



SITE DATA

Project Information		
Project Name:		Faison Tract
Applicant:		KB Home Raleigh Durham Inc.
Applicant Contact Name:		Roman Acosta
Applicant Contact Number:		919-768-7976
Contact Email:		racosta@kbhome.com
Municipal Jurisdiction (Select from dropdown menu):		Zebulon
Last Updated:		Friday, August 8, 2025
Site Data:		
Total Site Area (Ac):		100.41
Existing Lake/Pond Area (Ac):		2.29
Proposed Disturbed Area (Ac):		53.00
Impervious Surface Area (acre):		21.27
Type of Development (Select from Dropdown menu):		Residential
Percent Built Upon Area (BUA):		21%
Project Density:		Low
Is the proposed project a site expansion?		No
Number of Drainage Areas on Site:		1
NOAA	1-Year, 24-Hour Storm (inches) (See NOAA Website):	2.86
	2-Year, 24-Hour Storm (inches) (See NOAA Website):	3.46
	10-Year, 24-Hour Storm (inches) (See NOAA Website):	5.14
Lot Data (if applicable):		
Total Acreage in Lots:		
Number of Lots:		
Average Lot Size (SF):		
Total Impervious Surface Area on Lots (SF):		
Average Impervious Surface Area Per Lot (SF):		
Stormwater Narrative (limit to 1,200 characters - attach additional pages with submittal if necessary):		



Project Name: Faison Tract

DRAINAGE AREA 1
STORMWATER PRE-POST CALCULATIONS

LAND USE & SITE DATA	PRE-DEVELOPMENT				POST-DEVELOPMENT			
Drainage Area (Acres)=	100.41				100.41			
Site Acreage within Drainage=	100.41				100.41			
One-year, 24-hour rainfall (in)=	2.86							
Two-year, 24-hour rainfall (in)=	3.46							
Ten-year, 24-hour storm (in)=	5.14							
Total Lake/Pond Area (Acres)=	2.40				4.51			
Lake/Pond Area not in the Tc flow path (Acres)=	2.40				4.51			
Site Land Use (acres):	A	B	C	D	A	B	C	D
Pasture								
Woods, Poor Condition								
Woods, Fair Condition								
Woods, Good Condition		17.78	31.18	23.34		10.60	15.20	11.89
Open Space, Poor Condition								
Open Space, Fair condition								
Open Space, Good Condition		9.90	7.25	10.24		10.88	14.13	16.44
Reforestation (in dedicated OS)								
Connected Impervious		0.29	0.09	0.34		6.54	8.49	6.24
Disconnected Impervious								
SITE FLOW	PRE-DEVELOPMENT T_c				POST-DEVELOPMENT T_c			
Sheet Flow								
Length (ft)=	100.00				100.00			
Slope (ft/ft)=	0.060				0.060			
Surface Cover:	Grass				Grass			
n-value=	0.240				0.240			
T _t (hrs)=	0.162				0.162			
Shallow Flow								
Length (ft)=	657.00				644.00			
Slope (ft/ft)=	0.036				0.029			
Surface Cover:	Unpaved				Unpaved			
Average Velocity (ft/sec)=	3.06				2.75			
T _t (hrs)=	0.06				0.07			
Channel Flow 1								
Length (ft)=	1600.00				1600.00			
Slope (ft/ft)=	0.020				0.020			
Cross Sectional Flow Area (ft ²)=	10.00				10.00			
Wetted Perimeter (ft)=	9.00				2.00			
Channel Lining:	Grass				Grass			
n-value=	0.035				0.035			
Hydraulic Radius (ft)=	1.11				5.00			
Average Velocity (ft/sec)=	6.46				17.60			
T _t (hrs)=	0.07				0.03			



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DRAINAGE AREA 1
STORMWATER PRE-POST CALCULATIONS

Channel Flow 2		
Length (ft)=	3600.00	3600.00
Slope (ft/ft)=	0.010	0.010
Cross Sectional Flow Area (ft ²)=	140.00	140.00
Wetted Perimeter (ft)=	75.00	75.00
Channel Lining:	Grass	Grass
n-value=	0.035	0.035
Hydraulic Radius (ft)=	1.87	1.87
Average Velocity (ft/sec)=	6.45	6.45
T _i (hrs)=	0.15	0.15
Channel Flow 3		
Length (ft)=		
Slope (ft/ft)=		
Cross Sectional Flow Area (ft ²)=		
Wetted Perimeter (ft)=		
Channel Lining:		
n-value=		
Hydraulic Radius (ft)=		
Average Velocity (ft/sec)=		
T _i (hrs)=		
T _c (hrs)=	0.45	0.41
RESULTS	PRE-DEVELOPMENT	POST-DEVELOPMENT
Composite Curve Number=	70	76
Disconnected Impervious Adjustment		
Disconnected impervious area (acre) =		
CN _{adjusted (1-year)} =	76	
High Density Only		
Volume of runoff from 1" rainfall for DA HIGH DENSITY REQUIREMENT = (ft ³) =	87,714	
1-year, 24-hour storm (Peak Flow)		
Runoff (inches) = Q* _{1-year} =	0.62	0.94
Volume of runoff (ft ³) =	226,191	343,721
Volume change (ft ³) =	117,530	
Peak Discharge (cfs)= Q _{1-year} =	39.580	52.219
2-year, 24-hour storm (LID)		
Runoff (inches) = Q* _{2-year} =	0.96	1.36
Volume of runoff (ft ³) =	350,425	496,420
Peak Discharge (cfs)= Q _{2-year} =	61.319	75.417
10-year, 24-hour storm (DIA)		
Runoff (inches) = Q* _{10-year} =	2.11	2.69
Volume of runoff (ft ³) =	768,108	979,331
Peak Discharge (cfs)= Q _{10-year} =	134.408	148.782



Project Name: **Faison Tract**

**DA SITE SUMMARY
STORMWATER PRE-POST CALCULATIONS**

SITE SUMMARY										
DRAINAGE AREA SUMMARIES										
DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10
Pre-Development (1-year, 24-hour storm)										
Runoff (in) = $Q_{pre,1-year}$ =	0.62									
Peak Flow (cfs)= Q_{1-year} =	39.580									
Post-Development (1-year, 24-hour storm)										
Proposed Impervious Surface (acre) =	21.27									
Runoff (in)= Q_{1-year} =	0.94									
Peak Flow (cfs)= Q_{1-year} =	52.219									
Increase in volume per DA (ft ³)_1-yr storm=	117,530									
Minimum Volume to be Managed for DA HIGH DENSITY REQUIREMENT = (ft ³) =	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TARGET CURVE NUMBER (TCN)										
Site Data										
SITE \SOIL COMPOSITION										
HYDROLOGIC SOIL GROUP	<u>Site Area</u>		<u>%</u>		<u>Target CN</u>					
A	0.00		0%		48					
B	28.02		28%		66					
C	37.82		38%		78					
D	34.57		34%		83					
Total Site Area (acres) =					100.41					
Percent BUA (Includes Existing Lakes/Pond Areas) =					20%					
Project Density =					Low					
Target Curve Number (TCN) =					76					
$CN_{adjusted (1-year)}$ =					76					
Minimum Volume to be Managed (Total Site) Per TCN Requirement= ft ³ =					N/A					
Site Nitrogen Loading Data										
HSG	TN export coefficient (lbs/ac/yr)		Site Acreage		N Export					
Pasture	1.2		0.00		0.00					
Woods, Poor Condition	1.6		0.00		0.00					
Woods, Fair Condition	1.2		0.00		0.00					
Woods, Good Condition	0.8		37.69		30.15					
Open Space, Poor Condition	1.0		0.00		0.00					
Open Space, Fair Condition	0.8		0.00		0.00					
Open Space, Good Condition	0.6		41.45		24.87					
Reforestation (in dedicated OS)	0.6		0.00		0.00					
Impervious	21.2		21.27		450.92					
SITE NITROGEN LOADING RATE (lbs/ac/yr)=					5.04					
Nitrogen Load (lbs/yr)=					505.95					
TOTAL SITE NITROGEN TO MITIGATE (lbs/yr)_Wendell Only=					144.47					
Site Nitrogen Loading Data For Expansions Only										
	Existing		New							
Impervious(acres)=	NA		NA							
"Expansion Area" (acres=)										
Nitrogen Load (lbs/yr)=	NA		NA							
SITE NITROGEN LOADING RATE (lbs/ac/yr)=	NA		NA							
Total Site loading rate (lbs/ac/yr)										
TOTAL SITE NITROGEN TO MITIGATE (lbs/yr)=					NA					



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**DRAINAGE AREA 1
BMP CALCULATIONS**

DRAINAGE AREA 1 - BMP DEVICES AND ADJUSTMENTS										
DA1 Site Acreage=		100.41								
DA1 Off-Site Acreage=										
Total Required Storage Volume for Site TCN Requirement (ft ³)=		N/A								
Total Required Storage Volume for DA1 1" Rainfall for High Density (ft ³)=										
Will site use underground detention/cistern?				Enter % of the year water will be reused=				Note: Supporting information/details should be submitted to demonstrate water usage.		
ENTER ACREAGE FOR ALL SUB-DRAINAGE AREAS IN DA										
HSG	Sub-DA1(a) (Ac)		Sub-DA1(b) (Ac)		Sub-DA1(c) (Ac)		Sub-DA1(d) (Ac)		Sub-DA1(e) (Ac)	
	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site	Site	Off-site
Pasture										
Woods, Poor Condition										
Woods, Fair Condition	37.69									
Woods, Good Condition										
Open Space, Poor Condition										
Open Space, Fair Condition										
Open Space, Good Condition	16.46		3.28		9.12		12.59			
Reforestation (in dedicated OS)										
Impervious	0.66		2.83		7.08		10.70			
Sub-DA1(a) BMP(s)										
Device Name (As Shown on Plan)	Device Type		Water Quality Volume for Sub-DA (ft ³)		Provided Volume that will drawdown 2-5 days (ft ³)		Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
Post POI 1 (Bypass)			-		-		0%	69.10	0.00	
							0%	69.10	0.00	
							0%	69.10	0.00	
							0%	69.10	0.00	
							0%	69.10	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							69.10			
Sub-DA1(b) BMP(s)										
If Sub-DA1(b) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type		Water Quality Volume for Sub-DA (ft ³)		Provided Volume that will drawdown 2-5 days (ft ³)		Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
SCM 1	Wet Detention Basin		-		14,129		25%	61.96	15.49	
							0%	46.47	0.00	
							0%	46.47	0.00	
							0%	46.47	0.00	
							0%	46.47	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							46.47			
Sub-DA1 (c) BMP(s)										
If Sub-DA1(c) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):										
Device Name (As Shown on Plan)	Device Type		Water Quality Volume for Sub-DA (ft ³)		Provided Volume that will drawdown 2-5 days (ft ³)		Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
SCM 2	Wet Detention Basin		-		36,016		25%	155.57	38.89	
							0%	116.68	0.00	
							0%	116.68	0.00	
							0%	116.68	0.00	
							0%	116.68	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							116.68			



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**DRAINAGE AREA 1
BMP CALCULATIONS**

Sub-DA1(d) BMP(s)							
If Sub-DA1(d) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will drawdown 2-5 days (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
SCM 3	Wet Detention Basin	-	66,000	25%	234.39	58.60	
				0%	175.80	0.00	
				0%	175.80	0.00	
				0%	175.80	0.00	
				0%	175.80	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):			175.80				
Sub-DA1(e) BMP(s)							
If Sub-DA1(e) is connected to upstream subbasin(s), enter the nitrogen leaving the most upstream subbasin(lbs):							
Device Name (As Shown on Plan)	Device Type	Water Quality Volume for Sub-DA (ft ³)	Provided Volume that will drawdown 2-5 days (ft ³)	Nitrogen Removal Efficiency	Sub-DA Nitrogen (lbs)	Nitrogen Removed (lbs)	Drawdown Time (hours)
		-		0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
				0%	0.00	0.00	
Total Nitrogen remaining leaving the subbasin (lbs):							
DA1 BMP SUMMARY							
Total Volume Treated (ft ³)=			116,145				
Nitrogen Mitigated(lbs)=			112.98				
1-year, 24-hour storm							
Post BMP Volume of Runoff (ft ³) _(1-year) =			227,576				
Post BMP Runoff (inches) = Q* _(1-year) =			0.62				
Post BMP CN _(1-year) =			69				
Post BMP Peak Discharge (cfs)= Q _(1-year) =			33.190				
2-year, 24-hour storm (LID)							
Post BMP Volume of Runoff (ft ³) _(2-year) =			380,275				
Post BMP Runoff (inches) = Q* _(2-year) =			1.04				
Post BMP CN _(2-year) =			71				
Post BMP Peak Discharge (cfs)= Q _(2-year) =			70.750				
10-year, 24-hour storm (DIA)							
Post BMP Volume of Runoff (ft ³) _(10-year) =			863,186				
Post BMP Runoff (inches) = Q* _(10-year) =			2.37				
Post BMP CN _(10-year) =			89				
Post BMP Peak Discharge (cfs)= Q _(10-year) =			187.670				



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DA SITE SUMMARY
BMP CALCULATIONS

BMP SUMMARY											
DRAINAGE AREA SUMMARIES											
DRAINAGE AREA:	DA1	DA2	DA3	DA4	DA5	DA6	DA7	DA8	DA9	DA10	
Pre-Development (1-year, 24-hour storm)											
Runoff (in)=Q* _{1-year} =	0.62										
Peak Flow (cfs)=Q _{1-year} =	39.580										
Post-Development (1-year, 24-hour storm)											
Target Curve Number (TCN) =	76										
Post BMP Runoff (inches) = Q* _(1-year) =	0.62										
Post BMP Peak Discharge (cfs)= Q _{1-year} =	33.190										
Post BMP CN _(1-year) =	69										
Post-BMP Nitrogen Loading											
TOTAL SITE NITROGEN MITIGATED (lbs)=	112.98										
SITE NITROGEN LOADING RATE (lbs/ac/yr)=	3.91										
TOTAL SITE NITROGEN LEFT TO MITIGATE_Wendell Only (lbs)=	31.49										