



**NASHVILLE TOWN COUNCIL  
AGENDA MEETING AGENDA  
WEDNESDAY, OCTOBER 28, 2020  
7:00 PM  
NASHVILLE TOWN COUNCIL CHAMBERS**

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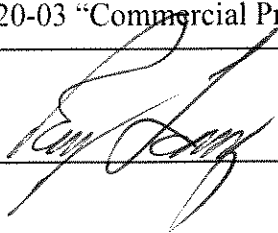
- 1. Call to Order by Mayor Brown - 7:00 PM**
- 2. Pledge of Allegiance and Prayer**
- 3. Public Comments Period**
- 4. Public Hearing**
  - a. Commercial Property Maintenance Ordinance
  - b. Rezoning of 18-acres owned by Reason Development, Inc. off Liberty Drive from R-10 to R-6
- 5. Reports/Presentations**
  - a. Carolina Gateway Partnership Presentation
  - b. Nash Co. revised Elm Street Closure Request
  - c. Windy Oak/Laurel Springs Drainage Improvements
- 6. Council Comments**
- 7. Adjourn**



# TOWN OF NASHVILLE

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## AGENDA REPORT

<b>MEETING DATE:</b>	October 28, 2020
<b>PREPARED BY:</b>	Randy Lansing, Town Manager
<b>ISSUE CONSIDERED:</b>	Commercial Property Maintenance Ordinance
<p><b>SUMMARY OF ISSUE:</b> The Town of Nashville has a minimum housing standard ordinance which sets minimum standards of fitness for homes and residential buildings. However, the Town does not have an ordinance which establishes minimum standards of maintenance and safety for commercial buildings.</p> <p>Attached is proposed Ordinance 2020-03 "Commercial Property Maintenance &amp; Safety" for the Town of Nashville. This ordinance establishes minimum standards of maintenance, sanitation, and safety for non-residential buildings and structures per North Carolina General Statute 160D-11-29. This ordinance provides for the repair, closing, or demolition, if needed, of non-residential buildings or structures that are dangerous to the public health, safety, and welfare. Enforcement of this ordinance will prevent non-residential buildings from deteriorating to a point where they are a hazard and on the verge of collapsing. The ordinance will also preserve the character and integrity of the Town of Nashville, as well as protect the health, safety, and welfare of its citizens, and promote the comfort, happiness, and safety of residents.</p> <p>This ordinance is not intended to address buildings that already have collapsed roofs, walls, and foundations. The Town can still deal with these types of buildings with G. S. 160D-11-19 "Unsafe Buildings Condemned".</p>	
<b>MANAGER'S RECOMMENDATION:</b>	Hold the Required Public Hearing on Ordinance 2020-03 "Commercial Property Maintenance & Safety"
<b>ATTACHMENT(S):</b>	Ordinance 2020-03 "Commercial Property Maintenance & Safety"
<b>REVIEWED BY TOWN MANAGER:</b>	

**ORDINANCE 2020-03**

**AN ORDINANCE OF THE TOWN OF NASHVILLE, NORTH CAROLINA  
AMENDING CHAPTER 6, BUILDINGS AND BUILDING REGULATIONS, OF  
THE NASHVILLE TOWN CODE OF ORDINANCES, BY ADDING ARTICLE IV,  
COMMERCIAL PROPERTY MAINTENANCE AND SAFETY**

**NOW THEREFORE**, be it ordained by the Town Council of the Town of Nashville, North Carolina, as follows

**SECTION 1.** That Chapter 6, Buildings and Building Regulation, of the Code of Ordinances of the Town of Nashville, is hereby amended to add Article IV, Commercial Property Maintenance and Safety, which shall read as follows:

**Article IV. Commercial Property Maintenance and Safety**

- Sec. 6-103. Purpose.
- Sec. 6-104. General Interpretations.
- Sec. 6-105. Definitions.
- Sec. 6-106. Applicability and Compliance.
- Sec. 6-107. Duty to Comply.
- Sec. 6-108. Maintenance Standards for Non-Residential Buildings and Structures.
- Sec. 6-109. Demolition and Non-Residential Buildings.
- Sec. 6-110. Duties of Code Enforcement Official.
- Sec. 6-111. Powers of the Code Enforcement Official.
- Sec. 6-112. Inspections.
- Sec. 6-113. Procedure for Enforcement.
- Sec. 6-114. Limitations on Orders and Ordinances - Historic Landmark or Historic District.
- Sec. 6-115. Limitations on Orders and Ordinances - Vacant Manufacturing Facility or Vacant Industrial Warehouse.
- Sec. 6-116. Vacated and Closed Non-Residential Buildings or Structures.
- Sec. 6-117. Methods of Service of Complaints and Orders.
- Sec. 6-118. In Rem Action by the Code Enforcement Official.
- Sec. 6-119. Costs, a Lien on Premises.
- Sec. 6-120. Filing of Ordinances.
- Sec. 6-121. Alternative Remedies.
- Sec. 6-122. Board of Adjustment to Hear Appeals.
- Sec. 6-123. Temporary Injunction Remedy for Aggrieved Person.
- Sec. 6-124. Conflict with Other Provisions.
- Sec. 6-125. Violations and Penalties.

**Sec. 6-103. Purpose.** In order to protect the health, safety, and welfare of the town and its citizens, this code to established minimum standards of maintenance, sanitation, and safety relating to non-residential buildings or structures, as expressly authorized by North Carolina General Statute §~~160A-439~~ *160D-11-29*. This code provides for the repair, closing, or demolition of non-residential buildings or structures as a result of a public necessity caused by conditions that are dangerous to the public health, safety, and welfare. It is the further purpose of this code to preserve the character and integrity of the community and to promote the comfort, happiness, and safety of community residents.

**Sec. 6-104. General Definitions and Interpretations.** Unless specifically defined in this Section, words used in this Commercial Property Maintenance and Safety code shall have their respective customary dictionary definitions. For the purpose of these regulations certain words, terms, or phrases used herein are interpreted and defined as follows:

Words used in the *present tense* shall include the *future tense*.

Words used in the *singular* shall include the *plural* and words used in the *plural* shall include the *singular*.

The words "*shall*" and "*will*" always indicate *MANDATORY*. The words "*should*" and "*may*" always indicate *OPTIONAL*. The word "*lot*" includes the words "*plot*" and/or "*parcel*".

The word "*building*" includes the word "*structure*".

The word "*person*" includes a "*firm, association, organization, partnership, trust, company, corporation, and/or individual*".

The word "*use*" includes the terms "*arranged, designed, and/or intended*" for a use, activity, and/or purpose.

The term "*Zoning Map*" shall always indicate the *OFFICIAL ZONING MAP* of the Town of Nashville, North Carolina.

The term "*Town Council*" shall always indicate the *TOWN COUNCIL* for the Town of Nashville, North Carolina.

The "*Board of Adjustment or BOA*" shall always indicate the *NASHVILLE BOARD OF ADJUSTMENT*.

**Sec. 6-105. Definitions.** The following definitions shall apply in the interpretation and enforcement of this Commercial Property Maintenance and Safety code and its amendments plus any and all ordinances made a part of this code by reference thereto.

- (a) *Basic structural elements* means the parts of a building which provide the principal strength, stability, integrity, shape, and safety of the building, including, but not limited to plates, studs, joists, rafters, stringers, stairs, sub-flooring, flooring, sheathing, lathing, roofing, siding, window frames, door frames, porches, railings, eaves, chimneys, flashing, masonry, and all other essential components.
- (b) *Building* means any structure, place, or any other construction built for the shelter or enclosure of persons, animals, chattels, or property of any kind or any part of such structure, shelter, or property.
- (c) *Code enforcement official* shall mean a code enforcement coordinator or officer of the Town of Nashville or any agent of the code enforcement official who is authorized by the code enforcement official to enforce the provisions of this code.
- (d) *Commercial Business* means any business or enterprise which produces and/or

offers for sale products and/or services which, in any manner, conducts commerce within the town limits of the Town of Nashville.

- (e) *Deterioration* means the condition of a building or part thereof, characterized by holes, breaks, rot, crumbling, rusting, peeled or peeling paint, or other evidence of physical decay or loss of structural integrity.
- (f) *Mixed Occupancy* means any building that is used for two or more occupancies classified by different occupancy use groups.
- (g) *Non-residential* means any building or structure or portion of a building or structure occupied or intended to be occupied, in whole or in part, for a use other than a dwelling, home, residing, place, living space, or sleeping space for one (1) or more human beings, either permanently or transiently.
- (h) *Nuisance* means:
  - (1) Any public nuisance known as common law or in equity jurisprudence, or as provided by the State of North Carolina, or the ordinances of the Town of Nashville; or
  - (2) Any condition including an attractive nuisance which may prove detrimental to human health or safety whether in a building, on the premises of a building, or part of a building or upon an occupied lot; or
  - (3) Physical conditions dangerous to human life or detrimental to health of persons in, on, or near the premises where the condition exists; or
  - (4) Unsanitary conditions or conditions that are dangerous to public health, well-being, or the general welfare; or
  - (5) Fire hazards or other safety hazards.
- (i) *Occupant* shall mean any person who is a tenant or has actual possession of a non-residential building or structure or part thereof.
- (j) *Operator* shall mean any person who has charge, care, or control of premises or a part thereof, whether with or without the knowledge and consent of the owner, or any person, individually or jointly, entitled to possession regardless of whether the premises are actually occupied or not.
- (k) *Owner* shall mean any person who alone, or jointly, or severally with others:
  - (1) Shall have title in fee simple to any non-residential building or structure, with or without accompanying actual possession thereof; or
  - (2) Shall have charge, care, or control of any non-residential building or structure as owner or agent of the owner, or as executor, executrix, administrator, administratrix, trustee, or guardian of the estate of the owner. Any such person thus representing the actual owner shall be bound to comply with the provisions of this code and of the rules and regulations adopted pursuant thereto, to the same extent as if he/she were the owner.

- (l) *Parties in Interest* means all individuals, associations, and corporations that have interests of record in a building or any that are in possession thereof; or shall have charge, care, or control of any building, as owner or agent of the owner, operator, or as executor, executrix, administrator, trustee, or guardian of the estate of the owner. Any such person thus representing the actual owner shall be bound to comply with the provisions of this code, and of the rules and regulations adopted pursuant thereto, to the same extent as if he/she were the owner.
- (m) *Premises* means any lot or parcel of land inclusive of any building, structures, or improvements, located thereon, under control by the same owner or operator.
- (n) *Safe* means a condition which is not likely to do harm to humans or to real or personal property.
- (o) *Story* means that portion of a building between the surface of any interior floor and the ceiling next above. A basement is considered a story only when its ceiling is over six (6) feet above the average level of the finished ground surface adjacent to the exterior walls of the front entrance and/or side street entrance of the building.
- (p) *Structurally sound* means substantially free from flaw, defect, decay or deterioration to the extent that the building or structure or structural member is capable of adequately or safely accomplishing the purpose for which it was intended or designed.
- (q) *Structure* means anything constructed or placed upon a property which is supported by the ground or which is supported by any other structure, except a currently operable licensed vehicle.
- (r) *Structure, Abandoned* means any structure, whether designed and intended for non-residential or other uses, which is vacant or not in active use, regardless of purpose or reason, for the past two year period and which is determined by the code enforcement official to be unfit for occupancy based upon the standards as set forth in this code.
- (s) *Unsafe* means a condition which is reasonably likely to do harm to humans or to real or personal property if not corrected or stopped.
- (t) *Vacant manufacturing facility* means any building or structure previously used for the lawful production or manufacturing of goods, which has not been used for that purpose for at least one year and has not been converted to another use.
- (u) *Vacant industrial warehouse* means any building or structure designed for the storage of goods or equipment in connection with manufacturing processes, which has not been used for that purpose for at least one year and has not been converted to another use.
- (v) *Physical Valuation* means the estimated cost to replace the building in kind.

**Sec. 6-106. Applicability and Compliance.**

- (a) The provisions of this code shall apply to all non-residential buildings or structures which are now in existence or which may be built within the corporate limits of the town.
- (b) Every non-residential building or structure and the premises on which it is situated shall comply with the provisions of this code, whether or not such building or structure shall have been constructed, altered, or repaired before or after the enactment of this code, and irrespective of any permits or licenses which have been issued for the use or occupancy of the building or structure or for the installment or repair of equipment or facilities. This code establishes minimum standards for all non-residential buildings and structures and does not replace or modify standards otherwise established for the construction, repair, alteration, or use of the building or structure, equipment or facilities contained therein. Where there is mixed occupancy, any non-residential use therein shall be nevertheless regulated by and subject to the provisions of this code.

**Sec. 6-107. Duty to Comply.** It shall be the duty of each and every owner, operator, or other party in interest of a commercial building or premises within the Town of Nashville, where applicable, to comply with the regulations and requirements set forth in this code. No license, permit, or certification of occupancy shall be issued unless and until all applicable sections of this code have been complied with. No land or building or combination thereof, shall be used in a manner inconsistent with or in conflict with the requirements of this code.

**Sec. 6-107. Maintenance Standards for Non-Residential Buildings and Structures.** All non-residential buildings and structures shall be free of all conditions that are dangerous and injurious to the public health, safety, and welfare of occupants or members of the general public. Without limitation of the foregoing requirement, the existence of any of the following conditions shall be deemed to be dangerous to the public health, safety, and welfare for which a public necessity exists for the repair, closing, or demolition of such building or structure and must be corrected in accordance with the provisions of this code:

- (1) Interior walls, vertical studs, partitions, supporting members, sills, joists, rafters, or other basic structural members that list, lean, or buckle to such an extent as to render the building unsafe, that are rotted, deteriorated, or damaged, and that have holes or cracks which might admit rodents.
- (2) Exterior walls that are not structurally sound, have defects and damages, and are incapable of bearing imposed loads safely. Where a wall of a building has become exposed as a result of demolition of adjacent buildings, such wall must have all doors, windows, vents, or other similar openings closed with material of the type comprising the wall. The exposed wall shall be painted, stuccoed, or bricked and sufficiently weatherproofed to prevent deterioration of the wall.
- (3) Floors or roofs which have improperly distributed loads, which are overloaded, or which have insufficient strength to be reasonably safe for the purpose used. Floors or roofs shall have adequate supporting members and strength to be reasonably safe for the purpose used. Roofs shall be kept structurally sound and

shall be maintained in such a manner so as to prevent rain or other objects from penetrating into the interior of the building.

- (4) Such damage by fire, wind, or other causes as to render the building unsafe.
- (5) Dilapidation, decay, unsanitary conditions, or disrepair, which is dangerous to the health, safety, or general welfare of the occupants or members of the general public.
- (6) Lack of adequate ventilation, light, heating, or sanitary facilities to such extent as to endanger the health, safety, or general welfare of the occupants or members of the general public.
- (7) Buildings and structures including their environs that have accumulations of garbage, trash, or rubbish, which creates health and sanitation problems. All garbage and solid waste shall be in approved containers or stored in a safe and sanitary manner.
- (8) Buildings and structures that have loose and insufficiently anchored overhanging objects, which constitute a danger of falling on persons or property.
- (9) Buildings and structures including their environs that have insufficiently protected holes, excavations, breaks, projections, obstructions, and other such dangerous impediments on and around walks, driveways, parking lots, alleyways, and other areas which are accessible to and generally used by persons on or around the premises.
- (10) Buildings and structures that have cracked or broken glass, loose shingles, loose wood, crumbling stone or brick, loose or broken plastic, or other dangerous objects or similar hazardous conditions. Exterior surfaces shall be maintained in such material or treated in such a manner as to prevent deterioration and repaired or replaced with like or similar material according to its original use.
- (11) Buildings and structures that have objects and elements protruding from building walls or roofs, which are unsafe or not properly secured or which can create a hazard such as abandoned electrical boxes and conduits, wires, sign brackets and other brackets, and similar objects.
- (12) Chimneys, flues, and vent attachments thereto which are not structurally sound. Chimneys, flues, gas vents, or other draft-producing equipment which are in use shall provide sufficient draft to develop the rated output of the connected equipment, shall be structurally safe, durable, smoke-tight, and capable of withstanding the action of flue gases.
- (13) Exterior porches, landings, balconies, stairs, or fire escapes which are not structurally sound. All exterior porches, landings, balconies, stairs, and fire escapes shall be provided with banisters or railings properly designed and maintained to minimized the hazard of falling, and the same shall be kept sound, in good repair, and free of defects.



- (14) Cornices which are not structurally sound. Rotten or weakened portions shall be repaired and/or replaced. All exposed wood shall be treated or painted.
- (15) Improperly attached gutters or down-spouts that are located so as to cause a hazard to pedestrian, vehicular traffic, or adjacent property.
- (16) Advertising sign structures, attached or freestanding awnings, marquees and their supporting members, and other similar attachments and structures that cause a safety hazard to the occupants or members of the general public.
- (17) All exterior surfaces that may cause unsafe conditions due to a lack of maintenance. Exterior surfaces shall be painted or sealed in order to protect the underlying surface from deterioration. All exterior surfaces that have been painted shall be maintained generally free of peeling and flaking. Where fifty percent (50%) or more of the aggregate of any painted surface shall have peeling or flaking or previous paint worn away, the entire surface shall be repainted in order to prevent further deterioration.
- (18) Windows containing broken or cracked glass that could be in danger of falling or shattering. All windows must be tight-fitting and have sashes of proper size and design and free from rotten wood, broken joints, or broken or loose mullions.
- (19) All openings originally designed as windows, doors, loading docks, or other means of egress or ingress which have been temporarily closed by boarding or other manner in a non-secure manner so as to allow unauthorized admittance. If an opening is temporarily closed by boarding to secure the building or structure, the boarding shall be trim fit, sealed to prevent water intrusion, and painted or stained to properly conform with the other exterior portions of the building and the building or structure shall be maintained in a state that secures the building or structure from any unauthorized admittance from humans, animals, or birds.
- (20) Any combination of conditions which in the judgment of the code enforcement official renders any building or structure dangerous or injurious to the health, safety, or general welfare of occupants or members of the general public.

**Sec. 6-109. Demolition of Non-Residential Buildings.** Where a building is under the jurisdiction of this code, the building may be demolished by the owner provided that the following requirements are met:

- (1) Obtain a Certificate of Demolish from the Planning Department;
- (2) Obtain an asbestos inspection from a licensed asbestos services company;
- (3) Remove and properly dispose of all asbestos containing materials (ACM's) by a licensed asbestos removal company;
- (4) Properly close off and disconnect all sewer, gas, water and similar taps or connections;

- (5) Grade the lot to a smooth, even, finished grade, free from building material, debris, holes, and/or depressions. Where building debris remains on the site below street level, the owner must back fill the lot with no less than twelve (12) inches of clean fill which shall be graded to a smooth, even finished grade over any remaining debris;
- (6) Where walls of adjacent buildings become exposed as a result of the demolition, said walls must have all doors, windows, vents or other similar openings closed with material of the type comprising the wall. No protrusions or loose material shall be in the wall. The exposed wall shall be painted, stuccoed, or bricked by such building's owner so as not to detract from the aesthetics and value for the adjacent property and weatherproofed if necessary to prevent deterioration of the wall;
- (7) Evidence (e.g. copies of trip or weight tickets or receipts) must be submitted to the code enforcement official showing that all demolition debris has been deposited in a regulated landfill equipped to handle demolition or construction debris.

**Sec. 6-110. Duties of Code Enforcement Official.** The code enforcement official is hereby designated as the public officer to enforce the provisions of this code and to exercise the duties and powers herein prescribed. It shall be the duty of the code enforcement official:

- (1) To investigate the conditions of non-residential buildings and structures in the town and to inspect non-residential buildings and structures located in the town in order to determine which non-residential buildings and structures are not being maintained so that the health and safety of its occupants or members of the general public are jeopardized and for the purpose of carrying out the objectives of this code with respect to such non-residential buildings and structures;
- (2) To take such action, together with other appropriate departments and agencies, public and private, as may be necessary to affect the repair or demolition of non-residential buildings and structures which have not been properly maintained in compliance with minimum standards established by this code.
- (3) To keep a record of the results of inspections made under this code and an inventory of those non-residential buildings and structures which have not been properly maintained in compliance with the minimum standards established by this code; and
- (4) To perform such other duties as may be herein prescribed.

**Sec. 6-111. Powers of the Code Enforcement Official.** The code enforcement official shall first take all reasonable non-formal actions to correct a violation of this code prior to exercising any of the powers listed herein. All non-formal attempts of communication shall be documented in detail. The code enforcement official is authorized to exercise such powers as may be necessary or convenient to carry out and effectuate the purpose and provisions of this code, including the following powers in addition to others herein granted:

- (1) To investigate non-residential buildings and structures in the town to determine

whether they have been properly maintained in compliance with the minimum standards established by this code so that the safety or health of the occupants or members of the general public are not jeopardized;

- (2) To administer oaths and affirmations, examine witnesses, and receive evidence;
- (3) To enter upon premises for the purpose of making examinations and inspections provided that such entries shall be made in accordance with law and in such manner as to cause the least possible inconvenience to the persons in possession; and
- (4) To appoint and fix duties of such officers, agents, and employees as the code enforcement official deems necessary to carry out the purposes of this code.

**Sec. 6-112. Inspections.** For the purpose of making inspections, the code enforcement official is hereby authorized to enter, examine, and survey at all reasonable times, non-residential buildings and structures. If entry upon the premises for purposes of investigation is necessary, such entry shall be made with permission of the owner, the owner's agent, a tenant, or other person legally in possession of the premises or pursuant to a duly issued administrative search warrant in accordance with G.S. 15-27.2.

**Sec. 6-113. Procedure for Enforcement.**

- (a) **Preliminary Investigation.** Whenever it appears to the code enforcement official that any non-residential building or structure has not been properly maintained so that the safety or health of its occupants or members of the general public are jeopardized for failure of the property to meet the minimum standards established by this code, the code enforcement official shall undertake a preliminary investigation.
- (b) **Complaint and Hearing.** If the preliminary investigation discloses evidence of a violation of the minimum standards established by this code, the code enforcement official shall issue and cause to be served upon the owner of and parties in interest in the non-residential building or structure a complaint. The complaint shall state the code violations and contain a notice that a hearing will be held before the code enforcement official at a place therein fixed, not less than ten (10) days nor more than thirty (30) days after the serving of the complaint; that the owner and parties in interest shall be given the right to answer the complaint and to appear in person, or otherwise, and give testimony at the place and time fixed in the complaint; and that the rules of evidence prevailing in courts of law or equity shall not be controlling in hearings before the code enforcement official.
- (c) **Procedure after Hearing.**
  - (1) If, after notice and hearing, the code enforcement official determines that the non-residential building or structure has been maintained in that the property meets the minimum standards established by this code, the code enforcement official shall state in writing findings of fact in support of that determination and shall issue and cause to be served upon the owner thereof a copy of said determination.

- (2) If, after notice and hearing, the code enforcement official determines that the non-residential building or structure has not been properly maintained so that the safety or health of its occupants or members of the general public is jeopardized for failure of the property to meet the minimum standards established by this code, the code enforcement official shall state in writing findings of fact in support of that determination and shall issue and cause to be served upon the owner thereof an order in accordance with the provisions of subsection (c)(3) and (c)(4) of this Section and subject to the limitations set forth in Sections 6-114 and 6-115.
  - (3) If the code enforcement official determines that the cost of repair, alteration, or improvement of the building or structure would not exceed fifty percent (50%) of its then current value, then the code enforcement official shall state in writing the findings of fact in support of such determination and issue an order that requires the owner, not less than fifteen (15) and not more than one-hundred eighty (180) days, without an extension, as specified in the order, to take reasonable precaution in order to protect the safety and well-being of the public and to either (i) repair, alter, or improve the non-residential building or structure in order to bring it into compliance with the minimum standards established by this code or (ii) vacate and close the non-residential building or structure for any use.
  - (4) If the code enforcement official determines that the cost of repair, alteration, or improvement of the building or structure would exceed fifty percent (50%) of its then current value, then the code enforcement official shall state in writing the findings of fact in support of such determination and issue an order that requires the owner, not less than fifteen (15) and not more than one-hundred eighty (180) days, without an extension, as specified in the order, to take reasonable precaution in order to protect the safety and well-being of the public and to either (i) remove or demolish the non-residential building or structure or (ii) repair, alter or improve the non-residential building or structure to bring it into compliance with the minimum standards established by this code.
- (d) Failure to Comply with Orders and Ordinances.
- (1) If the owner fails to comply with an order to either (i) repair, alter, or improve the non-residential building or structure or (ii) vacate and close the non-residential building or structure, the code enforcement official shall submit to the town council an ordinance ordering the code enforcement official to cause such non-residential building or structure to be repaired, altered, or improved in order to bring it into compliance with the minimum standards established by this code or to be vacated and closed for any use. The property shall be described in the ordinance. If town council adopts the ordinance, the code enforcement official shall cause the building or structure to be vacated and closed for any use.
  - (2) If the owner fails to comply with an order to either (i) remove or demolish

the non-residential building or structure or (ii) repair, alter, or improve the non-residential building or structure, the code enforcement official shall submit to the town council an ordinance ordering the code enforcement official to cause such non-residential building or structure to be removed or demolished. No ordinance shall be adopted to require removal or demolition of a non-residential building or structure until the owner has first been given a reasonable opportunity to bring it into conformity with the minimum standards established by the town council. The property shall be described in the ordinance. If town council adopts the ordinance, the code enforcement official shall cause the building or structure to be removed or demolished.

**Sec. 6-114. Limitations on Orders and Ordinances - Historic Landmark or Historic District.** Notwithstanding any other provision of this code, if the non-residential building or structure is designated as a local historic landmark, listed in the National Register of Historic Places, or located in a locally designated historic district or in a historic district listed in the National Register of Historic Places and the town council determines, after a public hearing, that the non-residential building or structure is of individual significance or contributes to maintaining the character of the district, and the non-residential building or structure has not been condemned as unsafe, an order issued by the code enforcement official pursuant to Section 6-113 and an ordinance approved by town council pursuant to Section 6-113(d) may only require that the non-residential building or structure be vacated and closed until it is brought into compliance with the minimum standards established by this code.

**Sec. 6-115. Limitations on Orders and Ordinances - Vacant Manufacturing Facility or Vacant Industrial Warehouse.** Notwithstanding any other provisions of this code, an order issued by the code enforcement official pursuant to Section 6-113 and an ordinance approved by town council pursuant to Section 6-113(d) may not require repairs, alterations, or improvements to be made to a vacant manufacturing facility or a vacant industrial warehouse to preserve the original use. The order and ordinance may require such building or structure to be vacated and closed, but repairs may be required only when necessary to maintain structural integrity or to abate a health or safety hazard that cannot be remedied by ordering the building or structure closed for any use.

**Sec. 6-116. Vacated and Closed Non-Residential Buildings or Structures.**

- (a) If the town council has adopted an ordinance or the code enforcement official has issued an order requiring the building or structure to be repaired, altered, or improved or vacated and closed and the building or structure has been vacated and closed for a period of two (2) years pursuant to the ordinance or order, then if the town council finds that the owner has abandoned the intent and purpose to repair, alter, or improve the building or structure and that the continuation of the building or structure in its vacated and closed status would be inimical to the health, safety, and welfare of the town in that it would continue to deteriorate, would create a fire or safety hazard, would be a threat to children and vagrants, would attract persons intent on criminal activities, or would cause or contribute to blight and the deterioration of property values in the area, then town council may, after the expiration of the two (2) year period, adopt an ordinance and serve such ordinance on the owner, setting forth the

following:

- (1) The ordinance shall require that the owner either (i) demolish and remove the non-residential building or structure within ninety (90) days or (ii) repair, alter, or improve the non-residential building or structure to bring it into compliance with the minimum standards established by this code within ninety (90) days.
  - (2) The ordinance shall require that if the owner does not either (i) demolish and remove the non-residential building or structure within ninety (90) days or (ii) repair, alter, or improve the non-residential building or structure to bring it into compliance with the minimum standards established by this code within ninety (90) days, then the code enforcement official shall demolish and remove the non-residential building or structure.
- (b) In the case of a vacant manufacturing facility or a vacant industrial warehouse, the building or structure must have been vacated and closed pursuant to an order or ordinance for a period of five (5) years before town council may take action under this Section.
- (c) If the owner fails to comply with the requirements of the ordinance within ninety (90) days, the code enforcement official shall demolish and remove the non-residential building or structure.

**Sec. 6-117. Methods of Service of Complaints and Orders.**

- (a) Complaints or orders issued by the code enforcement official under this code shall be served upon persons either personally or by registered or certified mail and, in conjunction therewith, may be served by regular mail. When the manner or service is by regular mail in conjunction with registered or certified mail, and the registered or certified mail is unclaimed or refused, but the regular mail is not returned by the post office within ten (10) days after mailing, service shall be deemed sufficient. The person mailing the complaint or order by regular mail shall certify that fact and the date thereof, and such certificate shall be conclusive in the absence of fraud. If regular mail is used, a notice of the pending proceedings shall be posted in a conspicuous place on the premises thereby affected.
- (b) If the identities of any owner or the whereabouts of persons are unknown and cannot be ascertained by the code enforcement official in the exercise of reasonable diligence, and the code enforcement official makes an affidavit to that effect, then the serving of the complaint or order upon the unknown owners or other persons may be made by publication in a newspaper having general circulation in the town at least once no later than the time at which personal service would be required under the provisions of this code. When service is made by publication, a notice of the pending proceedings shall be posted in a conspicuous place on the premises thereby affected.

**Sec. 6-118. In Rem Action by the Code Enforcement Official.** After failure of an owner of a non-residential building or structure to comply with an order of the code enforcement official issued pursuant to the provisions of this code and upon adoption by the town council of an ordinance authorizing and directing the owner to do so, as provided by ~~G.S. 163A-439(f)~~ *160D-11-29 (f)(2)* and Section 6-113(d) of this code, the code enforcement official shall proceed to cause such non-residential building or structure to be repaired, altered, or improved to comply with the minimum standards established by this code, or to be vacated and closed or to be removed or demolished, as directed by the ordinance of the town council. The code enforcement official may cause to be posted on the main entrance of any non-residential building or structure which is to be vacated and closed a placard with the following words: "This building is unfit for any use; the use or occupation of this building for any purpose is prohibited and unlawful." Any person who occupies or knowingly allows the occupancy of a building or structure so posted shall be guilty of a Class 3 misdemeanor.

**Sec. 6-119. Costs, a Lien on Premises.**

- (a) The amount of the cost of such repairs, alterations or improvements or vacating and closing, or demolition and removal by the code enforcement official shall be a lien against the real property upon which such cost was incurred which lien shall be filed, have the same priority and be collected as provided by ~~Code 10, Section 160A-216 et seq., G.S. Chapter 160A~~ *G.S. 160D-11-29(i)*. If the structure is demolished and removed by the Town, the Town of Nashville may sell the marketable materials of such structure and shall credit the proceeds of such sale against the cost of the demolition and removal and any balance remaining shall be deposited in the Superior Court by the Town, and shall be secured in such manner as may be directed by such Court, and shall be disbursed by such Court to the persons found to be entitled thereto by final order or decree of such Court (in a special proceeding brought before the Clerk of Superior Court for said purpose.)
- (b) If the non-residential building or structure is removed or demolished by the code enforcement official, the code enforcement official shall offer for sale the recoverable materials of the building or structure and any personal property, fixtures, or appurtenances found in or attached to the building or structure and shall credit the proceeds of the sale, if any, against the cost of the removal or demolition, and any balance remaining shall be deposited in the superior court by the code enforcement official, shall be secured in a manner directed by the court, and shall be disbursed by the court to the persons found to be entitled thereto by final order or decree of the court.
- (c) Nothing in this Section shall be construed to impair or limit in any way the power of the Town to define and declare nuisances and to cause their removal or abatement by summary proceedings or otherwise, nor shall enforcement of one remedy provided herein prevent the enforcement of the other remedies provided herein.
- (d) Nothing in this Section shall be construed to impair or limit in any way the power of the code enforcement official in the proper enforcement of the duties of his/her office, as assigned, nor shall the enforcement of one remedy provided herein prevent the enforcement of other remedies provided or cited herein.

**Sec. 6-120. Filing of Ordinances.** An ordinance adopted by town council pursuant to Sections 6-113(d) or 6-116 of this code shall be recorded in the office of the Register of Deeds of Nash County and shall be indexed in the name of the property owner in the grantor index, as provided by G. S. ~~160A-439(t) and (g)~~ *160D-11-29(f)(2)*.

**Sec. 6-121. Alternative Remedies.** Neither this code nor any of its provisions shall be construed to impair or limit in any way the power of the Town of Nashville to define and declare nuisances and to cause their abatement by summary action or otherwise, or to enforce this code by criminal process as authorized by G. S. 14-4, and Section 6-125 of this code, and the enforcement of any remedy provided herein or in other ordinances or laws.

**Sec. 6-122. Board of Adjustment to Hear Appeals.**

- (a) All appeals which may be taken from decisions or orders of the code enforcement official pursuant to this code shall be heard and determined by the board of adjustment. As the appeals body, the board shall have the power to fix the times and places of its meetings, to adopt necessary rules of procedure and any other rules and regulations which may be necessary for the proper discharge of its duties.
- (b) Appeals shall be subject to the following:
  - (1) An appeal from any decision or order of the code enforcement official may be taken by any person aggrieved thereby. Any appeal from the code enforcement official shall be taken within ten (10) days from the rendering of the decision or service of the order, and shall be taken by filing with the code enforcement official and with the board of adjustment a notice of appeal which shall specify the grounds upon which the appeal is based. Upon the filing of any notice of appeal, the code enforcement official shall forthwith transmit to the board all the papers constituting the record upon which the decision appealed from was made. When the appeal is from a decision of the code enforcement official refusing to allow the person aggrieved thereby to do any act, the code enforcement official's decision shall remain in force until modified or reversed. When any appeal is from a decision of the code enforcement official requiring the person aggrieved to do any act, the appeal shall have the effect of suspending the requirement until the hearing by the board, unless the code enforcement official certifies to the board, after the notice of appeal is filed, that by reason of the facts stated in the certificate (a copy of which shall be furnished the appellant) a suspension of the requirement would cause imminent peril to life or property, in which case the requirement shall not be suspended except by a restraining order, which may be granted for due cause shown upon not less than one (1) day's written notice to the code enforcement official, by the board, or by a court of record upon petition made pursuant to G. S. ~~160A-446(t)~~ *160D-12-8* and this Section.
  - (2) The board shall fix a reasonable time for the hearing of all appeals, shall give notice to all the parties, and shall render its decision within a reasonable time.



Any party may appear in person or by agent or attorney. The board may reverse or affirm, wholly or partly, or may modify the decision or order appealed from, and may make such decision and order as in its opinion ought to be made in the matter, and to that end it shall have all the powers of the code enforcement official, but the concurring vote of four-fifths of the members of the board shall be necessary to reverse or modify any decision or order of the code enforcement official. The board shall have power also in passing upon appeals, in any case when practical difficulties or unnecessary hardships would result from carrying out the strict letter of this code, to adapt the application of the code to the necessities of the case to the end that the spirit of the code shall be observed, public safety and welfare secured, and substantial justice done.

- (3) Every decision of the board shall be subject to review by the Superior Court by proceedings in the nature of certiorari instituted within fifteen (15) days of the decision of the Board, but not otherwise.

**Sec. 6-123. Temporary Injunction Remedy for Aggrieved Person.** Any person aggrieved by an order issued by the code enforcement coordinator and officer or a decision rendered by the board of adjustment shall have the right within thirty (30) days after issuance of the order or rendering of the decision, to petition the Superior Court for a temporary injunction restraining the code enforcement official pending a final disposition of the cause, as provided by G. S. ~~160A-446~~(+) *160D-12-8*.

**Sec. 6-124. Conflict with Other Provisions.** In the event any provision, standard, or requirement of this code is found to be in conflict with any other ordinance or code of the town, the provisions which establish the higher standard or more stringent requirement for the promotion and protection of health and safety of the citizens of the town shall prevail.

**Sec. 6-125. Violations and Penalties.**

- (a) It shall be unlawful for the owner of any non-residential building or structure to fail, neglect, or refuse to repair, alter, or improve the same, or to vacate and close and remove or demolish the same, upon order of the code enforcement coordinator and officer duly made and served in accordance with the provisions of this code, within the time specified in such order, and each day that any such failure, neglect or refusal to comply with such order continues shall constitute a separate and distinct offense. It shall be unlawful for the owner of any non-residential building or structure, with respect to which an order has been issued pursuant to Section 6-113 of this code, to occupy or permit the occupancy of the same after the time prescribed in such order for its repair, alteration, improvement, or its vacation and closing, and each day that such occupancy continues after such prescribed time shall constitute a separate and distinct offense.
- (b) The violations of any provision of this code shall constitute a misdemeanor, as provided by G. S. 14-4.
- (c) In addition to or in lieu of the other remedies provided by this code, any owner of a non-residential building or structure that fails to comply with an order of the

code enforcement official within the time specified therein, shall be subject to a civil penalty in the amount of fifty dollars (\$50.00) for the first offense, one hundred dollars (\$100.00) for the second offense in the calendar year, and two hundred fifty dollars (\$250.00) for the third and subsequent offenses in the calendar year. Each subsequent offense after the third will be subject to a civil penalty of \$250.00. Each thirty (30) day period or part thereof in which a violation is allowed to persist will constitute a separate and distinct offense.

**SECTION 2. EFFECTIVE DATE:** This Ordinance shall be in effect after its final passage, approval and publication as provided by law.

**PASSED and APPROVED** this \_\_\_\_ day of \_\_\_\_\_ 2020.

Attest:

\_\_\_\_\_  
Brenda Brown, Mayor

\_\_\_\_\_  
Sarah Tinkham, Town Clerk



**TOWN OF NASHVILLE**  
P.O. BOX 987 / 499 S. BARNES STREET  
NASHVILLE, NC 27856  
WWW.TOWNOFNASHVILLE.COM  
(252) 459-4511

**TOWN COUNCIL  
AGENDA REPORT**

**MEETING DATE:** October 28, 2020  
**PREPARED BY:** Sherry N. Moss, Planning & Development Director  
**ISSUE CONSIDERED:** Z 2020-04

**SUMMARY OF ISSUE:**

Rezoning request to rezone property located off Liberty Drive from R-10 (Medium-Density Residential) to R-6 (High-Density Residential). This parcel contains approximately 17.99 acres and identified by Nash County Tax Parcel Number 3800 16 92 8666.

**STAFF COMMENTS:**

The rezoning request from R10 to R6, as presented, is to provide 8,000 square foot lots for two-family dwellings to be located within phase two of Liberty Acres Subdivision. The minimum lot size requirement for R-10 is 10,000 sf (single unit) and 12,000 sf (double unit). The minimum lot size requirement for R-6 is 6,000 sf (single unit) and 8,000sf (double unit). According to Nashville's NC Code of Ordinances; Section 18-112; Description of districts, the R10 is defined as medium-density residential areas of mostly single family dwellings, whereas the R6 district is defined as medium-to-high density residential areas where single-family and multi-family dwellings are commingled, and certain open areas where similar residential development will likely occur. Overall, both R10 and R6 zoning districts share the same residential land uses. Although this rezoning request is proposing a smaller minimum lot size, two-family dwellings are allowed by a special use permit in both R10 and R6 zoning districts. The surrounding zoning districts of the petitioned property are R-10 (Medium Density Residential), MF (Multi-Family High-Density Residential), and A-1 (Agricultural) zoning districts. With regards to the Future Land Use Map, the petitioned property is classified as low residential growth, whereas the surrounding properties are classified as high, medium, and low-density residential growth.

**STAFF RECOMMENDATION:** This is a public hearing to receive information on the rezoning request.

**ATTACHMENT(S):**

1. Application	6. Description of Districts
2. Site Plan	7. Table of Permitted Uses
3. Vicinity Map	8. Setback Chart
4. Zoning Map	
5. Future Land Use Map	

**REVIEWED BY TOWN MANAGER:**



# APPLICATION FOR REZONING TOWN OF NASHVILLE, NORTH CAROLINA

Date submitted: 9/29/2020  
(to be completed by Town staff)

Case #: Z 2020-04  
(to be assigned by Town staff)

I, the undersigned, do hereby make application to change the Official Zoning Map/Atlas of the Town of Nashville as herein requested.

1. A general description of the area requested to be rezoned is as follows:

Region south of existing Liberty Acres subdivision along Liberty Drive. Liberty Acres located along Highway 58 between S. Creek Dr. and Oak Tree Lane.

The address of the property is 2005 Liberty Dr. Nashville, NC. The property is identified by the following map, block, and parcel number Book 281 / page 260 , 380016928666 , 036085 of the Nash County property ownership map (tax records). The size of the area requested for rezoning contains approximately 17.99 acres. A map of the property/area along with a legal description of the property/area boundaries is attached to this application.

2. It is desired and requested that the foregoing property/area be rezoned from R-10 district to R-6 district for the following reason or purpose: to provide 8,000 sqft lots for two family dwellings

3. The following are all individuals, firms, or corporations owning property within 100' of the property/area sought to be rezoned. Attach an additional sheet if needed.

<u>Tax Id # (Parcel)</u>	<u>Name</u>	<u>Mailing Address</u>
<b>(Attached)</b>		

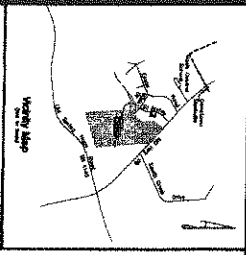
I certify that all information furnished in this application is accurate to the best of my knowledge.

APPLICANT (printed name): Jeremy Reason Reason Development Inc.

Signature of applicant: Jeremy Reason Reason Development Inc.

Mailing Address: 7120 Leigh Court, Sims NC 27880

Phone number(s): 252-245-4509



LEGEND

- D/S = Dotted Section
- M/B = Map Book
- P = Pipe
- E/P = Existing Iron Pipe
- R/P = Road
- R/S = Road Set
- P/P = Power Pole
- P/K = P.K. Mail Set
- E/A = Existing Iron Aisle
- E/M = Existing Mail
- E/U = Existing Utility Lines
- T/L = Town Line
- No Iron Set

NOTES

1. This map does not depict encroachments found during a thorough title search.
2. All distances are exact.
3. All bearings are true.
4. Subject property abuts previously existing Town Limits.
5. Subject property is now located within
6. This plat does not depict a field boundary survey.

REFERENCE

Being the southern portion of the lot shown on the map recorded in Map Book 3, Page 34 of the Nash County Registry.

I, (We) certify the purpose of this plat is for the use of the lot shown on the map recorded in Map Book 3, Page 34 of the Nash County Registry.

*William E. ...* Date *7/18/03*  
*William E. ...* Date *7/18/03*  
 Town Clerk Date *7/19/03*

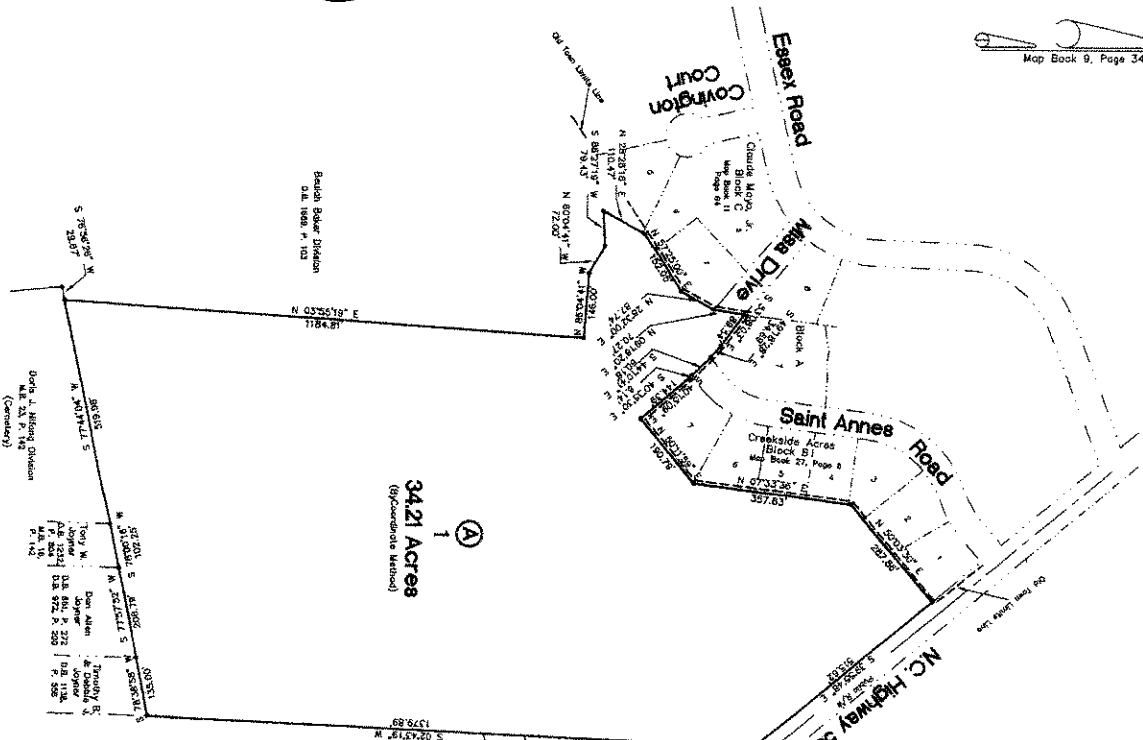
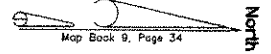


G. Roy Wilson, Professional Land Surveyor No. 1-3541

State of North Carolina  
 I, *Grace Raines*, system officer of Nash County, certify that the plat of part to which this certification is attached complies with the statutory requirements for recording.

Date *7/26/03*

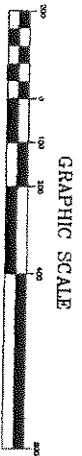
Filed for registration *January 26, 10 05*  
 of *2:30* o'clock P.M. and duly registered in Book *382* Page *333* Nash County  
*William E. ...* Register of Deeds  
 by *William E. ...* Deputy



**34.21 Acres**  
 (Recomputed Method)

**Total Area = 34.21 Acres**  
 (By Computed Method)

OWNER  
 Bobby G. Batten  
 Nashville, N. C. 27805  
 (252) 442-8880



Doc. ID: 000817200017981 007  
 Preparer: 01/26/2008 at 03:28:34 PM  
 North Carolina State Register of Deeds  
 32  
 253

Map of property Annexed by The Town of Nashville

**Owner: Bobby G. Batten**

N. C. Highway #58, Nashville, Nashville Township,  
 Nash County, North Carolina



**MACK GAY ASSOCIATES, P.A.**

Consulting Engineers Land Planners Surveyors  
 1667 WOODRUFF ROAD  
 ROCKY MOUNT, NORTH CAROLINA 27804  
 TELEPHONE: (252) 446-3017 FAX: (252) 446-7715

SCALE: 1" = 200'  
 DATE: July 29, 2003

Book: 32 Page: 253

BOOK 32 Page 253

260

This certifies that there are no delinquent ad valorem real estate taxes, which the Nash County Tax Collector is charged with collecting, that are a lien on:

Pin Number: 036085 (380016928166)

This is not a certification that this Nash County Tax Department Pin Number matches this

Deed description: Shelby Coape Date: 4-18-16  
Tax Collector, Deputy Tax Collector, Tax Clerk

Doc ID: 006972330003 Type: CRP  
Recorded: 04/18/2016 at 03:27:43 PM  
Fee Amt: \$26.00 Page 1 of 3  
Revenue Tax: \$0.00  
Nash County North Carolina  
Anne J. Melvin Register of Deeds  
BK **2821** PG **260-262**

### NORTH CAROLINA GENERAL WARRANTY DEED

Excise Tax

Recording Time, Book and Page

Tax Lot No. \_\_\_\_\_ Parcel Identifier No. 036085  
Verified by \_\_\_\_\_ County on the \_\_\_\_\_ day of \_\_\_\_\_  
by \_\_\_\_\_

Mail after recording to Farris & Farris, P.A.

NO TITLE SEARCH OR OPINION

PO Box 2727, Wilson, NC 27894-2727 ←

This instrument was prepared by Robert A. Farris, Jr.

Brief description for the Index

[Empty box for brief description]

THIS DEED made this 8th day of April, 2016, by and between

GRANTOR

Reason Construction Company, Inc.  
8085 E NC Hwy 97  
Elm City, NC 27822

GRANTEE

Reason Development, Inc.  
7120 Leigh Ct.  
Sims, NC 27880

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.q. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors, and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the Grantee in fee simple, all that

certain lot or parcel of land situated in the City of \_\_\_\_\_ Township,  
Nash \_\_\_\_\_ County, North Carolina and more particularly described as follows:

See attached Exhibit A.

The property hereinabove described was acquired by Grantor by instrument recorded in Nash County

A map showing the above described property is recorded in Plat Book \_\_\_\_\_ page \_\_\_\_\_

TO HAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to the Grantee in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

Title to the property hereinabove described is subject to the following exceptions:

IN WITNESS WHEREOF, the Grantor has hereunto set his hand and seal, or if corporate, has caused this instrument to be signed in its corporate name by its duly authorized officers and its seal to be hereunto affixed by authority of its Board of Directors, the day and year first above written.

USE BLACK INK ONLY

Reason Construction Company, Inc. \_\_\_\_\_ (SEAL)  
(Corporate Name)

By: James S. Reason \_\_\_\_\_ (SEAL)  
President

ATTEST: \_\_\_\_\_ (SEAL)

Secretary (Corporate Seal) \_\_\_\_\_ (SEAL)

SEAL-STAMP NORTH CAROLINA, \_\_\_\_\_ County.  
I, a Notary Public of the County and State aforesaid, certify that \_\_\_\_\_ Grantor,

Use Black Ink personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this \_\_\_\_\_ day of \_\_\_\_\_

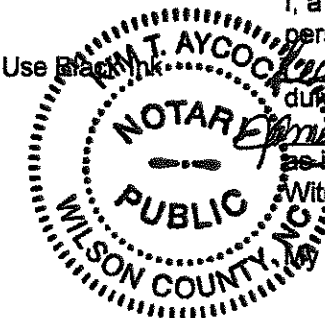
My commission expires: \_\_\_\_\_ Notary Public

SEAL-STAMP NORTH CAROLINA, Wilson County.  
I, a Notary Public of the County and State aforesaid, certify that James S. Reason

Use Black Ink personally came before me this day and acknowledged that he is President Secretary of Reason Construction Company, Inc. a North Carolina corporation, and that by authority duly given and as the act of the corporation, the foregoing instrument was signed in its name by James S. Reason President, ~~sealed with its corporate seal and attested by~~ as its Secretary.

Witness my hand and official stamp or seal, this 13 day of April, 2016.

My commission expires: 1/20/21 Kristi D. Dyck Notary Public



## EXHIBIT A

Beginning at a point on the western right of way of NC Highway 58 said point being the eastern corner of Lot 1, Block B, Creekside Acres Subdivision recorded in Map Book 27, Page 8, Nash County Registry; thence along the western right of way of NC Highway 58, S 39° 55' 48" E 515.62 feet to a point in the western right of way of NC Highway 58, a corner for now or formerly L. C. Williams and Paula E. Williams, cornering; thence along the line of now or formerly Williams and now or formerly R. C. Monroe and Agnes B. Monroe and now or formerly J. N. Sills Heirs, S 02° 43' 19" W 1379.89 feet to a point in the line of now or formerly Sills Heirs, said point being the northeast corner of now or formerly Timothy B. Joyner and Debbie J. Joyner, cornering; thence S 77° 56' 26" W 966.00 feet to a point in the line of now or formerly Cheryl G. Rose and Charles Alan Rose Trust, cornering; thence along the line of Rose N 03° 55' 19" E 1184.81 feet to a point in the line of Rose; thence along the northern property line of now or formerly Rose the following courses and distances: N 86° 04' 41" W 146.00; N 60° 04' 41" W 72.00 feet; S 86° 27' 19" W 79.43; N 28° 28' 19" E 110.47 feet to a point on the southern property line of J. Claude Mayo, Jr. Subdivision; thence along the southern property line of J. Claude Mayo, Jr. Subdivision, Block C, the following courses and distances: N 57° 25' 00" E 154.10 feet; N 28° 32' 00" E 86.20 feet to a point in the southern right of way of Misa Road; thence along the end of Misa Road N 08° 37' 40" E 70.17 feet to a point, said point being in the line of Lot 7, Block A, Creekside Acres Subdivision; thence along the southern property line of Lot 7, Block A Creekside Acres Subdivision S 53° 08' 03" E 89.54 feet; S 49° 18' 28" E 34.69 feet to a point in the western right of way of St. Annes Road; thence along the southern end of St. Annes Road S 44° 10' 41" E 60.18 feet to a point in the eastern right of way at the end of St. Annes Road, said point being the southwest corner of Lot 7, Block B, Creekside Acres Subdivision as shown on plat of survey recorded in Plat Book 27, Page 9, Nash County Registry; thence along the southern property line of Lot 7, Block B, Creekside Acres Subdivision as shown on the hereinabove referenced plat, S 40°, 15' 35" E 144.13 feet to the southeast corner of Lot 7, Block B, cornering; thence along the eastern property line of Lot 7, Block B, N 50° 11' 59" E 190.79 feet to a point, the southeast corner of Lot 6, Block B, Creekside Acres Subdivision; thence along the eastern property line of Lots 6, 5, and 4, Block B, Creekside Acres Subdivision, N 07° 33' 36" E 357.63 feet to a point in the eastern property line of Lot 3, Block B, Creekside Acres Subdivision; thence along the eastern property lines of Lots 3, 2, and 1 of Block B, Creekside Acres Subdivision N 50° 03' 30" E 287.86 feet to a point in the western right of way of NC Highway 58, the point and place of beginning and being 34.2 acres, more or less.

Being a portion of that property conveyed by N. C. Barnes, et al to J. Claude Mayo, Jr. and wife, Fay R. Mayo, in deed recorded in Book 905, Page 14, Nash County Registry.

**THERE IS SAVED AND EXCEPTED** from the above-described property all of Section One Liberty Acres as shown on the Plat entitled "Final Plat – Section One Liberty Acres: recorded in Map Book 32, Page 255 in the office of the Register of Deed of Nash County

See also that deed dated June 21, 2013 recorded in Deed Book 2683, Page 34, Nash County Registry.

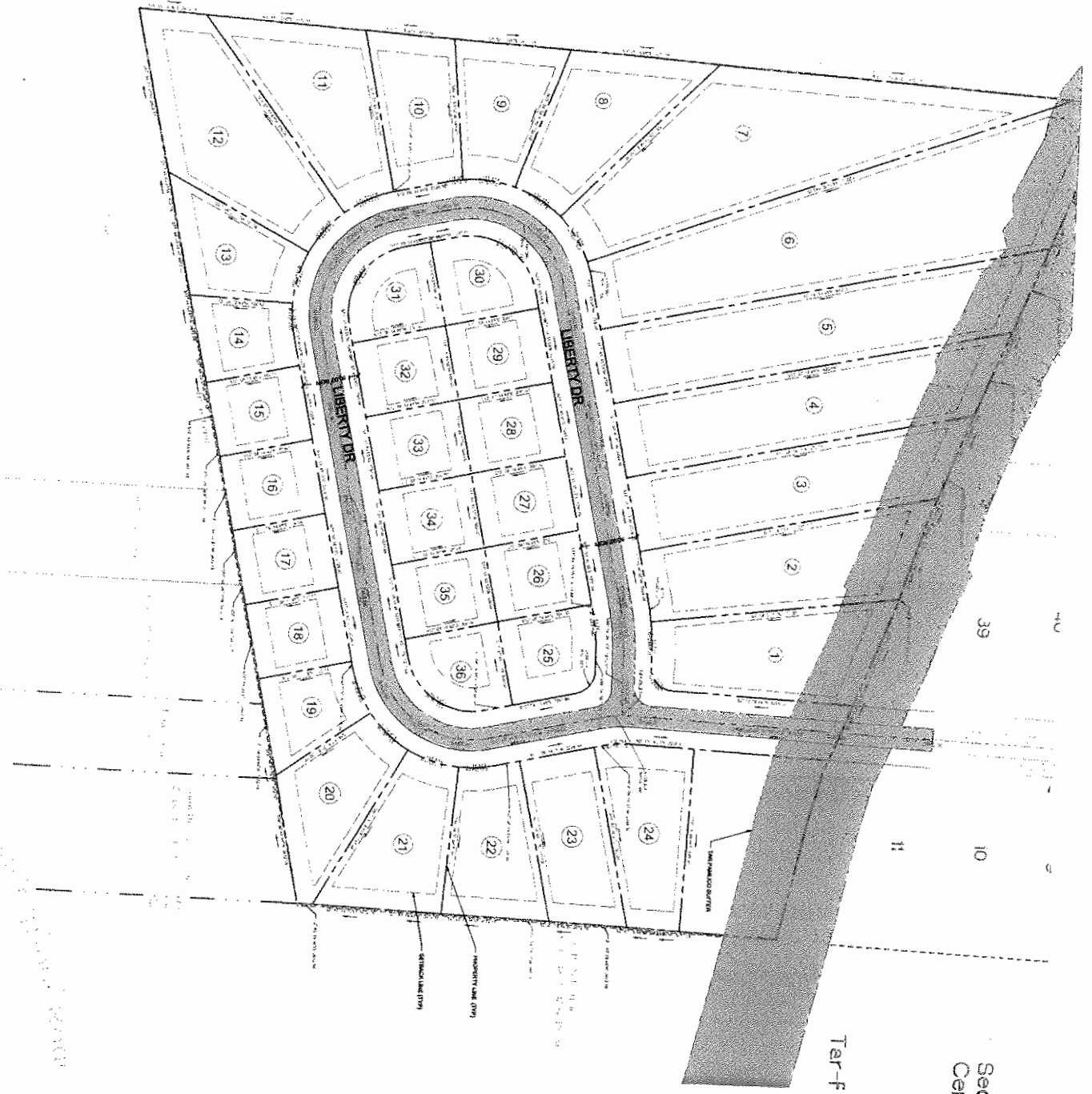
This is not the primary residence of Grantor.



**Parcels Within 100' of Proposed Liberty Acres Phase II**

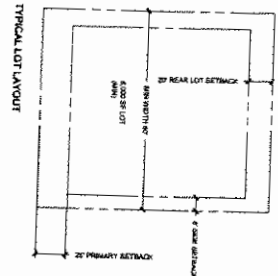
**Liberty Drive, Nashville, NC**

<b>Tax ID # (Parcel)</b>	<b>Name</b>	<b>Mailing Address</b>	
003645	THREE MR LTD PTSH ET ALL	2687 OLD BAILEY HWY	NASHVILLE, NC 27856
003291	JOYNER SAMUEL FRANK & AIMEE L	1498 E OLD SPRING HOPE RD	NASHVILLE, NC 27856
047138	EDWARDS ALICE FAYE	1528 E OLD SPRING HOPE RD	NASHVILLE, NC 27856
034546	JACKSON CHRISTOPHER ALLEN & KIMBERLY	1171 E SPRING HOPE RD	NASHVILLE, NC 27856
003244	JACKSON CHRISTOPHER ALLEN	1711 E OLD SPRING HOPE RD	NASHVILLE, NC 27856
003246	JACKSON CHRISTOPHER ALLEN	1711 E OLD SPRING HOPE RD	NASHVILLE, NC 27856
034733	CORBETT CHARIDY KENNON & JOSEPH WILEY	1708 E OLD SPRING HOPE RD	NASHVILLE, NC 27856
003309	ADAMS LYNDA EVERETTE	1738 E OLD SPRING HOPE RD	NASHVILLE, NC 27856
036300	CARTER CATHERINE JORDAN	2001 LIBERTY DR	NASHVILLE, NC 27856
005907	NASHVILLE INVESTMENTS LLC	5324 MURIEL LN	BENSALEM, PA 19020
036301	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036432	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036433	ROBERTS JENNY ANNE	2000 LIBERTY DR	NASHVILLE, NC 27856
036434	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036435	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036436	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036437	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036438	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036439	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856
036537	C & B OF NASH COUNTY LLC	3515 ROSE LOOP RD	NASHVILLE, NC 27856



Sek  
Cel

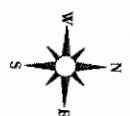
Tar-F



No.	Date	Description



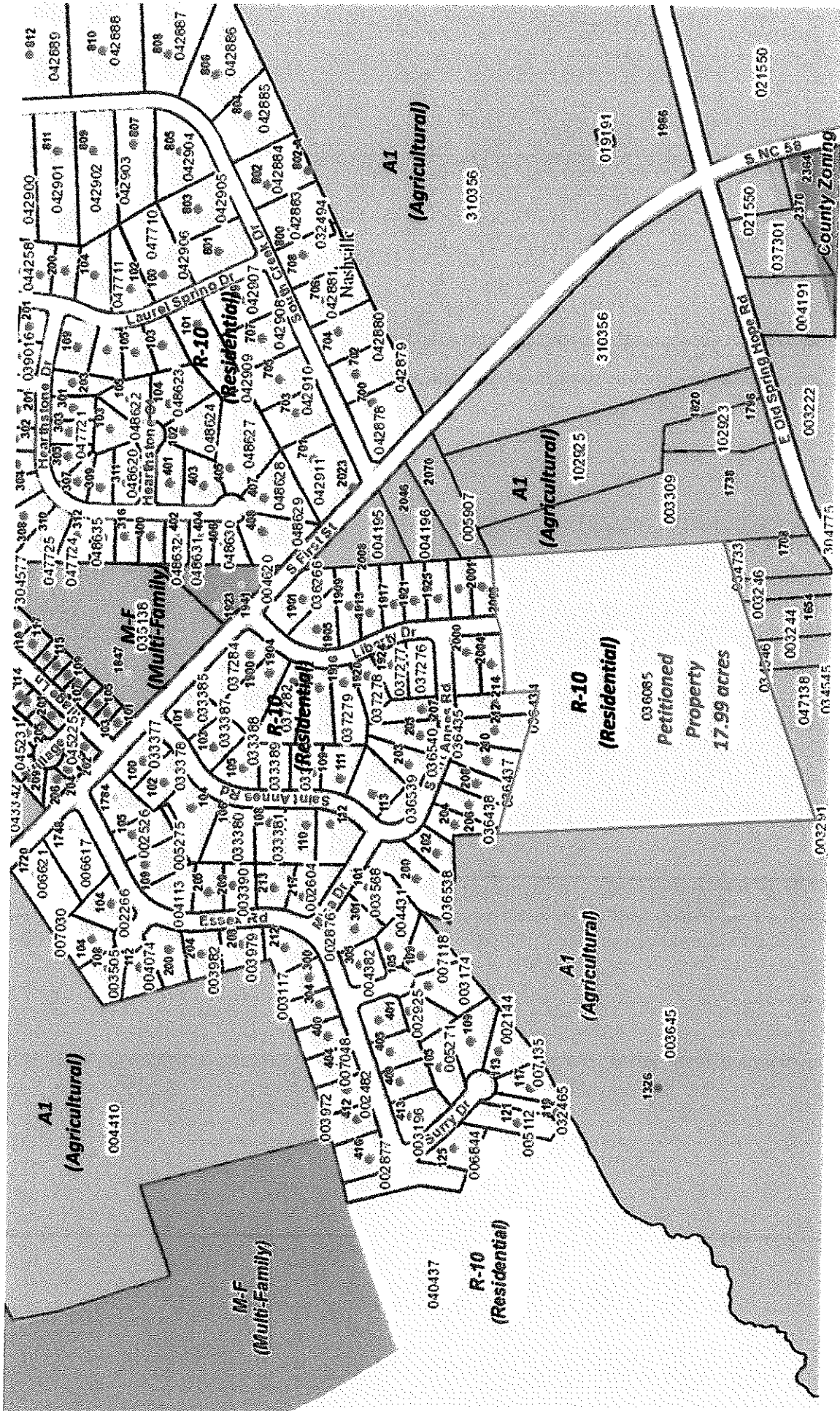
DATE: 2020.09.29  
 CHECKED BY: LAP  
 DRAWN BY: LAP  
 PROJECT: LIBERTY ACRES  
 SHEET # : C3.0C  
 SHEET TITLE  
**SITE PLAN**



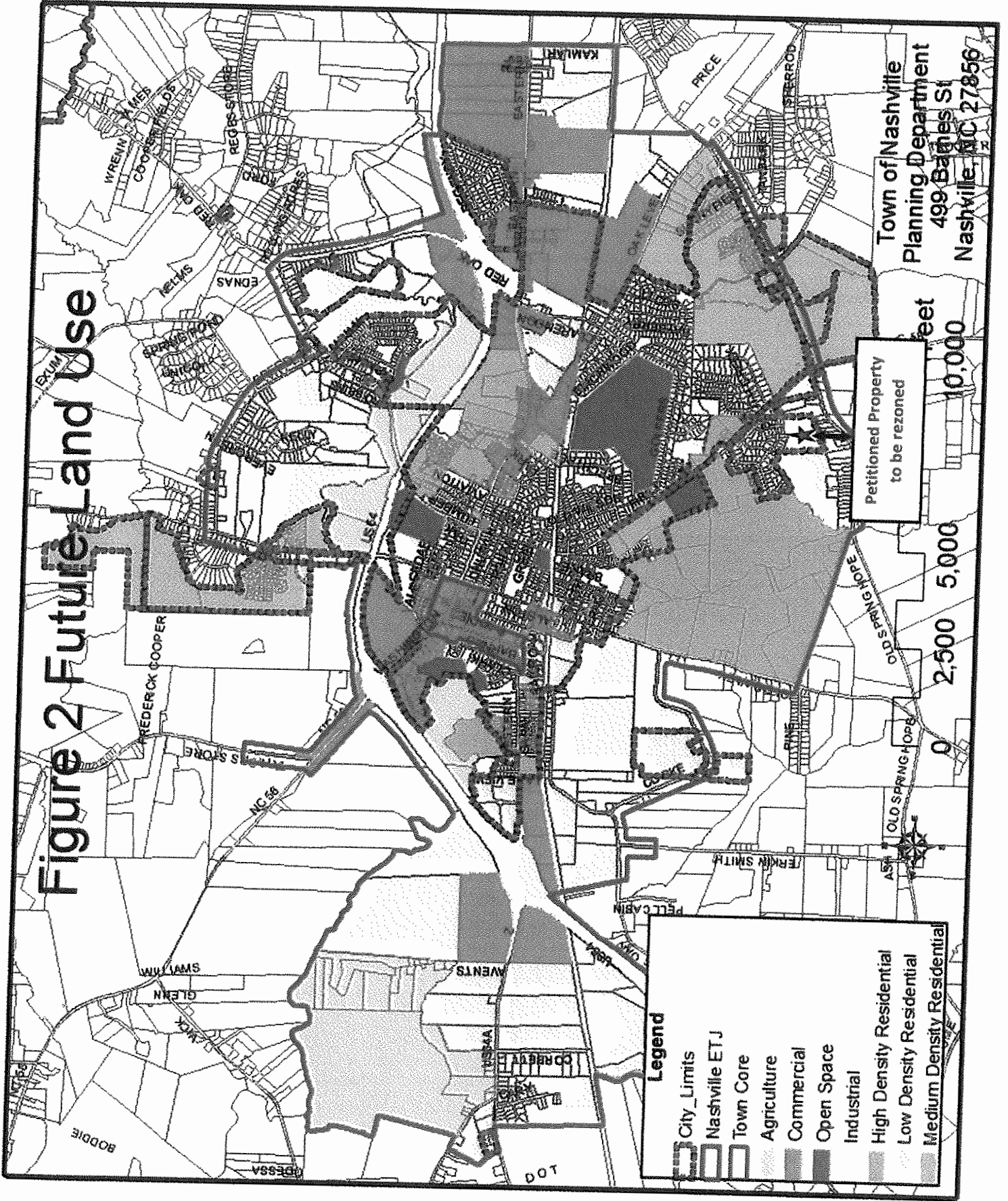
Z 2020-04: Vicinity Map



Z 2020-04 Zoning Map



# Figure 2 Future Land Use



Sec. 18-112. - Description of districts.

- (a) *A-1 agricultural district.* The A-1 district is defined as one to provide land for future development while permitting continued agricultural use until such time that development is appropriate. It is assumed that approved wells and septic tanks will be utilized until such time as municipal water and sewer is available. This district is situated primarily in the town's extraterritorial jurisdiction.
- (b) *R-30 low-density residential district.* The R-30 district is defined as low-density residential areas of single-family dwellings plus open areas where similar residential development will likely occur. The uses in this district are designated to stabilize and protect the essential characteristics of the area and to prohibit all activities of commercial nature except certain home occupations controlled by specific limitations.
- (c) *R-15 medium-density residential district.* The R-15 district is defined as open areas where only single-family development will likely occur. The uses in this district are designed to stabilize and protect all activities of a residential nature except certain home occupations.
- (d) ~~*R-10 medium-density residential district.*~~ The R-10 district is defined as medium-density residential areas of mostly single-family dwellings and certain open areas where similar residential development will likely occur. The uses permitted in this district are designed to stabilize and protect all activities of a residential nature except certain home occupations controlled by specific limitations.
- (e) *R-6M high-density residential and manufactured home park district.* The R-6M district is defined as high-density residential areas of mostly single-family dwellings, open areas where similar residential development will likely occur, and manufactured home parks. The uses permitted in this district are designed to stabilize and protect the essential characteristics of the area and to prohibit all activities of a commercial nature except certain home occupations controlled by specific limitations.
- (f) ~~*R-6 high-density residential district.*~~ The R-6 district is defined as medium- to high-density residential areas where single-family and multifamily dwellings are commingled and certain open areas where similar residential development will likely occur. The uses permitted in this district are designed to stabilize and protect the essential characteristics of the area and prohibit all activities of a commercial nature except certain home occupations controlled by specific limitations.
- (g) *R-4 high-density residential district.* The R-4 district is defined as high-density residential areas where single-family and two-family dwellings are commingled. The district is primarily established to accommodate existing residential neighborhoods where lot sizes are too small to be appropriate for any other zoning district. The uses permitted in this district are

	A-1	R-30	R-15	R-10	R-6M	R-6	R-4	MF	O-I	B-1	B-2	I-1	Requirements
Contractor, general (excluding storage of equipment or supplies)										X	X		
Construction storage yards, and lumberyards												X	See note 5
Convenient store										X	X		
Correctional and penal institutions, and jails	S								S		S	S	
Curio and souvenir sales										X	X		
Day care facility	S	S	S	S	S	S	S	S	S	X	S		
Delicatessen operation										X	X		
Dish antenna (or earth station)	X	X	X	X	X	X	X	X	X	X	X		See note 12
Drive-in restaurants										X	X	X	
Drive-in theaters										S		X	
Dwellings, one-family detached	X	X	X	X	X	X	X	X	X				
Dwellings, two-family	S			S	S	S		X					
Dwellings, three-family				S			X	P					
Dwellings, multifamily (other than townhouses, condominiums, and PUDs), one building per lot								X	X		S		
Dwellings, multifamily (other than townhouses, condominiums, and PUDs) more than one building per lot								S					
Dwellings, planned unit development (PUD)	S	S	S	S	S	S	S	S	S				
Dwelling, single-family semi- detached	X	X	X	X		X	X						
Dwelling, single-family semi- detached omitted	X	X	X	X		X	X						
Dwellings, condominiums				S	S	S		S	S		S		
Dwellings, townhouses				S	S	S		S	S		S		
Dwellings for caretaker or domestic employee on premises where employed	X	S	S	S	X	X	X	X	X	X			

District	Minimum Lot Size		Minimum Yard Regulations				Maximum Height of Structure In Feet	
	Area in Square Feet	Lot Width	Front Yard Set Back in Feet	Side Yard Set Back in Feet	Side Street Setback in Feet	Rear Yard Depth in Feet		
A-1 Agricultural								
	30,000 w/o central water & sewer	100	50	15		40	35	
	20,000 w central water	100	50	15		40	35	
	15,000 w central sewer	100	50	15		40	35	
R-30 Residential								
	30,000	100	30	15		30	35	
R-15 Residential								
	15,000	100	35	15		25	35	
R-10 Residential								
	Single Unit	10,000	75	30	12		30	35
	Double Unit	12,000	80	30	12		30	35
R-6M								
	Residential	4,000	40					
Manufactured Unit	6,000	50	Refer to Manufactured Home Parks Special Use Section				35	
R-6 Residential								
	Single Unit	6,000	60	25	8		20	35
	Double Unit	8,000	80	25	8		20	35
R-4 Residential								
	Single Unit	4,000	40	15	6	7.5	10	35
	Double Unit	6,000	40	15	6	7.5	10	35
MF Multi-Family								
	Single Unit	6,000	60	25	8		20	35
	Double Unit	7,000	60	25	8		20	35
	Multi-Units	8,000 for the first 2 units and 2,500 for each additional unit	60	25	8		20	56
O-1 Office and Institutional								
	Office and Institutional	4,000	40	25	10	12.5	10	56
	Residential	4,000	40	25	10		20	56
B-1 Highway Business								
		4,000	40	25	10	12.5	10	35
B-2 Central Business								
		4,000	40	10	0 if B-2, 8 if another zone		10	56
I-1 Industrial								
		4,000	40	25	10	12.5	10	56

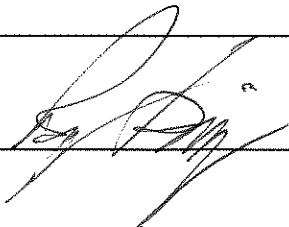




# TOWN OF NASHVILLE

499 S. BARNES STREET  
NASHVILLE, NC 27856  
WWW.TOWNOFNASHVILLE.COM  
(252) 459-4511

## AGENDA REPORT

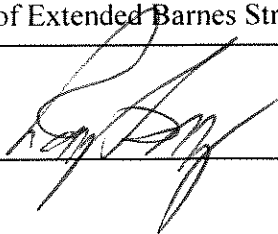
<b>MEETING DATE:</b>	October 28, 2020
<b>PREPARED BY:</b>	Randy Lansing, Town Manager
<b>ISSUE CONSIDERED:</b>	Carolina Gateway Partnership Presentation
<b>SUMMARY OF ISSUE:</b>	Oppie Jordan, Economic Developer with the Carolina Gateway Partnership in Rocky Mount, will be at the October 28 <sup>th</sup> council meeting. She will update the Council on the economic development activities the Partnership is doing on behalf of the Town of Nashville.
<b>MANAGER'S RECOMMENDATION:</b>	Receive the Carolina Gateway Partnership's Presentation
<b>ATTACHMENT(S):</b>	
<b>REVIEWED BY TOWN MANAGER:</b>	



# TOWN OF NASHVILLE

499 S. BARNES STREET  
 NASHVILLE, NC 27856  
 WWW.TOWNOFNASHVILLE.COM  
 (252) 459-4511

## AGENDA REPORT

<b>MEETING DATE:</b>	October 28, 2020
<b>PREPARED BY:</b>	Randy Lansing, Town Manager
<b>ISSUE CONSIDERED:</b>	Nash County's Request to Close Elm Street between N. Boddie Street and Drake Street for Detention Center Addition
<b>SUMMARY OF ISSUE:</b>	<p>Nash County has revised its request to close a portion of Elm Street in order to accommodate the expansion of the Nash County Detention Center on the corner of Elm Street and Drake Street. The revised request is to close Elm Street from North Boddie Street to Drake Street. Jonathon Boone, Director of Public Utilities &amp; Facilities for Nash County, explains the request in the attached letter.</p> <p>Nash County's request to close a portion of Elm Street may remind the Council of a previous idea to extend Barnes Street, from its Washington Street intersection, through the County's west Courthouse parking lot, to Elm Street. This would allow Drake Street to be closed and Nash County to use the vacated Drake Street right-of-way for a fenced secondary containment area around the Detention Center Expansion.</p>
<b>MANAGER'S RECOMMENDATION:</b>	Work with Nash County to accommodate the Detention Center Expansion
<b>ATTACHMENT(S):</b>	<p>Nash County's Revised Request to Vacate a Portion of Elm Street</p> <p>An Aerial Photo of the Proposed Detention Center Area</p> <p>An Aerial Photo of Extended Barnes Street to Elm Street</p>
<b>REVIEWED BY TOWN MANAGER:</b>	

October 7, 2020

Mr. Randy Lansing  
Town Manager, Town of Nashville  
499 South Barnes Street  
PO Box 987  
Nashville, NC 27856

Re: Nash County Detention Facility Expansion and Closure of a portion of Elm Street

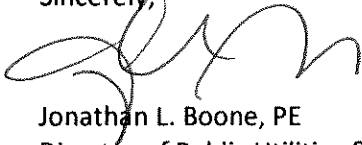
Dear Mr. Lansing,

Please see attached for an updated schematic which reflects the revised closure request for the portion of Elm Street behind the Nash County Detention Facility. Based on the feedback provided at the Commissioners Meeting on September 30, 2020 and subsequent conversations regarding how best to address the concerns raised at this meeting, Nash County is requesting that the closure be extended east an additional 150 feet from Court Street to Boddie Street.

In addition to the items enumerated in my August 12, 2020 letter, extending the closure from Drake Street to Boddie Street is anticipated to minimize the potential for through traffic to be diverted into the residential area north of Elm Street. More specifically, the revised closure limits should direct more of this traffic to West Washington Street via Boddie Street. In addition to expanding the street closure request associated with Elm Street, you will also note that the county is requesting the closure of Court Street from Elm Street to just south of 208 Court Street. In order to mitigate the impact of this closure, we are proposing to construct a "hammerhead" turnaround at this location.

I trust that you will find the above referenced changes to be consistent with your conversations late last week with County Manager Lamb and Commissioner Davis. If there are any items that have not been addressed to your satisfaction, however, please let me know.

Sincerely,



Jonathan L. Boone, PE  
Director of Public Utilities & Facilities  
Nash County

Attachments (3)

cc: Zee Lamb, County Manager  
Commissioner Robbie Davis  
Sheriff Keith Stone – Nash County Sheriff's Office  
Mike Phillips – Assistant Director Public Utilities & Facilities

# Nash County Detention Center Additions & Renovations

Nash County, North Carolina

AERIAL  
IMAGE

DATE: 07/27/2010	SCALE: 1" = 100'
DRAWN BY: J. B. BROWN	CHECKED BY: J. B. BROWN
PROJECT NO: 10-0000	

MOSELEY ARCHITECTS

PROGRESS  
PRINT NOT FOR  
CONSTRUCTION



**Moseley Architects**  
 1540 W. 10th Street, Suite 200  
 Raleigh, NC 27603  
 Phone: (919) 877-7700  
 Fax: (919) 877-7438  
 www.moseleyarchitects.com

DATE: 07/27/2010	SCALE: 1" = 100'
DRAWN BY: J. B. BROWN	CHECKED BY: J. B. BROWN
PROJECT NO: 10-0000	



**811**  
 CALL BEFORE YOU DIG  
 1-800-4-A-ROOT

**FOUNDATION DESCRIPTION BEHIND IS NOT FOR RECORDATION**

**RECORD CHANGES**  
 This drawing is subject to change without notice. All changes must be approved by the Engineer. All changes must be indicated on this drawing by a red line and the word "CHANGE".

**EXISTING CONDITIONS**  
 The Engineer has reviewed the site and the existing conditions. The Engineer is not responsible for the accuracy of the information provided by the owner or the contractor.

**NO AND LEGAL DISCLAIMERS**  
 The Engineer is not responsible for the accuracy of the information provided by the owner or the contractor. The Engineer is not responsible for the accuracy of the information provided by the owner or the contractor.



This drawing was prepared by the author and is not to be used for any other project without the written consent of the author.

SCALE: 1" = 50'  
 0 50 100 150 200

	DATE: _____
	SCALE: _____
	DATE: _____
	SCALE: _____

**ELM STREET RE-ALIGNMENT CONCEPT DRAWING for  
 OPINION OF PROBABLE COST ESTIMATES  
 NASH COUNTY, NORTH CAROLINA**

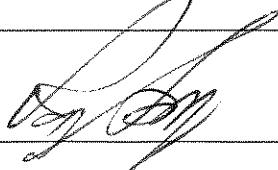
**STOCKS ENGINEERING, P.A.**  
 801 EAST WASHINGTON STREET  
 P.O. BOX 1100  
 NASHVILLE, N.C. 27856  
 PHONE: (252) 459-8196  
 FAX: (252) 459-8197  
 MOBILE: (252) 903-0801



# TOWN OF NASHVILLE

499 S. BARNES STREET  
NASHVILLE, NC 27856  
WWW.TOWNOFNASHVILLE.COM  
(252) 459-4511

## Town Council AGENDA REPORT

<b>MEETING DATE:</b>	October 28, 2020
<b>PREPARED BY:</b>	Randy Lansing, Town Manager
<b>ISSUE CONSIDERED:</b>	Windy Oak/Laurel Springs Drainage Improvements
<b>SUMMARY OF ISSUE:</b>	Kevin Varnell with Stocks Engineering will be at the October 28 <sup>th</sup> council meeting to address, as well as, answer questions on the alternatives proposed in the Windy Oak Drive Flood Study. The proposed alternatives are designed to improve surface water drainage through the Windy Oak & Laurel Springs neighborhood and reduce the severity of street flooding on Par Drive, Birdie Court, Aubrei Drive, and Village Lane.
<b>MANAGER'S RECOMMENDATION:</b>	Review and discuss the proposed alternatives in the Windy Oak Drive Flood Study and select an alternative.
<b>ATTACHMENT(S):</b>	Wind Oak Drive Flood Study
<b>REVIEWED BY TOWN MANAGER:</b>	

**FLOOD STUDY  
FOR  
WINDY OAK DRIVE DRAINAGE IMPROVEMENTS**

**NASHVILLE, NORTH CAROLINA**

**PREPARED FOR  
TOWN OF NASHVILLE, NORTH CAROLINA**

**PREPARED BY  
KIKER STORMWATER SOLUTIONS**



**IN CONJUNCTION WITH**



**SEPTEMBER 14, 2020**

**DAVID J. KIKER, PE**

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## SECTION 1.0 INTRODUCTION

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A section of the South Creek Drive drainage system located from Windy Oak Drive to just downstream of Laurel Spring Drive is flat, undersized and has a relatively high overtopping elevation. This section of the drainage system is contributing to routine flooding at both 215 Windy Oak Drive, further upstream at the fairly recently constructed Birchwood Homes subdivision along Par Drive and along Village Lane. Both Par Drive and Village Lane experience roadway flooding several times per year as floodwaters backup behind Windy Oak Drive. In addition, the home at 215 Windy Oak Drive experiences crawl space flooding after storm flows overtop Windy Oak Drive. The crawl space at this home is set below the roadway overtopping elevation at Windy Oak Drive, which makes this home subject to flooding. This flood study was developed to identify drainage system improvements that would reduce the frequency and severity of flooding at these known locations of flooding without causing adverse flooding downstream.

An EPA SWMM model was developed by Kiker Stormwater Solutions (KSS) as part of this flood study to model the existing drainage system's response to various frequency rainfall events and to develop a series of drainage improvements to mitigate future flooding. EPA SWMM is a fully dynamic model that can evaluate open and closed drainage systems, account for flood attenuation from natural and manmade storage areas, and assess downstream impacts from making upstream improvements. The goal of this flood study was to identify a series of cost-effective drainage improvements that reduce flooding upstream of Windy Oak Drive while not adversely impacting properties located further downstream along the drainage system.



**Photo 1: 215 Windy Oak Drive**

The success of this project will be driven by how much Windy Oak Drive can be lowered without adversely impacting downstream flooding at Laurel Spring Drive and the functionality of the properties from 215 Windy Oak Drive to Laurel Spring Drive. The lower Windy Oak Drive is lowered the lower flood elevations will be in the Par Drive and Village Lane will be in the large flood events. The more Windy Oak Drive is lowered, the less flood storage will be available upstream and the higher the potential to increase downstream flooding. The more Windy Oak Drive is lowered, the more the yards along this drainage corridor will also need to be lowered. This may impact nearby fences, root systems of trees

## SECTION 1.0 INTRODUCTION

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and the functionality of the properties. The KSS report is a planning level report that did not involve a detailed survey of underground utilities that may exist in the project area. Prior to construction, it is recommended that a more rigorous evaluation will be needed for the underground utilities. It is also recommended that one-on-one meetings be set up with property owners to go over the goals of the project and to solicit feedback that may be helpful in avoiding potential issues and adversely impacting affected property owners.

### Modeling Methodology

Because of the complex nature of the drainage system (floodplain storage areas upstream of Windy Oak Drive, open systems, roadway culverts, closed pipe systems and the challenges with an extremely flat slope), EPA Storm Water Management Model (SWMM) version 5.1 is being used to model this drainage system. EPA SWMM simulates the surface runoff response to precipitation for an interconnected system of surfaces, channels, closed pipes and areas of attenuation. EPA SWMM will attenuate peak flows behind undersized culverts located at stream crossings with areas of floodplain storage such as Windy Oak Drive. During large storm events, floodwater will rise and store behind Windy Oak Drive until eventually overtopping the road and flooding the crawl space at 215 Windy Oak Drive. When this happens, Par Drive and Village Lane are inundated by the backwater of this undersized downstream culvert.

EPA SWMM combines hydrology and hydraulics, which allows the user to account for this attenuation effect while efficiently and accurately determining how improvements can affect both the upstream and downstream drainage system. The 10-, 25-, 50-, 100-, and 500-year floods were modeled using synthetic rainfall events based on a standard NRCS Type II distribution. EPA and NRCS methods were used to translate hydrographs and calculate infiltration rates for the study. Input data required to run this type of model include the following data:

- Basin areas
- Basin widths
- Basin slopes
- Basin percent impervious
- Hydrologic soil group classifications
- Landuse
- Rainfall data
- Stage-area relationships behind roadway or railroad embankments

The following sections provide additional information regarding the input data developed for this flood study:

### Sub-Basin Delineation and Elevations Data

Sub-basins were delineated for the project's watershed using 2-foot contour interval mapping generated from LiDAR data downloaded from the NC OneMap website. The LiDAR data was collected in 2015 as part of the North Carolina Floodplain Mapping Program's (NCFMP) statewide initiative to update FEMA maps across the state. An Arc-Hydro tool that automates the process of delineating sub-basins of a watershed was used to generate sub-basins at the main hydraulic points of interest. The initial Arc-Hydro generated sub-basin divides were validated and modified based on a July 17, 2020 field investigation that identified local drainage swales, pipe systems and natural divides to better define sub-basin divides. A total of four (4) sub-basins were delineated ranging in size from 29 to 72 acres for a total drainage area at the outfall near South Creek Drive of 182.1 acres (see Exhibit 1).

The following table summarizes the sub-basin areas in the South Creek Drive drainage system that were modeled as part of this study:

**SECTION 2.0**  
**EXISTING CONDITIONS MODEL DEVELOPMENT**

**Table 1: Summary of Drainage Areas**

Sub-Basin ID	Drainage Area (acres)
#1 Blue	47.7
#2 Yellow	29.2
#3 Green	33.7
#4 Orange	71.5

**Total Drainage Area = 182.1 acres (0.28 sq. mi.)**

Elevation data was entered into the EPA SWMM model to represent the surface of the channel, floodplain, parking lots, buildings, and roads. This input data was generated from the following sources:

- Topographic Mapping (2-foot contour interval) Generated from NCEM's 2015 Digital Elevation Model (DEM).
- Survey data collected by Stocks Engineering for various site development projects over the years.
- Elevation data collected in July 2020 by staff of Stock Engineering using known elevations from historical survey as a relative benchmark.

Soils

Soils used to calculate the NRCS curve number for the pervious portions of the sub-basins were obtained from the soil survey maps found online at the following USDA website: [websoilsurvey.sc.egov.usda.gov](http://websoilsurvey.sc.egov.usda.gov). The following table summarizes the Hydrologic Soil Group for the primary soil groups found in the watershed:

**Table 2: Summary of NRCS Hydrologic Soil Groups**

Soil Name	Hydrologic Soil Group	% of Watershed
Bonneau Loamy Sand	A	14%
Norfolk Loamy Sand	B	16%
Norfolk Urban	B	20%
Rains Sandy Loam	B/D (assumed B)	50%

As shown in Table 2, the soils in the watershed are predominantly well-draining soils. The Rains soils are considered well-draining (hydrologic soil group B) if a drainage system with open ditches or channels is present. It was assumed that the Rains soils found in the South Creek Drive watershed are from hydrologic soil group B. EPA-SWMM uses the hydrologic soil group in the development of the runoff curve numbers (RCNs) for the pervious land cover found in the watershed only.

Land Use and NRCS Curve Numbers

Loss rates for this study are based on the EPA method, which uses the percent impervious values for each sub-basin along with NRCS curve numbers for those areas of the sub-basin that have a pervious land cover. Percent impervious values for this study are based on future conditions land use cover obtained from a recent aerial and GIS map of the watershed showing lot layouts. Table 3 shows the percent impervious values calculated for each of the three sub-basins. A weighted RCN for the pervious portions of each sub-basin ranged from 58 to 61. This runoff off curve number was calculated by weighting the percentage of woods and well-maintained grass for each of the two NRCS Hydrologic Soil Groups. The following table summarizes the existing conditions hydrologic input for land use and other SWMM input parameters for this project:

**SECTION 2.0**  
**EXISTING CONDITIONS MODEL DEVELOPMENT**

**Table 3: Future Conditions Hydrologic Input**

Sub-Basin ID	Drainage Area (ac)	Basin Slope (%)	Basin Width (ft.)	% Impervious	Pervious RCN
#1	47.7	1.26%	989	34	61
#2	29.2	0.63%	727	21	54
#3	33.7	0.53%	667	33	54
#4	71.5	1.16%	1001	25	54

Rainfall

An NRCS Type II storm with a 24-hour duration was input along with rainfall depths obtained for the Town of Nashville for the 1-, 2-, 10-, 25-, and 100-year floods. Total rainfall depths for the modeled frequency storms shown in Table 4 were based on data published on the NOAA website, [http://hdsc.nws.noaa.gov/hdsc/pfds/orb/nc\\_pfds.html](http://hdsc.nws.noaa.gov/hdsc/pfds/orb/nc_pfds.html).

**Table 4: NOAA 24-Hour Rainfall Depths for Nashville, NC**

Flood Frequency	Rainfall Depth (inches)
1-Year	2.69
2-Year	3.26
5-Year	4.19
10-Year	5.01
25-Year	6.24
100-Year	8.53

Hydrograph Translation

EPA SWMM methodologies use several input parameters that are not found in other commonly used models. The basin width is a parameter unique to SWMM that typically represents the watershed area divided by the longest flow path. The basin slope is the overall sub-basin grade change divided by the longest flow path. These parameters are used to calculate the response of the watershed to rainfall by defining the basin's shape (narrow or wide) and overall slope. The EPA SWMM model uses the basin width and basin slope parameters to create the unit hydrograph used in the model that will translate the rainfall into runoff.

Storage and Flood Routing

Downstream of Par Drive is a 1.0-acre detention pond originally design to attenuate peak flows from the upstream residential development. The stage-area relationship of this detention facility was input into the EPA-SWMM model to account for its effect in reducing downstream peak flows. The following table summarizes the stage-area relationship for this pond:

**Table 5: Stage-Area Relationship at Par Drive Detention Facility**

Elevation (Ft NAVD '88)	Area (acres)
179.93	0.00
180	0.00
182	0.28
184	0.77
186	0.85

**SECTION 3.0**  
**EXISTING CONDITIONS MODEL RESULTS**

The following series of tables reflect the existing conditions model results taken directly out of the EPA-SWMM model for the 5-, 10-, and 100-flood frequencies. Table 6 summarizes the existing conditions peak flows at key locations along the drainage system along with the pipe capacity of the subject culvert at the initiation of overtopping.

**Table 6: Comparison of Existing Conditions Flows with Culvert Capacity**

Location	Culvert Size & Material	Pipe Capacity at Overtopping (cfs)	5-Year Peak Flow (cfs)	10-Year Peak Flow (cfs)	100-Year Peak Flow (cfs)
Windy Oak Drive	24" RCP	21	38	66	156
Laurel Spring Drive	Twin 24" RCPs	39	42	70	175
South Creek Drive	Twin 42" RCPs	191	96	108	225

Peak flows for the 5-, 10- and 100-year flood events were determined by manually adjusting the EPA-SWMM model to eliminate flood attenuation upstream of Windy Oak Drive. An evaluation of Table 6 shows that Windy Oak Drive is conveying just over 50% of the 5-year flood while Laurel Spring Drive is almost conveying the 5-year flood event. In addition, Table 6 is showing South Creek Drive conveying the vast majority of the 100-year flood event prior to overtopping. The following table summarizes the water surface elevations at the roadway crossings found in this study:

**Table 7: Existing Conditions Water Surface Elevations at Roadway Crossings**

Location	Overtopping Elev. (Ft NAVD '88)	5-Year WSEL (Ft NAVD '88)	10-Year WSEL (Ft NAVD '88)	100-Year WSEL (Ft NAVD '88)	100-Year Overtopping Depth
Windy Oak Drive	183.79	182.01	184.03	184.75	0.96
Laurel Spring Drive	180.02	178.12	179.28	180.87	0.85
South Creek Drive	177.86	175.43	175.73	178.49	0.63

WSEL: water surface elevation

Table 7 shows both Windy Oak Drive meeting a 5-year level of service (LOS) and Laurel Spring Drive and South Creek Drive both meeting a 10-year LOS. Inundating depths for all three road crossings are less than a foot in the 100-year flood event. The only reason Windy Oak Drive and Laurel Spring Drive are shown to meet the 5- and 10-year level of service is because they are of the large areas of natural floodplain storage located upstream of Windy Oak Drive.

**Model Validation**

To help validate model results, feedback from several residents that live on Par Drive and Windy Oak Drive highwater marks were obtained. The following table summarizes that feedback:

**SECTION 3.0**  
**EXISTING CONDITIONS MODEL RESULTS**

**Table 8: Historical Feedback**

<b>Resident Name</b>	<b>Address</b>	<b>Feedback</b>	<b>Highwater Mark</b>
Casey Norman	700 Par Drive	Floodwaters have reached a depth of 15" in the low point of Par Drive in front of her home. This has happened on more than one occasion. The Normans moved in in March 2020. Floodwaters will stay up for 3 to 6 hours.	HWM = 183.14' + 1.25' = <b>184.29'</b>
Celeste Johnson	701 Par Drive	Floodwaters will get over the first brick step going up to the home and this is at least a foot in the road. The road floods multiple times per year. The Johnsons moved in in December 2016. Floodwaters do not die down 30 minutes after a rainfall event. It takes several hours.	Confirmed mark from Casey Norman

HMW = high water mark

## SECTION 4.0 DESIGN ALTERNATIVES

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To reduce flooding in the Par Drive and Village Lane areas along with 215 Windy Oak Drive, a series of drainage improvement alternatives were developed. A review of the existing conditions water surface profile (Exhibit 2) shows that Windy Oak Drive is a bottleneck and causing floodwaters to backup prior to overtopping the yard at 215 Windy Oak Drive. The existing 24-inch diameter reinforced concrete closed pipe system is undersized and conveying less than 33% of the 10-year peak flow. A review of the existing conditions profiles shows the overtopping elevation at Windy Oak Drive is set approximately 0.8 feet above the minimum road elevation at Par Drive. If the existing 24-inch diameter closed pipe system is surcharged or flowing overland at Windy Oak Drive, the Par Drive and Village Lane areas are severely flooded. For this reason, drainage improvements presented in this report focused on increasing the closed pipe system's capacity between Windy Oak Drive and Laurel Spring Drive and lowering the overtopping elevation at this bottleneck area.

As shown in Exhibit 2, a significant volume of flood storage is occurring in the channel and floodplain areas immediately upstream of 215 Windy Oak Drive. However, the US Army Corps of Engineers does not allow inline detention so a proposed detention pond located upstream of Windy Oak Drive was not evaluated as part of this study. An alternative that lowers the overtopping elevation at Windy Oak Drive to provide flood relief upstream needs to confirm that downstream properties in the Laurel Spring Drive area are not adversely impacted. Should an alternative that lowers the overtopping elevation at Windy Oak Drive move forward it will be critical to fully engage and communicate with the impacted to property owners. Lowering the ground surface too much may have adverse impacts to the aesthetics and function of this area of residents' side and front yards. Impacts to private utilities, roadway safety, driveways, fences, trees and other infrastructure may need to take place prior to the selection of a final design alternative. The following design alternatives are presented in this report:

- **Alternative #1:** Alternative #1 make no changes to the existing 24" diameter closed pipe system however the overtopping elevation from 215 Windy Oak Drive to Laurel Spring Drive is lowered by approximately 2 feet with this with this alternative. This is the least expensive alternative presented in this report but also one that may not achieve all the flood reduction goals of the Town.
- **Alternative #2:** Alternative #2 replaces the existing 24-inch diameter pipe with a new 48-inch diameter closed pipe system and lowers the overtopping elevation from 215 Windy Oak Drive to Laurel Spring Drive by approximately 2 feet. This alternative is relatively expensive; however, it will result in a significant reduction to upstream flooding. No drainage improvements are proposed to Laurel Spring Drive.
- **Alternative #3:** Alternative #3 replaces the existing 24-inch diameter pipe with twin 48-inch diameter flanking pipes from the upstream side of 215 Windy Oak Drive to Laurel Spring Drive, and lowers to the overtopping elevation from 215 Windy Oak Drive to Laurel Spring Drive. No drainage improvements are proposed to Laurel Spring Drive. Short of replacing the closed pipe system with an open channel, this alternative maximizes the flood reduction potential of the drainage system at Windy Oak Drive.
- **Alternative #4:** Alternative #4 replaces the existing 24-inch roadway culvert with twin 48-inch diameter flanking RCPs from the upstream side of 215 Windy Oak Drive to the downstream side of Windy Oak Drive and replaces the Laurel Spring Drive pipes with triple 36-diameter RCPs. In addition, this alternative involves the replacement of the remaining closed system downstream of Windy Oak Drive with a



trapezoidal open channel. This alternative maximizes the upstream flood reduction potential and removes some of the more expensive pipe construction cost. It is anticipated that Alternative #4 will meet resistance from property owners due to concerns with having an open channel in the front or side of the impacted properties.

- **Alternative #5:** Alternative #5 replaces the existing 24-inch diameter pipe with twin 48-inch diameter flanking pipes from the upstream side of 215 Windy Oak Drive to Laurel Spring Drive, replaces the Laurel Spring Drive pipes with triple 36-diameter RCPs and makes no adjustments to the overtopping elevation from 215 Windy Oak Drive to Laurel Spring Drive. The property owners located between Windy Oak Drive and Laurel Spring Drive are considered “non-benefiters” and therefore an alternative was developed to eliminate the need to regrade yards to convey larger storm events. This alternative was developed with the anticipation that residents will not want to be part of a project that involves lowering the side of their property to convey larger flood events.

Alternatives presented in this report reflect both a 5-year and 10-year level of service (LOS) while targeting a goal of limiting the 100-year flood depths in the road to 1.0 foot or less. A 5-year LOS is presented to help determine the potential cost savings from meeting a lower LOS. The hydraulic performance for each of the different alternatives is presented in Exhibit 3. A more detailed summary of the Alternative #1 through #5 drainage improvements is provided in the following sections:

#### Alternative #1

The design focused on lowering Windy Oak by approximately 2.0 feet with no changes to the existing 24-inch closed pipe system. Alternative #1 was developed to achieve a 5-year level of service at Par Drive for the least cost possible. The following is a summary of the drainage improvements associated with Alternative #1 (see Exhibit 4):

- Grade a 134 linear feet of trapezoidal channel from the upstream end of 215 Windy Oak Drive to the road.
- Lower Windy Oak Drive by approximately 2.0 feet so that the overtopping elevation is 182.15 feet. Other measures may be necessary to allow Windy Oak Drive to overtop in a relatively small flood events (2-year flood and greater).
- Grade a 270 linear feet of grass-lined trapezoidal swale from the downstream side of 215 Windy Oak Drive to Laurel Spring Drive.

The Alternative #1 drainage system improvements will bring Par Drive up to a 5-year LOS and reduces the 100-year flood depth at Par Drive from 1.95 feet to 1.07 feet. Peak flows at Laurel Spring Drive for the 5-, 10- and 100-year flood events increase by 3, 33, and 84 cfs when compared to the pre-project conditions. Adverse flooding will be seen at Windy Oak Drive and downstream through Laurel Spring Drive. No significant adverse impacts are experienced at South Creek Drive as a result of the Alternative #1 improvements. To minimize costs, no drainage improvements are proposed at Laurel Spring Drive as part of this alternative. The estimated cost of construction for this alternative is \$75,324. A copy of the engineer’s estimate of probable cost for Alternative #1 can be found in Exhibit 5.

Alternative #2

Alternative #2 replaces the existing 24-inch diameter RCP with 466 linear feet of 48-inch diameter RCP, and lowers Windy Oak Drive. Alternative #2 achieves a 10-year LOS at Par Drive and a significant reduction to the frequency of flooding at Windy Oak Drive. The following is a summary of the drainage improvements associated with Alternative #2 (see Exhibit 6):

- Replace 466 linear feet of existing 24-inch diameter RCP with of 48-inch diameter RCP.
- Grade 134 linear feet of grass-lined trapezoidal swale from the upstream end of 215 Windy Oak Drive to the road.
- Lower Windy Oak Drive by approximately 2.0 feet so that the overtopping elevation is 182.15 feet. Other measures may be necessary to allow Windy Oak Drive to overtop in a relatively small flood events (2-year flood and greater).
- Grade a 270 linear feet of grass-lined trapezoidal swale from the downstream side of 215 Windy Oak Drive to Laurel Spring Drive.

The Alternative #2 drainage system improvements will bring Par Drive up to a 10-year LOS, Windy Oak Drive up to a 5-year LOS and reduces the 100-year flood depth at Par Drive from 1.95 feet to 0.83 feet. Peak flows at Laurel Spring Drive for the 5-, 10- and 100-year flood events increase by 15, 28, and 51 cfs when compared to the pre-project conditions. To minimize costs no drainage improvements are proposed at Laurel Spring Drive as part of this alternative. The estimated cost of construction for this alternative is \$316,451. A copy of the engineer's estimate of probable cost for Alternative #2 can be found in Exhibit 7.

Alternative #3

Alternative #3 replaces the existing 24-inch diameter RCP with 466 linear feet of twin 48-inch diameter RCP, and lowers Windy Oak Drive. No drainage improvements are proposed to Laurel Spring Drive to help keep costs down. Short of replacing the closed pipe system with an open channel, this alternative maximizes the flood reduction potential of the drainage system at Windy Oak Drive. Alternative #3 achieves a 10-year LOS at both Par Drive and Windy Oak Drive. The following is a summary of the drainage improvements associated with Alternative #3 (see Exhibit 8):

- Replace 466 linear feet of existing 24-inch diameter RCP with of twin 48-inch diameter RCP.
- Grade a 134 linear feet of trapezoidal open channel from the upstream end of 215 Windy Oak Drive to the Windy Oak Drive.
- Lower Windy Oak Drive by approximately 2.0 feet so that the overtopping elevation is 182.15 feet. Other measures may be necessary to allow Windy Oak Drive to overtop in a relatively small flood events (2-year flood and greater).
- Grade a 270 linear feet of grass-lined trapezoidal swale from the downstream side of 215 Windy Oak Drive to Laurel Spring Drive.

The Alternative #3 drainage system improvements will bring Par Drive and Windy Oak Drive up to a 10-year LOS and reduces the 100-year flood depth at Par Drive from 1.95 feet to 0.64 feet. Peak flows at Laurel Spring Drive for the 5-, 10- and 100-year flood events increase by 43, 58, and 41 cfs when compared to the pre-project conditions. The estimated cost of construction for this alternative is \$439,425. A copy of the engineer's estimate of probable cost for Alternative #3 can be found in Exhibit 9.

Alternative #4

Alternative #4 replaces the existing 24-inch diameter RCP with 466 linear feet of twin 48-inch diameter RCP, lowers Windy Oak Drive and replaces much of the Windy Oak Drive closed pipe system with an open channel. Alternative #4 achieves a 10-year LOS at Par Drive, Windy Oak Drive and Laurel Spring Drive. The following is a summary of the drainage improvements associated with Alternative #4 (see Exhibit 10):

- Replace 134 linear feet of existing 24-inch diameter RCP (from 215 Windy Oak Drive to the downstream side of Windy Oak Drive) with a grass-lined trapezoidal open channel.
- Install a new concrete headwall at the upstream side of Windy Oak Drive.
- Replace 62 linear feet of existing 24-inch diameter RCP (from 215 Windy Oak Drive to the downstream side of Windy Oak Drive) with of twin 48-inch diameter RCP.
- Lower Windy Oak Drive by approximately 2.0 feet so that the overtopping elevation is 182.15 feet. Other measures may be necessary to allow Windy Oak Drive to overtop in a relatively small flood events (2-year flood and greater).
- Replace 270 linear feet of 24-inch diameter RCP with grass-lined trapezoidal open channel from the downstream side of 215 Windy Oak Drive to Laurel Spring Drive.
- Replace 72 linear feet of twin 24-inch diameter RCP with triple 36-inch diameter RCPs at Laurel Spring Drive and the crossing immediately downstream.

The Alternative #4 drainage system improvements will bring Windy Oak Drive and Laurel Spring Drive up to a 10-year LOS and eliminate flooding in the 100-year flood at Par Drive. There are no peak flows increases at Laurel Spring Drive with Alternative #4. The 100-year flood has reduced as much as 55 cfs when compared to the pre-project conditions at Laurel Spring Drive. The estimated cost of construction for this alternative is \$369,352. A copy of the engineer's estimate of probable cost for Alternative #4 can be found in Exhibit 11.

Alternative #5

Alternative #5 replaces the existing 24-inch diameter RCP with 466 linear feet of twin 48-inch diameter RCP, replaces the Laurel Spring Drive pipes with triple 36-inch diameter RCPs and make no changes to the overtopping elevation of Windy Oak Drive or the front and side yards along this drainage corridor to Laurel Spring Drive. Alternative #5 achieves a 10-year LOS at Par Drive, Windy Oak Drive and Laurel Spring Drive. As noted previously, the property owners located between Windy Oak Drive and Laurel Spring Drive are considered "non-benefitters" and therefore an alternative was developed to eliminate the need to regrade yards to convey larger storm events. This alternative was developed with the anticipation that residents will not want to be part of a project that involves lowering the side of their property to convey larger flood events. The following is a summary of the drainage improvements associated with Alternative #5 (see Exhibit 12):

- Replace 466 linear feet of existing 24-inch diameter RCP with of twin 48-inch diameter RCP.
- Replace 72 linear feet of twin 24-inch diameter RCP with triple 36-inch diameter RCPs at Laurel Spring Drive and the crossing immediately downstream.

The Alternative #5 drainage system improvements will bring Par Drive, Windy Oak Drive and Laurel Spring Drive up to a 10-year LOS and eliminates flooding in the 100-year flood at Par Drive. There are no peak flows increases at Laurel Spring Drive with Alternative #5.

## SECTION 4.0 DESIGN ALTERNATIVES

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The 100-year flood depth at Par Drive has been reduced from 1.95 feet to 0.88 feet when compared to the pre-project conditions. The estimated cost of construction for this alternative is \$562,465. A copy of the engineer's estimate of probable cost for Alternative #4 can be found in Exhibit 13.

**SECTION 4.0  
DESIGN ALTERNATIVES**

**Table 9: Summary of System Performance – Water Surface Elevations**

Alt#	Windy Oak Drive Proposed Pipe	Laurel Spring Drive Proposed Pipe	Overtopping Elevation at Windy Oak Drive (ft. NAVD '88)	Flood Elevations Upstream of 215 Windy Oak Drive					
				5-Year WSEL (ft. NAVD '88)	5-Year Flood Depth (ft)	10-Year WSEL (ft. NAVD '88)	10-Year Flood Depth (ft)	10-Year WSEL (ft. NAVD '88)	10-Year Flood Depth (ft)
Existing	24" RCP	Twin 24-inch RCPs	183.79	183.66	0.52	184.28	1.14	185.09	1.95
1	24" RCP	No changes	182.16	182.92	-0.22	183.19	0.05	184.21	1.07
2	48" RCP	No changes	182.16	182.14	-1.00	182.74	-0.4	183.97	0.83
3	Twin 48" RCPs	No changes	182.16	182.02	-1.12	182.38	-0.76	183.78	0.64
4	Twin 48" RCPs + Open Channel	Triple 36" RCPs	182.16	180.34	-2.8	180.90	-2.24	183.08	-0.06
5	Twin 48" RCPs	Triple 36" RCPs	183.79 (No changes)	180.81	-2.33	181.40	-1.74	184.02	0.88

100-year flood depths shown in Table 9 are at Par Drive

**Table 10: Summary of System Performance - Peak Flows**

Alt#	Windy Oak Drive Proposed Pipe	Laurel Spring Drive Proposed Pipe	Overtopping Elevation at Windy Oak Drive (ft. NAVD '88)	Windy Oak Drive Overflow			Laurel Spring Drive Overflow		
				5-yr Peak Flow (cfs)	10-yr Peak Flow (cfs)	100-yr Peak Flow (cfs)	5-yr Peak Flow (cfs)	10-yr Peak Flow (cfs)	100-yr Peak Flow (cfs)
Existing	24" RCP	Twin 24-inch RCPs	183.79	0	26	200	0	0	165
1	24" RCP	No changes	182.16	42	74	285	3	33	249
2	48" RCP	No changes	182.16	0	30	230	15	28	216
3	Twin 48" RCPs	No changes	182.16	0	0	184	43	58	206
4	Twin 48" RCPs + Open Channel	Triple 36" RCPs	182.16	0	0	109	0	0	110
5	Twin 48" RCPs	Triple 36" RCPs	183.79 (No changes)	0	0	1	0	0	32

**SECTION 5.0**  
**COST ESTIMATES**

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The cost estimates provided in this report were prepared to assist the Town of Nashville staff in making planning level decisions and prioritizing improvements for the storm drainage improvements. These cost estimates are not final design estimates and were developed using recent bid tabulations from other communities and NCDOT projects within North Carolina. They include surveying, permitting, engineering, legal, and administrative costs. A summary of each of the alternative's level of service and drainage improvement costs is presented in Table 9. The cost estimates are approximate and are subject to change due to local costs for materials, delivery, construction, land or easement acquisitions, the bid climate as well as other factors.

**Table 9: Preliminary Project Cost Estimates**

Alternative	Par Drive Level of Service	Cost
#1	5-Year LOS	\$75,324
#2	10-Year LOS	\$316,451
#3	10-Year LOS	\$439,425
#4	100-Year LOS	\$369,352
#5	25-Year LOS	\$562,465

Additional permitting will be required from NCDENR Land Quality for an erosion control permit. There are no anticipated permitting costs for a PCN to the US Army Corps of Engineers for potential stream and wetland impacts.

**CONCLUSIONS AND RECOMMENDATIONS**

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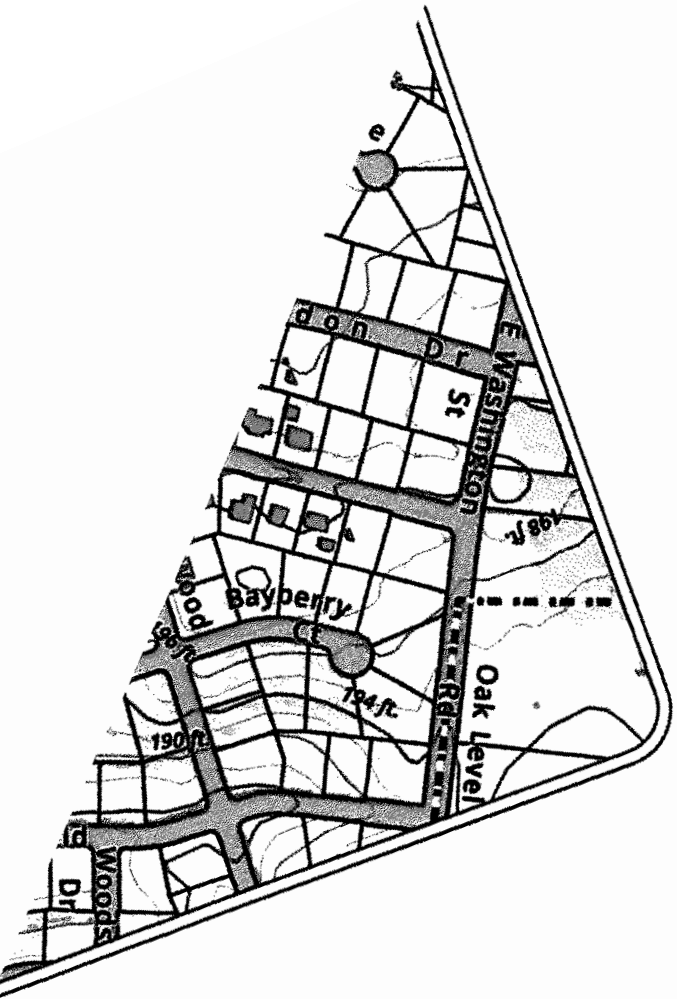
As shown in this flood study, the existing drainage system between Windy Oak Drive and Laurel Spring Drive is undersized and causing flooding upstream. The overtopping elevation where water crests Windy Oak Drive is set approximately 0.75 feet above the minimum roadway elevation at Par Drive. Five drainage improvement alternatives were evaluated as part of this flood study to help reduce flooding along Par Drive, Village Lane and at 215 Windy Oak Drive. Based only performance and without consideration of cost, Alternative #4 would be the recommended alternative to mitigate future flooding in the Par Drive and Village Lane neighborhoods. This is a relatively cost-effective alternative that achieves or exceeds design goals. It is anticipated that this alternative will receive resistance from property owners not wanting to construct an open channel along the side of their property.

Should property owners not be on board with Alternative #4, Alternative #2 would be the next recommended alternative. Alternative #2 involves replacing the 24-inch diameter closed pipe system and replacing it with a 48-inch diameter reinforced concrete pipe from the upstream side 215 Windy Oak Drive to Laurel Spring Drive. This alternative also involves lowering the overtopping elevation of Windy Oak Drive by approximately 2.0 feet. Because the yards upstream and downstream of Windy Oak Drive are currently set high, the Alternative #2 improvements will require that a grass-lined swale be graded from the upstream side 215 Windy Oak Drive to Laurel Spring Drive. The residents living in the Windy Oak Drive downstream to Laurel Spring Drive are not experiencing frequent flooding and therefore are considered "non-benefiters". For this reason, it will be critical to engage these residents with a series of one-on-one field meetings to share with them the proposed plans and potential impacts to their property. Alternative #2 is one of the more cost-effective alternatives that reduces the impacts to residents along the Windy Oak to Laurel Spring Drive corridor while achieving a 10-year level of service with roadway flooding for Par Drive and Village Lane. 100-year flood elevations at Par Drive will reduce from a depth of 1.95 feet to a depth of 0.83 feet. This is a significant reduction that will allow residents or emergency responders to use Par Drive or Village Lane during a 100-year flood. First flood elevation in the Par Drive area are set above the 100-year flood elevation.

## List of Exhibits

<u>Exhibit No.</u>	<u>Title</u>	<u>Page</u>
Exhibit 1	Watershed Map with Sub-Basin Delineations	7-1
Exhibit 2	Existing Conditions Drainage System Water Surface Profile	7-2
Exhibit 3	Proposed Drainage Improvements Performance	7-3
Exhibit 4	Alternative #1 Drainage Improvements	7-4
Exhibit 5	Opinion of Probable Construction Costs – Alternative #1	7-5
Exhibit 6	Alternative #2 Drainage Improvements	7-6
Exhibit 7	Opinion of Probable Construction Costs – Alternative #2	7-7
Exhibit 8	Alternative #3 Drainage Improvements	7-8
Exhibit 9	Opinion of Probable Construction Costs – Alternative #3	7-9
Exhibit 10	Alternative #4 Drainage Improvements	7-10
Exhibit 11	Opinion of Probable Construction Costs – Alternative #4	7-11
Exhibit 12	Alternative #5 Drainage Improvements	7-12
Exhibit 13	Opinion of Probable Construction Costs – Alternative #5	7-13





Flood Elevations Upstream of 215 Windy Oak Drive - Resultant Flood Depth at Far Drive									
Alt#	Windy Oak Drive Proposed Pipe	Laurel Spring Proposed Pipe	Overtopping Elevation at Windy Oak Drive (ft. NAVD '88)	5-Year WSEL (ft. NAVD '88)	5-Year Flood Depth (ft)	10-Year WSEL (ft. NAVD '88)	10-Year Flood Depth (ft)	100-Year WSEL (ft. NAVD '88)	100-Year Flood Depth (ft)
Existing	24-inch RCP	Twin 24-inch RCPs	183.79	183.66	0.52	184.28	1.14	185.09	1.95
1	24-inch RCP	No changes	182.16	182.92	-0.22	183.19	0.05	184.21	1.07
2	48-inch RCP	No changes	182.16	182.14	-1.00	182.74	-0.4	183.97	0.83
3	Twin 48-inch RCPs +	No changes	182.16	182.02	-1.12	182.38	-0.76	183.78	0.64
4	Twin 48-inch RCPs + Open Channel	Triple 36" RCPs	182.16	180.34	-2.8	180.90	-2.24	183.08	-0.06
5	Twin 48-inch RCPs	Triple 36" RCPs	183.79 (No changes)	180.81	-2.33	181.40	-1.74	184.02	0.88

Par Drive sag is at elevation 183.14 feet (NAVD'88); Flood depths presented in Exhibit 3 are for the sag in Par Drive

Flood Elevations Upstream of 215 Windy Oak Drive - Resultant Flood Depth at Far Drive									
Alt#	Windy Oak Drive Proposed Pipe	Laurel Spring Proposed Pipe	Overtopping Elevation at Windy Oak Drive (ft. NAVD '88)	Windy Oak Drive Overflow			Laurel Spring Drive Overflow		
				5-yr Peak Flow (cfs)	10-yr Peak Flow (cfs)	100-yr Peak Flow (cfs)	5-yr Peak Flow (cfs)	10-yr Peak Flow (cfs)	100-yr Peak Flow (cfs)
Existing	24-inch RCP	Twin 24-inch RCPs	183.79	0	26	200	0	0	165
1	24-inch RCP	No changes	182.16	42	74	285	3	33	249
2	48-inch RCP	No changes	182.16	0	30	230	15	28	216
3	Twin 48-inch RCPs +	No changes	182.16	0	0	184	43	58	206
4	Twin 48-inch RCPs + Open Channel	Triple 36" RCPs	182.16	0	0	109	0	0	110
5	Twin 48-inch RCPs	Triple 36" RCPs	183.79 (No changes)	0	0	1	0	0	32

Lower Windy Oak Drive Overtopping  
Elevation Only - No Pipe Changes

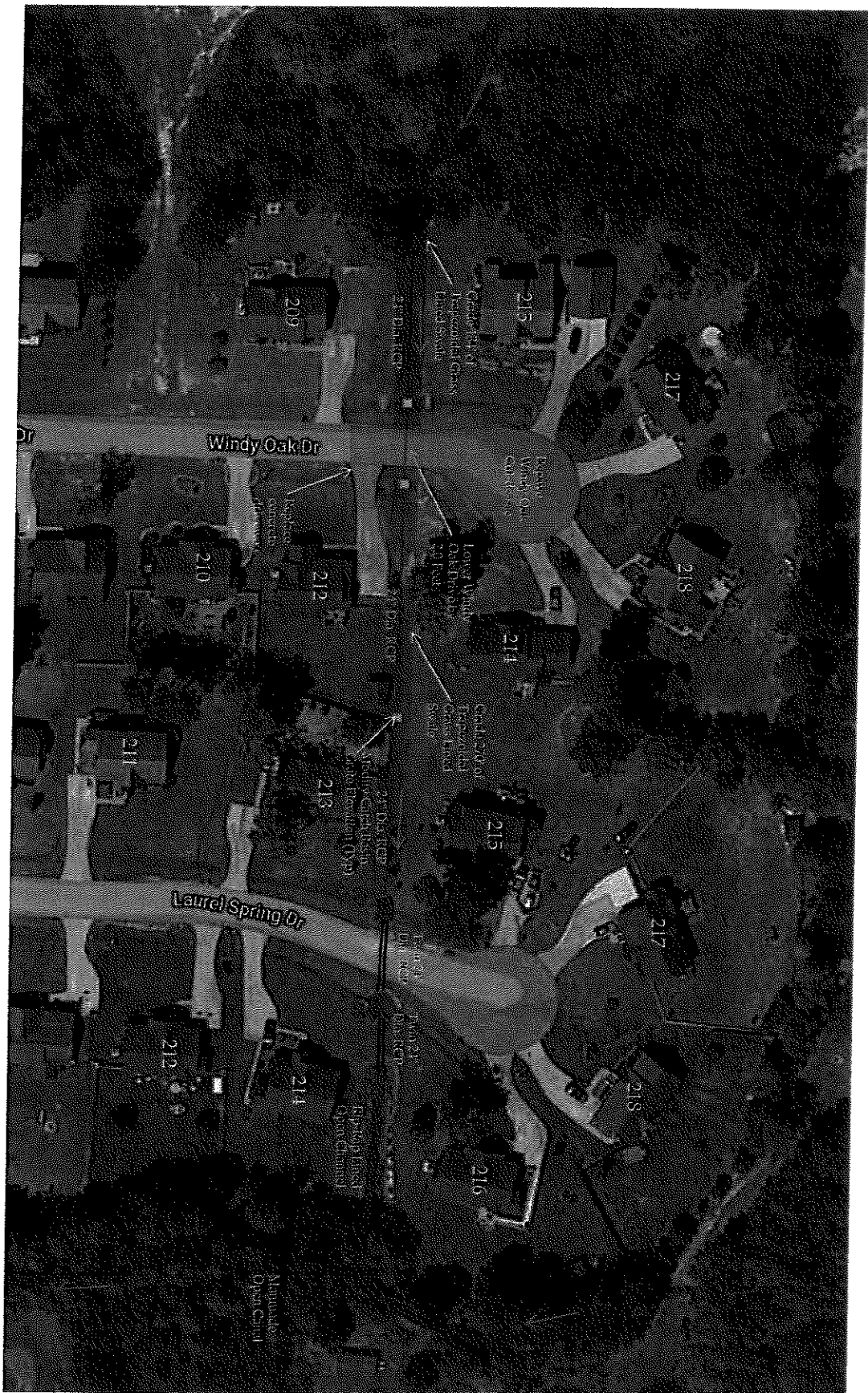


Exhibit 4 - Alternative #1

**OPINION OF PROBABLE CONSTRUCTION COST**

Project: South Creek Drive Drainage Study - Nashville, NC  
 Date: 14-Sep-20

Alternative #1					
LINE #	ITEM	QUANT.	UNIT	UNIT PRICE	AMOUNT
1	Mobilization (@ 5% of Construction Cost)	1	LS	\$3,105	3,105.37
2	Construction Staking	1	LS	\$4,000	4,000.00
3	Relocate Utilities	1	LS	\$5,000	5,000.00
4	Demolition Asphalt at Windy Oak Drive including Haul Off/Waste	1122	SY	\$8	8,775.78
5	Waste Subbase Excess Material from Windy Oak Drive	49	TN	\$40	1,963.89
6	Furnish and Install Asphalt Surface Course (SF-9.5A) for Pavement	177	TON	\$125	22,093.75
7	Furnish and Install Aggregate Base Course (ABC) for Pavement	262	TON	\$40	10,474.07
8	Concrete Driveway	32	SY	\$100	3,200.00
9	Reset Stormwater Catch Basin	3	EA	\$800	2,400.00
10	Silt fence	300	LF	\$4	\$1,200
11	Seeding and Mulching	1	AC	\$3,000	\$3,000
<b>Subtotal</b>					<b>\$65,213</b>
<b>5% Contractor Profit and Overhead</b>					<b>\$3,261</b>
<b>Subtotal</b>					<b>\$68,474</b>
<b>10% Contingency</b>					<b>\$6,850</b>
<b>Total Construction Cost</b>					<b>\$75,324</b>
Permitting & Design					
12	Permitting	1	LS	\$6,000	\$6,000
13	Design	1	LS	\$14,000	\$14,000
<b>Total Permitting and Design Cost</b>					<b>\$20,000</b>
<b>Total</b>					<b>\$95,324</b>
<b>Total Opinion of Probable Construction Cost</b>					<b>\$95,324</b>

Lower Windy Oak Dr. & Install 466 LF of  
 48" RCP (No Pipe Changes @ Laurel  
 Springs Dr.)

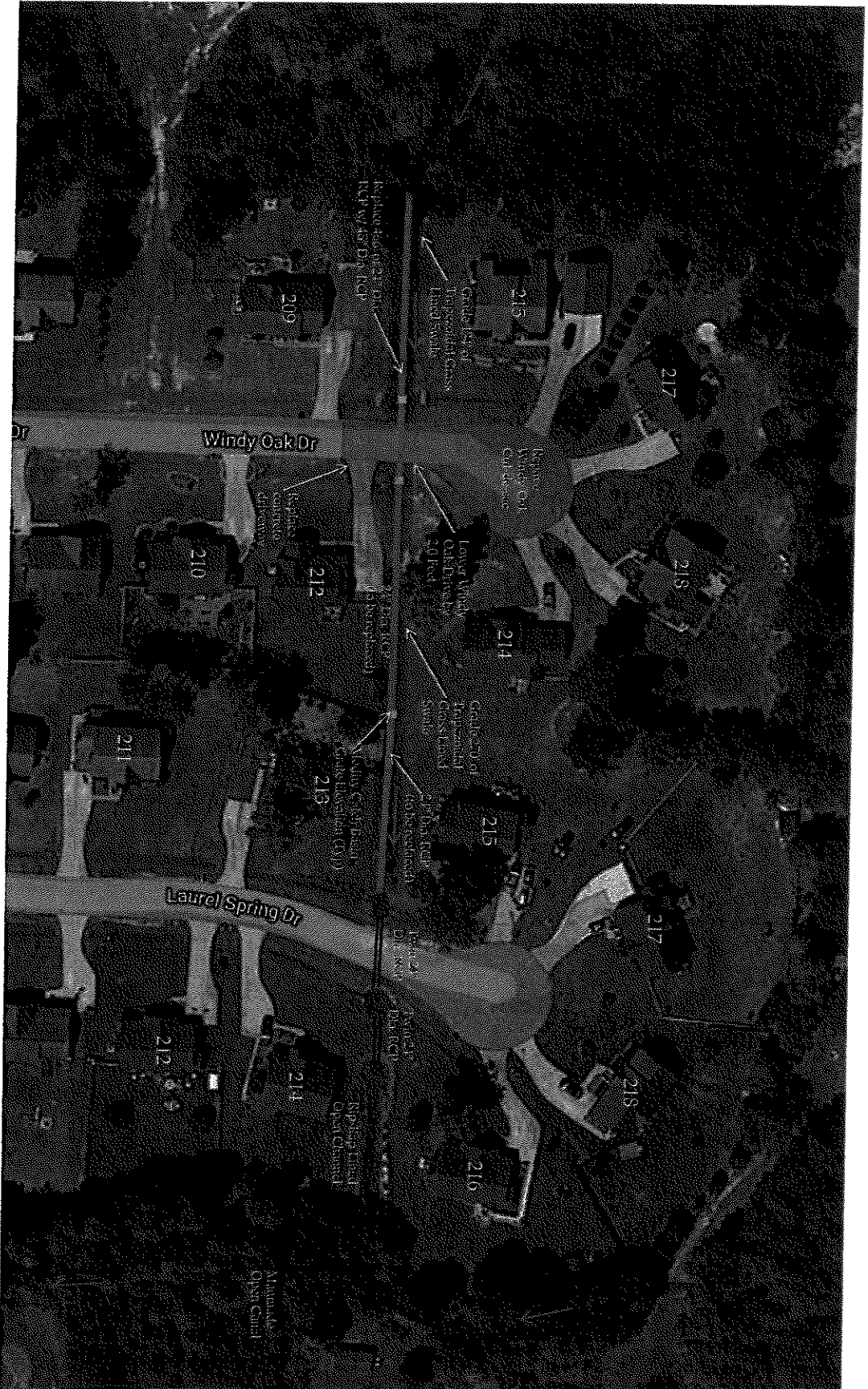


Exhibit 6 - Alternative #2

**OPINION OF PROBABLE CONSTRUCTION COST**

Project: South Creek Drive Drainage Study - Nashville, NC  
Date: 14-Sep-20

Alternative #2					
LINE #	ITEM	QUANT.	UNIT	UNIT PRICE	AMOUNT
1	Mobilization	1	LS	\$13,047	\$13,047
2	Construction Staking	1	LS	\$4,000	\$4,000
3	Dewatering	1	LS	\$12,000	\$12,000
4	Relocate Utilities	1	LS	\$5,000	\$5,000
5	Demolition Asphalt at Windy Oak Drive including Haul Off/Waste	1122	SY	\$8	8,775.78
6	Waste Subbase Excess Material from Windy Oak Drive	49	TN	\$40	1,963.89
7	Demolition 24" RCP	466	LF	\$58	\$27,028
8	48" diameter reinforced concrete pipe, Type III	466	LF	\$250	\$116,500
9	Furnish and Install 6' Diameter Stormwater Manhole (COR Std. SW-10.05)	3	EA	\$8,500	\$25,500
10	Grade grass-lined trapezoidal swale +haul off and waste excess material	404	LF	\$50	\$20,200
11	Furnish and Install Asphalt Surface Course (SF-9.5A) for Pavement	177	TON	\$125	\$22,094
12	Furnish and Install Aggregate Base Course (ABC) for Pavement	262	TON	\$40	\$10,474
13	Concrete Driveway	32	SY	\$100	3,200.00
14	Silt fence	300	LF	\$4	\$1,200
15	Seeding and Mulching	1	AC	\$3,000	\$3,000
<b>Subtotal</b>					<b>\$273,982</b>
<b>5% Contractor Profit and Overhead</b>					<b>\$13,699</b>
<b>Subtotal</b>					<b>\$287,681</b>
<b>10% Contingency</b>					<b>\$28,770</b>
<b>Total Construction Cost</b>					<b>\$316,451</b>
Permitting & Design					
15	Permitting	1	LS	\$5,000	\$5,000
16	Design	1	LS	\$17,000	\$17,000
<b>Total Permitting and Design Cost</b>					<b>\$22,000</b>
Total					
<b>Total Opinion of Probable Construction Cost</b>					<b>\$338,451</b>

Lower Windy Oak Dr. & Install Twin 466  
 LF of 48" RCP (No Pipe Changes @ Laurel  
 Springs Dr.)

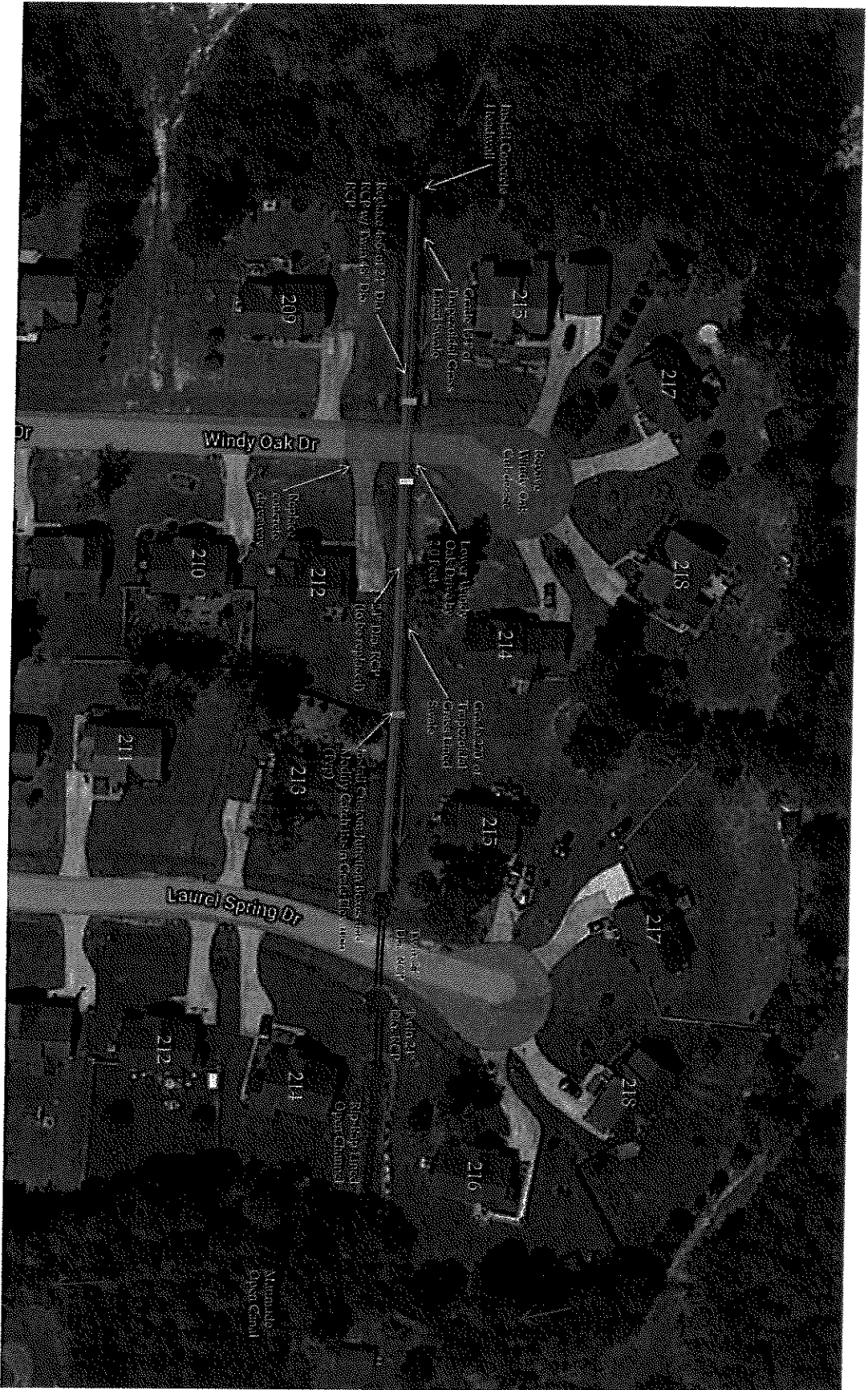


Exhibit 8 - Alternative #3

**OPINION OF PROBABLE CONSTRUCTION COST**

Project: South Creek Drive Drainage Study - Nashville, NC  
Date: 14-Sep-20

Alternative #3					
LINE #	ITEM	QUANT.	UNIT	UNIT PRICE	AMOUNT
1	Mobilization (@ 5% of Construction Cost)	1	LS	\$18,117	\$18,117
2	Construction Staking	1	LS	\$4,000	\$4,000
3	Dewatering	1	LS	\$17,000	\$17,000
4	Relocate Utilities	1	LS	\$5,000	\$5,000
5	Demolition Asphalt at Windy Oak Drive including Haul Off/Waste	1122	SY	\$8	8,775.78
6	Waste Subbase Excess Material from Windy Oak Drive	49	TN	\$40	1,963.89
7	Demolition 24" RCP	466	LF	\$58	\$27,028
8	48" diameter reinforced concrete pipe, Type III	932	LF	\$200	\$186,400
9	Concrete headwall	2	EA	\$9,500	\$19,000
10	Furnish and Install Custom Concrete Junction Boxes	3	EA	\$11,000	\$33,000
11	Grade grass-lined trapezoidal swale	404	LF	\$50	\$20,200
12	Furnish and Install Asphalt Surface Course (SF-9.5A) for Pavement	177	TON	\$125	\$22,094
13	Furnish and Install Aggregate Base Course (ABC) for Pavement	262	TON	\$40	\$10,474
14	Concrete Driveway	32	SY	\$100	3,200.00
15	Silt fence	300	LF	\$4	\$1,200
16	Seeding and Mulching	1	AC	\$3,000	\$3,000
				<b>Subtotal</b>	<b>\$380,452</b>
				<b>5% Contractor Profit and Overhead</b>	<b>\$19,023</b>
				<b>Subtotal</b>	<b>\$399,475</b>
				<b>10% Contingency</b>	<b>\$39,950</b>
				<b>Total Construction Cost</b>	<b>\$439,425</b>
Permitting & Design					
16	Permitting	1	LS	\$5,000	\$5,000
17	Design	1	LS	\$17,000	\$17,000
				<b>Total Permitting and Design Cost</b>	<b>\$22,000</b>
Total					



Lower Windy Oak Dr. & Install Twin 48" RCPs at Windy Oak & Triple 36 RCPs at Laurel Springs Dr. + grade open channel between culverts)



Exhibit 10 - Alternative #4

**OPINION OF PROBABLE CONSTRUCTION COST**

Project: South Creek Drive Drainage Study - Nashville, NC  
Date: 14-Sep-20

Alternative #4					
LINE #	ITEM	QUANT.	UNIT	UNIT PRICE	AMOUNT
1	Mobilization (@ 5% of Construction Cost)	1	LS	\$15,228	\$15,228
2	Construction Staking	1	LS	\$4,000	\$4,000
3	Dewatering	1	LS	\$17,000	\$17,000
4	Relocate Utilities	1	LS	\$5,000	\$5,000
5	Demolition Asphalt at Windy Oak Drive including Haul Off/Waste	1122	SY	\$8	\$8,776
6	Waste Subbase Excess Material from Windy Oak Drive	49	TN	\$40	1,963.89
7	Demolition 24" RCP	466	LF	\$58	\$27,028
8	36" diameter reinforced concrete pipe, Type III	216	LF	\$270	\$58,320
9	48" diameter reinforced concrete pipe, Type III	124	LF	\$250	\$31,000
10	Concrete headwall	6	EA	\$9,500	\$57,000
11	Grade Trapezoidal Open Channel	1	LS	\$50,000	\$50,000
12	Class I Rip-Rap	75	TN	\$60	\$4,500
13	Furnish and Install Asphalt Surface Course (SF-9.5A) for Pavement	177	TON	\$125	\$22,094
14	Furnish and Install Aggregate Base Course (ABC) for Pavement	262	TON	\$40	\$10,474
15	Concrete Driveway	32	SY	\$100	3,200.00
16	Silt fence	300	LF	\$4	\$1,200
17	Seeding and Mulching	1	AC	\$3,000	\$3,000
				<b>Subtotal</b>	<b>\$319,783</b>
				<b>5% Contractor Profit and Overhead</b>	<b>\$15,989</b>
				<b>Subtotal</b>	<b>\$335,772</b>
				<b>10% Contingency</b>	<b>\$33,580</b>
				<b>Total Construction Cost</b>	<b>\$369,352</b>
Permitting & Design					
18	Permitting	1	LS	\$5,000	\$5,000
19	Design	1	LS	\$17,000	\$17,000
				<b>Total Permitting and Design Cost</b>	<b>\$22,000</b>

Install Twin 48" RCPs at Windy Oak & Triple 36 RCPs at Laurel Springs Dr. (No lowering of Windy Oak Dr or yards)

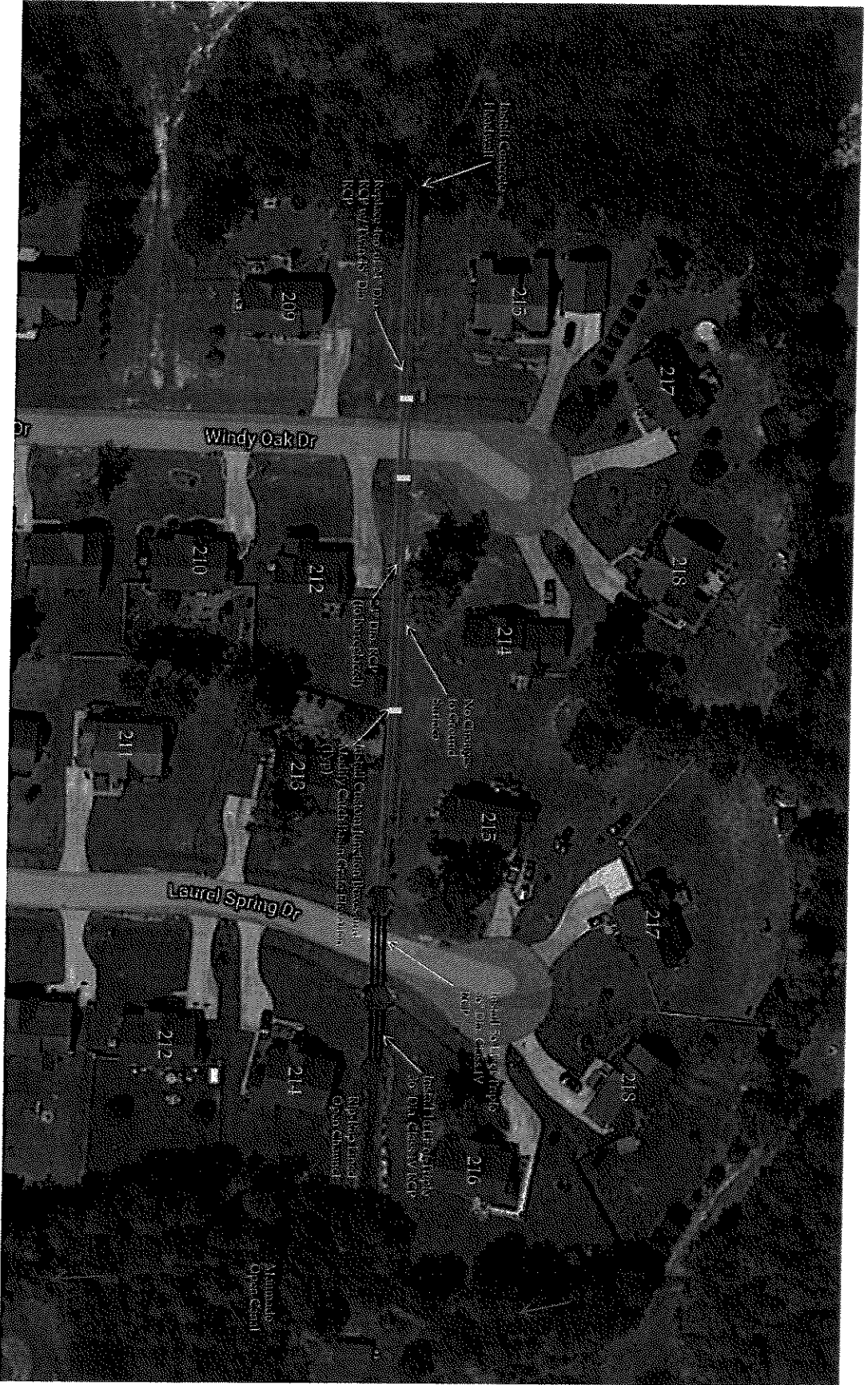


Exhibit 12 - Alternative #5

**OPINION OF PROBABLE CONSTRUCTION COST**

Project: South Creek Drive Drainage Study - Nashville, NC  
Date: 14-Sep-20

Alternative #5					
LINE #	ITEM	QUANT.	UNIT	UNIT PRICE	AMOUNT
1	Mobilization (@ 5% of Construction Cost)	1	LS	\$23,190	\$23,190
2	Construction Staking	1	LS	\$4,000	\$4,000
3	Dewatering	1	LS	\$17,000	\$17,000
4	Relocate Utilities	1	LS	\$5,000	\$5,000
5	Demolition Asphalt at Windy Oak Drive including Haul Off/Waste	1122	SY	\$8	\$8,776
6	Waste Subbase Excess Material from Windy Oak Drive	49	TN	\$40	1,963.89
7	Demolition 24" RCP	466	LF	\$58	\$27,028
8	36" diameter reinforced concrete pipe, Type III	216	LF	\$210	\$45,360
9	48" diameter reinforced concrete pipe, Type III	932	LF	\$200	\$186,400
10	Concrete headwall	6	EA	\$9,500	\$57,000
11	Furnish and Install Custom Concrete Junction Boxes	5	EA	\$14,000	\$70,000
12	Class I Rip-Rap	75	TN	\$60	\$4,500
13	Furnish and Install Asphalt Surface Course (SF-9.5A) for Pavement	177	TON	\$125	\$22,094
14	Furnish and Install Aggregate Base Course (ABC) for Pavement	262	TON	\$40	\$10,474
15	Silt fence	300	LF	\$4	\$1,200
16	Seeding and Mulching	1	AC	\$3,000	\$3,000
				<b>Subtotal</b>	<b>\$486,985</b>
				<b>5% Contractor Profit and Overhead</b>	<b>\$24,349</b>
				<b>Subtotal</b>	<b>\$511,335</b>
				<b>10% Contingency</b>	<b>\$51,130</b>
				<b>Total Construction Cost</b>	<b>\$562,465</b>
Permitting & Design					
17	Permitting	1	LS	\$5,000	\$5,000
18	Design	1	LS	\$17,000	\$17,000
				<b>Total Permitting and Design Cost</b>	<b>\$22,000</b>