

Appendix D – Jurisdictional Streams, Wetlands, & Buffer Impacts Tables (D-1 through D-11)

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D-1 Carolina North – Impacts to Wetlands Within the Development Footprint

Impacts to Wetlands Within Development Footprint*		
Wetland	Acres	Mitigation Ratio
AA	0.014	1:1
AB	0.572	1:1
XA	0.025	2:1
XB	0.06	2:1
Y	0.13	1:1
Z	1.214	1:1
TOTAL	2.015 Acres	
* No impacts to streams and buffers within the development footprint		

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D-2 Carolina North Impacts to Wetlands and Streams Outside the Development Footprint

Impacts to Wetlands Outside the Development Footprint		
Wetland	Acres	Mitigation Ratio
A	0.099	1:1
X	0.143	2:1
2	0.005	2:1
3	0.011	2:1
T (5)	0.014	2:1
6	0.037	2:1
17	0.023	2:1
18	0.065	2:1
TOTAL	0.397 Acres	
Impacts to Streams Outside the Development Footprint		
Stream	Linear Feet	Mitigation Ratio
1	31	2:1
2	27	2:1
5A*	100	2:1
8	47	2:1
13	60	2:1
14A	174**	2:1
14B	20	2:1
Bolin Creek	21	2:1
Crow Br (Wetland A)	72	2:1
TOTALS	378	
* stream 5A was classified as "isolated" by regulatory agencies		
** 174 lf of stream, classified as "unimportant" by regulatory agencies, no mitigation required, not included in the total		

Table D-3 Summary of Impacts – Alternatives Analysis

	Carolina North	Alternative 1	Alternative 2	No-Build
Impacts to streams	378 feet	4,968 feet	7,500 feet	0 feet
Impacts to wetlands	2.5 acres	2.7 acres	2.6 acres	0 acres
Impacts to Jordan Lake Buffers	0.9 acres	9.6 acres	2.6 acres	0 acres

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Table D-4 Summary of Criteria – Alternatives Analysis

	Adequate Acreage- supports 50 year growth plan	Access to Public Transportation	Site within 2 mile radius of Main Campus
Alternative 1		√	√
Alternative 2	√		√
Carolina North Property	√	√	√
No-build Alternative	University needs space to grow, therefore not a viable alternative	n/a	n/a

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Table D-5 Summary of Impacts for Carolina North – Avoidance and Minimization

IMPACT TABLE**		
PLAN	WETLAND (acres)	STREAM (linear feet)
1998	4.83 *	9714 *
2000	3.56 *	5212 *
2001	4.77 *	9312 *
2004	1.53 *	1767 *
2007	2.95 *	807 *
Revised 2007 (on 947-acre site only)	2.32	203

(Summary of Figures A-16 through A-21 impacts)

*Does not include impacts to wetlands and streams due to required off-site infrastructure improvements. (see Sections 8.2 and 8.3, Appendix C and Appendix A, Figure A-4 for information regarding total impacts, on and off site.)

** Wetland acreage and linear footage of streams impacted were calculated in ESRI's ARCGIS ArcMap calculating lengths of stream and areas of wetland using the calculate tool in the attribute table.

Table D-6 Wetland Impacts Within the Approximately 947-acre Carolina North Boundary

Wetland	Area (acres)	Impact (acres)
A	0.861	0.099
A1	0.403	0
B	0.25	0
B1	0.041	0
C	1.64	0
C1	0.243	0
D	0.03	0
D1	0.041	0
E	0.02	0
F	0.57	0
G	0.16	0
H	0.22	0
I	1.34	0
J	0.01	0
K	0.36	0
L	0.24	0
LA	0.03	0
N	0.14	0
O	0.72	0
P	0.06	0
Q	0.04	0
R	0.04	0
S	0.28	0
T (5)	0.02	0.14
U	0.01	0
V	0.47	0
W	0.14	0
X	0.03	0.143
XA	0.025	0.025
XB	0.06	0.06
Y	0.13	0.13
Z	1.214	1.214
AA	0.014	0.014
AB	0.572	0.572
Totals	10.42493	2.397

Table D-7 Stream Impacts Within the Approximately 947-acre Carolina North Boundary

Stream	Length (ft)	Impact (ft)
Bolin Creek	6,821	0
Crow Branch	5,508	72
1	325	32
3	425	0
4	370	0
5A	245	100
5B	125	0
8	494	0
12A	232	0
14A	2,546	174*
16	1,881	0
19	449	0
20	247	0
21	131	0
22	932	0
23	1,086	0
24	1,312	0
25	1,017	0
26	2,057	0
27A	1,823	0
27B	1,054	0
Totals	29,079	204
*classified as unimportant by USACE, no impact		

D-8 Summary Table of Jordan Lake Buffer Impacts

Jordan Lake Buffer Impacts Summary - Location and Amount		
Streams	Zone 1 Ft.²	Zone 2 Ft.²
5A	6,255	3,110
Crow Branch (Wetland A)	5,211	2,642
2	2,805	2,966
8	3,825	2,799
13	3,700	1,915
Bolin Creek near Estes Drive Ext.	1,809	1,205
TOTALS(Ft²)	23,605	14,637
TOTALS (Ac)	0.54	0.34

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Phase 1: Carolina North Stream and Wetland Impact

Wetlands				
Wetland	Impact (ac)	Mitigation Ratio	Mitigation Cost	
			\$62,210/acre	
2	0.005	2:1	0.010	\$622
SUBTOTAL	0.005		0.010	\$622
rounded up to the nearest .25 acre*			0.250	\$15,553

*note-there is an overpayment for wetland mitigation credits in Phase 1 of \$14,931 (\$15,553-\$622) due to acreage rounding requirements of the mitigation credit supplier:

Streams				
Stream	Impact (lf)	Mitigation Ratio	Mitigation Cost	
			\$338/lf	
1	31	2:1	62	\$20,956
SUBTOTAL	31			\$20,956

Jordan Lake Buffer Impacts				
Stream	Impact (lf)	Zone 1 (ft ²)	Zone 2 (ft ²)	Mitigation Cost
		3:1	1.5:1	\$.96/sf
1*	0	0	0	\$0
total impact	0	0	0	\$0

* Jordan Lake buffer rules do not apply to stream 1

TOTAL WETLAND + STREAM + BUFFER =	\$36,509
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Phase 2: Carolina North Stream and Wetland Impact

Table A

Wetlands					
Wetland	Impact (ac)	Mitigation Ratio		Mitigation Cost	
				\$62,210/acre	
A	0.099	1:1		0.099	\$6,159
AB	0.572	1:1		0.572	\$35,584
3	0.011	2:1		0.022	\$1,369
T (5)	0.014	2:1		0.028	\$1,742
6	0.037	2:1		0.074	\$4,604
17	0.023	2:1		0.046	\$2,862
18	0.065	2:1		0.130	\$8,087
SUBTOTAL	0.821			0.971	\$60,406
rounded up to the next .25 acre				1.000	\$62,210
TOTAL (minus credit overpayment in Phase 1 of \$14,931)					\$47,279

Streams					
Stream	Impact (lf)	Mitigation Ratio		Mitigation Cost	
				\$338/lf	
2	27	2:1		54	\$18,252
8	47	2:1		94	\$31,772
13	60	2:1		120	\$40,560
14 (adjacent to Estes Drive)	20	2:1		40	\$13,520
Bolin Creek	21	2:1		42	\$14,196
Crow Branch (Wetland A)	72	2:1		144	\$48,672
SUBTOTAL	247				\$166,972

Jordan Lake Buffer Impacts **					
Stream	Impact (lf)	Zone (ft ²)		Mitigation Cost	
		3:1	1.5:1	\$.96/sf	
2	27	2,805	2,966		\$12,349
8	47	3,825	2,799		\$15,047
13	60	3,700	1,915		\$13,414
14 (adjacent to Estes Drive)	20				
Bolin Creek	21	1,809	1,205		\$6,945
Crow Branch (Wetland A)	72	5,211	2,642		\$18,812
total impact	247	17,350	11,527	28,877	\$66,567
total required mitigation		52,050	17,291	69,341	\$66,567
credit for stream restoration		22,680	15,120	37,800	\$36,288
SUBTOTAL: net impact		29,370	2,171	31,541	\$30,279

** please refer to figures in Appendix C for individual buffer area calculations

TOTAL WETLAND + STREAM + BUFFER =	\$244,530
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Phase 2: Carolina North Stream and Wetland Impact

Table B

Wetlands					
Wetland	Impact (ac)	Mitigation Ratio		Mitigation Cost	
				\$62,210/acre	
A	0.099	1:1		0.099	\$6,159
X*	0.143	2:1		0.286	\$17,792
XA*	0.025	2:1		0.050	\$3,111
XB*	0.06	2:1		0.120	\$7,465
Y	0.13	1:1		0.130	\$8,087
Z	1.214	1:1		1.214	\$75,523
AA	0.014	1:1		0.014	\$871
AB	0.572	1:1		0.572	\$35,584
3	0.011	2:1		0.022	\$1,369
T (5)	0.014	2:1		0.028	\$1,742
6	0.037	2:1		0.074	\$4,604
17	0.023	2:1		0.046	\$2,862
18	0.065	2:1		0.130	\$8,087
TOTALS	2.407			2.785	\$173,255
rounded up to the next .25 acre				3.000	\$186,630
TOTAL (minus credit overpayment in Phase 1 of \$14,931)					\$171,699

* isolated wetlands

Streams					
Stream	Impact (lf)	Mitigation Ratio		Mitigation Cost	
				\$338/lf	
2	27	2:1		54	\$18,252
5*	100	2:1		200	\$67,600
8	47	2:1		94	\$31,772
13	60	2:1		120	\$40,560
14 (adjacent to Estes Drive)	20	2:1		40	\$13,520
Bolin Creek	21	2:1		42	\$14,196
Crow Branch (Wetland A)	72	2:1		144	\$48,672
SUBTOTAL	347			694	\$234,572

*isolated stream

Jordan Lake Buffer Impacts**					
Stream	Impact (lf)	Zone 1 (ft ²)	Zone 2 (ft ²)	Mitigation Cost	
		3:1	1.5:1	\$.96/lf	
2	27	2,805	2,966		\$12,349
5*	100	6,255	3,110		\$22,493
8	47	3,825	2,799		\$15,047
13	60	3,700	1,915		\$13,414
14 (adjacent to Estes Drive)	20				
Bolin Creek	21	1,809	1,205		\$6,945
Crow Branch (Wetland A)	72	5,211	2,642		\$18,812
total impact	347	23,605	14,637	38,242	\$89,060
total required mitigation		70,815	21,956	92,771	\$89,060
credit for stream restoration		22,680	15,120	37,800	\$36,288
SUBTOTAL: net impact		48,135	6,836	54,971	\$52,772

** please refer to figures in Appendix C for individual buffer area calculations

TOTAL WETLAND + STREAM + BUFFER =	\$459,043
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