



Memorandum

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PLANNING DEPARTMENT
FEB 2 2022
TOWN OF YORKTOWN

To: Shelby Hang, Ecogy Energy
From: Michael Gagnon, PE, SLR
Date: February 1, 2022
Subject: Kitchwawan Ground Mount Solar – Preliminary Stormwater Results

Stormwater watershed cover and peak-flow calculations were calculated based on the solar facility layout received from Ecogy Energy on January 27, 2022, for the project located at 716 Kitchwawan Road in Ossining, New York. The proposed layout will include tree clearing south of the array and the installation of a new 18-foot-wide gravel access road. The revised layout contained additional tree clearing, which resulted in an increase in proposed peak-flows, as shown in Table 1.

**Table 1. Peak-Flow Rates for Revised Layout
Without Stormwater Management Basin Attenuation**

	1-Year (C _{pv})	10-Year (Q _p)	25-Year	100-Year (Q _f)
Existing	7.97	35.42	50.53	75.1
Proposed	8.16	35.65	50.85	75.58
Change	0.19	0.23	0.32	0.48
Percent Change	2%	1%	1%	1%

Since proposed peak-flow rates exceed existing rates for all storm events, various stormwater management options were reviewed to meet Town requirements for no net increase in peak flows. Consequently, it was determined that the installation of a stormwater management basin would attenuate peak-flow rates and result in an overall reduction for all storm events. For the purposes of this preliminary analysis, the stormwater management basin will be located at the northwest corner of the site to capture runoff from the northern and western parts of the site. This area is best suited for the siting of a stormwater management basin considering the adequate distance from the property line and the presence of an uninhabited wetland area north of the outlet of the basin, and deeper depth to groundwater. The stormwater management basin will have a V-notch weir wall to allow for overflow in higher storm events. It is estimated that 14,000 cubic-feet of storage is required to attenuate peak-flow rates.

Using a stormwater management basin storage of 14,000 cubic-feet, peak-flow rates under proposed conditions were reduced for all storm events. Results for the preliminary analysis with the stormwater management basin is shown in Table 2.

Table 2. Peak-Flow Rates with Stormwater Management Basins

	1-Year (Cpv)	10-Year (Qp)	25-Year	100-Year (Qf)
Existing	7.97	35.42	50.53	75.10
Proposed	7.7	34.55	49.4	75.10
Change	-0.27	-0.87	-1.13	0.00
Percent Change	-3%	-2%	-2%	0%






Installation of the solar facility and stormwater management basin will result in some ground disturbances throughout the site. There will be minor grading activities associated with the stormwater management basin, tree clearing, installation of solar panel racking support posts, addition of a new gravel access road, and installation of impervious equipment pads. Total disturbance area is anticipated to be approximately 1.50 acres. Disturbance types and areas are summarized in Table 3 below.

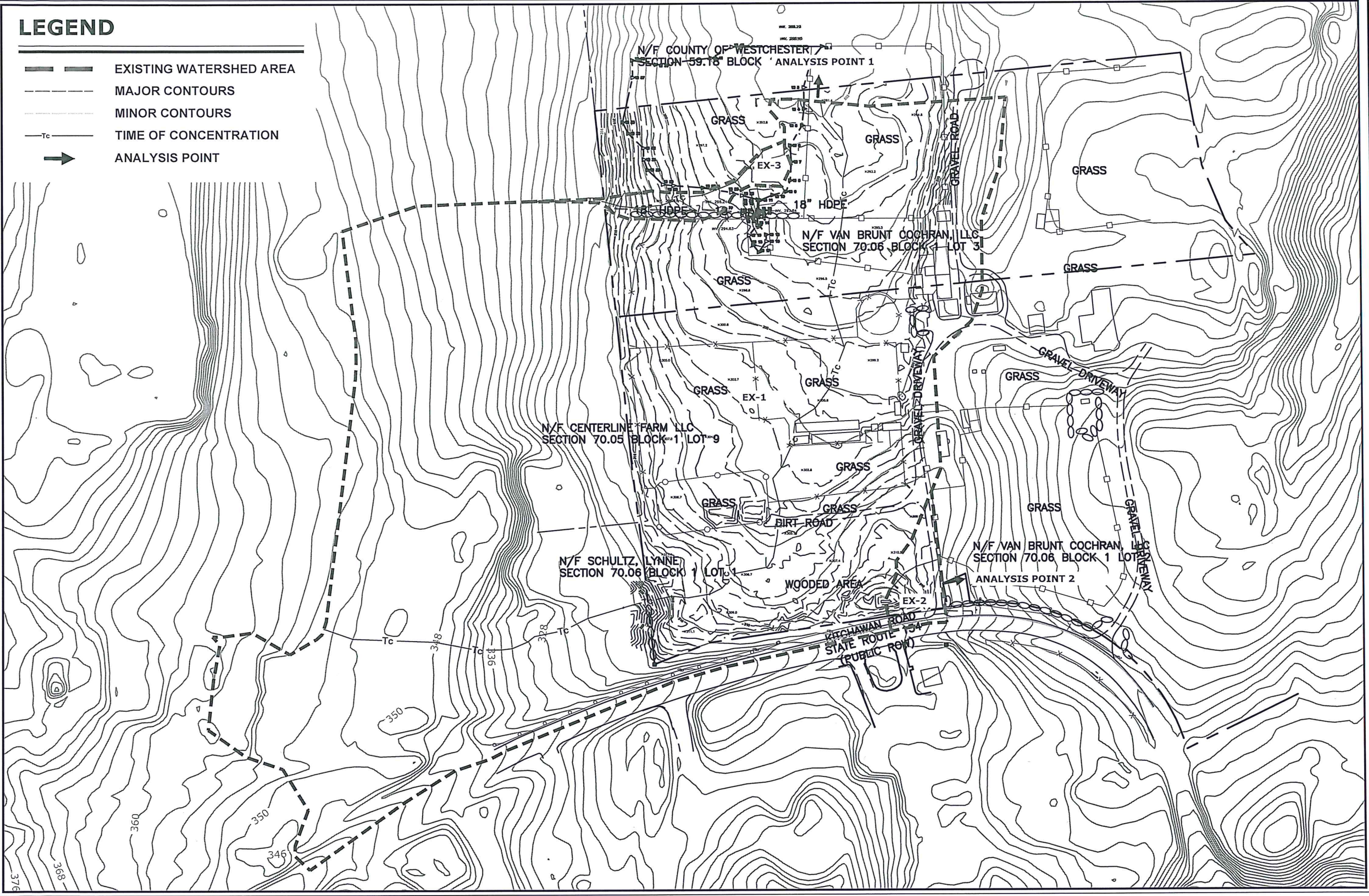
Table 3. Summary of Land Disturbances

Disturbance Type	Area (SF)
Tree clearing	37,000
Solar Equipment Pads	720
Solar Panel Racking Support Posts	10
New gravel access drive	20,450
Stormwater management basin (approx.)	7,000
<i>Total</i>	<i>65,180</i>

Drawing: C:\Users\jphartman\OneDrive\Documents\Projects\2022\Kitchawan Ground Mount\Kitchawan Ground Mount.dwg
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LEGEND

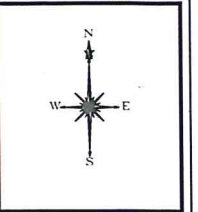
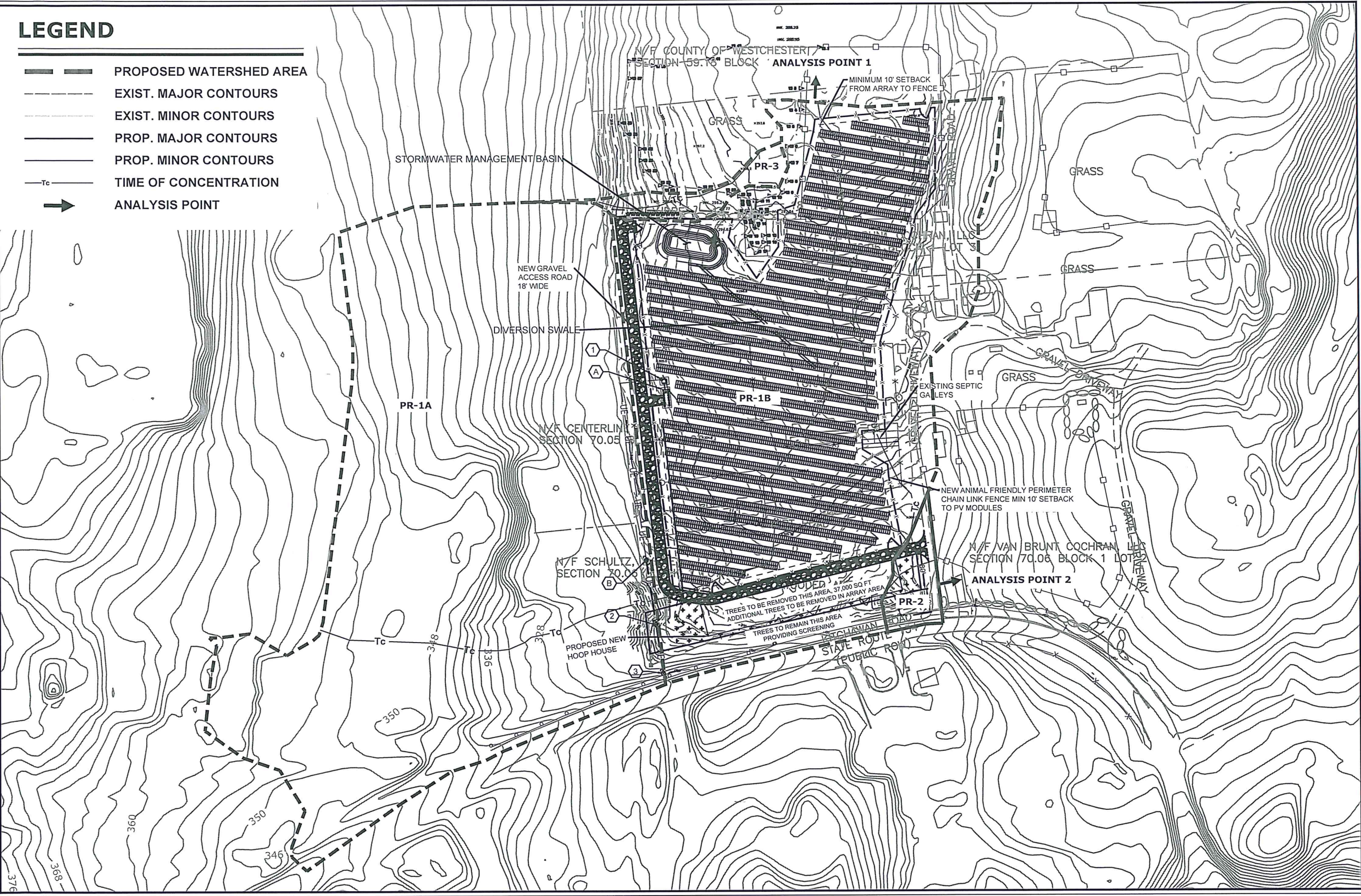
-  EXISTING WATERSHED AREA
-  MAJOR CONTOURS
-  MINOR CONTOURS
-  TIME OF CONCENTRATION
-  ANALYSIS POINT



Drawing: 17054.00017 - DE VADU VADU UNPUNSEI WATERSHED PROPOSED LOT LAYOUT (PR-WS)
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LEGEND

- PROPOSED WATERSHED AREA
- EXIST. MAJOR CONTOURS
- EXIST. MINOR CONTOURS
- PROP. MAJOR CONTOURS
- PROP. MINOR CONTOURS
- TIME OF CONCENTRATION
- ANALYSIS POINT



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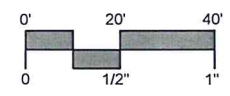
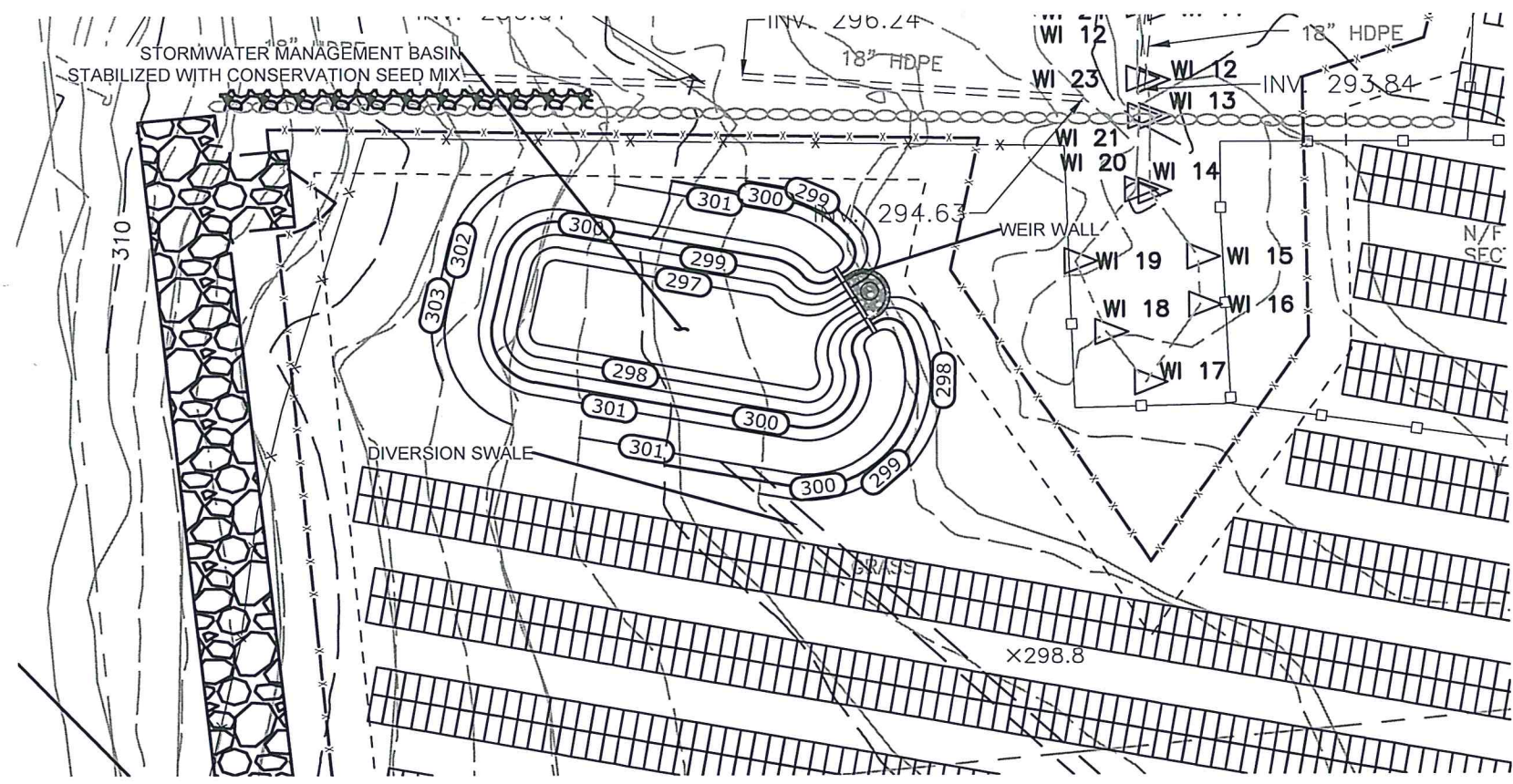
NO.	DESCRIPTION	DATE

WATERSHED MAP - PROPOSED CONDITIONS
KITCHAWAN GROUND MOUNT
 716 KITCHAWAN ROAD
 OSSINGEN, NEW YORK

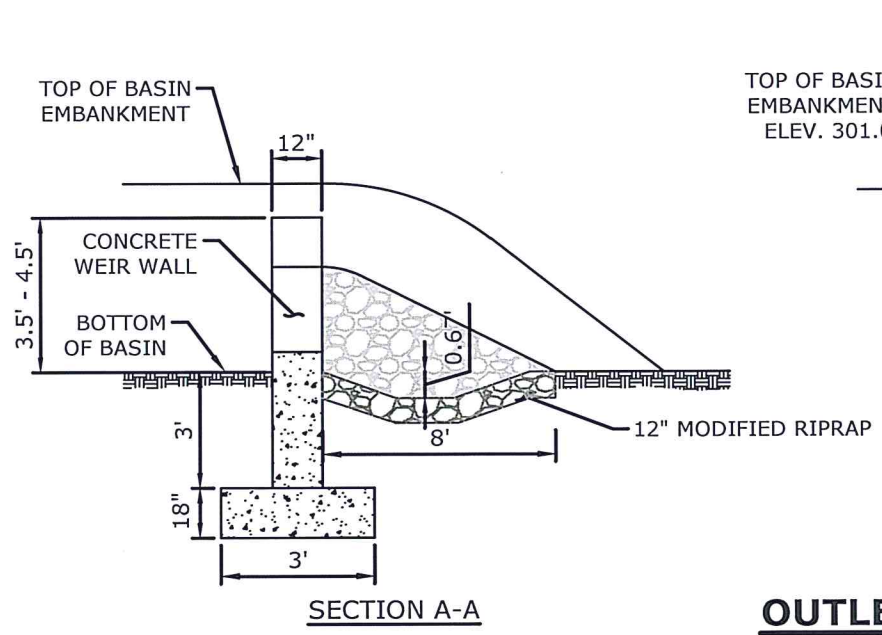
HMM DESIGNED	HMM DRAWN	MRG CHECKED
SCALE 1"=150'		
DATE FEBRUARY 1, 2022		
PROJECT NO. 17054.00017		
PR-WS		
SHEET NO.		

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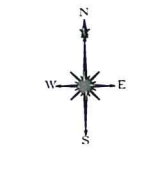
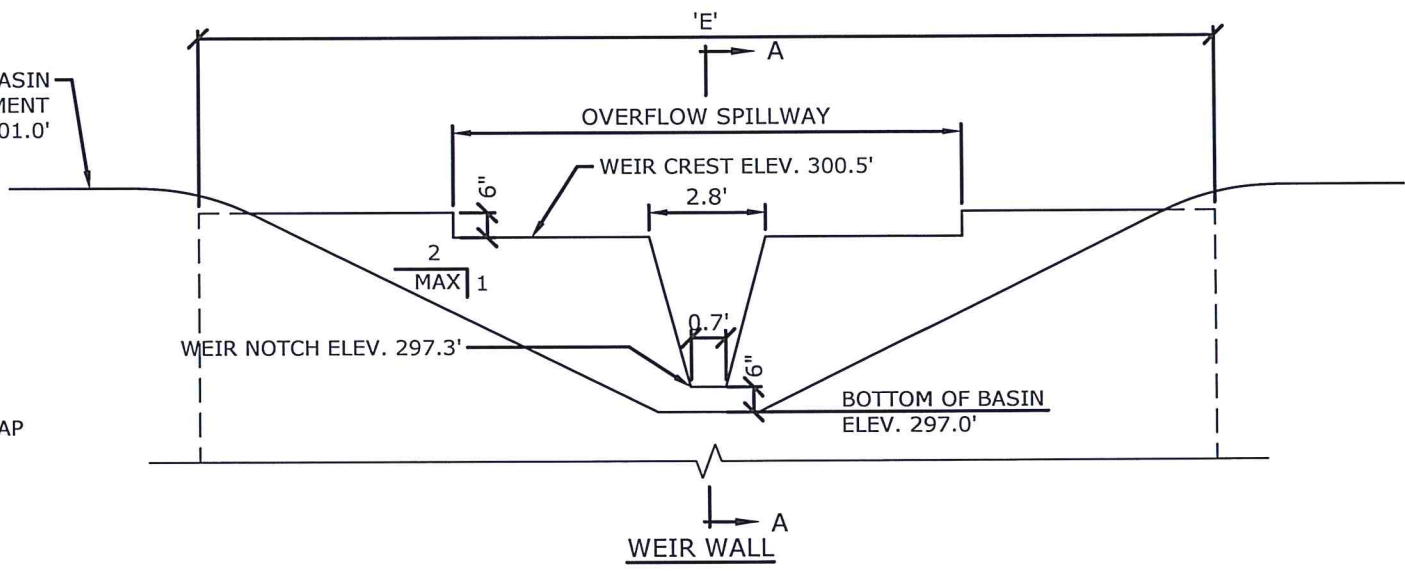
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STORMWATER MANAGEMENT BASIN
1"=40'



OUTLET WEIR WALL
NOT TO SCALE



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REVISIONS

PRELIMINARY STORMWATER MANAGEMENT BASIN
KITCHAWAN GROUND MOUNT
716 KITCHAWAN ROAD
OSSING, NEW YORK

HMM DESIGNED	HMM DRAWN	MRG CHECKED
SCALE: 1"=150'		
DATE: FEBRUARY 1, 2022		
PROJECT NO: 17054.00017		

SMB
SHEET NO

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