Stormwater Management Report

KFC, Dollar General and Express Car Wash

5510 Warrensville Center Road
Maple Heights, Cuyahoga County, Ohio

WEG Project No. 20200063
October 2020

Prepared by:

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PURPOSE OF STUDY

The purpose of this study is to analyze the existing and proposed storm water volumes for the exiting property on Warrensville Road that will be re-developed and split in to 3 different parcels.

SITE LOCATION

The site is located on the west side of Warrensville Center Road north of Rockside Road and south of Libby Road, in the City of Maple Heights in Cuyahoga County, Ohio.

CURRENT CONDITIONS, WATERSHED, AND WETLAND ANALYSIS

The original existing property encompassed approximately 4.24 acres of land. On the property was a building with associated parking lot. Over the course of time the building became vacant.

At the beginning of 2019, the northerly portion of the site was split off and a Kentucky Fried Chicken (KFC) restaurant and parking was constructed. The remaining portion of the site remained untouched.

The existing site generally slopes from the east to the west into an existing underground detention system. This will continue to store stormwater on site..

The USDA Natural Resources Conservation Service Web Soil Survey database indicates that the site primarily consists of Ua, Udorthents, loamy, as downloaded from their website in October 2020.

PROPOSED SITE DESCRIPTION

This project consists of splitting off approximately 1.10 acres of land, immediately south of the KFC and constructing a new Dollar General Store with an adjoining parking area. The site will be graded to contain the stormwater via a storm sewer system that discharges into the existing storm sewer / detention system that is along the westerly side of the site.

WATER QUALITY

The original development on the property was a building and associated parking areas. Once the property became vacant the owner has decided to split the property into multiple parcels for development. The first property split off was for the KFC restaurant. That parcel of land is approximately 0.92 acres of land. Because the property split off is less than an acre, and the impervious area was decreased, it was the determination of the City Engineer to not require any stormwater management with that development as long as when the remaining parcel was re-developed, water quality and stormwater calculations would include the KFC property as part of calculations. This was agreed to by the property owner.

To determine the water quality requirements, we have analyzed both the existing conditions, prior to re-development versus the anticipated post development conditions. Per the Ohio EPA NPDES Phase II permit OHC000005, Issuance Date; April 23, 2018, the re-development requirements are that if there is "*a 20 percent net reduction of the site's volumetric runoff coefficient through impervious area reduction with soil restoration or replacing impervious roof area with green roof (for these purposes green roofs shall be*

considered pervious surface). Based on this requirement we have determined the following volumetric runoff coefficients:

Pre-redevelopment Rv	=	0.69
Post-redevelopment Rv	=	0.55

+

Decrease: (0.69 – 0.55) / 0.69	=	20.3% decrease

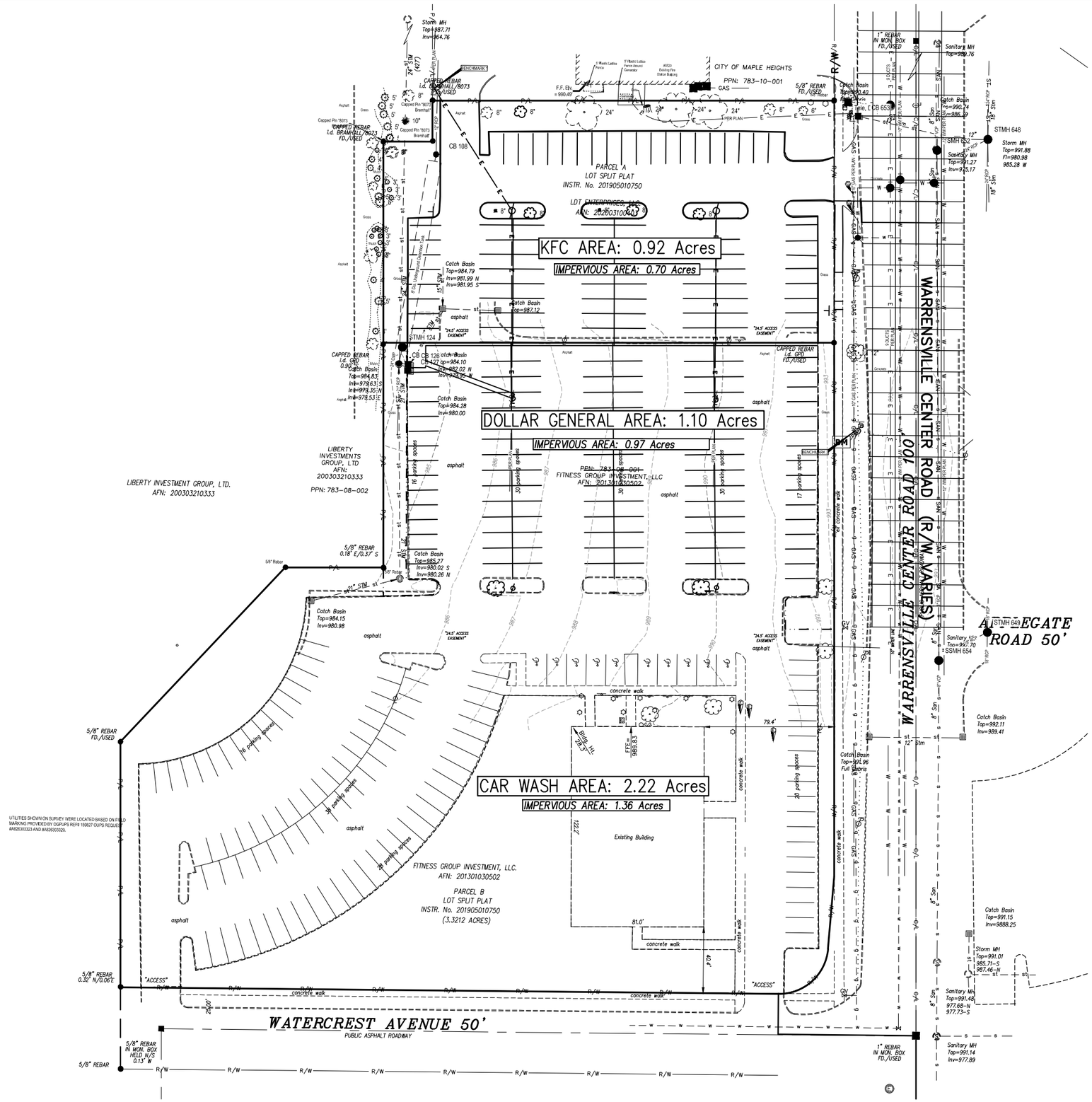
Based on the decrease of the volumetric runoff coefficient, Rv, between pre and post re-development in excess of 20%, there is no Water Quality treatment required per the OEPA NPDES permit.

DETENTION

The City of Maple Heights requires that the post re-developed site flows not exceed the pre re-development flows. As noted in the Water Quality portion noted above, the volumetric runoff coefficient decreases by over 20%. This indicates that there will be a significant decrease in runoff of the site, therefore the existing detention system on the westerly side of the site will be more then adequate to contain the re-developed sites stormwater flows.

DRAINAGE MAPS

I:\2020\20200063 - DG Maple Heights OH\1 - Current Drawings\20200063 DG Maple Heights Prelim Plan NEW LAYOUT.dwg, 10/9/2020 9:52:33 AM



PRE-REDEVLOPMENT LAND USE SUMMARY

	IMPERVIOUS ACRES	PERVIOUS ACRES	TOTAL ACRES
KFC	0.70	0.22	0.92
DOLLAR GENERAL	0.97	0.13	1.10
CAR WASH	1.36	0.86	2.22
TOTALS	3.03	1.21	4.24

Rv (volumetric runoff coefficient) = 0.05 + 0.9i
= 0.05 + (0.9)(3.03/4.24)
= 0.69

BASIS OF BEARINGS
THE BASIS OF BEARINGS FOR THIS SURVEY IS GRID NORTH OF THE OHIO STATE PLANE COORDINATE SYSTEM, NORTH ZONE, NAD83 (2011).

BENCHMARK
NAIL LOCATED ON WEST SIDE OF EXISTING POWER POLE IN WEST RIGHT OF WAY OF WARRENSVILLE CENTER ROAD.

ELEVATION = 993.91

DEVELOPER
ZAREMBA GROUP
14600 DETROIT AVE.
LAKEWOOD, OH 44107
(216) 221-6600

SURVEY PERFORMED BY:
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SCALE: 1" = 20'

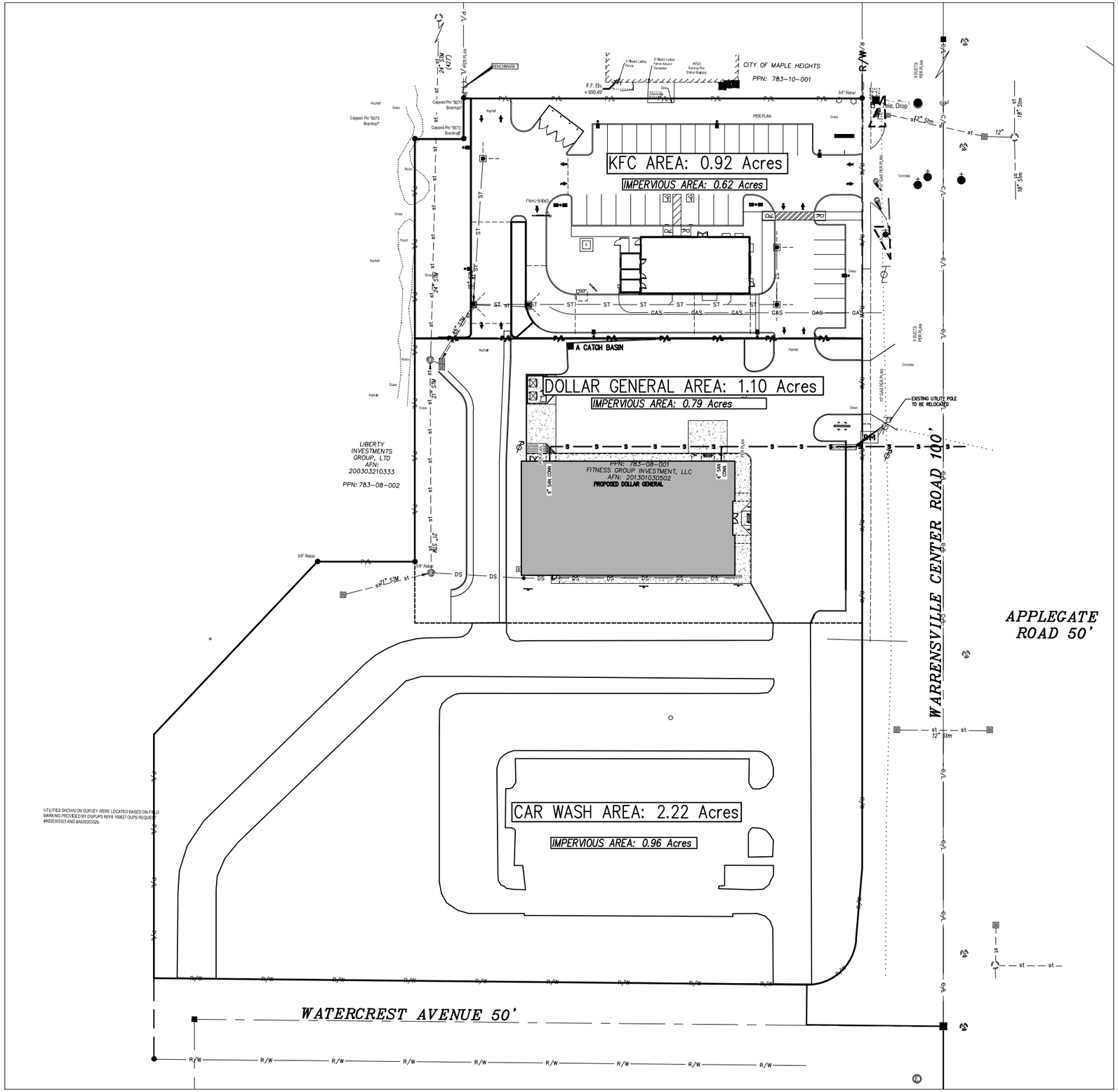
STATE OF OHIO
MICHAEL J. WOHLWEND
No. 69133
REGISTERED
PROFESSIONAL ENGINEER

ISSUES AND REVISIONS

DOLLAR GENERAL
5510 WARRENSVILLE CENTER ROAD
MAPLE HEIGHTS, CUYAHOGA COUNTY, OHIO

DATE 09-30-2020
PROJECT NUMBER 20200063
EXISTING CONDITIONS DRAINAGE MAP
DR-1

I:\2020\20200063 - DG Maple Heights OH\1 - Current Drawings\20200063 DG Maple Heights Prelim Plan NEW LAYOUT.dwg, 10/9/2020 9:52:43 AM



POST-REDEVELOPMENT LAND USE SUMMARY

	IMPERVIOUS ACRES	PERVIOUS ACRES	TOTAL ACRES
KFC	0.62	0.30	0.92
DOLLAR GENERAL	0.79	0.31	1.10
CAR WASH	0.96	1.26	2.22
TOTALS	2.37	1.87	4.24

Rv (volumetric runoff coefficient) = 0.05 + 0.9i
= 0.05 + (0.9)(2.37/4.24)
= 0.55

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PROPOSED DRAINAGE MAP

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