



**City of North Little Rock
Board of Zoning Adjustment Agenda
Thursday, January 26, 2023 - 1:30 PM
Conference Room B – City Services Building – 120 Main Street, NLR, AR 72114**

Call to Order -

Roll Call and finding of a Quorum -

Approval of Minutes - December 29, 2022

Public Hearing Items -

1. **BOA 2023-04**, 2612 Gribble Street, NLR, AR, a variance request from the area provision of Section 4.3.3: I1 Office Warehouse District (C) Area Requirements Table to allow a reduced side yard setback along the western perimeter reducing the setback from 30-feet required to 11.52-feet
2. **BOA #2022-05**, 404 Chimney Rock Drive, NLR, AR a variance request from the area provision of Section 5.20 to allow an increased height of a front yard retaining wall allowing the height to taper from 7-feet in height to 2-feet in height

Administrative –

Public Comment -

Adjournment –

Reminder -

- Turn off cell phones
- Board of Adjustment Hearing procedures on back of the Agenda
- Visitors sign-in with both name **and** address

Next Board of Zoning Adjustment Hearing Filing Deadline February 1, 2023 Hearing Date February 23, 2023

For the Board to grant a variance the applicant must first establish a hardship. A hardship should not be created by the owner, it should be due to unique circumstances existing on the property. For example, it must be demonstrated a strict enforcement of the Zoning Ordinance would prohibit the development of the property or no reasonable use of the property can be made.



**NORTH LITTLE ROCK
BOARD OF ZONING ADJUSTMENT
HEARING PROCEDURES
(1/1/2019)**

Order of the Public Hearing: The regularly scheduled public hearing is generally held on the last Thursday of each month at 1:30 PM in the City Council Chambers, 300 Main Street, North Little Rock, AR. All meetings are open to the public. Typical hearings begin with roll call and finding of a quorum, approval of the previous meeting minutes, correspondence and staff reports, committee reports, unfinished business, new business, public comment and adjournment.

Voting: There are five members of the Board. A quorum consists of three members present. “Robert’s Rules of Order” apply unless the Board has outlined alternative procedures. All business must be approved by a minimum of three votes.

Procedure to allow a person to address or approach the Board:

1. No person shall address or approach the Board without first being recognized by the Chair.
2. After being recognized, each person shall state their name and address for the record.
3. All questions and remarks shall be addressed through the Chair.
4. All remarks shall be addressed to the Board as a whole and not to any individual Board member.
5. When a group of citizens are present to speak on an item, a spokesperson may be selected by the group to address the Board. If multiple individuals of the group desires to speak, the Chair may limit each presentation to three minutes.
6. No person other than members of the Board and the person having the floor shall be permitted to enter into any discussion, either directly, indirectly or through a Board member, without permission of the Chair.
7. Once the question has been called, no person in the audience shall address the Board on the matter at hand without first securing permission to do so by a majority vote of the Board.
8. At least 24-hours prior to the public hearing, anyone wishing to submit exhibits for the record shall provide staff with copies of the exhibits for each Board member, one copy of the exhibit for staff to place in the permanent file and one copy of the exhibit for the legal department.
9. At least 24-hours prior to the public hearing, anyone wishing to read a statement into the record shall provide staff with a written copy of the statement.

**North Little Rock Board of Zoning Adjustment
Minute Record Summary – December 29, 2022**

Chairman Tom Brown called the meeting of the North Little Rock Board of Zoning Adjustment to order at 1:30 P.M. in Conference Room B of the City Services Building, 120 Main Street, North Little Rock, AR. Roll call found a quorum to be present; a quorum being three members present.

Members Present

Mr. Tom Brown, Chairman
Mr. Mike Abele
Mr. Gardner Burton
Mr. Steve Sparr

Members Absent

Mr. Tim Giattina, Vice-Chair

Staff Present

Ms. Donna James, Assistant Director of Planning
Mr. Tracy Spillman, City Planner
Ms. Marie Miller, City Attorney

Others Present

Ms. Sharon Bowers
Mr. Billy Stain
Mr. Jonathon Rogers
Mr. Jason Scheffer of Halff Engineering
Ms. Kim Tipton
Ms. Tiffany Pike

Old Business

None

Administrative

Mr. Sparr formed a motion to excusing Mr. Giattina. Mr. Burton provided a second. All members voted in the affirmative, the motion was approved.

Approval of Minutes

Mr. Sparr formed a motion to approve the minutes from November 17, 2022. Mr. Burton seconded the motion. Chairman Brown called for a vote. All members voted in the affirmative, the motion was approved.

Public Hearing Items –

BOA 2022-38, 1515 W 16th Street, A variance to allow the placement of a fence on a currently vacant lot. Chairman Brown called the item and requested the applicant come forward and provide their hardship. Ms. Sharon Bowers stating her address of 1516 W 16th Street. She stated she purchased the property last year and was proposing to build a house on the lot. She stated her hardship was the property was vacant for over 30-years and people had been using the property as a dumping ground. Dumping beer bottles and trash. She stated there was a carport on the property which she removed. She stated she had cut the underbrush and trees. She stated when she was off work she came by to clean the lot. She stated she removed the fence to allow a privacy fence to be installed. She stated her hardship was people trespassing on her property.

Chairman Brown questioned if Ms. Bowers intended to build a house on the property. Mr. Bowers stated she did intent to build a house on the property but could not build at this time. She stated the hardship was the trash and people walking on her property.

Chairman Brown questioned the fence height and material. Ms. Bowers stated the fence was proposed 6-feet to 8-feet in height. She stated the fence did not have to be tall just in place to keep people off her property. She stated she needed a shed to store her belongings on the property. She stated she was currently renting space to store her personal items.

Chairman Brown stated the Board could not consider the request for the shed since the shed was not in the current request. Staff stated the Board could not consider allowing a use on the property that was not allowed. Staff stated the shed would become the primary use of the property, which was not allowed on the property under the current zoning. Staff stated if she wished to pursue the shed Ms. Bowers would need to request a Special Use via City Council to allow the placement of the shed without a primary structure.

Ms. Bowers stated the hardship was people were stealing items from her property. She stated someone stole the no trespassing sign. She stated the vandals were pulling her mailbox down. She stated she wanted the fence to keep people off her property.

There was a general discussion by the Board concerning the fence placement and fence heights. Staff stated within the front setback the maximum height fencing allowed was 3 ½-feet. The side yard fence maximum height allowed was 6-feet and the rear yard maximum height allowed was 8-feet. The Board questioned the front setback on the property with no primary structure. Staff stated the 6-foot fence could not extend beyond the front setback of the adjacent homes.

Chairman Brown stated the front would need to remain open. Ms. Bowers stated this was not an issue. She stated the front could remain open. She stated she wanted to keep people out on either side of her property. Mr. Sparr questioned the existing fencing located on the property. Ms. Bowers stated there was a chain link fence on the sides of the property but the chain link fence did not belong to her. Mr. Sparr questioned if there was a fence on three sides how this would keep people from dumping. Ms. Bowers stated she felt the fence would deter people from dumping. She stated she was tired of people dumping on her property.

North Little Rock Board of Zoning Adjustment

Minute Record – December 29, 2022

Page 3 of 4

Mr. Burton stated the fence in the front could only be 3 ½- feet in height. She stated the fence would be placed to come up to the front of the adjacent house. She stated the fence was the only means of keeping people off her property.

Chairman Brown questioned if any of the Board members had any questions or comments. He then questioned if anyone in the audience wanted to address the Board. There being none, he stated he would entertain a motion for approval of the variance request. Mr. Burton provided a motion for approval of the item based on the applicants stated hardship. Mr. Abele provided a second to the motion. By a roll call vote, members Abele and Burton voted in the affirmative and members Brown and Sparr voted in the negative. The motion failed.

BOA 2022-39, 17212 Crooked Oak Drive, A variance to allow a reduced rear yard setback. Mr. Billy Stain addressed the Board on the merits of the request. He stated his hardship was the shape of the lot. He stated the street was constructed as a cul-de-sac, which took a large area out of the lot. He stated the setback on the rear was 15-feet. He stated the Bill of Assurance required a minimum building size of 1800 square feet. He stated he could not building a smaller house and still meet the requirements of the Bill of Assurance. Chairman Brown questioned the hardship. Mr. Stain stated the hardship was the irregular shape of the lot.

Chairman Brown questioned if any of the Board members had any questions or comments. There being none, he stated he would entertain a motion for approval of the variance request. Mr. Sparr provided a motion for approval of the item based on the applicants stated hardship. Mr. Burton provided a second to the motion. By a roll call vote, all members voted in the affirmative.

BOA 2023-01, 16 Maumelle Court, A variance to allow the placement of an accessory building within the side yard. Jonathon Rogers, the owner, was present representing the request. Chairman Brown called the item and requested the applicant come forward and state the hardship. The applicant stated he was representing Arnold & Blevins Electric. He stated they were moving their business from 3716 Harold Street to Maumelle Curve Court. He stated the company wanted to stay in North Little Rock but needed to relocate due to flooding issues at the current location. Mr. Rogers stated the building at Maumelle Curve Court was of sufficient size to house the operations and warehouse. He stated the issue was the business needed a small storage building and the only place for placement was within the side yard. He stated the building occupied most of the existing lot and there was not sufficient area to place the storage within the rear yard. He stated the variance was necessary due to the depth of the lot. Chairman Brown questioned if the hardship was the topography of the land. Mr. Rogers replied in the affirmative.

Chairman Brown questioned if any of the Board members had any questions or comments. He questioned if anyone in the audience was present to speak for or against the item. There being none, he stated he would entertain a motion for approval of the variance request. Mr. Sparr provided a motion for approval of the item based on the applicants stated hardship. Mr. Burton provided a second to the motion. By a roll call vote, all members voted in the affirmative.

BOA 2023-02, 4116 E Broadway, A variance to allow a reduced setback along Coral Street and along

E Broadway Street and a variance to allow a reduced number of on-site parking spaces. Mr. Jason Scheffer of Halff Engineering and Ms. Kim Tipton came forward to represent the request. Ms. Tipton stated she was in the process of leaving North Little Rock since her current building no longer meet her needs. She stated City Council came to her and requested she speak with the Mayor. She stated they requested she stay but to stay at her current location she needed variances to allow an addition to her building. She stated the building expansion included a new indoor firing range, which would accommodate North Little Rock PD. She stated her hardship was the topography of the land.

Ms. Tiffany Pike addressed the Board with concerns. She stated her property boarded Ms. Tipton's property on the north. She stated her concern was the encroachment of the new construction onto her property. She stated her concern was the placement of the firing range adjacent to her property.

Staff provided Ms. Pike with a copy of the site plan for review. Ms. Pike stated the corner was adjacent to her house. Mr. Scheffer stated Ms. Pike's house was constructed near the property line. Mr. Scheffer stated there were no variances of the back setback along this common property line. He stated the variance was along Coral Street. He stated there was at least a 20-foot setback between her house and the new building area.

Chairman Brown questioned if any of the Board members had any questions or comments. There being none, he stated he would entertain a motion for approval of the variance request. Mr. Sparr provided a motion for approval of the item based on the applicants stated hardship. Mr. Burton provided a second to the motion. By a roll call vote, all members voted in the affirmative.

BOA 2023-03, 8110 Baucum Pike Road, A variance to allow an increase in tower height for an existing tower currently at 146-feet and proposed with a new height of 166-feet. Chairman Brown called the item. The applicant was not present. Chairman Brown stated the item was postponed to the January hearing.

Public Comment and Adjournment

There being no further business before the Board, and on the motion of Mr. Sparr provided and seconded by Mr. Abele, and by consent of all members present, the meeting was adjourn at 2:05 PM.

Approved on this 26th day of January, 2023

Tom Brown, Chairman

Variance Requested: a variance request from the area provision of Section 4.3.3: I1 Office Warehouse District (C) Area Requirements Table to allow a reduced side yard setback along the western perimeter reducing the setback from 30-feet required to 11.52-feet.

Location of the Request: 2612 Gribble Street, NLR, AR

Legal Description of the Property: Lot 1 House Properties Addition to the City of North Little Rock, Pulaski County, AR

Owner: House Properties Inc.

Applicant: Tucker Land Surveying

Present Use of the Property: Office Warehouse

Present Zoning of the Property: I1

Site Characteristics: The site contains office warehouse contained in 3 buildings. The northern building contains 9600 square feet of floor area. The remaining buildings contain 2400 and 800 square feet with a small 12' x 14' accessory building located along the southern perimeter.

Surrounding Zoning and Uses

| <u>Direction</u> | <u>Surrounding Zoning</u> | <u>Surrounding Uses</u> |
|-------------------------|----------------------------------|---------------------------------|
| North | R4 | Vacant property |
| South | NA – AR River | AR River |
| East | R4 & CONS | Undeveloped |
| West | R4 | Undeveloped & Private Boat Dock |

Justification: The applicant's justification is presented in an attached letter.

Staff Analysis: The applicant is seeking approval for a building expansion along the western façade of the building. The building expansion is 35-feet by 60-feet setback from the front property line 45-feet. The side yard setback is proposed at 12.08-feet. An existing drive along the western façade of the building will be closed to allow the expansion. The property is zoned I1 which typically requires the placement of a 40-foot side yard building setback.

A hardship is a special circumstance, which makes it very difficult for a particular project to meet the Zoning Ordinance requirement. Special circumstances are not interpreted to be something intangible, such as lack of knowledge of the code or misinformation at the time of purchase or construction. A hardship generally occurs when the physical characteristics of a property are such that it cannot be

developed as permitted by the zoning ordinance. A hardship may be created by surroundings, shape or topographical conditions particular to the specific property. A hardship cannot be self-imposed, or the result of the property owners own action.

Board to Consider:

1. Is the variance for which the variance is sought due to unique circumstances existing on the property, the unique circumstances were not created by the owner of the property, and are not due to or the result of general conditions in the district in which the property is located? No, the existing building was placed with a 42-foot side yard setback which does not allow for a building expansion as proposed and continue to comply with the required zoning setbacks.
2. Does the variance substantially or permanently injure the appropriate use of adjacent conforming property in the same district? No, the adjacent property is currently undeveloped.
3. Will approval of the variance alter the essential character of the district? No.
4. Will approval of the variance weaken the general intent and purpose of the land use and zoning plan? No, the land use and zoning will remain unchanged.
5. Will the approval of the variance be in harmony with the spirit of the ordinance? No, setbacks were established to protect adjacent property of dissimilar uses.
6. Will the approval of the variance adversely affect public health, safety, and general welfare? No, there will be no impact on the public health, safety and general welfare of the city.

Approval Allows:

1. Approval will allow the construction of a building addition within 12.08-feet of the western property line.
2. Approval of this variance request is valid for 180-days from date of approval. If a building permit is not secured within the 180-day period, approval becomes invalid unless, the Board of Zoning Adjustment has approved a request for a time extension. All requests for time extension must be made prior to the expiration of the Board's approval.

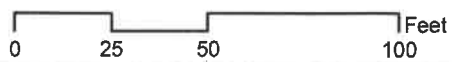
North Little Rock Board of Adjustment



BOA CASE #2023-04

Date: 1/13/2023

1 inch = 50 feet



User: jhale



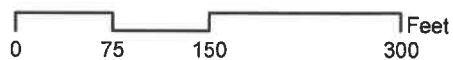
North Little Rock Board of Adjustment



BOA CASE #2023-04

Date: 1/13/2023

1 inch = 150 feet



User: jhale





North Little Rock Planning Department
120 Main Street
North Little Rock, AR 72114

RE: Site Plan Review
Proposed Building
Lot 1 House Properties Addition

To whom it may concern,

The application letter is in regard to a submittal made by Nick Tucker, PS #1755, to the North Little Rock Planning Department in regard to a site plan review for a new building addition at 2612 Gribble Street, NLR, AR.

Tucker Surveying is requesting that the site plan be reviewed by the board at the next meeting as scheduled.

The owner is requesting a to have the site plan approved to accommodate a new 2100 square feet building addition to an existing building along the west boundary line.

1. Building addition for Lot 1 seeking variance to the west side setbacks as shown on survey replat from 40 feet to 12 feet.

Enclosed please find a check for the replat in the amount of \$200.00 for the Site Plan review fees.

If you have any questions, please give me a call.

Sincerely,

Nick Tucker, PS #1755
Owner
Tucker Land Surveying
PO Box 1021
Cabot, AR 72023

Variance Requested: a variance request from the area provision of Section 5.20 to allow an increased height of a front yard retaining wall allowing the height to taper from 7-feet in height to 2-feet in height

Location of the Request: 404 Chimney Rock Drive, NLR, AR

Legal Description of the Property: Lot 24 Chimney Rock Addition to the City of North Little Rock, Pulaski County, AR

Owner: Ryan and Amy Friedman

Applicant: Noah Treat Construction LLC

Present Use of the Property: Single-family home under construction

Present Zoning of the Property: R1

Site Characteristics: The home is currently under construction located within the gated Chimney Rock Subdivision. Entry to the subdivision is from Fork River Road, which is located within the Sherwood, AR city limits. There is roughly 30-feet of fall from the rear of the lot to the front of the lot located on Chimney Rock Drive.

Surrounding Uses and Zoning

| <u>Direction</u> | <u>Surrounding Zoning</u> | <u>Surrounding Uses</u> |
|------------------|---------------------------|-------------------------|
| North | R1 | Single Family |
| South | R1 | Single Family |
| East | R1 | Single Family |
| West | R1 | Single Family |

Justification: The applicant's justification is presented in an attached letter.

Staff Analysis: The applicant is seeking a variance to allow the construction of a retaining wall with an increase wall height within the front yard. The applicant notes the wall ranges from 2-feet to 7-feet and is 72-feet long. The applicant has provided an engineered plan for the wall construction. The applicant states the need for the wall height is due to a 22-foot fall from north to south on the lot. He states the wall is necessary to shape the front yard and allow the building of steps and a walkway to the front door of the new home. In addition to providing stability for the future steps and walkway, the retaining wall will be incorporated in to the landscape features within the front yard area. Mr. Treat states the wall is proposed with 12-inch blocks filled with concrete, followed with a stone for

the exterior veneer. He notes the hardship is based on the topography of the lot and the steep sloping of the lot within the front yard area.

Section 5.20, Retaining Walls, of the North Little Rock Zoning Ordinance states the height of a retaining wall is measured from the top of the retaining wall to the existing grade, whichever is lower, directly below the retaining wall. The allowable height is 3 ½-feet in the front and side yards and 5-feet or less in the rear yard. Rear yard retaining walls greater than 3 ½-feet in height require the placement of a 3-foot fence and the combination of the wall and fence may not exceed 8-feet in height. Retaining walls greater than 5-feet require a stamped engineered drawing.

A hardship is a special circumstance, which makes it very difficult for a particular project to meet the Zoning Ordinance requirement. Special circumstances are not interpreted to be something intangible, such as lack of knowledge of the code or misinformation at the time of purchase or construction. A hardship generally occurs when the physical characteristics of a property are such that it cannot be developed as permitted by the zoning ordinance. A hardship may be created by surroundings, shape or topographical conditions particular to the specific property. A hardship cannot be self-imposed, or the result of the property owners own action.

Board to Consider:

1. Is the variance for which the variance is sought due to unique circumstances existing on the property, the unique circumstances were not created by the owner of the property, and are not due to or the result of general conditions in the district in which the property is located? Possible, the lot has a significant elevation change from side to side of the lot.
2. Does the variance substantially or permanently injure the appropriate use of adjacent conforming property in the same district? No, the approval of the variance for the retaining wall will not have an impact on the adjacent properties.
3. Will approval of the variance alter the essential character of the district? No, the wall is located as a landscape feature and is proposed stepping down as the grade becomes less steep.
4. Will approval of the variance weaken the general intent and purpose of the land use and zoning plan? No, the land use and zoning will remain unchanged.
5. Will the approval of the variance be in harmony with the spirit of the ordinance? Possibly, the topography of the lot creates a need for the retaining wall height as proposed.
6. Will the approval of the variance adversely affect public health, safety, and general welfare? No, the public health, safety and general welfare of the area will not be impacted.

Approval Allows:

1. Approval will allow the placement of a retaining wall with a maximum height of 7-feet and the placement of a 3-foot fence at the top of the retaining wall for a total height of wall and fence of 10-feet within the front yard.
2. Approval of this variance request is valid for 180-days from date of approval. If a building permit is not secured within the 180-day period, approval becomes invalid unless, the Board of Zoning

Adjustment has approved a request for a time extension. All requests for time extension must be made prior to the expiration of the Board's approval.

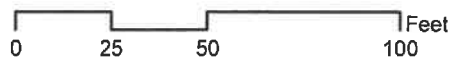
North Little Rock Board of Adjustment



BOA CASE #2023-05

Date: 1/13/2023

1 inch = 50 feet



User: jhale

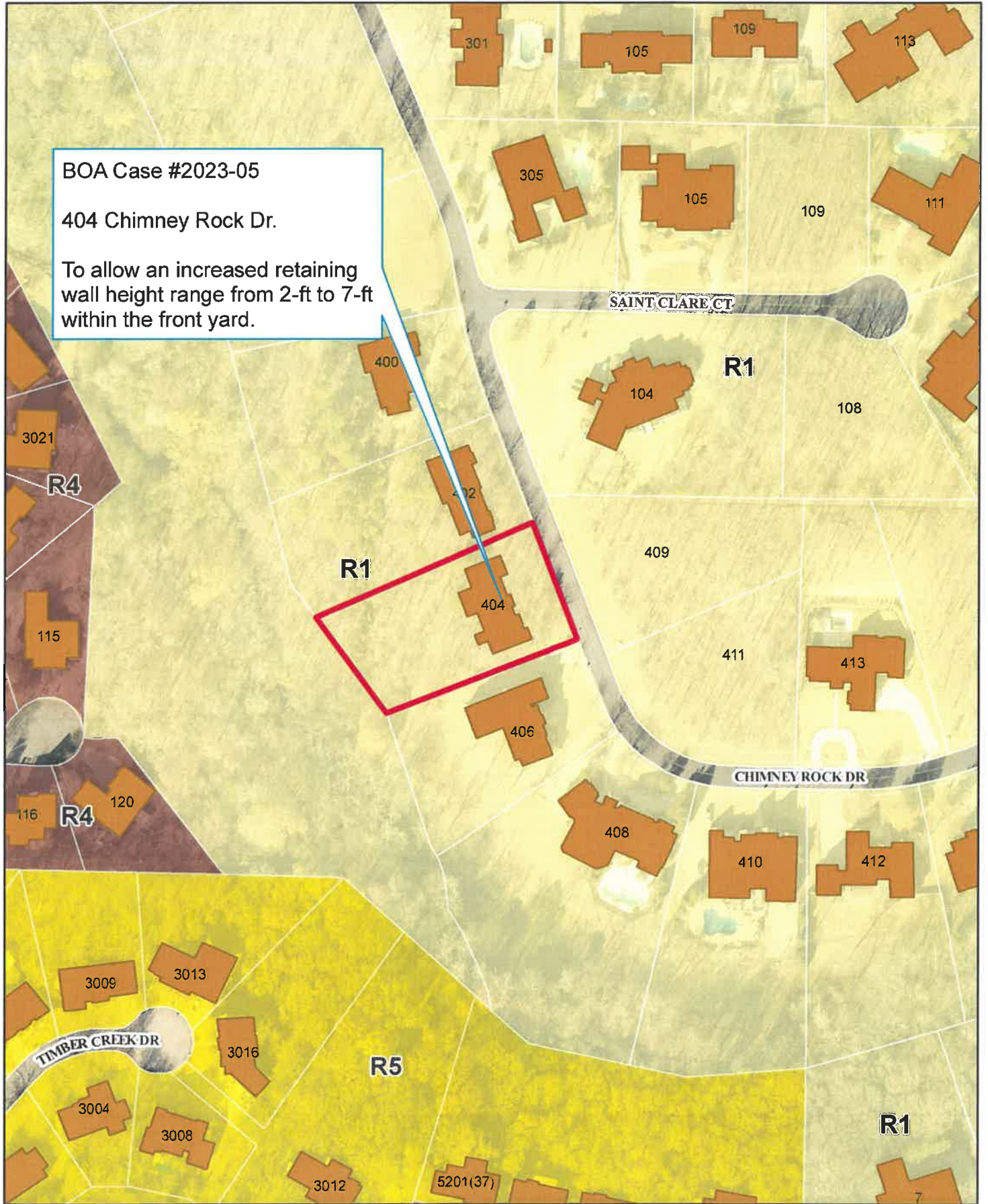


North Little Rock Board of Adjustment

BOA Case #2023-05

404 Chimney Rock Dr.

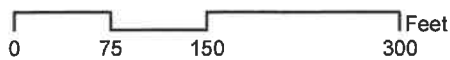
To allow an increased retaining wall height range from 2-ft to 7-ft within the front yard.



BOA CASE #2023-05

Date: 1/13/2023

1 inch = 150 feet



User: jhale





To Whom it may Concern:

December 28, 2022

RE: 404 Chimney Rock Dr

We will be building a retaining wall at 404 Chimney Rock Drive that will range in height from 7 feet to 2 feet and will be 72 feet long in total. The wall will be in the front of the house, south of the front entry way. We have an engineered plan that will be attached. I am also going to attach a drawing of the lot, the elevation and the location of the proposed wall. The reason why we need a wall that is so tall is that our lot has 22 feet of slope from the right to left. The wall will help shape the front yard and allow us to build steps and a walkway to the front door. Our wall will consist of 12 inch blocks filled with concrete, followed up with real stone on the exterior to follow guidelines set forth by the Chimney Rock POA. The Chimney Rock POA has already approved the design and specs and the proposed walls.

Thank you,

Eric Maxwell

Noah Treat Construction



To Whom it may Concern:

December 28, 2022

RE: 404 Chimney Rock Dr

I, Ryan Friedman, as property owner of 404 Chimney Rock Dr, give Noah Treat and Eric Maxwell of Noah Treat Construction permission to act as agent and speak on my behalf in front of the NLR Board of Zoning Adjustment on January 25, 2023.

Thank you,

A handwritten signature in black ink, appearing to be 'RF' or similar initials, written in a cursive style.

Ryan Friedman



BOND CONSULTING ENGINEERS, INC.

2601 T. P. White Drive
Jacksonville, Arkansas 72076
Phone: (501) 982-1538 Fax: (501) 982-1530

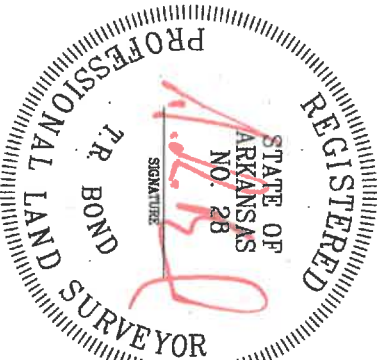
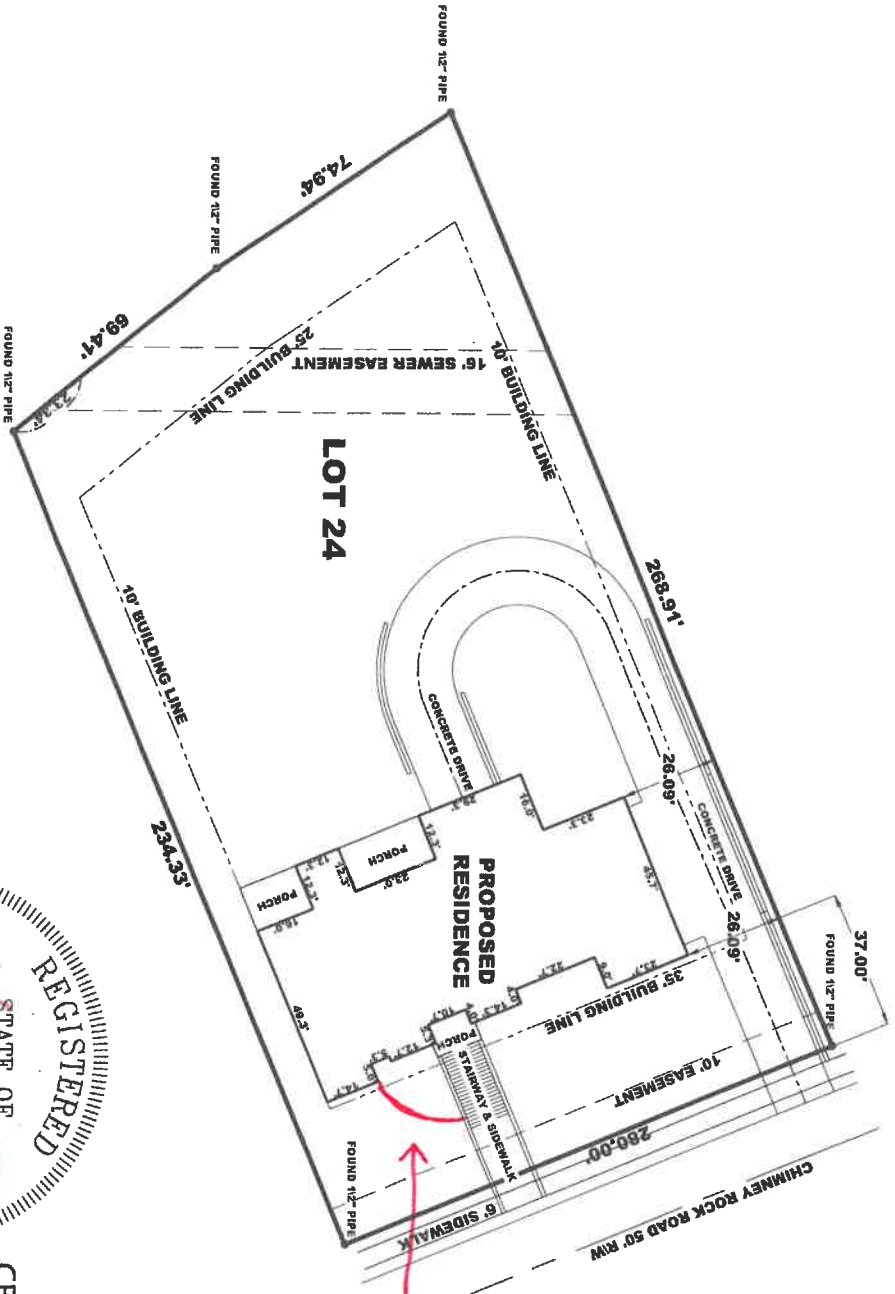
E-mail: bond@bondce.com
E-mail: tr@bondce.com

Prepared For:
Ryan and Amy Friedman
Living Trust
25 Kings River Road
N. Little Rock, AR 72116

PRELIMINARY PLOT PLAN
CHIMNEY ROCK SUBDIVISION
LOT 24
NORTH LITTLE ROCK, PULASKI COUNTY, ARKANSAS

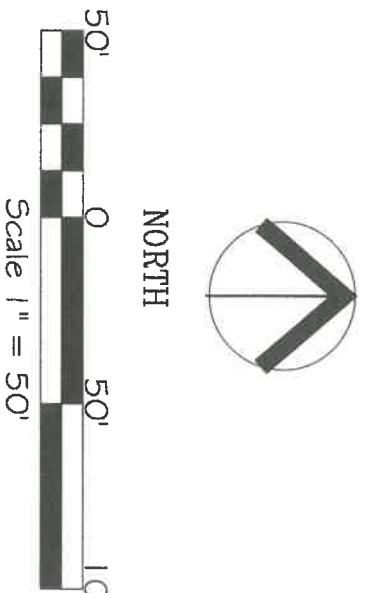
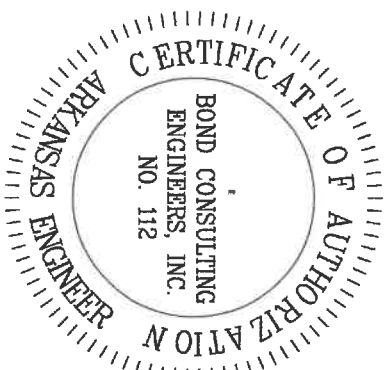
Scale: 1" = 50'
Date: JULY 13, 2021
Job No.: 8887
Drawn By: TS

GOOD STATEMENT:
2M FLOOD INSURANCE RATE MAP PANEL 05119C0361G
EFFECTIVE DATE: JULY 6, 2015 INDICATES THAT THIS PROPERTY
LOCATED ABOVE THE 100 YEAR FLOOD PLAN.



CERTIFICATE OF SURVEYING ACCURACY:
I HEREBY CERTIFY THAT THIS PLAT CORRECTLY REPRESENTS A SURVEY MADE BY ME OR UNDER MY SUPERVISION, AND THAT ALL CORNERS ARE SHOWN IN ACCORDANCE WITH THE EXISTING MONUMENTS OF THE AREA. IMPROVEMENTS ARE AS SHOWN.

T.R. BOND
REGISTERED LAND SURVEYOR
ARKANSAS LICENSE NO. 28



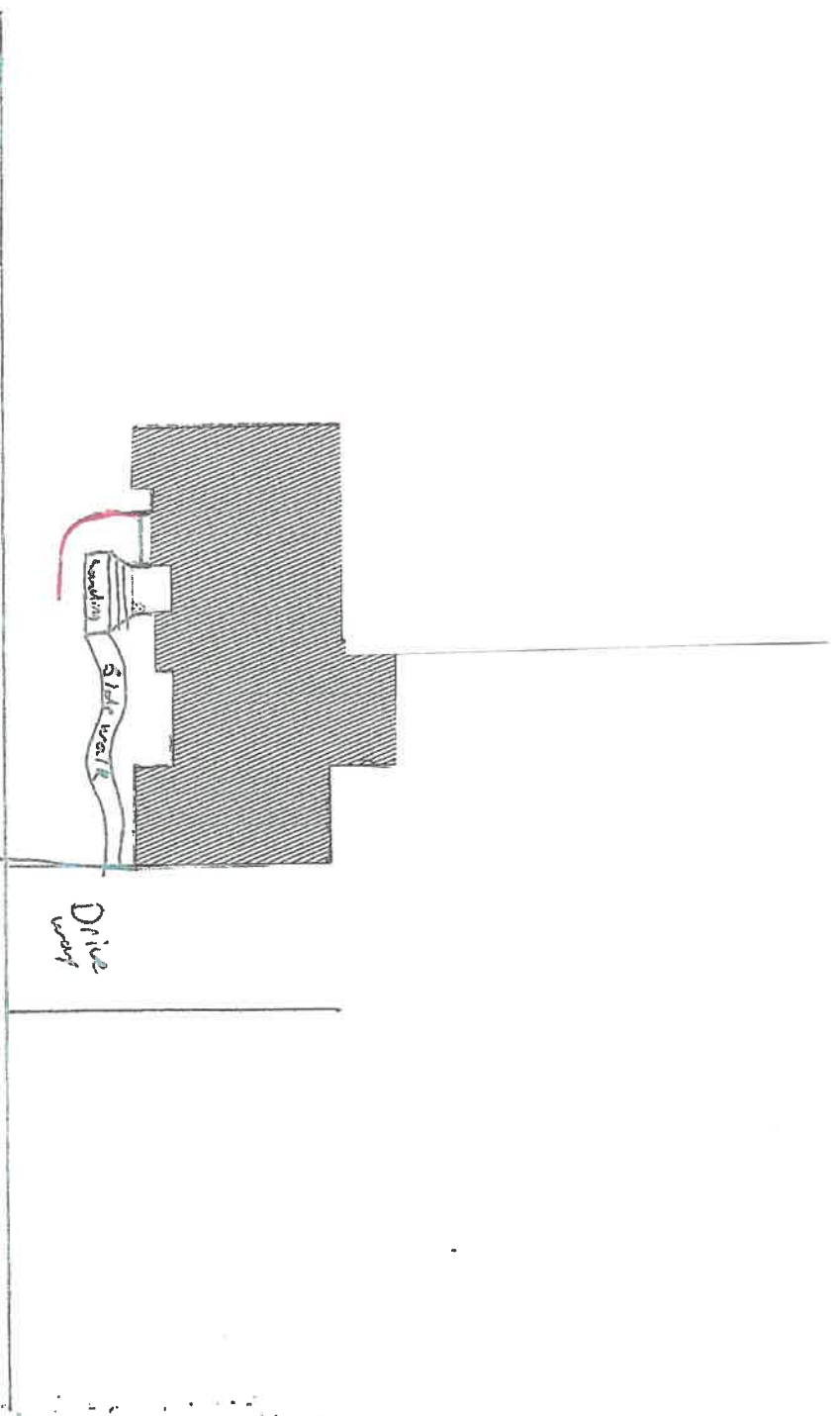
Proposed retaining wall

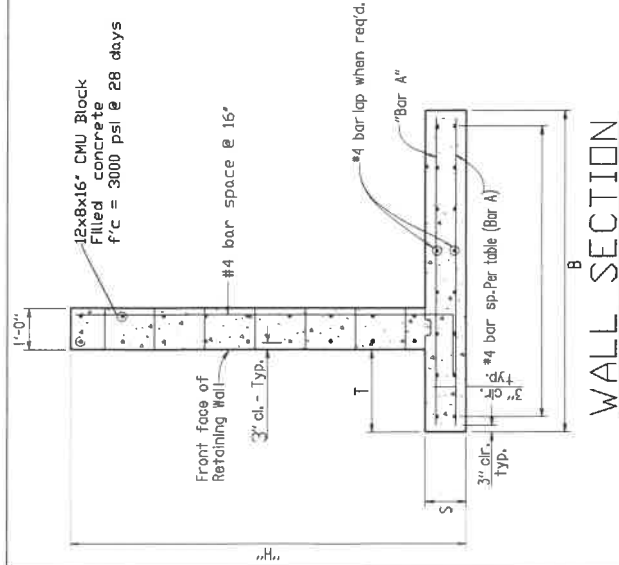
Red = retaining walls

404 Chimney Rock Dr.

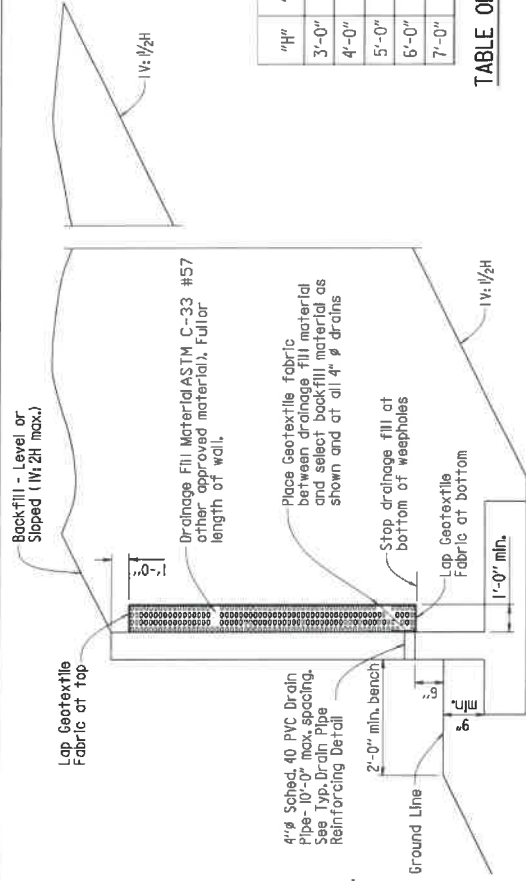
ROAD

Drive way





WALL SECTION



TYPICAL DRAINAGE & BACKFILL DETAILS

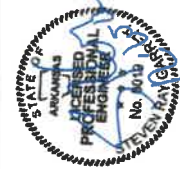
N.T.S.

| "H" | "T" | "B" | "S" | "Bar A" Size @ Spacing |
|-------|-----|-------|-----|------------------------|
| 3'-0" | 9" | 2'-0" | 12" | #4 @ 12" |
| 4'-0" | 9" | 2'-5" | 12" | #4 @ 12" |
| 5'-0" | 9" | 3'-0" | 12" | #4 @ 12" |
| 6'-0" | 9" | 3'-0" | 12" | #4 @ 12" |
| 7'-0" | 12" | 3'-6" | 12" | #4 @ 12" |

TABLE OF RETAINING WALL VARIABLES (LEVEL BACKFILL)

MTA Engineers

8001 National Drive, Little Rock AR 72209



| | | |
|---|------------------|-------------------------------|
| PROJECT NAME: 404 CHIMNEY ROCK DRIVE | DATE: 12/20/2022 | DRAWN BY: FABIEN MONDUN |
| CLIENT: NOAH TREAT | Scale: NTS | APPROVED BY: STEVE GARRETT |
| PROJECT LOCATION: NORTH LITTLE ROCK, AR | | MASONRY WALL PROFILE |
| | | SHEET 1 OF 1 |

$$P_{Backfill} = \frac{1}{2} * (K_a) * (\text{Backfill soil weight}) * (\text{Total Height})^2 * 1 \text{ foot}$$

$$F_{Sliding} = P_{Backfill} = 980.0 \text{ lbs}$$

$$F_{Resist} = W_{Total Weight} * \tan \phi$$

$$F_{Resist} = 1758.03$$

$$\text{FACTOR OF SAFETY FOR SLIDING} = \frac{F_{Resist}}{F_{Sliding}} = 1.79$$

PASS

$$\text{FACTOR OF SAFETY FOR OVERTURNING} = \frac{M_{Resist}}{M_{overturning}}$$

$$M_{overturning} = P_{Backfill} * \frac{\text{Height}}{3}$$

$$M_{overturning} = 1013.3 * \frac{7}{3} = 2287$$

$$M_{Resist} = W_{Backfill} * \left(\frac{\text{heel}}{2} + \frac{\text{stem}}{12} + \frac{\text{toe}}{12} \right) + W_{Stem} * \left(\frac{\text{toe}}{12} + \frac{\text{stem}}{2} \right) + W_{footing height} * \frac{\text{Width}}{2}$$

$$M_{Resist} = 1470 * \left(\frac{21}{12} + \frac{12}{12} + \frac{9}{12} \right) + 1050 * \left(\frac{9}{12} + \frac{12}{2} \right) + 525 * \frac{3.5}{2}$$

$$M_{Resist} = 6615 \text{ lbs-ft}$$

$$\text{FACTOR OF SAFETY FOR OVERTURNING} = \frac{M_{Resist}}{M_{overturning}} = 2.89$$

PASS

ALLOWABLE BEARING CAPACITY

$$\sigma_v \text{ at the end of toe} = \frac{W_T}{bL} + \frac{M}{bL^2}, \text{ equation is valid if } e < \frac{L}{6}$$

$$M = M_{Over} - W_{Backfill} * \left(\frac{\text{Width}}{2} - \frac{\text{heel}}{24} \right) + W_{Stem} * \left(\frac{\text{heel}}{12} + \frac{\text{stem}}{24} - \frac{\text{Width}}{2} \right) + W_{footing height} * (0)$$

$$M = 2287 - 1470 * \left(\frac{3.5}{2} - \frac{21}{24} \right) + 1050 * \left(\frac{21}{12} + \frac{12}{24} - \frac{3.5}{2} \right) + W_{footing height} * (0)$$

$$M = 2050 \text{ lbs-ft}$$

Let's check $e < \frac{L}{6}$, $e < \frac{7}{6} \rightarrow e = 1.17$

$$e = \frac{M}{W_T}, \quad e = \frac{2050}{3045} \rightarrow e = 0.67 < 1.17 \quad \text{OK}$$

$$\sigma_v = \frac{W_T}{bL} + \frac{M}{\frac{bL^2}{6}} \rightarrow \sigma_v = \frac{2980}{1 * 3.5} + \frac{20.50}{\frac{1 * 3.5^2}{6}} \rightarrow \sigma_v = 1874$$

USE MINIMUM BEARING CAPACITY OF 2000 PSF