Wawa and Longneck's. Longneck's would also have their free-standing signs as well. Fuel prices will be posted at two locations – by North Bend Road and the internal drive. The proposed Wawa building mounted signs complement the building architecture. The five signs on the Wawa building are art panels and not signs. They would not be changeable copy signs. They are part of the image of Wawa. It is typical now to have signs on the fuel canopy. One is being proposed along with 2 spanner signs located near the fuel pumps. It regard to building elevations, he stated that he would work with Longneck's to see about some design modifications. They have concerns about lighting since they are a sports bar with a lot of tvs. Perhaps there could be more articulation. Mr. Wocher stated that he met with Mr. & Mrs. Crane to discuss headlights. They offered to install some fencing and landscaping on the fire station property to mitigate any potential impact. There is a berm already in place so landscaping can be installed on the berm.

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Chairman Rolfsen asked if anyone in the audience would like to speak in favor or against the request or had any questions?

Mr. Mike Crane, 3135 Limaburg Road, stated that he was opposed to the gas station. There are already 5-6 gas stations located on the KY 237 corridor. All of those are located next to commercial buildings. This one is next to residential buildings. He thought they were getting more restaurants. It is open 24 hours a day. The height of the store and canopy will be 25 feet. The one canopy sign will face KY 237. He would like to see zero foot candles. He would like to see fencing and landscaping to screen the site from his property. He would like to see the fence extended on the fire district property to screen the commercial area particularly the Kroger lights. He asked if the sound and lighting from the fuel pumps can be controlled? The privacy fence will help with traffic exiting onto Limaburg Road. It doesn't seem right to be open 24 hours in a residential area versus an industrial/commercial area. A shorter time period makes more sense. He also thinks that the proposed sign heights are too much. The buildings are recognizable.

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Dr. Clark stated that she visited a Wawa in Naples, Florida and went there for food.

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Seeing no further questions or comments, Chairman Rolfsen announced that the Committee Meeting for this item will be on April 3, 2024 at 5:00 P.M. This item will be on the Agenda for the Business Meeting on April 17, 2024 at 7:00 p.m. in the Fiscal Courtroom. Chairman Rolfsen closed the Public Hearing at 8:17 p.m.

APPROVED:

Charlie Rolfsen
Chairman

Attest:

Kevin P. Costello, AICP
Executive Director

Exhibit A – Letter from Ms. Joan Holiday

Michael Schwartz

From:	joan holladay <joanmholladay@gmail.com>
Sent:	Wednesday, March 20, 2024 11:23 AM
To:	Michael Schwartz
Subject:	Public Hearing tonight re:BRG Hebron Station LLC. 4.1 acres

EXTERNAL MESSAGE

Comments for the Public Hearing tonight:

Regarding the project for a gas station/ convienence store at this location would be a total traffic nightmare if it the entrance exit comes out across from the McDonalds restaurant . At the present time most days now it a major traffic issue.

Thank you for your time.

BOONE COUNTY PLANNING COMMISSION
BOONE COUNTY FISCAL COURTROOM
BURLINGTON, KENTUCKY
BUSINESS MEETING
APRIL 17, 2024
7:00 P.M.

Chairman Rolfsen opened the Business Meeting at 7:00 p.m. and welcomed the audience to the Planning Commission's April 17, 2024 Business Meeting.

COMMISSION MEMBERS PRESENT:

Mr. Randy Bessler
Mrs. Kathy Clark
Mrs. Pamela Goetting
Ms. Corrin Gulick, Vice Chairwoman
Mr. Steve Harper, Temporary Presiding Officer
Mr. David Hincks
Mrs. Janet Kegley
Mr. Rick Lunnemann
Mr. Charlie Rolfsen, Chairman
Mr. Bob Schwenke
Mrs. Jackie Steele, Secretary/Treasurer
Mr. Tom Szurlinski
Mr. Steve Turner

COMMISSION MEMBERS NOT PRESENT:

Mr. Eric Richardson
Mr. Kenny Vaught

LEGAL COUNSEL PRESENT:

Mr. Dale Wilson

STAFF MEMBERS PRESENT:

Mr. Kevin P. Costello, AICP, Executive Director
Mr. Michael Schwartz, Director, Zoning Services
Ms. Jenna LeCount, AICP, Director, Community Development Services
Mrs. Bridget Striker, Preservation Planner
Mr. Todd K. Morgan, AICP, Senior Planner

APPROVAL OF THE MINUTES:

Chairman Rolfsen stated that the Commissioners received copies of the Minutes from the April 3, 2024 Business Meeting and Public Hearings. He asked if there were any comments or corrections?

Seeing none, Mrs. Goetting moved to approve the Minutes as presented. Dr. Clark seconded the motion and it carried unanimously.

D. ACTION ON PLAN REVIEWS

CONCEPT DEVELOPMENT PLAN/ZONING MAP AMENDMENT FOR A SPECIAL SIGN DISTRICT, Steve Harper, Chairman, Michael Schwartz, Staff

1. Request of **Anchor Properties, per Nate Stark (applicant)** for **BRG Hebron Station, LLC, per BRG Realty Group, LLC (owner)** for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The submitted request is to allow: (1) the construction of a convenience store with gasoline pumps and an eating and drinking establishment; and (2) to allow alternative signage.

Staff Member, Michael Schwartz, read the Committee Report, which recommended approval based upon Findings of Facts and Conditions for the Concept Development Plan and Zoning Map Amendment. It was recommended unanimously for approval with a 4-0 vote with Mrs. Kegley, Mr. Lunnemann, Mr. Harper and Ms. Gulick voting in favor of the request. The applicant and owner has signed off on the Conditions. Chairman Rolfsen asked if Staff had a picture of what the building will look like? Mr. Schwartz showed an updated version of the building. Faux windows were added on the east, north and south sides and an additional Condition included the west side. Awnings were also added.

Chairman Rolfsen asked if there was anyone in the audience who wanted to speak in favor or against the request?

Mr. Wocher stated that they accept the Conditions. Both retail buildings will be open in 2025.

Seeing no further comment, **Mr. Harper moved, by Resolution to the Boone County Fiscal Court, to recommend approval of the Change in Concept Development Plan and Zoning Map Amendment based upon the Findings of Fact and Conditions outlined in the Committee Report. Ms. Gulick seconded the motion and it passed unanimously.**

ZONING MAP AMENDMENT, Corin Gulick, Chairwoman, Michael Schwartz, Staff

2. Request of **Philip and Christie Hartman (applicant/owner)** for a Zoning Map Amendment from Recreation (R) to Recreation/Planned Development (R/PD) for an approximate 36.05 acre area located at 2560 Camp Farm Road and a portion of 2575 Camp Farm Road, Boone County, Kentucky. The request is for a zone change to allow the permitted uses within the R district as well as a reception hall, catering facility, the production of handmade objects or packaged food for sale, and the addition of a single-family dwelling, a barn, or a greenhouse.

Staff Member, Michael Schwartz, read the Committee Report, which recommended approval based upon Findings of Facts and Conditions for the Zoning Map Amendment. It was recommended unanimously for approval with Mrs. Kegley, Mr. Lunnemann, Mr. Harper and Ms. Gulick voting in favor of the request. The applicant/owner has signed the Condition Letter

Chairman Rolfsen asked if there was anyone in the audience who wanted to speak in favor or against the request?

Dr. Hartman stated that he agreed with all of the Conditions and the Committee Report. Everything seems reasonable and he is excited about making this part of Boone County more useable again.

Seeing no further comment, **Ms. Gulick moved, by Resolution to the Boone County Fiscal Court, to recommend approval of the Zoning Map Amendment based upon Findings of Fact and 5 Conditions outlined in the Committee Report. Mrs. Kegley seconded the motion and it passed unanimously.**

ZONING MAP AMENDMENT, Rick Lunnemann, Chairman, Todd Morgan, Staff

3. Request of **Viox and Viox, per Eric Ball (applicant)** for **Danny Lee and Deborah Delph (owner)** for a Zoning Map Amendment from Industrial Three Surface Mining (I-3) to Suburban Residential One (SR-1) for an approximate 38.5 acre area located at 6056 Burlington Pike, Boone County, Kentucky. The request is for a zone change to allow the retention of an existing detached single-family residential dwelling and the development of five (5) additional detached single-family residential dwellings.

Staff Member, Todd Morgan, read the Committee Report, which recommended approval based upon Findings of Facts and a Condition for the Zoning Map Amendment. It was recommended unanimously for approval with Mr. Lunnemann, Mrs. Kegley, Mr. Harper and Ms. Gulick voting in favor of the request. The applicant and owner has signed the Condition letter.

Chairman Rolfsen asked if there was anyone in the audience who wanted to speak in favor or against the request?

Mr. Danny Delph, owner, thanked everyone and everything seems to be falling into place to move forward.

Seeing no further comment, **Mr. Lunnemann moved, by Resolution to the Boone County Fiscal Court, to recommend approval of the Zoning Map Amendment based upon the Findings of Fact and Condition outlined in the Committee Report. Mr. Szurlinski seconded the motion and it passed unanimously.**

E. Executive Director's Report:

No Report

F. **Other:**

G. **Adjournment:**

There being no further business to come before the Planning Commission, **Mr. Bessler moved to adjourn the meeting. Mr. Turner seconded the motion and it passed unanimously. The meeting was adjourned at 7:21 P.M.**

APPROVED

Charlie Rolfsen
Chairman

Attest:

Kevin P. Costello, AICP
Executive Director

SUPPORTING INFORMATION

LEGAL DESCRIPTION
4.0562 ACRES

Situated in un-incorporated Boone County, State of Kentucky, lying at the northeast corner of North Bend (Ky 237) and Cougar Path, being part of the tract of land conveyed to BRG Hebron Station, LLC, Kentucky Limited Liability Company in D.B. 1199 Pg. 141, the boundary of which is more particularly described as follows:

BEGINNING at the intersection of the east right of way line of North Bend Road (KY 237) and the south right of way line of Hebron Station Drive;

Thence along said south right of way line, the following four (3) courses:

> South 83°38'12" East a distance of 8.64 feet;
> Along a curve to the right for an arc distance of 233.19 feet, said curve having a radius of 370.00 feet, a central angle of 36°06'34" and a chord which bears South 65°34'55" East a distance of 229.35 feet;
> South 47°31'38" East a distance of 44.33 feet;

Thence along the northwest line of said tract, the following three (3) courses:

> Along a curve to the left for an arc distance of 151.94 feet, said curve having a radius of 250.00 feet, a central angle of 34°49'18" and a chord which bears South 22°37'30" West a distance of 149.61 feet;
> South 05°12'51" West a distance of 504.64 feet;
> South 79°41'56" West a distance of 223.42 feet to the east right of way line of North Bend Road (Ky 237);

Thence along said east right of way line, the following three (3) courses:

> North 05°27'16" East a distance of 141.46 feet;
> North 00°09'22" West a distance of 352.28 feet;
> North 10°57'25" East a distance of 319.02 feet to the **POINT OF BEGINNING**;

Containing 4.0562 acres of land more or less and being subject to all easements and restrictions of record.

Bearings are based on the Kentucky State Plane Coordinate System, North Zone, NAD 83.

College of Engineering
Kentucky Transportation Center

TECHNOLOGY TRANSFER PROGRAM

TRAFFIC IMPACT STUDY COURSE

Certificate of Completion (3.5 PDH)

Jamal Adhami

KY PE License No. 23473

TIM THARPE

Tim Tharpe, KYTC
Director of Traffic Operations

Completed: 06/17/2022

Expires: 06/17/2026

Company: University of Kentucky

Adam Kirk, Instructor

The official status of this certificate can be verified with the KYTC Division of Traffic Operations

UPDATED TRAFFIC IMPACT STUDY

FOR

FLICK PROPERTY

HEBRON, BOONE COUNTY, KY

Prepared For:
Anchor Properties, Inc.
128 E. 2nd Street
Covington, KY 41011

Prepared By:
Jamal Adhami, PE, PTOE
SHA Engineering, LLC
August 02, 2022
Revised January 04, 2024

Table of Content

Figures

Tables

List of Appendices

1. Introduction

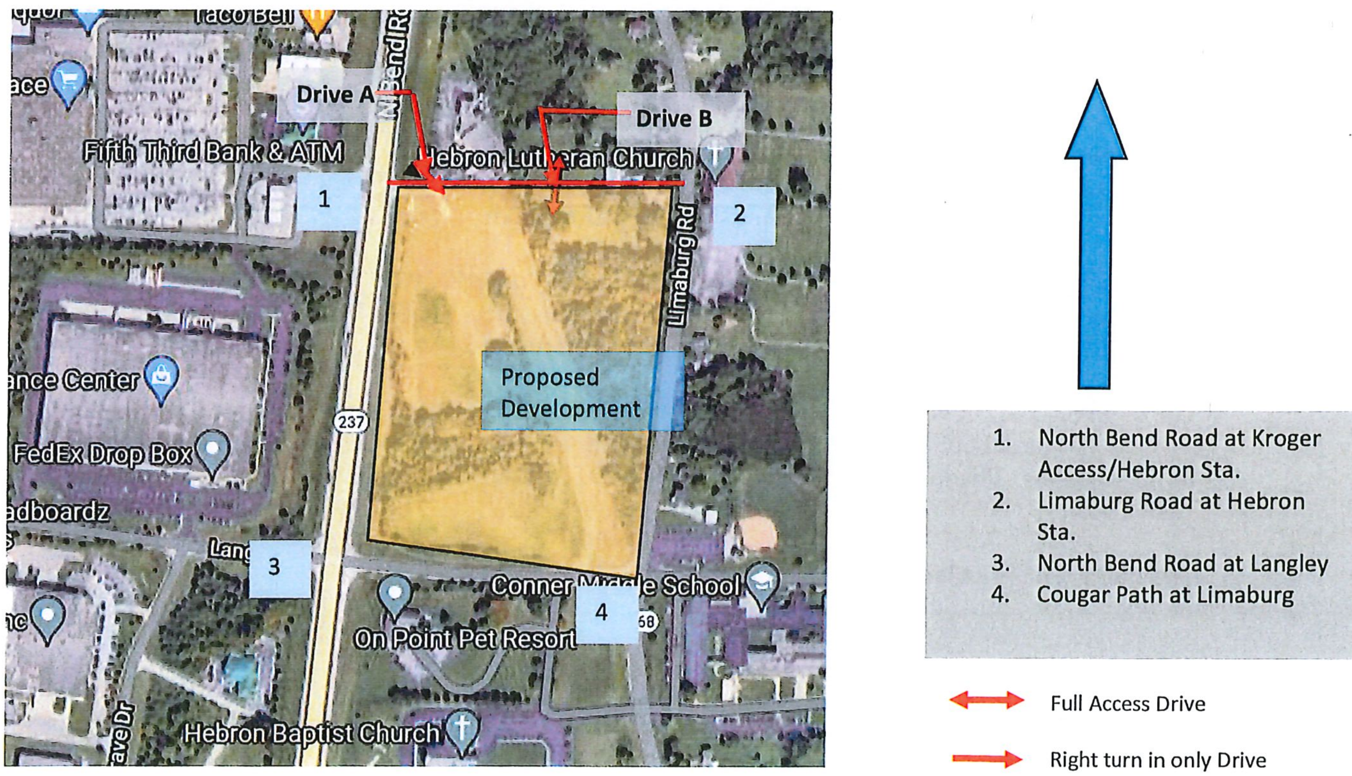
The purpose of this Traffic Impact Study (TIS) is to:

- *Provide an update to the previous TIS (dated August 02, 2022) to include specific users for the commercial portion of the development.*
- *Describe and measure the impact of traffic generated by the proposed residential and commercial development on the adjacent roadway network.*
- *Provide a list of conclusions and recommendations related to traffic operations and analysis at the intersections included in the study area including the access location for the new development.*

The development is proposed north of Cougar Path. The east side of the development abuts Limaburg Road. The intended development includes approximately 264 dwelling units of multifamily residential, a Convenience Market with Fuel stations with 16 pumps and a 5455 SFT Sit Down Restaurant. The access to the new development is proposed through driveways on Hebron Station Drive, a new road currently under construction. Access Drive A will operate as right turn in only and Access Drive B will be a full access driveway. The access locations on Hebron Station Drive will provide connection to the adjacent roadway network at the intersection of North Bend Road and Kroger/Hebron Station Drive and a new intersection proposed on Limaburg Road to the east.

The location of the site is shown in Figure 1 and the site plan is included in Appendix A.

Figure 1 – Location Map



2. Scope of Services

SHA Engineering prepared a Memorandum of Understanding (MOU) and submitted it to KYTC on May 12, 2022. A TIS was completed and approved by KYTC in August 2022. The scope of work included in this report is to update the Traffic Analysis and Report for the updated site plan. The details of the changes are explained in section 4 of this report.

3. Existing Conditions

North Bend Road (KY 237) is a 4-lane roadway with 2 lanes serving the northbound and southbound movements. It is posted at 55 mph. To the north it provides access to interstate 275, and to the south it provides connection with KY 18. Limaburg Road runs parallel to North Bend Road. It is a 2-lane roadway with a lane each for the northbound and southbound movements. It is posted at 35 mph. To the north it provides access to KY 20.

The intersection of North Bend Road and Kroger Access Drive/Fire Station is operating with a traffic signal. There are existing exclusive lanes for the left turns on the northbound and southbound approaches on North Bend Road. The southbound and eastbound approaches are operating with an exclusive lane for the right turns.

The intersection of North Bend Road and Langley Drive/Cougar Path is operating with a traffic signal. There are exclusive lanes for the left turns on the northbound, southbound, and eastbound approaches. An exclusive lane for the right turns exists on the northbound and southbound approaches on North Bend Road.

The intersection of Limaburg Road and Cougar Path is operating as an All Way stopped control intersection. The new intersection of Hebron Station Drive at Limaburg Road will operate with stop control on the eastbound approach on the Hebron Station Drive.

The existing turning movement counts were completed on May 18, 2022. The counts were completed for the AM and PM Peak hours. Based on the recorded counts, the AM peak hour was established from 7:00 to 8:00 AM and PM peak hour was established from 4:15 to 5:15 PM.

The observed 2022 AM and PM Peak Hour traffic counts are shown in Figure 2. Figure 3 shows 2024 AM and PM peak hours No Build traffic volumes. Figure 4 shows 2034 AM and PM Peak Hour No Build scenarios. Please note that in the future year traffic volumes are estimated using a growth rate of 1.53%/year.

The traffic data is included in Appendix C.

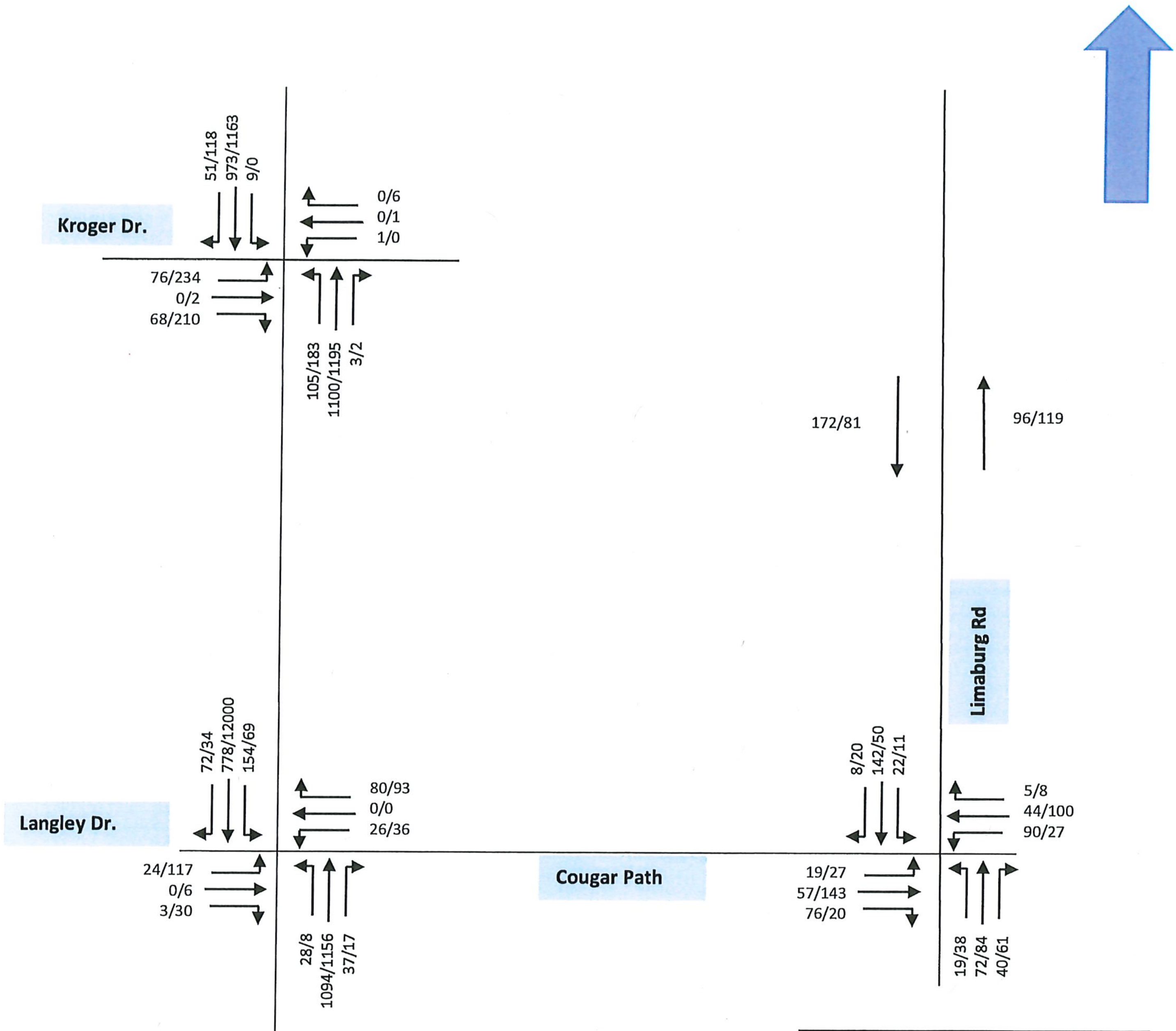


Figure 2 – 2022 Recorded. Traffic Counts

AM/PM xxx/xxx

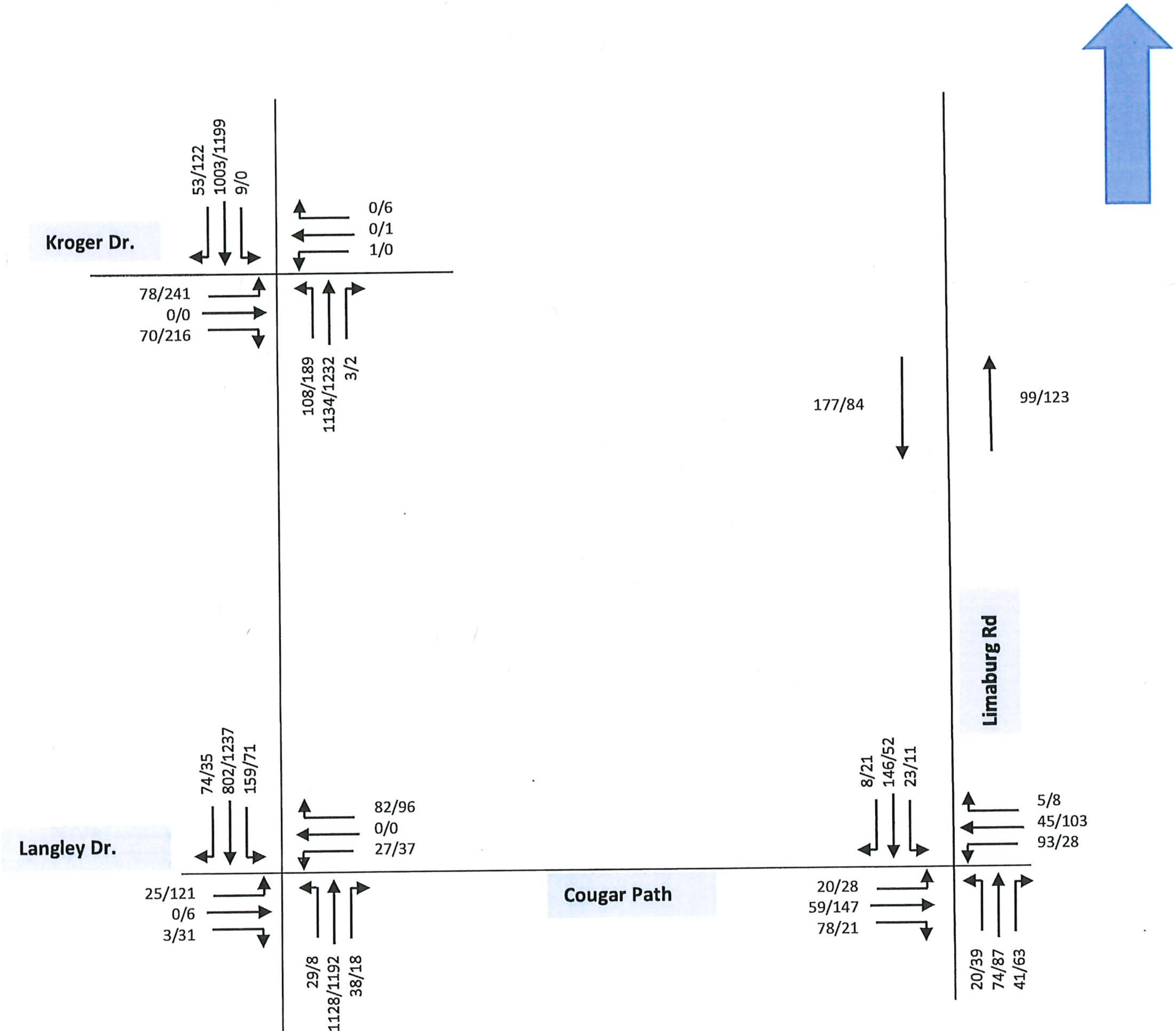


Figure 3 – 2024 No Build Traffic

AM/PM xxx/xxx

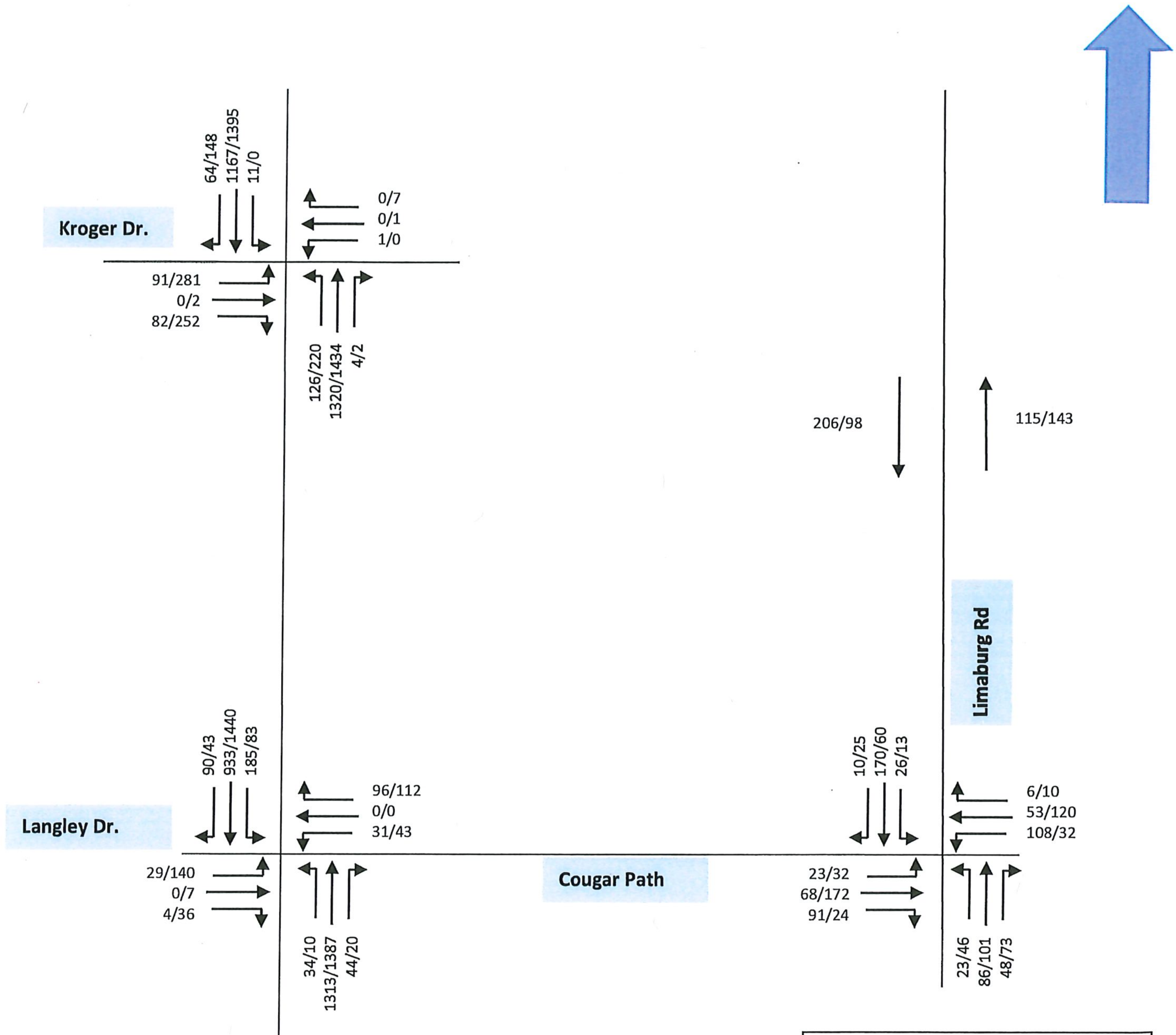


Figure 4 – 2034 No Build Traffic

AM/PM xxx/xxx

4. Proposed Development

The new development is proposed north of Cougar Path. The east side of the development abuts Limaburg Road. The development includes about 264 dwelling units of multifamily residential units and 3 out lots. In the previous version of the traffic study the out lots included the following uses.

- Sit Down Restaurant 3500 SFT
- Coffee/Donut Shop 2000 SFT
- Retail Center 8000 SFT

The site plan is modified, and the three out lots are replaced with the following uses.

- Convenience Market with Fuel Pumps - 16 Fueling Locations (5,915 SF)
- High Turnover Sit Down Restaurant - 5455 SF

The access to the development is proposed through two Access Drives on Hebron Station Drive. The first access, Access Drive A, will operate as right turn in only and will serve Convenience Market and Fuel Pumps. The second access, Access Drive B, will operate as a full access drive between the commercial outlots and residential development. Driveways serving the residential development, restaurant and the convenience market are located along the access road. The updated site plans showing the location of the Access Road and various parts of the development are shown in the updated site plans included in Appendix A.

5. Trip Generation and Distribution

The Trip generation estimates are based on the ITE Trip Generation Manual, 11th Edition. The summary of estimated trips is provided in Table 1 below. Trip Generation summary details are included in Appendix D.

Table 1 – Estimated New Trips

Land Use	Units	Total	Weekday			AM Peak Hour			PM Peak Hour		
			Ent.	**Exit**	**Tot.**	**Ent.**	**Exit**	**Tot.**	**Ent.**	**Exit**	**Tot.**
220 - Multi Family - Low Rise	DW	264				29	71	100	97	64	161
	Pass-by Trips										
945 – Convenience Market with Fuel Pump	Fuel Loc	16				253	253	506	215	215	430
	Pass-by Trips					158	158	316	136	136	272
932 - High Turnover Sit Down Restaurant	GFA (SFT)	5455				29	23	52	30	19	49
									10	10	20
New Trips						311	347	658	342	298	640
Pass-by Trips						158	158	316	146	146	292
Net- New Trips						**153**	**189**	**342**	**196**	**152**	**348**

The existing traffic counts were used for estimating the trip distribution of the new trips. The trip distribution for the new development is based on the following assumptions.

To/from the south on North Bend Road	= 35%
To/from the north on North Bend Road	= 30%
To/from north on Limaburg Road	= 20%
To/from south on Limaburg Road	= 10%
To/from west on Kroger Access Drive	= 5%

Figures 5 shows the new trip distribution percent, and the estimated new trips are shown in Figure 6 and 7. Figure 8 shows the Pass-by trip distribution and estimated Pass-by trips are shown in Figure 9. Year 2024 and 2034 Build traffic volumes are shown in Figures 10 and 11.

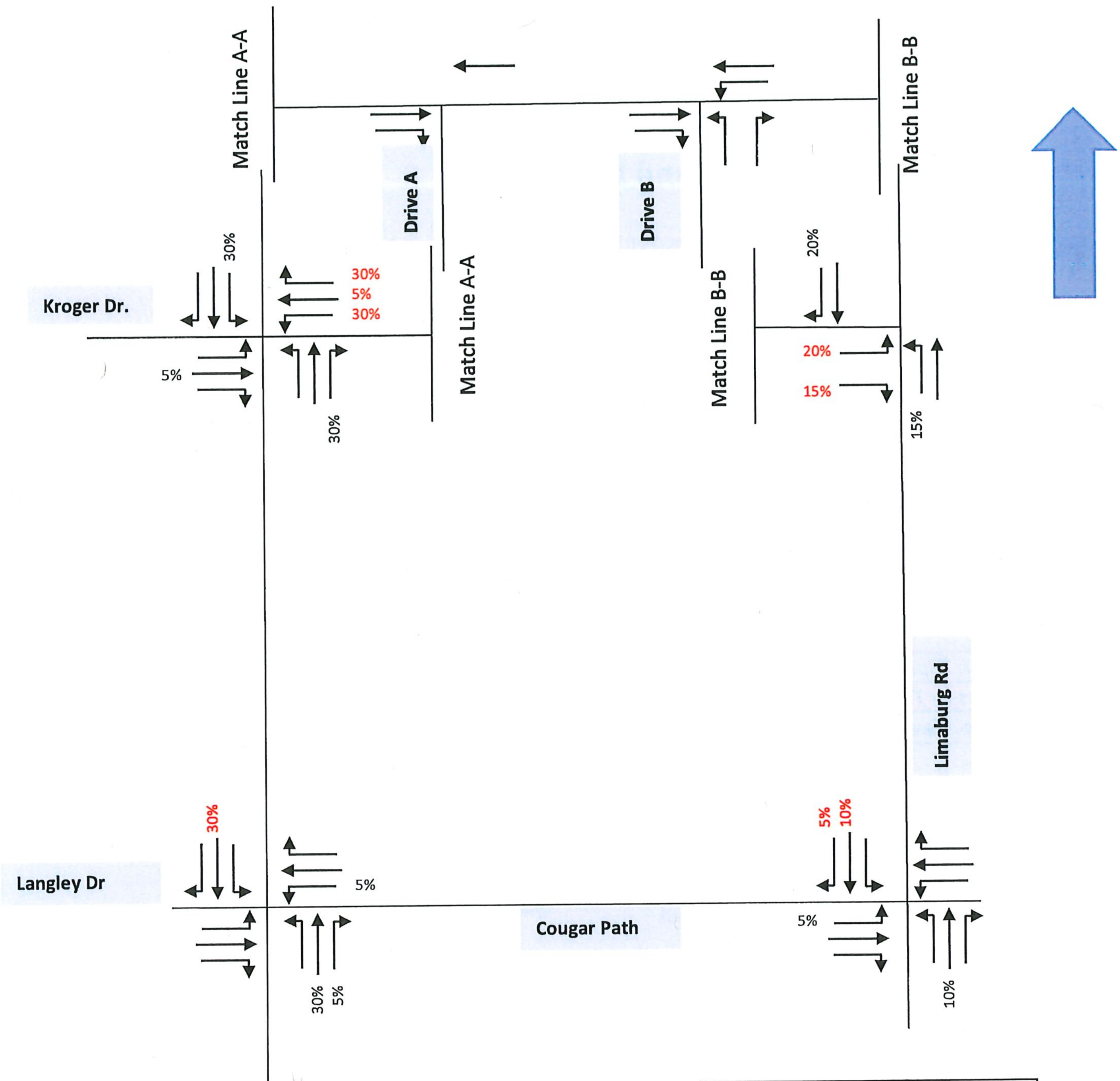
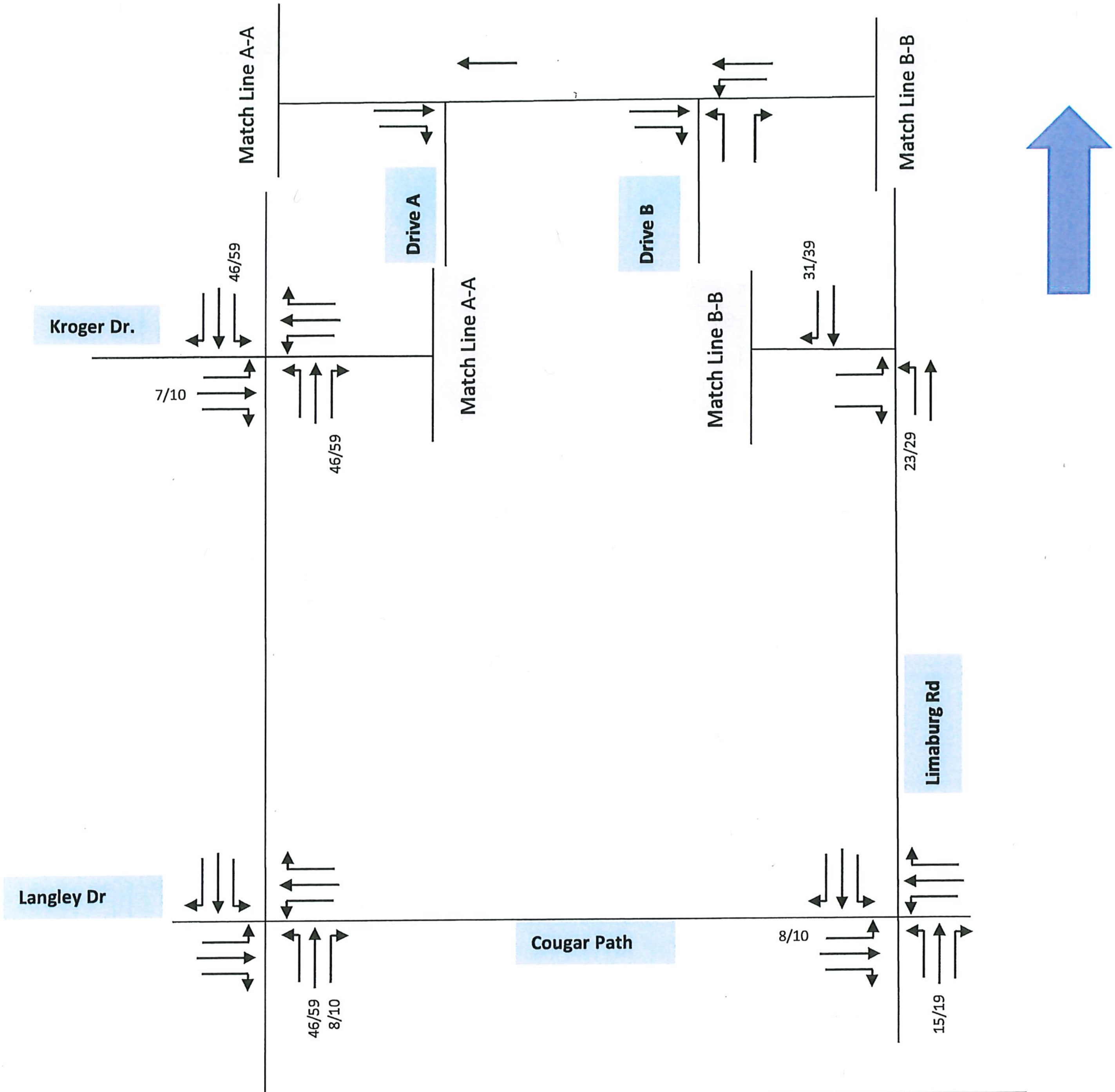


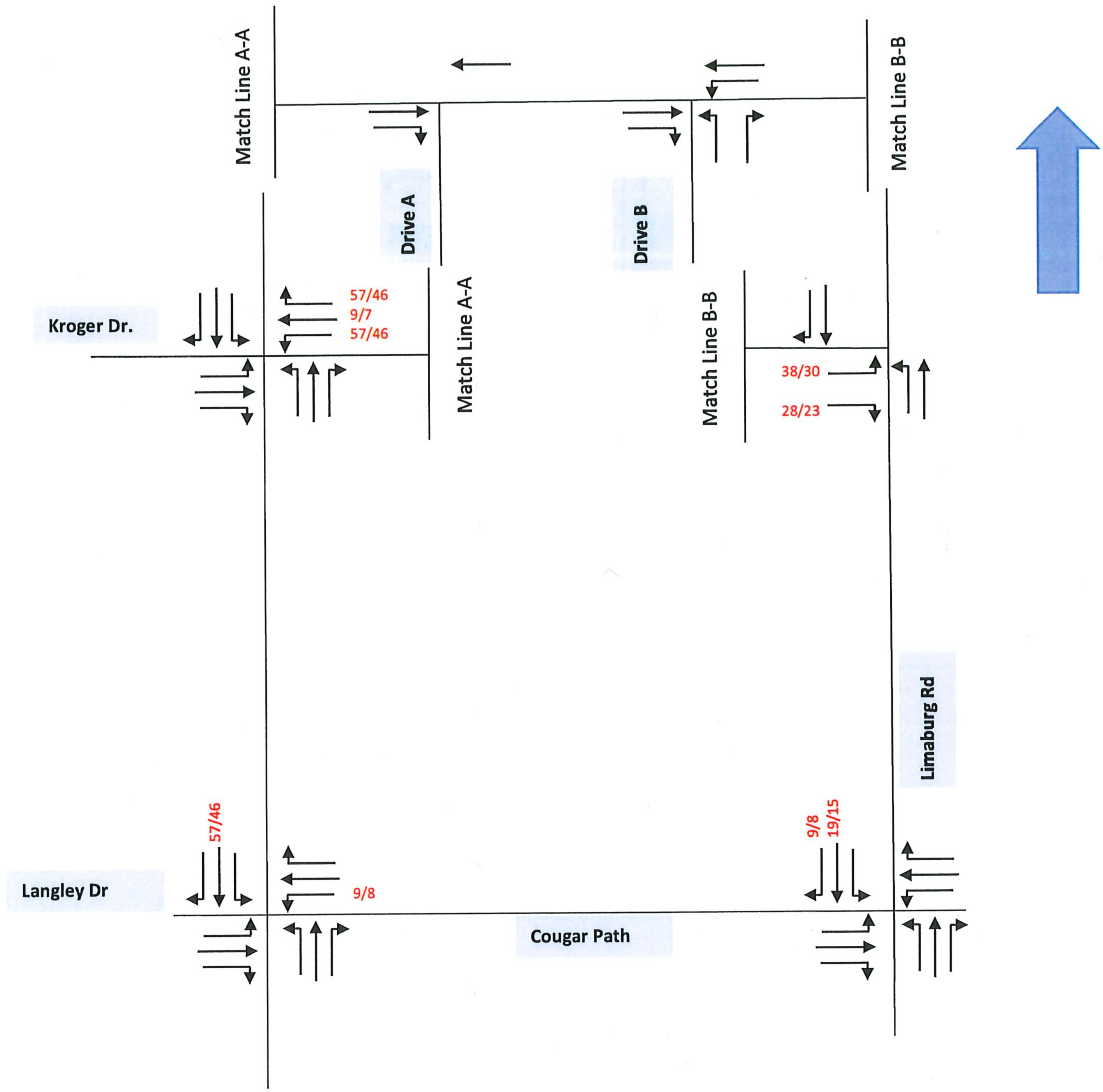
Figure 5 – Trip Distribution
(Percent)
AM/PM xxx/xxx



Estimated New Trips – Primary Trips

	Enter	Exit	Total
AM Peak	153	189	342
PM Peak	196	152	348

Figure 6 – Entering Trips
AM/PM xxx/xxx



Estimated New Trips – Primary Trips

	Enter	Exit	Total
AM Peak	153	189	342
PM Peak	196	152	348

Figure 7- Estimated Exiting New Trips

AM/PM xxx/xxx

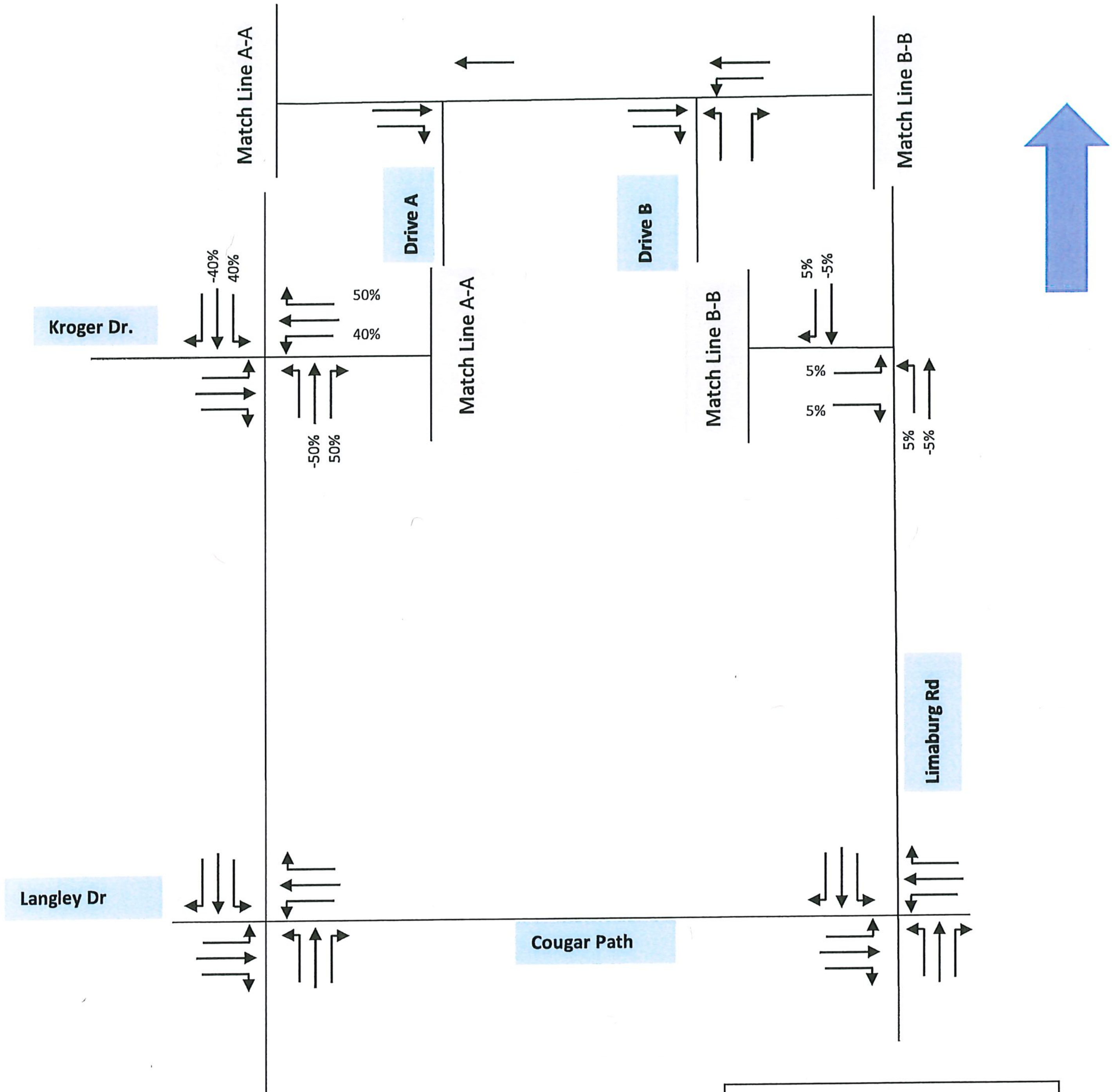
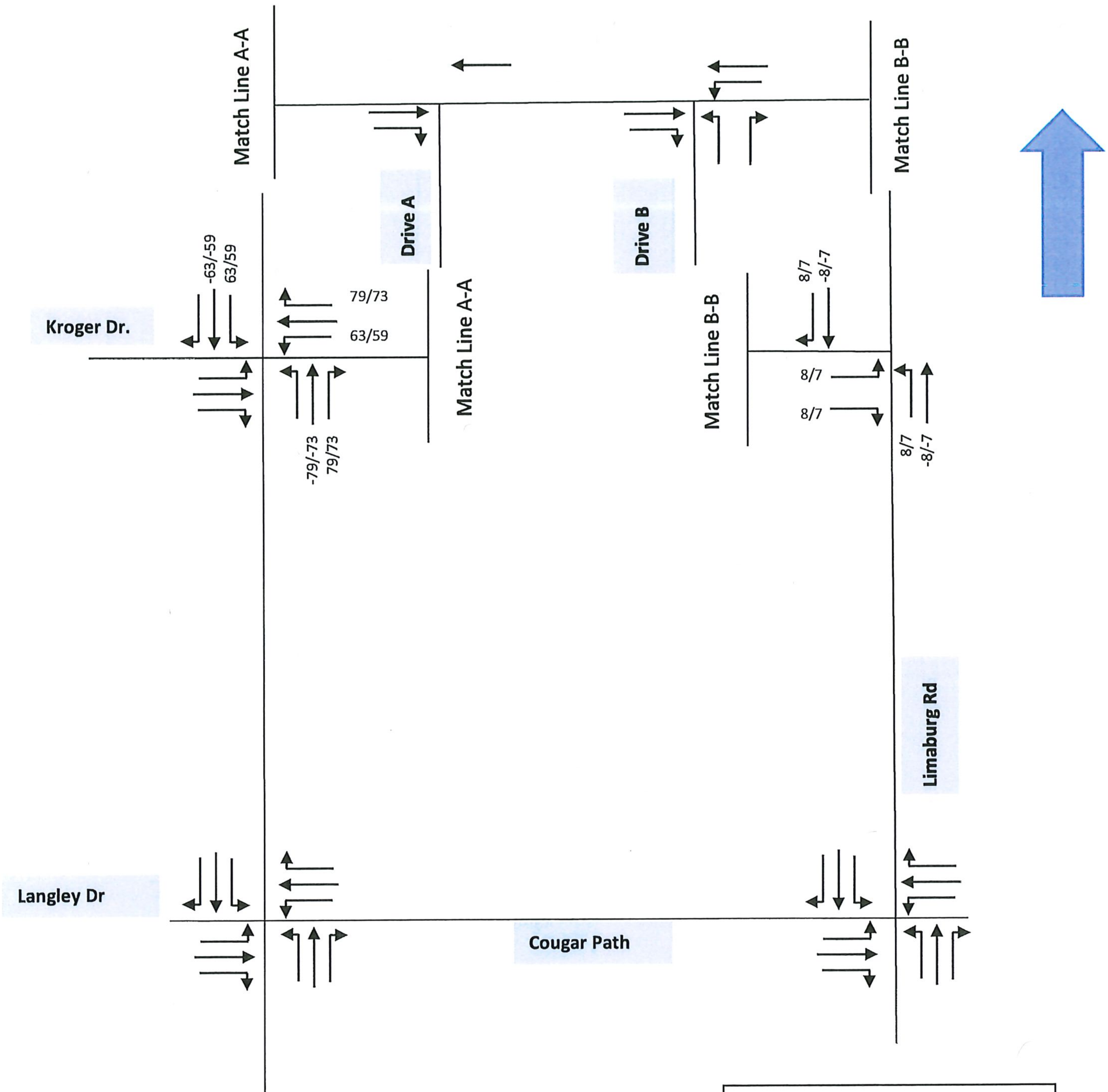


Figure 8 –Pass-By Trips (Percent)

AM/PM xxx/xxx



Estimated Pass-by Trips

	Enter	Exit	Total
AM Peak	158	158	316
PM Peak	146	146	292

Figure 9 –Pass-By Trips

AM/PM xxx/xxx

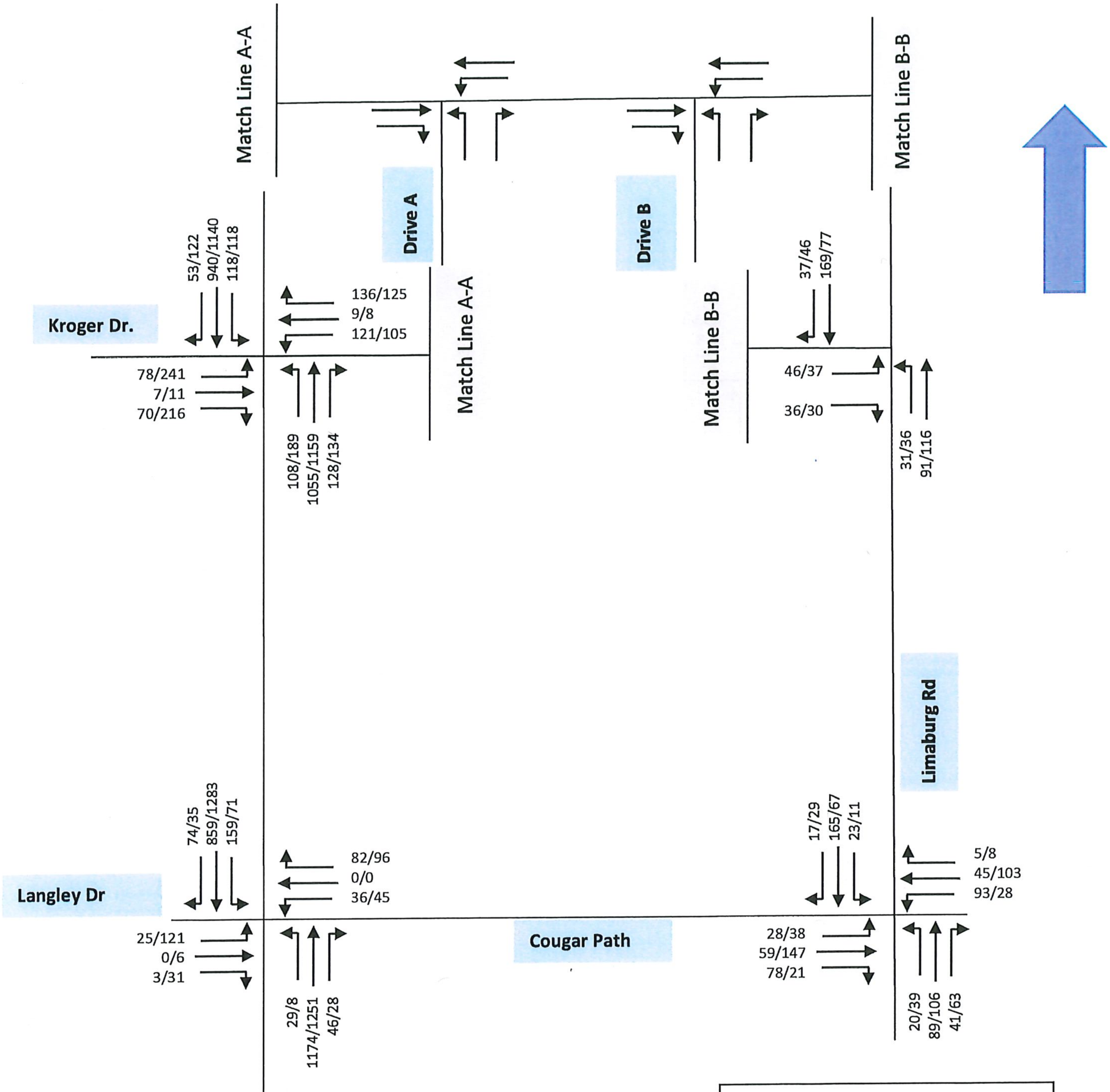


Figure 10 –2024 Build

AM/PM xxx/xxx

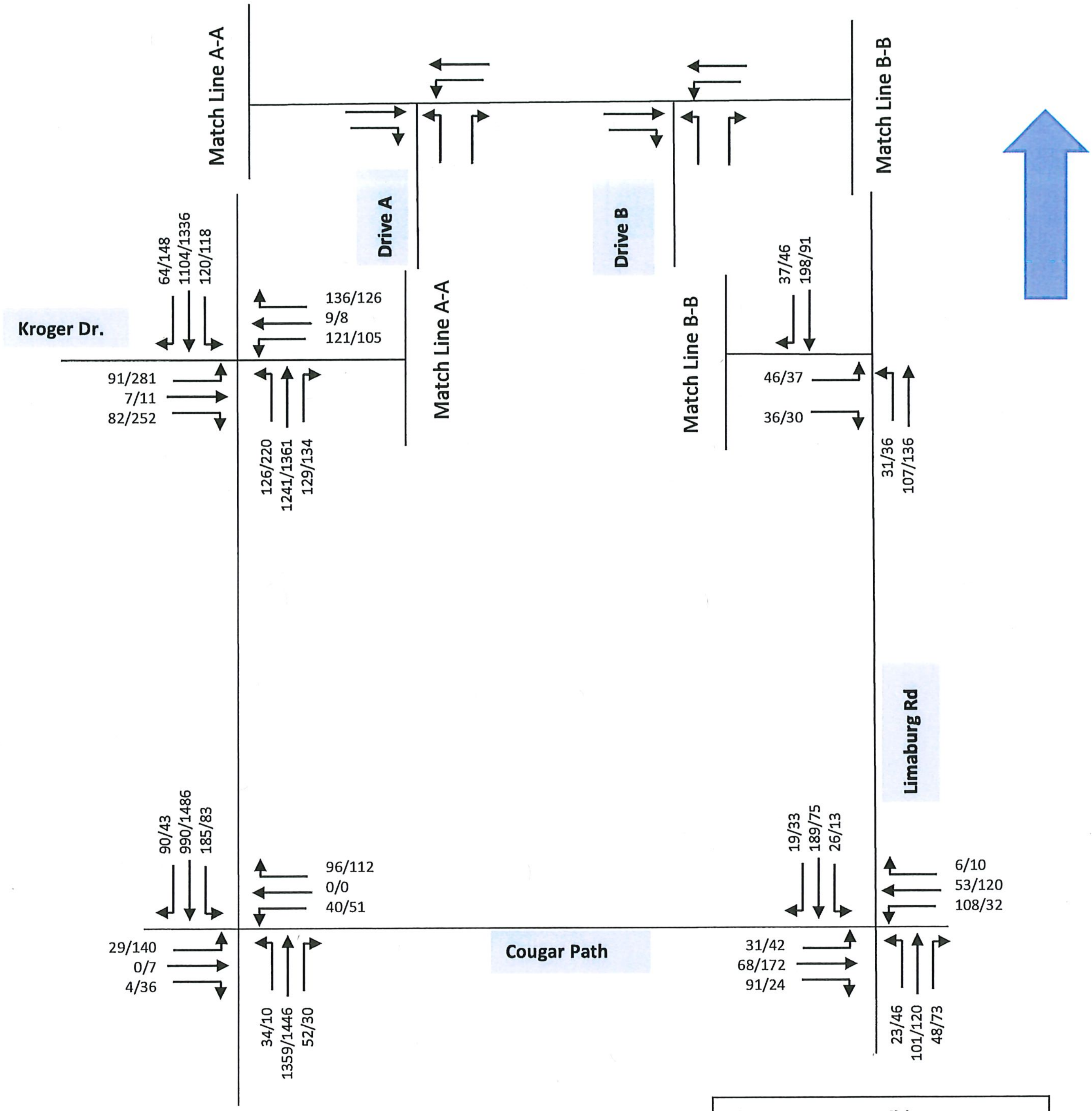


Figure 11 –2034 Build

AM/PM xxx/xxx

6. Analysis

The analysis presented in this section includes four intersections. (Two existing intersections on North Bend Road, an intersection of Cougar Path and Limaburg Road and new intersection of Hebron Station Drive and Limaburg). The access to the new development is proposed on Hebron Station Drive. There is no exiting traffic on Hebron Station Drive. Only traffic at the two access locations is either entering or exiting traffic from the new development. Therefore, traffic analysis at the two Access Drives on Hebron Station Drive and not completed. However, these access drives will be designed as per the standards followed by KYTC.

Turn Lane Warrants

The turn lane warrants were completed using the procedure followed by KYTC. The turn lane warrants were analyzed for the Hebron Station Drive and Limaburg Road. The turn lane assessment for other intersections is based on the capacity analysis completed at the intersection. The results of the turn lane warrants are summarized below, and detailed warrants are included in Appendix E.

Hebron Station Drive at Limaburg Road.

- The southbound right turn lane from Limaburg Road to westbound on Hebron Station Drive ***is not warranted.***
- The northbound left turn lane from Limaburg Road to westbound on Hebron Station Drive ***is not warranted.***

Capacity Analysis

Capacity analyses were performed for the intersections as indicated in the previous sections of this report. All the analyses were completed for Build traffic using Highway Capacity Software (HCS). Capacity of an intersection is quantified by the Level of Service (LOS) which is based upon the amount of delay a vehicle experience while at an intersection. The criterion for both signalized and unsignalized intersections are listed below as defined in Chapter 18 and 19 of the Highway Capacity Manual (HCM 2010), Volume 3.

Table 2 – Signalized/Unsignalized Intersection LOS Criteria (Exhibit 18-4 HCM)

Level of Service	Control Delay - Signalized Intersections (seconds/vehicle)	Control Delay – Unsignalized Intersections (seconds/vehicles)
A	*0-10*	*< 10*
B	*>10 – 20*	*>10 – 15*
C	*>20 – 35*	*>15 – 25*
D	*>35 – 55*	*>25 – 35*
E	*>55 – 80*	*>35 – 50*
F	*>80*	*>50*

The following is a list of code definitions that are used in the capacity analysis results:

EB/WB/NB/SB – Eastbound/Westbound/Northbound/Southbound
L – Left Turn Movement (exclusive left-turn lane or lanes)
T – Through Movement (exclusive through lane or lanes)
R – Right Turn Movement (exclusive right turn lane or lanes)
LT– Shared left turn and through movement lane
LTR – This provides movements in all directions.
TR – Shared through and right turn movement lane.

The summary of the capacity analysis completed for the intersections in the study area is provided below and the results of the capacity analysis are included in Appendix F.

North Bend Road at Kroger Access/Hebron Station Drive

The intersection is operating with a traffic signal. The existing traffic signal is operating with a cycle length of 110 seconds during the AM Peak Period and 130 seconds during the PM Peak Period. The analysis for the intersection is summarized in Tables 3, 4 and 5. Please note that the analysis with Build scenarios includes an exclusive lane for the northbound right turn to be built as part of the recommendations and coordination with KYTC during the completion of the previous version of Traffic Study for the site.

The analysis completed for AM Peak Hour scenarios shows LOS C for the intersection. All movements show LOS C or better. A comparison of analysis for the 2024 No Build and Build scenario shows an increase of 0.4 seconds/vehicles in average delay at the intersection. Similarly, a comparison of 2034 No Build and Build scenarios shows an increase of 1.7 seconds/vehicle in average delay at the intersection.

Table 3 – North Bend Rd at Kroger Access/Fire Station Dr. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - AM Peak – No Build - Signalized Conditions

Ex. Lane Use	EB (Kroger Access)				WB (Hebron Sta. Dr.)				NB (North Bend Rd)				SB (North Bend Rd.)				
	LT	-	R	App.		LTR		App.	L	T	TR	App	L	2T	R	App.	Intersection
2024 No-Build	C		C	C		C		C	B	B	B	B	C	C	B	C	C
	27.6		27.2	27.4		25.9		25.9	18.2	17.3	17.3	17.3	23.2	27.8	18.5	27.3	22.3
	73		64			1			65	375	375		8	431	40		
2034-No Build	C		C	C		C		C	C	B	B	B	C	C	B	C	C
	29.4		29.0	29.2		27.3		27.3	20.6	17.9	17.9	18.1	25.6	29.1	17.5	28.5	23.3
	88		79			1			73	439	439		11	509	47		
Mod. Geo	EB (Kroger Access)				WB (Hebron Sta.)				NB (North Bend Rd)				SB (North Bend Rd				
	LT	-	R	App.		LTR		App.	L	2T	R	App	L	2T	R	App.	
2024-Build	C		C	C		C		C	B	B	B	B	D	C	B	C	C
	27.1		25.8	26.5		30.1		30.1	18.6	17.4	12.5	17.0	40.5	28.7	19.7	29.5	23.7
	80		62			255			68	356	77		157	412	42		
2034-Build	C		C	C		C		C	C	B	B	B	D	C	B	C	C
	29.2		27.5	28.4		32.0		32.0	20.6	17.9	11.5	17.5	54.8	30.0	18.7	31.8	25.0
	97		76			262			77	420	74		194	49	49		

The capacity analysis at the intersection with PM Peak Hour scenarios shows LOS C for the intersection for the 2024 No Build and Build traffic volumes. The analysis with 2034 No Build and Build scenarios shows LOS D. A LOS E is observed for the northbound left turns for 2034 No Build traffic and LOS E for the southbound left turn and eastbound left and through lane with 2034 Build traffic volumes. All other movements show LOS D or better. A comparison of analysis for the 2024 No Build and Build scenario shows no change in the LOS for the intersection. A comparison of 2034 No Build and Build scenarios shows an increase of 1.7 seconds/vehicle in average delay at the intersection.

Since there is significant increase in the southbound left turn volumes at the intersection, an alternative is analyzed with protected permissive left turn phase for the southbound left turns. The results of the analysis with alternative are shown in Table 5. The analysis with alternative shows reduction in the delay and 95th percentile queue for the southbound left turns. All movements with alternative show LOD D or better. Please note the intersection is equipped with the hardware to operate with protected-permissive southbound left turn phase.

Table 4 – North Bend Rd at Kroger Access/Fire Station Dr. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build - Signalized Conditions

Ex. Lane Use	*EB (Kroger Access)*				*WB (Fire Sta. Dr.)*				*NB (North Bend Rd)*				*SB (North Bend Rd.)*				
	LT	-	R	App.		LTR		App.	L	T	TR	App	L	2T	R	App.	Intersection
2024 No-Build	C		C	C		C		C	E	C	C	C	*	D	C	C	C
	34.7		33.1	34.0		28.3		28.3	59.8	22.4	22.4	27.4	*	36.0	22.5	34.8	31.3
	274		240			8			226	508	508		*	633	115		
2034-No Build	D		D	D		C		C	E	C	C	C	*	D	C	D	D
	43.3		39.9	41.7		32.4		32.4	70.0	20.4	20.4	27.0		44.4	22.4	42.3	35.4
	349		300			10			242	559	559			807	141		
Mod. Geo	*EB (Kroger Access)*				*WB (Hebron Sta.)*				*NB (North Bend Rd)*				*SB (North Bend Rd*				
	LT	-	R	App.		LTR		App.	L	2T	R	App	L	2T	R	App.	
2024 Build	D		D	D		D		D	C	B	B	B	D	D	C	D	C
	44.3		35.5	40.7		35.8		35.8	28.0	18.7	12.8	19.3	48.9	41.1	25.7	40.4	31.3
	324		248			270			149	441	90		192	640	125		
2034-Build	E		D	D		D		D	D	B	B	C	E	D	C	D	D
	57.6		39.4	49.1		37.9		37.9	49.4	19.2	11.7	22.5	69.8	49.1	24.7	48.4	37.1
	416		298			279			200	524	85		230	808	149		

Table 5 – North Bend Rd at Kroger Access/Fire Station Dr. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build - Signalized Conditions – Alternative 1

Mod. Geo	*EB (Kroger Access)*				*WB (Hebron Sta.)*				*NB (North Bend Rd)*				*SB (North Bend Rd*				
	LT	-	R	App.		LTR		App.	L	2T	R	App	L	2T	R	App.	
2034-Build	D		D	D		D		D	D	C	B	C	C	D	C	D	D
	54.5		38.3	47.0		37.1		37.1	53.5	32.8	18.8	34.3	28.7	50.9	25.1	46.9	41.1
	406		294			276			211	686	114		100	819	150		

North Bend Road at Langley Drive/Cougar Path

The intersection is operating with a traffic signal. The existing traffic signal is operating with cycle length of 110 seconds during the AM Peak Period and 130 seconds during the PM Peak Period. The analysis for the intersection is summarized in Tables 6 and 7.

The analysis completed for AM Peak Hour scenarios shows LOS C for the intersection. All movements show LOS D or better. A comparison of analysis for the 2024 No Build and Build scenario shows an increase of 0.7 seconds/vehicles in average delay at the intersection. Similarly, a comparison of 2034 No Build and Build scenarios shows an increase of 3.0 seconds/vehicle in average delay at the intersection.

Table 6 – North Bend Rd at Langley Dr./Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - AM Peak – No Build - Signalized Conditions																	
Ex. Lane Use	***EB (Langley Dr)***				***WB (Cougar Path)***				***NB (North Bend Rd)***				***SB (North Bend Rd.)***				
	L	TR		App.		LTR		App.	L	2T	R	App	L	2T	R	App.	Intersection
2024	C	C		C		C		C	B	C	B	C	C	B	B	B	C
No-	31.1	26.3		30.6		28.3		28.3	19.4	31.3	18.6	30.6	23.8	13.7	11.5	14.9	23.4
Build	25	3				104			24	510	29		104	246	84		
2034-	C	C		C		C		C	B	C	B	C	D	B	A	B	C
No	34.2	28.1		35.5		30.6		30.6	19.2	34.1	17.2	33.2	35.3	13.1	9.7	16.3	25.7
Build	30	4				127			28	613	32		144	274	46		
	C	C		C		C		C	B	C	B	C	C	B	B	B	C
2024 Build	32.0	26.7		31.4		28.9		28.9	19.2	32.0	18.4	31.2	24.9	13.8	10.4	15.2	24.1
	25	3				114			24	535	35		104	262	39		
	D	C		D		D		D	B	D	B	D	D	B	A	B	C
2034-Build	40.4	31.8		39.4		25.4		35.4	17.9	40.6	15.8	39.1	42.6	11.4	7.8	15.7	28.7
	33	4				149			27	690	36		155	269	40		

The capacity analysis at the intersection with PM Peak Hour scenarios shows LOS C for the intersection for the 2024 and 2034 No Build and Build scenarios. All movements show LOS D or better. A comparison of analysis for the 2024 No Build and Build scenario shows an increase of 0.8 seconds/vehicles in average delay at the intersection. Similarly, a comparison of 2034 No Build and Build scenarios show an increase of 0.3 seconds/vehicle in average delay at the intersection.

Table 7 – North Bend Rd at Langley Dr./Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build - Signalized Conditions																	
Ex. Lane Use	***EB (Langley Dr)***				***WB (Cougar Path)***				***NB (North Bend Rd)***				***SB (North Bend Rd.)***				
	L	TR		App.		LTR		App.	L	2T	R	App	L	2T	R	App.	Intersection
2024	D	C		D		C		C	C	D	C	D	C	C	B	C	C
No-	38.2	29.2		36.1		31.2		31.2	32.6	36.4	20.7	36.2	23.8	21.4	12.8	21.3	29.0
Build	153	39				149			10	634	16		51	505	23		
2034-	D	C		D		C		C	D	D	B	D	C	C	B	C	C
No	42.9	31.0		40.1		33.7		33.7	37.4	41.4	19.3	41.0	27.7	22.4	11.8	22.4	31.8
Build	190	47				182			14	779	17		58	602	27		
	D	C		D		C		C	C	D	C	D	C	C	B	C	C
2024 Build	39.3	29.5		31.8		31.8		31.8	33.6	37.9	20.6	37.5	24.9	21.7	12.6	21.6	29.8
	155	39				160			10	676	25		50	527	23		
	D	C		D		D		D	D	D	B	D	C	C	B	C	C
2034-Build	45.1	32.1		42.0		35.1		35.1	37.3	42.0	18.7	41.5	28.1	21.9	11.1	21.9	32.1
	194	48				195			14	817	25		60	613	26		

Limaburg Road at Cougar Path

The intersection is operating as an All Way Stop Control intersection. The capacity analysis is summarized in Tables 8 and 9.

The capacity analysis at the intersection during the AM Peak Hour shows LOS A for the intersection for all scenarios except 2034 Build, which shows LOS B for the intersection. No significant increase in the average delay was observed for the Build scenarios compared to the No Build scenarios.

Table 8 – Limaburg at Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) -
AM Peak – No Build – All Way Stop Control

Ex. Lane Use	*EB (Cougar Path)*		*WB (Cougar Path)*		*NB (Limaburg Road)*		*SB (Limaburg Road.)*		
	LTR	App.	LTR	App.	LTR	App.	LTR	App.	
2024 No-Build	A	A	A	A	A	A	A	A	A
	9.1	9.1	9.6	9.6	9.1	9.1	9.7	9.7	9.4
	23		20		18		28		
2034-No Build	A	A	B	B	A	A	B	B	B
	9.9	9.9	10.4	10.4	9.8	9.8	10.6	10.6	10.2
	28		28		23		35		
2024 Build	A	A	A	A	A	A	B	B	A
	9.5	9.5	9.9	9.9	9.4	9.4	10.3	10.3	9.8
	25		23		23		33		
2034-Build	B	B	B	B	B	B	B	B	B
	10.4	10.4	10.8	10.8	10.3	10.3	11.4	11.4	10.8
	30		30		28		43		

The capacity analysis at the intersection during the PM Peak Hour shows LOS A for the intersection for the analysis with 2024 No Build and Build traffic volumes. The analysis with 2034 No Build and Build scenarios show LOS B. No significant increase in the average delay was observed for the Build scenarios compared to the No Build scenarios.

Table 9 – Limaburg at Cougar Path. - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) -
PM Peak – No Build – All Way Stop Control

Ex. Lane Use	*EB (Cougar Path)*		*WB (Cougar Path)*		*NB (Limaburg Road)*		*SB (Limaburg Road.)*		
	LTR	App.	LTR	App.	LTR	App.	LTR	App.	
2024 No-Build	A	A	A	A	A	A	A	A	A
	9.8	9.8	9.3	9.3	9.6	9.6	8.8	8.8	9.5
	30		20		28		10		
2034-No Build	B	B	A	A	B	B	A	A	B
	10.8	10.8	10.0	10.0	10.6	10.6	9.3	9.3	10.3
	40		25		38		15		
2024 Build	B	B	A	A	B	B	A	A	A
	10.3	10.3	9.6	9.6	10.1	10.1	9.1	9.1	9.9
	33		20		33		15		
2034-Build	B	B	B	B	B	B	A	A	B
	11.4	11.4	10.4	10.4	11.3	11.3	9.7	9.7	10.9
	45		28		43		18		

Limaburg Road at Hebron Station Drive

The intersection will operate with stop control on the eastbound approach on the Hebron Station Drive. The results of the capacity analysis are summarized in Tables 10 and 11.

The results of the capacity analysis with the AM Peak Hour traffic volumes show LOS B on the eastbound approach on Hebron Station. The northbound left turns show LOS A.

Table 10 – Limaburg at Hebron Station Drive - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - AM Peak – No Build – All Way Stop Control

Ex. Lane Use	EB (Hebron Sta. Dr.)				WB (N/A)				NB (Limaburg Road)				SB (Limaburg Road.)				
		LR		App.					L								
2024 Build		B		B					A								
		11.0		11.0					7.8								
		10							3								
2034-Build		B		B					A								
		11.4		11.4					7.8								
		13							3								

The results of the capacity analysis with the PM Peak Hour traffic volumes show LOS B for the eastbound approach on Hebron Station Drive. The northbound left turns show LOS A.

Table 11 – Limaburg at Hebron Station Drive - Level of Service/Delay (Seconds/Vehicle)/95th Percentile Queue (Ft.) - PM Peak – No Build – All Way Stop Control

Ex. Lane Use	EB (Hebron Sta. Dr.)				WB (N/A)				NB (Limaburg Road)				SB (Limaburg Road.)				
		LR		App.					L								
2024 Build		B		B					A								
		10.2		10.2					7.6								
		8							3								
2034-Build		B		B					A								
		10.5		10.5					7.6								
		8							3								

7. Findings

The preceding analysis and recommendations listed below are based on the typical procedure used for evaluating the impact of the proposed development on the adjacent roadway infrastructure and usual customary traffic engineering standards.

Hebron Station Drive will be built as part of this development. There is no existing traffic on Hebron Station Drive in the vicinity of proposed Access Drives. The majority of the volumes at Access Drives includes vehicles entering or exiting from the development. The total volume at these access locations is less than 200 vehicles during peak hour. Therefore, the intersection of Hebron Station Drive at two Access Drive will have adequate capacity. Also, with no through traffic on Hebron Station Drive exclusive turn lanes are not required.

The results of the analysis completed at each intersection in the study area are summarized below.

North Bend Road and Kroger Access Drive/Hebron Station Drive

The intersection is operating with a traffic signal. The analysis completed at the intersection shows acceptable flow of traffic at the intersection for all scenarios with the exception of southbound left turns showing LOS E for the 2034 PM Peak Hour Build scenario. An alternative is analyzed with modification in the traffic signal phasing for the southbound left turns to protected plus permissive. The alternative shows a reduction in the delay for the southbound left turns as well as significant reduction in the 95th percentile queue (from 230 feet to 100 feet). The existing signal hardware is equipped to operate with protected-permissive phase for the southbound left turns.

The intersection is equipped with preemption for the emergency vehicles exiting the adjacent Fire Station. Preemption at the intersections allows safe movement for the emergency vehicles heading north or south on North Bend Road. The new development will add more vehicles on the westbound approach. However, emergency preemption is not expected to cause delays for the emergency vehicles at the intersection. Once the preemption is activated, this will allow to clear the vehicles on the westbound approach. The emergency vehicles should be able to move without delay. The intersection should be monitored after implementation of the development to evaluate the operations of emergency vehicles.

North Bend Road at Langley Drive/Cougar Path

The intersection is operating with a traffic signal. The analysis completed at the intersection shows acceptable flow of traffic at the intersection for all scenarios. The existing geometry and traffic signal operations are adequate to handle additional traffic generated by the new development.

Limaburg Road and Cougar Path

The intersection is operating as an All Way Stop Control intersection. Capacity analysis completed for the intersection shows acceptable flow of traffic at the intersection. The estimated trips generated by the new development will have no significant impact on the flow of traffic at the intersection.

Limaburg Road at Hebron Station Drive

The intersection will be built to provide access for the development to the north and south on Limaburg Road. Capacity analysis completed at the intersection shows acceptable flow of traffic on the eastbound approach on Hebron Station Drive.

The turn lane warrants completed show that exclusive lanes for the northbound left turns and southbound right turns are not warranted.

Recommendations

All improvements to be made as per the recommendations in this study shall be completed following Standards published by the Kentucky Transportation Cabinet.

Hebron Station Drive at Limaburg Road

- The Hebron Station Drive shall be built as a 2-lane with a lane for the eastbound and westbound traffic. The eastbound approach shall be built with stop control.

Access Drive A at Hebron Station Drive

- Access Drive A shall be built with single inbound only lane allowing only right turns from Hebron Station Drive to Access Drive. This Access Drive A will only serve the Convenience Market with Fuel Pumps.

Access Drive B at Hebron Station Drive

- Access Drive B shall be built with single inbound and outbound lanes.
- The northbound approach shall be built with stop control.

North Bend Road at Kroger Access Drive/Hebron Station Drive

The current signal operation at the intersection is adequate. The existing traffic signal hardware is adequate to operate with preferred southbound left turn phase (Protected-Permissive left turns).

A northbound right turn lane at the intersection is being built at the intersection. Also, a traffic signal modification plan was completed to provide pedestrian signal heads and pedestrian crossing along the east side of the intersection. The traffic signal modification plans should be updated to include signal head modification for the southbound approach that will allow protected-permissive phase for the southbound left turns. The east leg of the intersection should be monitored ensuring the added traffic on the westbound is not impeding the movement of emergency vehicles from the Fire Stations. If delays are observed, the development team should coordinate with the Fire Department and KYTC and appropriate mediation should be implemented.

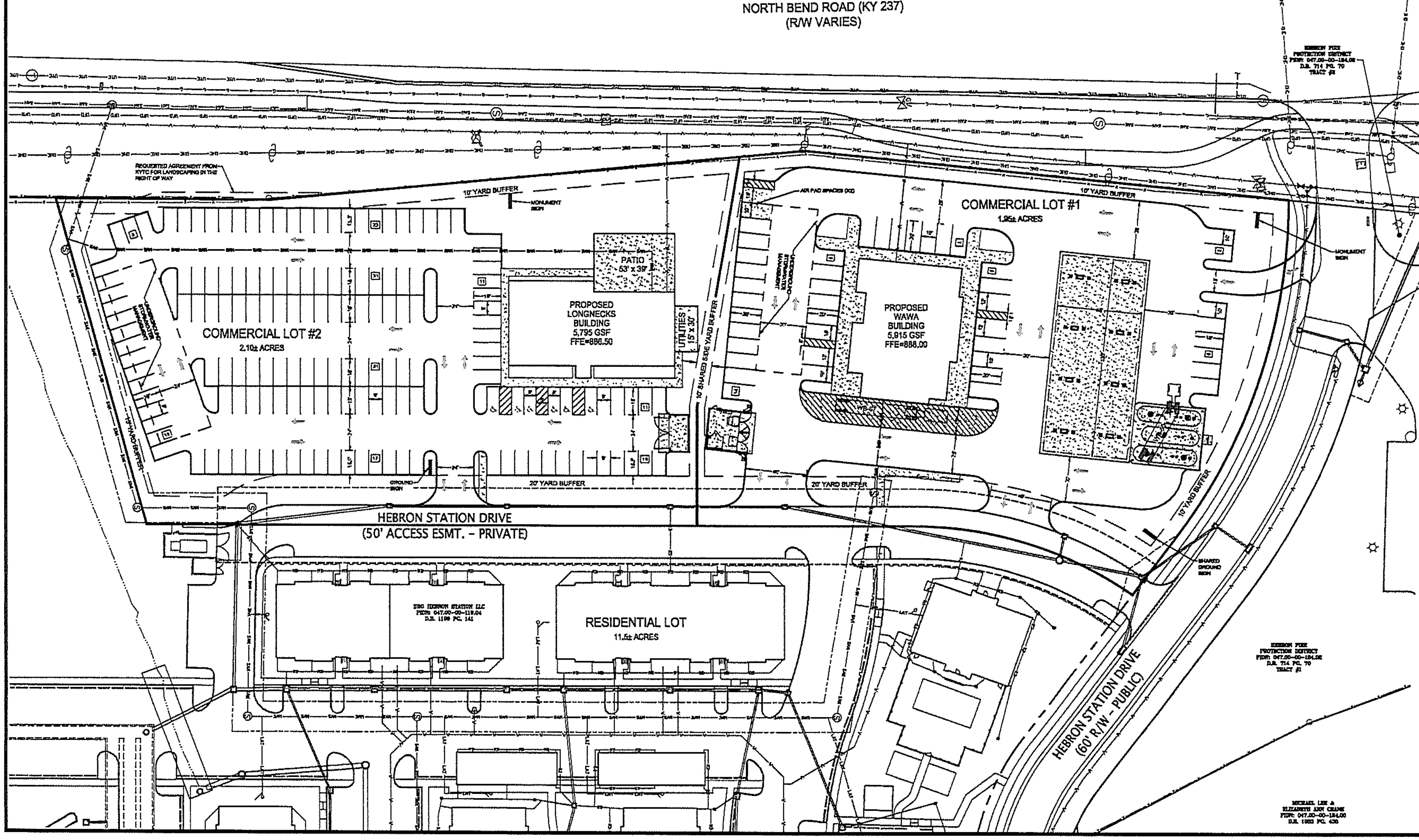
Appendix A

Site Plan

NOTES:
1. OWNER OF SUBJECT PROPERTY IS BRG REALTY GROUP, LLC.
2. EXISTING ZONE OF SUBJECT PROPERTY IS C-2/PD/CD COMMERCIAL TWO/PLANNED DEVELOPMENT DISTRICT/CONCEPT DEVELOPMENT PLAN. (AUGUST 2022 ZMA APPROVAL)
3. EXISTING USE OF SUBJECT PROPERTY: UNDEVELOPED LAND.
4. NO EXISTING BUILDINGS ON SUBJECT PROPERTY.
5. PROPOSED LAND USES FOR SUBJECT PROPERTY INCLUDE COMMERCIAL USE (C-2/PD/CD) PER THE AUGUST 2022 ZMA APPROVAL.
6. BUILDING AREA OF SUBJECT PROPERTY LIES WITHIN FLOOD ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN AS SHOWN ON FEMA MAP NUMBER 21015C0115C AS REVISED LAST ON JUNE 4, 2007.
7. SOILS PRESENT WITHIN SUBJECT PROPERTY PER USDA INCLUDE: RsC (ROSSMOYNE SILT LOAM) AND RsB (ROSSMOYNE SILT LOAM).
8. ACCESS TO SUBJECT PROPERTY WILL BE OFF THE PRIVATE DRIVE TO THE EAST OF THE PROPERTY WITH A SINGLE RIGHT IN ACCESS POINT ON THE NEWLY CONSTRUCTED HEBRON STATION DRIVE AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE KENTUCKY DEPARTMENT OF TRANSPORTATION AND BOONE COUNTY ENGINEER.
9. AREA OF SUBJECT PROPERTY INCLUDES 4.0562 ACRES.
10. ELECTRIC, TELEPHONE & CABLE TO BE INSTALLED UNDERGROUND PER DUKE ENERGY.
11. TYPICAL PROPOSED PARKING STALL DIMENSIONS ARE 9' WIDE BY 18' LONG UNLESS NOTED OTHERWISE ON THE PLANS.

PARKING SUMMARY

LOT	1(WAWA): CONVENIENCE STORE WITH GAS SALES	2(LONGNECKS): EATING AND DRINKING ESTABLISHMENT
REQUIRED:	1 SPACE PER 250 SF OF OFFICE AREA: (5,915 SF)/250 = 24 SPACES REQUIRED 1 SPACE PER TWO (2) GASOLINE PUMPS: (16 PUMPS)/2 = 8 SPACES REQUIRED 1 SPACE PER AIR PUMP STATION: (2 STATION)/1 = 2 SPACES REQUIRED 2 ADA ACCESSIBLE SPACES REQUIRED	1 SPACE PER TWO (2) SEATS: (232 SEATS)/2 = 116 SPACES REQUIRED 4 SPACES PER BILLIARD TABLE: (2 TABLES)*4 = 8 SPACES REQUIRED 6 ADA ACCESSIBLE SPACES REQUIRED
	MINIMUM SPACES REQUIRED = 34 REQ'D (INCLUDING 2 ADA) MAXIMUM SPACES REQUIRED (+30%) = 44 ALLOWED TOTAL SPACES PROVIDED = 45 PROVIDED (INCLUDING 3 ADA)	MINIMUM SPACES REQUIRED = 124 REQ'D (INCLUDING 6 ADA) MAXIMUM SPACES REQUIRED (+30%) = 161 ALLOWED TOTAL SPACES PROVIDED = 160 PROVIDED (INCLUDING 6 ADA)



REVISIONS

DATE	#	ITEM

CARDINAL ENGINEERING LAND SURVEYING

PROJECT: CONCEPT DEVELOPMENT PLAN
HEBRON STATION – COMMERCIAL SITE
NORTH BEND ROAD & COUGAR PATH

CLIENT: ANCHOR PROPERTIES, INC.
128 E. 2ND ST., COVINGTON, KY 41011
&
LONGNECKS SPORTS GRILL, LLC
544 CLAY RIDGE RD., ALEXANDRIA, KY 41001

DRAWN BY	ETL
CHECKED BY	DES
PROJECT MANAGER	DES
PROJECT NO.	21-165-03
SCALE	1" = 30'
DATE	12/27/2023

SITE CONCEPT PLAN

SHEET C-2

Appendix B

Memorandum of Understanding

SHA Engineering, LLC

6221 Thornberry Court, Mason, OH 45040
Phone: (513)236-7909
E-Mail: JAdhami@shaengg.com

May 12, 2022

Memorandum of Understanding

Consultant: SHA Engineering, LLC
6221 Thornberry Court
Mason, OH 45040

Prepared For

Robby Croswell
7265 Kenwood Road, Suite 111
Cincinnati, OH 45236

Re: Traffic Impact Study – Proposed Residential /Retail Development on North Bend Road, Hebron, KY

Background

The scope of work included in this document is for completing Traffic Impact Study for the new development proposed on the east side of North Bend Road in Hebron, Boone County, Kentucky. The development is proposed north of Cougar Path. The east side of the development abuts Limaburg Road. The development includes about 264 dwelling units of multifamily residential units and 2-3 out lots. The intended use of the out lots is Sit Down restaurant, medical office building or other retail store. It is anticipated the intended use of the out lots will be established once the analysis for the development will begin.

The access to the development is proposed Boulevard that will be connected to the existing stub at the signalized intersection of North Bend Road and Kroger Access Drive. The east end of the Boulevard entrance will be connected to Limaburg Road.

Study Area

The study area will include the following.

- North Bend Road at Kroger Access Drive (Signalized)
- North Bend Road at Cougar Path (Unsignalized)
- Cougar Path at Limaburg Road (Unsignalized)
- Proposed Access on Limaburg Road.

Scope of Work

SHA Engineering, LLC

6221 Thornberry Court, Mason, OH 45040
Phone: (513)236-7909
E-Mail: JAdhami@shaengg.com

The following tasks are included in the scope of work for completion of Traffic Impact Study.

- **Traffic counts data collection** – Establish peak hour volumes for analysis. Obtain weekday morning (6:00 – 10:00 am) and afternoon (2:00 – 6:00 pm) turning movement counts at the intersections included in the study area. These counts will be used for establishing AM and PM Peak Hours.

a. **Trip generation and Distribution** – The new trips for the proposed development will be estimated using the 11th edition of ITE Trip Generation Manual. The new trips will be distributed using the existing traffic patterns on adjacent streets.

The estimated new trips will be combined with existing traffic volume to generate Build scenarios.

The following scenarios will be analyzed. Base year and future year will be established before starting the analysis for completing Traffic Impact Study.

- AM and PM Peak hour No-Build Base Year
- AM and PM Peak hour Build Base Year
- AM and PM Peak Hour No- Build 10 years beyond base year.
- AM and PM Peak Hour Build 10 years beyond base year.
- Analysis with alternatives (if any) to mitigate impact of new development.

b. **Forecast traffic** – The forecast year will be 10 years beyond opening day for the development. The annual growth factor will be estimated using the procedure followed by KYTC. The estimated growth factor will be shared with KYTC and Boone County, for their review and approval.

d. **Analysis**

Following analysis will be completed for the scenarios identified in item b above.

Capacity Analysis – Capacity analysis will be completed at the intersections included in the study area, including the access location for the development. The analysis will consider if the added traffic from the development will have adverse impacts on timely egress for the emergency vehicles from existing Fire station located near the intersection of North Bend Road and Kroger Access Drive. If required study will identify mitigations that may be required for maintaining timely egress for the emergency vehicles.

Turn Lane Warrants – The turn lane warrants will be completed to determine the need for exclusive left and right turns lanes. The turn lane warrants will be completed at the unsignalized intersections in the study area using the procedure followed by KYTC.

Storage Lengths/95th Percentile Queues – The storage lengths for the exclusive left and right turn lanes that may be warranted will be estimated using the procedure followed by KYTC.

Traffic impact study report – Prepare a Traffic Impact Study (TIS) technical report describing the traffic engineering analysis, conclusions, and recommendations.

Jadhami@shaengg.com

From: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Sent: Wednesday, July 13, 2022 9:56 AM
To: Jadhami@shaengg.com
Cc: Minckley, James A (KYTC-D06); 'Robby Croswell'
Subject: RE: TIS for the proposed development on North Bend Road

Jamal,

Based on OKI's model, here is the traffic growth estimate on KY237 between KY 20 and Conner Road in Hebron from 2020 to 2040:

Facility	From/To	Traffic Growth Forecast* 2020 to 2040
KY 237	Between KY 20 and Conner Road	1.53%

When were the 2022 counts collected?

Thanks,

Linzy Brefeld, P.E.
Transportation Engineer Supervisor
KYTC District 6
Traffic and Permits Section
Linzy.Brefeld@ky.gov

From: Jadhami@shaengg.com <Jadhami@shaengg.com>
Sent: Tuesday, July 5, 2022 8:38 AM
To: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Cc: Minckley, James A (KYTC-D06) <James.Minckley@ky.gov>; 'Robby Croswell' <rcroswell@brgapartments.com>
Subject: TIS for the proposed development on North Bend Road

****CAUTION** PDF attachments may contain links to malicious sites. Please contact the COT Service Desk ServiceCorrespondence@ky.gov for any assistance.**

Good Morning Linzy,

Attached is the preliminary traffic and trip information in connection with residential and retail development on North Bend Road in Hebron, KY. The following information is provided.

1. Figures showing existing counted traffic, New Trips distribution and Pass-by Trip Information
2. Summary of estimated trips with details on trips estimated (using ITE Trip Generation App)
3. XL file for estimating growth factor.
4. Preliminary Site Layout

I will need feedback on the growth factor. Using the information on count stations near the site, I am getting no growth using the data for last 15 years. Please advise if we should use 0% growth or let us know if you like to use particular growth factor for the study.

Also, the exact nature of out lots is not know at this point. We are trying use land use that my provide higher estimates for the out lots.

Please review the information and provide us feedback. We will proceed with completing the TIS accordingly.

Regards

Jamal A. Adhami, P.E., PTOE
Principal
SHA Engineering LLC
6221 Thornberry Court
Mason, OH 45040

Phone: 513-236-7909
Fax: 800-948-9025

Jadhami@shaengg.com

From:	Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Sent:	Tuesday, June 7, 2022 1:46 PM
To:	Jadhami@shaengg.com
Subject:	RE: Traffic Impact Study - Proposed Development on North Bend Road
Attachments:	TIS_Forecast2.xlsx

Jamal,

No issues with the locations. Are you familiar with the new spreadsheet? There will be a new KYTC TIS class available soon for firms to renew their Traffic Engineering prequalification. The attached spreadsheet will be used going forward.

Our intent is to utilize three count stations for a development along one route, and potentially more count stations if the developments falls between two or more routes.

Thanks!

Linzy Brefeld, P.E.
Transportation Engineer Supervisor
KYTC District 6
Traffic and Permits Section
Linzy.Brefeld@ky.gov

From: Jadhami@shaengg.com <Jadhami@shaengg.com>
Sent: Wednesday, May 25, 2022 10:20 AM
To: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Subject: RE: Traffic Impact Study - Proposed Development on North Bend Road

Hi Linzy,

I did complete the recording for the intersections since the schools were closing on May 20th. If you are in agreement with overall MOU, I will work on providing you the traffic data submission that will include trip generation, distribution, growth factor etc. Typically I use KYTC spreadsheet for estimating growth factor.

Let me know if you have additional questions.

Best Regards

Jamal A. Adhami, P.E., PTOE
Principal
SHA Engineering LLC
6221 Thornberry Court
Mason, OH 45040

Phone: 513-236-7909

Fax: 800-948-9025

From: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>
Sent: Wednesday, May 25, 2022 10:17 AM
To: Jadhami@shaengg.com
Subject: RE: Traffic Impact Study - Proposed Development on North Bend Road

Jamal,

Did you already get counts for this one?
What about land use codes, growth rate, and opening year?

Thanks!

From: Jadhami@shaengg.com <Jadhami@shaengg.com>
Sent: Thursday, May 12, 2022 6:25 PM
To: Brefeld, Linzy M (KYTC-D06) <Linzy.Brefeld@ky.gov>; Minckley, James A (KYTC-D06) <James.Minckley@ky.gov>
Cc: 'Robert Franxman' <rfranxman@boonecountyky.org>; 'Robby Croswell' <rcroswell@brgapartments.com>
Subject: Traffic Impact Study - Proposed Development on North Bend Road

****CAUTION** PDF attachments may contain links to malicious sites. Please contact the COT Service Desk ServiceCorrespondence@ky.gov for any assistance.**

Hi Linzy,

I am forwarding you a copy of MOU prepared for the Traffic Impact Study for the proposed residential and retail development located on North Bend Road in Hebron, KY. The MOU is submitted for your review and approval.

Since we only have one week left before the schools are closed for the summer break, I will complete the traffic counts at the intersections included in the study area during next week, most likely on May 17 or 18.

Contact me if you have any questions.

Regards

Jamal A. Adhami, P.E., PTOE
Principal
SHA Engineering LLC
6221 Thornberry Court
Mason, OH 45040

Phone: 513-236-7909
Fax: 800-948-9025

Updated Estimated New Trips as per revised Site Plan`

Table 1 – Estimated New Trips

Land Use	Units	Total	Weekday			AM Peak Hour			PM Peak Hour		
			Ent.	Exit	Tot.	Ent.	Exit	Tot.	Ent.	Exit	Tot.
220 - Multi Family - Low Rise	DW	264				29	71	100	97	64	161
	Pass-by Trips										
945 – Convenience Market with Fuel Pump	Fuel Loc	16				253	253	506	215	215	430
	Pass-by Trips					158	158	316	136	136	272
932 - High Turnover Sit Down Restaurant	GFA (SFT)	5000				26	22	48	28	18	46
									10	10	20
New Trips						308	346	654	340	297	637
Internal Trips						11	11	22	14	14	28
External Trips						297	335	632	326	283	609
Pass-by Trips						158	158	316	146	146	292
Net- New Trips						**139**	**177**	**316**	**180**	**137**	**317**

Appendix C

Traffic Data

Peak Hour Turning Movement Counts
North Bend Road at Langley Drive/Cougar

Start Time	Langley Eastbound				Cougar Westbound				North Bend Rd Northbound				North Bend Rd Southbound			
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
AM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
7:00 - 8:00 AM	24	0	3		26	0	80		28	1094	37		154	778	72	
2024 No Build (Growth Factor,1.53%/year)																
7:00 - 8:00 AM	25	0	3	0	27	0	82	0	29	1128	38	0	159	802	74	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
7:00 - 8:00 AM	29	0	4	0	31	0	96	0	34	1313	44	0	185	933	90	
New Trips - Entering																
7:00 - 8:00 AM										46	8					
New Trips - Exiting																
7:00 - 8:00 AM					9									57		
Pass-by Trips																
7:00 - 8:00 AM																
2024 - Build Traffic																
7:00 - 8:00 AM	25	0	3		36	0	82		29	1174	46		159	859	74	
2034 - Build Traffic																
7:00 - 8:00 AM	29	0	4		40	0	96		34	1359	52		185	990	90	
PM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
4:15 - 5:15 AM	117	6	30		36	0	93		8	1156	17		69	1200	34	
2024 No Build (Growth Factor,1.53%/year)																
4:15 - 5:15 AM	121	6	31	0	37	0	96	0	8	1192	18	0	71	1237	35	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
4:15 - 5:15 AM	140	7	36	0	43	0	112	0	10	1387	20	0	83	1440	43	
New Trips - Entering																
4:15 - 5:15 AM										59	10					
New Trips - Exiting																
4:15 - 5:15 AM					8									46		
Pass-by Trips																
4:15 - 5:15 AM																
2024 - Build Traffic																
4:15 - 5:15 AM	121	6	31		45	0	96		8	1251	28		71	1283	35	
2034 - Build Traffic																
4:15 - 5:15 AM	140	7	36		51	0	112		10	1446	30		83	1486	43	

Peak Hour Turning Movement Counts
North Bend Road at Kroger Access/Fire Station Drive

Start Time	Kroger Access Eastbound				Fire Station/Prop. Access Westbound				North Bend Rd Northbound				North Bend Road Southbound			
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
AM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
7:00 - 8:00 AM	76	0	68		1	0	0		105	1100	3		9	973	51	
2024 No Build (Growth Factor,1.53%/year)																
7:00 - 8:00 AM	78	0	70	0	1	0	0	0	108	1134	3	0	9	1003	53	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
7:00 - 8:00 AM	91	0	82	0	1	0	0	0	126	1320	4	0	11	1167	64	
New Trips - Entering																
7:00 - 8:00 AM		7									46		46			
New Trips - Exiting																
7:00 - 8:00 AM					57	9	57									
Pass-by Trips																
7:00 - 8:00 AM					63		79			-79	79		63	-63		
2024 - Build Traffic																
7:00 - 8:00 AM	78	7	70		121	9	136		108	1055	128		118	940	53	
2034 - Build Traffic																
7:00 - 8:00 AM	91	7	82		121	9	136		126	1241	129		120	1104	64	
PM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
4:15 - 5:15 AM	234	2	210		0	1	6		183	1195	2		0	1163	118	
2024 No Build (Growth Factor,1.53%/year)																
4:15 - 5:15 AM	241	2	216	0	0	1	6	0	189	1232	2	0	0	1199	122	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
4:15 - 5:15 AM	281	2	252	0	0	1	7	0	220	1434	2	0	0	1395	148	
New Trips - Entering																
4:15 - 5:15 AM		9									59		59			
New Trips - Exiting																
4:15 - 5:15 AM					46	7	46									
Pass-by Trips																
4:15 - 5:15 AM					59		73			-73	73		59	-59		
2024 - Build Traffic																
4:15 - 5:15 AM	241	11	216		105	8	125		189	1159	134		118	1140	122	
2034 - Build Traffic																
4:15 - 5:15 AM	281	11	252		105	8	126		220	1361	134		118	1336	148	

Peak Hour Turning Movement Counts
Limaburt at Cougar

Start Time	Cougar Path Eastbound				Cougar Path Westbound				Limaburg Rd Northbound				Limaburg Rd Southbound			
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
AM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
7:00 - 8:00 AM	19	57	76		90	44	5		19	72	40		22	142	8	
2024 No Build (Growth Factor,1.53%/year)																
7:00 - 8:00 AM	20	59	78	0	93	45	5	0	20	74	41	0	23	146	8	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
7:00 - 8:00 AM	23	68	91	0	108	53	6	0	23	86	48	0	26	170	10	
New Trips - Entering																
7:00 - 8:00 AM	8									15						
New Trips - Exiting																
7:00 - 8:00 AM														19	9	
Pass-by Trips																
7:00 - 8:00 AM																
2024 - Build Traffic																
7:00 - 8:00 AM	28	59	78		93	45	5		20	89	41		23	165	17	
2034 - Build Traffic																
7:00 - 8:00 AM	31	68	91		108	53	6		23	101	48		26	189	19	
PM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
4:15 - 5:15 AM	27	143	20		27	100	8		38	84	61		11	50	20	
2024 No Build (Growth Factor,1.53%/year)																
4:15 - 5:15 AM	28	147	21	0	28	103	8	0	39	87	63	0	11	52	21	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
4:15 - 5:15 AM	32	172	24	0	32	120	10	0	46	101	73	0	13	60	25	
New Trips - Entering																
4:15 - 5:15 AM	10									19						
New Trips - Exiting																
4:15 - 5:15 AM														15	8	
Pass-by Trips																
4:15 - 5:15 AM																
2024 - Build Traffic																
4:15 - 5:15 AM	38	147	21		28	103	8		39	106	63		11	67	29	
2034 - Build Traffic																
4:15 - 5:15 AM	42	172	24		32	120	10		46	120	73		13	75	33	

Peak Hour Turning Movement Counts
Hebron Station Drive at Limaburg Road

Start Time	Hebron Station Drive Eastbound				N/A Westbound				Limaburg Rd Northbound				Limaburg Rd Southbound			
	Left	Thru	Right		Left	Thru	Right		Left	Thru	Right		Left	Thru	Right	
AM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
7:00 - 8:00 AM										96				172		
2024 No Build (Growth Factor,1.53%/year)																
7:00 - 8:00 AM	0	0	0	0	0	0	0	0	0	99	0	0	0	177	0	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
7:00 - 8:00 AM	0	0	0	0	0	0	0	0	0	115	0	0	0	206	0	
New Trips - Entering																
7:00 - 8:00 AM									23						29	
New Trips - Exiting																
7:00 - 8:00 AM	38		28													
Pass-by Trips																
7:00 - 8:00 AM	8		8						8	-8				-8	8	
2024 - Build Traffic																
7:00 - 8:00 AM	46	0	36		0	0	0		31	91	0		0	169	37	
2034 - Build Traffic																
7:00 - 8:00 AM	46	0	36		0	0	0		31	107	0		0	198	37	
PM PEAK HOUR TURNING MOVEMENT VOLUMES																
2022 Existing Counts																
4:15 - 5:15 AM										119				81		
2024 No Build (Growth Factor,1.53%/year)																
4:15 - 5:15 AM	0	0	0	0	0	0	0	0	0	123	0	0	0	84	0	
2034 No Build (Growth Factor, 1.53%/year, not compounded)																
4:15 - 5:15 AM	0	0	0	0	0	0	0	0	0	143	0	0	0	98	0	
New Trips - Entering																
4:15 - 5:15 AM									29						39	
New Trips - Exiting																
4:15 - 5:15 AM	30		23													
Pass-by Trips																
4:15 - 5:15 AM	7		7						7	-7				-7	7	
2024 - Build Traffic																
4:15 - 5:15 AM	37	0	30		0	0	0		36	116	0		0	77	46	
2034 - Build Traffic																
4:15 - 5:15 AM	37	0	30		0	0	0		36	136	0		0	91	46	

Appendix D

Trip Generation Summary

Scenario - 6

Scenario Name: **AM Peak Hour - December 2023**

User Group:

Dev. phase: 1

No. of Years to Project Traffic : 0

Analyst Note:

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
220 - Multifamily Housing (Low-Rise) - Close to Data Source: Trip Generation Manual, 11th Ed	General Urban/Suburban	Dwelling Units	264	Weekday, Peak Hour of Adjacent Street Traffic,	Average 0.38	29 29%	71 71%	100
945 - Convenience Store/Gas Station - GFA (5.5- Data Source: Trip Generation Manual, 11th Ed	General Urban/Suburban	Vehicle Fueling Positions	16	Weekday, Peak Hour of Adjacent Street Traffic,	Average 31.60	253 50%	253 50%	506
932 - High-Turnover (Sit-Down) Restaurant Data Source: Trip Generation Manual, 11th Ed	General Urban/Suburban	1000 Sq. Ft. GFA	5.44	Weekday, Peak Hour of Adjacent Street Traffic,	Average 9.57	29 55%	23 45%	52

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
220 - Multifamily Housing (Low-Rise) - Close to Rail Transit	29	71	0.00%	0.00%	0	0
945 - Convenience Store/Gas Station -GFA (5.5-10k)	253	253	62.50%	62.50%	158	158
932 - High-Turnover (Sit-Down) Restaurant	29	23	0.00%	0.00%	0	0

Scenario - 7

Scenario Name: **PM Peak Hour - December 2023**

User Group:

Dev. phase: 1

No. of Years to Project Traffic : 0

Analyst Note:

Warning:

VEHICLE TRIPS BEFORE REDUCTION

Land Use & Data Source	Location	IV	Size	Time Period	Method Rate/Equation	Entry Split%	Exit Split%	Total
220 - Multifamily Housing (Low-Rise) - Close to Data Source: Trip Generation Manual, 11th Ed	General Urban/Suburban	Dwelling Units	264	Weekday, Peak Hour of Adjacent Street Traffic,	Average 0.61	97 60%	64 40%	161
945 - Convenience Store/Gas Station - GFA (5.5- Data Source: Trip Generation Manual, 11th Ed	General Urban/Suburban	Vehicle Fueling Positions	16	Weekday, Peak Hour of Adjacent Street Traffic,	Average 26.90	215 50%	215 50%	430
932 - High-Turnover (Sit-Down) Restaurant Data Source: Trip Generation Manual, 11th Ed	General Urban/Suburban	1000 Sq. Ft. GFA	5.44	Weekday, Peak Hour of Adjacent Street Traffic,	Average 9.05	30 61%	19 39%	49

VEHICLE TO PERSON TRIP CONVERSION

PASS-BY VEHICLE TRIP REDUCTION

Land Use	External Vehicle Trips		Pass-by Vehicle Trip %		Pass-by Vehicle Trips	
	Entry	Exit	Entry (%)	Exit (%)	Entry	Exit
220 - Multifamily Housing (Low-Rise) - Close to Rail Transit	97	64	0.00%	0.00%	0	0
945 - Convenience Store/Gas Station - GFA (5.5-10k)	215	215	63.10%	63.10%	136	136
932 - High-Turnover (Sit-Down) Restaurant	30	19	43.00%	43.00%	13	8

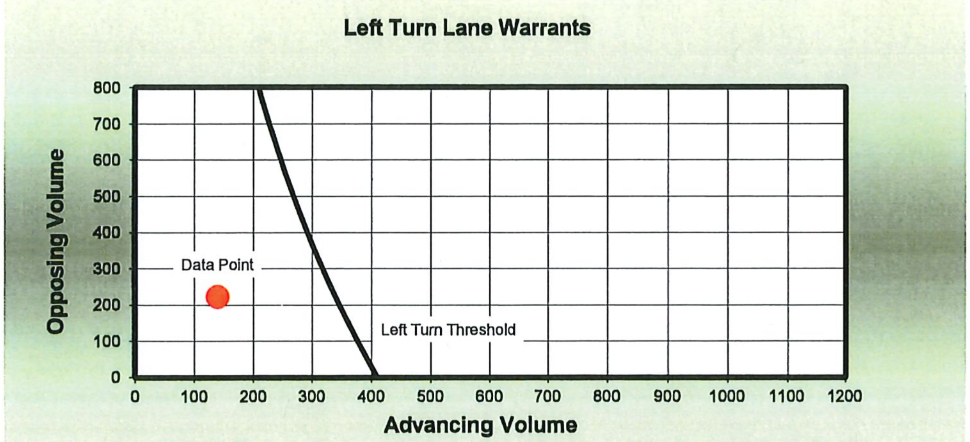
Appendix E
Turn Lane Warrants

NB Left Turn Lane - AM - 2034 Build

Limaburg at Hebron Station Dr.

Input Fields

Left Turn Volume (vph)	31	Speed Limit (mph)	35
Advancing Volume (vph)	138	No. of through lanes	1
Opposing Volume (vph)	225	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane NOT Warranted

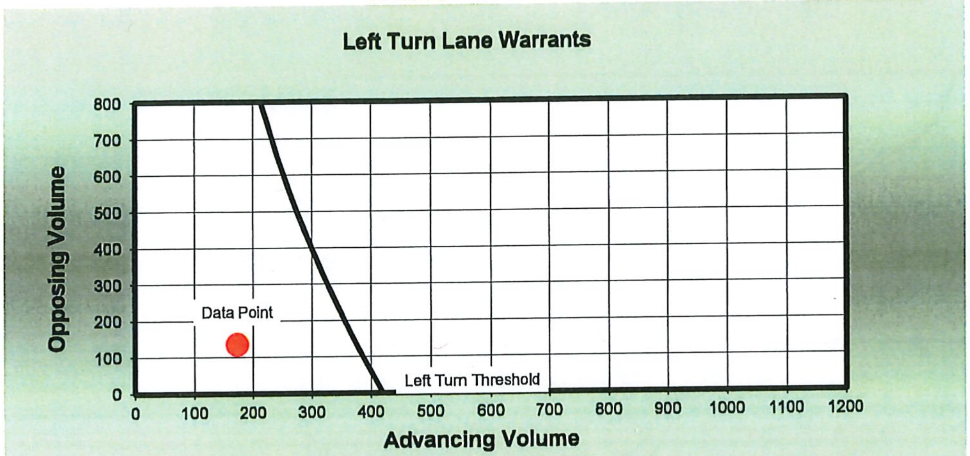
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

NB Left Turn Lane - PM - 2034 Build

Limaburg at Hebron Station Dr.

Input Fields

Left Turn Volume (vph)	36	Speed Limit (mph)	35
Advancing Volume (vph)	172	No. of through lanes	1
Opposing Volume (vph)	137	Percent Heavy Vehicles (decimal percent)	0.05



Left Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

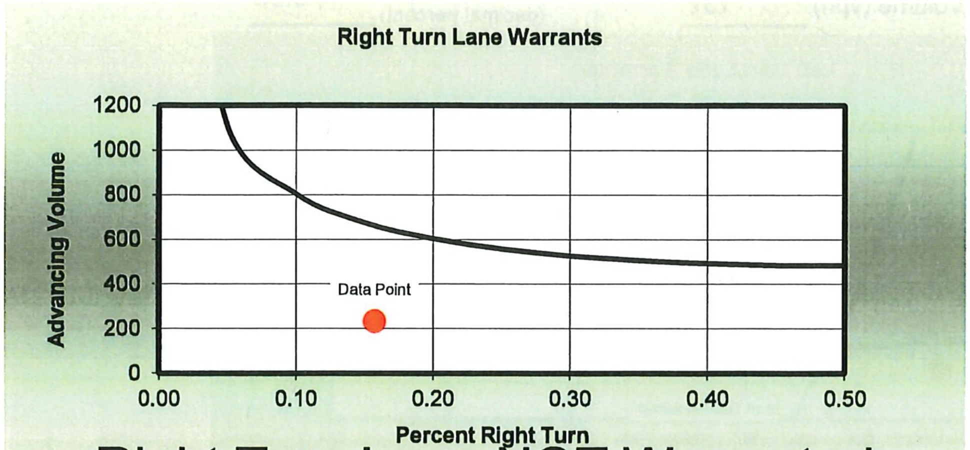
SB Right Turn Lane - AM 2034

Limaburg at Hebron Station Dr.

Input Fields

Right Turn Volume (vph)	37	Speed Limit (mph)	35
Advancing Volume (vph)	235		

r



Right Turn Lane NOT Warranted

Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

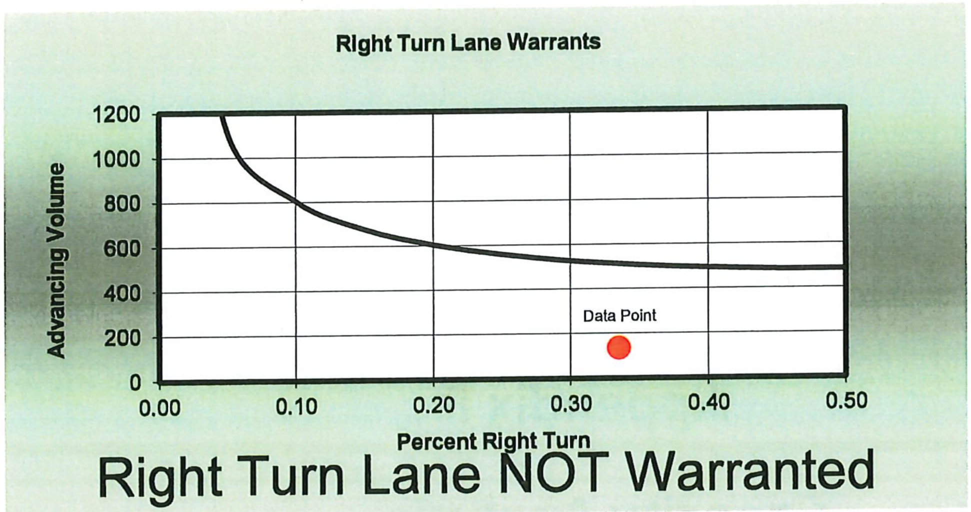
SB Right Turn Lane - PM 2034

Input Fields

Limaburg at Hebron Station Dr.

Right Turn Volume (vph)	46	Speed Limit (mph)	35
Advancing Volume (vph)	137		

r



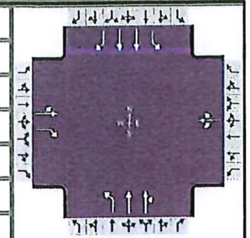
Note: This spreadsheet is intended to supplement the guidance provided in the Auxiliary Turn Lane policy outlined in the KYTC Highway Design Manual. This policy should be fully reviewed and understood prior to using this application.

Appendix F

Capacity Analysis

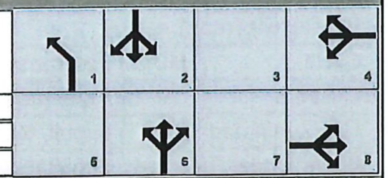
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	AM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024 - No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	1-1-AM-2024-No Build-North-Bend-Kroger.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	78	0	70	1	0	0	108	1134	3	9	1003	53

Signal Information										
Cycle, s	110.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	8.5	47.7	34.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		41.0		41.0	15.0	69.0		54.0
Change Period, (*Y+R c*), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	0.0		0.0
Queue Clearance Time (g_s), s		6.7		2.1	5.6			
Green Extension Time (g_e), s		0.3		0.3	0.0	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		0.00		0.00	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		85	76		1		117	618	618	10	1090	58
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1440	1610		1440		1810	1900	1898	458	1809	1610
Queue Service Time (g_s), s		4.7	3.7		0.0		3.6	22.8	22.8	1.5	26.9	2.3
Cycle Queue Clearance Time (g_c), s		4.7	3.7		0.1		3.6	22.8	22.8	9.3	26.9	2.3
Green Ratio (*g/C*)		0.31	0.31		0.31		0.53	0.57	0.57	0.43	0.43	0.43
Capacity (*c*), veh/h		517	505		517		305	1083	1082	231	1569	698
Volume-to-Capacity Ratio (*X*)		0.164	0.151		0.002		0.385	0.571	0.571	0.042	0.695	0.083
Back of Queue (*Q*), ft/ln (95 th percentile)		72.6	64.4		0.9		64.5	375.3	375.1	8.4	431	40.3
Back of Queue (*Q*), veh/ln (95 th percentile)		2.9	2.6		0.0		2.6	15.0	15.0	0.3	17.2	1.6
Queue Storage Ratio (*RQ*) (95 th percentile)		0.24	0.21		0.01		0.14	0.37	0.37	0.05	0.57	0.12
Uniform Delay (d_1), s/veh		27.5	27.2		25.9		17.9	15.1	15.1	22.8	25.3	18.3
Incremental Delay (d_2), s/veh		0.1	0.1		0.0		0.3	2.2	2.2	0.3	2.6	0.2
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		27.6	27.2		25.9		18.2	17.3	17.3	23.2	27.8	18.5
Level of Service (LOS)		C	C		C		B	B	B	C	C	B
Approach Delay, s/veh / LOS	27.4	C		25.9	C		17.3	B		27.3	C	
Intersection Delay, s/veh / LOS	22.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.44	B	1.67	B	1.91	B
Bicycle LOS Score / LOS	0.75	A	0.49	A	1.60	B	1.44	A

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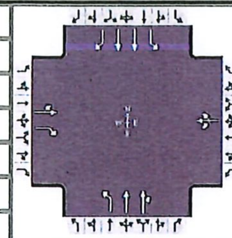
HCS7 Signalized Intersection Results Summary

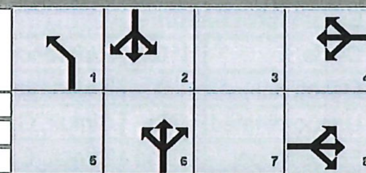


General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	AM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2034- No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	1-2-AM-2034-No Build-North-Bend-Kroger.xus		
Project Description	Residential/Commercial Development				

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	0	82	1	0	0	126	1320	4	11	1167	64

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.5	49.7	32.5	0.0	0.0	0.0
Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Red	3.0	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		39.0		39.0	15.0	71.0		56.0
Change Period, (*Y+R c*), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	0.0		0.0
Queue Clearance Time (*g s*), s		7.7		2.1	6.1			
Green Extension Time (*g e*), s		0.3		0.3	0.0	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		0.00		0.00	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		99	89		1		137	720	719	12	1268	70
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1440	1610		1440		1810	1900	1898	377	1809	1610
Queue Service Time (*g s*), s		5.7	4.5		0.0		4.1	27.6	27.6	2.4	32.6	2.7
Cycle Queue Clearance Time (*g c*), s		5.7	4.5		0.1		4.1	27.6	27.6	15.0	32.6	2.7
Green Ratio (*g/C*)		0.30	0.30		0.30		0.55	0.59	0.59	0.45	0.45	0.45
Capacity (*c*), veh/h		491	476		491		274	1118	1116	192	1634	728
Volume-to-Capacity Ratio (*X*)		0.201	0.187		0.002		0.499	0.644	0.644	0.062	0.776	0.096
Back of Queue (*Q*), ft/ln (95 th percentile)		88.4	78.5		0.9		72.8	438.5	438.3	11	508.7	47.1
Back of Queue (*Q*), veh/ln (95 th percentile)		3.5	3.1		0.0		2.9	17.5	17.5	0.4	20.3	1.9
Queue Storage Ratio (*RQ*) (95 th percentile)		0.29	0.26		0.01		0.16	0.43	0.43	0.06	0.68	0.13
Uniform Delay (*d 1*), s/veh		29.3	28.9		27.3		20.0	15.0	15.0	25.0	25.5	17.3
Incremental Delay (*d 2*), s/veh		0.1	0.1		0.0		0.5	2.9	2.9	0.6	3.7	0.3
Initial Queue Delay (*d 3*), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		29.4	29.0		27.3		20.6	17.9	17.9	25.6	29.1	17.5
Level of Service (LOS)		C	C		C		C	B	B	C	C	B
Approach Delay, s/veh / LOS	29.2	C		27.3	C		18.1	B		28.5	C	
Intersection Delay, s/veh / LOS	23.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.44	B	1.66	B	1.91	B
Bicycle LOS Score / LOS	0.80	A	0.49	A	1.79	B	1.60	B

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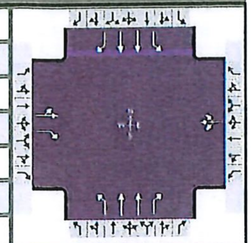
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	AM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024- Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	1-3-AM-2024-Build-North-Bend-Kroger.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	78	7	70	121	9	136	108	1055	128	118	940	53

Signal Information				
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	8.5	45.7	36.5	0.0	0.0	0.0
Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Red	3.0	1.3	3.5	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	3.0		5.3
Phase Duration, s		43.0		43.0	15.0	67.0		52.0
Change Period, (*Y+R c*), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0		0.0
Queue Clearance Time (*g s*), s		9.6		18.2	5.7			
Green Extension Time (*g e*), s		1.0		0.9	0.0	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		0.00		0.00	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		92	76		289		117	1147	139	128	1022	58
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1148	1610		1562		1810	1809	1610	498	1809	1610
Queue Service Time (*g s*), s		0.0	3.6		8.6		3.7	22.9	4.7	25.0	25.3	2.4
Cycle Queue Clearance Time (*g c*), s		7.6	3.6		16.2		3.7	22.9	4.7	32.9	25.3	2.4
Green Ratio (*g/C*)		0.33	0.33		0.33		0.51	0.55	0.55	0.42	0.42	0.42
Capacity (*c*), veh/h		444	534		566		309	1996	889	237	1503	669
Volume-to-Capacity Ratio (*X*)		0.208	0.142		0.511		0.380	0.574	0.157	0.542	0.680	0.086
Back of Queue (*Q*), ft/ln (95 th percentile)		79.7	62.4		255.1		67.6	355.6	76.9	157.2	411.7	41.7
Back of Queue (*Q*), veh/ln (95 th percentile)		3.2	2.5		10.2		2.7	14.2	3.1	6.3	16.5	1.7
Queue Storage Ratio (*RQ*) (95 th percentile)		0.27	0.21		0.85		0.15	0.35	0.00	0.87	0.55	0.12
Uniform Delay (*d 1*), s/veh		27.0	25.8		29.8		18.4	16.2	12.1	31.9	26.2	19.5
Incremental Delay (*d 2*), s/veh		0.1	0.0		0.3		0.3	1.2	0.4	8.6	2.5	0.3
Initial Queue Delay (*d 3*), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		27.1	25.8		30.1		18.6	17.4	12.5	40.5	28.7	19.7
Level of Service (LOS)		C	C		C		B	B	B	D	C	B
Approach Delay, s/veh / LOS	26.5	C		30.1	C		17.0	B		29.5	C	
Intersection Delay, s/veh / LOS	23.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.44	B	1.67	B	1.92	B
Bicycle LOS Score / LOS	0.77	A	0.96	A	1.65	B	1.48	A

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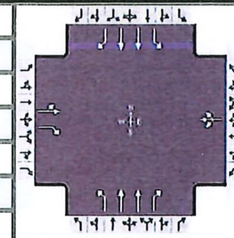
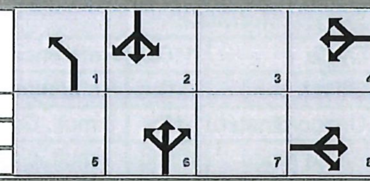
HCS Signalized Intersection Results Summary

General Information				Intersection Information		
Agency	SHA Engineering			Duration, h	0.250	
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other	
Jurisdiction	KYTC	Time Period	AM Peak	PHF	0.92	
Urban Street	North Bend Road	Analysis Year	2034- Build	Analysis Period	1> 7:00	
Intersection	North Bend at Kroger Ac...	File Name	1-4-AM-2034-Build-North-Bend-Kroger.xus			
Project Description	Residential/Commercial Development					

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	91	7	82	121	9	136	126	1241	129	120	1104	64

Signal Information										
Cycle, s	110.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	8.5	47.7	34.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	1.3	3.5	0.0	0.0	0.0

Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	3.0		5.3
Phase Duration, s		41.0		41.0	15.0	69.0		54.0
Change Period, (*Y+R c*), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0		0.0
Queue Clearance Time (*g s*), s		11.3		18.5	6.2			
Green Extension Time (*g e*), s		1.0		0.9	0.0	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		0.00		0.00	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		107	89		289		137	1349	140	130	1200	70
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1130	1610		1569		1810	1809	1610	411	1809	1610
Queue Service Time (*g s*), s		0.0	4.4		7.2		4.2	28.1	4.5	34.6	30.9	2.8
Cycle Queue Clearance Time (*g c*), s		9.3	4.4		16.5		4.2	28.1	4.5	47.7	30.9	2.8
Green Ratio (*g/C*)		0.31	0.31		0.31		0.53	0.57	0.57	0.43	0.43	0.43
Capacity (*c*), veh/h		418	505		540		278	2062	918	195	1569	698
Volume-to-Capacity Ratio (*X*)		0.255	0.176		0.536		0.494	0.654	0.153	0.670	0.765	0.100
Back of Queue (*Q*), ft/ln (95 th percentile)		96.6	76.1		262.3		76.6	419.6	73.5	193.4	489.8	49
Back of Queue (*Q*), veh/ln (95 th percentile)		3.9	3.0		10.5		3.1	16.8	2.9	7.7	19.6	2.0
Queue Storage Ratio (*RQ*) (95 th percentile)		0.32	0.25		0.87		0.17	0.41	0.00	1.07	0.65	0.14
Uniform Delay (*d 1*), s/veh		29.0	27.4		31.4		20.1	16.2	11.1	37.9	26.4	18.4
Incremental Delay (*d 2*), s/veh		0.1	0.1		0.6		0.5	1.6	0.4	16.9	3.6	0.3
Initial Queue Delay (*d 3*), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		29.2	27.5		32.0		20.6	17.9	11.5	54.8	30.0	18.7
Level of Service (LOS)		C	C		C		C	B	B	D	C	B
Approach Delay, s/veh / LOS	28.4	C		32.0	C		17.5	B		31.8	C	
Intersection Delay, s/veh / LOS	25.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.44	B	1.67	B	1.91	B
Bicycle LOS Score / LOS	0.81	A	0.96	A	1.83	B	1.64	B

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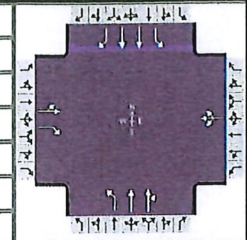
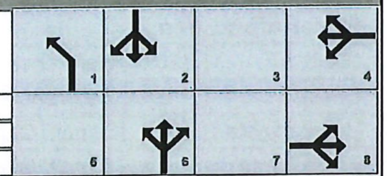
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024- No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	1-5-PM-2024-No-Build-North-Bend-Kroger.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	241	2	216	1	1	6	189	1232	2	0	1199	122

Signal Information										
Cycle, s	130.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	8.5	57.7	44.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		51.0		51.0	15.0	79.0		64.0
Change Period, ($Y+R_c$), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (MAH), s		3.2		3.2	3.1	0.0		0.0
Queue Clearance Time (g_s), s		21.3		2.4	9.9			
Green Extension Time (g_e), s		1.0		1.0	0.0	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		0.00		0.00	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h		264	235		9		205	671	670	0	1303	133
Adjusted Saturation Flow Rate (s), veh/h/ln		1433	1610		1662		1810	1900	1899	414	1809	1610
Queue Service Time (g_s), s		18.9	14.6		0.0		7.9	31.3	31.3	0.0	40.7	6.5
Cycle Queue Clearance Time (g_c), s		19.3	14.6		0.4		7.9	31.3	31.3	0.0	40.7	6.5
Green Ratio (g/C)		0.34	0.34		0.34		0.52	0.56	0.56	0.44	0.44	0.44
Capacity (c), veh/h		546	551		600		230	1063	1062	55	1606	715
Volume-to-Capacity Ratio (X)		0.484	0.426		0.014		0.894	0.631	0.631	0.000	0.812	0.186
Back of Queue (Q), ft/ln (95 th percentile)		274.1	240.3		8.1		226.1	507.9	507.7	0	633.1	115.3
Back of Queue (Q), veh/ln (95 th percentile)		11.0	9.6		0.3		9.0	20.3	20.3	0.0	25.3	4.6
Queue Storage Ratio (RQ) (95 th percentile)		0.91	0.80		0.03		0.50	0.49	0.49	0.00	0.84	0.33
Uniform Delay (d_1), s/veh		34.5	32.9		28.3		28.0	19.5	19.5	0.0	31.4	21.9
Incremental Delay (d_2), s/veh		0.2	0.2		0.0		31.9	2.9	2.9	0.0	4.6	0.6
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh		34.7	33.1		28.3		59.8	22.4	22.4	0.0	36.0	22.5
Level of Service (LOS)		C	C		C		E	C	C		D	C
Approach Delay, s/veh / LOS	34.0		C	28.3		C	27.4		C	34.8		C
Intersection Delay, s/veh / LOS	31.3						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.29	B	2.44	B	1.67	B	1.92	B
Bicycle LOS Score / LOS	1.31	A	0.50	A	1.76	B	1.67	B

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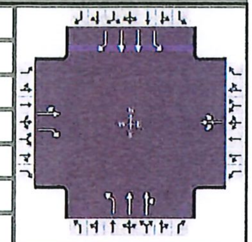
HCS7 Signalized Intersection Results Summary

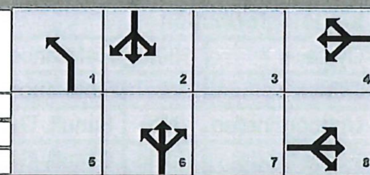


General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2034- No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	1-6-PM-2034-No-Build-North-Bend-Kroger.xus		
Project Description	Residential/Commercial Development				

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	281	2	252	1	1	7	220	1434	2	0	1395	148

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	13.5	58.7	38.5	0.0	0.0	0.0
Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Red	3.0	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	4.0		5.3
Phase Duration, s		45.0		45.0	20.0	85.0		65.0
Change Period, ($Y+R_c$), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (*MAH*), s		3.2		3.2	3.1	0.0		0.0
Queue Clearance Time (g_s), s		27.0		2.5	13.5			
Green Extension Time (g_e), s		1.0		1.2	0.0	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		0.01		0.00	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		308	274		10		239	781	780	0	1516	161
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1431	1610		1696		1810	1900	1899	335	1809	1610
Queue Service Time (g_s), s		24.5	18.8		0.0		11.5	35.8	35.8	0.0	51.5	7.9
Cycle Queue Clearance Time (g_c), s		25.0	18.8		0.5		11.5	35.8	35.8	0.0	51.5	7.9
Green Ratio (*g/C*)		0.30	0.30		0.30		0.57	0.61	0.61	0.45	0.45	0.45
Capacity (*c*), veh/h		479	477		533		263	1150	1150	55	1633	727
Volume-to-Capacity Ratio (*X*)		0.642	0.574		0.018		0.910	0.679	0.679	0.000	0.928	0.221
Back of Queue (*Q*), ft/ln (95 th percentile)		349.1	299.9		9.9		241.8	558.6	558.4	0	806.8	140.5
Back of Queue (*Q*), veh/ln (95 th percentile)		14.0	12.0		0.4		9.7	22.3	22.3	0.0	32.3	5.6
Queue Storage Ratio (*RQ*) (95 th percentile)		1.16	1.00		0.03		0.54	0.54	0.54	0.00	1.08	0.40
Uniform Delay (d_1), s/veh		41.0	38.8		32.4		37.8	17.2	17.2	0.0	33.7	21.7
Incremental Delay (d_2), s/veh		2.3	1.1		0.0		32.2	3.2	3.2	0.0	10.7	0.7
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		43.3	39.9		32.4		70.0	20.4	20.4	0.0	44.4	22.4
Level of Service (LOS)		D	D		C		E	C	C		D	C
Approach Delay, s/veh / LOS	41.7		D	32.4		C	27.0		C	42.3		D
Intersection Delay, s/veh / LOS	35.4						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.30	B	2.45	B	1.66	B	1.92	B
Bicycle LOS Score / LOS	1.45	A	0.50	A	1.97	B	1.87	B

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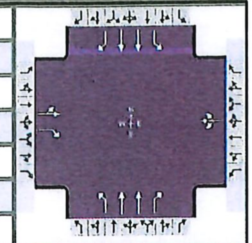
HCS Signalized Intersection Results Summary

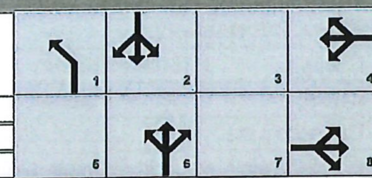
General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024 - Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	1-7-PM-2024-Build-North-Bend-Kroger.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	241	11	216	105	8	125	189	1159	134	118	1140	122

Signal Information				
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	16.5	52.7	41.5	0.0	0.0	0.0
Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Red	3.0	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	3.0		5.3
Phase Duration, s		48.0		48.0	23.0	82.0		59.0
Change Period, (*Y+R c*), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0		0.0
Queue Clearance Time (g_s), s		31.8		18.2	9.5			
Green Extension Time (g_e), s		1.4		1.7	0.2	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		0.08		0.00	0.02			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		274	235		259		205	1260	146	128	1239	133
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1142	1610		1625		1810	1809	1610	447	1809	1610
Queue Service Time (g_s), s		13.6	15.1		0.0		7.5	29.0	5.4	33.5	40.3	6.9
Cycle Queue Clearance Time (g_c), s		29.8	15.1		16.2		7.5	29.0	5.4	39.5	40.3	6.9
Green Ratio (*g/C*)		0.32	0.32		0.32		0.55	0.58	0.58	0.41	0.41	0.41
Capacity (*c*), veh/h		419	514		559		329	2107	938	216	1467	653
Volume-to-Capacity Ratio (*X*)		0.654	0.457		0.463		0.625	0.598	0.155	0.594	0.845	0.203
Back of Queue (*Q*), ft/ln (95 th percentile)		324	248.1		270.4		148.6	440.6	90.4	192.3	640.3	125.1
Back of Queue (*Q*), veh/ln (95 th percentile)		13.0	9.9		10.8		5.9	17.6	3.6	7.7	25.6	5.0
Queue Storage Ratio (*RQ*) (95 th percentile)		1.08	0.83		0.90		0.33	0.43	0.00	1.07	0.85	0.36
Uniform Delay (d_1), s/veh		41.4	35.3		35.6		25.2	17.4	12.5	37.4	35.0	25.0
Incremental Delay (d_2), s/veh		2.9	0.2		0.2		2.8	1.3	0.4	11.5	6.1	0.7
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		44.3	35.5		35.8		28.0	18.7	12.8	48.9	41.1	25.7
Level of Service (LOS)		D	D		D		C	B	B	D	D	C

	EB		WB		NB		SB	
Approach Delay, s/veh / LOS	40.2	D	35.8	D	19.3	B	40.4	D
Intersection Delay, s/veh / LOS	31.3				C			

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.45	B	1.67	B	1.92	B
Bicycle LOS Score / LOS	1.33	A	0.91	A	1.82	B	1.73	B

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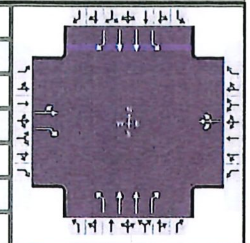
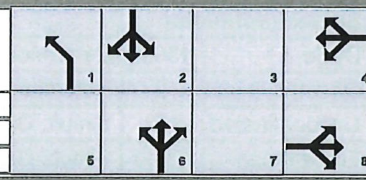
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2034 - Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	1-8-PM-2034-Build-North-Bend-Kroger.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	281	11	252	105	8	126	220	1361	134	118	1336	148

Signal Information										
Cycle, s	130.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	16.5	55.2	39.0	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	3.5	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	3.0	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6		2
Case Number		7.0		8.0	1.0	3.0		5.3
Phase Duration, s		45.5		45.5	23.0	84.5		61.5
Change Period, ($Y+R_c$), s		6.5		6.5	6.5	6.3		6.3
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0		0.0
Queue Clearance Time (g_s), s		38.4		18.8	13.5			
Green Extension Time (g_e), s		0.2		1.9	0.1	0.0		0.0
Phase Call Probability		1.00		1.00	1.00			
Max Out Probability		1.00		0.00	1.00			

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h		317	274		260		239	1479	146	128	1452	161
Adjusted Saturation Flow Rate (s), veh/h/ln		1121	1610		1654		1810	1809	1610	363	1809	1610
Queue Service Time (g_s), s		19.7	18.7		0.0		11.5	35.8	5.2	42.4	50.2	8.3
Cycle Queue Clearance Time (g_c), s		36.4	18.7		16.8		11.5	35.8	5.2	55.2	50.2	8.3
Green Ratio (g/C)		0.30	0.30		0.30		0.57	0.60	0.60	0.42	0.42	0.42
Capacity (c), veh/h		391	483		536		299	2176	969	174	1536	684
Volume-to-Capacity Ratio (X)		0.812	0.567		0.485		0.798	0.680	0.150	0.739	0.945	0.235
Back of Queue (Q), ft/ln (95 th percentile)		416.2	298		278.6		200.3	523.5	85.4	229.9	807.7	148.9
Back of Queue (Q), veh/ln (95 th percentile)		16.6	11.9		11.1		8.0	20.9	3.4	9.2	32.3	6.0
Queue Storage Ratio (*RQ*) (95 th percentile)		1.39	0.99		0.93		0.45	0.51	0.00	1.28	1.08	0.43
Uniform Delay (d_1), s/veh		46.1	38.4		37.7		36.3	17.5	11.3	45.5	36.0	23.9
Incremental Delay (d_2), s/veh		11.5	1.0		0.3		13.1	1.7	0.3	24.3	13.2	0.8
Initial Queue Delay (d_3), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh		57.6	39.4		37.9		49.4	19.2	11.7	69.8	49.1	24.7
Level of Service (LOS)		E	D		D		D	B	B	E	D	C
Approach Delay, s/veh / LOS	49.1		D	37.9		D	22.5		C	48.4		D
Intersection Delay, s/veh / LOS	37.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.45	B	1.67	B	1.92	B
Bicycle LOS Score / LOS	1.46	A	0.92	A	2.03	B	1.92	B

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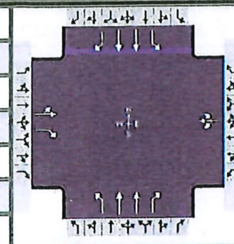
HCS Signalized Intersection Results Summary

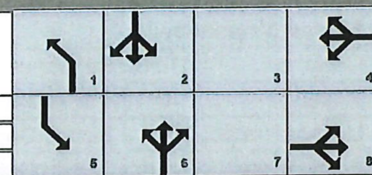
General Information				Intersection Information		
Agency	SHA Engineering			Duration, h	0.250	
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other	
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92	
Urban Street	North Bend Road	Analysis Year	2034 - Build - Alt1	Analysis Period	1> 7:00	
Intersection	North Bend at Kroger Ac...	File Name	1-8-PM-2034-Build-Alt1-North-Bend-Kroger.xus			
Project Description	Residential/Commercial Development					



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	281	11	252	105	8	126	220	1361	134	118	1336	148

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.0	3.0	54.7	40.0	0.0	0.0
Yellow	4.0	3.5	5.0	3.0	0.0	0.0
Red	0.0	3.0	1.3	3.5	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4	1	6	5	2
Case Number		7.0		8.0	1.1	3.0	1.1	3.0
Phase Duration, s		46.5		46.5	22.5	70.5	13.0	61.0
Change Period, (*Y+R c*), s		6.5		6.5	6.5	6.3	4.0	6.3
Max Allow Headway (*MAH*), s		3.3		3.3	3.1	0.0	3.1	0.0
Queue Clearance Time (*g s*), s		38.0		18.6	13.8		7.1	
Green Extension Time (*g e*), s		0.6		1.9	0.1	0.0	0.0	0.0
Phase Call Probability		1.00		1.00	1.00		1.00	
Max Out Probability		1.00		0.00	1.00		1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h		317	274		260		239	1479	146	128	1452	161
Adjusted Saturation Flow Rate (*s*), veh/h/ln		1128	1610		1649		1810	1809	1610	1810	1809	1610
Queue Service Time (*g s*), s		19.4	18.4		0.0		11.8	45.5	6.5	5.1	50.5	8.4
Cycle Queue Clearance Time (*g c*), s		36.0	18.4		16.6		11.8	45.5	6.5	5.1	50.5	8.4
Green Ratio (*g/C*)		0.31	0.31		0.31		0.56	0.49	0.49	0.49	0.42	0.42
Capacity (*c*), veh/h		401	495		547		290	1787	795	227	1522	678
Volume-to-Capacity Ratio (*X*)		0.791	0.553		0.475		0.824	0.828	0.183	0.565	0.954	0.237
Back of Queue (*Q*), ft/ln (95 th percentile)		406.4	294.3		276.1		210.6	686.3	114.3	100.3	819.4	150.2
Back of Queue (*Q*), veh/ln (95 th percentile)		16.3	11.8		11.0		8.4	27.5	4.6	4.0	32.8	6.0
Queue Storage Ratio (*RQ*) (95 th percentile)		1.35	0.98		0.92		0.47	0.67	0.00	0.56	1.09	0.43
Uniform Delay (*d 1*), s/veh		45.0	37.5		36.9		37.2	28.2	18.3	26.7	36.4	24.2
Incremental Delay (*d 2*), s/veh		9.5	0.8		0.2		16.3	4.6	0.5	2.0	14.4	0.8
Initial Queue Delay (*d 3*), s/veh		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh		54.5	38.3		37.1		53.5	32.8	18.8	28.7	50.9	25.1
Level of Service (LOS)		D	D		D		D	C	B	C	D	C
Approach Delay, s/veh / LOS	47.0	D		37.1	D		34.3	C		46.9	D	
Intersection Delay, s/veh / LOS	41.1						D					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.45	B	1.68	B	1.92	B
Bicycle LOS Score / LOS	1.46	A	0.92	A	2.03	B	1.92	B

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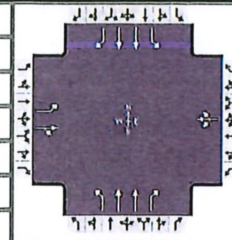
HCS7 Signalized Intersection Results Summary

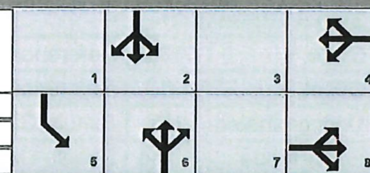
General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	AM PEak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024 - No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-1-AM-2024-No-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	25	0	3	27	0	82	29	1128	38	159	802	148

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.7	47.2	34.0	0.0	0.0	0.0
Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		40.5		40.5		53.5	16.0	69.5
Change Period, ($Y+R_c$), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s		9.5		7.8			7.4	
Green Extension Time (g_e), s		0.3		0.3		0.0	0.1	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	27	3			118		32	1226	41	173	872	161
Adjusted Saturation Flow Rate (s), veh/h/ln	1328	1610			1583		646	1809	1610	1810	1809	1610
Queue Service Time (g_s), s	1.7	0.2			0.0		3.2	32.2	1.7	5.4	14.9	5.2
Cycle Queue Clearance Time (g_c), s	7.5	0.2			5.8		3.2	32.2	1.7	5.4	14.9	5.2
Green Ratio (*g/C*)	0.31	0.31			0.31		0.43	0.43	0.43	0.54	0.57	0.57
Capacity (c), veh/h	406	498			530		342	1552	691	288	2078	925
Volume-to-Capacity Ratio (X)	0.067	0.007			0.224		0.092	0.790	0.060	0.600	0.419	0.174
Back of Queue (Q), ft/ln (95 th percentile)	24.6	2.7			103.7		23.7	510	28.8	103.9	246.1	84.4
Back of Queue (Q), veh/ln (95 th percentile)	1.0	0.1			4.1		0.9	20.4	1.2	4.2	9.8	3.4
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.01			0.13		0.05	0.50	0.32	0.30	0.24	0.28
Uniform Delay (d_1), s/veh	31.0	26.3			28.3		18.9	27.1	18.4	21.4	13.1	11.1
Incremental Delay (d_2), s/veh	0.0	0.0			0.1		0.5	4.2	0.2	2.4	0.6	0.4
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	31.1	26.3			28.3		19.4	31.3	18.6	23.8	13.7	11.5
Level of Service (LOS)	C	C			C		B	C	B	C	B	B
Approach Delay, s/veh / LOS	30.6	C		28.3	C		30.6	C		14.9	B	
Intersection Delay, s/veh / LOS	23.4						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.44	B	1.69	B	1.89	B
Bicycle LOS Score / LOS	0.54	A	0.68	A	1.56	B	1.48	A

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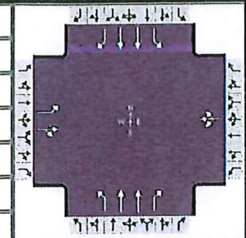
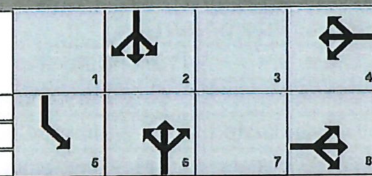
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	AM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2034 - No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-2-AM-2034-No-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	29	0	4	31	0	96	34	1313	44	185	933	90

Signal Information										
Cycle, s	110.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	9.7	49.7	31.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		38.0		38.0		56.0	16.0	72.0
Change Period, ($Y+R_c$), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s		11.2		9.1			8.1	
Green Extension Time (g_e), s		0.3		0.3		0.0	0.1	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	32	4			138		37	1427	48	201	1014	98
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1310	1610			1585		565	1809	1610	1810	1809	1610
Queue Service Time (g_s), s	2.1	0.2			1.0		4.3	39.3	1.8	6.1	17.3	2.9
Cycle Queue Clearance Time (g_c), s	9.2	0.2			7.1		5.6	39.3	1.8	6.1	17.3	2.9
Green Ratio (*g/C*)	0.29	0.29			0.29		0.45	0.45	0.45	0.56	0.60	0.60
Capacity (*c*), veh/h	356	461			494		314	1634	727	261	2161	962
Volume-to-Capacity Ratio (*X*)	0.089	0.009			0.279		0.118	0.873	0.066	0.770	0.469	0.102
Back of Queue (*Q*), ft/ln (95 th percentile)	30.2	3.7			127.2		27.9	613	31.9	144.4	274.1	45.7
Back of Queue (*Q*), veh/ln (95 th percentile)	1.2	0.1			5.1		1.1	24.5	1.3	5.8	11.0	1.8
Queue Storage Ratio (*RQ*) (95 th percentile)	0.11	0.01			0.17		0.06	0.60	0.35	0.41	0.27	0.15
Uniform Delay (d_1), s/veh	34.2	28.1			30.5		18.4	27.3	17.0	23.3	12.4	9.5
Incremental Delay (d_2), s/veh	0.0	0.0			0.1		0.8	6.8	0.2	12.0	0.7	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	34.2	28.1			30.6		19.2	34.1	17.2	35.3	13.1	9.7
Level of Service (LOS)	C	C			C		B	C	B	D	B	A
Approach Delay, s/veh / LOS	33.5	C		30.6	C		33.2	C		16.3	B	
Intersection Delay, s/veh / LOS	25.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.44	B	1.68	B	1.89	B
Bicycle LOS Score / LOS	0.55	A	0.72	A	1.73	B	1.57	B

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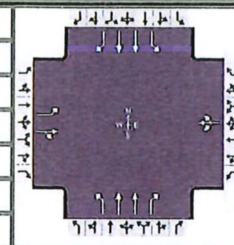
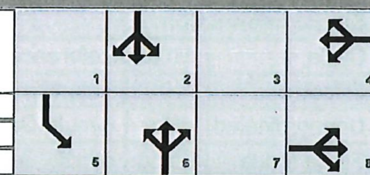
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	AM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024 - Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-3-AM-2024-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	25	0	3	36	0	82	29	1174	46	159	859	74

Signal Information										
Cycle, s	110.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	9.7	47.7	33.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		40.0		40.0		54.0	16.0	70.0
Change Period, (*Y+R c*), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (*g s*), s		10.2		8.5			7.3	
Green Extension Time (*g e*), s		0.3		0.3		0.0	0.1	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	27	3			128		32	1276	50	173	934	80
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1328	1610			1571		609	1809	1610	1810	1809	1610
Queue Service Time (*g s*), s	1.7	0.2			1.9		3.4	34.0	2.0	5.3	16.1	2.4
Cycle Queue Clearance Time (*g c*), s	8.2	0.2			6.5		3.5	34.0	2.0	5.3	16.1	2.4
Green Ratio (*g/C*)	0.30	0.30			0.30		0.43	0.43	0.43	0.54	0.58	0.58
Capacity (*c*), veh/h	392	490			521		329	1569	698	280	2095	932
Volume-to-Capacity Ratio (*X*)	0.069	0.007			0.246		0.096	0.813	0.072	0.617	0.446	0.086
Back of Queue (*Q*), ft/ln (95 th percentile)	25	2.7			113.9		23.7	535.3	34.7	104.1	262	39.3
Back of Queue (*Q*), veh/ln (95 th percentile)	1.0	0.1			4.6		0.9	21.4	1.4	4.2	10.5	1.6
Queue Storage Ratio (*RQ*) (95 th percentile)	0.09	0.01			0.15		0.05	0.52	0.39	0.30	0.26	0.13
Uniform Delay (*d 1*), s/veh	31.9	26.7			28.8		18.7	27.3	18.2	21.9	13.1	10.3
Incremental Delay (*d 2*), s/veh	0.0	0.0			0.1		0.6	4.7	0.2	3.0	0.7	0.2
Initial Queue Delay (*d 3*), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	32.0	26.7			28.9		19.2	32.0	18.4	24.9	13.8	10.4
Level of Service (LOS)	C	C			C		B	C	B	C	B	B
Approach Delay, s/veh / LOS	31.4		C	28.9		C	31.2		C	15.2		B
Intersection Delay, s/veh / LOS	24.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.44	B	1.69	B	1.89	B
Bicycle LOS Score / LOS	0.54	A	0.70	A	1.61	B	1.47	A

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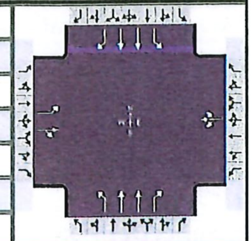
HCS Signalized Intersection Results Summary

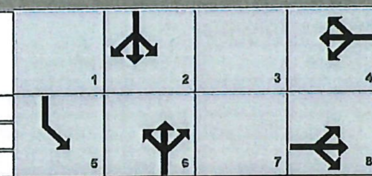
General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	CBD
Jurisdiction	KYTC	Time Period	AM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2034 - Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-4-AM-2034-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	29	0	4	40	0	96	34	1359	52	185	990	90

Signal Information			
Cycle, s	110.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	11.7	52.7	26.5	0.0	0.0	0.0
Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		33.0		33.0		59.0	18.0	77.0
Change Period, ($Y+R_c$), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s		14.0		11.4			9.6	
Green Extension Time (g_e), s		0.3		0.3		0.0	0.1	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			1.00	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (v), veh/h	32	4			148		37	1477	57	201	1076	98
Adjusted Saturation Flow Rate (s), veh/h/ln	1179	1449			1420		479	1628	1449	1629	1628	1449
Queue Service Time (g_s), s	2.6	0.3			4.7		4.9	47.6	2.3	7.6	19.4	2.8
Cycle Queue Clearance Time (g_c), s	12.0	0.3			9.4		6.3	47.6	2.3	7.6	19.4	2.8
Green Ratio (g/C)	0.24	0.24			0.24		0.48	0.48	0.48	0.60	0.64	0.64
Capacity (c), veh/h	249	349			384		289	1560	694	254	2093	931
Volume-to-Capacity Ratio (X)	0.127	0.012			0.385		0.128	0.947	0.081	0.792	0.514	0.105
Back of Queue (Q), ft/ln (95 th percentile)	33.4	4			149.3		27.1	689.5	35.9	155.2	268.9	39.6
Back of Queue (Q), veh/ln (95 th percentile)	1.3	0.2			6.0		1.1	27.6	1.4	6.2	10.8	1.6
Queue Storage Ratio (RQ) (95 th percentile)	0.12	0.01			0.19		0.06	0.67	0.40	0.44	0.26	0.13
Uniform Delay (d_1), s/veh	40.3	31.8			35.2		17.0	27.3	15.5	28.1	10.5	7.5
Incremental Delay (d_2), s/veh	0.1	0.0			0.2		0.9	13.3	0.2	14.4	0.9	0.2
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	40.4	31.8			35.4		17.9	40.6	15.8	42.6	11.4	7.8
Level of Service (LOS)	D	C			D		B	D	B	D	B	A
Approach Delay, s/veh / LOS	39.4	D		35.4	D		39.1	D		15.7	B	
Intersection Delay, s/veh / LOS	28.7						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.45	B	1.68	B	1.88	B
Bicycle LOS Score / LOS	0.55	A	0.73	A	1.78	B	1.62	B

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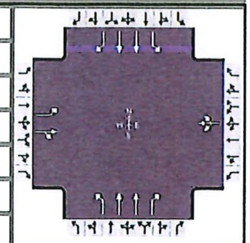
HCS7 Signalized Intersection Results Summary

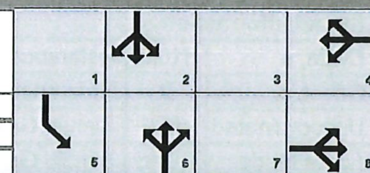
General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024 - No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-5-PM-2024-No-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	121	6	31	37	0	96	8	1192	18	71	1237	35

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.7	57.2	44.0	0.0	0.0	0.0
Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		50.5		50.5		63.5	16.0	79.5
Change Period, (Y+R_c), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s		20.9		10.4			4.7	
Green Extension Time (g_e), s		0.6		0.6		0.0	0.0	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			0.07	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	132	40			145		9	1296	20	77	1345	38
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1310	1651			1558		413	1809	1610	1810	1809	1610
Queue Service Time (g_s), s	10.5	2.1			3.2		1.9	40.6	0.9	2.7	33.6	1.4
Cycle Queue Clearance Time (g_c), s	18.9	2.1			8.4		19.5	40.6	0.9	2.7	33.6	1.4
Green Ratio (*g/C*)	0.34	0.34			0.34		0.44	0.44	0.44	0.53	0.56	0.56
Capacity (*c*), veh/h	414	559			563		181	1592	708	245	2037	907
Volume-to-Capacity Ratio (*X*)	0.317	0.072			0.257		0.048	0.814	0.028	0.314	0.660	0.042
Back of Queue (*Q*), ft/ln (95 th percentile)	152.7	38.6			148.8		9.9	633.8	15.9	51	505.1	23.2
Back of Queue (*Q*), veh/ln (95 th percentile)	6.1	1.5			6.0		0.4	25.4	0.6	2.0	20.2	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.55	0.12			0.19		0.02	0.62	0.18	0.15	0.49	0.08
Uniform Delay (d_1), s/veh	38.1	29.2			31.2		32.1	31.8	20.6	23.5	19.7	12.7
Incremental Delay (d_2), s/veh	0.2	0.0			0.1		0.5	4.7	0.1	0.3	1.7	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	38.2	29.2			31.2		32.6	36.4	20.7	23.8	21.4	12.8
Level of Service (LOS)	D	C			C		C	D	C	C	C	B
Approach Delay, s/veh / LOS	36.1	D		31.2	C		36.2	D		21.3	C	
Intersection Delay, s/veh / LOS	29.0						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.44	B	1.69	B	1.90	B
Bicycle LOS Score / LOS	0.77	A	0.73	A	1.58	B	1.69	B

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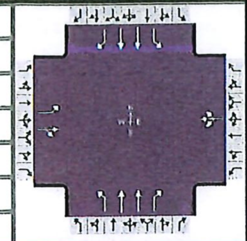
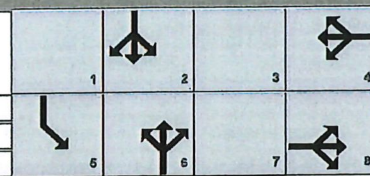
HCS7 Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2034 - No Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-6-PM-2034-No-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	7	36	43	0	112	10	1387	20	83	1440	43

Signal Information										
Cycle, s	130.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	9.7	59.7	41.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		48.0		48.0		66.0	16.0	82.0
Change Period, (*Y+R c*), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (*g s*), s		25.6		12.3			5.1	
Green Extension Time (*g e*), s		0.7		0.8		0.0	0.0	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			0.13	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	152	47			168		11	1508	22	90	1565	47
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1290	1651			1557		334	1809	1610	1810	1809	1610
Queue Service Time (*g s*), s	13.2	2.6			5.1		3.2	50.2	1.0	3.1	41.4	1.6
Cycle Queue Clearance Time (*g c*), s	23.6	2.6			10.3		28.6	50.2	1.0	3.1	41.4	1.6
Green Ratio (*g/C*)	0.32	0.32			0.32		0.46	0.46	0.46	0.55	0.58	0.58
Capacity (*c*), veh/h	365	527			532		143	1661	739	216	2107	938
Volume-to-Capacity Ratio (*X*)	0.417	0.089			0.316		0.076	0.908	0.029	0.418	0.743	0.050
Back of Queue (*Q*), ft/ln (95 th percentile)	190.1	46.6			182.4		13.7	779.2	17	58.2	601.6	27.1
Back of Queue (*Q*), veh/ln (95 th percentile)	7.6	1.9			7.3		0.5	31.2	0.7	2.3	24.1	1.1
Queue Storage Ratio (*RQ*) (95 th percentile)	0.68	0.14			0.24		0.03	0.76	0.19	0.17	0.59	0.09
Uniform Delay (*d 1*), s/veh	42.6	31.0			33.6		36.4	32.6	19.3	27.2	20.0	11.7
Incremental Delay (*d 2*), s/veh	0.3	0.0			0.1		1.0	8.8	0.1	0.5	2.4	0.1
Initial Queue Delay (*d 3*), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	42.9	31.0			33.7		37.4	41.4	19.3	27.7	22.4	11.8
Level of Service (LOS)	D	C			C		D	D	B	C	C	B
Approach Delay, s/veh / LOS	40.1	D		33.7	C		41.0	D		22.4	C	
Intersection Delay, s/veh / LOS	31.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.45	B	1.69	B	1.89	B
Bicycle LOS Score / LOS	0.82	A	0.77	A	1.76	B	1.89	B

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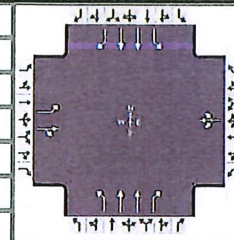
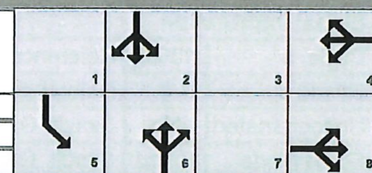
HCS Signalized Intersection Results Summary

General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2024 - Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-7-PM-2024-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				



Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	121	6	31	45	0	96	8	1251	28	71	1283	35

Signal Information										
Cycle, s	130.0	Reference Phase	2							
Offset, s	0	Reference Point	End	Green	9.7	57.7	43.5	0.0	0.0	0.0
Uncoordinated	No	Simult. Gap E/W	On	Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Force Mode	Fixed	Simult. Gap N/S	On	Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		50.0		50.0		64.0	16.0	80.0
Change Period, ($Y+R_c$), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (g_s), s		21.8		11.1			4.7	
Green Extension Time (g_e), s		0.6		0.7		0.0	0.0	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			0.06	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	132	40			153		9	1360	30	77	1395	38
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1310	1651			1548		393	1809	1610	1810	1809	1610
Queue Service Time (g_s), s	10.7	2.2			4.9		2.1	43.5	1.4	2.7	35.3	1.4
Cycle Queue Clearance Time (g_c), s	19.8	2.2			9.1		21.4	43.5	1.4	2.7	35.3	1.4
Green Ratio (*g/C*)	0.33	0.33			0.33		0.44	0.44	0.44	0.53	0.57	0.57
Capacity (*c*), veh/h	402	552			554		172	1606	715	235	2051	913
Volume-to-Capacity Ratio (*X*)	0.327	0.073			0.276		0.051	0.847	0.043	0.329	0.680	0.042
Back of Queue (*Q*), ft/ln (95 th percentile)	155.3	38.9			159.9		10.1	675.9	24.7	50.4	526.5	22.9
Back of Queue (*Q*), veh/ln (95 th percentile)	6.2	1.6			6.4		0.4	27.0	1.0	2.0	21.1	0.9
Queue Storage Ratio (*RQ*) (95 th percentile)	0.55	0.12			0.21		0.02	0.66	0.27	0.14	0.51	0.08
Uniform Delay (d_1), s/veh	39.1	29.5			31.7		33.0	32.2	20.5	24.6	19.8	12.5
Incremental Delay (d_2), s/veh	0.2	0.0			0.1		0.6	5.7	0.1	0.3	1.8	0.1
Initial Queue Delay (d_3), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	39.3	29.5			31.8		33.6	37.9	20.6	24.9	21.7	12.6
Level of Service (LOS)	D	C			C		C	D	C	C	C	B
Approach Delay, s/veh / LOS	37.0	D		31.8	C		37.5	D		21.6	C	
Intersection Delay, s/veh / LOS	29.8						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.44	B	2.44	B	1.69	B	1.90	B
Bicycle LOS Score / LOS	0.77	A	0.74	A	1.64	B	1.73	B

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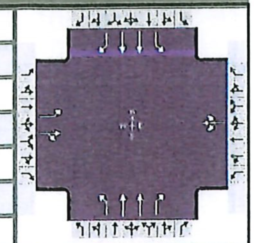
HCS Signalized Intersection Results Summary

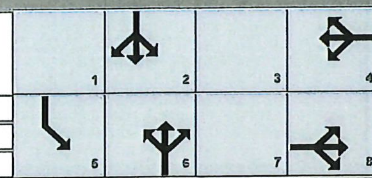


General Information				Intersection Information	
Agency	SHA Engineering			Duration, h	0.250
Analyst	JA	Analysis Date	Jul 18, 2022	Area Type	Other
Jurisdiction	KYTC	Time Period	PM Peak	PHF	0.92
Urban Street	North Bend Road	Analysis Year	2034 - Build	Analysis Period	1> 7:00
Intersection	North Bend at Kroger Ac...	File Name	2-8-PM-2034-Build-North-Bend-Langley.xus		
Project Description	Residential/Commercial Development				

Demand Information	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (*v*), veh/h	140	7	36	51	0	112	10	1446	30	83	1486	43

Signal Information			
Cycle, s	130.0	Reference Phase	2
Offset, s	0	Reference Point	End
Uncoordinated	No	Simult. Gap E/W	On
Force Mode	Fixed	Simult. Gap N/S	On

Green	9.7	61.2	40.0	0.0	0.0	0.0
Yellow	5.0	5.0	3.0	0.0	0.0	0.0
Red	1.3	1.3	3.5	0.0	0.0	0.0



Timer Results	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase		8		4		6	5	2
Case Number		6.0		8.0		5.3	1.0	3.0
Phase Duration, s		46.5		46.5		67.5	16.0	83.5
Change Period, (*Y+R c*), s		6.5		6.5		6.3	6.3	6.3
Max Allow Headway (*MAH*), s		3.3		3.3		0.0	3.1	0.0
Queue Clearance Time (*g s*), s		26.8		13.3			5.0	
Green Extension Time (*g e*), s		0.7		0.8		0.0	0.0	0.0
Phase Call Probability		1.00		1.00			1.00	
Max Out Probability		0.00		0.00			0.11	

Movement Group Results	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	3	8	18	7	4	14	1	6	16	5	2	12
Adjusted Flow Rate (*v*), veh/h	152	47			177		11	1572	33	90	1615	47
Adjusted Saturation Flow Rate (*s*), veh/h/ln	1290	1651			1548		318	1809	1610	1810	1809	1610
Queue Service Time (*g s*), s	13.5	2.6			6.9		3.4	52.9	1.4	3.0	42.6	1.6
Cycle Queue Clearance Time (*g c*), s	24.8	2.6			11.3		30.0	52.9	1.4	3.0	42.6	1.6
Green Ratio (*g/C*)	0.31	0.31			0.31		0.47	0.47	0.47	0.56	0.59	0.59
Capacity (*c*), veh/h	340	508			513		140	1703	758	212	2148	956
Volume-to-Capacity Ratio (*X*)	0.447	0.092			0.346		0.078	0.923	0.043	0.426	0.752	0.049
Back of Queue (*Q*), ft/ln (95 th percentile)	194.2	47.5			195.2		13.7	817	24.9	60	613	26.2
Back of Queue (*Q*), veh/ln (95 th percentile)	7.8	1.9			7.8		0.5	32.7	1.0	2.4	24.5	1.0
Queue Storage Ratio (*RQ*) (95 th percentile)	0.69	0.14			0.25		0.03	0.80	0.28	0.17	0.60	0.09
Uniform Delay (*d 1*), s/veh	44.7	32.1			34.9		36.2	32.2	18.6	27.6	19.4	11.0
Incremental Delay (*d 2*), s/veh	0.3	0.0			0.1		1.1	9.9	0.1	0.5	2.5	0.1
Initial Queue Delay (*d 3*), s/veh	0.0	0.0			0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (*d*), s/veh	45.1	32.1			35.1		37.3	42.0	18.7	28.1	21.9	11.1
Level of Service (LOS)	D	C			D		D	D	B	C	C	B
Approach Delay, s/veh / LOS	42.0	D		35.1	D		41.5	D		21.9	C	
Intersection Delay, s/veh / LOS	32.1						C					

Multimodal Results	EB		WB		NB		SB	
Pedestrian LOS Score / LOS	2.45	B	2.45	B	1.69	B	1.89	B
Bicycle LOS Score / LOS	0.82	A	0.78	A	1.82	B	1.93	B

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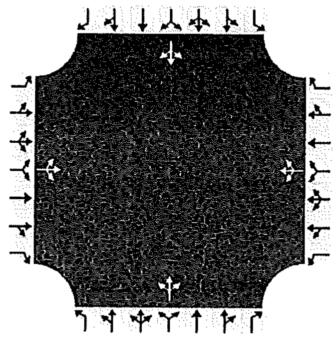
HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	JA	Intersection	Limaburg at Cougar Path
Agency/Co.	SHA Engineering	Jurisdiction	KYTC
Date Performed	7/18/2022	East/West Street	Cougar Path
Analysis Year	2024	North/South Street	Limaburg Road
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	AM Peak - No Build		
Project Description	Residential and Retail Development		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	20	59	78	93	45	5	20	74	41	23	146	8
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	171			155			147			192		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.152			0.138			0.130			0.171		
Final Departure Headway, hd (s)	4.75			5.14			4.88			4.96		
Final Degree of Utilization, x	0.225			0.222			0.199			0.265		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.75			3.14			2.88			2.96		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	171			155			147			192		
Capacity	758			701			737			725		
95% Queue Length, Q_{95} (veh)	0.9			0.8			0.7			1.1		
Control Delay (s/veh)	9.1			9.6			9.1			9.7		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh)	9.1			9.6			9.1			9.7		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	9.4						A					

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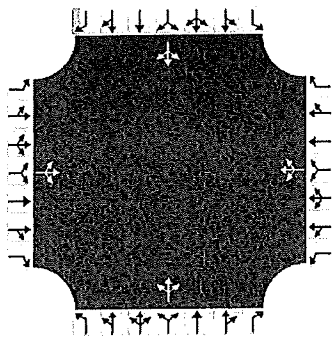
HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	JA	Intersection	Limaburg at Cougar Path
Agency/Co.	SHA Engineering	Jurisdiction	KYTC
Date Performed	7/18/2022	East/West Street	Cougar Path
Analysis Year	2034	North/South Street	Limaburg Road
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	AM Peak - No Build		
Project Description	Residential and Retail Development		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	23	68	91	108	53	6	23	86	48	26	170	10
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	198			182			171			224		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.176			0.161			0.152			0.199		
Final Departure Headway, hd (s)	4.99			5.38			5.13			5.19		
Final Degree of Utilization, x	0.274			0.271			0.243			0.323		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.99			3.38			3.13			3.19		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	198			182			171			224		
Capacity	722			670			702			694		
95% Queue Length, Q_{95} (veh)	1.1			1.1			0.9			1.4		
Control Delay (s/veh)	9.9			10.4			9.8			10.6		
Level of Service, LOS	A			B			A			B		
Approach Delay (s/veh)	9.9			10.4			9.8			10.6		
Approach LOS	A			B			A			B		
Intersection Delay, s/veh | LOS	10.2						B					

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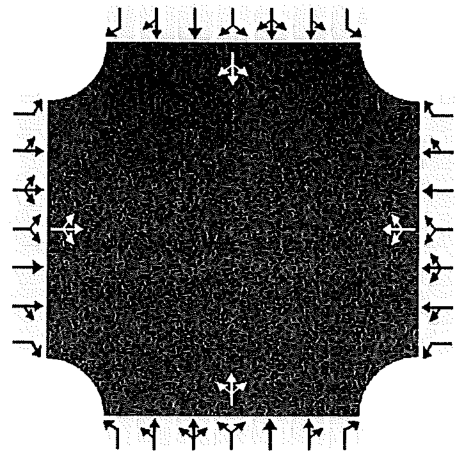
HCS All-Way Stop Control Report

General and Site Information

Analyst	JA
Agency/Co.	SHA Engineering
Date Performed	7/18/2022
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak - Build
Project Description	Residential and Retail Development
Intersection	Limaburg at Cougar Path
Jurisdiction	KYTC
East/West Street	Cougar Path
North/South Street	Limaburg Road
Peak Hour Factor	0.92

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	28	59	78	93	45	5	20	89	41	23	165	17
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	179			155			163			223		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.159			0.138			0.145			0.198		
Final Departure Headway, h_d (s)	4.91			5.29			4.99			5.01		
Final Degree of Utilization, x	0.245			0.229			0.226			0.310		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	2.91			3.29			2.99			3.01		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	179			155			163			223		
Capacity (veh/h)	733			680			721			718		
95% Queue Length, Q_{95} (veh)	1.0			0.9			0.9			1.3		
Control Delay (s/veh)	9.5			9.9			9.4			10.3		
Level of Service, LOS	A			A			A			B		
Approach Delay (s/veh) | LOS	9.5	A		9.9	A		9.4	A		10.3	B	
Intersection Delay (s/veh) | LOS	9.8						A					

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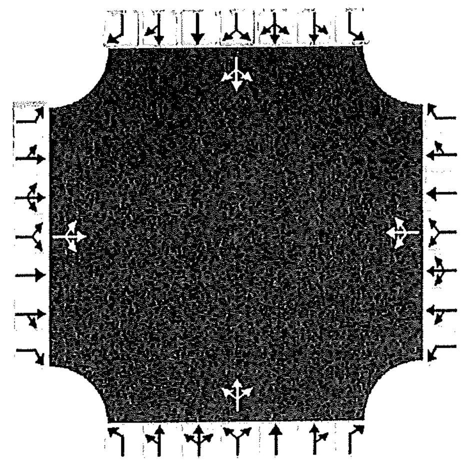
HCS All-Way Stop Control Report

General and Site Information

Analyst	JA
Agency/Co.	SHA Engineering
Date Performed	7/18/2022
Analysis Year	2034
Analysis Time Period (hrs)	0.25
Time Analyzed	AM Peak - Build
Project Description	Residential and Retail Development
Intersection	Limaburg at Cougar Path
Jurisdiction	KYTC
East/West Street	Cougar Path
North/South Street	Limaburg Road
Peak Hour Factor	0.92

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	31	68	91	108	53	6	23	101	48	26	189	19
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	207			182			187			254		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.184			0.161			0.166			0.226		
Final Departure Headway, h_d (s)	5.20			5.58			5.29			5.29		
Final Degree of Utilization, x	0.298			0.282			0.274			0.373		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	3.20			3.58			3.29			3.29		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	207			182			187			254		
Capacity (veh/h)	693			645			681			681		
95% Queue Length, Q_{95} (veh)	1.2			1.2			1.1			1.7		
Control Delay (s/veh)	10.4			10.8			10.3			11.4		
Level of Service, LOS	B			B			B			B		
Approach Delay (s/veh) | LOS	10.4	B		10.8	B		10.3	B		11.4	B	
Intersection Delay (s/veh) | LOS	10.8						B					

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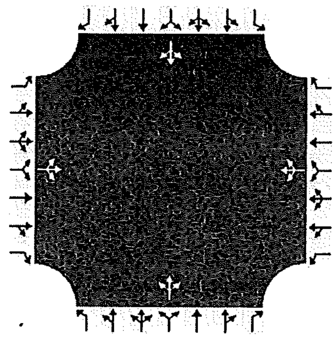
HCS7 All-Way Stop Control Report

General Information		Site Information	
Analyst	JA	Intersection	Limaburg at Cougar Path
Agency/Co.	SHA Engineering	Jurisdiction	KYTC
Date Performed	7/18/2022	East/West Street	Cougar Path
Analysis Year	2024	North/South Street	Limaburg Road
Analysis Time Period (hrs)	0.25	Peak Hour Factor	0.92
Time Analyzed	PM Peak - No Build		
Project Description	Residential and Retail Development		

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	28	147	21	28	103	8	39	87	63	11	52	21
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	213			151			205			91		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.189			0.134			0.183			0.081		
Final Departure Headway, hd (s)	4.86			4.98			4.82			5.02		
Final Degree of Utilization, x	0.288			0.209			0.275			0.127		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	2.86			2.98			2.82			3.02		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	213			151			205			91		
Capacity	741			723			746			717		
95% Queue Length, Q_{95} (veh)	1.2			0.8			1.1			0.4		
Control Delay (s/veh)	9.8			9.3			9.6			8.8		
Level of Service, LOS	A			A			A			A		
Approach Delay (s/veh)	9.8			9.3			9.6			8.8		
Approach LOS	A			A			A			A		
Intersection Delay, s/veh | LOS	9.5						A					

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HCS7 All-Way Stop Control Report

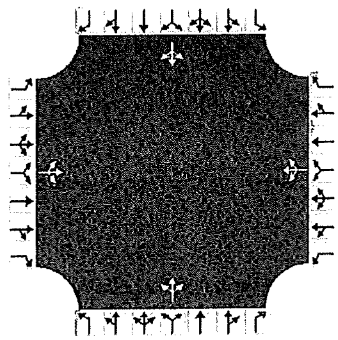
General Information

Analyst	JA
Agency/Co.	SHA Engineering
Date Performed	7/18/2022
Analysis Year	2034
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak - No Build
Project Description	Residential and Retail Development

Site Information

Intersection	Limaburg at Cougar Path
Jurisdiction	KYTC
East/West Street	Cougar Path
North/South Street	Limaburg Road
Peak Hour Factor	0.92

Lanes



Vehicle Volume and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume	32	172	24	32	120	10	46	101	73	13	60	25
% Thrus in Shared Lane												
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	248			176			239			107		
Percent Heavy Vehicles	2			2			2			2		

Departure Headway and Service Time

Initial Departure Headway, hd (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.220			0.157			0.213			0.095		
Final Departure Headway, hd (s)	5.08			5.22			5.05			5.29		
Final Degree of Utilization, x	0.350			0.255			0.336			0.156		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, ts (s)	3.08			3.22			3.05			3.29		

Capacity, Delay and Level of Service

Flow Rate, v (veh/h)	248			176			239			107		
Capacity	709			690			713			681		
95% Queue Length, Q_{95} (veh)	1.6			1.0			1.5			0.6		
Control Delay (s/veh)	10.8			10.0			10.6			9.3		
Level of Service, LOS	B			A			B			A		
Approach Delay (s/veh)	10.8			10.0			10.6			9.3		
Approach LOS	B			A			B			A		
Intersection Delay, s/veh | LOS	10.3						B					

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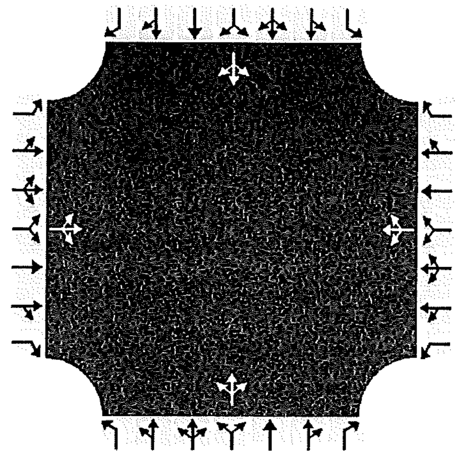
HCS All-Way Stop Control Report

General and Site Information

Analyst	JA
Agency/Co.	SHA Engineering
Date Performed	7/18/2022
Analysis Year	2024
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak - Build
Project Description	Residential and Retail Development
Intersection	Limaburg at Cougar Path
Jurisdiction	KYTC
East/West Street	Cougar Path
North/South Street	Limaburg Road
Peak Hour Factor	0.92

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	38	147	21	28	103	8	39	106	63	11	67	29
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	224			151			226			116		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.199			0.134			0.201			0.103		
Final Departure Headway, h_d (s)	5.01			5.14			4.93			5.10		
Final Degree of Utilization, x	0.312			0.216			0.310			0.165		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	3.01			3.14			2.93			3.10		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	224			151			226			116		
Capacity (veh/h)	718			700			730			706		
95% Queue Length, Q_{95} (veh)	1.3			0.8			1.3			0.6		
Control Delay (s/veh)	10.3			9.6			10.1			9.1		
Level of Service, LOS	B			A			B			A		
Approach Delay (s/veh) | LOS	10.3		B	9.6		A	10.1		B	9.1		A
Intersection Delay (s/veh) | LOS	9.9						A					

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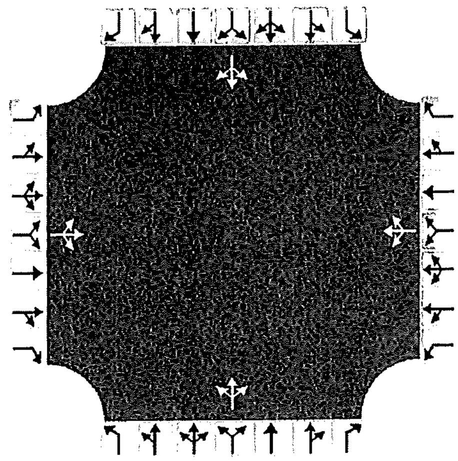
HCS All-Way Stop Control Report

General and Site Information

Analyst	JA
Agency/Co.	SHA Engineering
Date Performed	7/18/2022
Analysis Year	2034
Analysis Time Period (hrs)	0.25
Time Analyzed	PM Peak - Build
Project Description	Residential and Retail Development
Intersection	Limaburg at Cougar Path
Jurisdiction	KYTC
East/West Street	Cougar Path
North/South Street	Limaburg Road
Peak Hour Factor	0.92

Lanes



Turning Movement Demand Volumes

Approach	Eastbound			Westbound			Northbound			Southbound		
Movement	L	T	R	L	T	R	L	T	R	L	T	R
Volume (veh/h)	42	172	24	32	120	10	46	120	73	13	75	33
% Thrus in Shared Lane												

Lane Flow Rate and Adjustments

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	259			176			260			132		
Percent Heavy Vehicles	2			2			2			2		
Initial Departure Headway, h_d (s)	3.20			3.20			3.20			3.20		
Initial Degree of Utilization, x	0.230			0.157			0.231			0.117		
Final Departure Headway, h_d (s)	5.27			5.43			5.20			5.42		
Final Degree of Utilization, x	0.379			0.265			0.375			0.198		
Move-Up Time, m (s)	2.0			2.0			2.0			2.0		
Service Time, t_s (s)	3.27			3.43			3.20			3.42		

Capacity, Delay and Level of Service

Approach	Eastbound			Westbound			Northbound			Southbound		
Lane	L1	L2	L3	L1	L2	L3	L1	L2	L3	L1	L2	L3
Configuration	LTR			LTR			LTR			LTR		
Flow Rate, v (veh/h)	259			176			260			132		
Capacity (veh/h)	683			663			692			665		
95% Queue Length, Q_{95} (veh)	1.8			1.1			1.7			0.7		
Control Delay (s/veh)	11.4			10.4			11.3			9.7		
Level of Service, LOS	B			B			B			A		
Approach Delay (s/veh) | LOS	11.4	B		10.4	B		11.3	B		9.7	A	
Intersection Delay (s/veh) | LOS	10.9						B					

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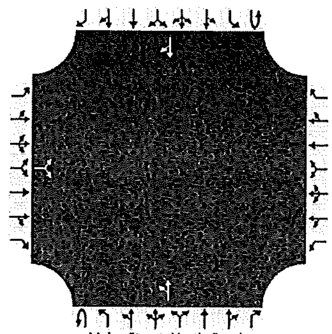
HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JA	Intersection	Limabury at Boulevard
Agency/Co.	SHA Engineering	Jurisdiction	KYTC
Date Performed	7/18/2022	East/West Street	Boulevard (Access Road)
Analysis Year	2024	North/South Street	Limaburg Road
Time Analyzed	AM Peak - Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Residential/Retail Development		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		46		36						31	91				169	37
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

	Eastbound U	L	T	R	Westbound U	L	T	R	Northbound U	L	T	R	Southbound U	L	T	R
Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

	Eastbound U	L	T	R	Westbound U	L	T	R	Northbound U	L	T	R	Southbound U	L	T	R
Flow Rate, v (veh/h)			89							34						
Capacity, c (veh/h)			693							1339						
v/c Ratio			0.13							0.03						
95% Queue Length, Q_{95} (veh)			0.4							0.1						
Control Delay (s/veh)			11.0							7.8	0.2					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)	11.0								2.1							
Approach LOS	B								A							

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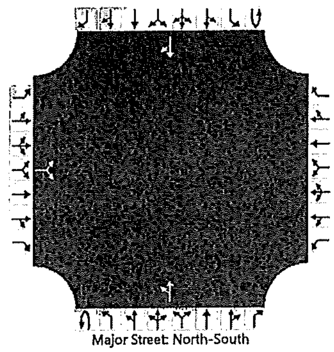
HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JA	Intersection	Limabury at Boulevard
Agency/Co.	SHA Engineering	Jurisdiction	KYTC
Date Performed	7/18/2022	East/West Street	Boulevard (Access Road)
Analysis Year	2034	North/South Street	Limaburg Road
Time Analyzed	AM Peak - Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Residential/Retail Development		

Lanes



Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		46		36						31	107				198	37
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			89							34						
Capacity, c (veh/h)			655							1304						
v/c Ratio			0.14							0.03						
95% Queue Length, Q_{95} (veh)			0.5							0.1						
Control Delay (s/veh)			11.4							7.8	0.2					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)	11.4								1.9							
Approach LOS	B								A							

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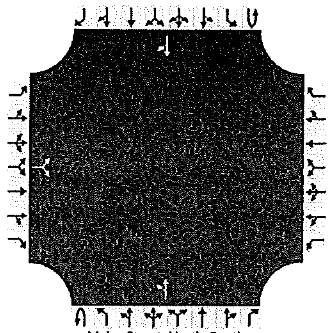
HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JA	Intersection	Limabury at Boulevard
Agency/Co.	SHA Engineering	Jurisdiction	KYTC
Date Performed	7/18/2022	East/West Street	Boulevard (Access Road)
Analysis Year	2024	North/South Street	Limaburg Road
Time Analyzed	PM Peak - Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Residential/Retail Development		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		37		30						36	116				77	46
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			73							39						
Capacity, c (veh/h)			761							1445						
v/c Ratio			0.10							0.03						
95% Queue Length, Q_{95} (veh)			0.3							0.1						
Control Delay (s/veh)			10.2							7.6	0.2					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)	10.2								2.0							
Approach LOS	B								A							

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4-7-PM-2024-Build-Access-Rd-Limaburg.xtw
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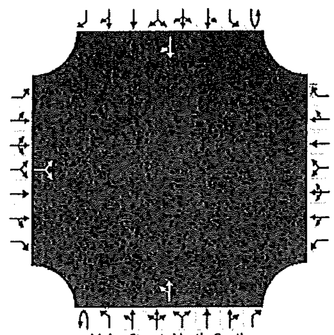
HCS Two-Way Stop-Control Report

General Information		Site Information	
Analyst	JA	Intersection	Limabury at Boulevard
Agency/Co.	SHA Engineering	Jurisdiction	KYTC
Date Performed	7/18/2022	East/West Street	Boulevard (Access Road)
Analysis Year	2034	North/South Street	Limaburg Road
Time Analyzed	PM Peak - Build	Peak Hour Factor	0.92
Intersection Orientation	North-South	Analysis Time Period (hrs)	0.25
Project Description	Residential/Retail Development		

Lanes



Major Street: North-South

Vehicle Volumes and Adjustments

Approach	Eastbound				Westbound				Northbound				Southbound			
Movement	U	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R
Priority		10	11	12		7	8	9	1U	1	2	3	4U	4	5	6
Number of Lanes		0	1	0		0	0	0	0	0	1	0	0	0	1	0
Configuration			LR							LT						TR
Volume (veh/h)		37		30						36	136				91	46
Percent Heavy Vehicles (%)		3		3						3						
Proportion Time Blocked																
Percent Grade (%)	0															
Right Turn Channelized																
Median Type | Storage	Undivided															

Critical and Follow-up Headways

Base Critical Headway (sec)		7.1		6.2						4.1						
Critical Headway (sec)		6.43		6.23						4.13						
Base Follow-Up Headway (sec)		3.5		3.3						2.2						
Follow-Up Headway (sec)		3.53		3.33						2.23						

Delay, Queue Length, and Level of Service

Flow Rate, v (veh/h)			73							39						
Capacity, c (veh/h)			732							1426						
v/c Ratio			0.10							0.03						
95% Queue Length, Q_{95} (veh)			0.3							0.1						
Control Delay (s/veh)			10.5							7.6	0.2					
Level of Service (LOS)			B							A	A					
Approach Delay (s/veh)	10.5								1.8							
Approach LOS	B								A							

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BOONE COUNTY PLANNING COMMISSION

www.boonecountyky.org/pc
www.boonecountygis.com

Boone County Administration Building
2950 Washington Street, Room 317
P.O. Box 958
Burlington, KY 41005

Phone (859) 334-2196; Fax (859) 334-2264
plancom@boonecountyky.org

April 4, 2024

Jonathan Wocher
McBride Dale Clarion
5721 Dragon Way, Suite 300
Cincinnati, Ohio 45227

RE: Request of Anchor Properties, per Nate Stark (applicant) for BRG Hebron Station, LLC, per BRG Realty Group, LLC (owner) for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The submitted request is to allow: (1) the construction of a convenience store with gasoline pumps and an eating and drinking establishment; and (2) to allow alternative signage.

Dear Mr. Wocher:

The following represents the recommended conditions of approval for the above referenced application as discussed by the Planning Commission at their April 3, 2024 meeting. As you verbally agreed to these conditions at that meeting, please so indicate by signing in the space provided at the end of this letter and return the original letter to the Planning Commission's office no later than April 12, 2024.

CONDITIONS

1. Development shall be consistent with the revised Concept Plan drawings submitted at the April 3, 2024 Zone Change Committee meeting.

2. All sound and video from the gasoline pump monitors shall be turned off between the hours of 10:00 pm and 6:00 am.

3. The proposed monument sign located at the intersection of Hebron Station Drive with the internal private driveway (S8) shall have a maximum sign area of fifty (50) square feet and a maximum height of eight (8) feet.

4. The proposed free standing sign for Longnecks, to be located along the private driveway, shall be a monument sign having a maximum sign area of twenty-five (25) square feet and a maximum height of eight (8) feet.

5. The buffer yard along the east property line shall have the minimum width for a Buffer Yard B and the plant material for a Buffer Yard A.

6. A privacy fence, berm, or combination thereof, shall be installed to provide a visual buffer between the site in question and the property located at 3135 Limaburg Road (Crane property), consistent with submitted cross-section drawing, to be maintained by the property owner of the apartment/commercial development.

7. Additional faux windows shall be incorporated into the west building elevation of Longneck's.

8. A crosswalk shall be provided in the vicinity of the clubhouse to the site in question.

9. A pedestrian connection shall be provided between the WaWa site and the Longneck's site.

Sincerely,

Michael D. Schwartz
Director, Zoning Services

MDS/ss

AGREEMENT

We, the property owners/developers of the approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, agree to the conditions listed herein for the above referenced Concept Development Plan/Special Sign District.

Nate Stark	4/4/2024
Anchor Properties (Applicant)	Date
	4/8/24
BRG Hebron Station LLC (owner)	Date
Nate Stark	4/4/2024
WaWa (developer)	Date
	4/5/2024
Longneck's (developer)	Date

ORDINANCE 2024-14

AN ORDINANCE OF THE BOONE COUNTY FISCAL COURT, KENTUCKY APPROVING WITH CONDITIONS, FOR A REQUEST OF ANCHOR PROPERTIES, PER NATE STARK (APPLICANT) FOR BRG HEBRON STATION, LLC, PER BRG REALTY GROUP, LLC (OWNER) FOR: (1) A CONCEPT DEVELOPMENT PLAN; AND (2) A ZONING MAP AMENDMENT FOR A SPECIAL SIGN DISTRICT, FOR AN APPROXIMATE 4.1 ACRE AREA LOCATED ALONG THE EAST SIDE OF NORTH BEND ROAD, BETWEEN COUGAR PATH AND PETERSBURG ROAD, APPROXIMATELY FIVE HUNDRED (500) FEET NORTH OF COUGAR PATH, AND BEING PART OF THE PARCEL HAVING A PARCEL IDENTIFICATION NUMBER OF 047.00-00-119.04, BOONE COUNTY, KENTUCKY, WHICH IS CURRENTLY ZONED COMMERCIAL TWO/PLANNED DEVELOPMENT (C-2/PD), BOONE COUNTY, KENTUCKY.

WHEREAS, the Boone County Planning Commission received a request for: (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD), Boone County, Kentucky which is more particularly described below; and

WHEREAS, the Boone County Planning Commission as the planning unit for the unincorporated areas of Boone County, Kentucky, was requested to and has conducted a Public Hearing serving as a due process trial-type hearing and made findings recommending approval, with conditions, for the Concept Development Plan and Zoning Map Amendment for a Special Sign District.

NOW, THEREFORE, BE IT ORDAINED BY THE FISCAL COURT OF COUNTY OF BOONE, COMMONWEALTH OF KENTUCKY:

Section One

That the request for a Concept Development Plan and Zoning Map Amendment for the real estate, which is more particularly described below shall be and is hereby approved, with conditions, this (1) a Concept Development Plan; and (2) a Zoning Map Amendment for a Special Sign District, for an approximate 4.1 acre area located along the east side of North Bend Road, between Cougar Path and Petersburg Road, approximately five hundred (500) feet north of Cougar Path, and being part of the parcel having a Parcel Identification Number of 047.00-00-119.04, Boone County, Kentucky, which is currently zoned Commercial Two/Planned Development (C-2/PD). The real estate, which is the subject of this request for a Concept Development Plan and Zoning Map Amendment to establish a Special Sign District is in a Commercial Two/Planned Development (C-2/PD) zone, is more particularly described in DEED BOOK 714, PAGE NO. 70 (as supplied by the applicant) as recorded in the Boone County Clerk's office.

Section Two

That as a basis for approval, with conditions, for a (1) Concept Development Plan and a (2) Zoning Map Amendment to establish a Special Sign District request are the Findings of Fact and Conditions of the Boone County Planning Commission as set forth in its minutes and official records for this request shall be and are hereby incorporated by reference as if fully set out in this Ordinance and marked as "Exhibit A."

The Committee recommended approval, with conditions, for this request based on the Findings of Fact and Conditions as set forth in the Committee Report and marked as "Exhibit B."

Section Three

This Ordinance shall be in effect and in full force from and after its passage, publication and adoption, according to law.

First Reading the 21st day of May 2024

Second Reading the 4th day of June 2024

Adopted this 4th **day of** June **2024** **Yes** 4 **No** 0

Gary W. Moore

Gary W. Moore, Judge/Executive
Boone County Fiscal Court

ATTEST:

Shona S

Shona Schulkers,
Fiscal Court Clerk

Hebron Station Commercial Lots – Concept Development Plan
North Bend Road at Hebron Station Drive
Wawa and Longnecks Project Description

BRG Hebron Station LLC owns approximately 4.1 acres located at the southeast corner of KY 237/North Bend Road and Hebron Station Drive. Anchor Properties has a contract to purchase 1.99 acres and plans to build a Wawa convenience store with fuel sales on the proposed northern commercial lot (Lot #1). Longnecks has a contract to purchase 2.07 acres and plans to build a new Longnecks Sports Grill on the proposed southern commercial lot (Lot #2).

The property is currently zoned C-2/PD/CD by Ordinance 2022-23 and is approved for a mixed use commercial and multi-family development. The approved multi-family apartments are currently under construction, including the construction and extension of Hebron Station Drive from North Bend Road east to Limaburg Road. The Concept Development Plan application is for the 4.1 acres of commercial use that was approved by Boone County in 2022. The Wawa store and Longnecks Sports Grill development plans are described below.

<u>Wawa Convenience Store with Fuel Sales</u>
Anchor Properties proposes to create a 1.99 acre lot on the northern portion of the commercial site designated in the Hebron Station development, Lot #1. A Wawa convenience store with fuel sales is proposed on this lot. The store will be approximately 5,920 SF located on the southern portion of proposed commercial Lot #1 and open 24 hours a day. Wawa will have 8 double sided fuel dispenser islands under a canopy structure north of the proposed store. 45 parking spaces are proposed for the Wawa store. There will be 2 customer spaces for air pad service. Underground fuel tanks will be in the northeast corner of the Wawa site. A masonry dumpster enclosure will be located at the southeast portion of the site and will match the material of the store building. Three driveways are proposed for the Wawa site. There will be a right-in only driveway on Hebron Station Drive and two driveways on the private north-south access street along the east side of the site. An underground stormwater management system is proposed on the southern portion of the site. Lighting plans for the proposed Wawa store are included. Proposed building elevations have been submitted. The store will have a combination of brick, composite wood siding, stucco and tile materials. The store will have a parapet roof approximately 20 feet tall, and two 25 foot tall parapet entry towers on the north and south elevations. There will be customer entrances on the north, west and south elevations. The fuel canopy will have a sloped roof, ranging in height from 15 feet at the north side to 25 feet at the south side of the canopy. The canopy will have brick and painted steel columns.

<u>Longnecks Sports Grill</u>
Longnecks proposes to create a 2.07 acre lot on the southern portion of the commercial site designated on the Hebron Station development, Lot #2. A Longnecks Sports Grill is proposed on this lot. Longnecks is a family eating/drinking establishment. The building is approximately 6,630 SF and will have a patio that will be approximately 2,100 SF on the west side of the building. The Sports Grill is designed with an occupancy of 235 people and an estimated 8 employees on staff during each shift. There will be 160 parking spaces provided on the site, 6 of which are ADA accessible. Operational hours as follows: Sun-Mon 11am-12am; Tues-Sat 11am-1am (kitchen

CONCEPT DEV. PLAN / ZONING MAP AMEND. - SPECIAL SIGN DIST.

APPROVED with 9 cond.
Staff M. Schwartz
Date 4/17/2024
Boone County
Planning Commission

hours: Sun-Sat 11am-11pm). The establishment features a bar area, entertainment area with billiards and arcade games, and patio seating in addition to the dining space.

Traffic Impact Study

An updated traffic impact study has been submitted for the proposed combined commercial development. The study accounts for the proposed Wawa and Longnecks uses as well as the approved apartment development. The traffic study has been submitted to the Kentucky Transportation Cabinet and is currently under review.

Concept Development Plan Modifications

The following modifications are requested for the proposed Concept Development Plan:

1. Allow a modification to replace the required Buffer Yard Type B along the eastern property line of both proposed Lots 1 and 2 with a Buffer Yard Type A – containing 5 small trees or 3 large trees from Plant List A, B or C, and 30 shrubs from List E or 15 shrubs from List per 100 feet of eastern boundary. The landscape buffer will be a minimum of 20 feet wide as shown on the Concept Development Plan.
    a. We believe that the proposed change in required plant materials is appropriate given that the adjacent apartment use to the east is separated by an access drive and parking for the apartments. We believe that a Buffer Yard B will block visibility of the proposed uses.
    b. This proposed change is supported by BRG Realty Group, the owner of the apartments.
2. Allow a modification for the proposed lighting plan submitted for the Wawa store. (No modification is requested by Longnecks.)
    a. We believe that the proposed lighting plan is appropriate for the proposed use and that the lighting levels provide safe illumination without resulting in light trespass to adjacent properties.

[We believe that the proposed number of parking spaces comply with the zoning requirements, however, a modification is requested if needed.]

We believe that the proposed Concept Development Plans for both sites are well coordinated and are consistent with the scope and intent of the Development Plans approved for Hebron Station. We believe this will be a positive development for this part of Boone County and will be complimentary to the apartments that are currently under construction.

Hebron Station Commercial Lots – Special Sign District
North Bend Road at Hebron Station Drive

BRG Hebron Station LLC owns approximately 4.1 acres located at the southeast corner of KY 237/North Bend Road and Hebron Station Drive. Anchor Properties has a contract to purchase 1.99 acres and plans to build a Wawa convenience store with fuel sales on the proposed northern commercial lot (Lot #1). Longnecks has a contract to purchase 2.07 acres and plans to build a new Longnecks Sports Grill on the proposed southern commercial lot (Lot #2).

A Special Sign District is requested for the 4.1 acre commercial development, Lots 1 and 2, for Hebron Station for the Wawa store and Longnecks Sports Grill. The proposed sign standards are described below.

> *Proposed signs for both uses have been submitted. The proposed Special Sign District standards have been crafted based on our assessment of Article 34. We request that staff modify the proposed standards for the Special Sign District if it is determined that additional modifications to the sign regulations are needed to allow the proposed signs.*

<u>Hebron Station Commercial Lots Special Sign District Standards</u>

The proposed signs for the Hebron Station Commercial Lots will meet Boone County Zoning Regulations Article 34 for the C-2 District **except as modified below**:

1. Each lot/parcel will be allowed 2 freestanding signs per parcel.
2. The maximum height for freestanding signs along the KY 237/North Bend Road frontage shall be 20 feet.
3. The maximum height for freestanding signs not along the KY 237/North Bend Road frontage shall be 10 feet.
4. Freestanding signs on Lot 1 may include information for both Lots 1 and 2 – i.e. signs can have content for both Wawa and Longnecks.
5. Lot 1 shall be permitted to have digital fuel price signs on the freestanding signs.
6. Lot 1 shall be permitted to have wall signs on 4 building elevations.
7. Lot 1 shall be permitted to have wall sign area on the south building elevation of up to 100 square feet.
8. Lot 1 shall be permitted to have a sign on the north fascia of the proposed fuel canopy.
9. Lot 1 shall be permitted to have "spanner" signs between the fuel canopy columns on the west and east sides of the fuel canopy as shown on the Wawa sign plans.
10. Lot 1 shall be permitted to have fuel notification signs on the fuel canopy and dispensers as shown on the Wawa sign plans.
11. Lot 1 shall be permitted directional signs as shown on the Wawa sign plans.

We believe that the proposed Hebron Station Commercial Lots have unique characteristics that support the proposed Special Sign District. The commercial lots have frontage on North Bend Road, but no access to the road. The primary access will be from a private street (along the east side of the lots). Allowing 2 signs per parcel will provide visibility needed for circulation and access to both lots. We believe that the proposed signs for Lot 1/Wawa are necessary for the convenience store and fuel center operation, and that the signs requested are part of a coordinated overall design theme and identify for Wawa.

NOTES:

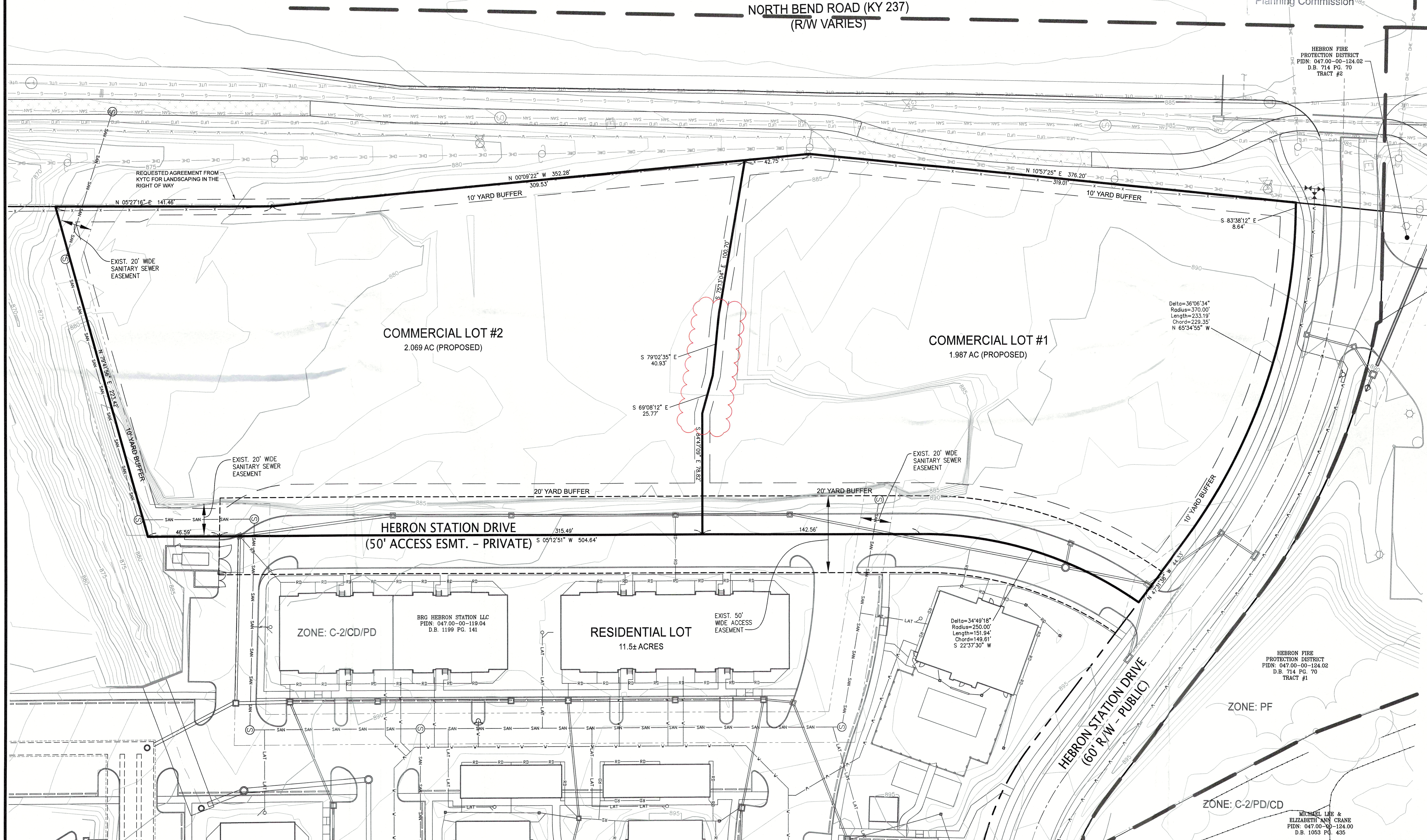
1. OWNER OF SUBJECT PROPERTY IS BRG REALTY GROUP, LLC.
2. EXISTING ZONE OF SUBJECT PROPERTY IS C-2/PD/CD COMMERCIAL TWO/PLANNED DEVELOPMENT DISTRICT/CONCEPT DEVELOPMENT PLAN. (AUGUST 2022 ZMA APPROVAL)
3. EXISTING USE OF SUBJECT PROPERTY: UNDEVELOPED LAND.
4. NO EXISTING BUILDINGS ON SUBJECT PROPERTY.
5. PROPOSED LAND USES FOR SUBJECT PROPERTY INCLUDE COMMERCIAL USE (C-2/PD/CD) PER THE AUGUST 2022 ZMA APPROVAL.
6. BUILDING AREA OF SUBJECT PROPERTY LIES WITHIN FLOOD ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD PLAIN AS SHOWN ON FEMA MAP NUMBER 21015C0115C AS REVISED LAST ON JUNE 4, 2007.
7. SOILS PRESENT WITHIN SUBJECT PROPERTY PER USDA INCLUDE: RsC (ROSSMOYNE SILT LOAM) AND RsB (ROSSMOYNE SILT LOAM).
8. ACCESS TO SUBJECT PROPERTY WILL BE OFF THE PRIVATE DRIVE TO THE EAST OF THE PROPERTY WITH A SINGLE RIGHT IN ACCESS POINT ON THE NEWLY CONSTRUCTED HEBRON STATION DRIVE AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE KENTUCKY DEPARTMENT OF TRANSPORTATION AND BOONE COUNTY ENGINEER.
9. AREA OF SUBJECT PROPERTY INCLUDES 4.0562 ACRES.
10. ELECTRIC, TELEPHONE & CABLE TO BE INSTALLED UNDERGROUND PER DUKE ENERGY.
11. TYPICAL PROPOSED PARKING STALL DIMENSIONS ARE 9' WIDE BY 18' LONG UNLESS NOTED OTHERWISE ON THE PLANS.

ZONE INFORMATION

C-2/PD/CD, COMMERCIAL TWO / PLANNED DEVELOPMENT/CONCEPT DEVELOPMENT	
MINIMUM FRONTAGE:	FIFTY (50) FEET
MINIMUM FRONT SETBACK:	THIRTY (30) FEET
MINIMUM REAR SETBACK:	TWENTY (20) FEET/FIFTY (50) FEET*
MINIMUM SIDE SETBACK:	TEN (10) FEET/FIFTY (50) FEET*
MAXIMUM BUILDING HEIGHT:	FIFTY (50) FEET
* WHEN ADJOINING ANY OF THE FOLLOWING ZONING DISTRICTS: A-1, A-2, R, CONS, RSE,RS, SR-1, SR-2, SR-3, UR-1, UR-2, UR-3, MHP AND R1F	

ORIGINAL SIDEWALK

APARTMENT IMPROVEMENT SIDEWALK



CONCEPT DEVELOPMENT PLAN / ZONING MAP AMENDMENT - SPECIAL SIGN DIST.
APPROVED with 9 conditions
Staff M. Schwartz
Date 4/17/2024
Boone County Planning Commission

REVISIONS DATE	#	ITEM
04/01/24	1	Planning Commission Revision

CARDINAL
ENGINEERING
LAND SURVEYING
ONE MOOCK ROAD
WILDER, KENTUCKY 41071
PHONE: (859) 581-9600
FAX: (859) 581-9636

WEBSITE: http://www.cardinalengineering.net

PROJECT: CONCEPT DEVELOPMENT PLAN
HEBRON STATION - COMMERCIAL SITE
NORTH BEND ROAD & COUGAR PATH

CLIENT: ANCHOR PROPERTIES, INC.
128 E. 2ND ST., COVINGTON, KY 41011
&
LONGNECKS SPORTS GRILL, LLC
544 CLAY RIDGE RD., ALEXANDRIA, KY 41001

DRAWN BY: BTL
CHECKED BY: DES
PROJECT MANAGER: DES
SEAL

PROJECT NO. 21-166-03
SCALE 1" = 30'
DATE 01/22/2024

EXISTING SITE PLAN

SHEET C-1

NOTES:

1. OWNER OF SUBJECT PROPERTY IS BRG REALTY GROUP, LLC.
2. EXISTING ZONE OF SUBJECT PROPERTY IS C–2/PD/CD COMMERCIAL TWO/PLANNED DEVELOPMENT DISTRICT/CONCEPT DEVELOPMENT PLAN. (AUGUST 2022 ZMA APPROVAL)
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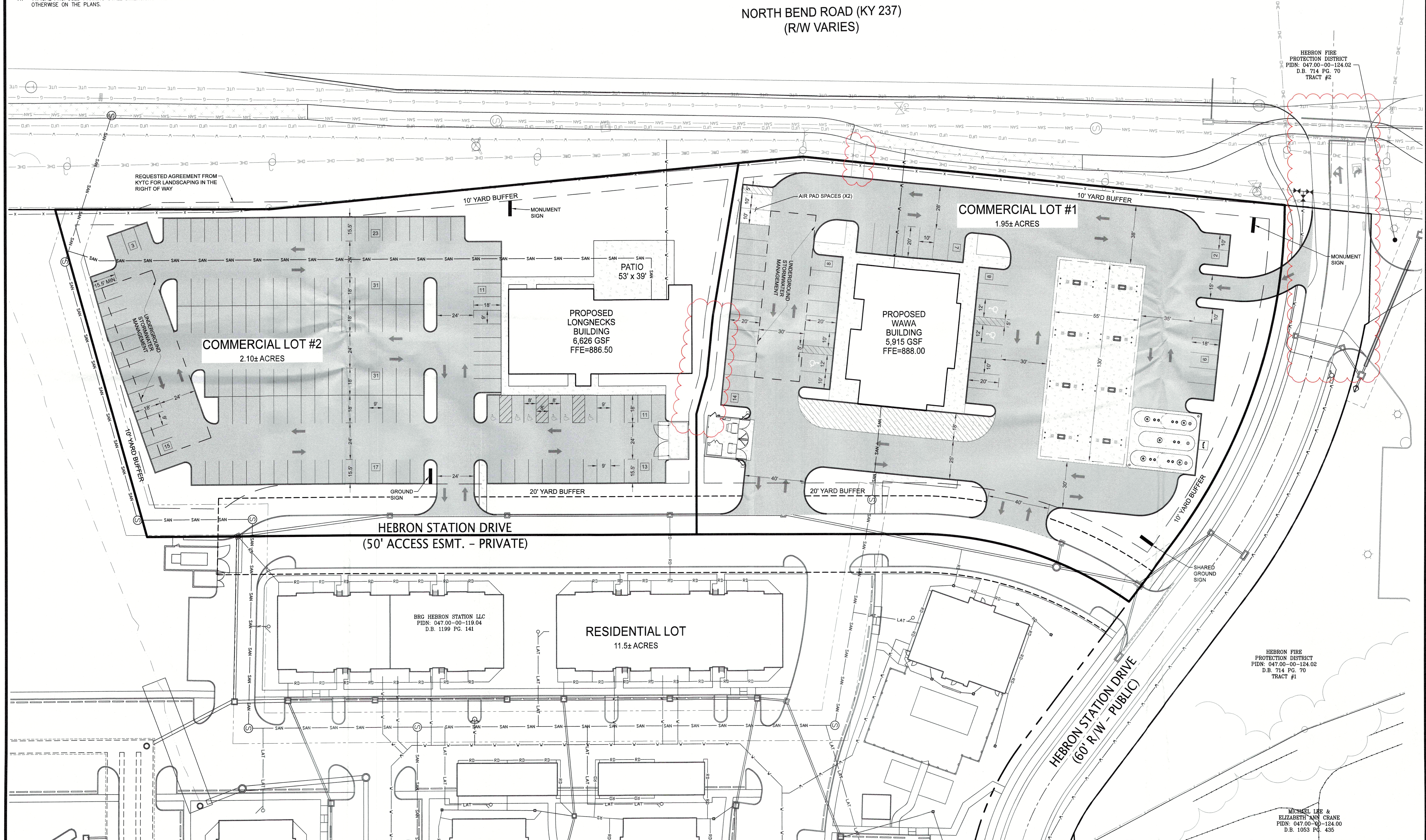
9. AREA OF SUBJECT PROPERTY INCLUDES 4.0562 ACRES.
10. ELECTRIC, TELEPHONE & CABLE TO BE INSTALLED UNDERGROUND PER DUKE ENERGY.
11. TYPICAL PROPOSED PARKING STALL DIMENSIONS ARE 9' WIDE BY 18' LONG UNLESS NOTED OTHERWISE ON THE PLANS.

PARKING SUMMARY

LOT	1(WAWA): CONVENIENCE STORE WITH GAS SALES	2(LONGNECKS): EATING AND DRINKING ESTABLISHMENT
REQUIRED:	1 SPACE PER 250 SF OF OFFICE AREA: (5,915 SF)/250 = 24 SPACES REQUIRED 1 SPACE PER TWO (2) GASOLINE PUMPS: (16 PUMPS)/2 = 8 SPACES REQUIRED 1 SPACE PER AIR PUMP STATION: (2 STATION)/1 = 2 SPACES REQUIRED 2 ADA ACCESSIBLE SPACES REQUIRED	1 SPACE PER TWO (2) SEATS: (257 SEATS)/2 = 129 SPACES REQUIRED 4 SPACES PER BILLIARD TABLE: (1 TABELS)*4 = 4 SPACES REQUIRED 6 ADA ACCESSIBLE SPACES REQUIRED
	MINIMUM SPACES REQUIRED = 34 REQ'D (INCLUDING 2 ADA) MAXIMUM SPACES REQUIRED (+30%) = 44 ALLOWED TOTAL SPACES PROVIDED = 45 PROVIDED (INCLUDING 3 ADA)	MINIMUM SPACES REQUIRED = 133 REQ'D (INCLUDING 6 ADA) MAXIMUM SPACES REQUIRED (+30%) = 173 ALLOWED TOTAL SPACES PROVIDED = 160 PROVIDED (INCLUDING 6 ADA)

ORIGINAL SIDEWALK
APARTMENT IMPROVEMENT SIDEWALK
COMMERCIAL IMPROVEMENT SIDEWALK
COMMERCIAL IMPROVEMENT PAVEMENT



REVISIONS DATE	#	ITEM
04/01/24	1	Planning Commission Revision

CARDINAL
ENGINEERING
LAND SURVEYING
ONE MOOCK ROAD
WILDER, KENTUCKY 41071
PHONE: (859) 581–9600
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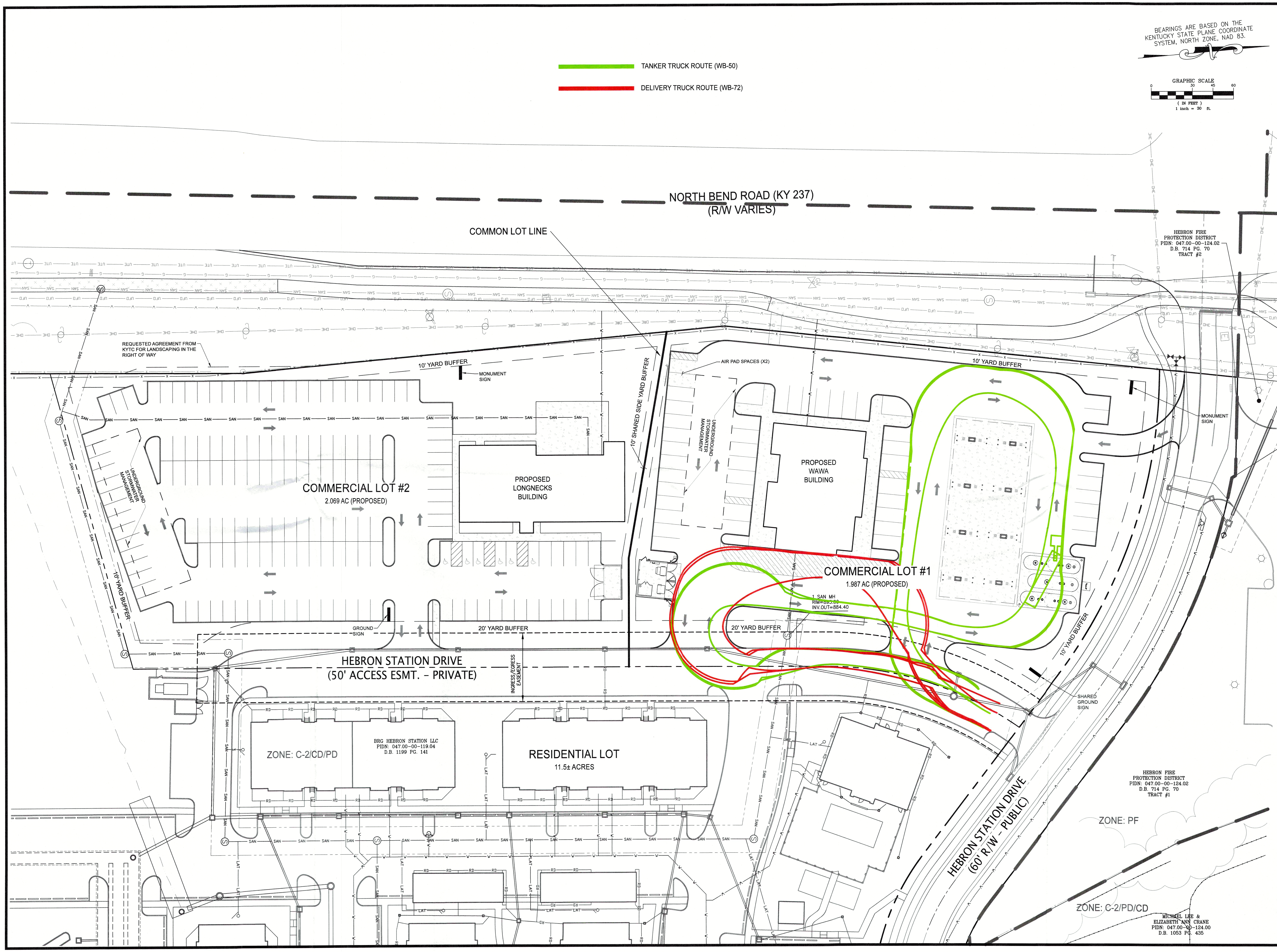
PROJECT: CONCEPT DEVELOPMENT PLAN
HEBRON STATION – COMMERCIAL SITE
NORTH BEND ROAD & COUGAR PATH

CLIENT: ANCHOR PROPERTIES, INC.
128 E. 2ND ST., COVINGTON, KY 41011
&
LONGNECKS SPORTS GRILL, LLC
544 CLAY RIDGE RD., ALEXANDRIA, KY 41001

DRAWN BY: BTL
CHECKED BY: DES
PROJECT MANAGER: DES
SEAL

PROJECT NO. 21-166-03
SCALE 1" = 30'
DATE 01/22/2024

SITE CONCEPT PLAN
SHEET C-2



REVISIONS DATE	#	ITEM

CARDINAL
ENGINEERING
LAND SURVEYING
ONE MOOCK ROAD
WILDER, KENTUCKY 41071
PHONE: (859) 581-9600
FAX: (859) 581-9636

WEBSITE: http://www.cardinalengineering.net

PROJECT: TRUCK ROUTE EXHIBIT
WAWA
NORTH BEND ROAD & COUGAR PATH

CLIENT: ANCHOR PROPERTIES, INC.
128 E. 2ND ST., COVINGTON, KY 41011
&
LONGNECKS SPORTS GRILL, LLC
544 CLAY RIDGE RD., ALEXANDRIA, KY 41001

DRAWN BY: BTL
CHECKED BY: DES
PROJECT MANAGER: DES
SEAL

PROJECT NO. 21-166-03
SCALE 1" = 30'
DATE 11/28/2023

CONCEPT DEVELOPMENT PLAN
TRUCK ROUTE EXHIBIT

SHEET EX-0.0

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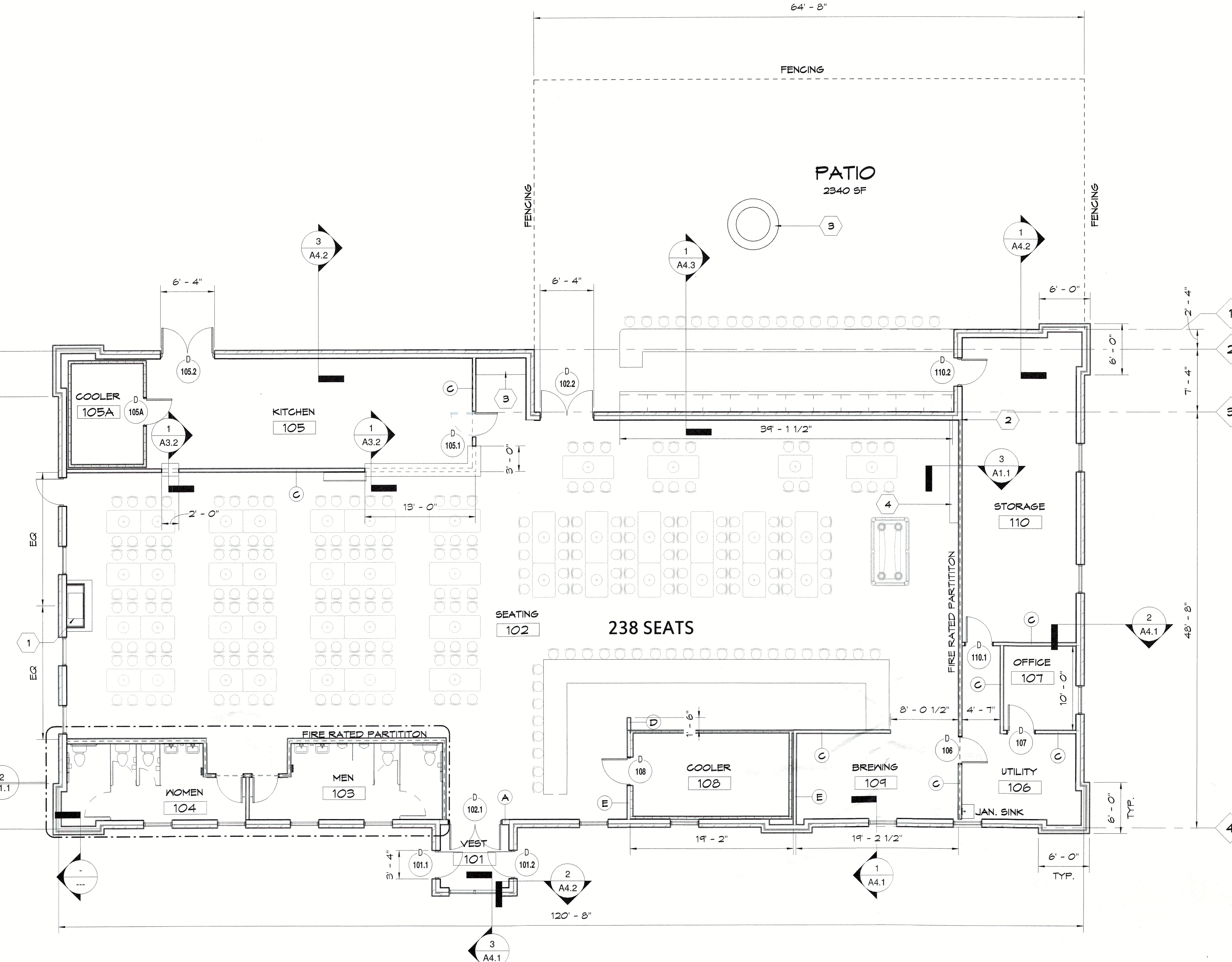


NORTH

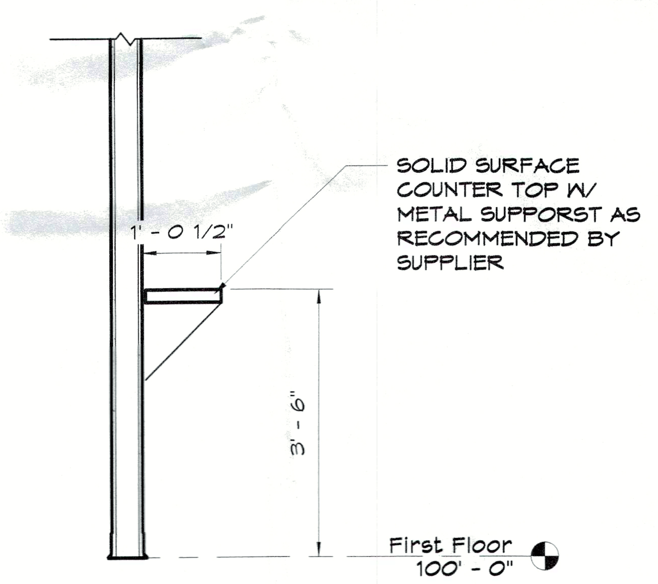
FLOOR PLAN

SCALE: 1/8" = 1'-0"

1 / A1.1

KEY NOTES

1. GAS FIREPLACE, DIRECT VENT THRU ROOF, COORD. W/ FRAMING SUPPLIER. COORD. FIREPLACE STYLE AND FINISH W/ OWNER
2. ALIGN F/STUDS
3. SOLID SURFACE COUNTER @ 3'-0" A.F.F.
4. SOLID SURFACE COUNTER @ 42" A.F.F.
5. FIRE PIT, PROVIDE GAS LINE, COORD. FINISH/STYLE W/ OWNER



DRINK RAIL SECTION

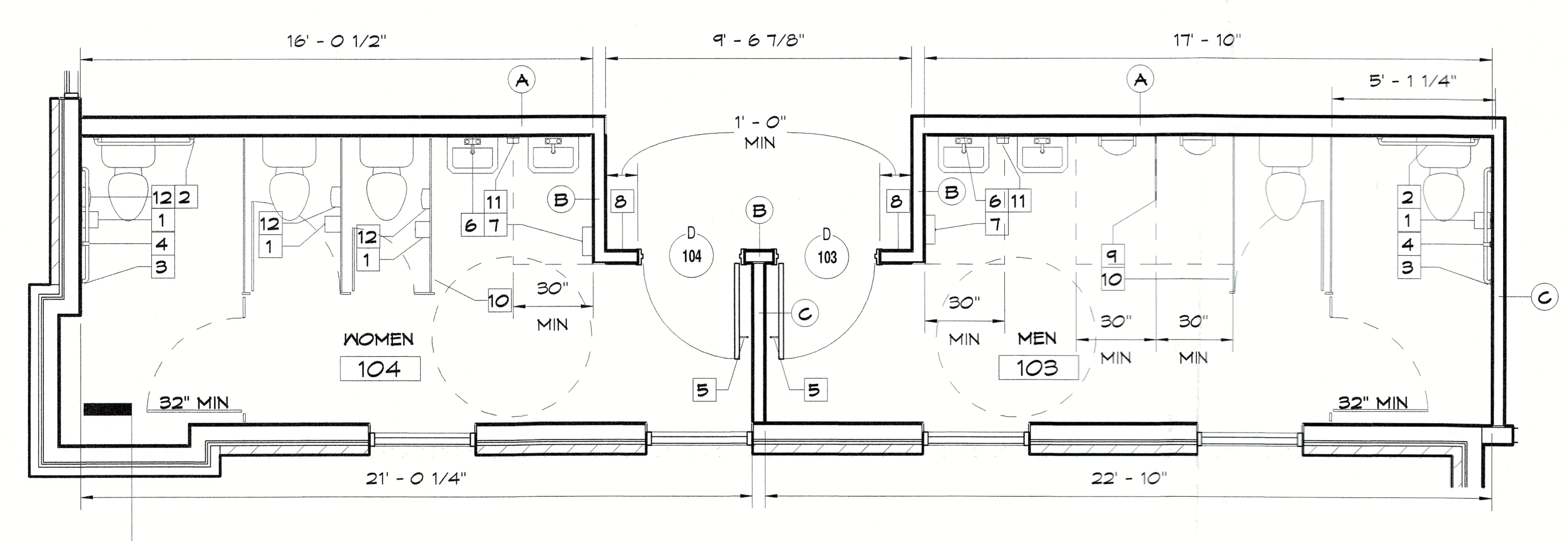
SCALE: 1/2" = 1'-0"

3 / A1.1

TOILET ACCESSORIES NOTES

N O T E: PLUMBING FIXTURES IDENTIFIED BY THE INTERNATIONAL SYMBOL OF ACCESSIBILITY SHALL BE MOUNTED ACCORDING TO THE LATEST REQUIREMENTS OF THE ADA. TOILETS SHALL BE MOUNTED WITH SEAT BETWEEN 17" & 19" A.F.F. AND 18" FROM CENTERLINE OF TOILET TO SIDE WALL. URINALS SHALL BE MOUNTED WITH RIM AT 17" A.F.F. WALL-HUNG LAVATORIES SHALL BE MOUNTED AT 34" TO THE TOP OF THE RIM WITH HOT WATER SUPPLY INSULATED & DRAIN PIPING TO BE INSULATED OR COVERED. NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES. FLUSH HANDLES SHALL BE INSTALLED OPPOSITE OF ADJACENT PERPENDICULAR WALL

1. SURFACE MOUNTED TOILET TISSUE DISPENSER. INSTALL PER MFR'S REQUIREMENTS. ADA ACCESSIBLE. MAX. MOUNTING HT. 19" A.F.F. TO OF ROLL. BY OWNER
2. 36"L GRAB BAR @ 6" FROM SIDE WALL. MOUNT AT 34" A.F.F.
3. 42"L GRAB BAR @ 12" FROM REAR WALL. MOUNT AT 34" A.F.F.
4. 18" VERTICAL GRAB BAR @ 40" FROM REAR WALL. MOUNT w/ BOTTOM @ 40" A.F.F.
5. CLOTHES HOOK AT 60" A.F.F.
6. 24"X60" MIRROR MOUNTED WITH BOTTOM OF REFLECTIVE SURFACE @ 40" A.F.F.
7. SURFACE MOUNTED PAPER TOWEL ROLL DISPENSER
8. RESTROOM SIGNAGE PLACARD MOUNTED AT 54" A.F.F.
9. 24"X42" SOLID PLASTIC (POLYMER) URINAL SCREEN - BASIS OF DESIGN ACCURATE PARTITIONS
10. OVERHEAD BRACED PLASTIC (POLYMER) TOILET PARTITIONN - BASIS OF DESIGN ACCURATE PARTITIONS
11. WALL MOUNTED SOAP DISPENSER BY TENANT'S FACILITY SERVICE PROVIDER
12. SANITARY FEM. NAPKIN DISPOSAL



ENLARGED RESTROOM PLAN

SCALE: 1/4" = 1'-0"

2 / A1.1

K|B|A
K|B|A INCORPORATED
ARCHITECTS
29 HIGH STREET
Milford, OH 45150
513.752.7800
www.kbainc.com

SHEET CONTENTS:

FLOOR PLAN

Proposed Building For:

Longnecks Sports Grill

Hebron, Kentucky

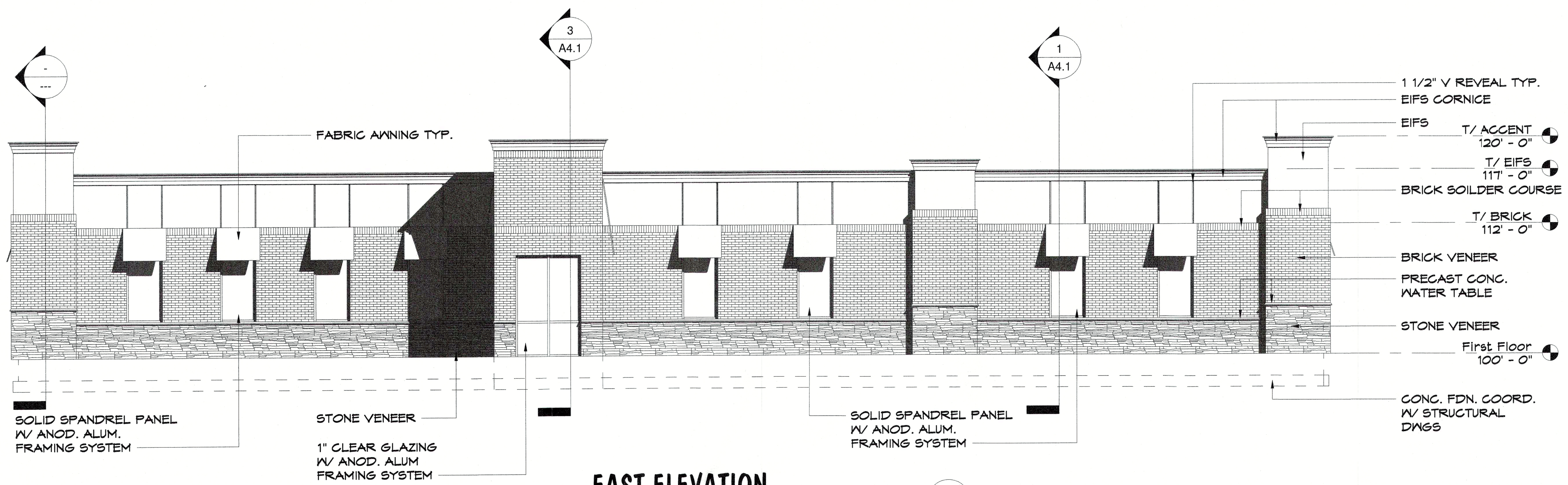
REV. DATE CK'D

Drawn By:CWS Checked By:WNS

Preliminary Not For Construction

Date:03.25.24 Job No:24.009

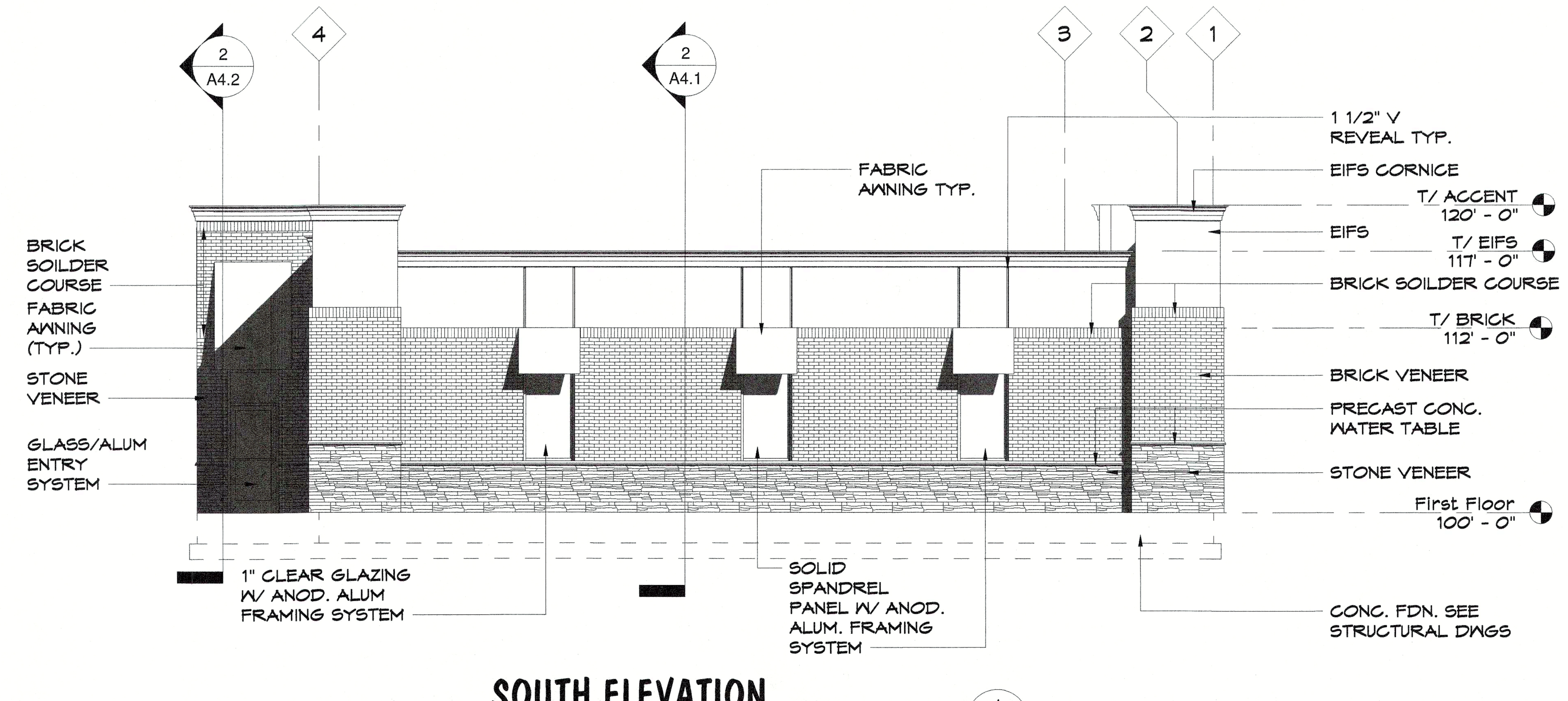
A1.1



EAST ELEVATION

SCALE: 1/8" = 1'-0"

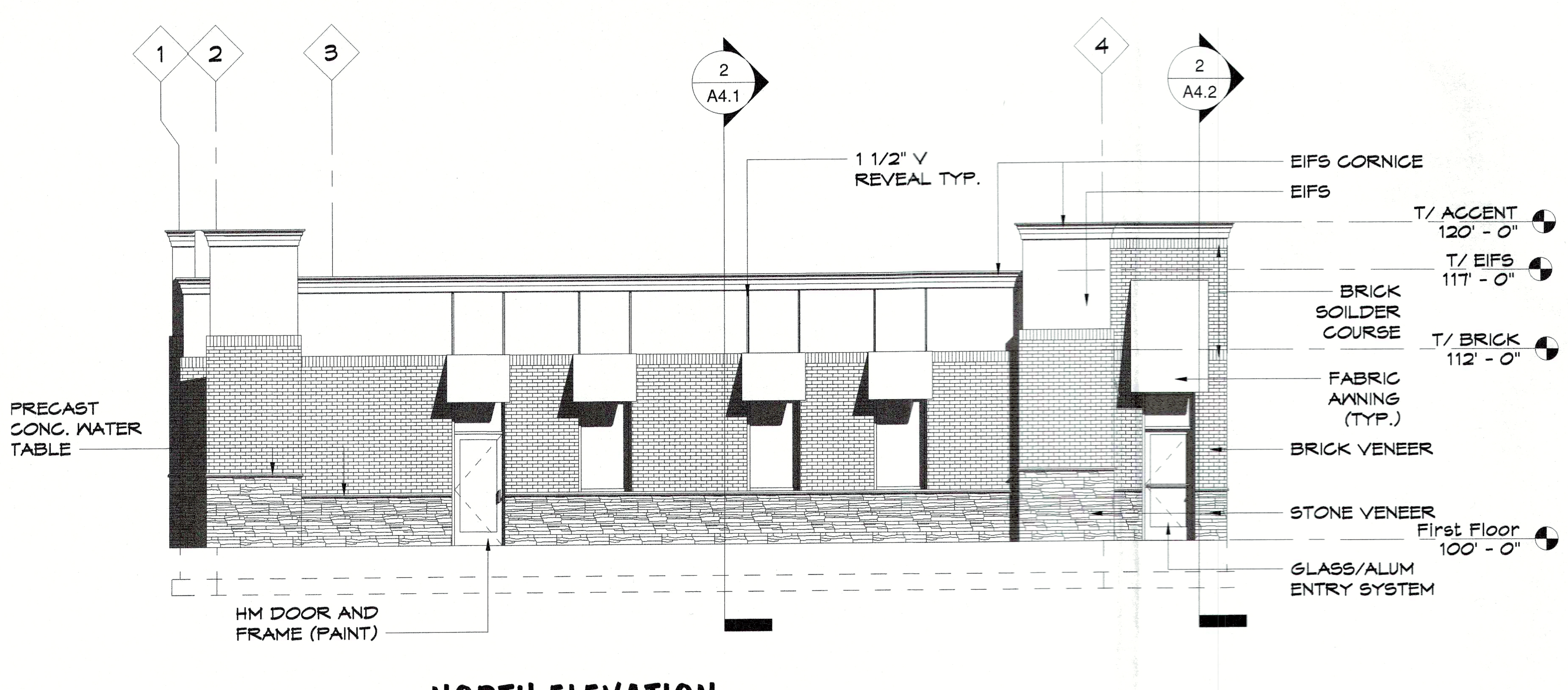
3
A2.1



SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

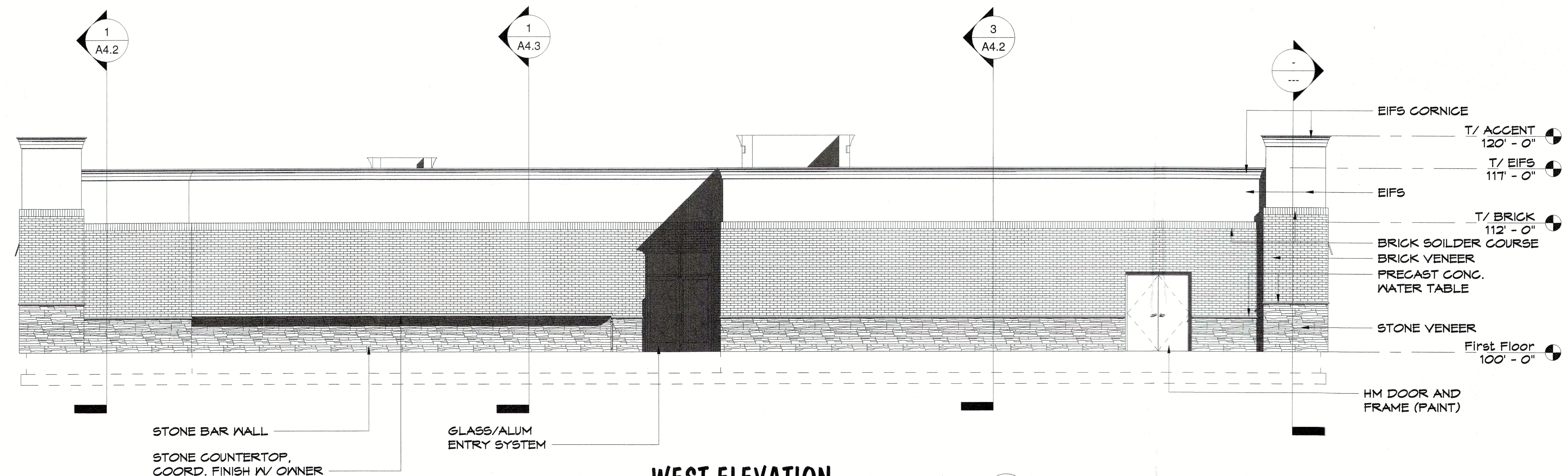
1
A2.1



NORTH ELEVATION

SCALE: 1/8" = 1'-0"

4
A2.1



WEST ELEVATION

SCALE: 1/8" = 1'-0"

2
A2.1

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ARCHITECTS

29 HIGH STREET
Milford, OH 45150
513.752.7800
www.kbainc.com

SHEET CONTENTS:

ELEVATIONS

Proposed Building For:

Langnecks Sports Grill

Hebron, Kentucky

REV. DATE CK'D

Drawn By:CWS Checked By:WNS

Preliminary Not For Construction

Date:03.25.24 Job No:24.009

A2.1

K|B|A

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ARCHITECTS

29 HIGH STREET
Milford, OH 45150
513.752.7800
www.kbainc.com

SHEET CONTENTS:
RENDERINGS

Proposed Building For:

Longnecks Sports Grill

Hebron, Kentucky

REV. DATE CK'D

Drawn By: Author Checked By: Checker

Preliminary
Not For
Construction

Date: 03.25.24 Job No: 24.009

RN1

1 HEBRON STATION DRIVE- ELEVATION
3/16" = 1'-0"

GLAZING CALCS - FRONT ELEVATION:	
CLEAR GLAZING - 410 SQFT	21%
SPANDREL GLAZING - 123 SQFT	6%
TOTAL GLAZING - 533 SQFT	27%
TOTAL BUILDING - 2,004 SQFT	
GLAZING - 533/2,004 = 27%	

MATERIAL CALCS - FRONT ELEVATION:	
BRICK-1 - 333 SQFT	22%
COMPOSITE SIDING - 383 SQFT	26%
STUCCO/EIFS - 586 SQFT	39%
CULTURED STONE - 89 SQFT	6%
METAL OVERHANG - 80 SQFT	7%
TOTAL MATERIAL - 1,471 SQFT	

2 SOUTH ELEVATION
3/16" = 1'-0"

GLAZING CALCS - REAR ELEVATION:	
CLEAR GLAZING - 68 SQFT	3.5%
SPANDREL GLASS - 181 SQFT	8.5%
TOTAL GLAZING - 249 SQFT	12%
TOTAL MATERIAL - 1,741	
TOTAL BUILDING - 2,010 SQFT	
GLAZING - 249/2,010= 12%	

MATERIAL CALCS - REAR ELEVATION:	
BRICK-1 - 656 SQFT	37%
COMPOSITE SIDING - 543 SQFT	30.5%
STUCCO/EIFS - 408 SQFT	23.5%
CULTURED STONE - 109 SQFT	6.5%
METAL OVERHANG - 45 SQFT	2.5%
TOTAL MATERIAL - 1,761 SQFT	

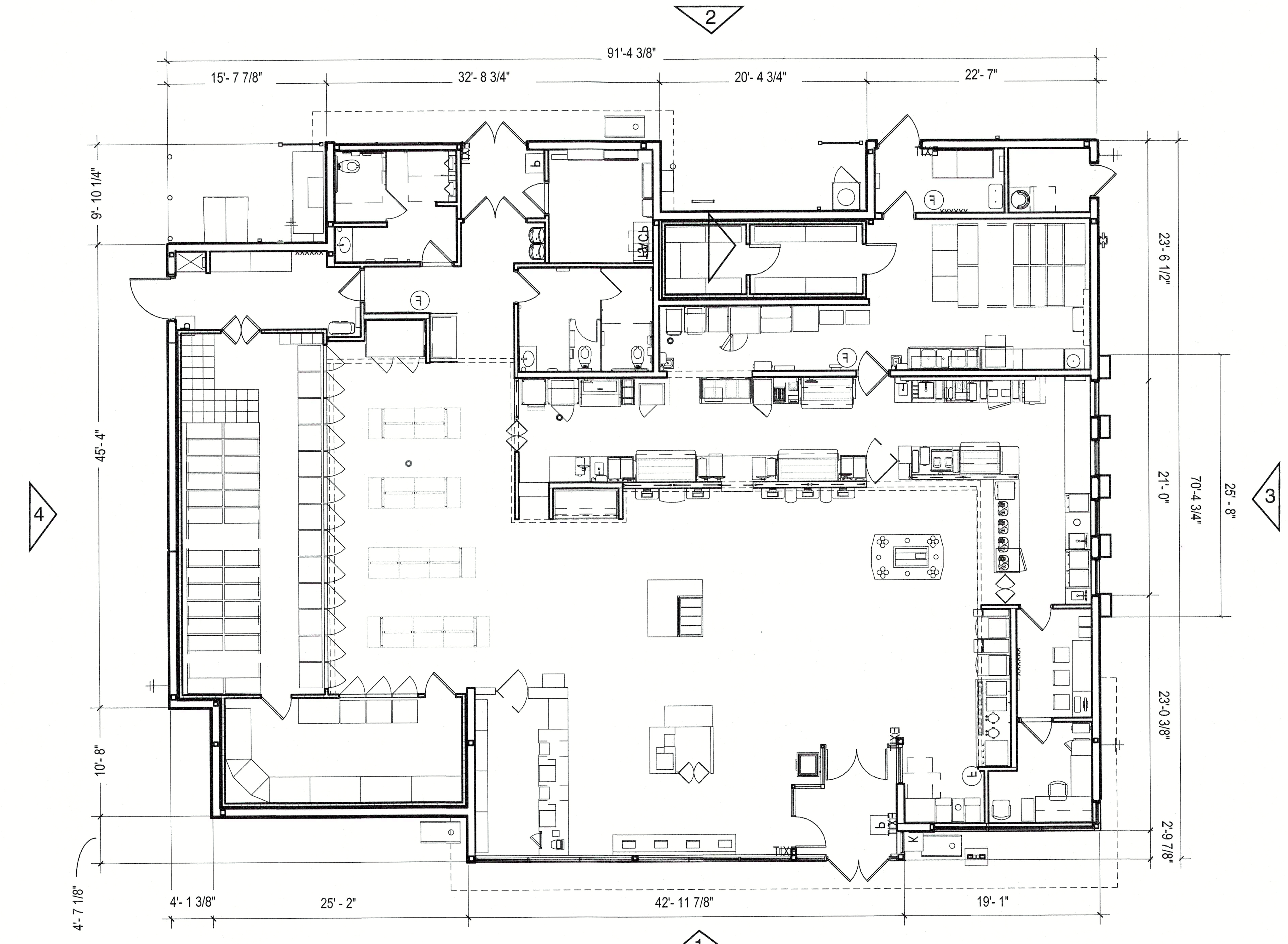
3 NORTH BEND - ELEVATION
3/16" = 1'-0"

GLAZING CALCS - SIDE ELEVATION:	
CLEAR GLAZING - 104 SQFT	6.5%
SPANDREL GLAZING - 48 SQFT	2.5%
TOTAL - 152 SQFT	9%
TOTAL MATERIAL - 1,437 SQFT	
TOTAL BUILDING - 1,626 SQFT	
GLAZING - 152/1,626= 9%	

MATERIAL CALCS - SIDE ELEVATION:	
BRICK-1 - 962 SQFT	65%
COMPOSITE SIDING - 164 SQFT	11%
STUCCO/EIFS - 213 SQFT	14%
CULTURED STONE - 108 SQFT	7%
METAL OVERHANG - 27 SQFT	3%
TOTAL MATERIAL - 1,474 SQFT	

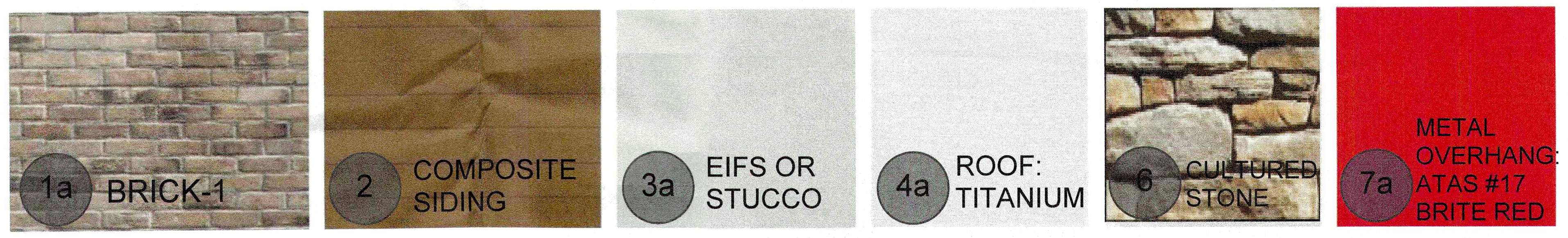
4 SIDE ELEVATION
3/16" = 1'-0"

MATERIAL CALCS - SIDE ELEVATION:	
BRICK - 361 SQFT	22%
COMPOSITE - 552 SQFT	34%
STUCCO/EIFS - 601 SQFT	37%
CULTURED STONE - 87 SQFT	5%
MTL OVERHANG- 24 SQFT	2%
TOTAL - 1,625 SQFT	



5 FLOOR PLAN
1" = 10'-0"

MATERIALS:



EXTERIOR FINISH PACKAGE: STONE 1

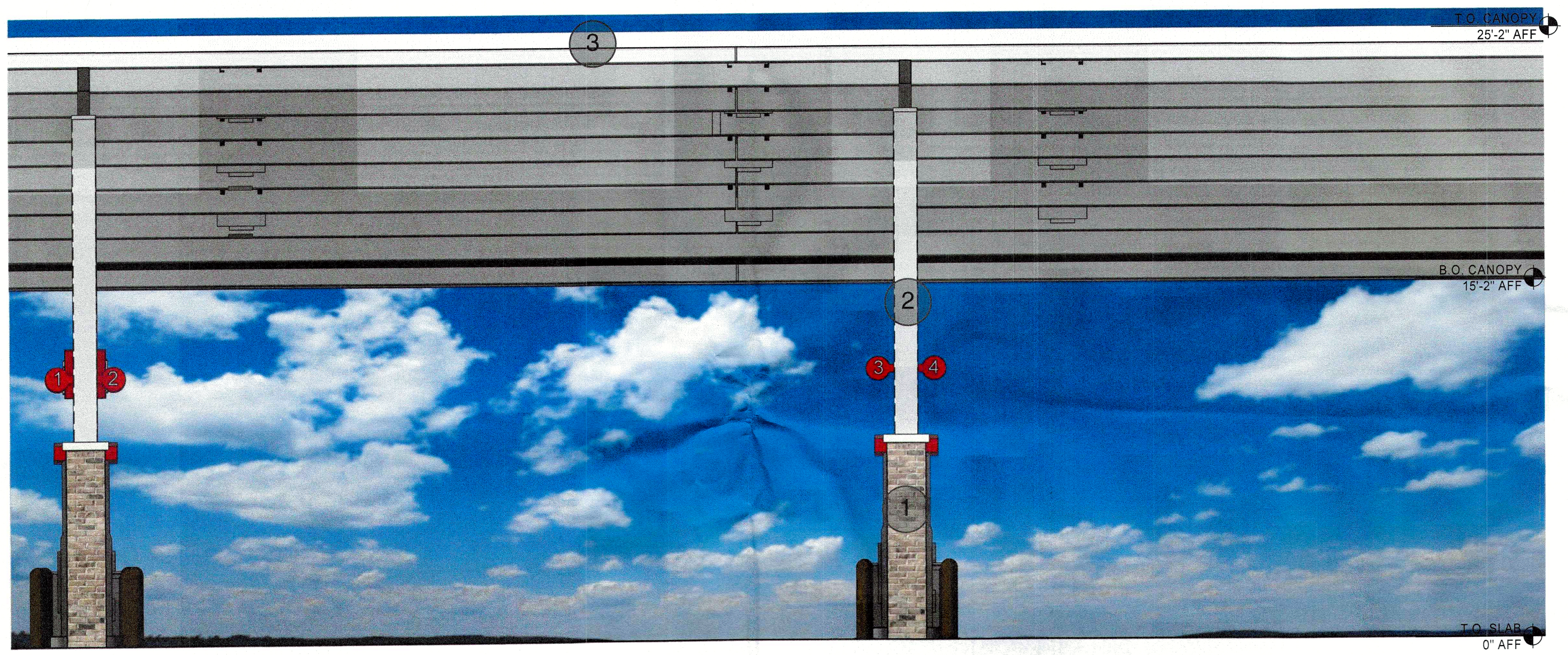
HFA

WAWA U59FB-L

NORTH BEND ROAD
HEBRON, KY

Wawa

(3) FUEL CANOPY ELEVATION
1/4" = 1'-0"

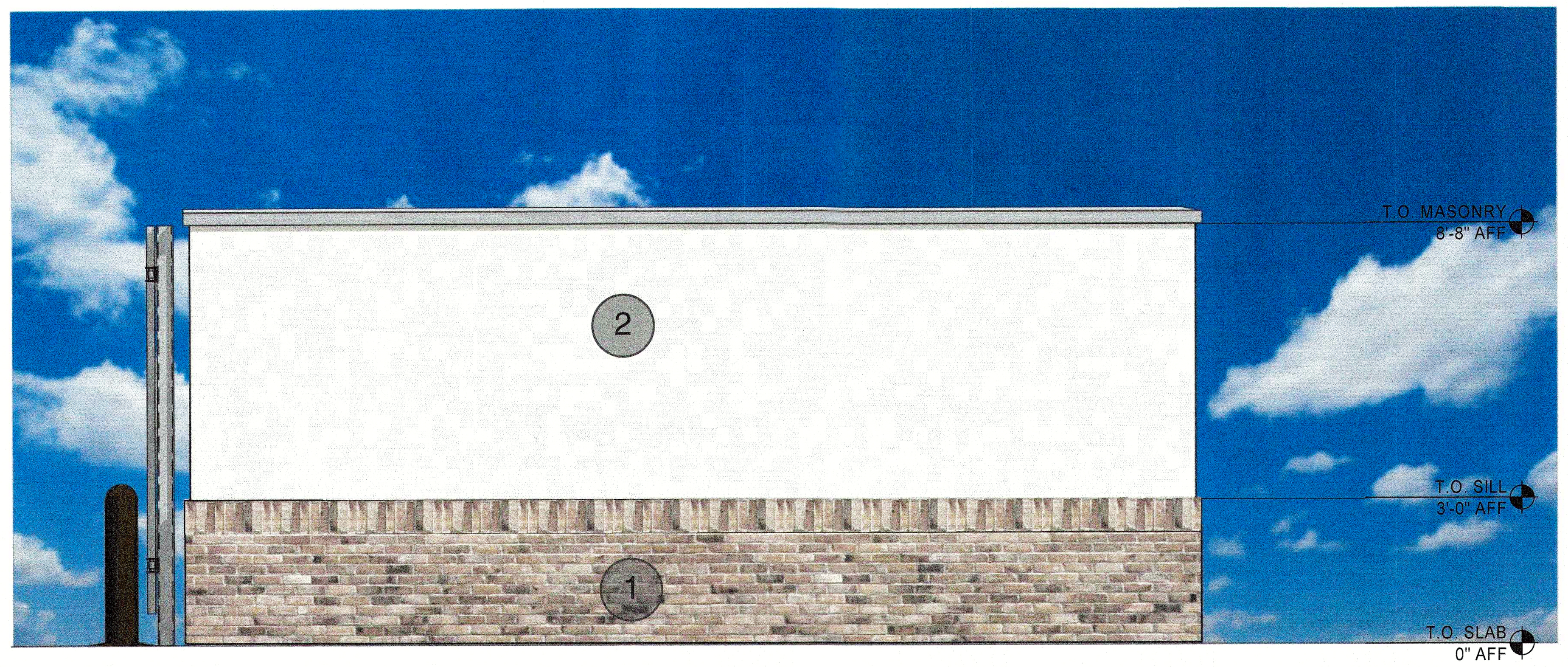


(2) FUEL CANOPY ELEVATION - LONG
1/4" = 1'-0"

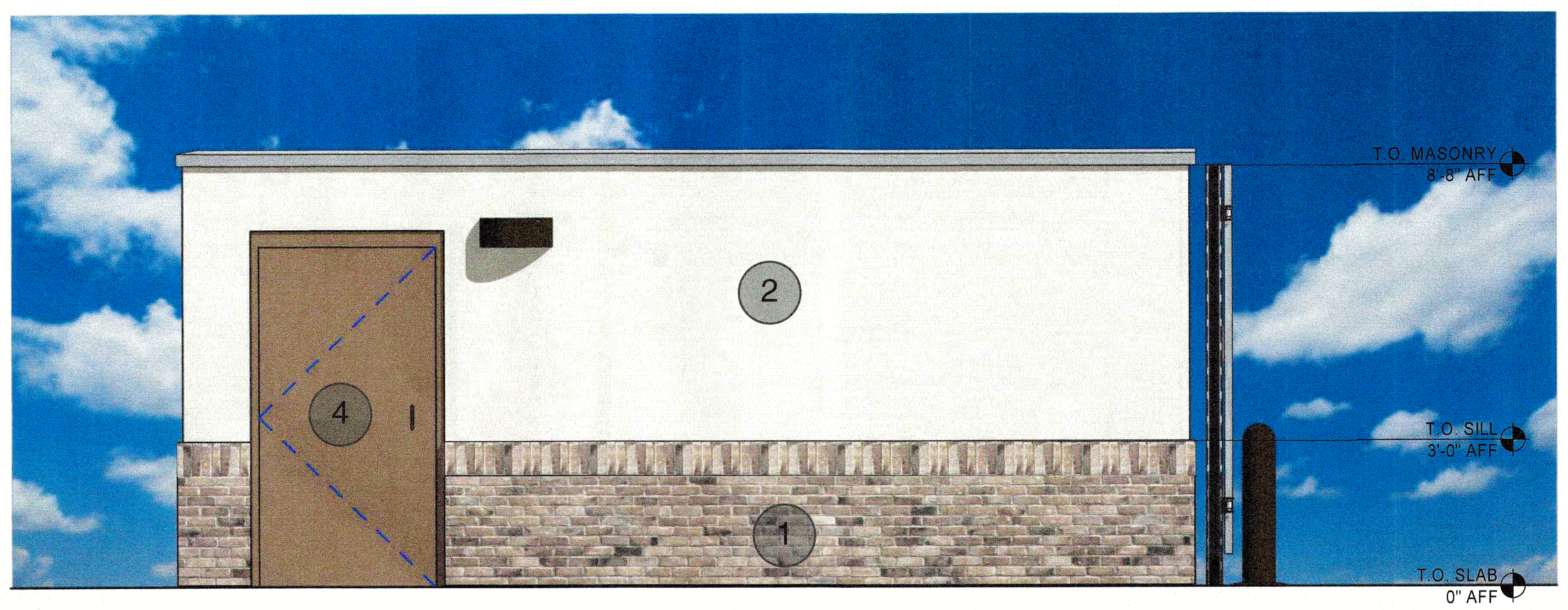
(1) FUEL CANOPY PERSPECTIVE

MATERIALS:

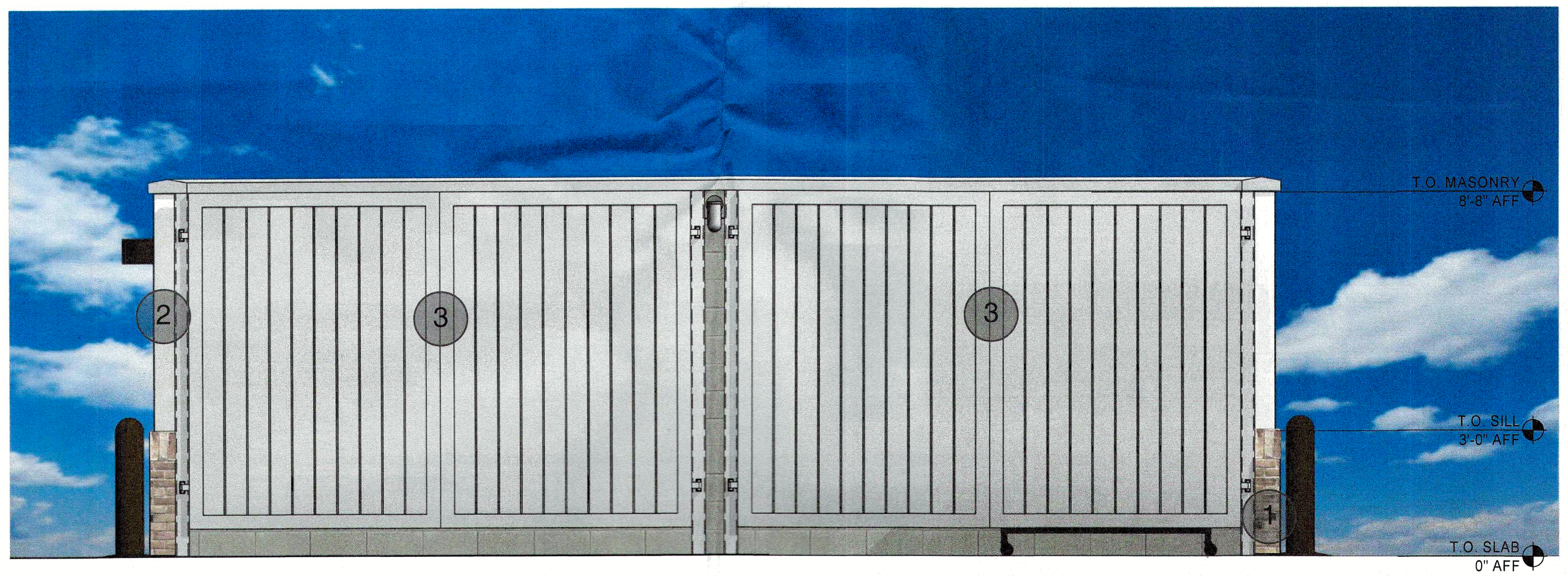
1 BRICK	1 BRICK
2 METAL: WHITE	2 EIFS OR STUCCO
3 ROOF: TITANIUM	3 METAL: WHITE
	4 DOOR TO MATCH BUILDING



(7) DUMPSTER SIDE ELEVATION
3/8" = 1'-0"



(6) DUMPSTER SIDE ELEVATION
3/8" = 1'-0"



(5) DUMPSTER FRONT ELEVATION
3/8" = 1'-0"

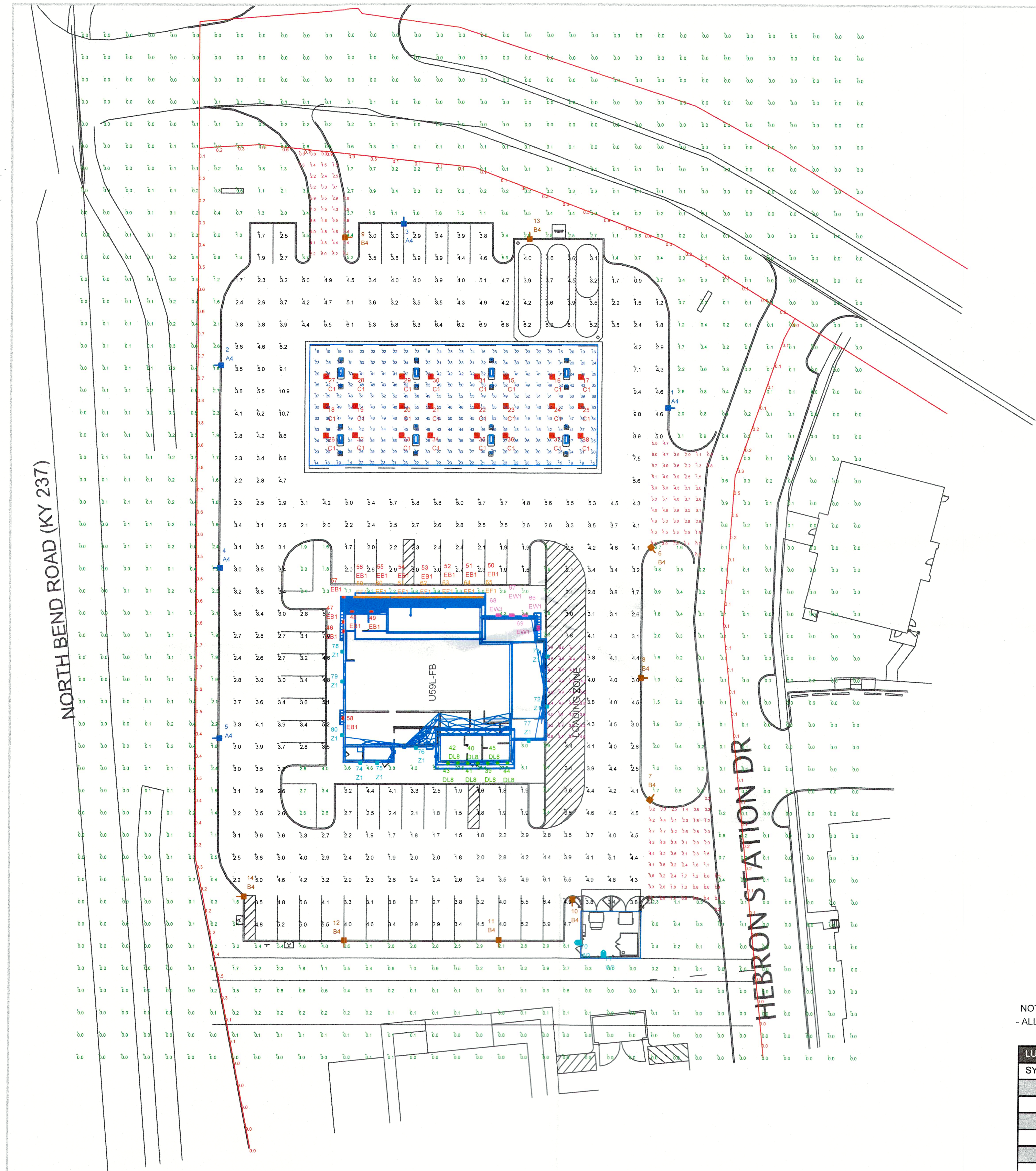
(4) DUMPSTER REAR ELEVATION
3/8" = 1'-0"

HFA

WAWA STACKED 8 FUEL CANOPY - TRASH COMPOUND

NORTH BEND ROAD
HEBRON, KY

Wawa



THIS SITE IS LOCATED IN A REGION WHERE LIGHTING IS REGULATED BY LOCAL ORDINANCES

LUMINAIRE LOCATION SUMMARY		
LUM NO.	LABEL	MTG. HT.
1	A4	20.5
2	A4	20.5
3	A4	20.5
4	A4	20.5
5	A4	20.5
6	B4	20.5
7	B4	20.5
8	B4	20.5
9	B4	20.5
10	B4	20.5
11	B4	20.5
12	B4	20.5
13	B4	20.5
14	B4	20.5
15	C1	17.11
16	C1	17.11
17	C1	17.11
18	C1	19.32
19	C1	19.32
20	C1	19.32
21	C1	19.32
22	C1	19.32
23	C1	19.32
24	C1	19.32
25	C1	19.32
26	C1	21.53
27	C1	17.11
28	C1	17.11
29	C1	17.11
30	C1	17.11
31	C1	17.11
32	C1	21.53
33	C1	21.53
34	C1	21.53
35	C1	21.53
36	C1	21.53
37	C1	21.53
38	C1	21.53
39	DL8	11
40	DL8	11

LUMINAIRE LOCATION SUMMARY		
LUM NO.	LABEL	MTG. HT.
41	DL8	11
42	DL8	11
43	DL8	11
44	DL8	11
45	DL8	11
46	EB1	11
47	EB1	11
48	EB1	11
49	EB1	11
50	EB1	10.5
51	EB1	10.5
52	EB1	10.5
53	EB1	10.5
54	EB1	10.5
55	EB1	10.5
56	EB1	10.5
57	EB1	10.5
58	EB1	14
59	EF1	11.833
60	EF1	11.833
61	EF1	11.833
62	EF1	11.833
63	EF1	11.833
64	EF1	11.833
65	EF1	11.833
66	EW1	14
67	EW1	14
68	EW1	14
69	EW1	14
70	W3	8
71	W3	8
72	Z1	14
73	Z1	14
74	Z1	14
75	Z1	14
76	Z1	14
77	Z1	14
78	Z1	14
79	Z1	14
80	Z1	14

FOOTCANDLE LEVELS CALCULATED AT GRADE USING INITIAL LUMEN VALUES					
LABEL	AVG	MAX	MIN	AVG/MIN	MAX/MIN
CANOPY	36.21	58	14	2.59	4.14
DELIVERY AREA	4.13	4.9	2.8	1.48	1.75
ENTRANCES & EXIT DRIVES	2.96	6.0	0.2	14.80	30.00
PARKING & INTERIOR DRIVE AISLES	3.71	10.9	0.9	4.12	12.11
PROPERTY LINES	0.31	0.9	0.0	N.A.	N.A.
UNDEFINED	0.49	28.4	0.0	N.A.	N.A.

NOTES:
- ALL AREA LIGHTS ON 20 FT. POLES MOUNTED ON 6 IN. CONCRETE BASES

LUMINAIRE SCHEDULE										
SYMBOL	QTY	LABEL	ARRANGEMENT	LUMENS	LLF	BUG RATING	WATTS/LUMINAIRE	TOTAL WATTS	MANUFACTURER	CATALOG LOGIC
	5	A4	SINGLE	8891	1.030	B1-U0-G2	134	670	CREE, INC.	ARE-EDG-3MB-DA-06-E-UL-XX-700-57K
	9	B4	SINGLE	9549	1.030	B1-U0-G2	134	1206	CREE, INC.	ARE-EDG-4MB-DA-06-E-UL-XX-700-57K
	24	C1	SINGLE	13251	1.030	B3-U0-G1	134	3216	CREE, INC.	CAN-304-SL-RD-06-E-UL-XX-700-57K
	7	DL8	Single	1121	1.000	B1-U0-G0	11.5	80.5	Juno Lighting	2LEDTG2C-830F-WWH w_ 2LEDDRVG2-10-120
	13	EB1	Single	1388	1.000	B1-U1-G0	19	247	WAC Lighting	WP-LED119-30
	7	EF1	SSL-4_1	992	1.000	B1-U1-G0	17.444	488.432	FC Lighting	CVLWET1.5-4-4K-80CRI-1040
	4	EW1	Single	500	1.000	B0-U0-G0	10.5	42	CARIBONI GROUP	WS-W2509-3000K-BZ
	2	W3	SINGLE	1557	1.030	B0-U0-G1	25	50	CREE, INC.	SEC-EDG-3MB-WM-02-E-UL-XX-350-57K
	9	Z1	Single	2710	1.000	B0-U0-G1	25.31	227.79	COOPER LIGHTING SOLUTIONS - McGRAW-EDISON	ISC-AF-450-LED-E1-SL4-WH

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513-574-9500 | redleonard.com

REV.	BY	DATE	DESCRIPTION
R1	JAN	03/29/24	REVISED LIGHTING PER CITY COMMENTS

DISCLAIMER

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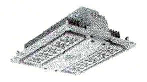
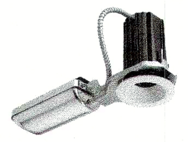
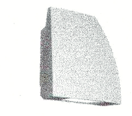
SCALE: 1" = 30'
LAYOUT BY: LMP
DWG SIZE: D
DATE: 12/06/23

PROJECT NAME:
WAWA
HEBRON, KY
DRAWING NUMBER:
RL-9321-S1-R1

Wawa

		QTY	LABEL	DESCRIPTION
AREA		5	A4	ARE-EDG-3MB-DA-06-E-UL-XX-700-57K
		9	B4	ARE-EDG-4MB-DA-06-E-UL-XX-700-57K
CANOPY		24	C1	CAN-304-SL-RD-06-E-UL-XX-700-57K
DOWNLIGHT		7	DL8	2LEDTG2C-830F-WWH W_ 2LEDDRVG2-10-120
WALL MOUNTED		13	EB1	WP-LED119-30
COVELINE		7	EF1	CVLWET1.5-4-4K-80CRI-1040


ADDITIONAL FIXTURE INFO

ADDITIONAL FIXTURE INFO

THE EDGE® Series

LED Area/Flood Luminaire

Product Description

Performance Summary

Accessories

Ordering Information

CREE LIGHTING

THE EDGE® LED Area/Flood Luminaire

Product Specifications

CREE LIGHTING

304 Series™

LED Recessed Canopy Luminaire

Product Description

Performance Summary

Accessories

Ordering Information

CREE LIGHTING

304 Series™ LED Recessed Canopy Luminaire

Product Specifications

CREE LIGHTING

Juno — 2" IC 600 AND 1000 LUMENS LED ROUND DOWNLIGHT CONE

2LEDTRIM G2 DC

PRODUCT DESCRIPTION

ENVIRONMENTALLY FRIENDLY, ENERGY EFFICIENT

PRODUCT SPECIFICATIONS

Downlight Cone Finishes

DIMENSIONS

2 5/8" CEILING CUTOUT

2" APERTURE

ELECTRICAL DATA (600L)

ELECTRICAL DATA (1000L)

AcuityBrands. Lighting Commercial & Residential — 1 of 4

2" IC 600 AND 1000 LUMENS LED ROUND DOWNLIGHT CONE

2LEDTRIM G2 DC

ORDERING INFORMATION

DRIVER:

TRIM:

MOUNTING FRAME/DRIVER ASSEMBLY

TRIM/LED ASSEMBLY

2NCMF

2DTCA

2JCTA150

2NCHSG

SERV (7378) • Visit us at www.acuitybrands.com/juno-recessed

Rev. 09/8/20 — 2 of 4

FIN - model: WP-LED1

Endurance Wallpack

WAC LIGHTING

Responsible Lighting®

Fixture Type:

Catalog Number:

Project:

Location:

PRODUCT DESCRIPTION

FEATURES

SPECIFICATIONS

PHOTOMETRY

ORDER NUMBER

ACCESSORIES

SSL solid state luminaires

COVELINE WET 1.5

SPECIFICATIONS

PHYSICAL

PERFORMANCE

ELECTRICAL

Specification Sheet

COVELINE WET 1.5

Ordering Information

PART NUMBER

Accessories

Mounting Options

Control Components

Due to continuous development and improvements, specifications are subject to change without notice. Solid State Luminaires reserves the right to change lab test details or specifications without notice. Product use certifies agreement to Solid State Luminaires terms and conditions.

US Commercial Lighting Manufacturer Since 1982

Specification Sheet

© Solid State Luminaires 3609 swenson ave • st.charles il • 60174 | fclighting.com | 800.900.1730 AG-JF-013123

2

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PROJECT NAME:

WAWA

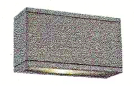
HEBRON, KY

DRAWING NUMBER:

RL-9321-S1-R1

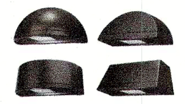
Wawa

WALL MOUNTED	QTY	LABEL	DESCRIPTION
	4	EW1	WS-W2509-3000K-BZ

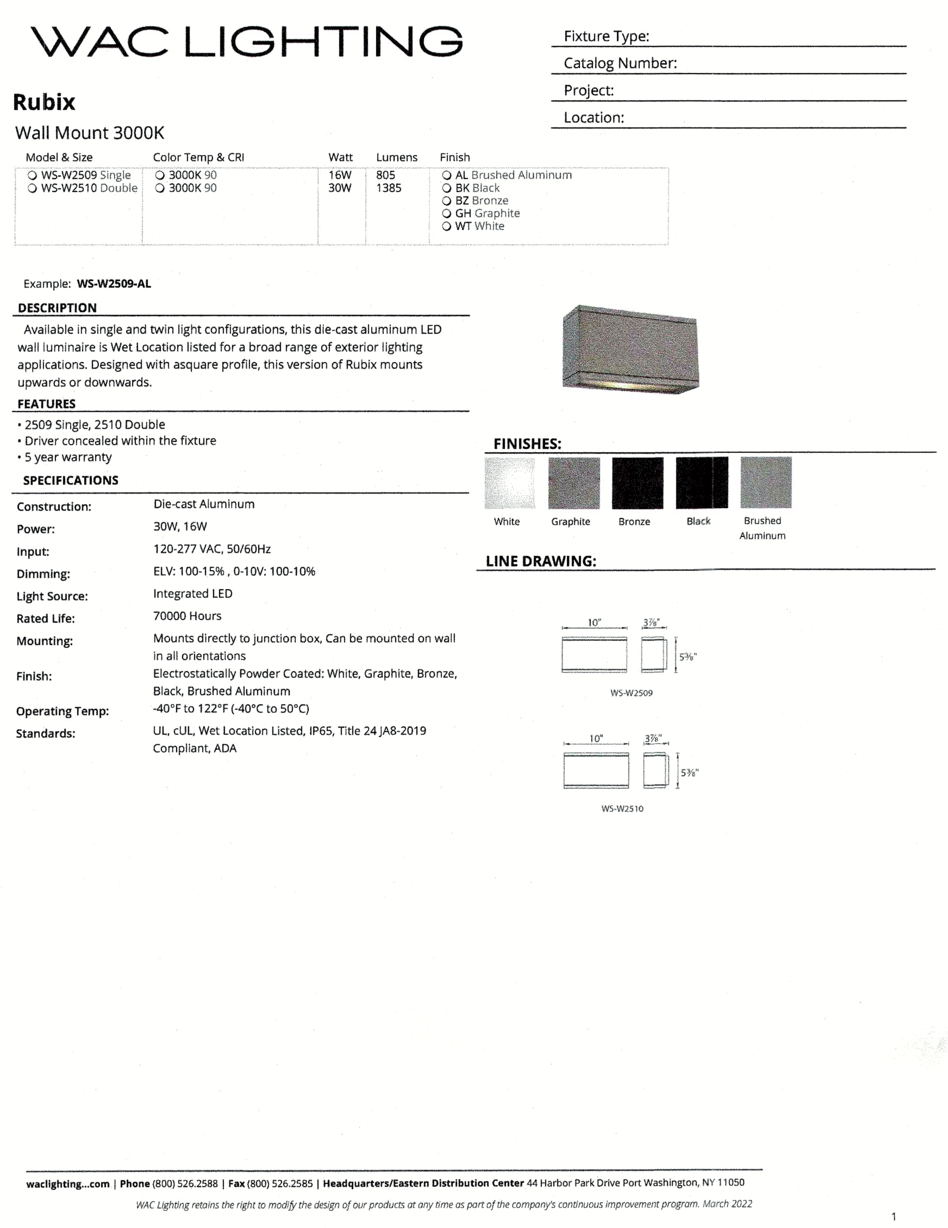


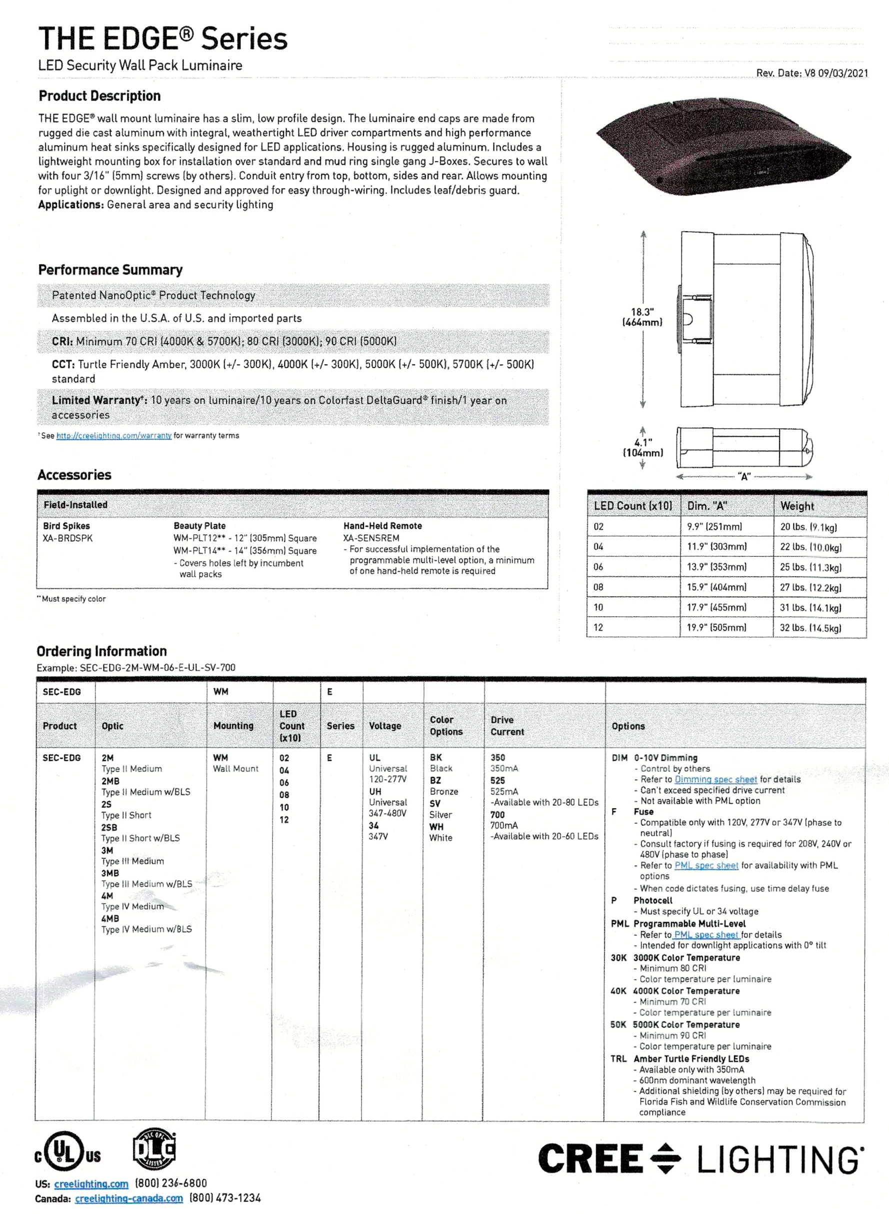
WALL MOUNTED	QTY	LABEL	DESCRIPTION
	2	W3	SEC-EDG-3MB-WM-02-E-UL-XX-350-57K

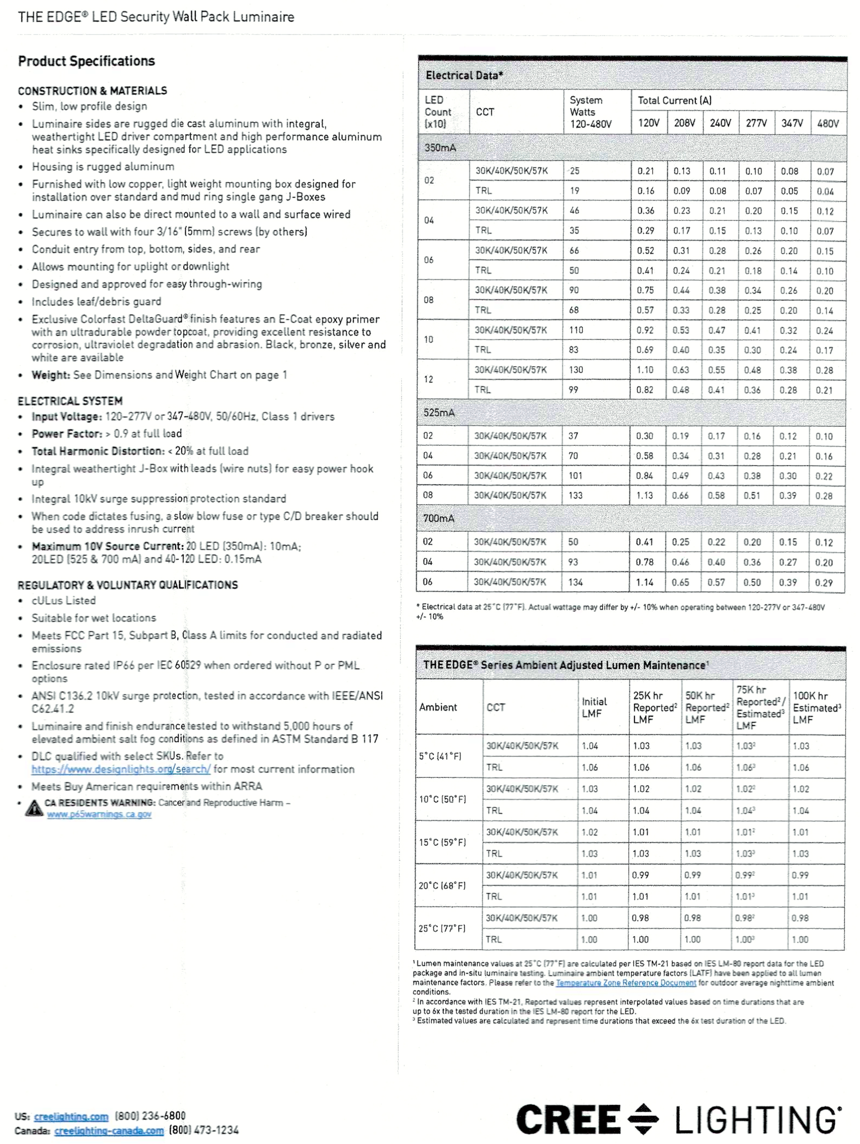
WALL MOUNTED	QTY	LABEL	DESCRIPTION
	9	Z1	ISC-AF-450-LED-E1-SL4-WH

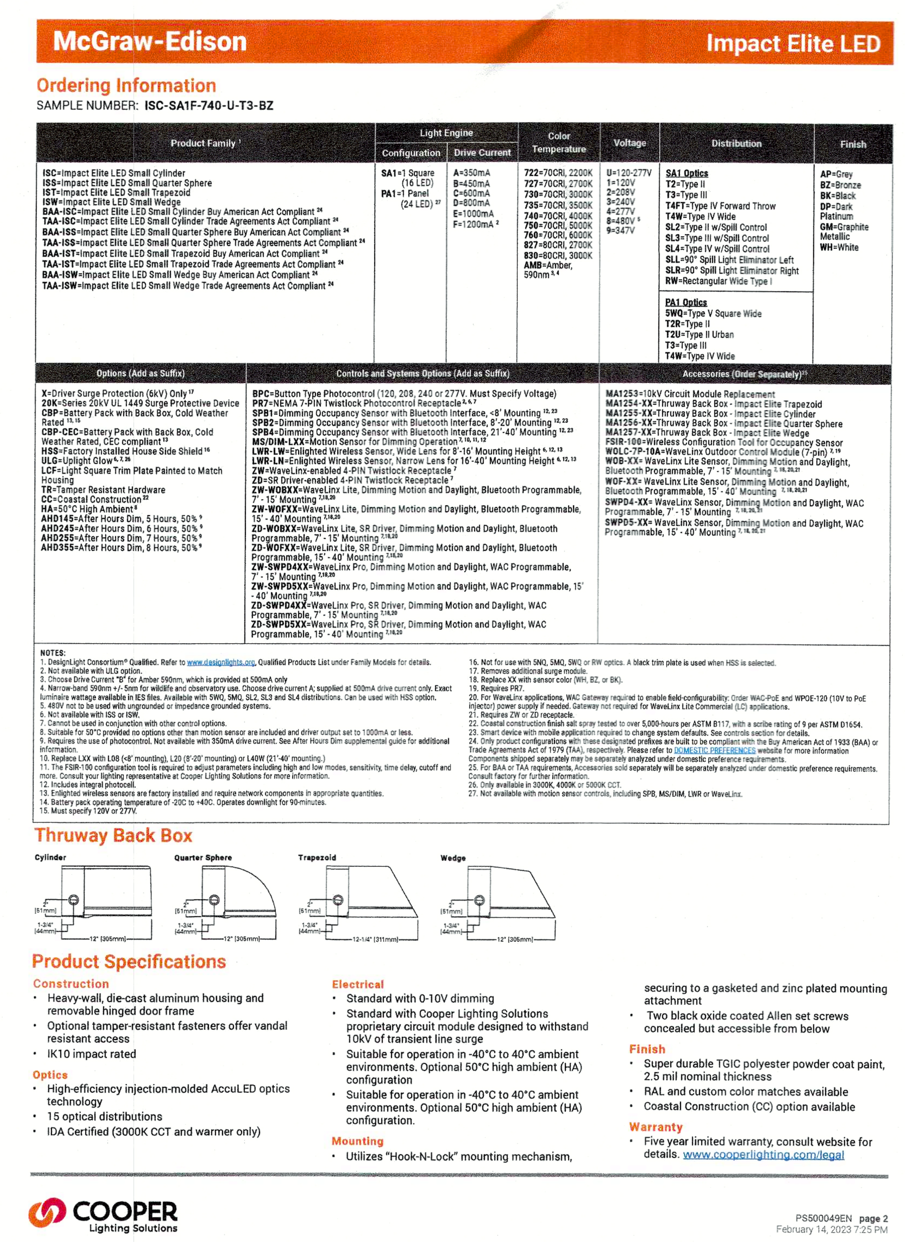


ADDITIONAL FIXTURE INFO









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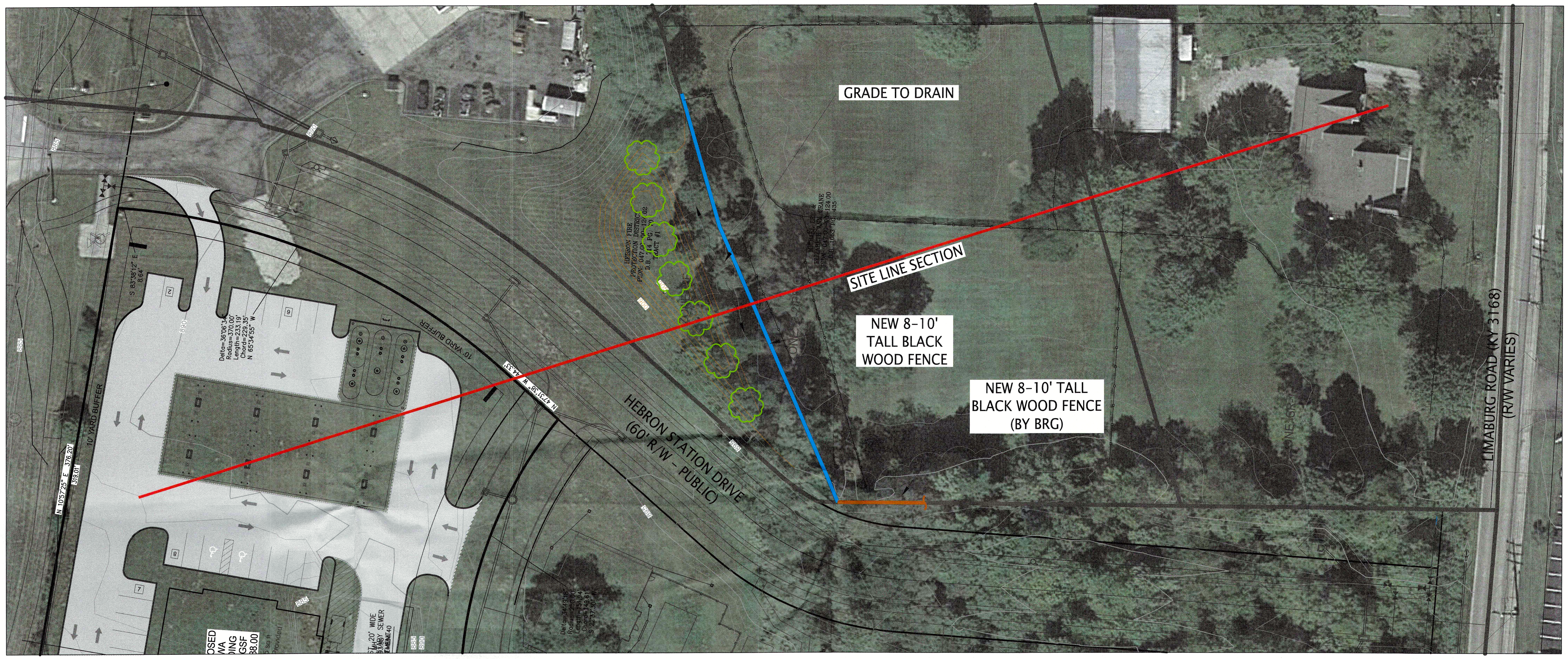
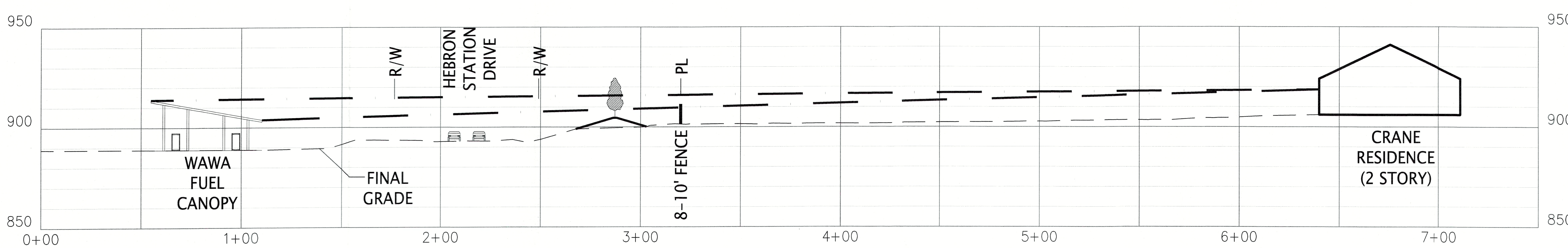
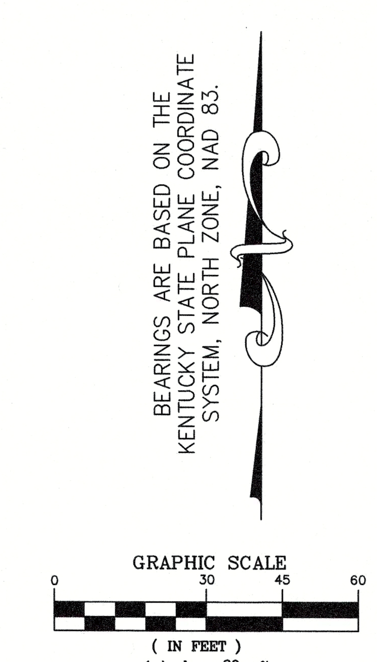
PROJECT NAME:
WAWA
HEBRON, KY
DRAWING NUMBER:
RL-9321-S1-R1

Wawa







REVISIONS

DATE	#	ITEM

CARDINAL
ENGINEERING
LAND SURVEYING
ONE MOOCK ROAD
WILDER, KENTUCKY 41071
PHONE: (859) 581-9600
FAX: (859) 581-9636
WEBSITE: http://www.cardinalengineering.net

PROJECT:
CRANE PROPERTY SITE LINE EXHIBIT
WAWA AND LONGNECKS
NORTH BEND ROAD & HEBRON STATION DRIVE

CLIENT:
ANCHOR PROPERTIES, INC.
128 E. 2ND ST., COVINGTON, KY 41011
&
LONGNECKS SPORTS GRILL, LLC
544 CLAY RIDGE RD., ALEXANDRIA, KY 41001

DRAWN BY: BTL
CHECKED BY: DES
PROJECT MANAGER: DES
SEAL

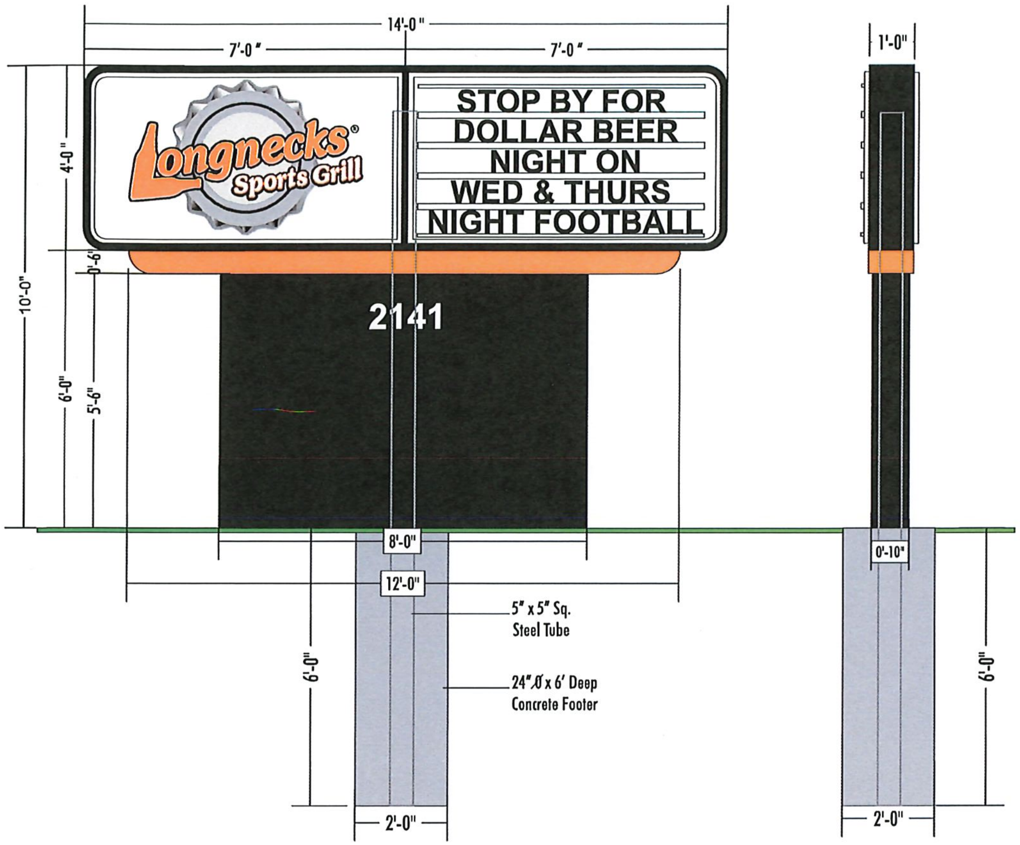
PROJECT NO.	21-166-03
SCALE	1" = 30'
DATE	04/01/2024

CRANE SITE LINE EXHIBIT

SHEET C-1

Double Face Monument Sign

Longnecks Sports Grill - Richwood, Ky



Furnish and install one (1) internally illuminated monument sign

Cabinet/reveal/pole cover-To be aluminum construction

- Sign cabinet - painted black
- Reveal - painted orange to match faces
- Pole cover painted black with 6" white vinyl address numerals applied

Faces- To be panned Lexan

- Logo faces to be painted white with 'Longnecks' logo (multiple colors)
- Changeable copy faces to be white with five lines of track for 6" copy

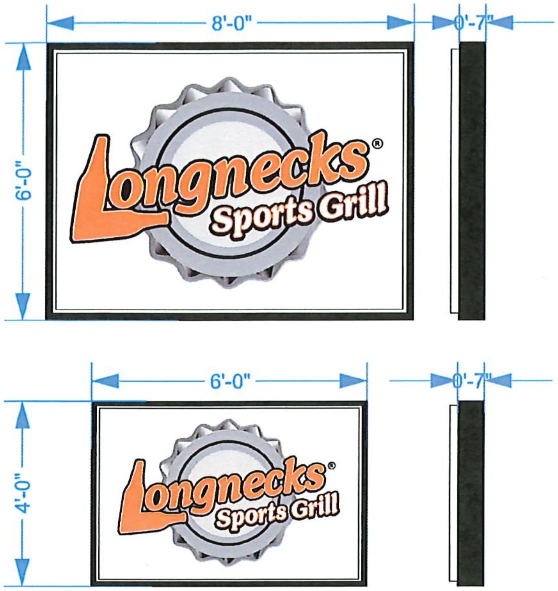
Illumination - HO Fluorescent Lamps

UL Listed and Labeled

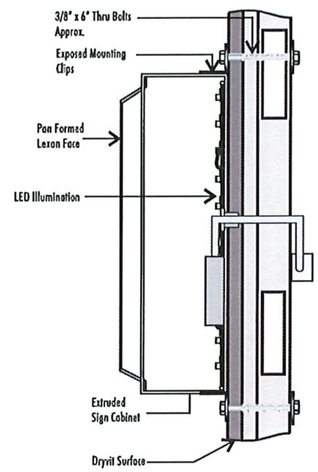
PMS 021 ORANGE

Wall Signs

Longnecks Sports Grill - Richwood, Ky



U.L. Listed Wall Sign Mounted to Dryvit



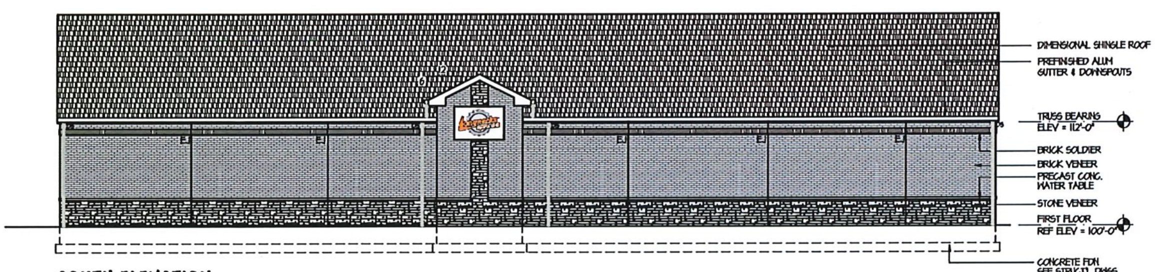
Furnish and install two (2) internally illuminated wall signs

-Sign cabinet - extruded aluminum painted black

-Faces- To be pan formed Lexan with printed logo

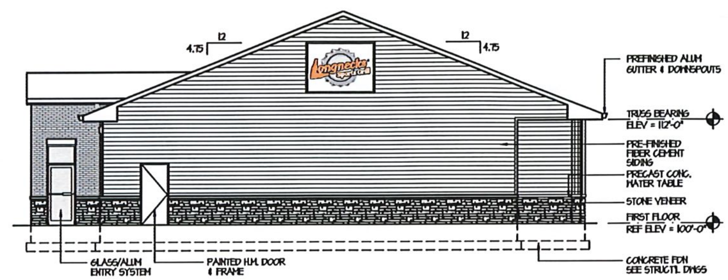
Illumination - white LEDs

UL Listed and Labeled



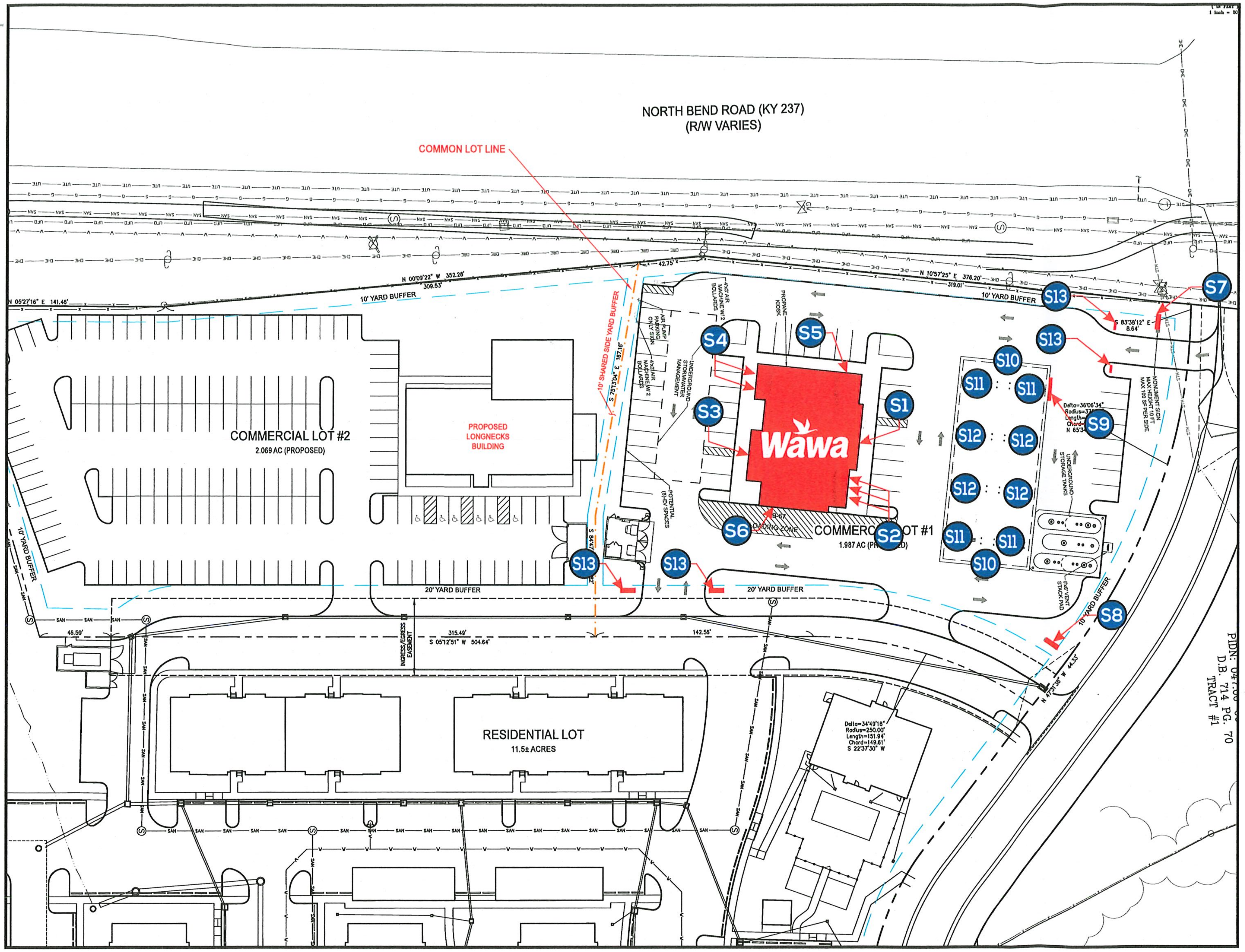
SOUTH ELEVATION

SCALE: 1/8" = 1'-0"



EAST ELEVATION

SCALE: 1/8" = 1'-0"



SIGN ID	DESCRIPTION	QTY
S1	WAWA CHANNEL LETTERS WITH GOOSE	1
S2	WALL PANELS (SETS OF 3)	1
S3	WAWA CHANNEL LETTERS WITH GOOSE	1
S4	WALL PANELS (SETS OF 2)	1
S5	WAWA CHANNEL LETTERS WITH GOOSE	1
S6	WAWA CHANNEL LETTERS WITH GOOSE	1
S7	DOUBLE FACED PYLON SIGN	1
S8	DOUBLE FACED MONUMENT SIGN	1
S9	GAS CANOPY SIGN	1
S10	CANOPY SPANNERS	2
S11	PUMP INDICATORS	4
S12	PUMP INDICATORS	4
S13	DIRECTIONAL SIGNS	4

RECEIVED
FEB 02 2024
BOONE COUNTY
PLANNING COMMISSION

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WaWa
3120 North Bend Road,
Hebron, KY

STORE #
C-05893

Issue Date: 11/17/2023
Drawn By: Mike C.

REV	DATE	DESCRIPTION
2	11/22/23	UPDATE AS PER REQUEST
3	11/27/23	UPDATE AS PER REQUEST
4	11/28/23	UPDATE AS PER REQUEST

Rev: 4
Date: 11/28/2023
Doc #: AD-WAW_110263_Hebron_REV4
Blair Project #: 110263
Blair Sales Order #: TBD

Blair Image Elements
5107 Kissell Avenue
Altoona, PA 16601
P: (814) 949.8287
blairimage.com

Wall Signs	ALLOWED total sf	CURRENTLY INSTALLED	PROPOSED	CODE	VARIANCE (Y/N)
S1 S3 S5 S6	182 SF 91 SF 70 SF 70 SF		97.4 SF 42.5 SF 42.5 SF 42.5 SF	• Primary elevation: 2 SF per lineal foot of building width • Other elevations: 1 SF per lineal foot of building width • Signs on awnings are considered in the total SF of building mounted signs permitted for that elevation • SF allotted to any one elevation may be divided into 3 separate sign areas	N N N N
TOTAL					

Free Standing SIgns	ALLOWED total sf	CURRENTLY INSTALLED	PROPOSED	CODE	VARIANCE (Y/N)
S7 S8	113 SF 113 SF		58.5 SF 61.75 SF	• Max number of monument signs: 1 • 1 sign for each parcel regardless of the number of business establishments or road frontages • Max height: 10 feet • Max SF: 1/2 SF per lineal foot of road frontage, NTE 100 SF (226' 6-3/4" of road frontage) • Street number/address number shall be displayed on the sign (does not count as part of the permitted sign area)	Y
TOTAL					

COMMENTS

For Directional Signs:

- 1 directional sign permitted near each entrance
  - o Each sign: Max area of 6 SF and max height 5 FT
- Signs directing/guiding traffic, e.g. drive-thru lanes:
  - o Each sign: Max area of 10 SF and max height of 5 FT

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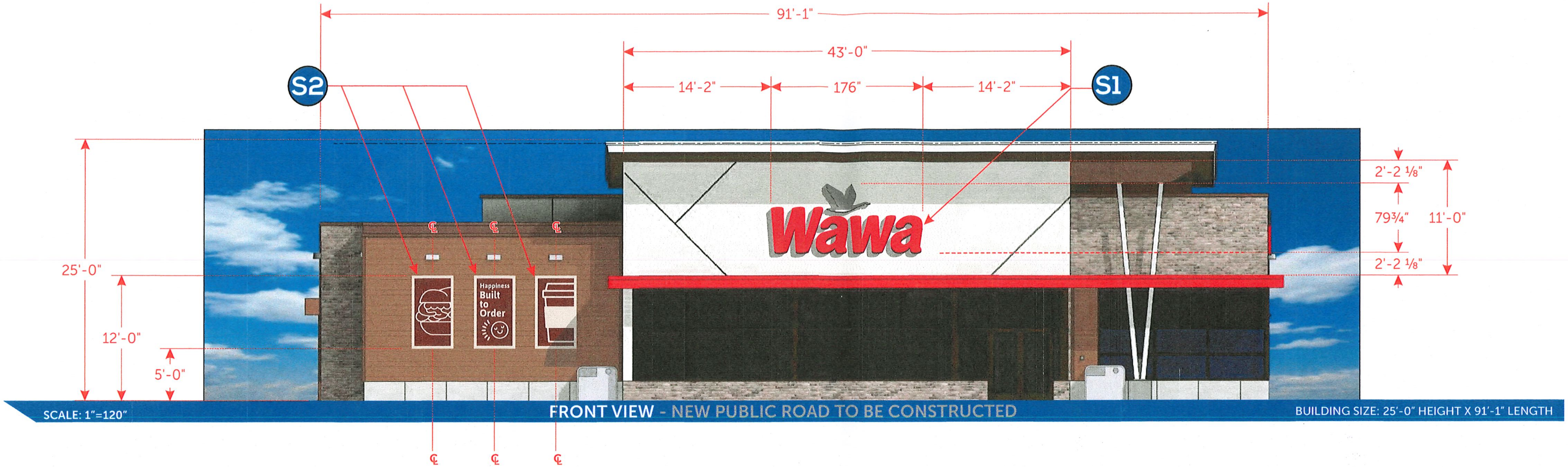

NOTE: WOODGRAIN PANEL
TO BE CENTERED
WITH LIGHT FIXTURE

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Wawa

WaWa
3120 North Bend Road,
Hebron, KY

STORE #
C-05893

Issue Date: 11/17/2023
Drawn By: Mike C.

REV	DATE	DESCRIPTION
2	11/22/23	UPDATE AS PER REQUEST
3	11/27/23	UPDATE AS PER REQUEST
4	11/28/23	UPDATE AS PER REQUEST

Rev: 4
Date: 11/28/2023
Doc #: AD-WAW_110263_Hebron_REV4
Blair Project #: 110263
Blair Sales Order #: TBD

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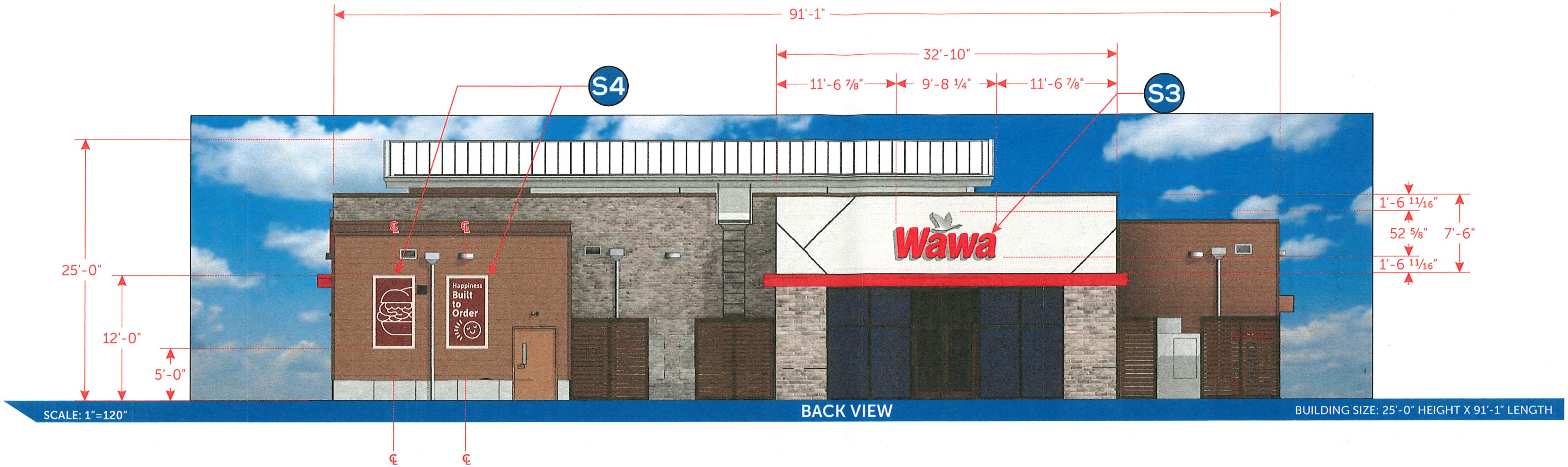

NOTE: WOODGRAIN PANEL
TO BE CENTERED
WITH LIGHT FIXTURE

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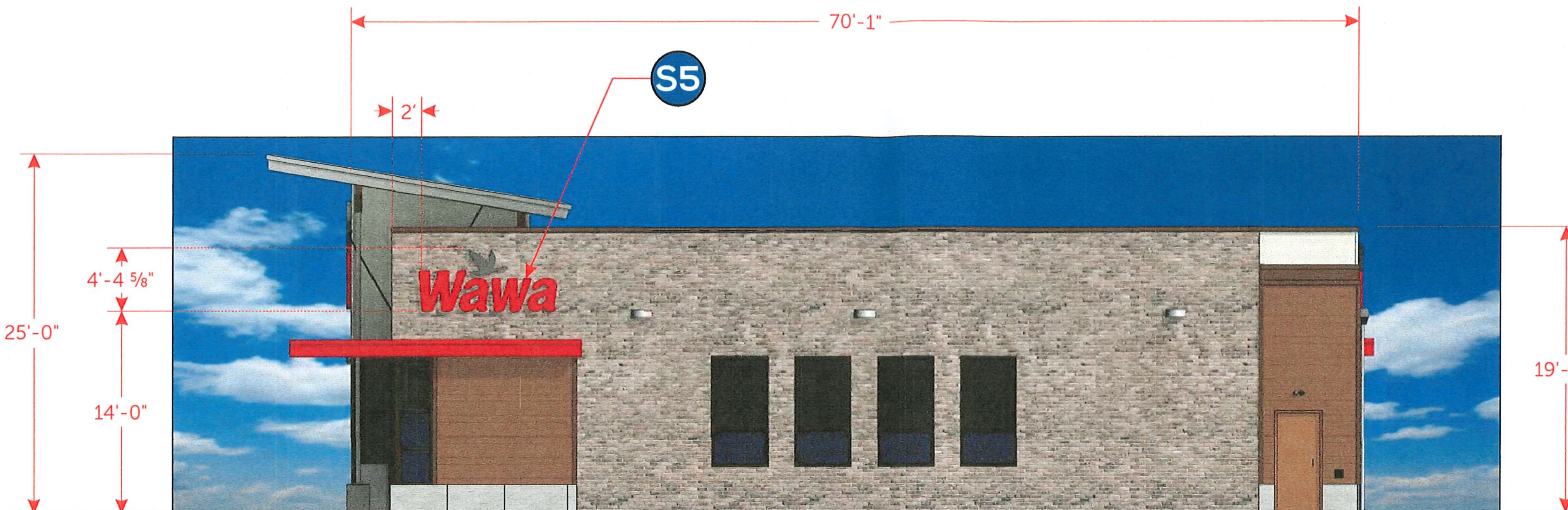

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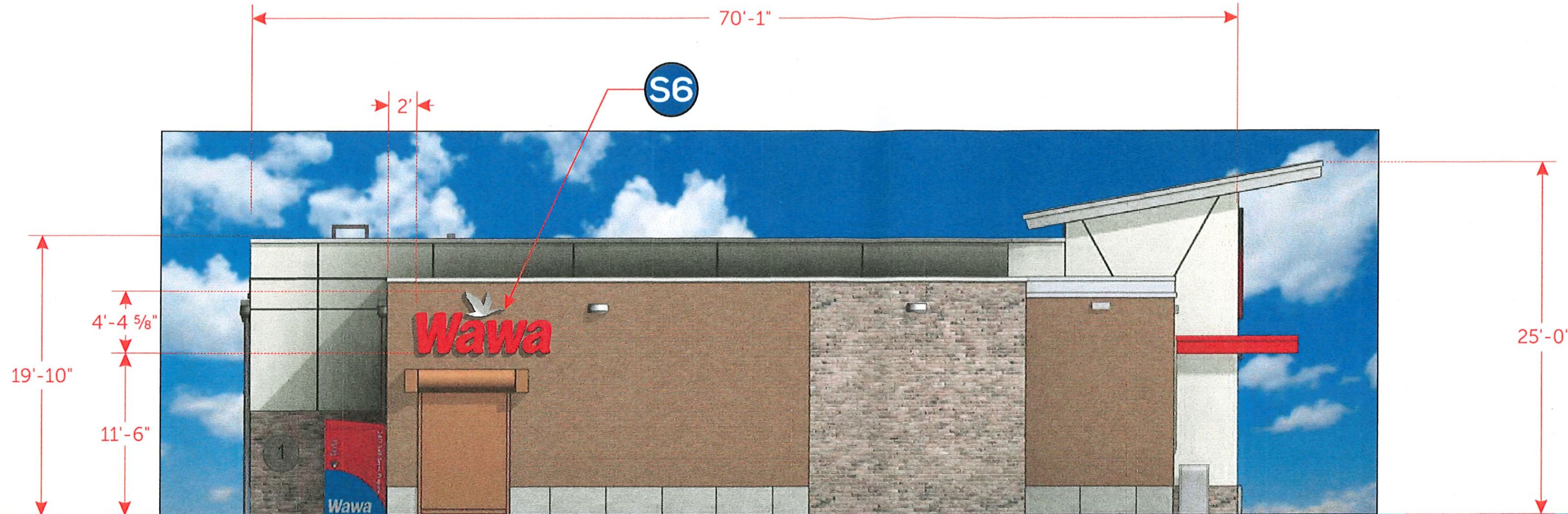

SCALE: 1"=120"

SIDE VIEW

BUILDING SIZE: 25'-0" HEIGHT X 70'-1" LENGTH

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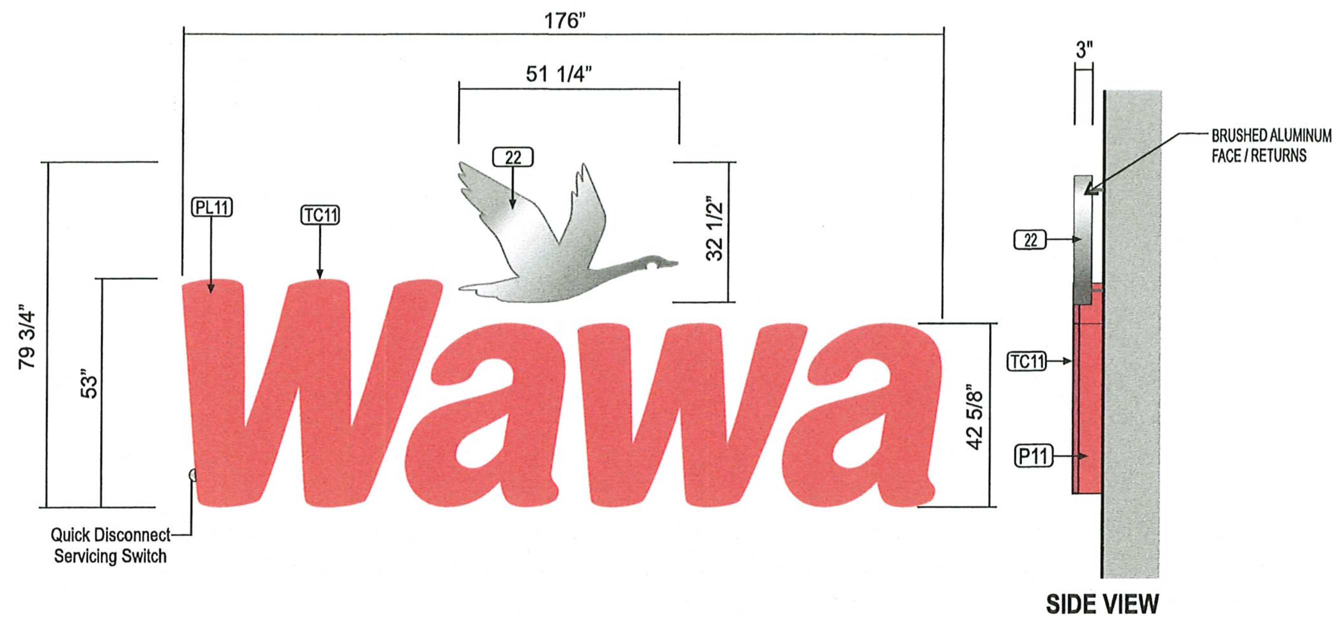
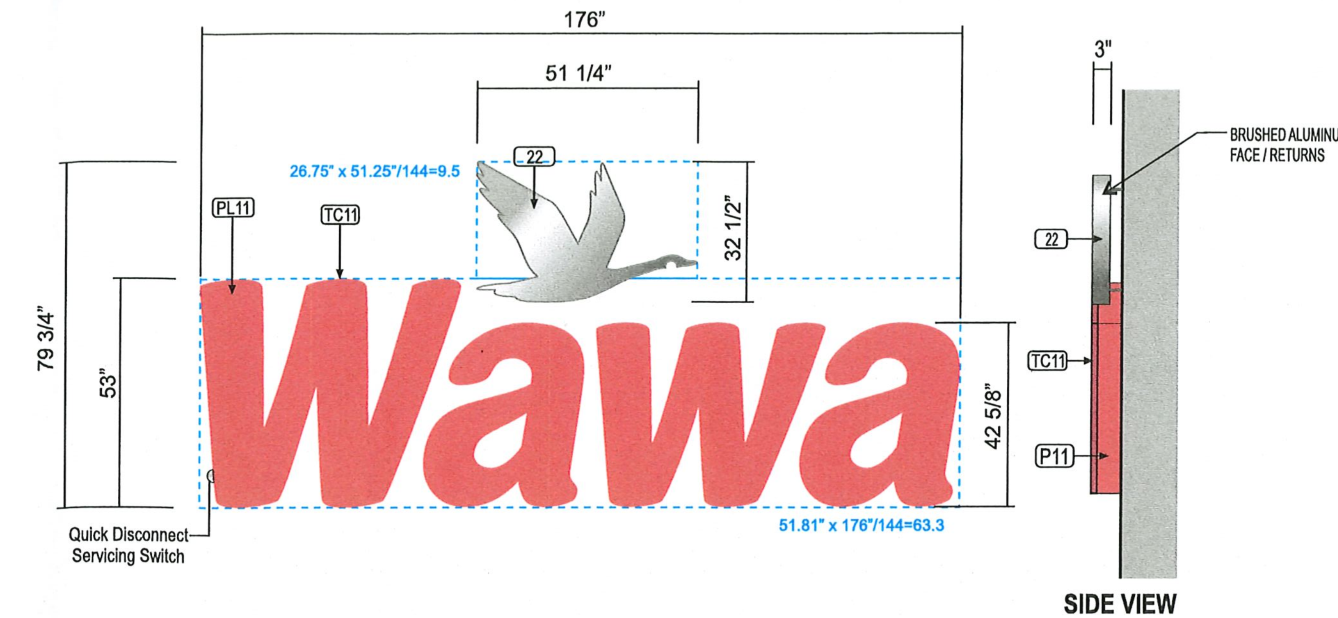


X **53" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO**

QTY: 1 SCALE: NTS
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of ONE(1) GEOMETRIC SHAPE = **97.4 SQ FT**



X **53" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO**

QTY: 1 SCALE: NTS
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of TWO(2) GEOMETRIC SHAPES = **72.8 SQ FT**

WALL MATERIAL:
to vary per site

INSTALL:
Logo: Thru bolted w/ 2" stand off from wall
Letters Thru bolted flush; all w/ min 3/8" dia all thread into approved blocking; spacers provided for logo painted to match wall

QUANTITY:
(1) one set required

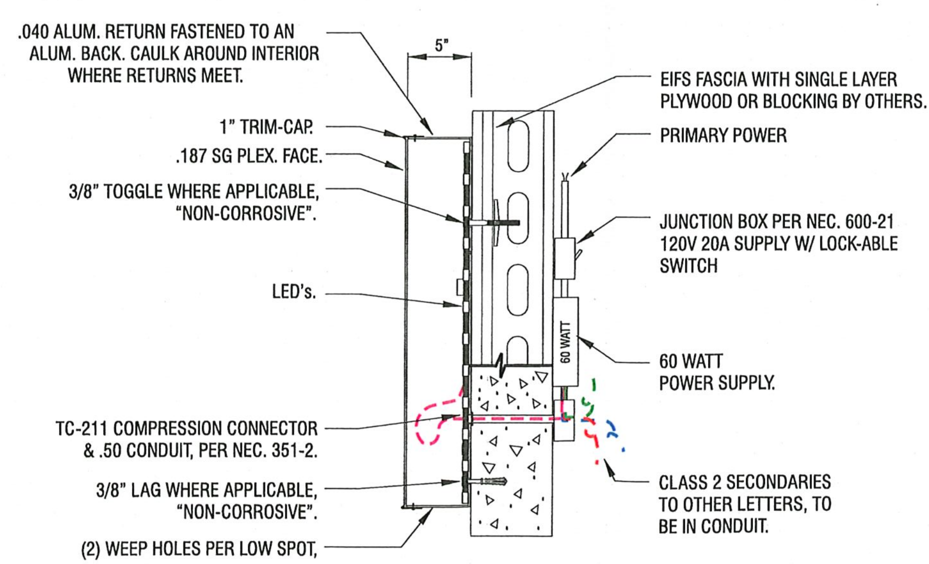
COLOR PALETTE

LOGO: 22
#12 Brushed Alum. Metal finish

LETTER RETURNS: P11
Pantone 186 Red

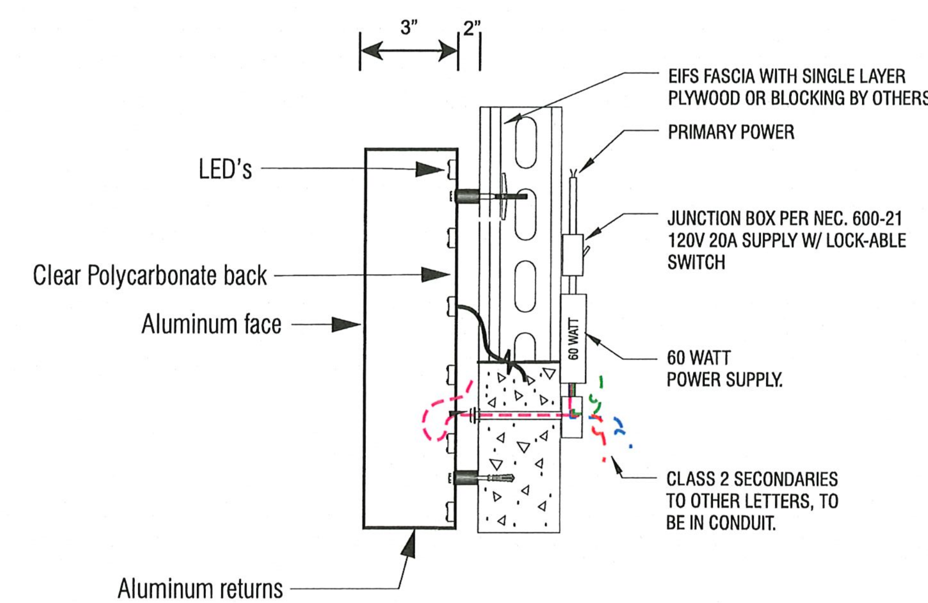
TRIMCAP: TC11
Jewelite Red

FACES: PL11
2793 Red acrylic



SECTION @ FACE-LIT CHANNEL LETTER
SCALE: NTS

Note: The power supply location shown in this detail in no way reflects the actual location when installed. In the field GC / Installer to determine appropriate mounting locations at site.



SECTION @ HALO-LIT GOOSE LOGO
SCALE: NTS

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Blair Project #: 110263
Blair Sales Order #: TBD

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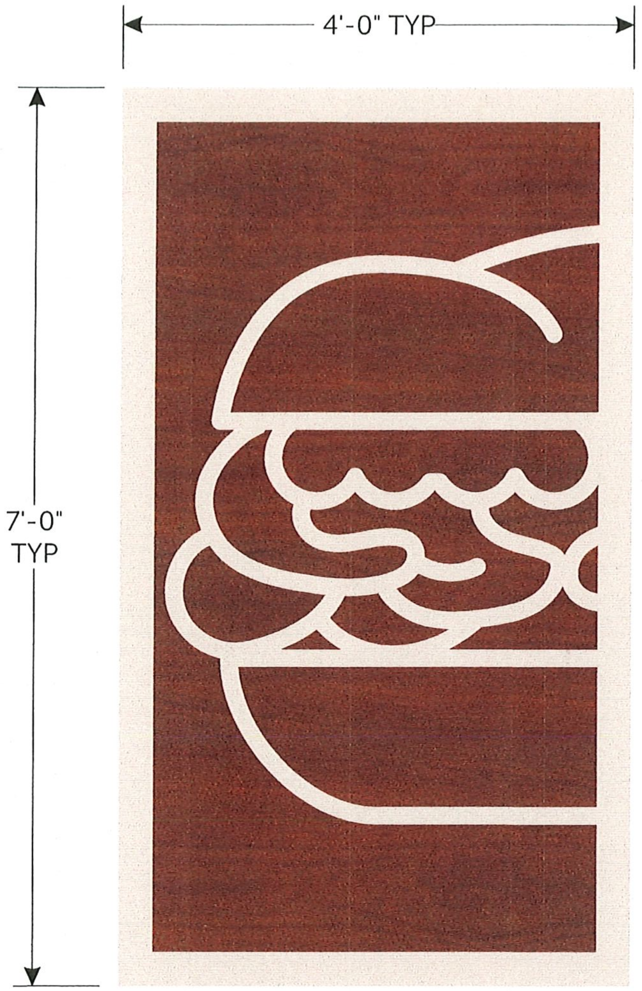
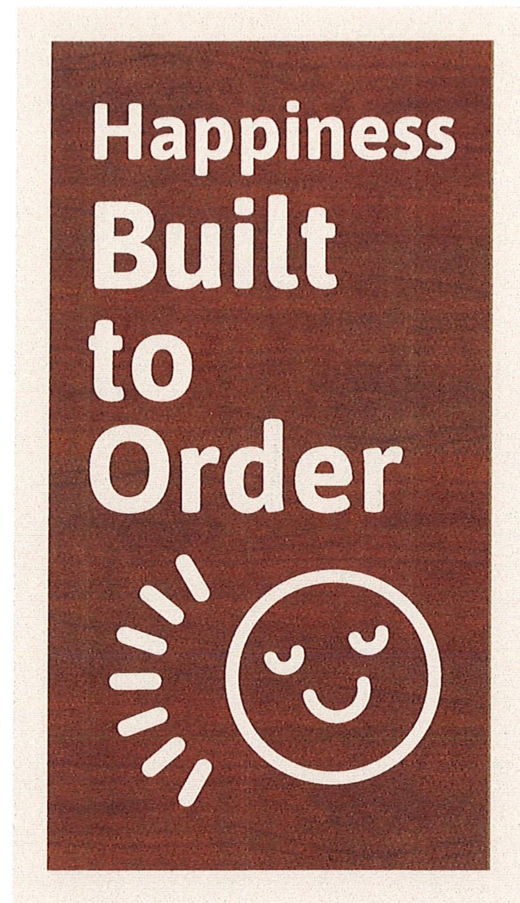
4'-0" TYP

7'-0" TYP



FRONT VIEW

SCALE: 1"=18" 28 SQ.FT.



FRONT VIEW

SCALE: 1"=18" 28 SQ.FT.

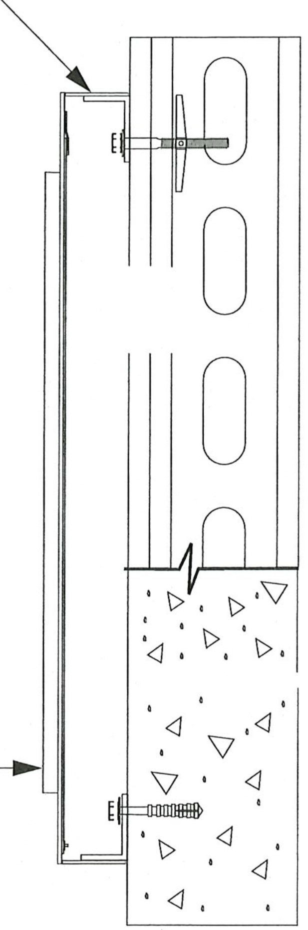
ISOMETRIC VIEW

FRONT VIEW

SCALE: 1"=18" 28 SQ.FT.

Boarder to be digitally printed on same level as wood grain. Copy to be acrylic push thru.

ACM panel



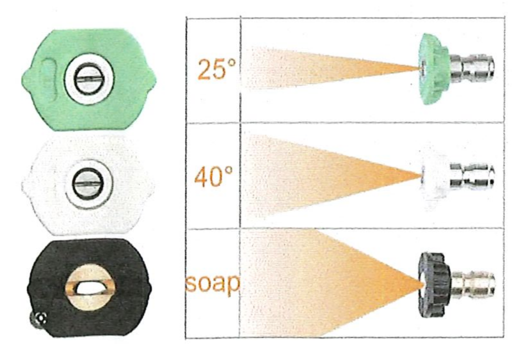
Clear Acrylic Push Thru For Copy Area Only 2nd surface vinyl or digital print

SECTION @ Non Lit ACM Push Thru

SCALE: NTS

CLEANING CRITERIA

Pressure Wash Acceptable.
If using 25° tip and over.
Use ONLY mild detergent soap and water.



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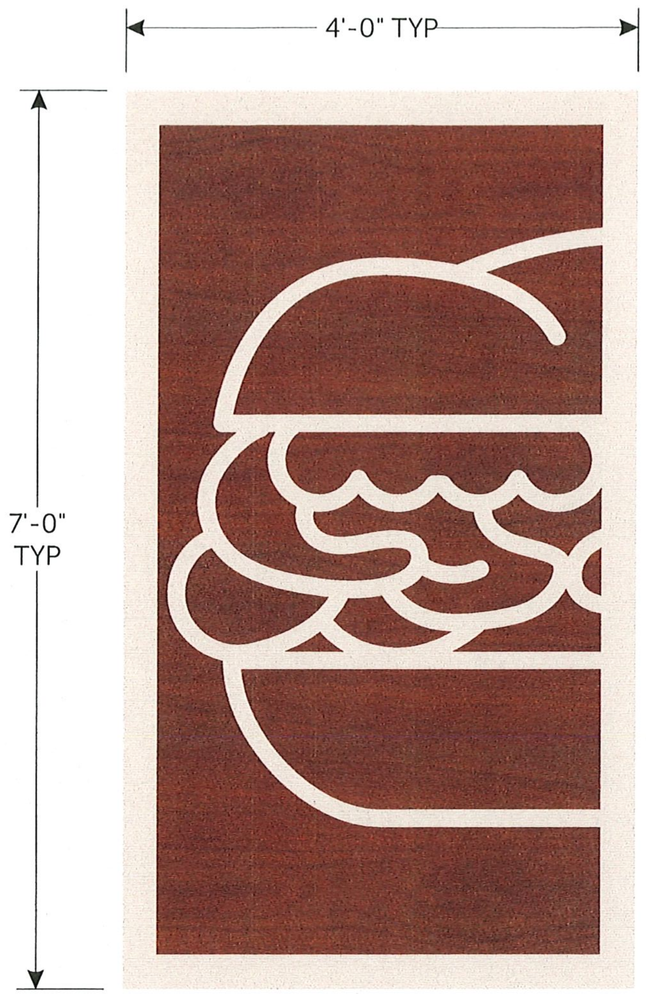
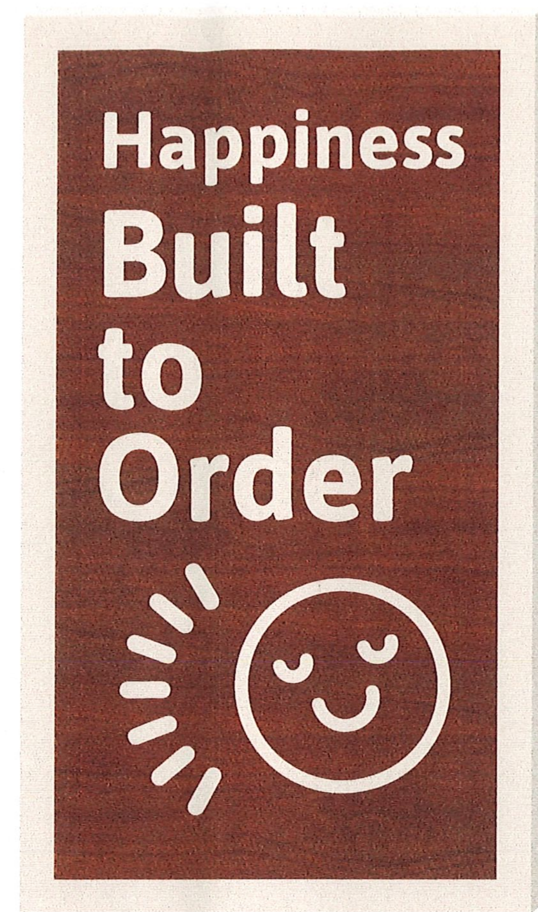


FRONT VIEW

SCALE: 1"=18" 28 SQ.FT.

ISOMETRIC VIEW



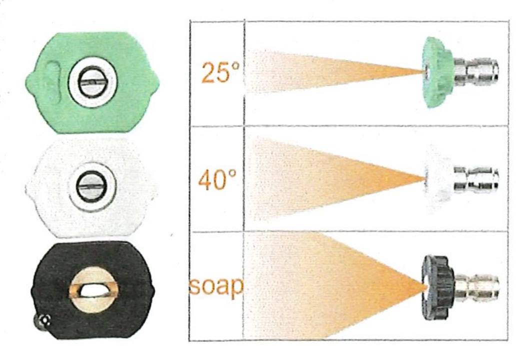
Boarder to be digitally printed on same level as wood grain. Copy to be acrylic push thru.

FRONT VIEW

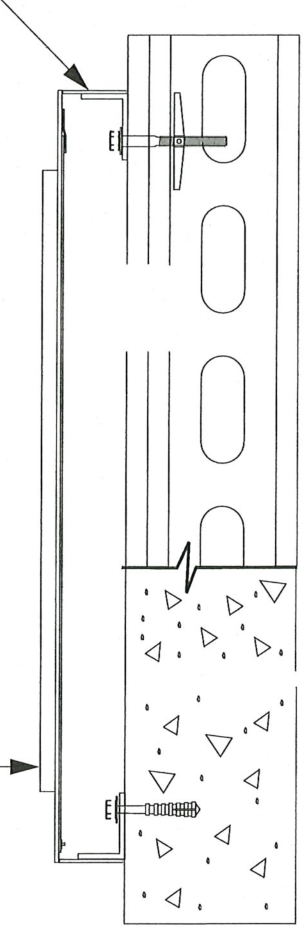
SCALE: 1"=18" 28 SQ.FT.

CLEANING CRITERIA

Pressure Wash Acceptable.
If using 25° tip and over.
Use ONLY mild detergent soap and water.



ACM panel



Clear Acrylic Push Thru For Copy Area Only
2nd surface vinyl or digital print

SECTION @ Non Lit ACM Push Thru

SCALE: NTS

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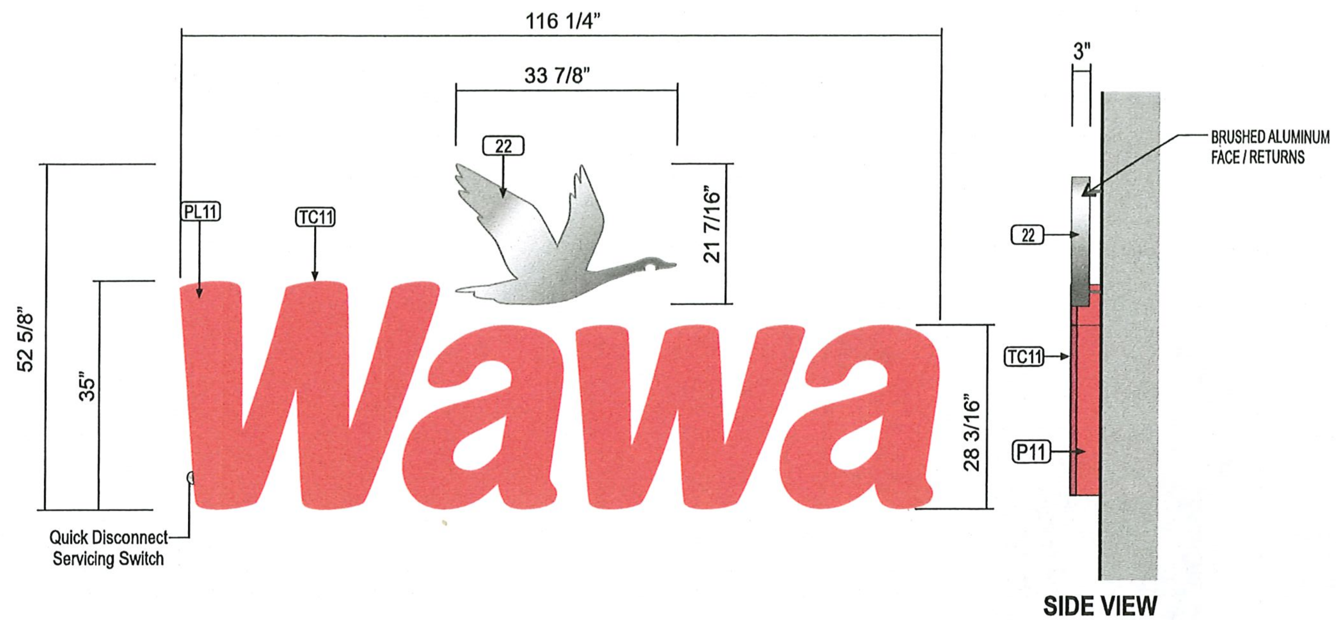
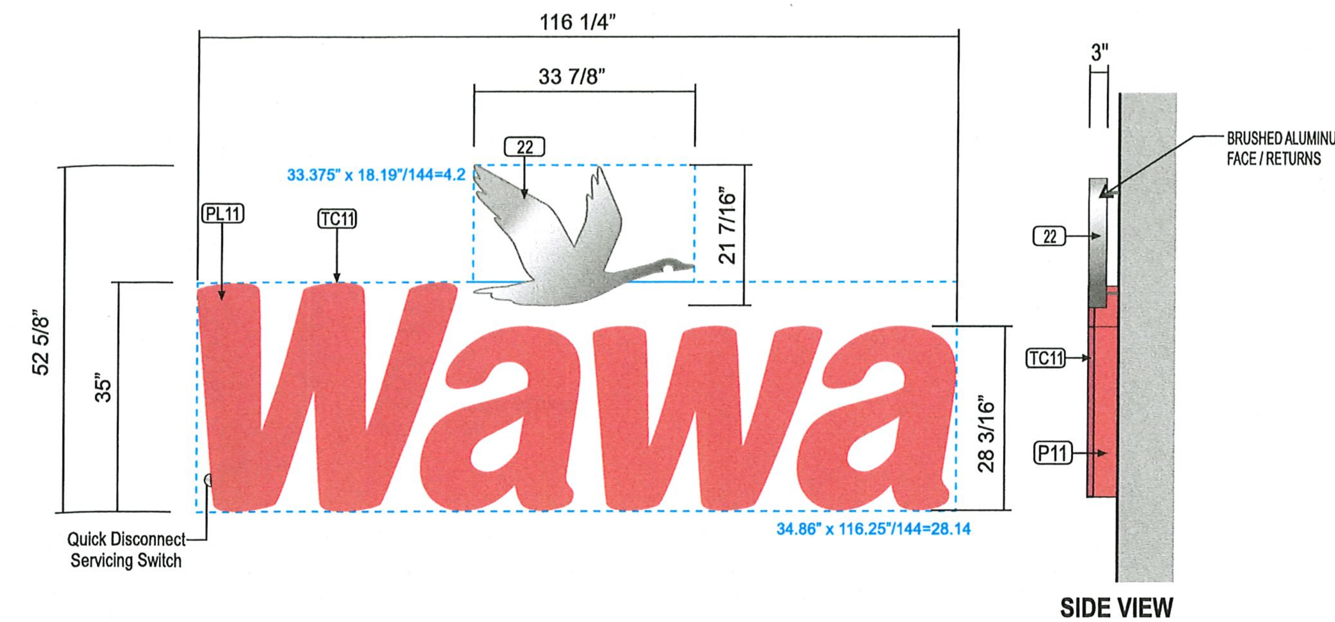
blair IMAGE ELEMENTS



X 35" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO

QTY: 1 SCALE: 3/8"=1'-0"
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of ONE(1) GEOMETRIC SHAPE = **42.5 SQ FT**



X 35" ILLUMINATED CHANNEL LETTERS w/ HALO LIT GOOSE LOGO

QTY: 1 SCALE: 3/8"=1'-0"
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
SQ.FT. of TWO(2) GEOMETRIC SHAPES = **32.34 SQ FT**

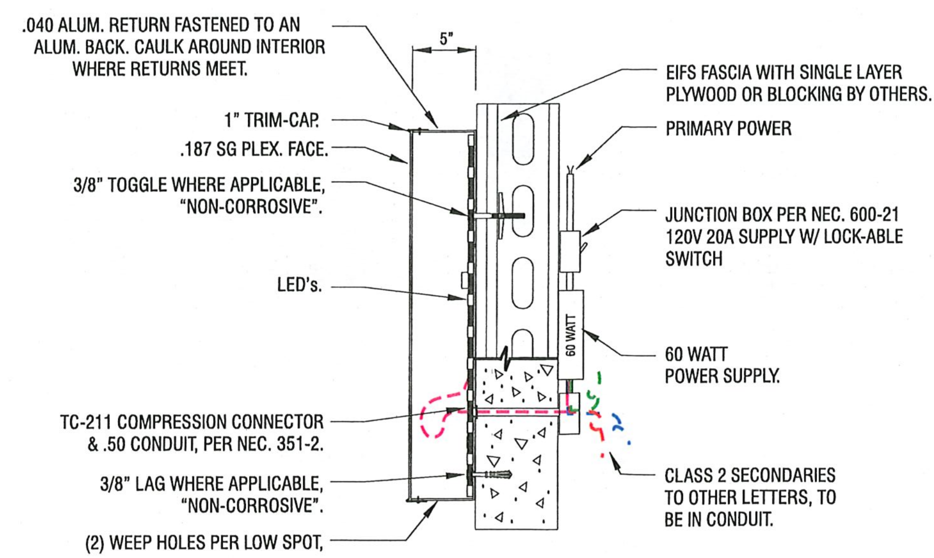
WALL MATERIAL:
to vary per site

INSTALL:
Logo: Thru bolted w/ 2" stand off from wall
Letters Thru bolted flush; all w/ min 3/8" dia all thread
into approved blocking; spacers provided for logo painted to match wall

QUANTITY:
(1) one set required

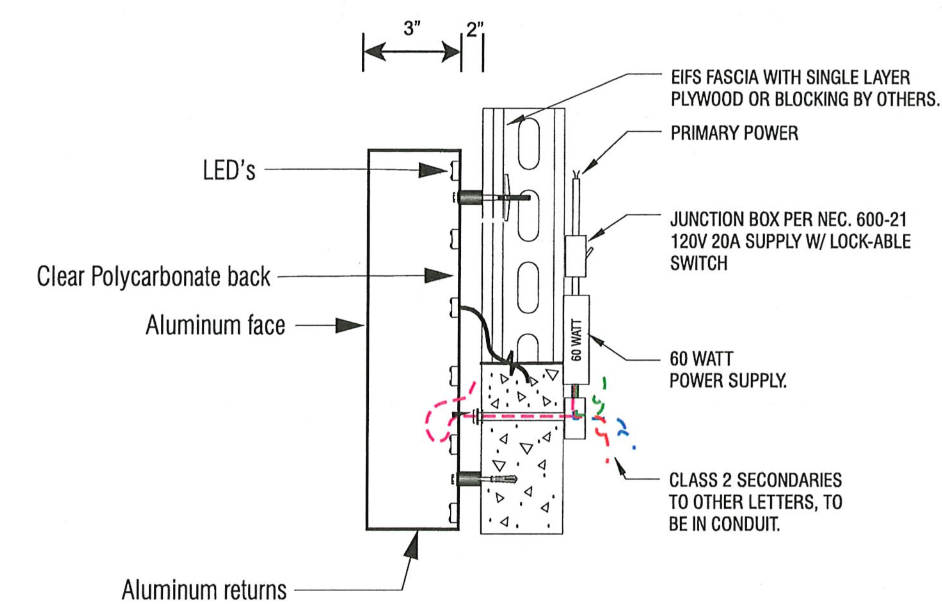
COLOR PALETTE

LOGO: 22 #12 Brushed Alum. Metal finish	**LETTER RETURNS: P11** Pantone 186 Red
TRIMCAP: TC11 Jewelite Red	**FACES: PL11** 2793 Red acrylic



SECTION @ FACE-LIT CHANNEL LETTER
SCALE: NTS

Note: The power supply location shown in this detail in no way reflects the actual location when installed. In the field GC / Installer to determine appropriate mounting locations at site.



SECTION @ HALO-LIT GOOSE LOGO
SCALE: NTS

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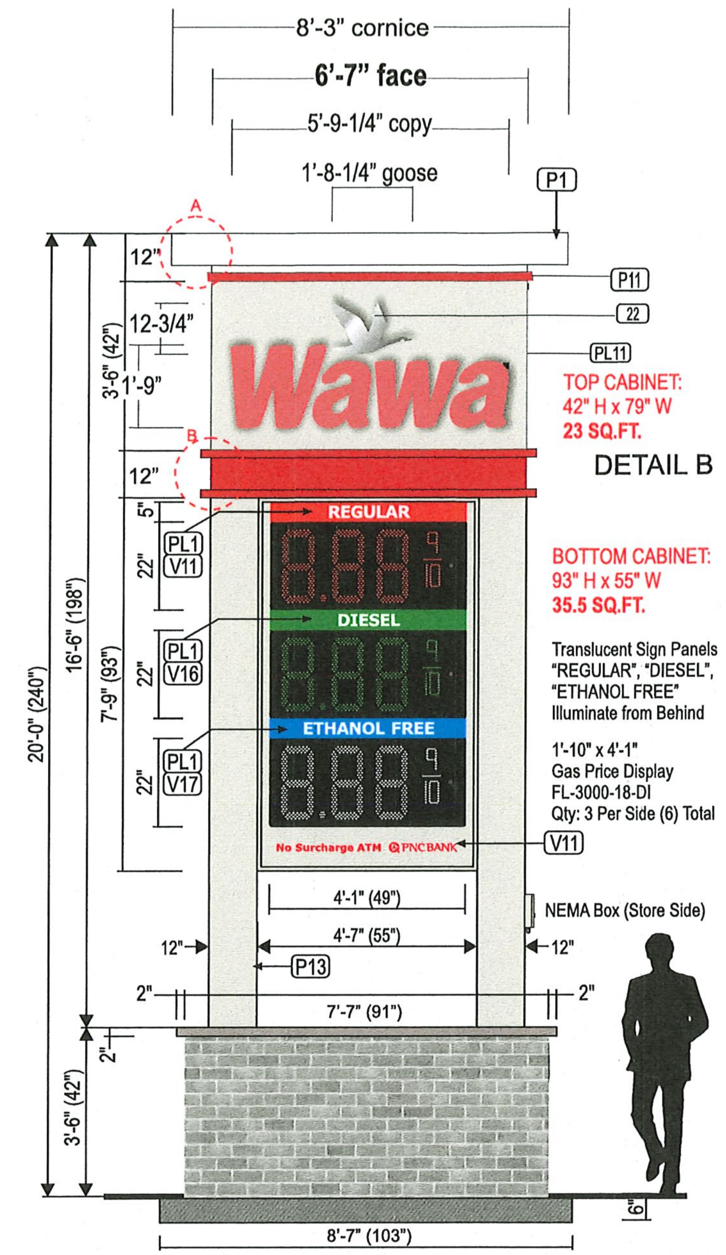
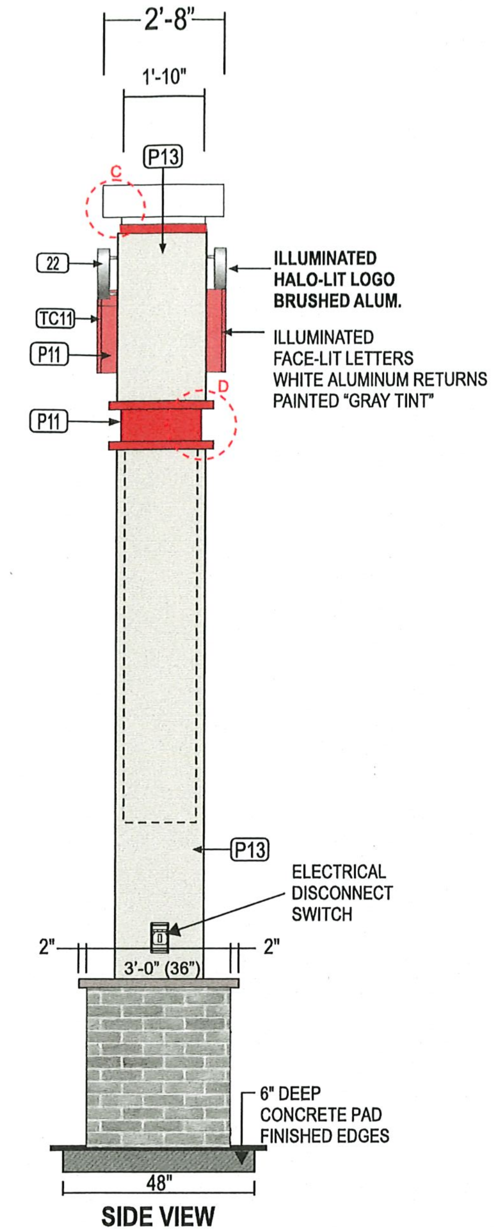


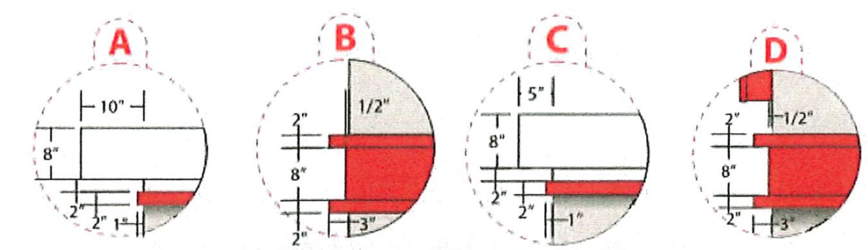


SIDE VIEW

18" / 3 PRODUCT
P-50 D/F ILLUMINATED PYLON SIGN (58.5 SQ. FT.)
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY SCALE: 1/4"=1'-0"

COLOR REFERENCE

Code	Description
P11	Paint to Match PMS 186 C
TC11	Jewelite 'Red' Trim Cap
PL11	#2793 Red Acrylic
V11	3M 3630-83 "Regal Red" *Translucent*
V16	3M 3630-153 "Vivid Green" *Translucent*
V17	3M 3630-57 "Olympic Blue" *Translucent*
P13	RAL #1013 OYSTER WHITE
P1	Painted White Smooth Satin
20	Limestone Cap By Others
21	Stone/Masonry Base By Others
22	Brushed Aluminum Metal Finish w/ Protective Clear Coat



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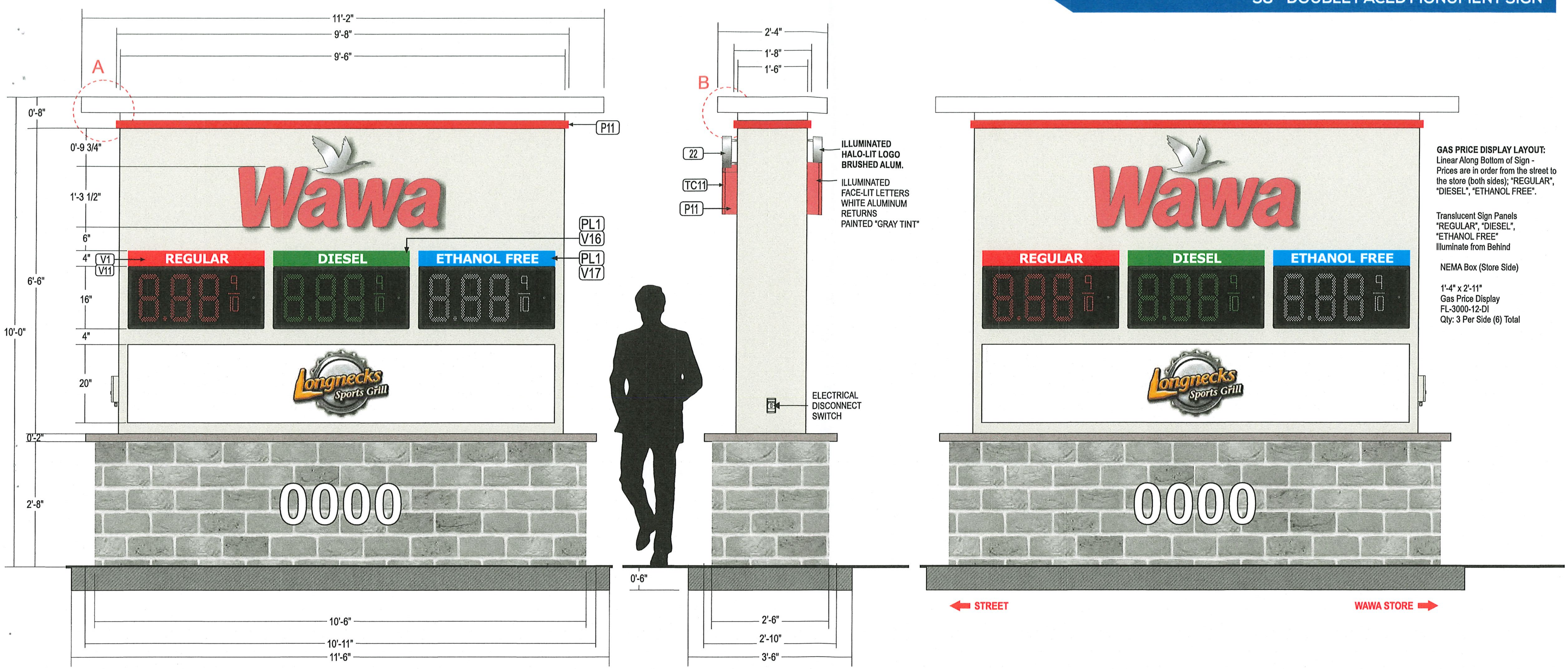
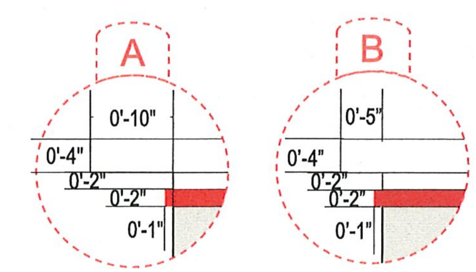


WAWA STORE STREET

30" & 12"/ 3 Product
CUSTOM M-50 D/F ILLUMINATED MONUMENT SIGN (61.75 SQ. FT.)

STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

SCALE: 1/2"=1'-0"



COLOR REFERENCE

Code	Description
P11	Paint to Match PMS 186 C
V1	3M 7725-10 "White" *Opaque*
TC11	Jewelite 'Red' Trim Cap
PL11	#2793 Red Acrylic
V11	3M 3630-83 "Regal Red" *Translucent*
V16	3M 3630-153 "Vivid Green" *Translucent*
P13	RAL #1013 OYSTER WHITE
P1	Painted White Smooth Satin
20	Limestone Cap By Others
21	Stone/Masonry Base By Others
22	Brushed Aluminum Metal Finish w/ Protective Clear Coat

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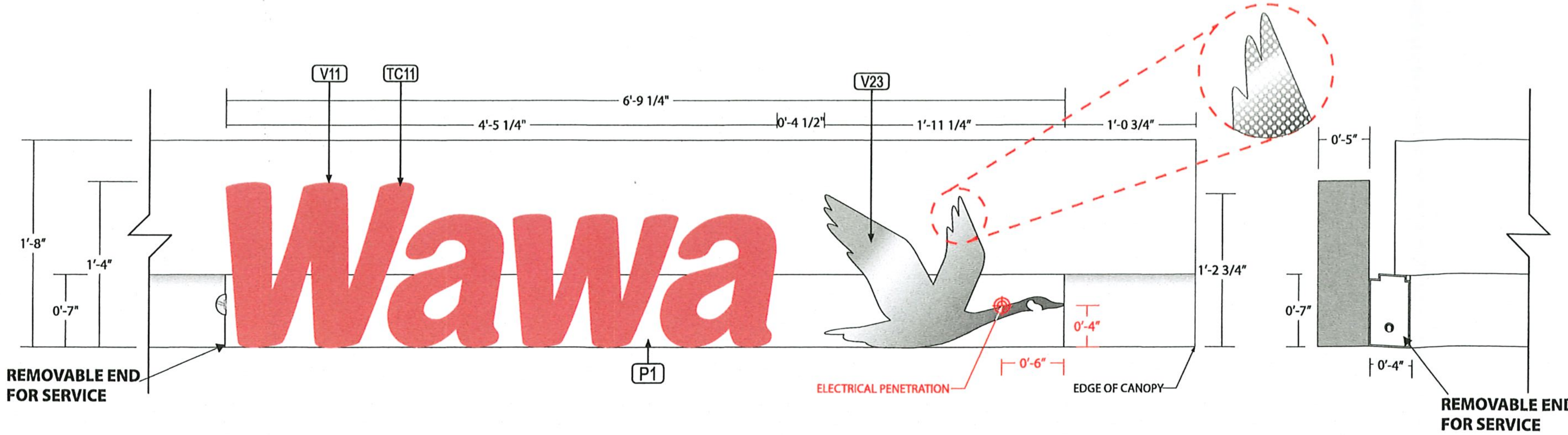
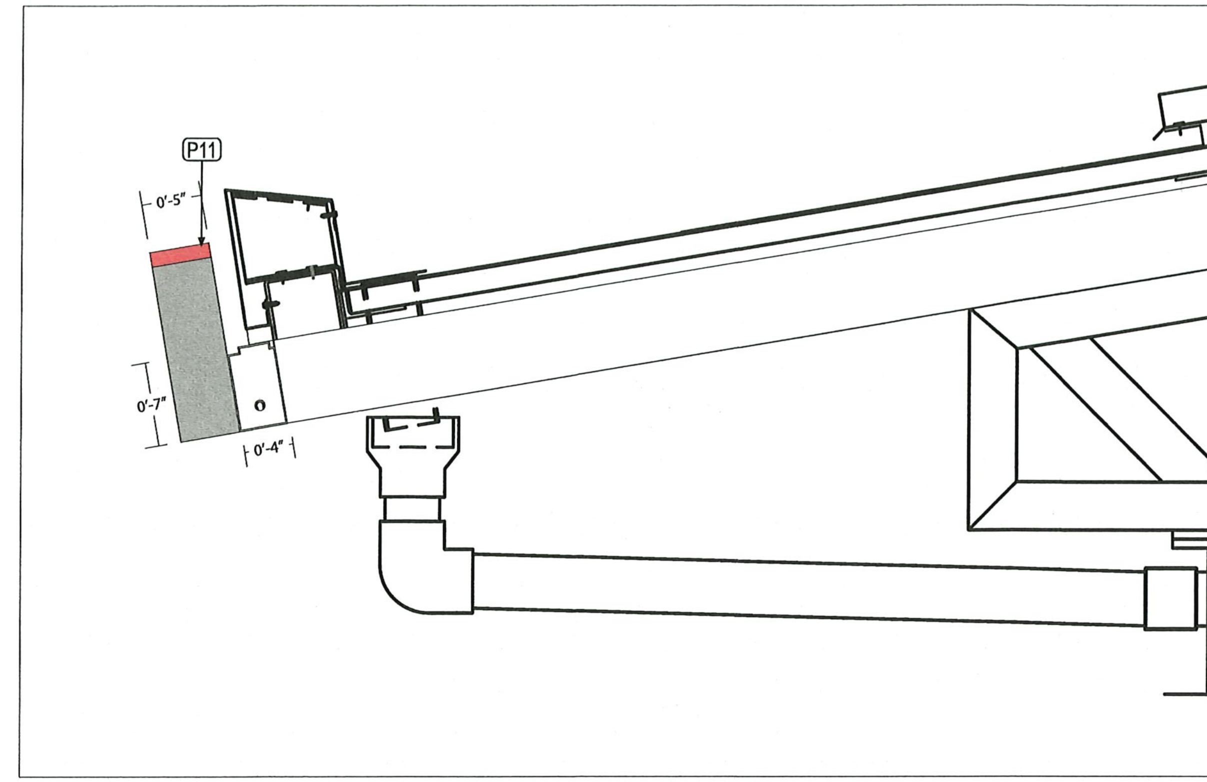




X 5" DEEP FRONT LIT LED ILLUMINATED LETTERS & LOGO (ON 4" X 7" EXTRUDED RACEWAY) - RIGHT SIDE **9.02 SQ.FT.**

SCALE: 3/4=1'-0"

QTY: 1
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY
END OF RACEWAY TO BE REMOVABLE TO ALLOW FOR SERVICING.

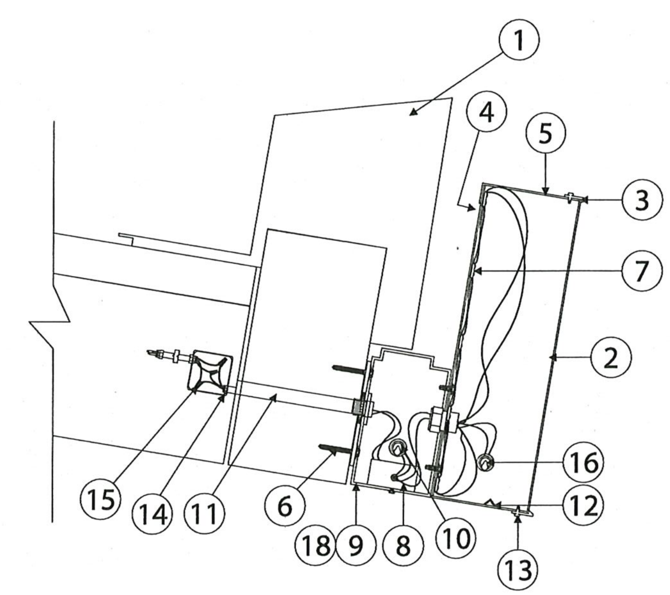
SELF-CONTAINED FLUSH MOUNT CANOPY SIGN (SIDE VIEW)

SCALE: 3/4"=1'-0"

COLOR REFERENCE

P11	TC11	PL11	V23	P1	PL2
Paint to Match PMS 186 C	Jewelite 'Red' Trim Cap	#2793 Red Acrylic	3M 3635-210 Printed to match 'Wawa Grey'	PAINTED WHITE SMOOTH SATIN	#2447 Milky White Acrylic

CHANNEL LETTERS ON RACEWAY



1. EXISTING CANOPY
2. ACRYLIC FACES
3. 1" JEWELITE TRIM CAP
4. ALUMINUM BACKS
5. ALUMINUM RETURNS PAINTED
6. WALL FASTENERS (AS REQUIRED)
7. LED LIGHTS
8. LED POWER SUPPLY
9. EXTRUDED ALUMINUM RACEWAY
10. 120V LISTED DISCONNECT SWITCH
11. PRIMARY ELECTRICAL SOURCE 1/2" MIN CONDUIT, LIQUID TIGHT SHOWN)
12. DRAIN HOLES WITH LIGHT COVERS IF OUTDOORS
13. TECH SCREW ATTACHMENT OF FACES
14. BRANCH CIRCUIT (WIRING HOT TO HOT, NEUTRAL TO NEUTRAL, GROUND/ BOND TO GROUND)
15. UL RATED WIRENUTS
16. WEATHERPROOF DISCONNECT SWITCH
18. REMOVABLE RACEWAY END TO ALLOW SERVICE

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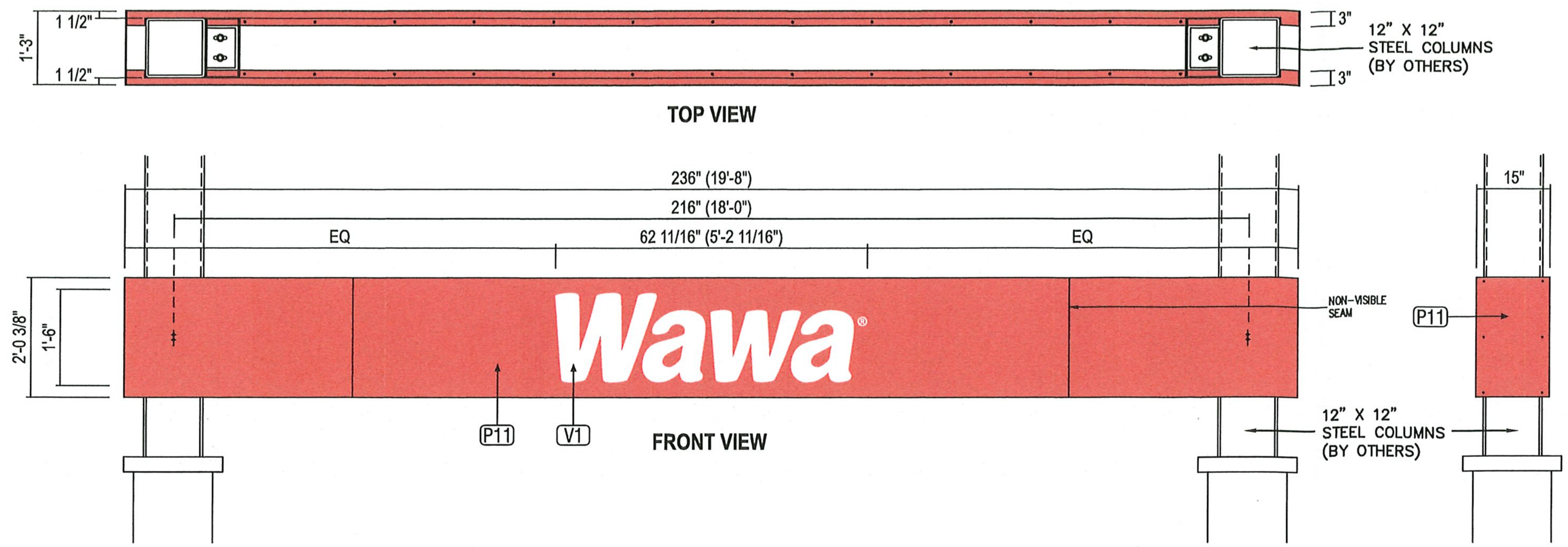
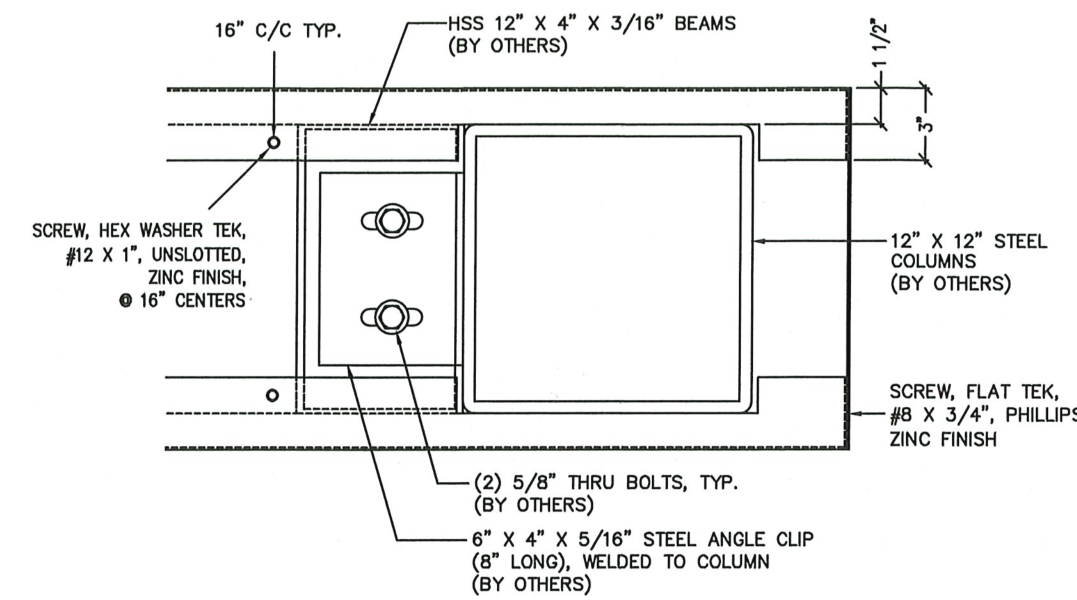


2'-0 3/8" X 19'-8" NON-ILLUMINATED GAS PUMP SPANNER (STACKED PUMPS)

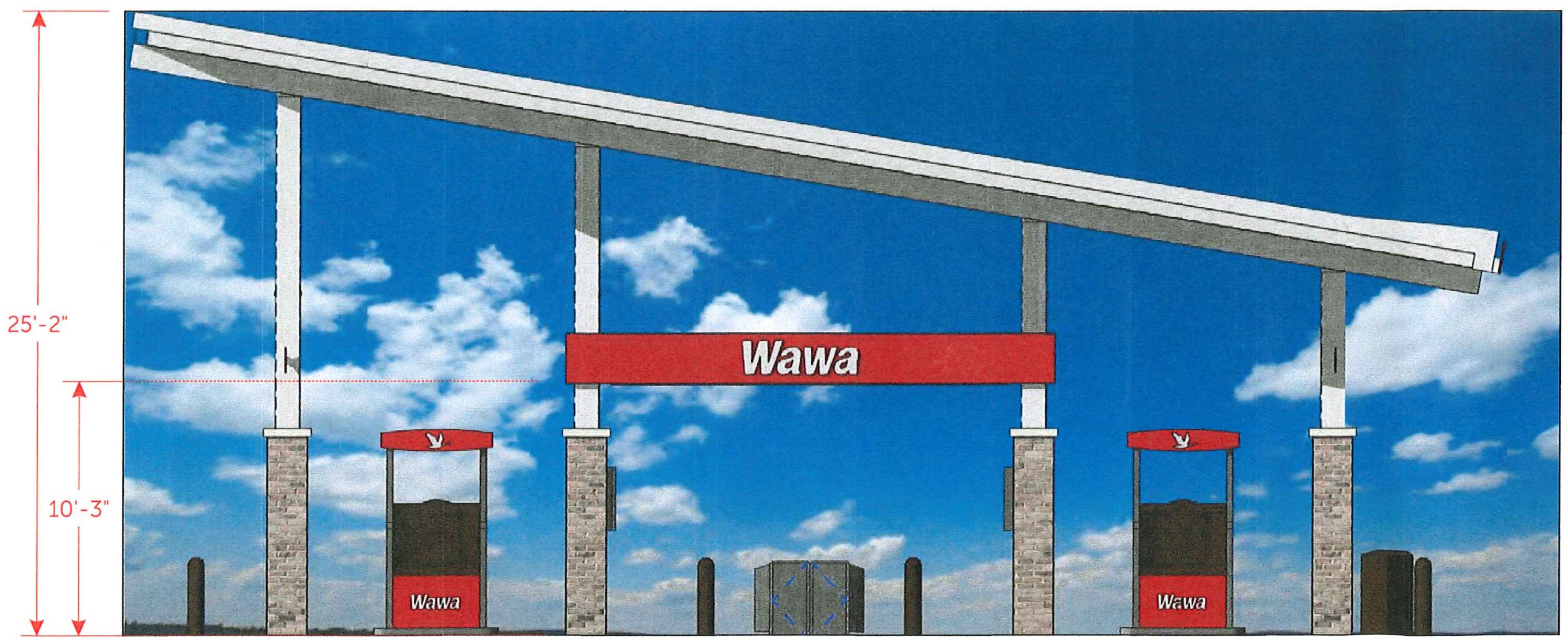
QTY: 2
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

SCALE:3/8"=1'-0"



DETAIL @ TOP VIEW

SCALE:1 1/2"=1'-0"



CANOPY END ELEVATION (STACKED PUMPS)

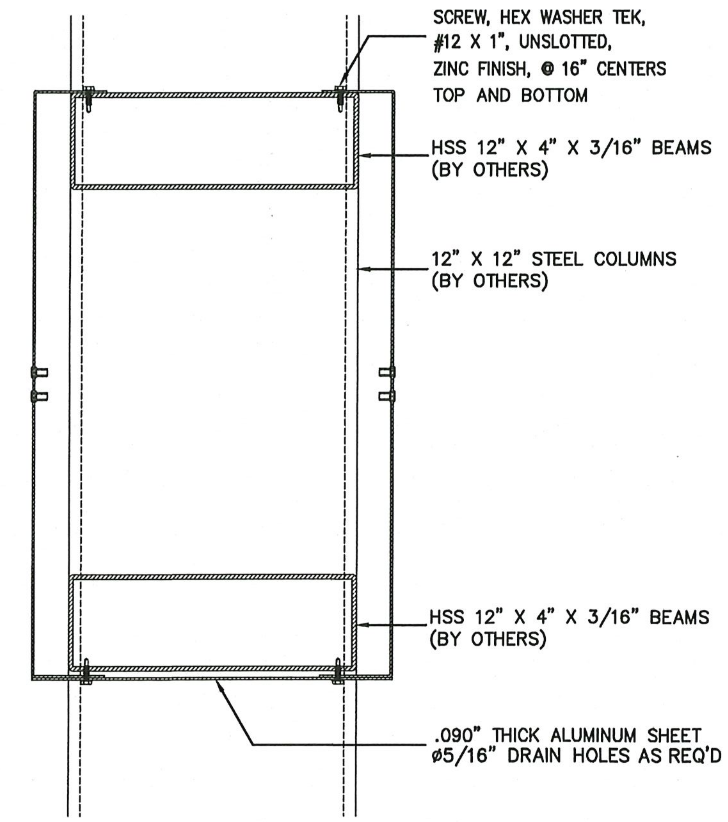
COLOR REFERENCE

P11	V1
Paint to match PMS 186 C	3M 7725-10 'White' *Opaque*

AREA/WEIGHT
SIGN SQUARE FOOTAGE: 39.3 sq. ft.
ESTIMATED SIGN WEIGHT: 170 Lb. (HEADER)

TOLERANCE: ± 1/16" ON ALL DIMENSIONS

DESIGN LOADS:
170 MPH WIND LOAD
RISK CATEGORY II, EXPOSURE C.
FLORIDA BUILDING CODE 6TH EDITION (2017)



SECTION @ SPANNER SIGN

SCALE:1 1/2"=1'-0"

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WaWa
3120 North Bend Road,
Hebron, KY

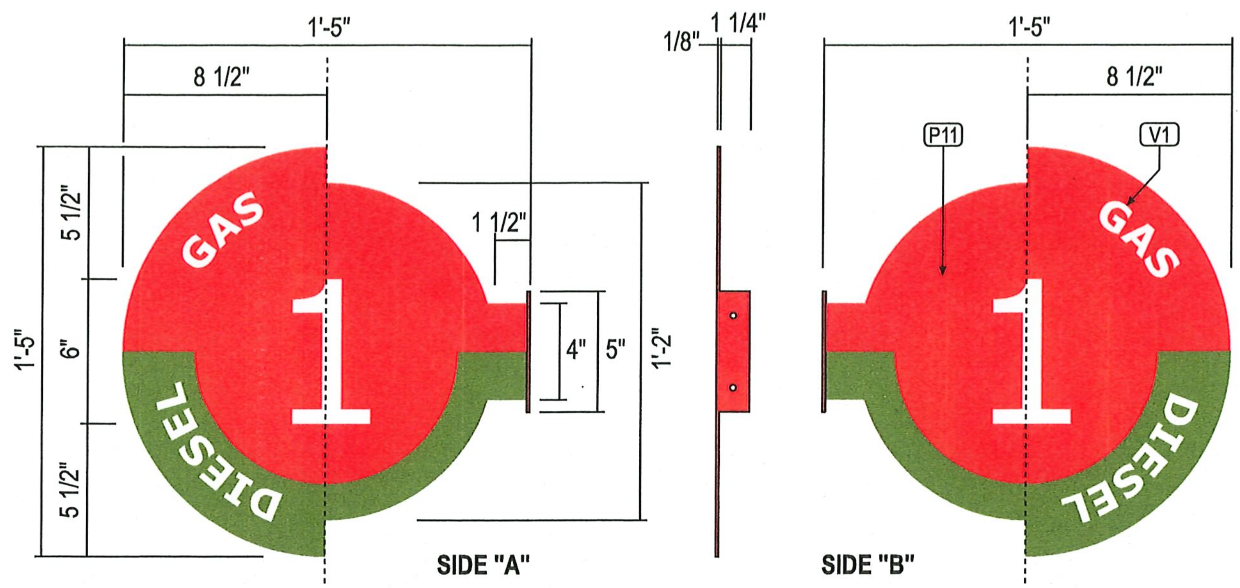
STORE #
C-05893

Issue Date: 11/17/2023
Drawn By: Mike C.

REV	DATE	DESCRIPTION
2	11/22/23	UPDATE AS PER REQUEST
3	11/27/23	UPDATE AS PER REQUEST
4	11/28/23	UPDATE AS PER REQUEST

Rev: 4
Date: 11/28/2023
Doc #: AD-WAW_110263_Hebron_REV4
Blair Project #: 110263
Blair Sales Order #: TBD

Blair Image Elements
5107 Kissell Avenue
Altoona, PA 16601
P: (814) 949.8287
blairimage.com



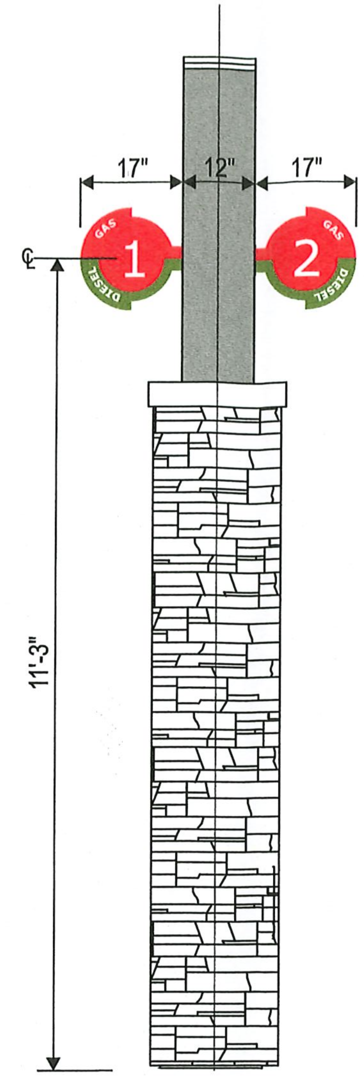
DETAIL @ D/F PUMP INDICATOR SIGN - GAS & DIESEL

SCALE: 1 1/2"=1'-0"

QTY: TBD
ALUMINUM FACES PAINTED RED & GREEN.
WHITE VINYL COPY & NUMBERS.
FONT STYLE: VERDANA

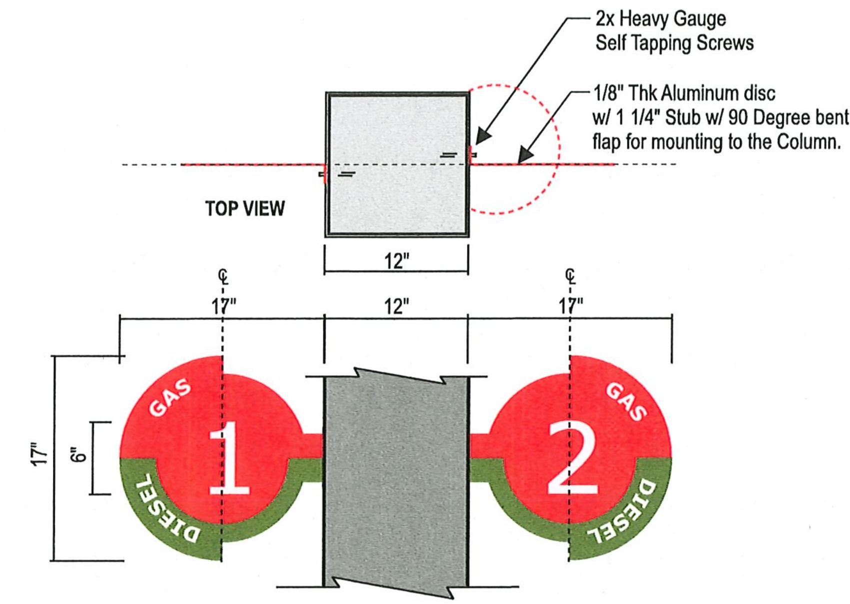
Paint to match PMS 186 C

Paint to match PMS 377C GREEN



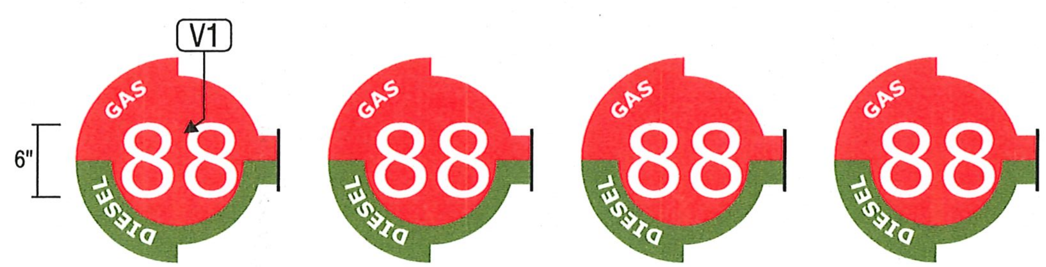
SIDE ELEVATION DETAIL @ CANOPY COLUMN

SCALE: 3/8"=1'-0"



ATTACHMENT DETAIL @ D/F PUMP INDICATOR SIGN

SCALE: 3/4"=1'-0"



DETAIL @ WHITE VINYL PUMP NUMBERS - GAS & DIESEL

SCALE: 3/4"=1'-0"

QTY: NUMBERS 1 - 16 x 2 (for D/F SIGNS)
WHITE VINYL NUMBERS.
FONT STYLE: VERDANA

*** NOTE: CONFIRM PUMP NUMBER SEQUENCE PRIOR TO MANUFACTURING**

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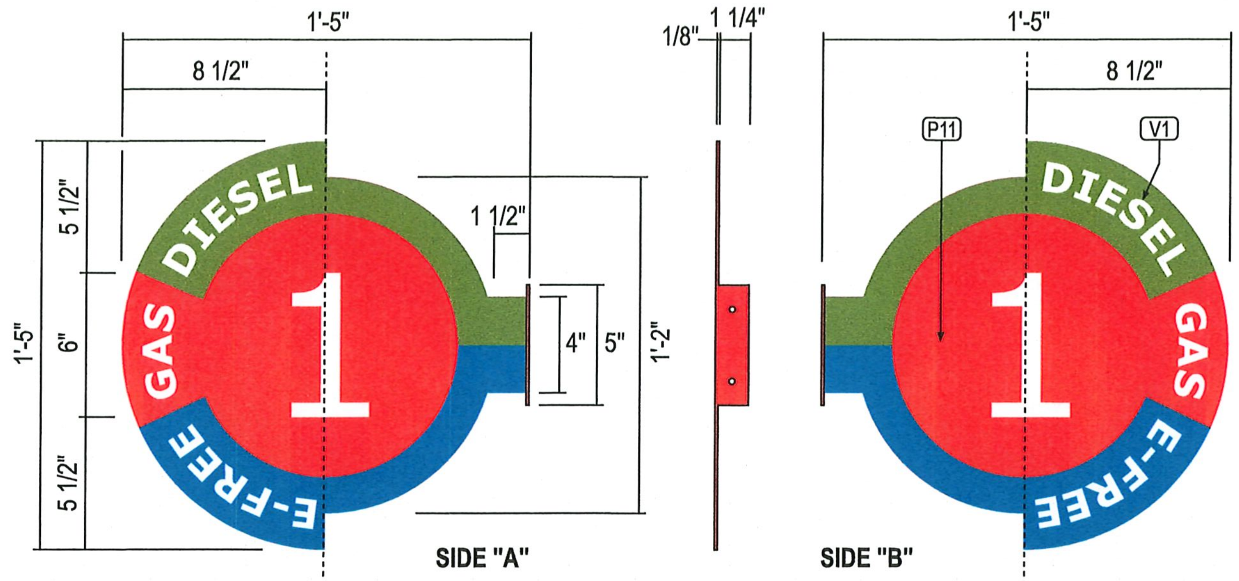


DETAIL @ D/F PUMP INDICATOR SIGN - E-FREE, GAS & DIESEL

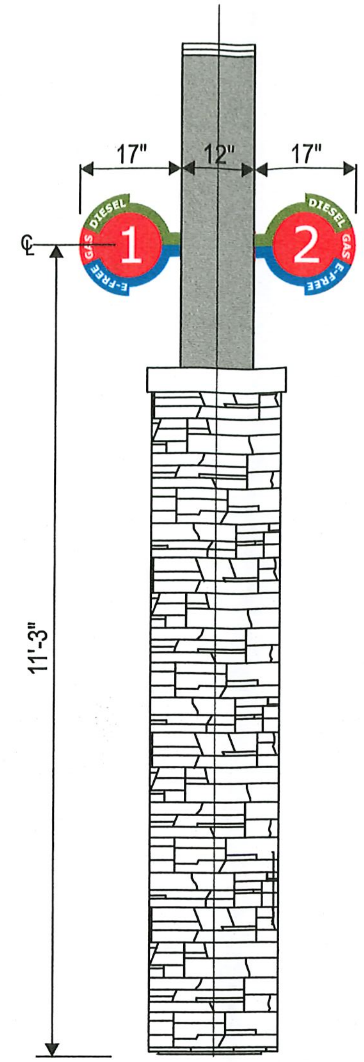
QTY: TBD
ALUMINUM FACES PAINTED RED, BLUE AND GREEN.
WHITE VINYL COPY & NUMBERS.
FONT STYLE: VERDANA

SCALE: 1 1/2"=1'-0"

Paint to match PMS 186 C

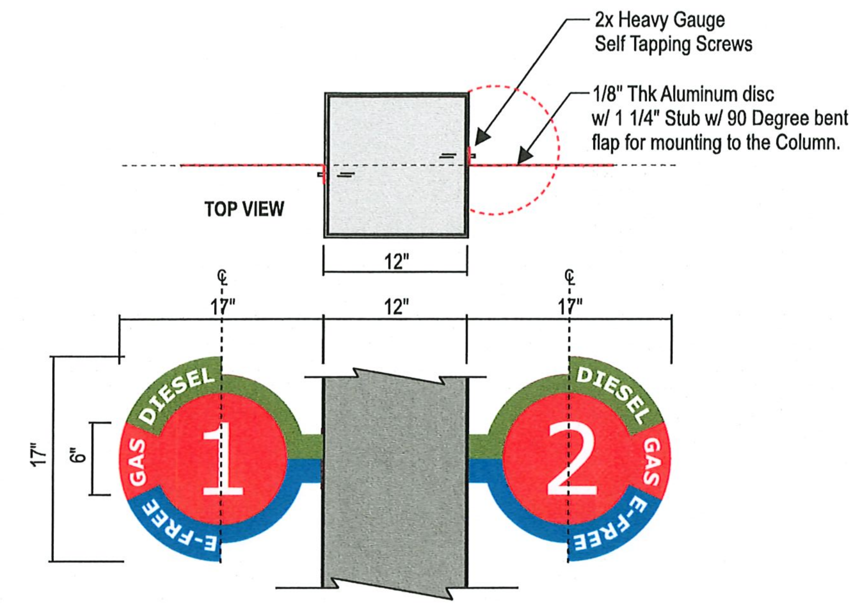
Paint to match PMS 377C GREEN

PMS 7468C BLUE



SIDE ELEVATION DETAIL @ CANOPY COLUMN

SCALE: 3/8"=1'-0"



ATTACHMENT DETAIL @ D/F PUMP INDICATOR SIGN

SCALE: 3/4"=1'-0"

DETAIL @ WHITE VINYL PUMP NUMBERS - E-FREE, GAS & DIESEL

QTY: NUMBERS 1 - 16 x 2 (for D/F SIGNS)
WHITE VINYL NUMBERS.
FONT STYLE: VERDANA

SCALE: 3/4"=1'-0"

*** NOTE: CONFIRM PUMP NUMBER SEQUENCE PRIOR TO MANUFACTURING**

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Wawa

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3120 North Bend Road,
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STORE #
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Drawn By: Mike C.

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5107 Kissell Avenue
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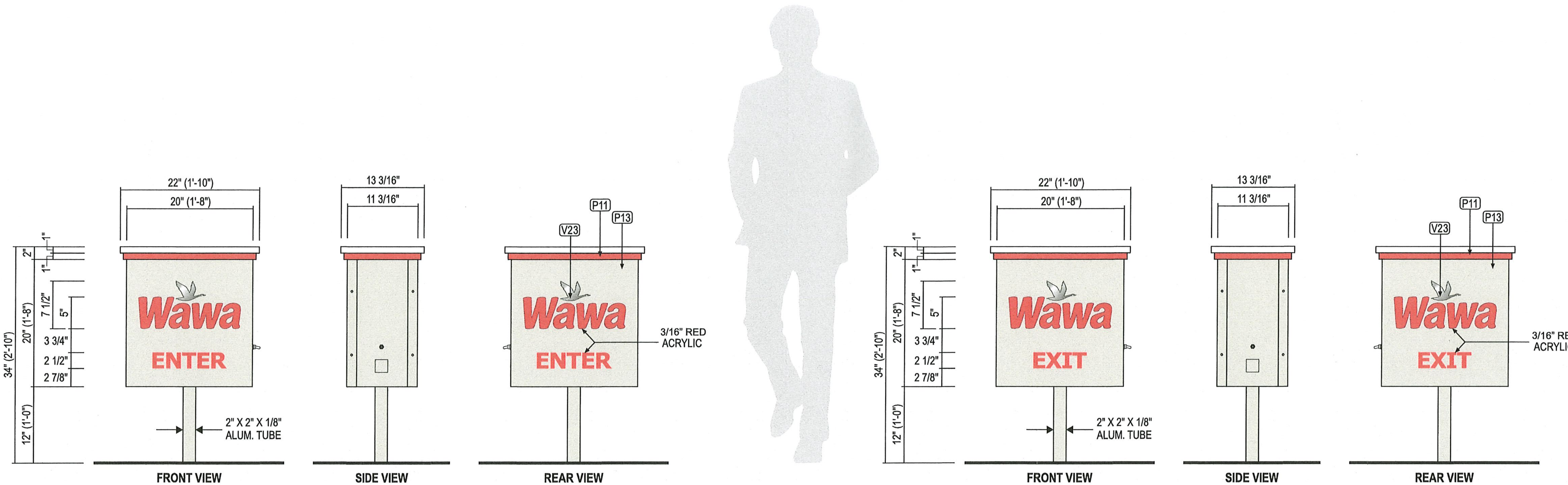
blairimage.com

blair IMAGE ELEMENTS™



20"

X D/F VEHICULAR DIRECTIONAL / ILLUMINATED — SQ. FT = 2.7

QTY: 1 — SCALE: 3/4"=1'-0"

ALUMINUM SIGN FACE IS ROUTED OUT AND BACK UP.
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

20"

X D/F VEHICULAR DIRECTIONAL / ILLUMINATED — SQ. FT = 2.7

QTY: 1 — SCALE: 3/4"=1'-0"

ALUMINUM SIGN FACE IS ROUTED OUT AND BACK UP.
STANDARD SPECS - SEE COLOR SPECIFICATION LIBRARY

COLOR REFERENCE

P11	V11	V23	P13	P1
Paint to Match PMS 186 C	3M 3630-83 'Regal Red' *Trans.*	3M 3630-121 'Silver' Trans.	To match building stucco	PAINTED WHITE SMOOTH SATIN

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