

February 9, 2022

Mr. Michael Domine
DPS Director
City of Northville – Department of Public Works

MEMORANDUM: Site Groundwater Elevations in Southern Portion of Site

Mr. Domine,

In response to comments during the February 1, 2022 Planning Commission meeting and the letter comments from Mr. Don Webb, we offer the following discussion on the location of Single Family Homes on the development.

Existing Groundwater Depths:

The attached sketch shows existing ground elevations and water table depths / elevations at each soil boring location. Soils boring data is taken from the soils investigations report prepared by McDowell & Associates, dated June 7, 2018.

In the racetrack area the existing ground elevation is approximately EL 770.0 to 771.0 in the middle of the track. The ground water elevation in the area is generally at EL 767.0 for a ground water depth of approximately 3-4 ft. In the area between Beal Street and Fairbrook Street, where the Single Family Homes are currently shown, the existing ground elevation is variable since the site elevations rise quickly as you move north on the site from the track area. The ground water depths in this portion of the site are approximately 11-15' deep. This portion of the site is a much better location for units with basements because basements can be installed below existing grade, limiting the amount of fill needed to final grade the site. In the racetrack area it is estimated that a minimum of 8 ft of structural fill will be required to raise the ground enough to keep the proposed basements above the existing groundwater elevation.

Basement Depth Requirements:

As discussed in the Planning Commission meeting, at the price point for the Single Family Homes proposed in the development, all of the units will be provided with a 10' basements pour. Ground water elevations that are at or above the basement footing elevations can cause basement flooding and cause the basement sump pumps to run continuously. A 10' basement will require a 10' high basement wall, a 1' deep footing and approximately 6" of stone subbase. These basements should be placed 1-2 ft above the observed groundwater, at a minimum, to account for seasonal fluctuations in the ground water elevations. For design, the Finished Grade of the Single Family units should be set 12-13' above the observed ground water elevations at a minimum.

Location of the Single Family Units:

From a pure existing ground water depth perspective, the area of the site between Beal Street and Fairbrook Street is the ideal location for Single Family units on the development. The 11-15' existing groundwater depths will allow basement excavations and limit the amount of fill required to properly grade the site and keep the basements above the ground water.

In the racetrack area, the groundwater elevation is approximately El 767.0. The minimum Finish Grade for a Single Family unit with a 10' basement is 779.0 - 780.0, preferable higher. This would require the proposed grade of the racetrack area to be raised approximately 8'-10' with structural fill. In order to raise the site this high, it is estimated approximately 100,000 – 125,000 c.y. of structure fill would be required at a cost of \$2.3 - \$3.0 million dollars (\$22.50 / c.y.). This fill cost is not financially feasible for this development. The racetrack area of the site should be kept as low as possible, at elevations close to existing, to limit the amount of fill required in the southern portion of the development.

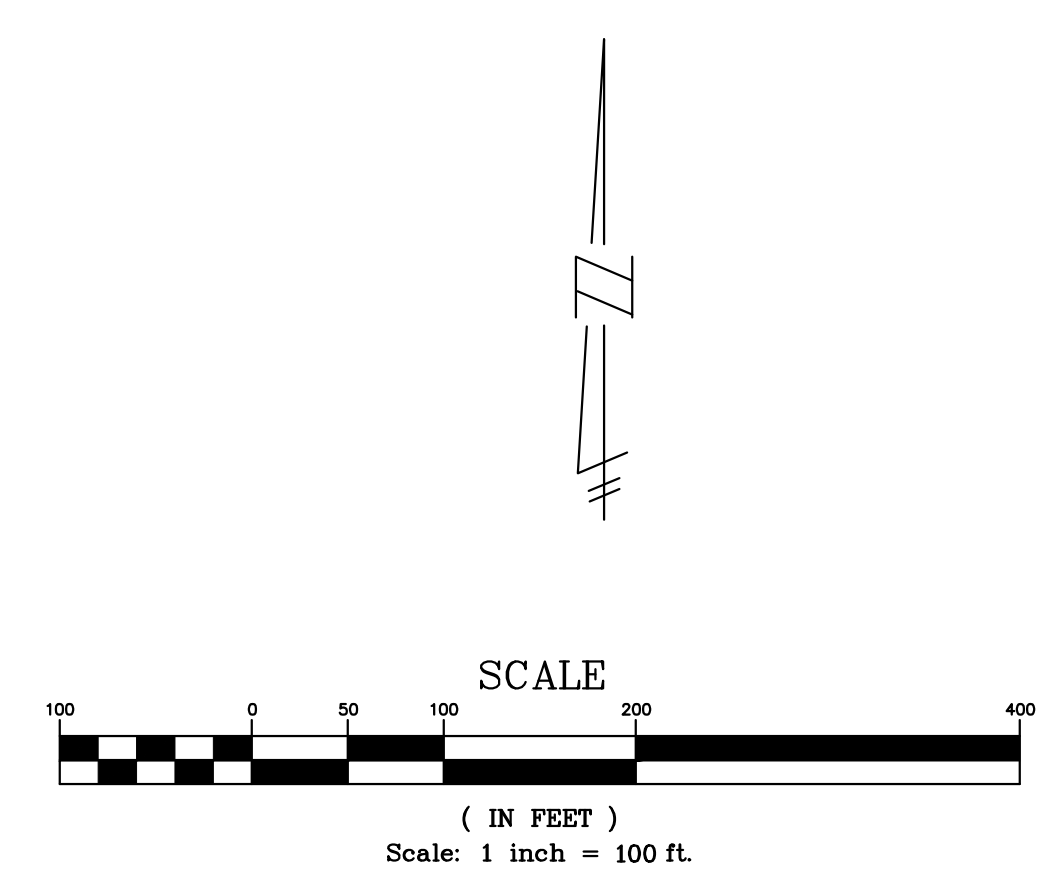
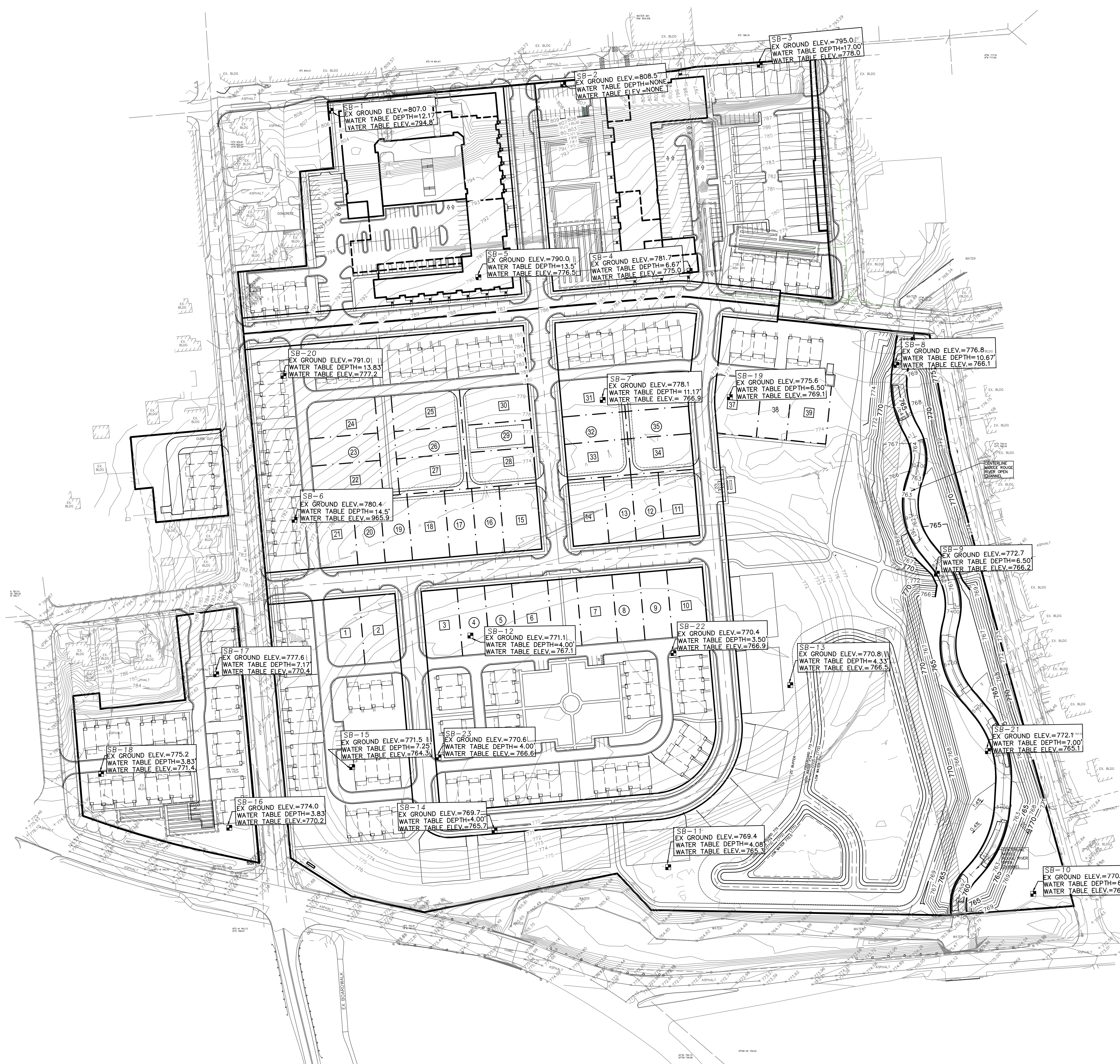
Final Site Plan Grading Revisions:

SKL has discussed the basement depth and fill requirements with Mr. Nicolas Bayley of OHM. There are opportunities to lower the southern portion of the development significantly by lowering the High Water Elevation of the proposed detention basin. The road elevations and Finish Grade Elevations in the racetrack area can potentially be lowered as much as 4 ft, reducing the amount of fill and making the development financially feasible. Future Site Plan submittals will be revised to reflect this lower elevation in the southern portion of the development.

Seiber Keast Lehner, Inc.



Robert J Emerine, PE



NOTE:
WATER TABLE DEPTH INFORMATION PER MCDOWELL & ASSOCIATES SOILS INVESTIGATION REPORT, MARCH 16, 2018

LEGEND	
	EXISTING PAVEMENT (ASPHALT)
	PROPOSED PAVEMENT (ASPHALT)
	EXISTING SIDE WALK (CONCRETE)
	PROPOSED SIDE WALK (CONCRETE)
	EXISTING CONCRETE CURB AND GUTTER
	PROPOSED CONCRETE CURB AND GUTTER
	EXISTING STORM SEWER
	PROPOSED STORM SEWER
	EXISTING SANITARY SEWER
	PROPOSED SANITARY SEWER
	EXISTING WATER MAIN
	PROPOSED WATER MAIN
	EXISTING MANHOLE
	PROPOSED MANHOLE
	EXISTING CATCH BASIN W/STREAM GUARD
	PROPOSED CATCH BASIN W/STREAM GUARD
	EXISTING CURB INLET W/SILT SAC
	PROPOSED CURB INLET W/SILT SAC
	EXISTING END SECTION
	PROPOSED END SECTION
	EXISTING GATE VALVE
	PROPOSED GATE VALVE
	EXISTING HYDRANT
	PROPOSED HYDRANT
	EXISTING FLOOD PLAIN
	PROPOSED FLOOD PLAIN
	EXISTING CONTOURS
	PROPOSED CONTOURS
	EXISTING SPOT ELEVATION
	PROPOSED SPOT ELEVATION
	EXISTING SURFACE DRAINAGE
	PROPOSED SURFACE DRAINAGE
	EXISTING OVERFLOW ROUTE
	PROPOSED OVERFLOW ROUTE
	EXISTING TREE FENCE
	PROPOSED TREE FENCE
	EXISTING SILT FENCE
	PROPOSED SILT FENCE
	EXISTING PROPOSED DRIVEWAY LOCATION
	PROPOSED LIMIT OF DISTURBANCE

P.U.D. PRELIMINARY SITE PLAN
SECTION 3, T1S, R8E, CITY OF NORTHVILLE
WAYNE COUNTY, MICHIGAN

REVISIONS		UTILITY WARNING
NO.	ITEM	DATE
Know what's below. Call before you dig.		UNDERGROUND UTILITY LOCATIONS AS SHOWN ON THE PLAN, WERE OBTAINED FROM UTILITY OWNER AND NOT FIELD LOCATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF AND/OR RELOCATION OF ALL UTILITIES THAT MAY INTERFERE WITH CONSTRUCTION.
DATE: 11-15-21	DESIGNED BY: A.A.	JOB NUMBER: 21-001
	CHECKED BY: R.E.	DRAWING FILE: 21001LY-SP.DWG

WATER TABLE DATA

	SEIBER, KEAST ENGINEERING, L.L.C. CONSULTING ENGINEERS 39205 COUNTRY CLUB DRIVE • SUITE C8 • FARMINGTON HILLS, MI • 48331 PHONE: 248.308.3331 EMAIL: info@seiberkeast.com	SHEET 1
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