



SUBDIVISION REPORT - CONCEPT/DEVELOPMENT PLAN

▶ **FILE #:** 2-SD-24-C
2-D-24-DP

AGENDA ITEM #: 41
AGENDA DATE: 2/8/2024

▶ **SUBDIVISION:** TWIN OAK LANDING
▶ **APPLICANT/DEVELOPER:** HIGHWAY MARKINGS / PAUL G. HIBBEN
OWNER(S): Paul G. Hibben Highway Markings

TAX IDENTIFICATION: 21 001, 013 049 [View map on KGIS](#)

JURISDICTION: County Commission District 8

STREET ADDRESS: 7615 TWIN OAK LN (7718 TWIN OAK LN)

▶ **LOCATION:** West side of Tazewell Pike, south side of Twin Oak Ln

SECTOR PLAN: Northeast County

GROWTH POLICY PLAN: Planned Growth Area

WATERSHED: Beaver Creek

▶ **APPROXIMATE ACREAGE:** 33.96 acres

▶ **ZONING:** PR (Planned Residential) up to 4 du/ac

▶ **EXISTING LAND USE:** Agriculture/Forestry/Vacant Land

▶ **PROPOSED USE:** Detached residential subdivision

SURROUNDING LAND USE AND ZONING:
North: Single family residential, rural residential, agriculture/forestry/vacant land - A (Agricultural)
South: Public-quasi public - RA (Low Density Residential)
East: Single family residential, rural residential, agriculture/forestry/vacant land - A (Agricultural)
West: Single family residential, agriculture/forestry/vacant land - PR (Planned Residential) up to 4 du/ac

▶ **NUMBER OF LOTS:** 111

SURVEYOR/ENGINEER: Garrett M. Tucker, PE, RLS, Robert Campbell and Associates

ACCESSIBILITY: Access is via Twin Oak Ln., a local street with 13 ft of pavement width within 30 ft of right-of-way; and Tazewell Pike, a major collector street with 23 ft of pavement width within 40 ft of right-of-way.

▶ **SUBDIVISION VARIANCES REQUIRED:** **VARIANCES**
1) Reduce the minimum intersection separation along Twin Oak Lane from STA 22+30.41 TO STA 23+12.37 between Roads "V" & "W", from 125 ft to 81.96 ft

ALTERNATIVE DESIGN STANDARDS REQUIRING KNOXVILLE-KNOX COUNTY PLANNING COMMISSION APPROVAL

- 1) Reduce the minimum horizontal curve radius on Twin Oak Lane at STA 11+86 from 250 ft to 175 ft
- 2) Reduce the minimum horizontal curve radius on Twin Oak Lane at

STA 34+37 from 250 ft to 125 ft

3) Reduce the minimum horizontal curve radius on Twin Oak Lane at STA 37+96 from 250 ft to 100 ft

4) Reduce the minimum horizontal curve radius on Twin Oak Lane at STA 41+85 from 250 ft to 100 ft

5) Reduce the minimum horizontal curve radius on Road "V" at STA 73+68 from 250 ft to 175 ft

6) Reduce the minimum horizontal curve radius on Road "V" at STA 77+82 from 250 ft to 100 ft

7) Reduce the minimum horizontal curve radius on Road "V" at STA 77+82 from 250 ft to 150 ft

8) Reduce the minimum horizontal curve radius on Road "W" at STA 92+76 from 100 ft to 75 ft

ALTERNATIVE DESIGN STANDARDS REQUIRING KNOX COUNTY ENGINEERING AND PUBLIC WORKS APPROVAL (PLANNING COMMISSION APPROVAL NOT REQUIRED)

1) Increase the maximum road grade at an intersection from 1% to 1.5%, Twin Oak Lane at Tazewell Pike.

STAFF RECOMMENDATION:

- ▶ **Approve the requested variance to reduce the minimum intersection spacing along Twin Oak Lane, between the centerlines of Road 'V' and Road 'W', from 125 ft to 81.96 ft, based on the following evidence of hardship.**
 - a. The irregular shape and width of the property do not allow for the required spacing without negatively impacting the internal road connectivity.**
 - b. The unique condition is that Twin Oak Lane cannot be realigned to make aligning the intersections more feasible because of the existing houses on the north side of the road.**
 - c. The purpose of the variation is not based exclusively upon a desire for financial gain.**
 - d. The granting of the variation will not be detrimental to public safety, health or welfare, or injurious to other property or improvements in the neighborhood in which the property is located because both streets will have low traffic volumes, stop conditions at the Twin Oaks Lane intersection, and the required sight distance will be available in both directions.**

Approve the alternative design standards based on the recommendation of the Knox County Department of Engineering and Public Works.

Approve the Concept Plan subject to 11 conditions.

1. Connection to sanitary sewer and meeting any other relevant requirements of the utility provider.
2. Provision of street names which are consistent with the Uniform Street Naming and Addressing System within Knox County (County Ord. 91-1-102).
3. Implementing the recommendations of the Twin Oak Landing Subdivision Traffic Impact Study (Fulghum MacIndoe, 8/10/2020) and Traffic Impact Letter (Ardurra, 1/19/2024) per the requirements of Knox County Engineering and Public Works during the design plan phase. Construction of the left turn lane from Tazewell Pike to Twin Oak Lane and the deceleration lane for the Gibbs Elementary School driveway as required by the Tennessee Department of Transportation and the Knox County Department of Engineering and Public Works. See Exhibits B and C for the conclusions and recommendations of the two referenced traffic studies.
4. A Memorandum of Understanding with Knox County Engineering and Public Works is required per Chapter 54, Article V of the Knox County Code (Ord. O-23-4-102) for road improvements within existing public right-of-way.
5. Widening the full length of the existing Twin Oak Lane as required by the Knox County Department of Engineering and Public Works. The widening of the road is to be to the south side of the road, as proposed in the Concept Plan.
6. Platting a minimum 20-ft wide common area for pedestrian access to the Edwards Place Subdivision, between lots 70 and 71, and the Gibbs Elementary School property, between lots 24-35.
7. Providing sidewalks per the requirements of the Knox County sidewalk ordinance, Chapter 54, Article V of the Knox County Code, and construction of the pedestrian accesses referenced in condition #6 above. All sidewalks not required by the sidewalk ordinance must be maintained by the homeowner's association unless otherwise agreed upon by Knox County Engineering and Public Works.

8. Platting the 30-ft greenway easement as shown on the Concept Plan or as otherwise required by the Knox County Department of Parks and Recreation and the Knox County Department of Engineering and Public Works.
9. Meeting all other applicable requirements of the Knox County Department of Engineering and Public Works.
10. Place a note on the final plat that all lots will have access only to the internal street system.
11. Before certification of the final plat for the subdivision, establish a property owners association or other legal entity responsible for maintaining common facilities, such as common areas, amenities, private roads, and/or stormwater drainage systems.

► **Approve the development plan for up to 111 detached houses on individual lots and a reduction of the periphery boundary setback from 35 ft to 20 ft for lots 1, 15, 16, 28, and 29, and to 25 ft for the remainder of the development, as shown, subject to 1 condition.**

- 1) Meeting all applicable requirements of the Knox County Zoning Ordinance.

With the conditions noted, this plan meets the requirements for approval in the PR district and the criteria for approval of a development plan.

COMMENTS:

This proposal is for a 111-lot detached residential subdivision on 33.04 acres (3.36 du/ac). The zoning on the property is PR up to 4 du/ac. This property has had two previous concept plan approvals, both of which had similar layouts to each other but a slightly different number of lots. In 2017 (4-SA-17-C / 4-E-17-UR), the subdivision was approved with 102 lots; in 2020 (8-SA-20-C / 8-B-20-UR), it was approved with 107 lots. The concept plan approved in 2020 was recently extended until August 2025 (8-C-23-OB). If this concept plan is approved, it will replace the 2020 approval.

With the exception of increasing the total number of lots from 107 to 111, the main difference between the current proposal and the previous one is the road layout. The current proposal has two short cul-de-sac roads along the existing portion of Twin Oak Lane (closer to Tazewell Pike), with all other roads completing a loop. While the previous design had seven cul-de-sacs.

PEDESTRIAN INFRASTRUCTURE

Like the previous approvals, this proposal includes a pedestrian connection between the Edwards Place Subdivision and the Gibbs Elementary School property. The pedestrian connections to Edwards Place and to the school property will be within the common area for the development and not an easement across house lots. The remainder of the pedestrian connection will be via sidewalks within the public right-of-way.

A 30-ft wide greenway easement is being provided along Beaver Creek. The Knox County Greenway Corridor Study proposes a greenway along Beaver Creek and the preferred route in this area runs through this property (see Exhibit D).

PERIPHERAL SETBACK REDUCTION

The applicant is proposing a 25-ft peripheral setback around the entire development with the exception of a 20-ft peripheral setback for the lots along the existing portion of Twin Oak Lane. The reduced peripheral setback along the existing Twin Oak Lane will allow the sides of the houses to have a typical 20 ft front yard setback to be consistent with the rest of the subdivision. The previous approvals from 2017 and 2020 included a 25 ft peripheral setback around the remainder of the development.

DEVELOPMENT PLAN ANALYSIS PER ARTICLE 6, SECTION 6.50.06 (APPROVAL OR DENIAL)

In the exercise of its administrative judgment, the Planning Commission shall determine if the proposed plan is in harmony with the general purpose and intent of the zoning ordinance and adopted plans.

1) ZONING ORDINANCE

PR (Planned Residential) up to 4 du/ac:

A) The PR zone allows houses and attached houses as a permitted use. The administrative procedures for the PR zone require the Planning Commission to approve the development plan before permits can be issued (Article 5, Section 5.13.15).

B) This PR zone district is approved for a maximum of 4 du/ac. The proposed density is 3.36 du/ac.

C) The Planning Commission has the authority to reduce the 35 ft peripheral setback to 15 ft when adjacent to residential zones, including the A (Agricultural) zone. The applicant is requesting a 25-ft peripheral setback along the external boundary of the development, with the exception of a 20-ft peripheral setback along the existing portion of Twin Oak Lane. See the staff comments above for additional information.

2) GENERAL PLAN – DEVELOPMENT POLICIES

A) The General Plan's development policy 4.2 encourages pedestrian connections between subdivisions to allow for safe access to community facilities. This proposal includes pedestrian connections to the adjacent subdivision to the west and the Gibbs Elementary School property.

B) The General Plan's development policy 9.3 encourages the scale of new development to be compatible with existing neighborhoods and communities. The development will consist of detached houses, which is consistent with other nearby residential developments. The proposed peripheral setback reduction should have minimal impact on adjacent properties.

3) NORTHEAST COUNTY SECTOR PLAN

A) The property is classified as LDR (Low Density Residential), which allows consideration of up to 5 du/ac. The proposed density is 3.36 du/ac.

4) KNOXVILLE – FARRAGUT – KNOX COUNTY GROWTH POLICY PLAN

A) The property is within the Planned Growth Boundary. The purposes of the Planned Growth Boundary designation are to encourage a reasonably compact pattern of development, promote the expansion of the Knox County economy, offer a wide range of housing choices, and coordinate the actions of the public and private sectors, particularly with regard to the provision of adequate roads, utilities, schools, drainage and other public facilities and services. The proposed development meets the relevant standards of the Growth Policy Plan.

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

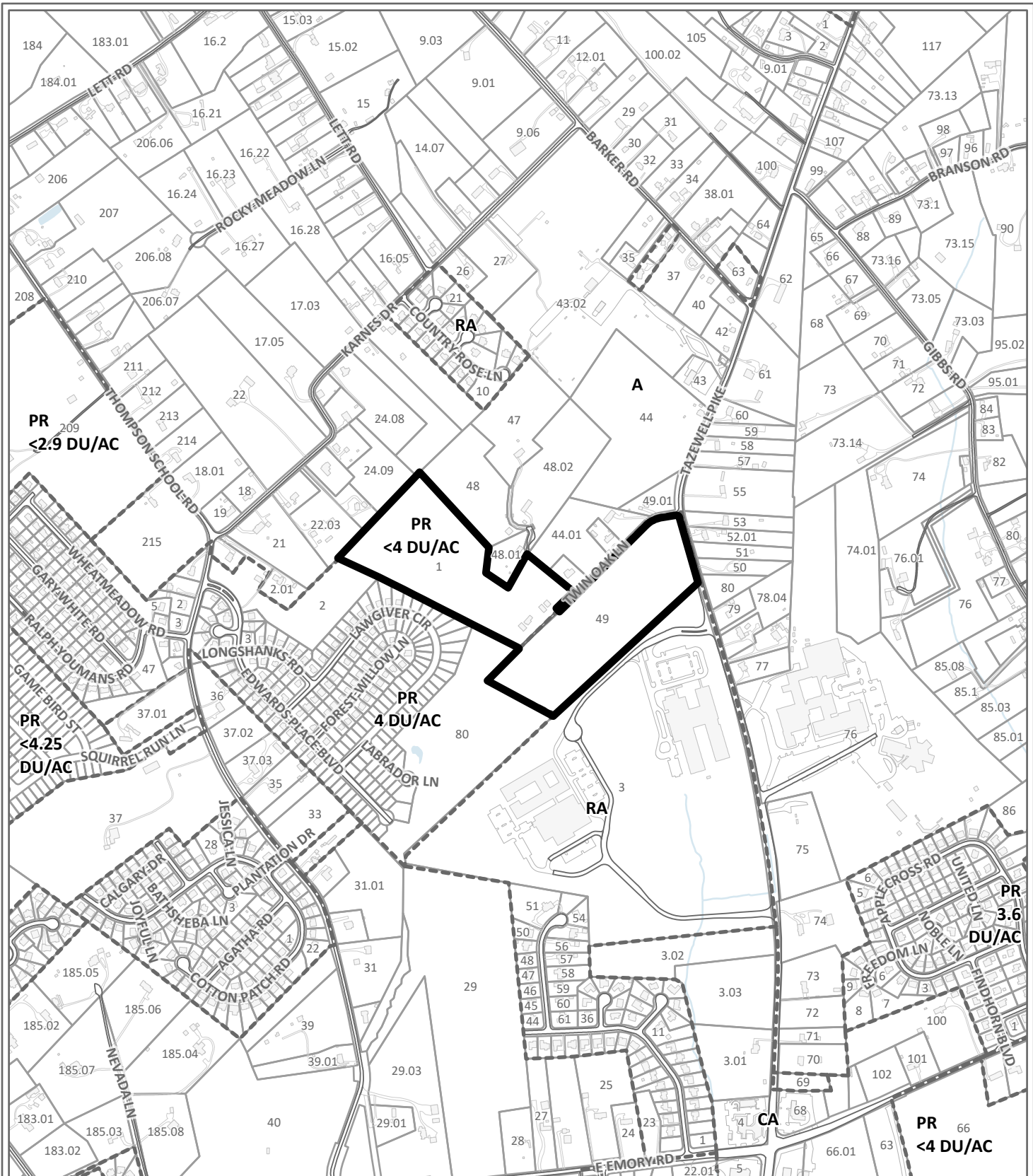
ESTIMATED STUDENT YIELD: 47 (public school children, grades K-12)

Schools affected by this proposal: Gibbs Elementary, Gibbs Middle, and Gibbs High.

- Potential new school population is estimated using locally-derived data on public school student yield generated by new housing.
- Students are assigned to schools based on current attendance zones as determined by Knox County Schools. Students may request transfers to different zones, and zone boundaries are subject to change.
- Estimates presume full build-out of the proposed development. Build-out is subject to market forces, and timing varies widely from proposal to proposal.
- Student yields from new development do not reflect a net addition of children in schools. Additions occur incrementally over the build-out period. New students may replace current population that ages through the system or moves from the attendance zone.

Knoxville-Knox County Planning Commission's approval or denial of this concept plan request is final, unless the action is appealed to Knox County Chancery Court. The date of the Knox County Chancery Court hearing will depend on when the appeal application is filed.

The Planning Commission's approval or denial of this development plan request is final, unless the action is appealed either to the Board of Zoning Appeals or to a court of competent jurisdiction within thirty (30) days of the decision being appealed (Knox County, Tennessee Code of Ordinances, Appendix A, Zoning, 6.50.08).



CONCEPT PLAN / DEVELOPMENT PLAN

2-SD-24-C / 2-D-24-DP

Petitioner: Highway Markings / Paul G. Hibben



Detached residential subdivision in PR (Planned Residential) up to 4 du/ac

Map No: 21

Jurisdiction: County

Original Print Date: 1/8/2024

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

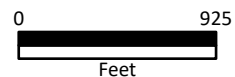
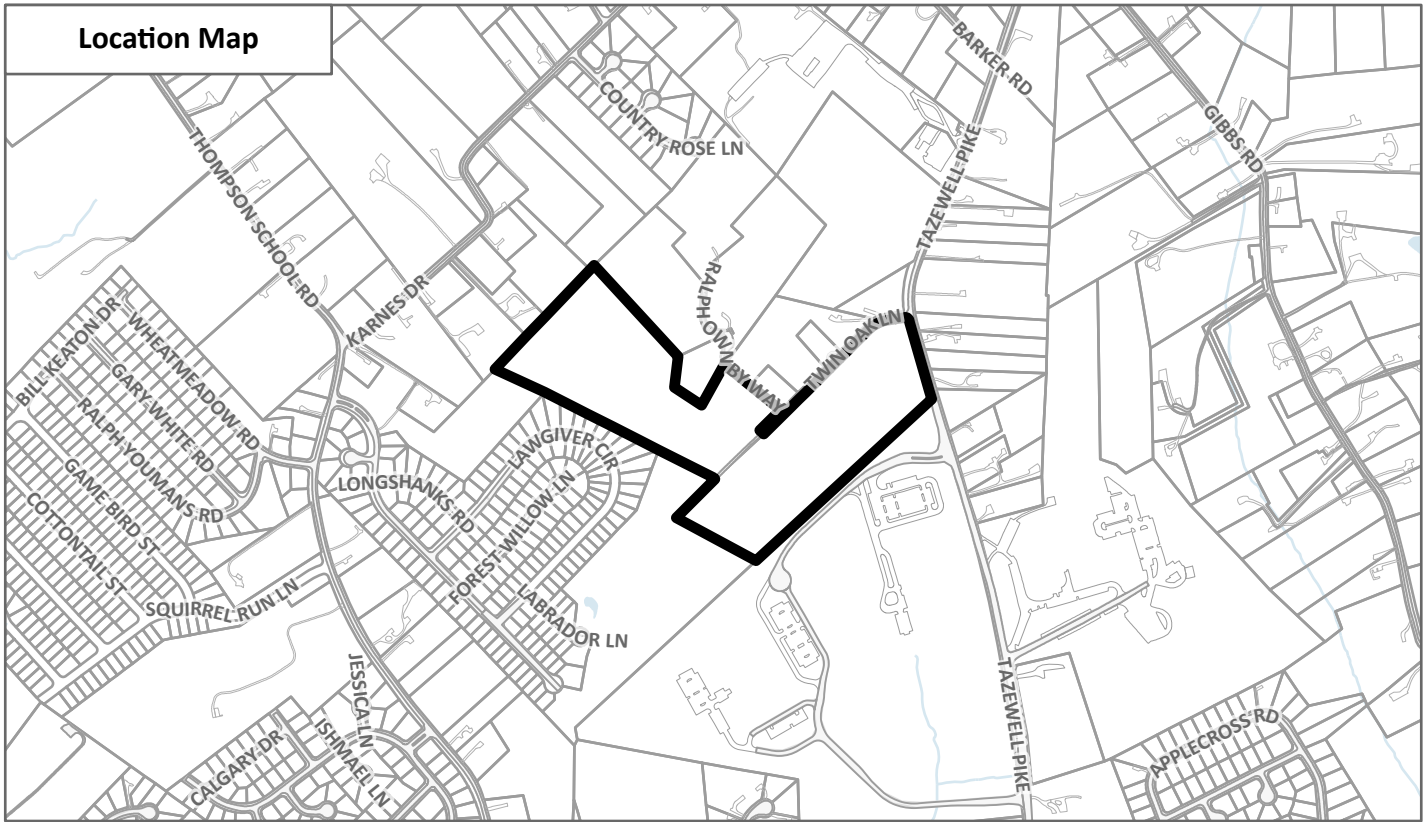
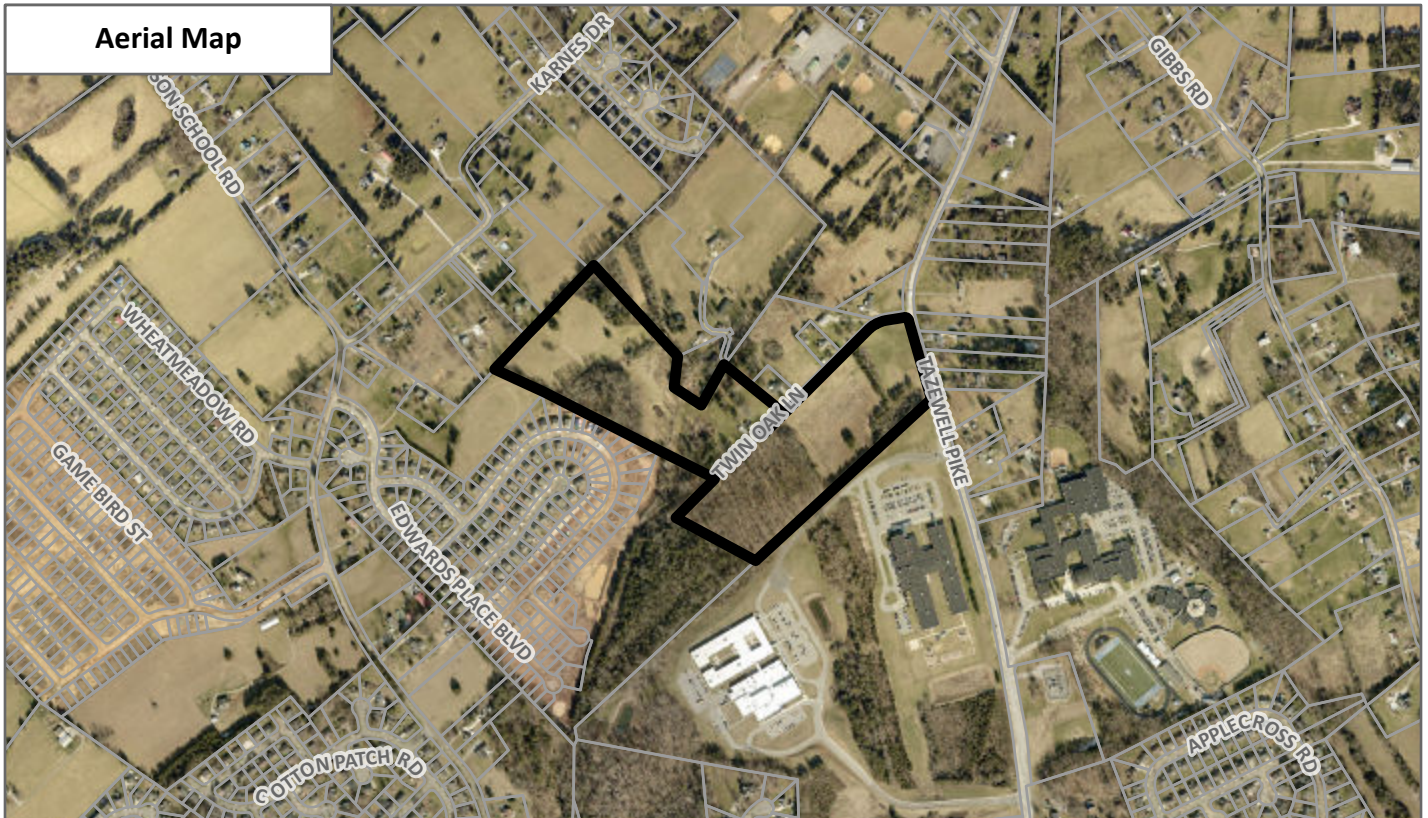


Exhibit A. Contextual Images

Location Map



Aerial Map



CONTEXTUAL MAPS 1

2-D-24-DP / 2-SD-24-C



Case boundary



Certification of Concept Plan.
 I hereby certify that I am a registered engineer, licensed to practice engineering under the laws of the State of Tennessee. I further certify that the plan and accompanying drawings, documents and statements conform to all applicable provisions of the Knoxville-Knox County Subdivision Regulations except as has been itemized and described in a report filed with the Metropolitan Planning Commission.
 Registered Engineer: *[Signature]*
 Tennessee Certificate No. 104281

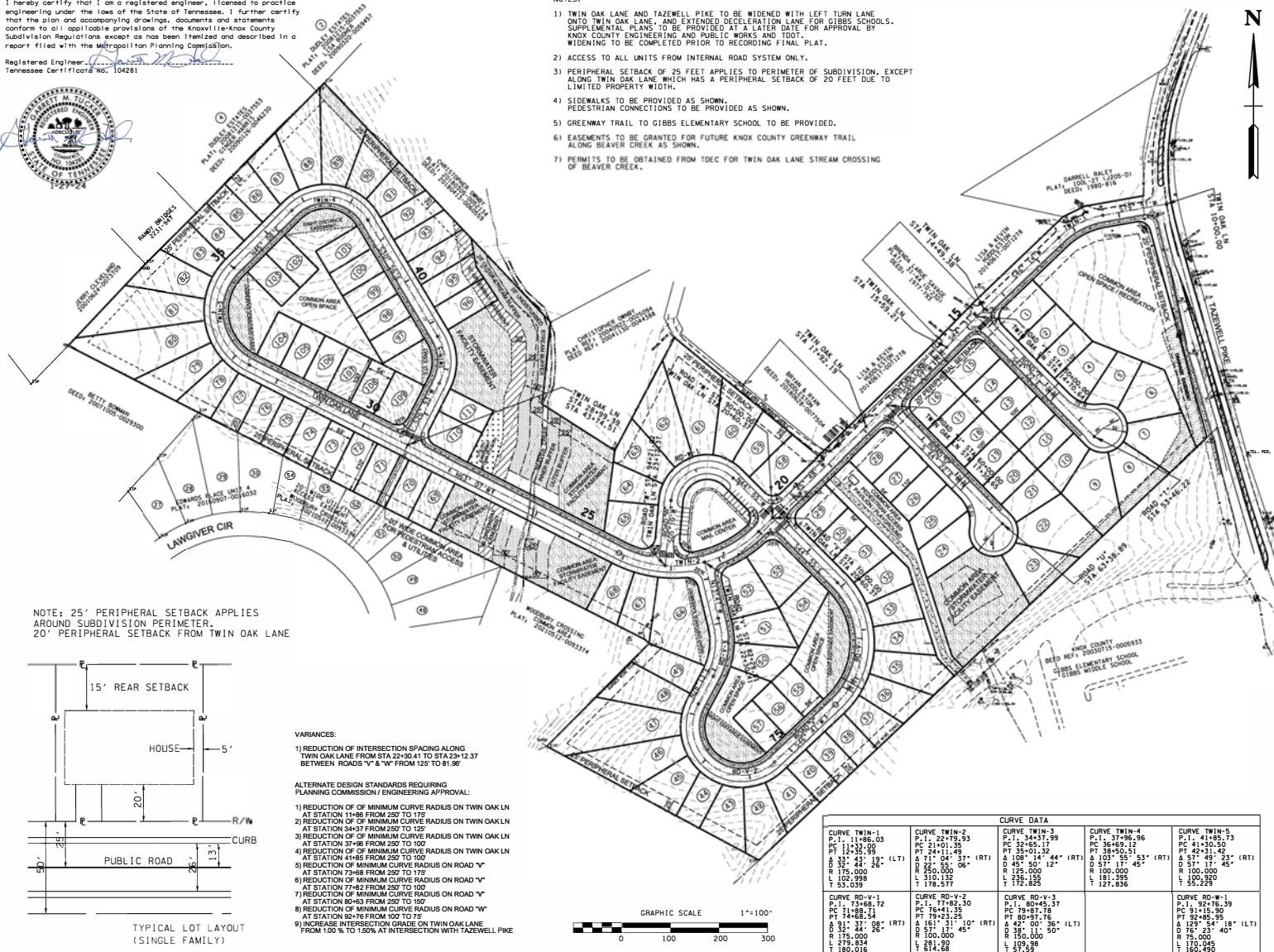


NOTES:

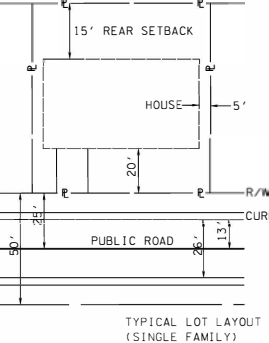
- 1) TWIN OAK LANE AND TAZEWELL PIKE TO BE WIDENED WITH LEFT TURN LANE ONTO TWIN OAK LANE, AND EXTENDED DECELERATION LANE FOR GIBBS SCHOOLS. SUPPLEMENTAL PLANS TO BE PROVIDED AT A LATER DATE FOR APPROVAL BY KNOX COUNTY ENGINEERING AND PUBLIC WORKS AND TDDI. WIDENING TO BE COMPLETED PRIOR TO RECORDING FINAL PLAT.
- 2) ACCESS TO ALL UNITS FROM INTERNAL ROAD SYSTEM ONLY.
- 3) PERIPHERAL SETBACK OF 25 FEET APPLIES TO PERIMETER OF SUBDIVISION, EXCEPT ALONG TWIN OAK LANE WHICH HAS A PERIPHERAL SETBACK OF 20 FEET DUE TO LIMITED PROPERTY WIDTH.
- 4) SIDEWALKS TO BE PROVIDED AS SHOWN; PEDESTRIAN CONNECTIONS TO BE PROVIDED AS SHOWN.
- 5) GREENWAY TRAIL TO GIBBS ELEMENTARY SCHOOL TO BE PROVIDED.
- 6) EASEMENTS TO BE GRANTED FOR FUTURE KNOX COUNTY GREENWAY TRAIL ALONG BEAVER CREEK, AS SHOWN.
- 7) PERMITS TO BE OBTAINED FROM TDEC FOR TWIN OAK LANE STREAM CROSSING OF BEAVER CREEK.



LOCATION MAP



NOTE: 25' PERIPHERAL SETBACK APPLIES AROUND SUBDIVISION PERIMETER.
 20' PERIPHERAL SETBACK FROM TWIN OAK LANE



VARIANCES:

- 1) REDUCTION OF INTERSECTION SPACING ALONG TWIN OAK LANE FROM STA 22+04.1 TO STA 23+12.37 BETWEEN ROADS "V" & "W" FROM 125' TO 81.96'

ALTERNATE DESIGN STANDARDS REQUIRING PLANNING COMMISSION / ENGINEERING APPROVAL:

- 1) REDUCTION OF MINIMUM CURVE RADIUS ON TWIN OAK LN AT STATION 11+86 FROM 250' TO 175'
- 2) REDUCTION OF MINIMUM CURVE RADIUS ON TWIN OAK LN AT STATION 34+37 FROM 250' TO 125'
- 3) REDUCTION OF MINIMUM CURVE RADIUS ON TWIN OAK LN AT STATION 37+98 FROM 250' TO 100'
- 4) REDUCTION OF MINIMUM CURVE RADIUS ON TWIN OAK LN AT STATION 41+85 FROM 250' TO 100'
- 5) REDUCTION OF MINIMUM CURVE RADIUS ON ROAD "V" AT STATION 73+68 FROM 250' TO 175'
- 6) REDUCTION OF MINIMUM CURVE RADIUS ON ROAD "V" AT STATION 77+62 FROM 250' TO 100'
- 7) REDUCTION OF MINIMUM CURVE RADIUS ON ROAD "W" AT STATION 80+45 FROM 250' TO 100'
- 8) REDUCTION OF MINIMUM CURVE RADIUS ON ROAD "W" AT STATION 86+76 FROM 100' TO 75'
- 9) INCREASE INTERSECTION GRADE ON TWIN OAK LANE FROM 1.00% TO 1.50% AT INTERSECTION WITH TAZEWELL PIKE

CURVE DATA			
CURVE TWIN-1 PC: 11+86.03 PT: 11+88.59 A: 33° 43' 18" (LT) R: 175.000 L: 100.998 T: 53.039	CURVE TWIN-2 PC: 21+01.35 PT: 21+11.26 A: 31° 04' 37" (RT) R: 250.000 L: 130.132 T: 118.577	CURVE TWIN-3 PC: 34+37.39 PT: 34+51.36 A: 108° 14' 44" (RT) R: 125.000 L: 172.825	CURVE TWIN-4 PC: 36+69.12 PT: 38+50.51 A: 103° 55' 53" (RT) R: 100.000 L: 121.836
CURVE RD-V-1 PC: 73+68.72 PT: 74+03.54 A: 91° 37' 08" (RT) R: 175.000 L: 272.854 T: 180.016	CURVE RD-V-2 PC: 77+62.30 PT: 78+01.25 A: 161° 31' 10" (RT) R: 100.000 L: 87.688	CURVE RD-V-3 PC: 80+45.33 PT: 80+57.78 A: 42° 00' 36" (LT) R: 150.000 L: 57.598	CURVE RD-W-1 PC: 86+76.39 PT: 91+30.50 A: 128° 54' 18" (LT) R: 75.000 L: 160.490

OWNER/DEVELOPER:
 HIGHWAY MARKINGS/ PAUL G. HIBBEN
 8333 COPPOCK ROAD
 KNOXVILLE, TN 37938
 PHONE: (865) 922-1550
 FAX: (865) 922-9229

ENGINEER:
 ROBERT G. CAMPBELL
 AND ASSOCIATES
 7523 TAGGART LANE
 KNOXVILLE, TN 37938
 PHONE: (865) 947-5986
 FAX: (865) 947-7556

CLT MAP: 021
 PARCELS: 001 & 013
 DEED REFERENCE: 20051229-0056068
 DEED REFERENCE: 20150917-0017914
 PROPERTY ZONED: PR (<4 DU/AC)
 NUMBER OF LOTS: 111
 TOTAL AREA: 33.04 ACRES
 Revised: 1/27/2024
 PLANNING SERVICES MPC FILE NUMBER:
 2-SD-24-C / 2-D-24-DP

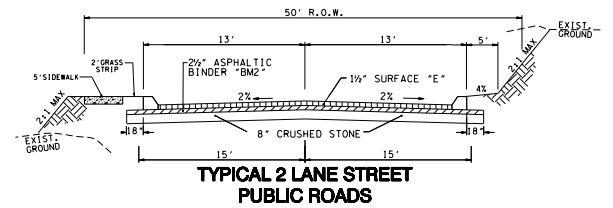
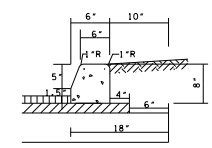
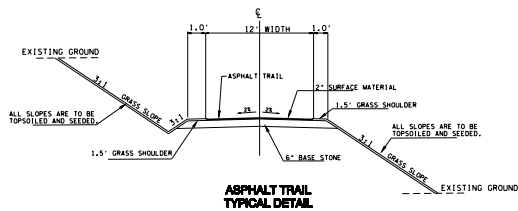
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REVISIONS				

ROBERT G. CAMPBELL & ASSOC., L.P.
 CONSULTING ENGINEERS
 KNOXVILLE, TENNESSEE

TWIN OAK LANDING
 CONCEPT PLAN

GENERAL LAYOUT

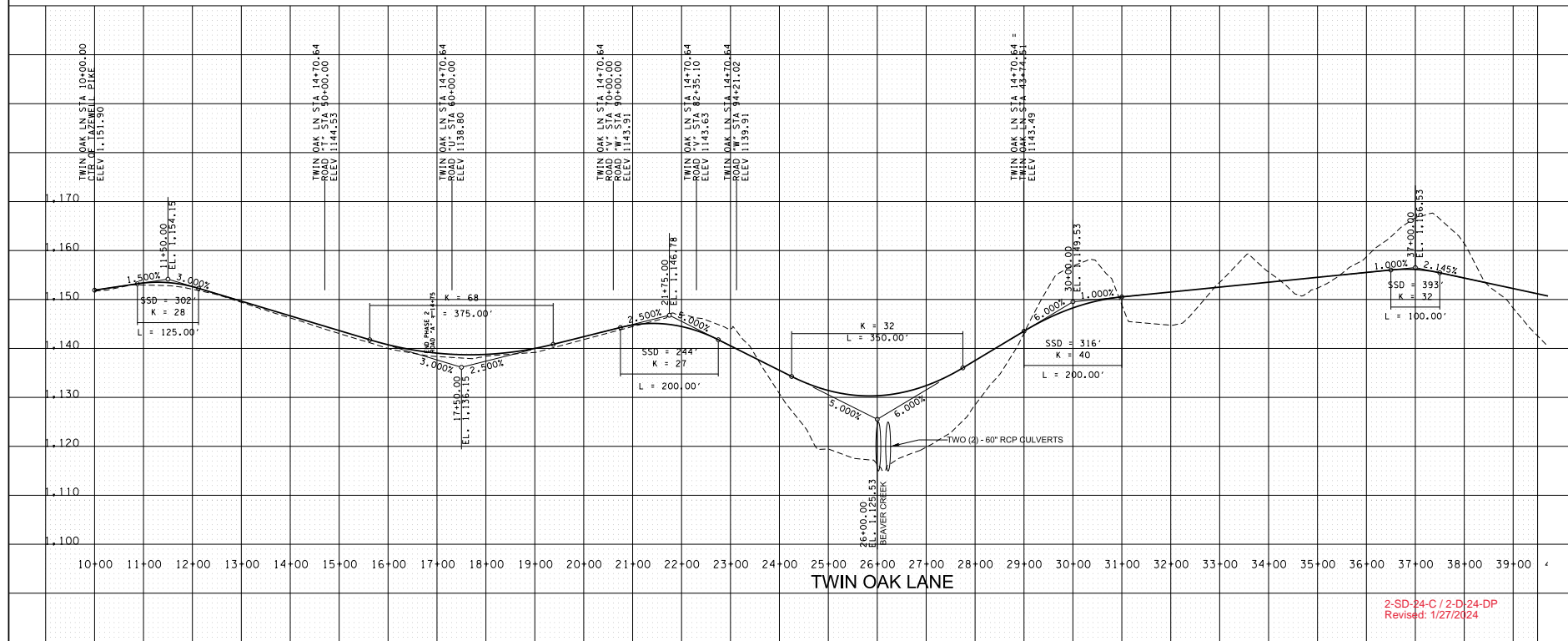
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BORROW MATERIALS TO BE USED FOR FILL SHALL BE TESTED FOR MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT (STANDARD PROCTOR ASTM D698) PRIOR TO PLACEMENT OF FILL.

FILL SOILS SHALL BE COMPACTED IN LAYERS 8 INCHES OR LESS IN THICKNESS TO A MINIMUM OF 98 PERCENT STANDARD PROCTOR MAXIMUM DRY DENSITY AND WITHIN PLUS OR MINUS 3 PERCENT OPTIMUM MOISTURE CONTENT. NO LESS THAN SIX (6) DENSITY TESTS SHALL BE PERFORMED IN EVERY 10,000 SQUARE FEET OF AREA PER 8 INCH LIFT. (APPROX. 1 TEST PER EVERY 50 SQ. FT.)

* *D* MIX REQUIRED ON FINAL SURFACE WHERE GRADE IS 1% OR GREATER.



2-SD-24-C / 2-D-24-DP
Revised: 1/27/24

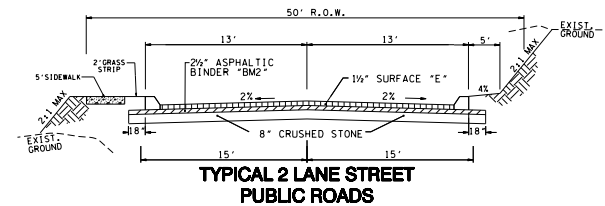
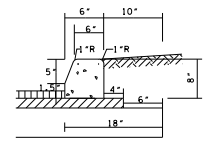
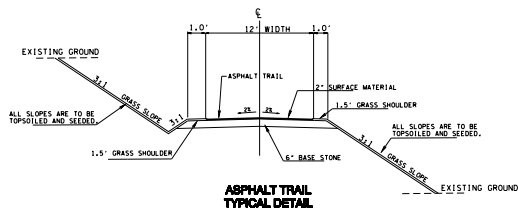
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ROBERT G. CAMPBELL & ASSOC., L.P.
CONSULTING ENGINEERS
KNOXVILLE, TENNESSEE

**TWIN OAK LANDING
CONCEPT PLAN**

ROAD PROFILES

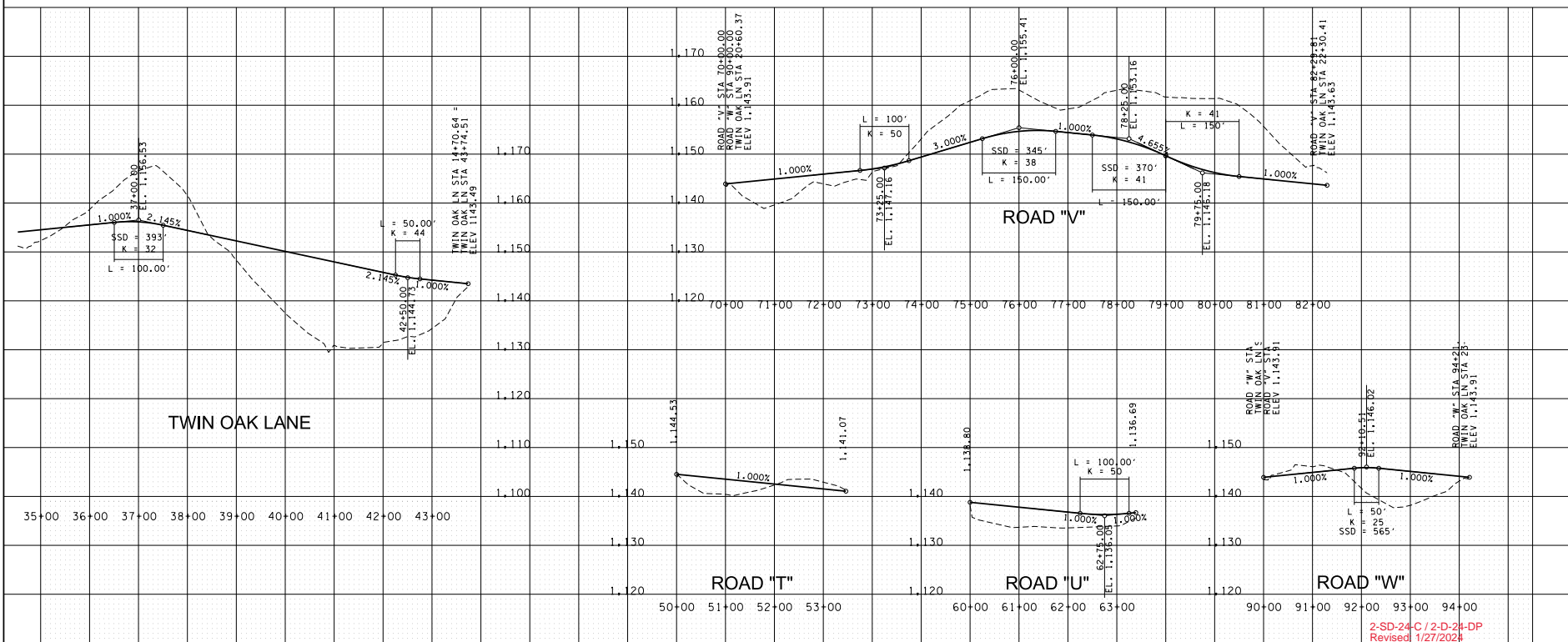
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BORROW MATERIALS TO BE USED FOR FILL SHALL BE TESTED FOR MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT (STANDARD PROCTOR ASTM D698) PRIOR TO PLACEMENT OF FILL.

FILL SOILS SHALL BE COMPACTED IN LAYERS 8 INCHES OR LESS IN THICKNESS TO A MINIMUM OF 98 PERCENT STANDARD PROCTOR MAXIMUM DRY DENSITY AND WITHIN PLUS OR MINUS 3 PERCENT OPTIMUM MOISTURE CONTENT. NO LESS THAN SIX (6) DENSITY TESTS SHALL BE PERFORMED IN EVERY 10,000 SQUARE FEET OF AREA PER 8 INCH LIFT. (APPROX. 1 TEST PER EVERY 50 SQ. FT.)

* 0% MIX REQUIRED ON FINAL SURFACE WHERE GRADE IS 10% OR GREATER.



2-SD-24-C / 2-D-24-DP
Revised 1/27/2024

NO.	DATE	DESCRIPTION	BY	CHKD.

ROBERT G. CAMPBELL & ASSOC., L.P.
CONSULTING ENGINEERS
KNOXVILLE, TENNESSEE

**TWIN OAK LANDING
CONCEPT PLAN**

ROAD PROFILES

DESIGNED BY	CHECKED BY	SCALE	SHEET
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DRAWN BY	DATE	FILE NO.	OF 4
GMT	1-27-24	15041	SHEETS

TWIN OAK LANDING SUBDIVISION

Traffic Impact Study

Twin Oak Lane

Knoxville, TN

A Traffic Impact Study for the Proposed Twin Oak Landing Subdivision

Submitted to

Knoxville – Knox County Planning Commission

Revised August 10, 2020
June 29, 2020
FMA Project No. 588.002.1

Submitted By:



Current case number
2-SD-24-C / 2-D-24-DP

Previous case number
8-SA-20-C / 8-B-20-UR



6 Turn Lane Warrant Analysis

The intersection of Tazewell Pike (SR 131) and Twin Oak Lane was evaluated to determine if a northbound left turn lane or a southbound right turn on Tazewell Pike (SR 131) is warranted. The Knox County Department of Engineering and Public Works handbook, "Access Control and Driveway Design Policy," was used to analyze the information.

At the intersection of Tazewell Pike (SR 131) and Twin Oak Lane a southbound right turn lane on Tazewell Pike (SR 131) is not warranted and a northbound left turn lane on Tazewell Pike (SR 131) is warranted during the PM peak after the full buildout of the Twin Oak Landing Subdivision. The turn lane warrant worksheets and analysis are included in Attachment 7.

7 Conclusions and Recommendations

7.1 Tazewell Pike (SR 131) @ Twin Oak Lane

The existing, background and full buildout conditions at the two-way stop controlled intersection of Tazewell Pike (SR 131) at Twin Oak Lane were analyzed using the Highway Capacity Software (HCS7).

Both the existing and background traffic conditions for the eastbound approach operate at a LOS B during the AM peak hour and a LOS A during the PM Peak hour and the northbound left turn operates at a LOS A during both the AM and PM peak hours.

After the full buildout of the Twin Oak Landing Subdivision the eastbound approach will operate at a LOS B during both the AM and PM peak hours and the northbound left turn will operate at a LOS A during both the AM and PM peak hours.

A northbound left turn lane is warranted at the intersection of Tazewell Pike (SR 131) at Twin Oak Lane after the completion of the subdivision. FMA recommends a 75 foot storage length, a 165 foot bay taper and a minimum 11 foot lane width. The detailed design of the turn lane should be coordinated with the Tennessee Department of Transportation (TDOT) and Knox County Engineering & Public Works.

A southbound right turn lane is not warranted at the intersection of Tazewell Pike (SR 131) at Twin Oak Lane after the completion of the subdivision.

**Twin Oak Landing Subdivision
Traffic Impact Study
August 10, 2020**

7.2 Twin Oak Lane

The existing width of Twin Oak Lane between the intersection with Tazewell Pike (SR 131) and the proposed project entrance varies from approximately 11.5 feet to 14 feet. The minimum pavement width for a local street is 26 feet per the “Minimum Subdivision Regulations” for Knoxville and Knox County. FMA recommends that the pavement width on Twin Oak Lane be widened to a maximum of 26 feet. The widening of Twin Oak Lane should be coordinated with Knox County Engineering & Public Works.

2-SD-24-C / 2-D-24-DP
Revised: 1/19/2024



January 19, 2024

Mr. Mike Conger
Knoxville-Knox County Planning
400 Main Street, Suite 403
Knoxville, TN 37902

Re: Traffic Letter for Twin Oak Landing Subdivision

Dear Mr. Conger:

Highway Markings, Inc is in the construction phase of the proposed Twin Oak Landing Subdivision located at 7718 and 7615 Twin Oak Lane in Knoxville, Tennessee. The development will consist of a total of 111 single family lots. Construction is proposed to take place this year and this analysis assumes full build out for the development will occur in 2026.

Access to/from the proposed subdivision will access the roadway network at the existing intersection of Twin Oak Lane at Tazewell Pike (SR 131). The intersection is located approximately 800 feet north of the Gibbs Elementary School Access Road and approximately 1,450 feet south of the intersection of Barker Road.

Sidewalks are proposed throughout the subdivision as well as along Tazewell Pike (SR 131) to allow pedestrian access to the Gibbs Schools. A copy of the latest Concept Plan layout is included in the attachments.

Fulghum, MacIndoe & Associates conducted a traffic impact study for this development "Twin Oak Landing Subdivision" revised April 26, 2017. As a result of this traffic impact study a northbound left turn lane with a 75 foot storage length and a 165 foot bay taper length was recommended to be installed at the existing intersection of Tazewell Pike (SR 131) at Twin Oak Lane during the construction of the Twin Oak Landing Subdivision.

The purpose of this traffic letter is to update the turn lane warrant analysis and recommendations per the TDOT Highway System Access Manual.

Existing Site Conditions

Tazewell Pike (SR 131) is a two-lane road at the intersection with Twin Oak Lane. Knoxville-Knox County Planning classifies Tazewell Pike (SR 131) as a Minor Arterial with an 88 feet right-of-way between Old Broadway and the Union County Line per the Major Road Plan. The posted speed limit on Tazewell Pike (SR 131) is 40 mph. Tazewell Pike

(SR 131) has no existing sidewalks or designated bike lanes in the vicinity of the proposed development.

Twin Oak Lane is a two-lane dead-end road. The Knoxville-Knox County Planning Major Road Plan does not classify Twin Oak Lane; therefore, it is considered a local street. There is no posted speed limit on Twin Oak Lane.

An aerial photo of the existing intersection of Tazewell Pike (SR 131) at Twin Oak Lane is included in the attachments.

Traffic Volumes

Fulghum, MacIndoe & Associates conducted a six-hour turning movement count at the intersection of Tazewell Pike (SR 131) and Twin Oak Lane on Wednesday March 22, 2017. The AM peak hour occurred between 7:00 a.m. and 8:00 a.m. with an AM PHF (peak hour factor) of 0.75 and the PM peak hour occurred between 5:00 p.m. and 6:00 p.m. with a PM PHF of 0.89. The existing AM and PM peak hour traffic volumes are shown in Figure 1 and the count data collected is included in the attachments.

Background Growth

The annual growth rate for the TDOT station #47000006 between 2002 and 2022 is approximately 0.36% and the 2022 ADT was 8,384 vehicles per day. In order to calculate traffic for the background year 2026 an annual growth rate of 1% was used. The TDOT trend line growth chart is included in the attachments.

In addition to the background growth, the trips from the new Gibbs Middle School located near the intersection of Tazewell Pike (SR 131) and Twin Oak Lane were calculated and included in the projected background peak hour traffic. Gibbs Middle School was designed with a capacity for 800 students. Middle School/Junior High School or Land Use 522 was used to calculate site trips for the proposed Gibbs Middle School using the average rate from Trip Generation, 11th Edition, published by the Institute of Transportation Engineers. The land use worksheets are included in the attachments and a trip generation summary is shown in Table 1.

**Table 1
 Gibbs Middle School
 Trip Generation Summary**

Land Use	Density	Daily Trips	AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit
Middle School / Junior High School (Land Use 522)	800 Students	1,680	289	247	58	62

The “Twin Oak Landing Subdivision” traffic impact study conducted by Fulghum, MacIndoe & Associates and revised April 26, 2017 made the following assumptions

regarding trip distribution for the Gibbs Middle School which opened its doors to students in the Fall of 2018. "It is expected that the traffic at the intersection of Twin Oak Lane at Tazewell Pike (SR 131) will increase by approximately 15% of the entering traffic (southbound) and 15% of the exiting traffic (northbound)."

The resulting additional trips from the Gibbs Middle School were estimated to be 43 trips during the AM peak hour and 9 trips during the PM peak hour for the southbound thru movement and 37 trips during the AM peak hour and 9 trips during the PM peak hour for the northbound thru movement. The proposed background trips from the Gibbs Middle School were added to the intersection of Tazewell Pike (SR 131) and Twin Oak Lane for the background peak hour.

Figure 3 demonstrates the projected background peak hour volumes at the intersection after applying both the background growth rate and the inclusion of the additional trips from the Gibbs Middle School to the existing conditions.

Trip Generation

The Twin Oak Landing Subdivision residential development proposes 111 single family lots. Single-Family Detached Housing or Land Use 210 was used to calculate site trips for the development using the fitted curve equations from the *Trip Generation, 11th Edition*, published by the Institute of Transportation Engineers. Land use worksheets are included in the attachments.

The total combined new trips generated by the Twin Oak Landing residential development were estimated to be 1,111 daily trips. The estimated trips are 82 trips during the AM peak hour and 110 trips during the PM peak hour. A trip generation summary is shown in Table 2.

**Table 2
 Twin Oak Landing Subdivision
 Trip Generation Summary**

Land Use	Density	Daily Trips	AM Peak Hour		PM Peak Hour	
			Enter	Exit	Enter	Exit
Single-Family Detached Housing (LUC 210)	111 Lots	1,111	21	61	69	41

Trip Distribution

The directional distribution of the traffic generated by the proposed Twin Oak Landing Subdivision was determined using the traffic data collected for the existing conditions. The typical weekday traffic pattern is for traffic to flow heavier in one direction in the morning peak period and then for the traffic to be heavier in the opposite direction during the evening peak period. Tazewell Pike (SR 131) at the intersection with Twin Oak Lane has an

Mr. Conger
January 19, 2024
Page 4 of 5

existing trip distribution of 25% northbound and 75% southbound during the AM peak hour and 65% northbound and 35% southbound during the PM peak hour.

The entering/exiting trip distribution for the proposed Twin Oak Landing subdivision was assumed to be 85% entering/exiting south towards the Gibbs Schools and the intersection of Tazewell Pike (SR 131) at E Emory Road and 15% entering/exiting north towards the Union County line.

Figure 4 shows the peak hour trip distribution. Figure 5 shows the peak hour site trips from the Twin Oak Landing Subdivision and Figure 6 shows the combined 2026 full buildout site traffic.

Turn Lane Warrant Analysis - TDOT

The intersection of Tazewell Pike (SR 131) and Twin Oak Lane was evaluated to determine if a northbound left turn lane or a southbound right turn on Tazewell Pike (SR 131) is warranted. The TDOT Highway System Access Manual (HSAM) Volume 3: Geometric Design Criteria dated April 2021 was used to analyze the information.

In order to evaluate the left turn lane warrant, the Major Highway Volume (veh/h/ln) was calculated for Tazewell Pike (SR 131) during both the AM and PM peak hours. The Major Highway Volume (veh/h/ln) was calculated as 454 veh/h/ln during the AM peak hour and 370 veh/h/ln during the PM peak hour. Per Figure 3-16: Left Turn Lane Warrant for Two-Lane Rural Roadways (Unsignalized) the existing, background and full buildout conditions warrant a left turn lane during the PM peak hour. The AM peak hour will warrant a left turn lane after 25 single-family homes are completed.

In order to evaluate the right turn lane, the Major-Road Volume, (one direction), veh/h was referenced. Tazewell Pike (SR 131) has a volume of 682 veh/h during the AM peak hour and 256 veh/h during the PM peak hour. Per Figure 3-18: Right-Turn Warrant along Two-Lane Roadway (Unsignalized Intersection with Two-Way Stop-Control the existing, background and full buildout right turn volumes onto Twin Oak Lane do not warrant a right turn lane per the TDOT Highway System Access Manual.

The TDOT Highway System Access Manual Figures are included in the attachments.

Turn Lane Recommendation

The TDOT Highway System Access Manual (HSAM) Volume 3: Geometric Design Criteria dated April 2021 recommends a minimum storage length of 50 feet on a roadway with an approximate left turn lane peak hour volume of 60 veh/h and minimum lane change and deceleration distance of 265 feet for a roadway with a 40 mph speed limit for a total length of 315 feet. The minimum bay taper length is calculated as 147 feet based on the proposed 11-foot turn lane width and existing 40 mph speed limit.

A continuation of the existing two-way left-turn lane on Tazewell Pike (SR 131) between the Gibbs Elementary School Access Road and Twin Oak Lane should be considered as another option in lieu of installing a separate left turn lane at the intersection with Twin Oak Lane

Mr. Conger
January 19, 2024
Page 5 of 5

due to the overlapping road width and turn lane transitions. The additional left turn lane storage provided by a two-way left turn lane is not a requirement of the proposed Twin Oak Landing Subdivision.

The "Twin Oak Landing Subdivision" traffic impact study conducted by Fulghum, MacIndoe & Associates and revised April 26, 2017 recommended a 75 foot storage length and a 165 foot bay taper length for the proposed left turn lane with an 11 foot width at the intersection of Tazewell Pike (SR 131) at Twin Oak Lane.

Conclusion and Recommendations

A northbound left turn lane at the intersection of Tazewell Pike (SR 131) at Twin Oak Lane is warranted after the full buildout of the Twin Oak Landing Subdivision. Ardurra calculated that 25 single family homes can be built prior to meeting the left turn lane warrant threshold per the TDOT Highway System Access Manual.

The "Twin Oak Landing Subdivision" traffic impact study conducted by Fulghum, MacIndoe & Associates and revised April 26, 2017 recommended a 75 foot storage length and a 165 foot bay taper length for the proposed left turn lane assuming an 11 foot turn lane width.

The Twin Oak Landing Concept Plan shows a northbound left turn lane on Tazewell Pike (SR 131) with a 75 foot storage length and 165 foot bay taper length.

Any future improvements to the intersection or various traffic management infrastructure, would need to be reviewed, coordinated and approved by the Tennessee Department of Transportation and Knox County Engineering and Public Works.

Ardurra recommends that the signs and pavement markings be installed in accordance with the standards provided in the Manual on Uniform Traffic Control Devices (MUTCD).

I hope that this is helpful. Please contact me if you have any questions.

Thank you,



Addie Kirkham, P.E.
Enclosure: Attachments



Development Request

DEVELOPMENT

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

SUBDIVISION

- Concept Plan
- Final Plat

ZONING

- Plan Amendment
 - Sector Plan
 - One Year Plan
- Rezoning

Highway Markings / Paul G. Hibben

Applicant Name		Affiliation
12/28/2023	2/8/2024	2-SD-24-C / 2-D-24-DP
Date Filed	Meeting Date (if applicable)	File Number(s)

CORRESPONDENCE

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

Garrett M. Tucker, PE, RLS, Robert Campbell and Associates

Name / Company
7523 Taggart Ln Knoxville TN 37938
Address
865-947-5996 / GTucker@RGC-A.com
Phone / Email

CURRENT PROPERTY INFO

Paul G. Hibben Highway Markings	8333 Coppock Rd Corryton TN 37721	865-922-1550 / gary@highway
Owner Name (if different)	Owner Address	Owner Phone / Email
7615 TWIN OAK LN / 7718 TWIN OAK LN	Property Address	
21 001, 013 049	33.96 acres	
Parcel ID	Part of Parcel (Y/N)?	Tract Size
Hallsdale-Powell Utility District	Hallsdale-Powell Utility District	
Sewer Provider	Water Provider	Septic (Y/N)

STAFF USE ONLY

West side of Tazewell Pike, south side of Twin Oak Ln

General Location		
<input type="checkbox"/> City	Commission District 8	PR (Planned Residential) up to 4 du/ac
<input checked="" type="checkbox"/> Count	District	Zoning District
Northeast County	LDR (Low Density Residential)	Planned Growth Area
Planning Sector	Sector Plan Land Use Classification	Growth Policy Plan Designation
		Agriculture/Forestry/Vacant Land
		Existing Land Use

DEVELOPMENT REQUEST

<input checked="" type="checkbox"/> Development Plan <input type="checkbox"/> Planned Development <input type="checkbox"/> Use on Review / Special Use	Related City Permit Number(s)
<input type="checkbox"/> Hillside Protection COA <input type="checkbox"/> Residential <input type="checkbox"/> Non-residential	
Home Occupation (specify) _____	
Other (specify) 111-lot single-family subdivision in the PR zone	

SUBDIVISION REQUEST

Twin Oak Landing	Related Rezoning File Number
Proposed Subdivision Name	
Unit / Phase Number	111
<input checked="" type="checkbox"/> Split Parcels	Total Number of Lots Created
Additional Information _____	
<input checked="" type="checkbox"/> Attachments / Additional Requirements	

ZONING REQUEST

<input type="checkbox"/> Zoning Change	Proposed Zoning	Pending Plat File Number
<input type="checkbox"/> Plan Amendment		
Proposed Plan Designation(s) _____		
Proposed Density (units/acre) Previous Zoning Requests		
Additional Information _____		

STAFF USE ONLY

PLAT TYPE <input type="checkbox"/> Staff Review <input type="checkbox"/> Planning Commission	Fee 1	Total
ATTACHMENTS <input type="checkbox"/> Property Owners / Option Holders <input type="checkbox"/> Variance Request	\$1,600.00	
ADDITIONAL REQUIREMENTS <input type="checkbox"/> COA Checklist (Hillside Protection) <input type="checkbox"/> Design Plan Certification (Final Plat) <input checked="" type="checkbox"/> Site Plan (Development Request) <input type="checkbox"/> Traffic Impact Study <input checked="" type="checkbox"/> Use on Review / Special Use (Concept Plan)	Fee 2	
	Fee 3	

AUTHORIZATION

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

Applicant Signature	Highway Markings / Paul G. Hibben	12/28/2023
	Please Print	Date

Property Owner Signature	Paul G. Hibben Highway Markings	12/28/2023
	Please Print	Date



Development Request

DEVELOPMENT

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

SUBDIVISION

- Concept Plan
- Final Plat

ZONING

- Plan Amendment
 - SP
 - OYP
- Rezoning

Applicant Name

Affiliation

Date Filed

Meeting Date (if applicable)

File Number(s)

CORRESPONDENCE

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

- Applicant
- Property Owner
- Option Holder
- Project Surveyor
- Engineer
- Architect/Landscape Architect

Name

Company

Address

City

State

ZIP

Phone

Email

CURRENT PROPERTY INFO

Property Owner Name (if different)

Property Owner Address

Property Owner Phone

049

Property Address

Parcel ID

----- HPUD

Sewer Provider

Water Provider

Septic (Y/N)

STAFF USE ONLY

General Location

Tract Size

City County

District

Zoning District

Existing Land Use

Planning Sector

Sector Plan Land Use Classification

Growth Policy Plan Designation

DEVELOPMENT REQUEST

- Development Plan Use on Review / Special Use Hillside Protection COA
 Residential Non-Residential

Home Occupation (specify) _____

Other (specify) **111-lot single-family subdivision in the PR zone**

Related City Permit Number(s)

SUBDIVISION REQUEST

Proposed Subdivision Name

Unit / Phase Number Combine Parcels Divide Parcel

Total Number of Lots Created

Other (specify) _____

Attachments / Additional Requirements

Related Rezoning File Number

ZONING REQUEST

Zoning Change

Proposed Zoning

Plan Amendment Change

Proposed Plan Designation(s)

Proposed Density (units/acre)

Previous Rezoning Requests

Other (specify) _____

Pending Plat File Number

STAFF USE ONLY

PLAT TYPE

- Staff Review Planning Commission

ATTACHMENTS

- Property Owners / Option Holders Variance Request

ADDITIONAL REQUIREMENTS

- Design Plan Certification (*Final Plat*)
 Use on Review / Special Use (*Concept Plan*)
 Traffic Impact Study
 COA Checklist (*Hillside Protection*)

Fee 1	Total
Fee 2	
Fee 3	

AUTHORIZATION


Applicant Signature

Please Print

Date

Phone Number

Email

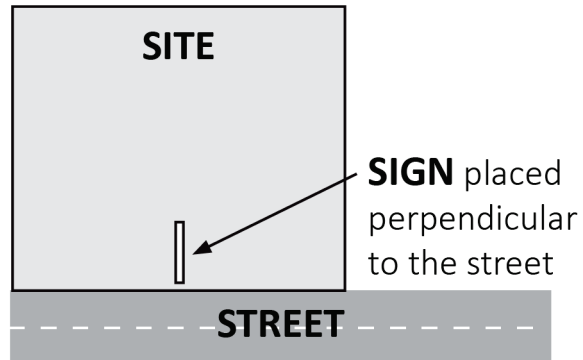

Property Owner Signature

Please Print

Date

I declare under penalty of perjury the foregoing [i.e., he/she/they is/are the owner of the property and that the application and all associated materials are being submitted with his/her/their consent] is true and correct.

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



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

LOCATION AND VISIBILITY

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

TIMING

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

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

_____ January 26, 2024 _____ and _____ February 9, 2024 _____
(applicant or staff to post sign) (applicant to remove sign)

Applicant Name: Highway Markings / Paul G. Hibben

Date: 12/28/2023

File Number: 2-D-24-DP & 2-SD-24-C



Sign posted by Staff



Sign posted by Applicant