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August 23, 2023
Ms. Donna Voliva, Asst. Planning Director
Currituck County

## Subject: Response to TRC Comments Dollar Tree - Grandy Timmons Group Job \#59040

## Dear Ms. Voliva:

Please accept the following for resubmittal to TRC. We have enclosed 2 full sized copies of the revised plans, one $8.5 \times 11$ reduced copy of the plans, a revised site plan application, a revised drainage narrative, a truck turning template exhibit, and a copy of the contract for purchase. A disc is also enclosed containing the plans and documents in pdf format.

My responses to your comments are below.

## Planning (Donna Voliva, 252-232-6032)

## Reviewed

1. The owner of the property must sign the application or provide necessary documentation to indicate the applicant has a recognized property interest.
A copy of the contract for purchase is enclosed.
2. Correct the address on the site plan ( 6440 Caratoke Highway) and the PIN on the application (0094000122E0000).
Address and PIN have been corrected.
3. Grading and fill are proposed within 10 ' of property lines. Section 7.3 .5 of the UDO does not allow for fill and land disturbing activities within 10 feet of any lot line. Drainage and stormwater improvements may be approved by the county engineer, but it does not appear the proposed development is consistent with this allowance.
The fill has been reduced based on conversations with McAdams staff. Minor fill still exists in the 10 ' setback to properly construct the sidewalks along the highway and there is a small amount adjacent to the parking along the western property line.
4. The maximum driveway width measured at the property line shall not exceed 36 ' and both driveways exceed the maximum width.
The driveway radii have been modified to reduce the width at the $r / w$ line.
5. Provide variable width drainage easement recording information for the drainage improvement along the northwestern property line.
The existing easement is now shown and referenced.
6. Provide detail that illustrates the $20^{\prime} \times 40^{\prime}$ loading space can be accessed and not impact the drive aisle/driveway.
See attached exhibit showing truck path through the parking lot. It illustrates that when the truck is parked for unloading there is still more than 16 ' of space for another vehicle to pass.
7. Vehicular use area landscaping, landscaping located within a required perimeter buffer, or required screening cannot be used for site landscaping.
Understood. Landscaping has been modified accordingly. Please note that a 60 ' radius is shown for all trees that are designated as required parking lot trees.
8. Provide details for sign and base landscaping. Otherwise, a separate review will be necessary for the sign.
It is understood that this will be handled at a later date.
9. Streetscape is not provided on the northwest area of the driveway (area of sign and drainage easement).
We have relocated one tree to help meet this requirement.
10. The owner shall sign the stormwater statement on sheet C4.0.

We do not yet have this in hand but will obtain owners signature and forward as soon as possible.
11. Some canopy trees are proposed under the overhead powerline. Provide details from Dominion Energy to permit/authorize the landscaping in this area. If the powerlines are in an easement, provide the easement information.
We have rotated the portion of the buffer yard that was beneath the power lines so that it runs parallel to and not directly under the lines.
12. Neuse Street is considered a quiet street in the Connecting Currituck Pedestrian Plan. Please indicate a pedestrian improvement that is consistent with the pedestrian plan.
Per our discussion, we are awaiting feedback from planning.
13. Portions of the vehicular landscape strip not occupied by shrubs shall include appropriate ground cover and be a minimum width of five feet (general note).
We have added a note to the shrub detail indicating that shrubs planted in rows shall receive mulch continuously through the bed.
14. The plans indicate some potential off-site activities. Provide easement information or authorization for proposed off-site development.
All off-site development has been limited to within existing drainage easements or in public rights-of-way.
15. The UDO requires that all driveways be constructed so that vehicles can enter and exit from the lot without posing any substantial danger to themselves, pedestrians, or vehicles travelling on abutting streets. A left out onto Caratoke Highway must be further evaluated to conclude the access will not pose any substantial danger to travelers. Considering a signalized intersection is available, it is staff's recommendation that the access be limited to right in and right out on Caratoke Highway.
We have reached out to NCDOT and have not received any response. We are assuming we have full access based on the current center turn lane configuration.
16. Provide the information/calculations for the minimum building pad/finished floor elevation to show how the elevation was established and consistency with the UDO.
We have reduced the proposed FFE by $1 / 2$ foot. The FFE of the proposed building is similar to that of the adjacent Sonic building. The outer edge of the Sonic parking lot is noted on our plans to be above elevation 12. Part of our concern is not having low points of the project to be below existing grades, so we work from low points up to the building FEE.
17. The building elevation review is based on no roof mounted equipment. There will be no roof mounted equipment.
18. It appears the building design feature of a series of four or more pilasters having a minimum depth of eight inches and a minimum width of eight inches, and a minimum height of 80 percent of the facade's height. Please indicate the other two other features being used on the façade visible from a street. We understand that building review and discussion is ongoing.
19. The building shall be configured so that building facades visible from streets include a window or functional general access doorway at least every 20 feet along the façade. False windows are proposed on two sides. The rear elevation includes a door, but it does not appear to be a general access doorway. Generally, false windows are allowed by the director when the building features provide additional design elements to address the purpose and intent of the nonresidential design standards. More specifically, elements that establish a higher quality development, foster greater compatibility between development, encourage a strong sense of place, and enhance the appearance of the development along the major arterials are considered when determining when false windows can be used. We understand that building review and discussion is ongoing.
20. The proposed dumpster is shown between the building and Neuse Street. Typically, dumpster facilities cannot be located between the principal structure and any adjacent street. Due to the configuration of the lot and the placement of the dumpster, would the applicant utilize materials similar to the exterior façade for the screening materials in order to blend in with the building? A dumpster enclosure detail using split face block has been added.
21. Prior to site plan approval all applications must be signed and copies of all approved permits and agreements must be provided.
Understood. These revised plans are being submitted for NCDEQ and NCDOT permits.
22. Building wall pack lights shall not exceed 1,600 lumens.

Understood. Lighting plans will be updated.
23. All light fixtures shall be mounted to be full cut-off.

Understood.

## Currituck County Building and Fire Inspections (Bill Newns, 252-232-6023)

## Reviewed

1. Soil and compaction testing for footings.
2. Needed Fire Flow for construction is determined by the ISO method.
3. No new construction can occur that creates a Needed Fire Flow greater than the available fire flow on site.
4. Knox Box provided on buildings (Coordinate location with the local VFD for building and order the box at Knox website to order search for Currituck Co Fire-EMS at http://www.knoxbox.com for Knox Box location and setup of box call Chris Bailey 252-435-8120.
5. Connectivity of all required exits to a public way (hard surface asphalt/concrete) 48 " accessible route to public way.
6. Curb cuts at vehicular traffic areas and pedestrian crossings must be ADA compliant and have detectable warning devices installed.
Comments are understood and have been passed on to the contractor.

## Currituck Soil and Water Conservation (Dylan Lloyd, 252-232-3360)

Approved with corrections

1. All fill shall comply with setback requirement of 10 from toe of slope to lot lines.

Fill within 10' of the property line has been reduced.
2. Invert for 18 " RCP under drive entrance to Neuse Street shows an 8.3' inv out on the receiving end but a $9.1^{\prime}$ inv on the outlet end. Is this ditch to be regraded?
I believe Dylan is seeing an existing spot grade of 9.06 in the ditch. The outlet of the pipe is proposed at 8.3' as labeled.
3. Show downstream drainage path downstream to Dowdy Bay Outlet.

## Currituck County GIS (Harry Lee 252-232-4039)

## Reviewed

1. The address on the site plan application is incorrect. The physical address is 6440 Caratoke Hwy.
2. The Parcel ID Number on the site plan application is incorrect. The correct Parcel ID Number is 0094000122 E 0000. These items have been corrected.

## US Army Corps of Engineers (Anthony Scarbraugh, 910-251-4619)

Reviewed

1. Any impacts to jurisdictional waters or wetlands of the US requires prior approval from the US Army Corps of Engineers. No impact is proposed.

## STORMWATER DEVELOPMENT REVIEW COMMENTS

## GENERAL

1. Please provide a complete copy of the required documentation to supplement Major Stormwater Plan Form SW-002 including design forms, design checklists, and inspection checklists.
See additional calculation information in the drainage study report.

## STORMWATER PLAN

1. The Stormwater Plan indicates the Rational Method was used, but the checklist indicates the simple volume calculation was used. Please either provide Form SW-003 or update the Stormwater Plan and calculations.
See additional calculation information in the drainage study report.
a. To demonstrate compliance recommend using the rational method for flows, the simple volume calculation from the Stormwater Manual for required volume, and demonstrate surface area and volume are sufficient using the sizing methodology in the NCDEQ infiltration system minimum design criteria Please note that I have further researched the Modified Rational Method and its recommended use for initial sizing of stormwater basins. The report contains additional information to illustrate the development of rational C and the Time of Concentration. Additionally, we have used the state runoff volume calculations that are used for sizing infiltration basins to provide an additional estimate of the increase in runoff volume from the pre-development 2-year storm and the postdevelopment 5-year storm.
b. It is recommended that the engineer meet with the stormwater reviewers to better understand the presented methodology.
Revised calculations and grading are based on our meeting.

## CONSTRUCTION DRAWINGS

1. Sheet C2.0 - Please note septic drain fields should be set back $25^{\prime}$ from downslope stormwater drainage.
Septic systems are not required to maintain 25 ' separation from shallow drainage such as what is existing adjacent to the site. The bottom of the nitrification lines will be a minimum of 18 inches in depth in an area with an average elevation of 10.5 ' resulting in an approximate bottom elevation of $9.0^{\prime}$. The swale invert adjacent to the septic system is $9.53^{\prime}$.
2. Sheet C3.0 and C3.2 - From Sheet C3.2 it appears that the infiltration basin will be used as a temporary sediment basin, but it appears slow will be diverted to a swale on Sheet C3.0. Please clarify and if necessary, provide information on how the temporary sediment basins will be converted to the permanent SCM to maintain required infiltration rates without clogging during construction.
As we discussed, the infiltration basin will not be used as a skimmer basin. The infiltration basin area is to remain undisturbed until the site is substantially stabilized.
3. Sheet C4.0 - Per 7.3.4.C.(2) of the Currituck County UDO - filling is not permitted within ten feet from any lot line. Please demonstrate conformance with this requirement.
As discussed, we cannot eliminate the fill associated with the sidewalk due to keeping the sidewalk above back of curb grade along the highway. We have reduced the fill required along the western property line by lowering the outer edge of parking and installing curb and gutter. We also reduced that row of parking spaces from 20' in length to 18' to allow for additional separation from the property line.
4. $\quad$ Sheet C4.0 - Per 7.3.4.C.(3) of the Currituck County UDO - unless all filling is at least 100 feet from all lot lines, a lot shall not be filled or graded higher than the average adjacent grade of the first 30 feet of adjoining property. Please provide calculations for determining the allowable fill elevation and that the proposed grading is in conformance with this requirement.
As we discussed, the project site is naturally higher than the adjacent site to the west. We have lowered the building by $1 / 2$ foot and are maintaining grades that are similar to those on the site to the east. Development of the lot to the west will require fill. We have directed runoff from all of the proposed impervious surfaces away from the lower lot.
5. Sheet C4.0 - Per 7.3.4.A.(6) of the Currituck County UDO please provide notes for cleaning of existing drainage ditches if they will be used for proposed drainage or stormwater management. No cleanout of existing drainage ditches is proposed.
6. Sheet C4.0 - Is the existing 30 " RCP on the northwest side of the pipe going to be replaced in its entirety along with replacement of the drop inlet along Carotoke Highway? As it is under the driveway and the junction will be replaced, we recommend replacing the whole run rather than joining to prevent failure at the joint. Please also verify that this pipe will have enough cover under the driveway to support the proposed loads.

As we discussed, we are not replacing the existing curb inlet structure, we are only removing the frame and grate and replacing it with a drop inlet frame and grate to allow for the same drainage collection in the driveway apron. The 30 " RCP has an approximate top elevation of 9.75 ' and the proposed finished grade above the pipe is approximately 11.75'. This is sufficient cover for RCP.
7. Sheet C4.0 - What is the elevation of the inlet to the infiltration basin? Please provide energy dissipation calculations and appropriate end treatments.
The inlet into the basin is elevation 8.01'. The depressed area at the inlet will be riprap reinforced.
8. Sheet C4.0 - Please provide information on the outlet structure (inverts, pipe size, etc.) from the infiltration basin and appropriate end treatments.
This information has been added to the plans.
9. Sheet C5.0 - Please provide a planting plan for the infiltration basin.

No planting is proposed. Per NCDEQ, the infiltration basin bottom shall remain clean soil/sand or grass. Sod is not permitted.

Please let me know if you need any additional information or have any questions.

Sincerely,


Kimberly D. Hamby
Sr. Project Manager
Simmons Group

Cc: File

# DOLLAR TREE - GRANDY POPLAR BRANCH TOWNSHIP, CURRITUCK COUNTY, NORTH CAROLINA 

 DRAINAGE NARRATIVEAUGUST 23, 2023

PREPARED BY:


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## Dollar Tree - Grandy Drainage Narrative

Cedar Run Capital, LLC is proposing to develop a vacant 1.85 -acre site they are purchasing in Grandy, North Carolina. The site is located in a commercial subdivision and is bound by NC 168 (Caratoke Highway) to the north, a vacant lot to the west, an existing Sonic drive-in restaurant to the east, and Neuse Street to the south. The site is zoned GB (General Business) and will be served by public water and on-site septic.

Development for this project will include construction of a driveway that will run through the site from NC 168 to Neuse Street, a building with related parking and sidewalks, concrete pads for HVAC equipment and dumpster, subsurface drainage network, stormwater infiltration basin, and a septic field. The basin will serve as means of treatment and detention for the runoff generated by the site. Proposed coverage, on-site, will include 10,062 sf of building, 2,864 sf of concrete (including sidewalks and pads), and 26,265 sf of asphalt parking/drive. Off-site coverage will include $1,116 \mathrm{sf}$ of driveway apron and sidewalk to be constructed within the adjacent street rights-of-way.

All runoff from on-site impervious coverage will be collected in the underground drainage system and routed to the infiltration basin. The infiltration basin has been designed with a bottom elevation of 9.75' based on a Seasonal High Water Table estimated at approximately elevation 7.75' by Protocol Sampling. The storm drainage will enter the basin in an area that will be lower than the basin bottom to receive the pipe. This area will be lined with rip rap. Side slopes for the basin will be $5: 1$. The top elevation will be 12' and the storage elevation has been set at 10.75 ' to provide the required storage. A drainage basin will provide for outflow of water in excess of the storage volume. This outflow will discharge into the roadside ditch along Neuse Street. The volume of the 12 inches of storage is 9,113 cf. The required volume per NCDEQ for treatment is only $4,915 \mathrm{cf}$. The basin has been oversized to meet the requirements of the Currituck County Stormwater Ordinance which requires commercial sites to control discharge of the post-development 5 -yr, 24 -hour storm to rates less than a $2-\mathrm{yr}$, 24 -hour storm pre-development and as if wooded.

We utilized the rational method to determine peak runoff rates for both conditions. The results show a 1.538 cfs peak discharge for the 2-yr, pre-development condition and a 5.977 cfs peak discharge for the $5-\mathrm{yr}$, post-development condition. The modified rational method indicates that a storage volume of $6,206 \mathrm{cf}$ is required to meet the reduction in peak discharge, reducing the post development discharge to only 1.442 cfs. While we have greatly increased the storage above what is required, the limited depth of 12 inches is estimated to infiltrate in only 24 hours at the minimum rate of 0.5 inches/hour estimated by Protocol Sampling.

In an effort to provide an alternative method to estimate required storage, we have utilized the NCDEQ method to approximate runoff volume. The results of these calculations show a runoff volume of 1298 cf for the 2 -yr storm with no impervious coverage and 12614 cf for the 5 -yr storm with the proposed coverage. The resulting increased volume in 11,316 cf. It should be noted that this calculation does not account for hydrologic soil classifications or type of coverage. Neither of the calculation methods account for the infiltration occurring in the basin.

The disturbed area for the entire project will not exceed 2.15 acres. Standard erosion control measures such as temporary gravel construction entrances, silt fence, check dams, culvert inlet protection and required seeding are shown on the plans and in details. The plans indicate that the sediment basin area shall be protected during construction and is not to be excavated until the site is substantially stabilized.

## Appendix A

## Stormwater \& Erosion Control Calculations

- Infiltration Basin Summary (for DEQ stormwater treatment)
- Runoff Volume Estimates (based on DEQ runoff volume calculation)
- Hydraflow Data \& Results - Includes 2, 5, and 10-year storms for Predevelopment and Post-development conditions with Modified Rational Method showing Post-development control based on the 2-year Pre-development Peak Discharge)


## Pond Summary Sheets

Proposed Infiltration Basin

Project Name: DT Grandy
TG Project No. 59040
Date:
7/25/2023
Calculated By: KDH

## Drainage Area Properties

| Data Input | Notes and Descriptions |  |
| :--- | ---: | :--- |
| Drainage Area, $\mathrm{A}_{\text {TOT }}$ | $80,913 \mathrm{SF}$ | Total area draining to basin |
| (as acreage) | 1.86 AC |  |
| Impervious Area | $39,191 \mathrm{SF}$ | Total impervious area received by basin |
| (as acreage) | 0.90 AC |  |
| Percent Impervious | $48.44 \%$ |  |
| Runoff Coefficient | 0.49 | $R_{\mathrm{V}}=0.05+0.9 * \mathrm{I}_{\mathrm{A}} \quad \mathrm{I}_{\mathrm{A}}=$ Impervious Fraction |
| K (in/hr) | 0.50 | Hydraulic Conductivity of Soil |
| $\mathrm{R}_{\mathrm{D}}$ (in) | 1.50 | Design Storm Depth |


| Impervious Area Breakdown |  |
| :---: | :---: |
| Coverage | Impervious Area (sf) |
| Buildings | 10,062 |
| Road |  |
| Parking | 26,265 |
| Sidewalks | 2,354 |
| Gravel |  |
| Other | 510 |
| Total Site Coverage | $\mathbf{3 9 , 1 9 1}$ |

Required Surface Area (SA)

| Minimum Surface Area (sf) | 3276.46 | SA = FS * $\left(\mathrm{DV} * 12 / \mathrm{K}^{*} \mathrm{~T}\right)$ |
| :--- | ---: | :---: |
| FS (Safety Factor) | 2 |  |
| Maximum Dewatering Time, T (hours) | 72 |  |
| DV (Design volume - in $\left.\mathrm{ft}^{3}\right)$ | 4915 | $\mathrm{DV}=3630{ }^{*} \mathrm{R}_{\mathrm{D}}{ }^{*} \mathrm{R}_{\mathrm{V}}{ }^{*} \mathrm{~A}$ |
| Design Depth (ft) | 1 |  |
| Surface Area Required (sf) | 4915 | Based on Design Volume and Depth |

## Pond Volume Calculations

| Description | Elevation | Area <br> SF | Cumulative Volume <br> CF |
| :--- | :---: | :---: | :---: |
| Pond Bottom | 9.75 | 8,151 |  |
| Pond Top | 10.75 | 10,074 | 9,113 |

Calculated By: KDH

## Drainage Area Properties

| Data Input |  | Notes and Descriptions |
| :---: | :---: | :---: |
| Drainage Area, $\mathrm{A}_{\text {TOT }}$ (as acreage) | $\begin{array}{r} 80,913 \mathrm{SF} \\ 1.86 \mathrm{AC} \end{array}$ | Total area draining to basin |
| Impervious Area (as acreage) | $\begin{array}{r} 0 \mathrm{SF} \\ 0.00 \mathrm{AC} \end{array}$ | Total impervious area received by basin |
| Percent Impervious | 0.00 \% |  |
| Runoff Coefficient | 0.05 | $\mathrm{R}_{\mathrm{V}}=0.05+0.9 * \mathrm{I}_{\mathrm{A}} \quad \mathrm{I}_{\mathrm{A}}=$ Impervious Fraction |
| K (in/hr) | 0.50 | Hydraulic Conductivity of Soil |
| $\mathrm{R}_{\mathrm{D} 2}$ (in) | 3.85 | Design Storm Depth (2-year storm) |
|  |  |  |
| DV 2-yr (Design volume - in $\mathrm{ft}^{3}$ ) | 1298 | $D V=3630 * R_{D}{ }^{*} \mathrm{RV}^{*} A$ |


| Drainage Area, $\mathrm{A}_{\text {TOT }}$ | $80,913 \mathrm{SF}$ | Total area draining to basin |
| :--- | :---: | :--- |
| (as acreage) | 1.86 AC |  |
| Impervious Area | $39,191 \mathrm{SF}$ | Total impervious area received by basin |
| (as acreage) | 0.90 AC |  |
| Percent Impervious | $48.44 \%$ |  |
| Runoff Coefficient | 0.49 | $\mathrm{R}_{\mathrm{V}}=0.05+0.9 * \mathrm{I}_{\mathrm{A}} \quad \mathrm{I}_{\mathrm{A}}=$ Impervious Fraction |
| K (in/hr) | 0.50 | Hydraulic Conductivity of Soil |
| $\mathrm{R}_{\mathrm{D} 5}$ (in) | 3.85 | Design Storm Depth (2-year storm) |


| DV 5-yr (Design volume - in ft ${ }^{3}$ ) | $\mathbf{1 2 6 1 4}$ | $\mathrm{DV}=3630 * \mathrm{R}_{\mathrm{D}}{ }^{*} \mathrm{R}_{\mathrm{V}}{ }^{*} \mathrm{~A}$ |
| :--- | ---: | ---: |


| Volume Difference $\left({\text { in } \mathrm{ft}^{3} \text { ) }}\right.$ ) 11316 |
| :--- | :--- |

## Pond Volume Calculations

| Description | Elevation | Area <br> SF | Cumulative Volume <br> CF |
| :--- | :---: | :---: | :---: |
| Pond Bottom | 9.75 | 8,151 |  |
| Pond Top | 10.75 | 10,074 | 9,113 |

Assuming 0.5 " hour infiltration through the bottom area of 8151 sf will result in infiltration of up to 8151 cf during a $24-\mathrm{hr}$ storm period

Rational Method Hydrograph


Hydraflow Rational C determination


Rational Method Hydrograph


| Table 8.03b | Land Use | C | Land Use | C |
| :---: | :---: | :---: | :---: | :---: |
| Value of Runoff Coefficient <br> (C) for Rational Formula | Business: |  | Lawns: |  |
|  | Downtown areas | 0.70-0.95 | Sandy soil, flat, 2\% | 0.05-0.10 |
|  | Neighborhood areas | 0.50-0.70 | Sandy soil, ave., $2-7 \%$ | 0.10-0.15 |
|  | Residential: |  | Sandy soil, steep, | 0.15-0.20 |
|  | Single-family areas | 0.30-0.50 | $7 \%$ |  |
|  | Multi units, detached | 0.40-0.60 | Heavy soil, flat, 2\% | 0.13-0.17 |
|  | Multi units, Attached | 0.60-0.75 | Heavy soil, ave., | 0.18-0.22 |
|  | Suburban | 0.25-0.40 | 2-7\% |  |
|  | Industrial: |  | Heavy soil, steep, | 0.25-0.35 |
|  | Light areas | 0.50-0.80 |  | 0.25-0.35 |
|  | Heavy areas | 0.60-0.90 | Agricultural land: |  |
|  | Parks, cemeteries | 0.10-0.25 | Bare packed soil |  |
|  | Parks, cemeteries | 0.10-0.25 | Smooth | 0.30-0.60 |
|  | Playgrounds | 0.20-0.35 | Rough | 0.20-0.50 |
|  |  |  | Cultivated rows |  |
|  | Railroad yard areas | 0.20-0.40 | Heavy soil no crop | 0.30-0.60 |
|  | Unimproved areas | 0.10-0.30 | Heavy soil with |  |
|  | Unimproved areas | 0.10-0.30 | crop | 0.20-0.50 |
|  | Streets: |  | Sandy soil no crop $\quad 0.20-0.40$ |  |
|  | Asphalt | 0.70-0.95 | crop | 10-0 |
|  | Concrete | 0.80-0.95 | Pasture |  |
|  | Brick | 0.70-0.85 | Heavy soil | 0.15-0.45 |
|  | Drives and walks | 0.75-0.85 | Sandy soil | 0.05-0.25 |
|  |  |  | Woodlands | 0.05-0.25 |
|  | Roofs | 0.75-0.85 |  |  |
|  | NOTE: The designer value within the range areas with permeable have lowest C values. slopes, and sparse veg | ust use jud or the appr oils, flat slop maller area tation shou | gement to select the ap priate land use. Gene pes, and dense vegeta with slowly permeable be assigned highest | propriate C rally, larger tion should soils, steep values. |
|  | Source: American Society of Civil Engineers |  |  |  |

Hydrograph Summary Report
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023


## Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

## Hyd. No. 1

Existing Conditions

| Hydrograph type | $=$ Rational | Peak discharge | $=1.538 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=2$ yrs | Time to peak | $=3 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=277 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.12^{*}$ |
| Intensity | $=6.890 \mathrm{in} / \mathrm{hr}$ | Tc by TR55 | $=3.00 \mathrm{~min}$ |
| IDF Curve | $=$ Grandy.IDF | Asc/Rec limb fact | $=1 / 1$ |

* Composite $($ Area/C $)=[(1.250 \times 0.05)+(0.610 \times 0.25)] / 1.860$

Hyd. No. 1

Existing Conditions

| Description | A |  | B |  | C |  | Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sheet Flow |  |  |  |  |  |  |  |
| Manning's n-value | $=0.011$ |  | 0.011 |  | 0.011 |  |  |
| Flow length (ft) | = 217.0 |  | 0.0 |  | 0.0 |  |  |
| Two-year 24-hr precip. (in) | $=3.85$ |  | 0.00 |  | 0.00 |  |  |
| Land slope (\%) | $=0.80$ |  | 0.00 |  | 0.00 |  |  |
| Travel Time (min) | $=2.96$ | + | 0.00 | + | 0.00 | = | 2.96 |
| Shallow Concentrated Flow |  |  |  |  |  |  |  |
| Flow length (ft) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Watercourse slope (\%) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Surface description | $=$ Paved |  | Paved |  | Paved |  |  |
| Average velocity (ft/s) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Travel Time (min) | $=0.00$ | + | 0.00 | + | 0.00 | $=$ | 0.00 |
| Channel Flow |  |  |  |  |  |  |  |
| X sectional flow area (sqft) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Wetted perimeter (ft) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Channel slope (\%) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Manning's n-value | $=0.015$ |  | 0.015 |  | 0.015 |  |  |
| Velocity (ft/s) | $=0.00$ |  |  |  |  |  |  |
|  |  |  | 0.00 |  |  |  |  |
|  |  |  |  |  | 0.00 |  |  |
| Flow length (ft) | (\{0\})0.0 |  | 0.0 |  | 0.0 |  |  |
| Travel Time (min) | $=0.00$ | + | 0.00 | + | 0.00 | = | 0.00 |
| Total Travel Time, Tc ..................................................................... 3.00 min |  |  |  |  |  |  |  |

Hyd. No. 2
Proposed Conditions

| Hydrograph type | $=$ Rational | Peak discharge | $=5.248 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=2 \mathrm{yrs}$ | Time to peak | $=8 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=2,519 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.52^{*}$ |
| Intensity | $=5.426 \mathrm{in} / \mathrm{hr}$ | Tc by TR55 | $=8.00 \mathrm{~min}$ |
| IDF Curve | $=$ Grandy.IDF | Asc/Rec limb fact | $=1 / 1$ |

${ }^{*}$ Composite $($ Area/C $)=[(0.900 \times 0.95)+(0.640 \times 0.05)+(0.320 \times 0.25)] / 1.860$


## Hyd. No. 2

Proposed Conditions

| Description | A |  | B |  | C |  | Totals |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Sheet Flow |  |  |  |  |  |  |  |
| Manning's n-value | $=0.011$ |  | 0.011 |  | 0.011 |  |  |
| Flow length (ft) | $=53.0$ |  | 0.0 |  | 0.0 |  |  |
| Two-year 24-hr precip. (in) | $=3.85$ |  | 0.00 |  | 0.00 |  |  |
| Land slope (\%) | $=1.25$ |  | 0.00 |  | 0.00 |  |  |
| Travel Time (min) | $=0.80$ | + | 0.00 | + | 0.00 | = | 0.80 |
| Shallow Concentrated Flow |  |  |  |  |  |  |  |
| Flow length (ft) | $=360.00$ |  | 0.00 |  | 0.00 |  |  |
| Watercourse slope (\%) | $=0.15$ |  | 0.00 |  | 0.00 |  |  |
| Surface description | = Paved |  | Paved |  | Paved |  |  |
| Average velocity (ft/s) | =0.79 |  | 0.00 |  | 0.00 |  |  |
| Travel Time (min) | $=7.62$ | + | 0.00 | + | 0.00 | = | 7.62 |
| Channel Flow |  |  |  |  |  |  |  |
| X sectional flow area (sqft) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Wetted perimeter (ft) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Channel slope (\%) | $=0.00$ |  | 0.00 |  | 0.00 |  |  |
| Manning's n-value | $=0.015$ |  | 0.015 |  | 0.015 |  |  |
| Velocity (ft/s) | $=0.00$ |  | 0.00 |  |  |  |  |
|  |  |  |  |  | 0.00 |  |  |
| Flow length (ft) | (\{0\})0.0 |  | 0.0 |  | 0.0 |  |  |
| Travel Time (min) | $=0.00$ | + | 0.00 | + | 0.00 | = | 0.00 |
| Total Travel Time, Tc ......... |  |  |  |  |  |  | 8.00 min |

## Hyd. No. 3

Post Control

| Hydrograph type | $=$ Mod. Rational | Peak discharge | $=1.489 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=2 \mathrm{yrs}$ | Time to peak | $=8 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=6,613 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.52^{*}$ |
| Intensity | $=1.540 \mathrm{in} / \mathrm{hr}$ | Tc by User | $=8.00 \mathrm{~min}$ |
| IDF Curve | $=G r a n d y . I D F$ | Storm duration | $=9.3 \times \mathrm{Tc}$ |
| Target Q | $=0.750 \mathrm{cfs}$ | Est. Req'd Storage | $=4,746 \mathrm{cuft}$ |

* Composite $($ Area/C $)=[(0.870 \times 0.95)+(0.990 \times 0.10)] / 1.860$


## Post Control




## Hyd. No. 1

Existing Conditions

| Hydrograph type | $=$ Rational | Peak discharge | $=1.732 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=5 \mathrm{yrs}$ | Time to peak | $=3 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=312 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.12^{*}$ |
| Intensity | $=7.759 \mathrm{in} / \mathrm{hr}$ | Tc by TR55 | $=3.00 \mathrm{~min}$ |
| IDF Curve | $=$ Grandy.IDF | Asc/Rec limb fact | $=1 / 1$ |

* Composite $($ Area/C $)=[(1.250 \times 0.05)+(0.610 \times 0.25)] / 1.860$


## Hyd. No. 2

Proposed Conditions

| Hydrograph type | $=$ Rational | Peak discharge | $=5.977 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=5 \mathrm{yrs}$ | Time to peak | $=8 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=2,869 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.52^{*}$ |
| Intensity | $=6.180 \mathrm{in} / \mathrm{hr}$ | Tc by TR55 | $=8.00 \mathrm{~min}$ |
| IDF Curve | $=$ Grandy.IDF | Asc/Rec limb fact | $=1 / 1$ |

${ }^{*}$ Composite $($ Area/C $)=[(0.900 \times 0.95)+(0.640 \times 0.05)+(0.320 \times 0.25)] / 1.860$

| Q (cfs) |
| :--- |
| 6.00 Proposed Conditions | | Hyd. No. 2--5 Year |
| :--- |

## Hydrograph Report

## Hyd. No. 3

Post Control

| Hydrograph type | $=$ Mod. Rational | Peak discharge | $=1.442 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=5 \mathrm{yrs}$ | Time to peak | $=8 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=8,655 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.52^{*}$ |
| Intensity | $=1.491 \mathrm{in} / \mathrm{hr}$ | Tc by User | $=8.00 \mathrm{~min}$ |
| IDF Curve | $=G r a n d y . I D F$ | Storm duration | $=12.5 \times \mathrm{Tc}$ |
| Target Q | $=0.750 \mathrm{cfs}$ | Est. Req'd Storage | $=6,206 \mathrm{cuft}$ |

* Composite $($ Area/C $)=[(0.870 \times 0.95)+(0.990 \times 0.10)] / 1.860$


Hydrograph Summary Report
Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023


## Hydrograph Report

Hydraflow Hydrographs Extension for Autodesk® Civil 3D® by Autodesk, Inc. v2023

## Hyd. No. 1

Existing Conditions

| Hydrograph type | $=$ Rational | Peak discharge | $=1.989 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=10 \mathrm{yrs}$ | Time to peak | $=3 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=358 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.12^{*}$ |
| Intensity | $=8.912 \mathrm{in} / \mathrm{hr}$ | Tc by TR55 | $=3.00 \mathrm{~min}$ |
| IDF Curve | $=$ Grandy.IDF | Asc/Rec limb fact | $=1 / 1$ |

* Composite $($ Area/C $)=[(1.250 \times 0.05)+(0.610 \times 0.25)] / 1.860$



## Hyd. No. 2

Proposed Conditions

| Hydrograph type | $=$ Rational | Peak discharge | $=6.862 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=10 \mathrm{yrs}$ | Time to peak | $=8 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=3,294 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.52^{*}$ |
| Intensity | $=7.095 \mathrm{in} / \mathrm{hr}$ | Tc by TR55 | $=8.00 \mathrm{~min}$ |
| IDF Curve | $=$ Grandy.IDF | Asc/Rec limb fact | $=1 / 1$ |

[^0]

## Hyd. No. 3

Post Control

| Hydrograph type | $=$ Mod. Rational | Peak discharge | $=1.360 \mathrm{cfs}$ |
| :--- | :--- | :--- | :--- |
| Storm frequency | $=10 \mathrm{yrs}$ | Time to peak | $=8 \mathrm{~min}$ |
| Time interval | $=1 \mathrm{~min}$ | Hyd. volume | $=11,592 \mathrm{cuft}$ |
| Drainage area | $=1.860 \mathrm{ac}$ | Runoff coeff. | $=0.52^{*}$ |
| Intensity | $=1.407 \mathrm{in} / \mathrm{hr}$ | Tc by User | $=8.00 \mathrm{~min}$ |
| IDF Curve | $=G r a n d y . I D F$ | Storm duration | $=17.8 \times \mathrm{Tc}$ |
| Target Q | $=0.750 \mathrm{cfs}$ | Est. Req'd Storage | $=8,204 \mathrm{cuft}$ |

* Composite $($ Area/C $)=[(0.870 \times 0.95)+(0.990 \times 0.10)] / 1.860$


| Return Period (Yrs) | Intensity-Duration-Frequency Equation Coefficients (FHA) |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
|  | B | D | E | (N/A) |
| 1 | 0.0000 | 0.0000 | 0.0000 | -------- |
| 2 | 83.2783 | 13.3000 | 0.8929 | ------ |
| 3 | 0.0000 | 0.0000 | 0.0000 | ------ |
| 5 | 83.3544 | 13.3000 | 0.8506 | ------ |
| 10 | 76.2576 | 12.0000 | 0.7927 | ------- |
| 25 | 0.0000 | 0.0000 | 0.0000 | ------- |
| 50 | 0.0000 | 0.0000 | 0.0000 | ----- |
| 100 | 0.0000 | 0.0000 | 0.0000 | -------- |

File name: Grandy.IDF

## Intensity $=\mathbf{B} /(\mathbf{T c}+\mathrm{D})^{\wedge} \mathrm{E}$

| Return Period (Yrs) | Intensity Values (in/hr) |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 5 min | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 |
| 1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 2 | 6.21 | 5.01 | 4.21 | 3.64 | 3.21 | 2.88 | 2.61 | 2.39 | 2.21 | 2.05 | 1.92 | 1.80 |
| 3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 5 | 7.03 | 5.73 | 4.85 | 4.23 | 3.75 | 3.38 | 3.08 | 2.83 | 2.62 | 2.45 | 2.29 | 2.16 |
| 10 | 8.07 | 6.58 | 5.59 | 4.89 | 4.36 | 3.94 | 3.60 | 3.33 | 3.09 | 2.89 | 2.72 | 2.57 |
| 25 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 50 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| 100 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

Tc = time in minutes. Values may exceed 60.
Precip. file name: Sample.pcp

| Storm Distribution | Rainfall Precipitation Table (in) |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Rainfall Precipitation Table (in) |  |  |  |  |  |  |  |
|  | 1-yr | 2-yr | 3-yr | 5-yr | 10-yr | 25-yr | 50-yr | 100-yr |
| SCS 24-hour | 0.00 | 3.85 | 0.00 | 4.97 | 5.91 | 5.77 | 6.80 | 7.95 |
| SCS 6-Hr | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 4.00 |
| Huff-1st | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.38 | 6.50 | 8.00 |
| Huff-2nd | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Huff-3rd | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Huff-4th | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Huff-Indy | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Custom | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 5.25 | 6.00 | 7.10 |

2 - Year
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## Appendix B

## Soil Data

- Web Soil Survey
- Soil Report by Protocol Sampling Service, Inc.


## TIMMONS GROUP

Your vision achieved through ours.
Hydrologic Soil Group-Currituck County, North Carolina
(DT Grandy)


# Hydrologic Soil Group 

| Map unit symbol |  |  |  |  |  |  |  | Map unit name | Rating | Acres in AOI | Percent of AOI |
| :--- | :--- | :--- | ---: | ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CnA | Conetoe loamy sand, 0 <br> to 3 percent slopes | A | 14.9 | $65.2 \%$ |  |  |  |  |  |  |  |
| Ds | Dragston loamy fine <br> sand | A/D | 1.2 | $5.3 \%$ |  |  |  |  |  |  |  |
| Pt | Portsmouth fine sandy <br> loam | B/D | 6.8 | $\mathbf{2 9 . 5 \%}$ |  |  |  |  |  |  |  |
| Totals for Area of Interest | $\mathbf{2 2 . 9}$ | $\mathbf{1 0 0 . 0 \%}$ |  |  |  |  |  |  |  |  |  |

## Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

## Rating Options

Aggregation Method: Dominant Condition
Component Percent Cutoff: None Specified
Tie-break Rule: Higher

Protocol Sampling Service, Inc.
4114 Laurel Ridge Drive
Raleigh, North Carolina 27612

Protocolsampling@yahoo.com
Environmentalservicesnc.com

June 26, 2023
Ms. Kim Hamby, P.E.
Principal/Senior Project Manager
TIMMONS GROUP |
1805 West City Drive, Unit E
Elizabeth City, North Carolina 27909

## Re: Storm Water Management Soil Investigation <br> Dollar Tree <br> NC Highway 168 <br> Grandy, Currituck County, North Carolina 27958 <br> Protocol Project \#23-78

Dear Ms. Hamby:
The following Soil Investigation is submitted to assist in a site assessment for the proposed storm water management improvements along NC Highway 168, Grandy, Currituck County, North Carolina.

## SITE HISTORY AND PHYSICAL CHARACTERISTICS

The tract is currently undeveloped farmland and is surrounded by farmland and commercial development along NC Highway 168 in Grandy, North Carolina. Protocol Sampling Service, Inc. of Raleigh, North Carolina was hired to perform an investigation to identify the depth to seasonal high-water table, if any restrictive layers are present, subsurface permeability and the depth to a permeable layer for the installation of a storm water BMP. Surface elevations range from around 11.0 to approximately 12.0 feet msl from west to east across the study area.

## SOIL INVESTIGATION

The field survey was conducted on Friday June 23, 2023. One (1) soil boring was advanced to 72 inches below land surface (bls) with a hand auger in the center of the proposed infiltration basin. Soil color was determined with a Munsell Soil Color Chart. The presence of fill or other disturbances, the depth to the seasonal high-water table, soil structure and consistence were noted. The boring was also checked for reduced colors, an anaerobic smell or obvious soil wetness.

## FINDINGS - Soil

- The subject property contains soil belonging to the Conetoe series. This series belongs to the Hapludult subgroup that has a Arenic epipedon from surface to 2 -inches.
- The soil was found to have an apparent depth to seasonal high-water table of 50-inches bls. The static water level was not found to a depth of 72-inches bls.
- A restrictive horizon was encountered from 19 to 28 -inches bls where a loamy sand permeable layer was encountered. The permeable layer extends to at least 72-inches bls.


## FINDINGS - SOIL PERMEABILITY

- Soil conductivity is estimated to be at least 0.50 inches/hour in the loamy sand found beneath the Bt horizon at a depth of 28 -inches bls.

The findings presented herein are based on the site conditions observed during performance of the field survey on June 23, 2023.

Please call me at (919) 210-6547 if you have any questions or need further assistance.


David E. Meyer, N.C.L.S.S.
Soil Scientist/President

A $0-10$ inches; dark brown (7.5YR 3/3) loamy fine sand; granular; friable.
E $\quad 10-19$ inches; yellowish brown (10YR 5/4) loamy sand; granular; friable.
Bt $19-28$ inches; brownish yellow (10YR 6/8) sandy clay loam; subangular blocky; friable.
BC $28-50$ inches; brownish yellow (10YR 6/8) and very pale brown (10YR 7/4) loamy sand; subangular blocky; friable.
C1 $50-60$ inches; brownish yellow (10YR 6/8) fine sand with strong brown (7.5YR 5/6) concentrations and gray (10YR 6/1) depletions; single grained; loose

C2 60-72 inches; light yellowish brown (10YR 6/4) fine sand; single grained; loose

Soil Series: Conetoe
Landscape: Coastal Plain
Landform: terrace
Parent Material: Marine sediments
Drainage Class: well drained
Particle Size Class: sandy
Temperature Regime: thermic
Subgroup Classification: Arenic Hapludult
Examination Method: auger boring
Date: June 23, 2023
Weather: Sunny, 78
Investigators: David Meyer
Shwt: 50"
Measured water table depth: >72"

## Appendix C

## Precipitation Data

## TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.

NOAA Atlas 14, Volume 2, Version 3
Location name: Grandy, North Carolina, USA*
Latitude: $\mathbf{3 6 . 2 4 5 5 ^ { \circ }}$, Longitude: $\mathbf{- 7 5 . 8 8 8 ^ { \circ }}$

## Elevation: 14 ft**

* source: ESRI Maps
** source: USGS
DEPTH


## POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland
PF tabular | PF_graphical | Maps \& aerials

## PF tabular

| PDS-based point precipitation frequency estimates with $90 \%$ confidence intervals (in inches) ${ }^{1}$ |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Duration | Average recurrence interval (years) |  |  |  |  |  |  |  |  |  |
|  | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-min | $\begin{array}{r} 0.4 \\ 0.403 \end{array}$ | $0 .$ | $\begin{array}{r} 0.5 \\ 534 \end{array}$ | (0.609-0.739) | $\begin{gathered} \hline 0.758 \\ (0.683-0.831) \\ \hline \end{gathered}$ | $(0.750-0.915)$ | $(0.809-0.992)$ | $\begin{gathered} 0.972 \\ (0.865-1.07) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 1.06 \\ \hline .930-1.16) \\ \hline \end{gathered}$ | 5) |
| 10-min | $\begin{array}{r} 0.709 \\ (0.644-0.78 \end{array}$ | $\begin{gathered} \mathbf{0 . 8 2 8} \\ (0.753-0.91 \end{gathered}$ |  | $\begin{gathered} 1.08 \\ (0.975-1.18 \end{gathered}$ | $\begin{gathered} 1.21 \\ (1.09-1.32) \end{gathered}$ |  |  | $\begin{gathered} 1.54 \\ (1.37-1.69 \end{gathered}$ |  | $\begin{array}{c\|} \hline 1.79 \\ (1.56-1.97) \end{array}$ |
| 15-min | $\begin{array}{r} 0.886 \\ (0.805-0.9 \end{array}$ | (0. |  |  |  |  | $\begin{gathered} 1.82 \\ (1.62-1.99) \end{gathered}$ |  | $\begin{gathered} 2.10 \\ (1.85-2.3 \end{gathered}$ | $\begin{array}{c\|} \hline 2.24 \\ (1.96-2.47) \\ \hline \end{array}$ |
| 30-min | $\begin{aligned} & \hline 1.22 \\ & .10-1.34) \\ & \hline \end{aligned}$ | $1$ | $\begin{gathered} 1.69 \\ (1.54-1.86) \\ \hline \end{gathered}$ | $\begin{gathered} 1.97 \\ (1.79-2.17) \\ \hline \end{gathered}$ | $27$ | $2.53$ | $2.78$ | $\begin{aligned} & \hline 3.03 \\ & 69-3.32) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 3.34 \\ & 95-3.67) \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 3.63 \\ & 18-4.00) \\ & \hline \end{aligned}$ |
| 60-min | $1.52$ |  | $16$ | $\begin{gathered} \mathbf{2 . 5 7} \\ (2.33-2.8 \\ \hline \end{gathered}$ | $.02$ |  | $83$ | $\begin{aligned} & \hline 24 \\ & -4.66) \\ & \hline \end{aligned}$ | $\begin{aligned} & 4.80 \\ & 3-5.27) \end{aligned}$ | $\begin{aligned} & .30 \\ & 4-5.84) \end{aligned}$ |
| hr |  | $\begin{gathered} 2.11 \\ (1.90-2.33) \end{gathered}$ |  | $\begin{gathered} 3.11 \\ (2.80-3.43) \end{gathered}$ | $\begin{gathered} \hline 3.74 \\ (3.35-4.12) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 4.33 \\ (3.86-4.76) \end{gathered}$ | $\begin{gathered} \hline 4.90 \\ (4.36-5.40) \\ \hline \end{gathered}$ |  |  | $\begin{array}{\|c\|} \hline 7.13 \\ (6.19-7.86) \end{array}$ |
| 3-hr | $\begin{gathered} 1.89 \\ (1.70-2.12) \end{gathered}$ | $\begin{gathered} \mathbf{2 . 2 6} \\ (2.04-2.52) \end{gathered}$ | $\begin{gathered} \hline 2.78 \\ (2.51-3.09) \end{gathered}$ | $\begin{gathered} \hline 3.38 \\ (3.04-3.76) \end{gathered}$ | $\begin{gathered} \hline 4.10 \\ (3.67-4.55) \end{gathered}$ | $\begin{gathered} \hline 4.80 \\ (4.26-5.30) \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{5 . 5 0} \\ (4.86-6.07) \end{gathered}$ | $\begin{gathered} \hline 6.26 \\ (5.49-6.90) \end{gathered}$ |  | $\begin{gathered} \hline 8.31 \\ (7.14-9.17) \end{gathered}$ |
| 6-hr | (2.04-2.52) | $\begin{gathered} \mathbf{2 . 7 0} \\ (2.44-3.01) \end{gathered}$ | $\begin{gathered} 3.32 \\ (2.99-3.70) \end{gathered}$ | $\begin{gathered} 4.03 \\ (3.62-4.49) \end{gathered}$ | $\begin{gathered} 4.92 \\ (4.39-5.45) \end{gathered}$ | $\begin{gathered} 5.77 \\ (5.13-6.38) \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{6 . 6 4} \\ (5.85-7.32) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 7.58 \\ (6.63-8.36) \\ \hline \end{array}$ | (7.69-9.81) | $\begin{array}{c\|} \hline 10.2 \\ (8.68-11.2) \\ \hline \end{array}$ |
| 12-hr | $(2.40-3.00)$ | $\begin{gathered} 3.19 \\ (2.86-3.57) \\ \hline \end{gathered}$ | $\begin{gathered} 3.93 \\ (3.53-4.40) \\ \hline \end{gathered}$ | $(4.30-5.37)$ | $\begin{gathered} 5.90 \\ (5.24-6.57) \\ \hline \end{gathered}$ | $(6.15-7.75)$ | (7.06-8.96) | (8.05-10.3) | (9.39-12.2) | $(10.7-14.1)$ |
| 24-hr | 2.91-3.45) | $(3.54-4.20$ | (4.57-5.4 | $\begin{gathered} 5.91 \\ (5.42-6.44) \end{gathered}$ | $\begin{gathered} \hline 7.30 \\ (6.65-7.9 \end{gathered}$ | $\begin{gathered} \hline 8.50 \\ (7.67-9.23 \\ \hline \end{gathered}$ | (8.77-10.6) | $\begin{gathered} 11.3 \\ (9.96-12.2) \\ \hline \end{gathered}$ | (11.7-14.6) | (13.1-16.7) |
| 2-day | (3.36-4.01) | $(4.07-4.85)$ | (5.22-6.22) | (6.19-7.38) | (7.61-9.13) | (8.80-10.6) | $\begin{gathered} 11.4 \\ (10.1-12.4) \\ \hline \end{gathered}$ | $(11.5-14.3)$ | (13.5-17.2) | (15.2-19.8) |
| 3-day | (3.60-4.25) | (4.36-5.15) | $(5.56-6.57)$ | $\begin{gathered} 7.14 \\ (6.55-7.76) \end{gathered}$ | (7.99-9.52) | $\begin{array}{c\|} \hline 10.2 \\ (9.18-11.0) \\ \hline \end{array}$ | $\begin{gathered} 11.7 \\ (10.5-12.7) \\ \hline \end{gathered}$ | $\begin{gathered} 13.4 \\ (11.8-14.6) \\ \hline \end{gathered}$ | (13.8-17.4) | $(15.6-20.0)$ |
| 4-da | (3.83-4.5 | $\begin{gathered} 5.01 \\ (4.64-5.4 \end{gathered}$ | (5.89-6.92) | $\begin{gathered} 7.50 \\ (6.91-8.14) \\ \hline \end{gathered}$ | $(8.36-9.92)$ | $\begin{gathered} 10.5 \\ (9.57-11.4) \\ \hline \end{gathered}$ | $\begin{gathered} 12.0 \\ (10.8-13.0) \\ \hline \end{gathered}$ | (12.1-14.8) | (14.1-17.6) | $\begin{gathered} 18.4 \\ (15.9-20.2) \\ \hline \end{gathered}$ |
| 7-day | $(4.48-5.23)$ | $\begin{gathered} 5.82 \\ (5.40-6.31) \end{gathered}$ | (6.77-7.91) | $\begin{gathered} 8.53 \\ (7.88-9.23) \end{gathered}$ | (9.46-11.1) | (10.7-12.7) | (12.1-14.4) | $(13.5-16.3)$ | (15.4-19.1) | $(17.0-21.4)$ |
| 10 | (5.07-5.83) | $\begin{gathered} 6.50 \\ (6.07-6.98) \\ \hline \end{gathered}$ | (7.51-8.65) | $\begin{gathered} 9.33 \\ (8.68-10.0) \end{gathered}$ | $\begin{gathered} 11.2 \\ (10.3-12.0) \\ \hline \end{gathered}$ | $\begin{gathered} 12.7 \\ (11.7-13.6) \\ \hline \end{gathered}$ | (13.0-15.4) | (14.5-17.3) | (16.5-20.1) | $\begin{gathered} \hline 20.6 \\ (18.1-22.4) \\ \hline \end{gathered}$ |
| 20-d | $\begin{gathered} 7.36 \\ (6.91-7.85) \\ \hline \end{gathered}$ | $\begin{gathered} 8.76 \\ (8.24-9.35) \\ \hline \end{gathered}$ | $\begin{gathered} 10.6 \\ (10.0-11.4) \end{gathered}$ | $\begin{gathered} 12.2 \\ (11.4-13.0) \end{gathered}$ | $\begin{gathered} 14.4 \\ (13.4-15.4) \end{gathered}$ | $\begin{gathered} 16.2 \\ (15.0-17.3) \\ \hline \end{gathered}$ | $\begin{gathered} 18.1 \\ (16.6-19.3) \\ \hline \hline \end{gathered}$ | $\begin{gathered} \hline \mathbf{2 0 . 1} \\ (18.3-21.5) \\ \hline \hline \end{gathered}$ | $(20.6-24.7)$ | $\begin{array}{c\|} \hline 25.2 \\ (22.3-27.3) \\ \hline \end{array}$ |
| 30-da | $\begin{gathered} 9.06 \\ (8.54-9.62) \\ \hline \end{gathered}$ | $\begin{gathered} 10.8 \\ (10.1-11.4) \\ \hline \end{gathered}$ | $\begin{gathered} 12.9 \\ (12.2-13.8) \\ \hline \end{gathered}$ | $\begin{gathered} 14.7 \\ (13.8-15.6) \\ \hline \end{gathered}$ | $\begin{gathered} 17.1 \\ (16.0-18.2) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline 19.0 \\ (17.7-20.2) \\ \hline \end{array}$ | $\begin{gathered} \mathbf{2 1 . 0} \\ (19.4-22.4) \\ \hline \end{gathered}$ | $\begin{gathered} 23.0 \\ (21.1-24.6) \\ \hline \end{gathered}$ | $(23.5-27.7)$ | $\begin{gathered} 28.0 \\ (25.2-30.2) \\ \hline \end{gathered}$ |
| 45-day | $\begin{gathered} \hline 11.2 \\ (10.6-11.9) \end{gathered}$ | $\begin{gathered} \hline 13.3 \\ (12.5-14.1) \end{gathered}$ | $\begin{gathered} \hline 15.9 \\ (15.0-16.9) \end{gathered}$ | $\begin{gathered} \hline 18.0 \\ (16.9-19.2) \end{gathered}$ | $\begin{gathered} \hline 21.0 \\ (19.7-22.4) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 23.5 \\ (21.9-25.0) \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{2 6 . 1} \\ (24.1-27.7) \end{gathered}$ | $\begin{gathered} \hline \mathbf{2 8 . 7} \\ (26.4-30.7) \end{gathered}$ | (29.4-34.8) | $\begin{gathered} \hline 35.4 \\ (31.8-38.1) \end{gathered}$ |
| 60-day | (12.7-14.2) | $\begin{gathered} 15.9 \\ (15.0-16.8) \\ \hline \end{gathered}$ | $(17.7-19.9)$ | $\begin{gathered} 21.1 \\ (19.9-22.3) \\ \hline \hline \end{gathered}$ | $(22.8-25.7)$ | (25.1-28.3) | $(27.3-31.1)$ | $\begin{gathered} 31.9 \\ (29.5-33.9) \\ \hline \end{gathered}$ | (32.4-37.8) | $\begin{array}{c\|} \hline 38.1 \\ (34.6-40.9) \\ \hline \end{array}$ |
| ${ }^{1}$ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). <br> Numbers in parenthesis are PF estimates at lower and upper bounds of the $90 \%$ confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is $5 \%$. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. <br> Please refer to NOAA Atlas 14 document for more information. |  |  |  |  |  |  |  |  |  |  |

## PF graphical

PDS-based depth-duration-frequency (DDF) curves
Latitude: $36.2455^{\circ}$, Longitude: $-75.8880^{\circ}$



| Duration |  |
| :---: | :---: |
| — $5-\mathrm{min}$ - $10-\mathrm{min}$ $-15-\mathrm{min}$ $-30-\mathrm{min}$ $-60-\mathrm{min}$ $-2-\mathrm{hr}$ $-3-\mathrm{hr}$ $-6-\mathrm{hr}$ $-12-\mathrm{hr}$ $-24-\mathrm{hr}$ | — ${ }^{2 \text {-day }}$ — 3 -day — 4 -day — 7 -day — 10 -day — 20 -day — 30 -day — 40 -day |

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## Maps \& aerials

## Small scale terrain



Large scale aerial

NOAA Atlas 14, Volume 2, Version 3
Location name: Grandy, North Carolina, USA*
Latitude: $\mathbf{3 6 . 2 4 5 5 ^ { \circ }}$, Longitude: $-75.888^{\circ}$
INTENSITY

## Elevation: 14 ft**

* source: ESRI Maps
** source: USGS



## POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland
PF tabular | PF_graphical | Maps \& aerials

## PF tabular

| PDS-based point precipitation frequency estimates with 90\% confidence intervals (in inches/hour) ${ }^{\mathbf{1}}$ |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Average recurrence interval (years) |  |  |  |  |  |  |  |  |  |
|  | 1 | 2 | 5 | 10 | 25 | 50 | 100 | 200 | 500 | 1000 |
| 5-m | $\begin{gathered} 5.33 \\ (4.84-5.88) \end{gathered}$ | $\begin{gathered} 6.22 \\ (5.65-6.84) \end{gathered}$ | $\begin{gathered} 7.04 \\ (6.41-7.74) \\ \hline \end{gathered}$ | $\begin{gathered} 8.08 \\ (7.31-8.87) \end{gathered}$ | $\begin{gathered} 9.10 \\ (8.20-9.97) \end{gathered}$ | $\begin{gathered} 10.0 \\ (9.00-11.0) \end{gathered}$ | $\begin{gathered} 10.8 \\ (9.71-11.9) \\ \hline \end{gathered}$ | $\begin{gathered} 11.7 \\ (10.4-12.8) \\ \hline \end{gathered}$ | $\begin{gathered} 12.7 \\ (11.2-13.9) \end{gathered}$ | $\begin{gathered} 13.6 \\ (11.9-15.0) \end{gathered}$ |
| 10- | $\begin{array}{r} 4.25 \\ (3.86-4.6 \\ \hline \end{array}$ | $\begin{gathered} 4.97 \\ (4.52-5.47) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 5.64 \\ (5.13-6.20 \\ \hline \end{gathered}$ | $\begin{gathered} \hline 6.46 \\ (5.85-7.09 \\ \hline \end{gathered}$ |  |  |  | $\begin{gathered} 9.25 \\ 8.23-10 . \end{gathered}$ | $\begin{gathered} 10.0 \\ (8.83-11.0) \\ \hline \end{gathered}$ | $\begin{aligned} & 7 \\ & 11.8) \\ & \hline \hline \end{aligned}$ |
| 15 | (3.22-3.91) |  | $\begin{gathered} 4.76 \\ (4.33-5.23) \\ \hline \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 8.40 \\ (7.41-9.23) \\ \hline \end{gathered}$ | $\begin{gathered} 8.98 \\ (7.86-9.88) \\ \hline \end{gathered}$ |
| 30- | $\begin{gathered} \mathbf{2 . 4 3} \\ (2.21-2.68) \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{2 . 8 8} \\ (2.62-3.17) \\ \hline \end{gathered}$ | $\begin{gathered} 3.38 \\ (3.07-3.71) \\ \hline \end{gathered}$ |  |  |  |  |  | $\begin{gathered} 6.68 \\ (5.90-7.34) \\ \hline \end{gathered}$ | $\begin{gathered} \hline 7.27 \\ (6.36-8.00) \\ \hline \end{gathered}$ |
| 60 | $(1.38-1.67)$ |  |  |  |  |  |  |  | $\begin{gathered} 4.80 \\ (4.23-5.27) \\ \hline \end{gathered}$ | $\begin{gathered} 5.30 \\ (4.64-5.84) \\ \hline \end{gathered}$ |
| 2-hr | $\begin{gathered} \mathbf{0 . 8 8 1} \\ (0.795-0.978 \\ \hline \end{gathered}$ | $\begin{gathered} 1.05 \\ (0.952-1.17) \\ \hline \end{gathered}$ | $(1.16-1.43)$ |  |  |  |  |  |  | $\begin{gathered} 3.57 \\ (3.10-3.93) \\ \hline \end{gathered}$ |
| 3-hr | (0.567-0.704) | $(0 .$ | $(0.8$ |  |  |  |  |  |  | $\begin{gathered} \hline 2.77 \\ (2.38-3.05) \\ \hline \end{gathered}$ |
| 6-hr | $(0.340-0.421)$ | $(0.406-0.50$ | $\begin{gathered} \mathbf{0 . 5 5 3} \\ (0.499-0.617) \\ \hline \end{gathered}$ | $(0.605-0.749)$ |  |  | $\begin{gathered} 1.11 \\ (0.977-1.22) \\ \hline \end{gathered}$ |  |  | $\begin{gathered} 1.70 \\ (1.45-1.87) \\ \hline \end{gathered}$ |
| 12-hr | $(0.199-0.248)$ | $(0.237-0.2$ | 0.326 <br> $(0.292-0.365)$ | $(0.356-0.445)$ | $(0.434-0.545)$ | $\begin{gathered} 0.579 \\ (0.510-0.643) \\ \hline \end{gathered}$ | $(0.586-0.743)$ |  |  | $\begin{gathered} \hline 1.05 \\ (0.886-1.17) \\ \hline \end{gathered}$ |
| 2 | $(0.121-0.143)$ | $(0.147-0.175)$ | $\mathbf{0 . 2 0 7}$ <br> $(0.190-0.225)$ | $\begin{gathered} 0.246 \\ (0.225-0.268) \end{gathered}$ | $(0.276-0.330)$ | $\begin{gathered} 0.354 \\ (0.319-0.384) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline \mathbf{0 . 4 0 8} \\ (0.365-0.443) \\ \hline \end{array}$ | $\begin{gathered} 0.469 \\ (0.415-0.509) \\ \hline \hline \end{gathered}$ | $\begin{gathered} 0.559 \\ (0.486-0.610) \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{0 . 6 3 5} \\ (0.544-0.696) \\ \hline \end{gathered}$ |
| 2-day | (0.070-0.0 | $(0.084-0.1$ | $(0.108-0.129)$ | $\begin{array}{\|c\|c} 0.141 \\ (0.128-0.153) \\ \hline \end{array}$ | $\begin{array}{\|c\|} 0.174 \\ (0.158-0.190) \\ \hline \end{array}$ | $\begin{gathered} 0.204 \\ (0.183-0.221) \\ \hline \end{gathered}$ | $\begin{gathered} 0.236 \\ (0.210-0.257) \end{gathered}$ | $\begin{gathered} 0.273 \\ (0.239-0.297) \\ \hline \end{gathered}$ | $\begin{gathered} 0.327 \\ (0.281-0.359) \\ \hline \end{gathered}$ |  |
| 3-day | $(0.049-0.059)$ | 0.065 <br> $(0.060-0.071)$ | $\mathbf{0 . 0 8 3}$ <br> $(0.077-0.091)$ | $\begin{gathered} \boldsymbol{0 . 0 9 9} \\ (0.090-0.107) \end{gathered}$ | $\begin{gathered} 0.121 \\ (0.110-0.132) \\ \hline \end{gathered}$ | $\begin{gathered} 0.141 \\ (0.127-0.153) \end{gathered}$ | $\begin{gathered} \mathbf{0 . 1 6 2} \\ (0.145-0.176) \\ \hline \end{gathered}$ | $(0.164-0.202)$ | $\begin{gathered} 0.221 \\ (0.192-0.242) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline \mathbf{0 . 2 5 2} \\ (0.216-0.278) \\ \hline \end{array}$ |
| 4-day | $(0.039-0.046)$ | $(0.048-0.056)$ | $\begin{gathered} \mathbf{0 . 0 6 6} \\ (0.061-0.072) \\ \hline \end{gathered}$ | $\begin{gathered} 0.078 \\ (0.072-0.084) \\ \hline \end{gathered}$ | $(0.087-0.103)$ | $\begin{gathered} 0.109 \\ (0.099-0.118) \\ \hline \end{gathered}$ | $\begin{gathered} 0.125 \\ (0.112-0.135) \\ \hline \end{gathered}$ | $\begin{gathered} 0.142 \\ (0.126-0.154) \\ \hline \end{gathered}$ | $\begin{gathered} 0.167 \\ (0.147-0.183) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \mathbf{0 . 1 9 1} \\ (0.165-0.210) \\ \hline \end{array}$ |
| 7-day | $\begin{gathered} 0.028 \\ (0.026-0.031) \\ \hline \end{gathered}$ | $(0.032-0.037)$ | $\mathbf{0 . 0 4 3}$ <br> $(0.040-0.047)$ | $\begin{gathered} 0.050 \\ (0.046-0.054) \\ \hline \end{gathered}$ | $(0.056-0.066)$ | $\begin{gathered} 0.070 \\ (0.063-0.075) \\ \hline \end{gathered}$ | 0.079 <br> $(0.071-0.085)$ | 0.089 $(0.080-0.097)$ | $\begin{gathered} 0.104 \\ (0.091-0.113) \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{0 . 1 1 6} \\ (0.101-0.127) \\ \hline \end{gathered}$ |
| 10-day | $(0.021-0.024)$ | $(0.025-0.029)$ | $\begin{gathered} 0.033 \\ (0.031-0.036) \\ \hline \end{gathered}$ | $\begin{array}{\|c} 0.038 \\ (0.036-0.041) \end{array}$ | $\left\lvert\, \begin{gathered} 0.040 \\ (0.043-0.049) \end{gathered}\right.$ | $\begin{gathered} 0.052 \\ (0.048-0.056) \\ \hline \hline \end{gathered}$ | $\begin{gathered} 0.059 \\ (0.054-0.064) \\ \hline \end{gathered}$ | $\begin{gathered} 0.066 \\ (0.060-0.072) \end{gathered}$ | $\begin{gathered} 0.077 \\ (0.068-0.083) \\ \hline \end{gathered}$ | $\begin{gathered} 0.085 \\ (0.075-0.093) \\ \hline \end{gathered}$ |
| 20-day | $\begin{gathered} \mathbf{0 . 0 1 5} \\ (0.014-0.016) \\ \hline \end{gathered}$ | $\begin{gathered} 0.018 \\ (0.017-0.019) \\ \hline \end{gathered}$ | $\mathbf{0 . 0 2 2}$ <br> $(0.020-0.023)$ | 0.025 <br> $(0.023-0.027)$ | (0.027-0.032) | $\begin{gathered} 0.033 \\ (0.031-0.036) \\ \hline \end{gathered}$ | $\begin{gathered} 0.037 \\ (0.034-0.040) \\ \hline \end{gathered}$ | $\begin{gathered} 0.041 \\ (0.038-0.044) \end{gathered}$ | $\begin{gathered} 0.047 \\ (0.042-0.051) \\ \hline \end{gathered}$ | $\begin{gathered} 0.052 \\ (0.046-0.056) \end{gathered}$ |
| 30-day | $\begin{gathered} 0.012 \\ (0.011-0.013) \\ \hline \end{gathered}$ | $\begin{array}{\|c} 0.014 \\ (0.014-0.015) \\ \hline \end{array}$ | 0.017 <br> $(0.016-0.019)$ | $\mathbf{0 . 0 2 0}$ <br> $(0.019-0.021)$ | 0.023 <br> $(0.022-0.025)$ | $\begin{gathered} 0.026 \\ (0.024-0.028) \\ \hline \end{gathered}$ | 0.029 $(0.026-0.031)$ | $\begin{gathered} 0.031 \\ (0.029-0.034) \\ \hline \end{gathered}$ | 0.035 <br> $(0.032-0.038)$ | $\begin{array}{c\|} \hline 0.038 \\ (0.034-0.041) \\ \hline \end{array}$ |
| 45-day | $\begin{array}{c\|} \mathbf{0 . 0 1 0} \\ (0.009-0.011) \\ \hline \end{array}$ | $\begin{gathered} 0.012 \\ (0.011-0.013) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline \mathbf{0 . 0 1 4} \\ (0.013-0.015) \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \mathbf{0 . 0 1 6} \\ (0.015-0.017) \\ \hline \end{array}$ | 0.019 <br> $(0.018-0.020)$ | $\begin{array}{c\|} \mathbf{0 . 0 2 1} \\ (0.020-0.023) \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline \mathbf{0 . 0 2 4} \\ (0.022-0.025) \\ \hline \end{array}$ | $\begin{gathered} 0.026 \\ (0.024-0.028) \\ \hline \end{gathered}$ | $(0.027-0.032)$ | $\begin{array}{\|c\|} \hline \mathbf{0 . 0 3 2} \\ (0.029-0.035) \\ \hline \end{array}$ |
| 60-day | $\begin{gathered} \mathbf{0 . 0 0 9} \\ (0.008-0.009) \\ \hline \end{gathered}$ | $\begin{gathered} 0.011 \\ (0.010-0.011 \\ \hline \end{gathered}$ | $\begin{gathered} \mathbf{0 . 0 1 3} \\ (0.012-0.013) \\ \hline \end{gathered}$ | $\begin{array}{\|c\|} \hline \mathbf{0 . 0 1 4} \\ (0.013-0.015) \\ \hline \end{array}$ | 0.016 <br> $(0.015-0.017)$ | $\begin{array}{c\|} \hline \mathbf{0 . 0 1 8} \\ (0.017-0.019) \\ \hline \end{array}$ | $\begin{array}{c\|} \hline 0.020 \\ (0.018-0.021) \\ \hline \end{array}$ | $\begin{gathered} 0.022 \\ (0.020-0.023) \\ \hline \end{gathered}$ | $\begin{gathered} 0.024 \\ (0.022-0.026) \\ \hline \end{gathered}$ | $\begin{array}{c\|} \hline \mathbf{0 . 0 2 6} \\ (0.024-0.028) \\ \hline \end{array}$ |
| ${ }^{1}$ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). <br> Numbers in parenthesis are PF estimates at lower and upper bounds of the $90 \%$ confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is $5 \%$. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. <br> Please refer to NOAA Atlas 14 document for more information. |  |  |  |  |  |  |  |  |  |  |

## PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: $36.2455^{\circ}$, Longitude: $-75.8880^{\circ}$




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## Maps \& aerials

## Small scale terrain

## Appendix D

## Quad Map

## TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.


## USGS QUAD MAP EXHIBIT

CAMDEN POINT, NC
2022

| 1000 | 0 | 1000 | 2000 | 3000 | 4000 | 5000 | 6000 | 7000 | 8000 | 9000 | 10000 |
| :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- | :--- |

THIS DRAWING PREPARED AT THE ELIZABETH CITY OFFICE

| POPLAR BRANCH TNSP | CURRITUCK COUNTY |
| :--- | :--- |
| Date:07/25/2023 | Scale: $1^{\prime \prime}=3000^{\prime}$ |
| Sheet 1 of 1 | J.N.:59040 |
| Drawn by:KH | Checked by:KH |

## Appendix E

## FEMA Firmette

## TIMMONS GROUP

YOUR VISION ACHIEVED THROUGH OURS.








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| 边 |  |  |  |







## AGREEMENT FOR PURCHASE AND SALE OF LAND

THIS AGREEMENT, including any and all addenda attached hereto ("Agreement"), is by and between

(NOTE: If the Buyer or Seller is an entity, in order to form a binding agreement and complete a transaction, the entities listed as Buyer or Seller in this Agreement should be validly formed and in good standing with the Secretary of State in the State of formation of the entity.)

FOR AND IN CONSIDERATION OF THE MUTUAL PROMISES SET FORTH HEREIN AND OTHER GOOD AND VALUABLE CONSIDERATION, THE RECEIPT AND SUFFICIENCY OF WHICH ARE HEREBY ACKNOWLEDGED, THE PARTIES HERETO AGREE AS FOLLOWS:

Section 1. Terms and Definitions: The terms listed below shall have the respective meaning given them as set forth adjacent to each term.
(a) "Property": (Address) 6440 Caratoke Highway, Grandy, NC 27939

| Plat Reference: | Lot(s) | $\mathbf{1}$ |
| :---: | :--- | :--- |
| $\mathbf{H}$ | at Page(s) | $\mathbf{3 1 2}$ | , Block or Section $\qquad$ , as shown on Plat Book or Slide

If this box is checked, "Property" shall mean that property described on Exhibit $\mathbf{A}$ attached hereto and incorporated herewith by reference,
(For information purposes: (i) the tax parcel number of the Property is: $\mathbf{0 0 9 4 0 0 0 1 2 2 E 0 0 0 0}$
; and, (ii) some or all of the Property, consisting of approximately acres, is described in Deed Book 1364 , Page No. 597 Currituck County.)
together with all buildings and improvements thereon and all fixtures and appurtenances thereto.
\$ $\qquad$ (b) "Purchase Price" shall mean the sum of $\qquad$
or, if this box is checked $\square$, Purchase Price shall mean the sum of \$ $\qquad$ Dollars, acre ("Price Per Acre") as determined by a survey obtained by Buyer prior to the expiration of the Examination Period ("Survey"). Buyer shall provide a copy of the Survey to Seller not later than the expiration of the Examination Period. The purchase price shall be determined by multiplying the Price Per Acre by the number of gross acres as determined by the Survey. Adjustments to the amounts due under Sections 1(b)(ii) - 1(b)(iii) shall be made, as applicable, to reflect any adjustment in the Purchase Price in accordance with this provision. The Purchase Price shall be payable on the following terms:
\$ $\qquad$ (i) "Earnest Money" shall mean $\qquad$
Five Thousand
Dollars or terms as follows:
The Earnest Money shall be deposited in escrow with

This form jointly approved by:
North Carolina Bar Association's Real Property Section deposited- "Escrow Agent") within five (5) calendar days of the Contract Date, to be applied as part payment of the Purchase Price of the Property at Closing, or disbursed as agreed upon under the provisions of Section 10 herein. Should Buyer fail to deliver the Earnest Money by the date required hereunder, or should any check or other funds paid by Buyer be dishonored, for any reason, by the institution upon which the payment is drawn, Buyer shall have one (1) banking day after written notice of such dishonor to deliver cash, official bank check, wire transfer or electronic transfer to the Escrow Agent. If Buyer fails to deliver the required funds within one (1) banking day after written notice, then Seller may terminate this Agreement by written notice to Buyer at any time thereafter, provided Seller has not then received acknowledgement by Escrow Agent of its receipt of funds from Buyer. If the Escrow Agent has not delivered to the Seller the acknowledgement of Earnest Money on the last page of this Agreement by the calendar day following the date the Earnest Money is required to be delivered hereunder, it shall be presumed that the Earnest Money was not delivered by the required time (unless, upon the written request of Seller, Escrow Agent can provide proof of its receipt of the Earnest Money by the required time). Buyer and Seller consent to the disclosure by the Escrow Agent, to the parties to this Agreement, the Broker(s) and any Buyer lender, of any material facts pertaining to the Earnest Money.

## ANY EARNEST MONEY DEPOSITED BY BUYER IN A TRUST ACCOUNT MAY BE PLACED IN AN INTEREST BEARING TRUST ACCOUNT, AND: (check only ONE box)

ANY INTEREST EARNED THEREON SHALL BE APPLIED AS PART PAYMENT OF THE PURCHASE PRICE OF THE PROPERTY AT CLOSING, OR DISBURSED AS AGREED UPON UNDER THE PROVISIONS OF SECTION 10 HEREIN. (Buyer's Taxpayer Identification Number is: )

## $\square$ ANY INTEREST EARNED THEREON SHALL BELONG TO THE ACCOUNT HOLDER IN CONSIDERATION OF THE EXPENSES INCURRED BY MAINTAINING SUCH ACCOUNT AND RECORDS ASSOCIATED THEREWITH.

\$
\$
(ii) Delivery of a promissory note secured by a deed of trust, said promissory note in the amount of Dollars
being payable over a term of ___ years, with an amortization period of ___ years, payable in monthly installments of principal, together with accrued interest on the outstanding principal balance at the rate of $\qquad$ percent ( $\qquad$ $\%$ ) per annum in the amount of \$ , with the first principal payment beginning on the first day of the month next succeeding the date of Closing, or such other terms as may be set forth on Exhibit B. At any time, the promissory note may be prepaid in whole or in part without penalty and without further interest on the amounts prepaid from the date of such prepayment. (NOTE: In the event of Buyer's subsequent default upon a promissory note and deed of trust given hereunder, Seller's remedies may be limited to foreclosure of the Property. If the deed of trust given hereunder is subordinated to senior financing, the material terms of such financing must be set forth on Exhibit B. If such senior financing is subsequently foreclosed, the Seller may have no remedy to recover under the note.)
(iii) Cash, balance of Purchase Price, at Closing in the amount of

Buyer, at Buyer's expense, shall be entitled to pursue qualification for and approval of any loan Buyer intends to obtain in connection with the transaction contemplated by this Agreement. (Note: Buyer's obligations under this Agreement are not conditioned upon obtaining or closing any loan. Therefore, Buyer is advised to consult with Buyer's lender prior to signing this offer to assure that the Examination Period allows sufficient time for Buyer's lender to provide Buyer sufficient information to decide whether to proceed with or terminate the transaction.)
(c) "Closing" shall mean the date of completion of the process detailed in Section 11 of this Agreement. Closing shall occur on or before $\qquad$ or Within thirty (30) days of the Expiration of the Examination Period

(d) "Contract Date" means the date this Agreement has been fully executed by both Buyer and Seller.
(e) "Examination Period" shall mean the period beginning on the first day after the Contract Date and extending through 5:00pm (based upon time at the locale of the Property) on One Hundred Thirty - Five (135) days after contract date
TIME IS OF THE ESSENCE AS TO THE EXAMINATION PERIOD.
(f) "Broker(s)" shall mean:

(g) "Seller's Notice Address" shall be as follows:

631 Fernwood Farms Road $\square$
Chesapeake VA 23320
e-mail address: $\qquad$ fax number:
except as same may be changed pursuant to Section 12.
(h) "Buyer's Notice Address" shall be as follows: 2405 W Nash Street, Suite F $\square$
Wilson NC 27896 252-399-1964
e-mail address: $\qquad$ fax number:
except as same may be changed pursuant to Section 12.
$X$ (i) If this block is marked, additional terms of this Agreement are set forth on Exhibit B attached hereto and incorporated herein by reference. (Note: Under North Carolina law, real estate agents are not permitted to draft conditions or contingencies to this Agreement.)
(j) If this block is marked, additional terms of this Agreement are set forth on the Additional Provisions Addendum (Form 581-T) attached hereto and incorporated herein by reference.
(k) If this block is marked, additional terms of this Agreement are set forth on the Back Up Agreement Addendum (Form $581 \mathrm{~A}-\mathrm{T}$ ) attached hereto and incorporated herein by reference.

Section 2. Sale of Property and Payment of Purchase Price: Seller agrees to sell and Buyer agrees to buy the Property for the Purchase Price.

Section 3. Proration of Expenses and Payment of Costs: Seller and Buyer agree that all property taxes (on a calendar year basis), leases, rents, mortgage payments and utilities or any other assumed liabilities as detailed on attached Exhibit B, and/or Exhibit C, as applicable, if any, shall be prorated as of the date of Closing. Seller shall pay for preparation of a deed and all other documents necessary to perform Seller's obligations under this Agreement, excise tax (revenue stamps), and other conveyance fees or taxes required by law, any fees required for confirming Seller's account payment information on owners' association dues or assessments for payment or proration; any fees imposed by an owners' association and/or a management company as agent of the owners' association in connection with the transaction contemplated by this Agreement other than those fees required to be paid by Buyer in this Section 3 below, and the following:

Buyer shall pay recording costs, costs of any title search, title insurance, survey, the cost of any inspections or investigations undertaken by Buyer under this Agreement, charges required by an owners' association declaration to be paid by Buyer for Buyer's future use and enjoyment of the Property, including, without limitation, working capital contributions, membership fees, or charges for Buyer's use of the common elements and/or services provided to Buyer, any costs or charges for determining restrictive covenant compliance, and the following:
N/A

Each party shall pay its own attorney's fees.


Deferred/Rollback Taxes: Buyer $\square$ intends to continue $\square$ does not intend to continue the existing present use valuation property tax deferral(s) relating to the Property. In the event the Buyer intends to continue the existing present use valuation property tax deferral(s) relating to the Property, Buyer shall be responsible for making all necessary applications for continuation of the existing present use valuation property tax deferral(s) relating to the Property and shall be responsible for payment of any deferred/rollback taxes applicable to the Property.

If Buyer does not intend to continue the existing present use valuation property tax deferral(s) relating to the Property, $\square$ Seller $\square$ Buyer shall be responsible for payment of any deferred/rollback taxes applicable to the Property
Section 4. Deliveries: Seller agrees to use best efforts to deliver to Buyer, as soon as reasonably possible after the Contract Date, copies of all material information relevant to the Property in the possession of Seller, including but not limited to: information regarding matters detailed on Form 502- Land Information Worksheet, title insurance policies (and copies of any documents referenced therein), surveys, soil test reports, environmental surveys or reports, site plans, civil drawings, building plans, maintenance records and copies of all presently effective warranties or service contracts related to the Property. Seller authorizes (1) any attorney presently or previously representing Seller to release and disclose any title insurance policy in such attorney's file to Buyer and both Buyer's and Seller's agents and attorneys; and (2) the Property's title insurer or its agent to release and disclose all materials in the Property's title insurer's (or title insurer's agent's) file to Buyer and both Buyer's and Seller's agents and attorneys. If Buyer does not consummate the Closing for any reason other than Seller default, then Buyer shall return to Seller all hard copy materials delivered by Seller to Buyer pursuant to this Section 4 (or Section 7, if applicable), if any, and shall, upon Seller's request, following release of the Earnest Money, provide to Seller copies of (subject to the ownership and copyright interests of the preparer thereof) any and all studies, reports, surveys and other information relating directly to the Property prepared by or at the request of Buyer, its employees and agents, without any warranty or representation by Buyer as to the contents, accuracy or correctness thereof. Notwithstanding the above provisions regarding delivery and return of information and documentation, should there exist a separate non-disclosure, confidentiality, or similar agreement between Buyer and Seller, the terms of which conflict with this provision insofar as delivery and return of information and documentation, then the terms of such non-disclosure, confidentiality, or similar agreement shall control as to the delivery and return of information and documentation.

Section 5. Evidence of Title: Seller agrees to convey fee simple insurable title to the Property without exception for mechanics' liens, free and clear of all liens, encumbrances and defects of title other than: (a) zoning ordinances affecting the Property, (b) Leases (as defined in Section 7, if applicable) and (c) specific instruments on the public record at the Contract Date agreed to by Buyer (not objected to by Buyer prior to the end of the Examination Period), which specific instruments shall be enumerated in the deed referenced in Section 11 (items 5(a), 5(b) and 5(c) being collectively "Permitted Exceptions"); provided that Seller shall be required to satisfy, at or prior to Closing, any encumbrances that may be satisfied by the payment of a fixed sum of money, such as deeds of trust, mortgages or statutory liens. Seller shall not enter into or record any instrument that affects the Property after the Contract Date without the prior written consent of Buyer, which consent shall not be unreasonably withheld, conditioned or delayed.

Section 6. Conditions: This Agreement and the rights and obligations of the parties under this Agreement are hereby made expressly conditioned upon fulfillment (or waiver by Buyer, whether explicit or implied) of the following conditions:
(a) Title Examination: After the Contract Date, Buyer shall, at Buyer's expense, cause a title examination to be made of the Property before the end of the Examination Period. In the event that such title examination shall show that Seller's title is not fee simple insurable, subject only to Permitted Exceptions, then Buyer shall promptly notify Seller in writing of all such title defects and exceptions, in no case later than the end of the Examination Period, and Seller shall have thirty (30) days to cure said noticed defects. If Seller does not cure the defects or objections within thirty (30) days of notice thereof, then Buyer may terminate this Agreement and receive a return of Earnest Money (notwithstanding that the Examination Period may have expired). If Buyer is to purchase title insurance, the insuring company must be licensed to do business in the state in which the Property is located. Title to the Property must be insurable at regular rates, subject only to standard exceptions and Permitted Exceptions.
(b) Same Condition: If the Property is not in substantially the same condition at Closing as of the date of the offer, reasonable wear and tear excepted, then the Buyer may (i) terminate this Agreement and receive a return of the Earnest Money or (ii) proceed to Closing whereupon Buyer shall be entitled to receive, in addition to the Property, any of the Seller's insurance proceeds payable on account of the damage or destruction applicable to the Property.

(c) Inspections: Buyer, its agents or representatives, at Buyer's expense and at reasonable times during normal business hours, shall have the right to enter upon the Property for the purpose of investigating matters such as those detailed on Form 502Land Information Worksheet, conducting timber cruises, and examining and surveying the Property; provided, however, that Buyer shall not conduct any invasive testing of any nature without the prior express written approval of Seller as to each specific invasive test intended to be conducted by Buyer. Buyer shall conduct all such on-site inspections, examinations, testing, timber cruises and surveying of the Property in a good and workmanlike manner, at Buyer's expense, shall repair any damage to the Property caused by Buyer's entry and on-site inspections and shall conduct same in a manner that does not unreasonably interfere with Seller's or any tenant's use and enjoyment of the Property. In that respect, Buyer shall make reasonable efforts to undertake on-site inspections outside of the hours Seller's or any tenant's business is open to the public. Buyer shall provide Seller or any tenant (as applicable) reasonable advance notice of and Buyer shall cause its agents or representatives and third party service providers (e.g. inspectors, surveyors, etc.) to give reasonable advance notice of any entry onto the Property. Buyer shall be obligated to observe and comply with any terms of any tenant lease which conditions access to such tenant's space at the Property. Upon Seller's request, Buyer shall provide to Seller evidence of general liability insurance. Buyer shall also have a right to review and inspect all contracts or other agreements affecting or related directly to the Property and shall be entitled to review such books and records of Seller that relate directly to the operation and maintenance of the Property, provided, however, that Buyer shall not disclose any information regarding this Property (or any tenant therein) unless required by law, and the same shall be regarded as confidential, to any person, except to its attorneys, accountants, lenders and other professional advisors, in which case Buyer shall obtain their agreement to maintain such confidentiality. Buyer assumes all responsibility for the acts of itself and its agents or representatives in exercising its rights under this Section 6(c) and agrees to indemnify and hold Seller harmless from any damages resulting therefrom. This indemnification obligation of Buyer shall survive the Closing or earlier termination of this Agreement. Except as provided in Section 6(a) above, Buyer shall have from the Contract Date through the end of the Examination Period to perform the above inspections, examinations and testing. IF BUYER CHOOSES NOT TO PURCHASE THE PROPERTY, FOR ANY REASON OR NO REASON, AND PROVIDES WRITTEN NOTICE TO SELLER THEREOF PRIOR TO THE EXPIRATION OF THE EXAMINATION PERIOD, THEN THIS AGREEMENT SHALL TERMINATE, AND BUYER SHALL RECEIVE A RETURN OF THE EARNEST MONEY.

## Section 7. Leases (Check one of the following, as applicable):

$\mathbf{X}$ If this box is checked, Seller affirmatively represents and warrants that there are no Leases (as hereinafter defined) affecting the Property.
$\square$ If this box is checked, Seller discloses that there are one or more leases affecting the Property ("Leases") and the following provisions are hereby made a part of this Agreement.
(a) A list of all Leases shall be set forth on Exhibit C. Seller represents and warrants that as of the Contract Date, there are no other Leases, oral or written, recorded or not, nor any subleases affecting the Property, except as set forth on Exhibit C;
(b) Seller shall deliver copies of any Leases to Buyer pursuant to Section 3 as if the Leases were listed therein;
(c) Seller represents and warrants that, as of the Contract Date, there are no current defaults (or any existing situation which, with the passage of time, or the giving of notice, or both, or at the election of either landlord or tenant could constitute a default) either by Seller, as landlord, or by any tenant under any Lease ("Lease Default"). In the event there is any Lease Default as of the Contract Date, Seller agrees to provide Buyer with a detailed description of the situation in accordance with Section 3. Seller agrees not to commit a Lease Default as Landlord after the Contract Date; and agrees further to notify Buyer immediately in the event a Lease Default arises or is claimed, asserted or threatened to be asserted by either Seller or a tenant under the Lease.
(d) During the Examination Period, Buyer and Seller shall cooperate in good faith to determine if any Lease shall be terminated prior to Closing or shall continue after Closing. As to any Lease determined to continue after Closing, Seller shall deliver an assignment of Seller's interest in such Lease to Buyer in form and content acceptable to Buyer (with tenant's written consent and acknowledgement, if required under the Lease). Seller agrees to deliver such assignment of Lease at or before Closing, with any security deposits held by Seller under any Leases to be transferred or credited to Buyer at or before Closing. The assignment shall provide: (i) that Seller shall defend, indemnify and hold Buyer harmless from claims, losses, damages and liabilities (including, without limitation, court costs and attorneys' fees) asserted against or incurred by Buyer which are caused by or the result of any default by Seller under any Lease prior to the date of Closing, and (ii) that Buyer shall defend, indemnify and hold Seller harmless from claims, losses, damages and liabilities (including, without limitation, court costs and attorneys' fees) asserted against or incurred by Seller which are caused by or the result of any default by Buyer under any Lease after the date of Closing.

(e) Seller also agrees to work diligently to obtain any tenant signatures on any estoppel certificates in such form as Buyer may reasonably request and to work diligently to obtain any subordination, nondisturbance and attornment agreements in such form as Buyer may reasonably request.

Section 8. Environmental/Physical Aspects of Property: Seller represents and warrants that it has no actual knowledge of the presence or disposal, except as in accordance with applicable law, within any structures on the Property or on the Property of hazardous or toxic waste or substances, which are defined as those substances, materials, and wastes, including, but not limited to: those substances, materials and wastes listed in the United States Department of Transportation Hazardous Materials Table (49 CFR Part 172.101) or by the Environmental Protection Agency as hazardous substances (40 CFR Part 302.4) and amendments thereto, or such substances, materials and wastes, which are or become regulated under any applicable local, state or federal law, including, without limitation, any material, waste or substance which is (i) petroleum, (ii) asbestos, (iii) polychlorinated biphenyls, (iv) designated as a Hazardous Substance pursuant to Section 311 of the Clean Water Act of 1977 (33 U.S.C. §1321) or listed pursuant to Section 307 of the Clean Water Act of 1977 (33 U.S.C. §1317), (v) defined as a hazardous waste pursuant to Section 1004 of the Resource Conservation and Recovery Act of 1976 (42 U.S.C. §6903) or (vi) defined as a hazardous substance pursuant to Section 101 of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. §9601). Seller has no actual knowledge of any contamination of the Property from such substances as may have been disposed of or stored on neighboring tracts.

Section 9. Risk of Loss/Damage/Repair: Until Closing, the risk of loss or damage to the Property, except as otherwise provided herein, shall be borne by Seller. Except as to maintaining the Property in its same condition, Seller shall have no responsibility for the repair of the Property, including any improvements, unless the parties hereto agree in writing.
Section 10. Earnest Money Disbursement: In the event that any condition hereto is not satisfied, then the Earnest Money shall be refunded to Buyer. In the event of breach of this Agreement by Seller, the Earnest Money shall be refunded to Buyer upon Buyer's request, but such return shall not affect any other remedies available to Buyer for such breach. In the event of breach of this Agreement by Buyer, the Earnest Money shall be paid to Seller as liquidated damages and as Seller's sole and exclusive remedy for such breach, but without limiting Seller's rights under Section 6(c) or Section 22 of this Agreement. It is acknowledged by the parties that payment of the Earnest Money to Seller in the event of a breach of this Agreement by Buyer is compensatory and not punitive, such amount being a reasonable estimation of the actual loss that Seller would incur as a result of such breach. The payment of the Earnest Money to Seller shall not constitute a penalty or forfeiture but actual compensation for Seller's anticipated loss, both parties acknowledging the difficulty determining Seller's actual damages for such breach.

NOTE: In the event of a dispute between Seller and Buyer over the disposition of the Earnest Money held in escrow, a licensed real estate broker is required by state law (and Escrow Agent, if not a broker, hereby agrees) to retain the Earnest Money in the Escrow Agent's trust or escrow account until Escrow Agent has obtained a written release from the parties consenting to its disposition or until disbursement is ordered by a court of competent jurisdiction. Alternatively, if a broker or an attorney licensed to practice law in North Carolina is holding the Earnest Money, the broker or attorney may deposit the disputed monies with the appropriate clerk of court in accordance with the provisions of N.C.G.S. §93A- 12.
Seller and Buyer hereby agree and acknowledge that the Escrow Agent assumes no liability in connection with the holding of the Earnest Money pursuant hereto except for negligence or willful misconduct of Escrow Agent. Escrow Agent shall not be responsible for the validity, correctness or genuineness of any document or notice referred to under this Agreement. Seller and Buyer hereby agree to indemnify, protect, save and hold harmless Escrow Agent and its successors, assigns and agents pursuant to this Agreement, from any and all liabilities, obligations, losses, damages, claims, actions, suits, costs or expenses (including attorney fees) of whatsoever kind or nature imposed on, incurred by or asserted against Escrow Agent which in any way relate to or arise out of the execution and delivery of this Agreement and any action taken hereunder; provided, however, that Seller and Buyer shall have no such obligation to indemnify, save and hold harmless Escrow Agent for any liability incurred by, imposed upon or established against it as a result of Escrow Agent's negligence or willful misconduct.

Section 11. Closing: At or before Closing, Seller shall deliver to Buyer a special warranty deed unless otherwise specified on Exhibit B and other documents customarily executed or delivered by a seller in similar transactions, including without limitation, an owner's affidavit, lien waiver forms (and such other lien related documentation as shall permit the Property to be conveyed free and clear of any claim for mechanics' liens) and a non-foreign status affidavit (pursuant to the Foreign Investment in Real Property Tax Act), and Buyer shall cause to be delivered the funds necessary to pay to Seller the Purchase Price. The Closing shall be conducted by Buyer's attorney or handled in such other manner as the parties hereto may mutually agree in writing. Possession shall be delivered at Closing, unless otherwise agreed herein. The Purchase Price and other funds to be disbursed pursuant to this Agreement shall not be disbursed until the Buyer's attorney's (or other designated settlement agent's) receipt of authorization to disburse all necessary funds.

Section 12. Notices: Unless otherwise provided herein, all notices and other communications which may be or are required to be given or made by any party to the other in connection herewith shall be in writing (which shall include electronic mail) and shall be deemed to have been properly given and received (i) on the date delivered in person or (ii) the date deposited in the United States mail,

registered or certified, return receipt requested, to the addresses set out in Section $1(\mathrm{~g})$ as to Seller, and in Section 1(h) as to Buyer, or at such other addresses as specified by written notice delivered in accordance herewith, (iii) at such time as the sender performs the final act to send such transmission, in a form capable of being processed by the receiving party's system, to any electronic mail address or facsimile number, if any, provided in Section $1(\mathrm{~g})$ as to Seller, and in Section 1(h) as to Buyer or (iv) on the date deposited with a recognized overnight delivery service, addressed to the addresses set out in Section 1(g) as to Seller, and in Section 1(h) as to Buyer, or at such other addresses as specified by written notice delivered in accordance herewith. If a notice is sent by more than one method, it will be deemed received upon the earlier of the dates of receipt pursuant to this Section.

Section 13. Counterparts; Entire Agreement: This Agreement may be executed in one or more counterparts, which taken together, shall constitute one and the same original document. Copies of original signature pages of this Agreement may be exchanged via facsimile or e-mail, and any such copies shall constitute originals. This Agreement constitutes the sole and entire agreement among the parties hereto and no modification of this Agreement shall be binding unless in writing and signed by all parties hereto. The invalidity of one or more provisions of this Agreement shall not affect the validity of any other provisions hereof and this Agreement shall be construed and enforced as if such invalid provisions were not included.

Section 14. Enforceability: This Agreement shall become a contract when signed by both Buyer and Seller and such signing is communicated to both parties; it being expressly agreed that notice given in accordance with Section 12 is not required for effective communication for the purposes of this Section 14. The parties acknowledge and agree that: (i) the initials lines at the bottom of each page of this Agreement are merely evidence of their having reviewed the terms of each page, and (ii) the complete execution of such initials lines shall not be a condition of the effectiveness of this Agreement. This Agreement shall be binding upon and inure to the benefit of the parties, their heirs, successors and assigns and their personal representatives.

## Section 15. Adverse Information and Compliance with Laws:

(a) Seller Knowledge/Assessments: Seller has no actual knowledge of (i) condemnation(s) affecting or contemplated with respect to the Property; (ii) actions, suits or proceedings pending or threatened against the Property; (iii) changes contemplated in any applicable laws, ordinances or restrictions affecting the Property; (iv) governmental special assessments, either pending or confirmed, for sidewalk, paving, water, sewer, or other improvements on or adjoining the Property, and no pending or confirmed owners' association special assessments or (v) any caves, mineshafts, tunnels, fissures, open or abandoned wells, gravesites, pet cemeteries, animal burial pits or landfill operations (past or present) located at the Property, except as follows (Insert "None" or the identification of any matters relating to (i) through (v) above, if any):
None
Note: For purposes of this Agreement: (i) a "special assessment" is defined as a charge against the Property by a governmental authority in addition to ad valorem taxes and recurring governmental service fees levied with such taxes, or by an owners' association in addition to any regular assessment (dues), either of which may be a lien against the Property; a special assessment may be either pending or confirmed; (ii) a "confirmed" special assessment is defined as an assessment that has been approved by a governmental agency or an owners' association for the purpose(s) stated, whether, at the time of Closing, it is payable in a lump sum or future installments; (iii) a "pending" special assessment is defined as an assessment that is under formal consideration by a governmental agency or an owners' association but which has not been approved prior to Closing. Seller shall pay, in full at Closing, all confirmed governmental or association special assessments, provided that the amount thereof can be reasonably determined or estimated. The payment of such determined or estimated amount shall be the final payment between Buyer and Seller as to any confirmed special assessments. If the amount of any special assessment cannot be reasonably determined or estimated, the special assessment shall be deemed a pending special assessment. Buyer shall take title subject to all pending special assessments disclosed by Seller herein, if any.
(b) Compliance: To Seller's actual knowledge, (i) Seller has complied with all applicable laws, ordinances, regulations, statutes, rules and restrictions pertaining to or affecting the Property; (ii) performance of the Agreement will not result in the breach of, constitute any default under or result in the imposition of any lien or encumbrance upon the Property under any agreement or other instrument to which Seller is a party or by which Seller or the Property is bound; and (iii) there are no legal actions, suits or other legal or administrative proceedings pending or threatened against the Property, and Seller is not aware of any facts which might result in any such action, suit or other proceeding.
(c) Owners' Association: If the Property is subject to regulation by an owners' association, Seller shall deliver the following information to Buyer pursuant to Section 4 as if the same were listed therein (or Seller shall state that Seller does not have same in their possession or that such item is not applicable): (i) the name of the owners' association; (ii) the amount of regular assessments (dues); (iii) the name, address and telephone number of the president of the owners' association or of the association manager or management

company; (iv) the owners' association website address; (v) the Seller's statement of account; (vi) the master insurance policy showing the coverage provided and the deductible amount; (vii) copies of any Declaration and/or Restrictive Covenants; (viii) the Rules and Regulations, (ix) the Articles of Incorporation and Bylaws of the owners' association; ( x ) the current financial statement and budget of the owners' association; (xi) the parking restrictions and information; and (xii) the architectural guidelines. Seller authorizes and directs any owners' association, any management company of the owners' association, any insurance company and any attorney who has previously represented the Seller to release to Buyer, Buyer's agents, representative, closing attorney or lender true and accurate copies of the foregoing items affecting the Property, including any amendments thereto.

Section 16. Survival of Representations and Warranties: All representations, warranties, covenants and agreements made by the parties hereto shall survive the Closing and delivery of the deed. Seller shall, at or within six (6) months after the Closing, and without further consideration, execute, acknowledge and deliver to Buyer such other documents and instruments, and take such other action as Buyer may reasonably request or as may be necessary to more effectively transfer to Buyer the Property described herein in accordance with this Agreement.

Section 17. Applicable Law: This Agreement shall be construed under the laws of the state in which the Property is located. This form has only been approved for use in North Carolina.

Section 18. Assignment: This Agreement is freely assignable unless otherwise expressly provided on Exhibit B.
Section 19. Tax-Deferred Exchange: In the event Buyer or Seller desires to effect a tax-deferred exchange in connection with the conveyance of the Property, Buyer and Seller agree to cooperate in effecting such exchange; provided, however, that the exchanging party shall be responsible for all additional costs associated with such exchange, and provided further, that a non-exchanging party shall not assume any additional liability with respect to such tax-deferred exchange. Seller and Buyer shall execute such additional documents, at no cost to the non-exchanging party, as shall be required to give effect to this provision.

Section 20. Memorandum of Contract: Upon request by either party, the parties hereto shall execute a memorandum of contract in recordable form setting forth such provisions hereof (other than the Purchase Price and other sums due) as either party may wish to incorporate. Such memorandum of contract shall contain a statement that it automatically terminates and the Property is released from any effect thereby as of a specific date to be stated in the memorandum (which specific date shall be no later than the date of Closing). The cost of recording such memorandum of contract shall be borne by the party requesting execution of same.

Section 21. Authority: Each signatory to this Agreement represents and warrants that he or she has full authority to sign this Agreement and such instruments as may be necessary to effectuate any transaction contemplated by this Agreement on behalf of the party for whom he or she signs and that his or her signature binds such party.

Section 22. Brokers: Except as expressly provided herein, Buyer and Seller agree to indemnify and hold each other harmless from any and all claims of brokers, consultants or real estate agents by, through or under the indemnifying party for fees or commissions arising out of the sale of the Property to Buyer. Buyer and Seller represent and warrant to each other that: (i) except as to the Brokers designated under Section 1(f) of this Agreement, they have not employed nor engaged any brokers, consultants or real estate agents to be involved in this transaction and (ii) that the compensation of the Brokers is established by and shall be governed by separate agreements entered into as amongst the Brokers, the Buyer and/or the Seller.

Section 23. Attorneys Fees: If legal proceedings are instituted to enforce any provision of this Agreement, the prevailing party in the proceeding shall be entitled to recover from the non-prevailing party reasonable attorneys fees and court costs incurred in connection with the proceeding.

THE NORTH CAROLINA ASSOCIATION OF REALTORS®, INC. AND THE NORTH CAROLINA BAR ASSOCIATION MAKE NO REPRESENTATION AS TO THE LEGAL VALIDITY OR ADEQUACY OF ANY PROVISION OF THIS FORM IN ANY SPECIFIC TRANSACTION. IF YOU DO NOT UNDERSTAND THIS FORM OR FEEL THAT IT DOES NOT PROVIDE FOR YOUR LEGAL NEEDS, YOU SHOULD CONSULT A NORTH CAROLINA REAL ESTATE ATTORNEY BEFORE YOU SIGN IT.


## BUYER:

## Individual

N/A
Date:

## N/A

Date: $\qquad$

## Business Entity

$\frac{\text { Cedar Run Capital, LLC }}{\text { (Name of Entity) }}$
By: Chorlos A.Thrmas
Name: Charles Thomas
Title: Member
Date: $03 / 09 / 2023$

## SELLER:



N/A
Date: $\qquad$

## Business Entity

$\frac{\mathbf{N} / \mathbf{A}}{(\text { Name of Entity })}$

By:
Name: N/A
Title: $\mathbf{N} / \mathbf{A}$
Date: $\qquad$

## WIRE FRAUD WARNING

To Buyers: Before sending any wire, you should call the closing agent's office to verify the instructions. If you receive wiring instructions for a different bank, branch location, account name or account number, they should be presumed fraudulent. Do not send any funds and contact the closing agent's office immediately.

To Sellers: If your proceeds will be wired, it is recommended that you provide wiring instructions at closing in writing in the presence of the closing agent. If you are unable to attend closing, you may be required to send an original notarized directive to the closing agent's office containing the wiring instructions. This directive may be sent with the deed, lien waiver and tax forms if those documents are being prepared for you by the closing agent. At a minimum, you should call the closing agent's office to provide the wire instructions. The wire instructions should be verified over the telephone via a call to you initiated by the closing agent's office to ensure that they are not from a fraudulent source.

Whether you are a buyer or a seller, you should call the closing agent's office at a number that is independently obtained. To ensure that your contact is legitimate, you should not rely on a phone number in an email from the closing agent's office, your real estate agent or anyone else.

The undersigned hereby acknowledges receipt of the Earnest Money set forth herein and agrees to hold said Earnest Money in accordance with the terms hereof.

Rich Company Trust Account
(Name of Escrow Agent)
Date: $\qquad$ By: $\qquad$
Escrow Agent's contact/notice information is as follows:

## 204 S Poindexter Street $\square$

Elizabeth City, NC 27909 mobile number 252-256-1279
e-mail address: alexanderbrich@gmail.com fax number:
except as same may be changed pursuant to Section 12.

## Major Site Plan

Application

## Contact Information

APPLICANT:
PROPERTY OWNER:

| Name: | Cedar Run Capital, LLC |
| :--- | :--- |
| Address: | $\frac{2405-F \text { Nash St. NW }}{}$ |
|  | Wilson, NC 27896 |
|  | $252-230-0632$ |
| E-Mail Address: | barnesboykin@yahoo.com |

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: had property under contract for purchase

Property Information
Physical Street Address: 6440 Caratoke Hwy., Currituck, NC 27939
Location: $\qquad$
Parcel Identification Number(s): 0094000122 E 0000
Total Parcel(s) Acreage: 1.85
Existing Land Use of Property: Vacant

## Request

Project Name: Dollar Tree - Grandy
Proposed Use of the Property: General Business
Deed Book/Page Number and/or Plat Cabinet/Slide Number: DB 1364 Pg 597

Total square footage of land disturbance activity: $\qquad$
Total lot coverage: 39,191
Total vehicular use area: 26,265
Existing gross floor area:
Proposed gross floor area: $10,062 \mathrm{sf}$

I hereby authorize county officials to enter my property for purposes of determining zoning compliance. All information submitted and required as part of this process shall become public record.

*NOTE: Form must be signed by the owner(s) of record, contract purchaser(s), or other person(s) having a recognized property interest. If there are multiple property owners/applicants a signature is required for each.


D ARCHITECTURE INTERIORS 6405 W. WILKINSON
BLLD, STE. 100
BELMONT, NC 2801
HELTDESIGN.COM
INFO@HELTDESIGN.COM ProJect Name:

DOLLAR TREE
DOLLAR TREE
'RURAL' VANILLA BOX
'RURAL' VANILLA
FOR
STOCK $\&$ TAYLI
STOCKS \& TAYLOR

PROJECT NO: 23086
PROJECT ADDRESS:
NC HWY 158/168
NC HWY 158/168
GRANDY NC (CURRITUCK COUNTY)

CORPORATE ENTITY
City COPYRIGHT:


DRAWING RELEASE:
No. DATE DESCRPTION

DRAWN BY: CHECKED BY
DATE: $08 / 24 / 23$
SHEET TITLE:
PROPOSED

SHEET NUMBER:

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| *) |  |  | (2) S-W LOXON BLOCK SURFACER A24W200 (OR EQUAL) COTING, A5500 SERRES OR EOUALL) |  |  |
| (10) | (oin |  |  |  |  |
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H E L T
$\underset{\text { ARCHITECTURE INTERIORS }}{\mathrm{E}} \mathrm{S}$ 6405 W . WILKINSSON
BLVD BLVD, STE. 100
BELMONT, NC 28012
HELTDESIGN.COM
INFO@HELTDESIGN.COM PROJECT NAME:

DOLLAR TREE 'RURAL' VANILLA BOX FOR
STOKS $\& 1$ STOCKS \& TAYLOR
CONSTRUCTION, INC

## PROJECT NO: 23086

PROJECT ADDRESS:
NC HWY 158/168 (CURRITUCK COUNTY) $\overline{\text { seAL }}$

## CORPORATE ENTITY:

 COPYRIGHT:

DRAWING RELEASE:
No. DATE DESCRPTION


DATE: 08/24/23
SHEETTITLE:
EXTERIOR
ELEVATIONS
A2.0




HELT
D ARCHITECTURE INTERIORS 6405 W. WILKINSON 6405 W. WILKINSON
BEVD.ST. 100
BELMONT, NC 28012 BELMONT, NC 28012
HELTDESIGN.COM
INFO@HELTTESIGN.COM PROJECT NAME: DOLLAR TREE
'RURAL' VANILLA BOX 'RURAL' VANILLA BOX
FOR FOR
STOCKS \& TAYLOR CONSTRUCTION, INC

## PROJеС No: 23086

 PROJECT ADDRESS:NC HWY $158 / 168$

NC HWY 158/168
GRANDY, NC (CURRITUCK COUNTY)




[^0]:    * Composite $($ Area/C $)=[(0.900 \times 0.95)+(0.640 \times 0.05)+(0.320 \times 0.25)] / 1.860$

