BHC RHODES
Civil Engineering • Surveying • Utilities

May 2, 2019

City of Lee's Summit Missouri
Development Services
220 SE Green
Lee's Summit, MO 64063

Subject: **Taco Bell, Woods Chapel**
Lot 7B-1, Chapel Ridge
Stormwater Compliance Letter

The proposed Taco Bell and Coffee shop located on Lot 7B-1 at the Chapel Ridge development does not have existing storm sewer infrastructure in place. The improvements submittal along with this letter have the runoff from the site collected along a series of storm inlets and conveyed by underground pipe to the existing inlet in the Price Chopper parking lot. The downstream pipe has the capacity to carry the 100-year storm event as required by APWA 5600.

The total drainage area of the existing storm inlet is approximately 4.14 acres. The proposed improvements account for 0.84 acres. This area is captured in an underground system and conveyed through the inlet to a detention pond downstream. The remaining 3.27 acres is captured by the inlet as overland flow. Attached is a drainage area map for the inlet. The drainage area is 79% impervious and has a rational C value of .776 based on the APWA composite area equation. Below is a table of the anticipated runoff from the 2, 5, 10, 50, and 100-year storm events. The downstream pipe is a 30" corrugated metal pipe with a slope of 1.62%. Using Manning's equation, the pipe has a capacity of 40.05 cfs. The pipe has the capacity for the proposed development in the 100-year storm event.

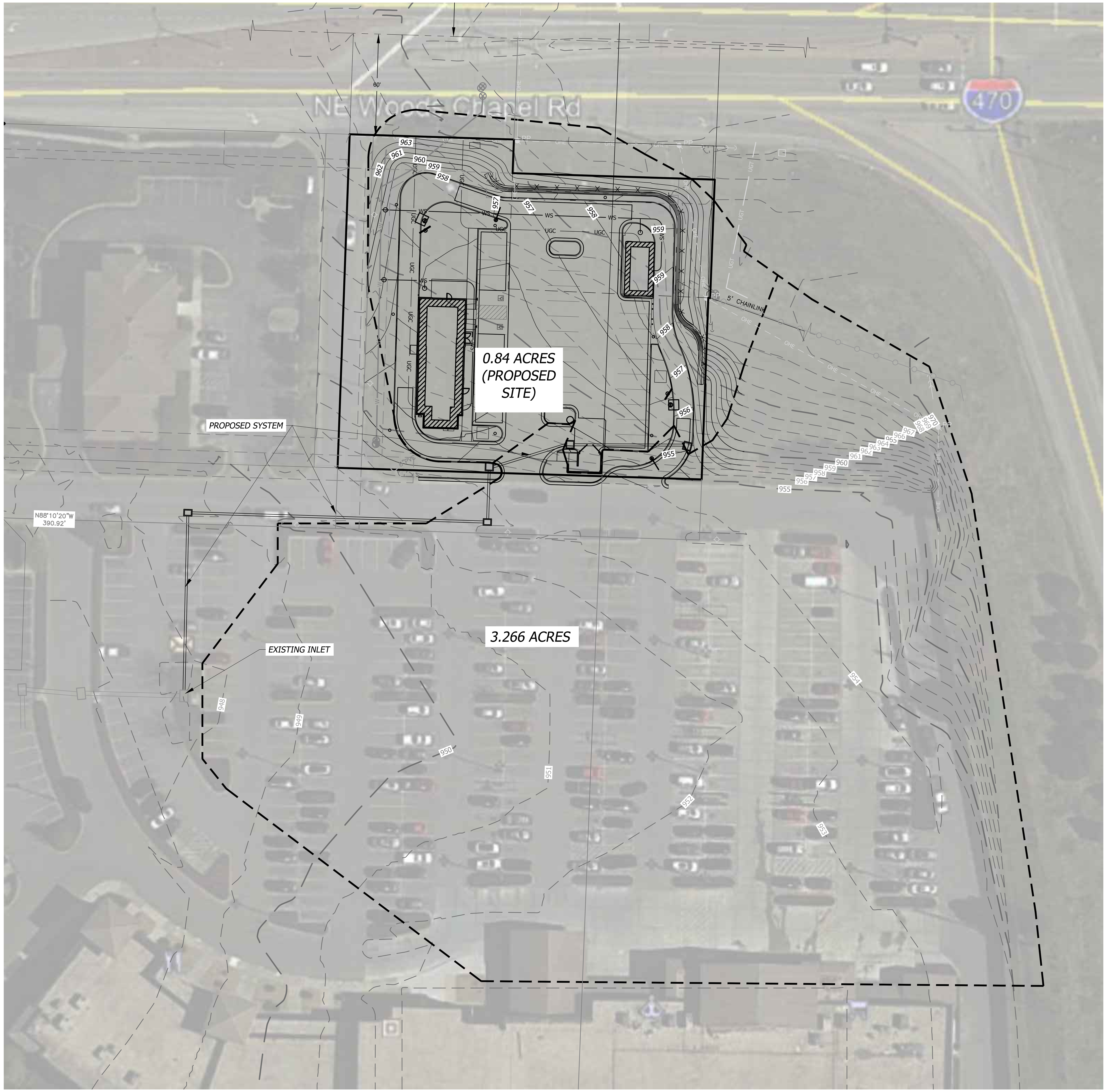
	AREA					RUNOFF		
EVENT	TOTAL (AC)	TO INLET (AC)	INTESITY (IN/HR)	k	C	TO INLET (CFS)	TOTAL (CFS)	PIPE CAPACITY (CFS)
2	4.14	3.27	5.16	1	0.776	13.09	16.58	40.05
5	4.14	3.27	7.04	1	0.776	17.86	22.61	40.05
10	4.14	3.27	8.17	1	0.776	20.71	26.23	40.05
50	4.14	3.27	9.02	1.2	0.776	27.42	34.73	40.05
100	4.14	3.27	9.91	1.25	0.776	31.39	39.75	40.05

The ultimate outfall of the system is an above ground pond north of Woods Chapel Road between Troon Drive and Ralph Powell Road. Based on conversations with staff and a previous report prepared by others this pond has the capacity for our proposed runoff. Additional on site detention is not required.

If you have any further questions, feel free to contact me at 913-663-1900 or by email at jay.odell@ibhc.com

Sincerely,

Jay D. O'Dell, P.E.
Project Engineer
BHC Rhodes
7101 College Blvd, Suite 400
Overland Park, KS 66210



SITE CHARACTERISTICS	
IMPERVIOUS	142982
PERVIOUS	37212
TOTAL	180194
%	0.793489
Rational C	0.776094

DRAINAGE LEGEND

980	PROPOSED FINISH GRADE MAJOR CONTOUR
982	PROPOSED FINISH GRADE MINOR CONTOUR
980	EXISTING GRADE MAJOR CONTOUR
982	EXISTING GRADE MINOR CONTOUR
	PROPOSED STORM SEWER LINE
RD	PROPOSED ROOF LINE DRAIN
ℓ	PROPERTY LINE
R/W	RIGHT-OF-WAY LINE

GRAPHIC SCALE
40 0 40

Rev.	Date	Description	By	App.

BHC RHODES
Civil Engineering • Surveying • Utilities
7101 College Blvd., Suite 400
Overland Park, Kansas 66210
p. (913) 663-1900 f. (913) 663-1633

Prepared For:

PROPROSED DRAINAGE MAP

Design: Drawn:
Checked:
Issue Date:
Project Number:

EX1

May 02, 2019 – 4:56pm Plotted By: jay.odell V:\026040–First Street Development – Master\026040.08–Woods Chapel\04–DWG\Eng\Sheet\Exhibits\OVERALL DRAINAGE MAP.dwg Layout: Pipe Plan