FINAL WORKPLAN FOR AQUIFER TESTING

Green Medicine NJ LLC Facility
638 Brunswick Pike (Route 518)
Block 16, Lot 17.02
West Amwell Twp., Hunterdon County, NJ

Prepared for:

West Amwell Township Planning Board
150 Rocktown Lambertville Road
Lambertville, NJ 08530-3204

c/o

West Amwell Township Engineer
Colliers Engineering and Design
53 Frontage Road, Suite 110
Hampton, NJ 08827

Prepared on behalf of:

Green Medicine NJ LLC
638 Brunswick Pike
West Amwell Township, NJ

Prepared by:

Princeton Geoscience, Inc.
209 Nassau Street
Princeton, New Jersey
08542

June 27, 2023

PRINCETON GEOSCIENCE, INC.

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James L. Peterson, PG
President

June 27, 2023

Princeton Geoscience Project No. 22122

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1. INTRODUCTION

In accordance with the Site Plan Resolution of Approval (No. 2022-07) passed by the West Amwell Township, New Jersey ("the Township") Planning Board, Green Medicine New Jersey ("GMNJ" or "Applicant"), located at 638 Brunswick Pike, West Amwell Township, New Jersey ("the site") will be conducting well testing in the near future. Resolution No. 2022-07 contains the following conditions that states GMNJ is to:

> *DD. Perform a well interference test to determine if there is any impact on neighboring wells, which shall be paid for by Applicant. Applicant will work with the Board Engineer to develop a test with the following minimum parameters:*
>
> 1. *At least four (4) wells shall be tested;*
>
> 2. *Wells tested must be within 2, 000 feet of the new GMNJ well;*
>
> 3. *Locations to be determined by the Township Engineer (hydrogeologist) in consultation with Applicant 's well driller and hydrogeologist; and*
>
> 4. *Producing wells existing within the 2,000-foot distance from the new GMNJ well may be used as observation wells to determine well interference. If more than four (4) wells qualify as observation wells, preference will be given to the nearest wells and to those located symmetrically around the GMNJ test well or along known geologic structures.*
>
> *EE. Notify residents within 3,000 feet of new GMNJ well of the date of the interference testing.*

The above information was posted on the Township's website on March 28, 2023, in a notice which also indicated that:

Accordingly, residents within a radius of 3,000 feet of the above address will be notified of the well testing once the test plan is finalized and the work is scheduled. Those within 2,000 feet of the new GMNJ well may request to be considered for well testing. The Township's Engineer (Hydrogeologist) will confirm the selection of those test sites and will provide oversight of the well testing.

A summary of the testing results will be posted on the Township's website once completed.

This document was prepared by Princeton Geoscience, Inc. ("Princeton Geoscience"), hydrogeologic consultant to GMNJ, to serve as a workplan for the testing that will be completed pursuant to Resolution No. 2022-07. Princeton Geoscience developed the plan in consultation with the Township's Engineer and Hydrogeologist (from Colliers Engineering and Design), who have approved this document, by email (Robert Zelley to James Peterson) on June 27, 2023.

The planned activities include the well interference testing explicitly referenced in the Resolution, which consists of pumping the new well installed in 2022 on the GMNJ property ("New Well") while monitoring for potential responses at other wells. The testing will also include monitoring during pre-pumping (background) and post-pumping (recovery) periods, deemed necessary to accurately attribute water level changes that may be observed to onsite or offsite pumping, or to other ambient background conditions. Because the testing includes separate stages of monitoring, this plan is referred to as a "Workplan for Aquifer Testing".

The purpose of the testing described herein is to support evaluation of whether the New Well can be operated as intended in the planned use of the facility by GMNJ without causing significant and unacceptable interference with existing wells on nearby properties. As discussed subsequently, for purposes of this workplan and pumping approvals to be granted by the Planning Board and Town Engineer, the probability of well interference will be assessed based upon test results, in a manner similar to that

established in Sections 176-13 (8) and (9) of East Amwell Township's Administrative Code "Well Interference Tests".

Section 2.0 of this document describes the physical setting of the site. Existing hydrogeologic data developed during planning for this proposed testing is summarized in Section 3.0. The proposed testing procedures are described in Section 4.0. Methods of data evaluation and proposed report contents are discussed in Section 5.0. Section 6.0 discusses the anticipated schedule for the project. References cited withing this workplan are listed in Section 7.0.

2. PHYSICAL SETTING

2.1. Site Location

The site is a 22.12-acre parcel of land, designated Block 16, Lot 17.02 in West Amwell Township, Hunterdon County, NJ. It is positioned in the western portion of the Lambertville USGS 7.5-minute Quadrangle (**Figure 1**), in the Piedmont Physiographic Province. Ground surface elevations onsite range from about 420 feet above mean sea level (i.e., North American Vertical Datum, hereinafter, "msl") in the southern portion of the site, to about 405 feet msl at the northwestern end of the site. The land surface slopes gently to the northwest toward offsite tributaries of Swan Creek, which drains to the Lambertville Middle Reservoir, located about 0.6 miles west of the site.

2.2. Site History / Planned Operations

Based on review of historic aerial photographs, the property on which the site is located was undeveloped and for agricultural purposes between at least 1931 and 1988. By 1995, the building and parking area currently on the site were added. In approximately 1990, the property began use as a church. In December 2021, GMNJ purchased the property, for use as a medical cannabis growing facility.

GMNJ plans to utilize the New Well installed in 2022 to supply all irrigation water needs for the growing facility. GMNJ's plans incorporate measures for onsite recycling and re-use of water withdrawn from the well in the irrigation process. Based on relatively stated irrigation water needs, the Township has imposed, and GMNJ has agreed to adhere to (and document via metering) a maximum total daily withdrawal of 1,100 gallons from the New Well. This daily maximum rate of withdrawal is equivalent to a constant withdrawal rate of 0.76 gpm (if pumping were continuous 24 hours per day) or to withdrawal rates of 1.53 gpm or 2.29 gpm, for 12-hour or 8-hour periods of continuous withdrawal during business hours, respectively.

2.3. Area Land Use

The site is situated in an area with several types of land use (**Figure 2**), including residential properties to the immediate west, north, northeast and (across Brunswick Pike) south. The land immediately east of the site (across Rock Road West) is used for agricultural purposes. To the southeast (across Hunter Road), there are agricultural and residential land uses.

2.4. Hydrogeologic Conditions

Hydrogeologic conditions in the site vicinity have been evaluated, based upon review of available scientific publications and site-specific information gathered as part of preparation of this workplan.

The most detailed bedrock geologic map (Herman, et. al., 2022) covering the site area (**Figures 3 and 4**) indicates the rock immediately underlying the site consists of the Passaic Formation (map symbol, JTrp), which consists of interbedded mudstones, siltstones and sandstones deposited in as sediments in a Mesozoic-aged rift basin known as the Newark Basin. The rock units in the area surrounding the site are inclined from horizontal along the "dip" direction, plunging to the north-northwest at about 20 degrees from horizontal. As shown in cross-section on Figure 4, these tilted sedimentary strata are overlain to the north by diabase ("traprock", map symbol, Jd) which was injected into the sedimentary layers as an igneous "intrusion".

Groundwater flow in the sedimentary rocks takes place in fractures, which can include partings between the sedimentary layers ("bedding plane fractures") which are common, and in fractures caused by structural deformation of the rocks in response to major geologic events (Freeze and Cherry, 1979). This latter group can include faults (large ruptures where rocks on either side of the feature are displaced relative to one another) and so-called "joints" which can result from extensional forces, or fracturing due to thermal effects (e.g., adjacent to the traprock intrusion).

The generic Conceptual Site model (CSM) outlined in the NJDEP guidance document for conducting investigations to support remediation of groundwater (NJDEP, 2012) envisions the dipping sedimentary rocks of the Newark Basin as a Leaky, Multi-unit Aquifer System (LMAS), based on work by Dr. Andrew Michalski and Rich Britton (Michalski and Britton, 1997). Within this system, flow takes place mainly within laterally extensive bedding plane fractures, with dominant flow frequently oriented along "strike" (the map direction perpendicular to the "dip" direction in which the rocks are tilted), toward discharge points at surface water bodies or pumping wells. Much lesser quantities of groundwater flow transverse to the strike direction and vertically between individual bedding parallel zones, following less-frequent, discontinuous near vertical extension joints which connect the zones, documented in Michalski and Britton (1997), and as "Type 2" water-bearing features in a recent compilation of hydrogeologic and geophysical studies conducted in rock units of the Newark Basin by the New Jersey Geological Survey (NJGS) (Herman, 2010). Given these attributes of the LMAS, fractured rock groundwater investigations need to account for preferential flow along bedding-parallel fractures whose extent and orientation must be accurately known.

The reason for reported strike-parallel flow has to do with the physical limits of individual fractures. Within any single bedding plane fracture, groundwater flow is impeded at depth due to diminished aperture and eventual closure of the fracture owing to stress imposed by the overlying rocks. At shallow depths in the "up-dip" direction, the fracture terminates, either at the base of the unconsolidated overburden or weathered zone, or at the ground surface where no overburden or weathered zone is present. As a result of these geologic limitations, regional flow within individual bedding plane fractures is channeled in directions parallel to strike.

Some enhancement of permeability has been reported at, and parallel to, boundaries of igneous intrusions such as the one at the site (Matter, et. al., 2006). Other research (Kasabach, 1966) emphasizes generally lower permeability within the sedimentary rocks

adjacent to these intrusive bodies, resulting from thermal “contact metamorphism” caused by the igneous activity.

3. EXISTING HYDROGEOLOGIC DATA

The following section summarizes existing hydrogeologic data pertinent to planning of the proposed aquifer testing. The information was obtained during activities performed onsite.

3.1. Well Installation and Construction

3.1.1. New Well

To provide an irrigation well to support the planned growing facility, GMNJ hired Stover Well Drilling (Stover), who installed a new 6-inch diameter irrigation well in the grass-covered area in the northern (rear) portion of the property (New Well), completing the installation on February 22, 2022 (Figure 1). Based on the Well Record that Stover submitted to NJDEP and discussion with Tom Stover, the well is constructed with steel casing to a depth of 50 feet, with an open borehole interval from 50 feet to the total depth drilled of 320 feet. Rocks encountered during drilling were described as gray "argillite" and "traprock" from 12 to 320 feet. Water production was low (about 2 to 3 gallons per minute (gpm)) during drilling of the upper portions of the well. A zone of significant (about 20 gpm) water production was evident during drilling after the drill bit passed a depth of 280 feet. The stabilized water level in the well was 10 feet below land surface after the well was completed.

3.1.2. Old Well

Based on the Well Record recorded after its installation, the existing potable supply well (Old Well) onsite was drilled in 1990, as a 6-inch diameter well, with steel casing to 50 feet and an open borehole interval from 50 feet to the total depth drilled of 785 feet. The driller's record of testing indicated a specific capacity of 1.75 gpm/foot of drawdown from a 6 hour test of the well, pumping at a rate of 1.75 gpm. This seems erroneous, however, as the same record indicates that drawdown during the test was 416 feet. Permanent pumping equipment was installed in the well set to a depth of 145 feet, which served all water supply needs of the church onsite from 1990 until recently.

3.2. Yield and Drawdown Testing of New Well

Based on discussions with Tom Stover, several weeks after the New Well was drilled, Stover pumped the well for a period of 4 hours, with a reported yield of 23 gallons per minute (gpm). At the end of this pumping period, the stabilized water level measured in the well was 160 feet below grade. Because static water level is about 10 feet below grade, the drawdown measured was about 150 feet, corresponding to a Specific Capacity of about 0.15 gpm/foot of drawdown.

3.3. Geophysical Logging of New Well

In preparation for development of this workplan, Princeton Geoscience conducted geophysical logging of the new well on May 24, 2022. The testing included a full suite of logs (three-arm caliper, fluid temperature, fluid resistivity, natural gamma, electric logs, optical televiewer (OTV), acoustic televiewer (ATV) and heat-pulse flow meter (HPFM – under ambient conditions and while pumping at the top of the water column in the well).

Findings of the geophysical logging are consistent with expectations based upon regional geology (Figures 3 and 4) and Stover's records of drilling and pumping observations. Specifically, as summarized on **Figure 5**, the geophysical logging confirmed that:

- Rocks encountered included mostly gray and lesser light colored sedimentary units ranging from mudstones to siltstones.

- The layering of these sedimentary rocks is inclined toward the North-Northwest, dipping about 20 degrees down from horizontal, and striking sub-parallel to Route 518.

- After 1 hour of continuous pumping at 1 gpm for the HPFM testing, the stabilized drawdown in the well was 3.3 feet (**Figure 6**), corresponding to a Specific Capacity of 0.30 gpm/foot of drawdown.

- Numerous steeply-inclined fractures are present, many with secondary mineralization; the contribution of these features individually to well yield under the limited stress induced by the low rate of HPFM pumping ranges from none measurable (<0.01 gpm) to very low (0.02 to 0.09 gpm).

- Additional fractures are present with sub-horizontal orientation parallel to sedimentary bedding. These features comprise the main water-bearing subunits in the Leaky, Multi-unit Aquifer System which NJDEP guidance envisions for sedimentary rock such as those at the site. HPFM testing showed that most (>70%) of the water entering the well under pumping comes from a single, bedding parallel fracture at a depth of 270 feet. This finding is also consistent with LMAS concepts, as individual, large-aperture fractures constitute pathways for most of the flow within the aquifer system.

3.3.1. Summary

Based on the pumping performed by Stover and Princeton Geoscience, the New Well can produce significantly more water than will be needed to support facility needs. Based on the bedding fracture orientation evident in published geological maps and in the geophysical logging results (**Figure 7**), the up-dip extension of the main water-bearing fracture suppling the New Well (encountered at 270 feet) would intercept the ground surface about 100 feet south of Route 518. Therefore, the only wells in that area with a potential hydraulic connection along this feature are those along Route 518. And it is likely that some of the wells in that area may be cased deep enough that the fracture would not intercept the open hole portion of the well.

The area of expected connectivity is also limited to the north, where the rocks are of igneous origin; the bedding fractures of the sedimentary rocks tapped by the new onsite well would not extend into the igneous rocks. Therefore, wells drilled on properties to the north would only have potential direct connection to the fracture encountered at 270

feet in the new onsite well if they were drilled deep enough to encounter its down-dip extension.

The nearest properties “along-strike” the west-southwest and east-northeast are greater than 500 feet from the new well on the GMNJ property. Based on the limited drawdown evident at the New Well while pumping at 1 gpm, the distance to offsite wells, and conditions identified during the borehole geophysical logging, Princeton Geoscience concluded that there is a low probability that use of the New Well as planned by GMNJ would cause problematic interference with operation of existing wells on adjacent properties.

4. PROPOSED TEST PROCEDURES

As noted in Section 1, GMNJ is required to perform a well interference test, to evaluate whether its New Well can be operated as intended in the new use of the facility without causing significant interference with existing wells on nearby properties. The test procedures outlined below are intended to support such evaluation, by measuring water level changes related to both the planned pumping of the New Well and to background conditions that may affect water levels onsite and offsite during the testing.

For purposes of this workplan and the conclusions that will be developed based on implementation of the aquifer testing, evaluation of test results for offsite wells monitored during the testing, the probability of "significant well interference" will be assessed in a manner similar to that established in Sections 176-13 (8) and (9) East Amwell Township's Administrative Code "Well Interference Tests", which states that:

> *If the drawdown in any properly monitored observation well during the pump tests of the new residential well exceeds the greater of five feet or of 10% of the maximum drawdown of the new well during the pump tests, significant well interference is likely, and the new well cannot be certified for use as such.*
>
> *In such instances, the administrative authority may require the applicant to show why the documented well interference is not significant. If a significant adverse impact of interference cannot be remedied, the administrative authority may deny certification of the new well.*

Based on these criteria, if drawdowns in the offsite wells monitored pursuant to this workplan, that are attributed to pumping of the New Well during the test, do not exceed the greater of 5 feet, or 10% of the maximum drawdown observed in the New Well during the test, future use of the New Well as planned by GMNJ will, by definition, be acceptable to the Township. Otherwise, GMNJ and their hydrogeologic consultant may present additional information for consideration by the Township's Engineer and Hydrogeologist,

supporting the conclusion that GMNJ's planned use of the New Well is nevertheless not expected to cause problematic and unacceptable interference, or such interference which cannot be mitigated.

4.1. Pre-Test Activities

4.1.1. Pre-Test Activities to be Performed by the Township and GMNJ

As of the issuance of this workplan, the Township and GMNJ have begun coordinating for, and are expected to accomplish the following preparatory activities in the near future:

- Providing notice to offsite property owners of the planned dates for the aquifer testing consistent with Resolution No. 2022-07, and, if necessary, providing notification to participating offsite property owners, including any undertaking independent monitoring, of any deferral of the planned pumping stage of the test due to rain during the background monitoring, or other reason

- Obtaining permission from offsite property owners at 4 locations surrounding the site, selected based on information shown on Figure 7, to utilize their wells for monitoring during the aquifer test, and related available information, including:

    - Permission for a NJ certified laboratory hired by GMNJ to conduct bacterial testing of well water before the testing, and after post-test sterilization of the well that will be performed by GMNJ's NJ licensed well driller, in accordance with guidelines from the Hunterdon County Health Department with the use of liquid or granular chlorine

    - Permission to install drop-tubes and dataloggers in the wells and to monitor automatically and manually throughout test duration (Background, Pumping and Recovery stages)

- Owner promise not to use water and operate well pump during specified "non-use period"

- Owner waiver of any claims against parties conducting the aquifer test (Princeton Geoscience, Stover, GMNJ) related to disturbances in well/cloudy water that may be caused by test equipment installation, use and removal

- Owner providing any available information on well location, construction and installed pumping equipment

- Coordinating by GMNJ to obtain NJ-certified laboratory services discussed in Section 4.1.2; and to confirm schedule with, and authorize Stover and Princeton Geoscience to perform, their respective work activities described Section 4 and 5 of this workplan

4.1.2. Pre-Test Activities to be Performed by Others

GMNJ's NJ-certified laboratory (To be Determined), hydrogeologic consultant and NJ-licensed drilling contractor the aquifer test (assumed to be Princeton Geoscience and Stover, respectively) will coordinate to accomplish the following:

- Pre-test bacterial sampling and testing of wells to be monitored pursuant to this workplan (NJ-certified laboratory)

- Pump installation, power connection and testing in New Well onsite; set up water conveyance away from pumping well area (Stover)

- New, 1-inch diameter PVC drop tube installation in New Well and Old Well onsite and in all offsite wells to be monitored pursuant to this workplan (Stover)

- Set up dataloggers in all wells to be monitored pursuant to this workplan and initiate Background monitoring (Princeton Geoscience)

4.2. Aquifer Test Description

The aquifer test will be completed in three consecutive stages, with continuous monitoring of water levels throughout, including:

- Background Monitoring
- Pumping / Well Interference Test, and
- Recovery Monitoring

The following sections describe the planned duration and monitoring for each stage of testing; and the basis for and selected rates and duration for pumping during the Pumping / Interference Test.

4.2.1. Background Water Level Monitoring

During a Background monitoring period of 1 to 2 week duration immediately prior to the Pumping stage (discussed in Section 4.2.2), water levels will be monitored continuously (at 2-minute intervals) in the New Well and Old Well onsite, and in each of the 4 offsite wells selected for monitoring pursuant to this workplan. The continuous datalogger measurements will be supplemented by manual gaging events performed, at minimum, at the beginning of, during and at the end of, the Background monitoring period (3 manual gaging events). The manual gaging will be conducted using an electronic water level indicator, as described in Section 4.3.1.

The pre-pumping Background water level data will provide a baseline that will be used along with water levels collected during the remainder of the aquifer test, to assess ambient water level changes that may occur throughout the testing. The background

records are intended to enable identification of, and water level adjustment for, linear groundwater trends as identified from background data and; and identification of, and water level adjustments for, barometric and earth tidal efficiencies, if necessary. The Background monitoring is meant to enable accurate attribution of water level changes that may be observed to onsite or offsite pumping, or to other ambient background conditions.

4.2.2. Pumping and Water Level Monitoring for Well Interference Test

The Pumping / Well Interference stage of the aquifer test will be continuous with, and immediately following, the Background monitoring discussed in Section 4.2.1. During this stage of the aquifer testing, water levels will be monitored continuously (at 2-minute intervals) in the New Well and Old Well onsite, and in each of the 4 offsite wells selected for monitoring pursuant to this workplan, while a pump installed in the New Well onsite is operated at a constant rate of 5 GPM. The pumping will continue for a period of 8 hours, during which manual measurements of water levels will be made on an approximately hourly basis, following procedures described in the Background monitoring (Section 4.2.1).

Pumping at 5 GPM for the minimum 8-hour period will result in a minimum total withdrawal during the test of 2,400 gallons. This quantity is more than twice the 1,100 gallon maximum volume GMNJ is authorized to withdraw per the Planning Board approval. Pumping a greater volume than the maximum authorized daily withdrawal amount is proposed to increase the probability that some measurable drawdown will be observed at the observation wells monitored during the test, to enable derivation of aquifer hydraulic parameters, Transmissivity (T) and Storativity (S). As discussed in Section 5.0, measured values of T and S values could become important in evaluating effects of future water use. Were the New Well to be pumped, for example, at a lower rate such as the 2.29 gpm rate noted in Section 2.2 (which corresponds to 1,100 gallons over an 8-

hour period of continuous withdrawal), total drawdown at the New Well would likely be about 7 or 8 feet.

4.2.3. Water Level Recovery Monitoring after Cessation of Pumping

Upon completion of the Pumping stage of the testing described in Section 4.2.2, discharge from the New Well would be terminated and recovery of water levels would be monitored in the New Well and Old Well onsite, and in each of the 4 offsite wells selected for monitoring pursuant to this workplan. This Recovery monitoring period would last for 8 to 10 hours, during which water levels would be continuously monitored (via dataloggers, at 2-minute intervals, as during the prior two stages of aquifer test).

4.3. Proposed Monitoring During Tests

4.3.1. Water Level Monitoring at Well Locations

During each stage of testing, water levels will be monitored in the New Well and Old Well onsite, and at each of four (4) locations surrounding the site, based upon offsite access gained and the considerations shown on **Figure 8**.

Water levels would be measured using pressure transducer probes equipped with internal dataloggers (e.g., Solinst Levelloggers), and confirmatory manual measurements would also be made using electronic water level indicators. The expected drawdowns in wells during the test will be taken into consideration when selecting the pressure rating (i.e. 10 psi, 20 psi, etc.) of the pressure transducers for use in each well.

Manual gaging performed during the testing will be conducted using an electronic water level indicator, with measurements made as depth to groundwater (to the nearest 0.01 foot) from a consistent measuring point at the well (typically, top of the well casing, or top of the installed PVC drop pipe).

4.3.2. Monitoring of Pump Discharge

During the Pumping stage of the aquifer test, pump discharge will be measured using the totalizing flowmeter installed in-line on the discharge from the New Well. Meter readings and instantaneous flow rate measurements will be made at a 5- to 10-minute frequency during the first hour of pumping and hourly thereafter throughout the duration of pumping. A ball valve or other means of control will be used to restrict and adjust flow. If the flow rate is found to vary by more than 5% from the targeted 5 gpm rate established for the test, the flow will be adjusted to a rate as close as possible to 5 gpm.

All water pumped during the tests will be directed away from the well head, through hose run a minimum of 100 feet to the northwest, onsite, where the water will be allowed to infiltrate.

4.4. Post-Test Activities

Upon completion of the Recovery monitoring period, Princeton Geoscience will remove the pressure transducers and Stover will remove the drop tubes installed in all offsite wells monitored pursuant to this workplan.

Stover will then conduct post-test sterilization of the well that will be performed by GMNJ's NJ licensed well driller, in accordance with guidelines from the Hunterdon County Health Department with the use of liquid or granular chlorine.

Subsequently, GMNJ's NJ-certified laboratory will collect and analyze samples from each of the wells monitored pursuant to this workplan to conduct bacterial testing. The Township will ensure that copies of the laboratory reports for this testing are provided individually to respective property owners, with appropriate explanation of pre- and post-test bacterial testing findings. Copies of this correspondence and the laboratory reports will also be provided to GMNJ.

4.5. Permits, Approvals and Notifications

Other than Township approval of this workplan and the offsite access and notifications described in Section 4.1, there are no additional permits, approvals or notifications required to perform the work described in this workplan.

5. DATA EVALUATION AND REPORTING

Upon completion of the aquifer testing, Princeton Geoscience will evaluate all of the test data and prepare a brief report in letter format which will describe test implementation, present findings and provide recommendations. Key aspects of the data presentation that will be included in the report include:

- Summary tables documenting manually collected data (pump discharge measurements and confirmatory water level gaging results)

- Final time-series graphs for the pumping and monitoring wells, which adjust/account for the following:

    - Identification of and water level adjustment for linear groundwater trends as identified from antecedent data and

    - Identification of and water level adjustments for barometric and earth tidal efficiencies, if necessary.

- Aquifer parameterization and test output documentation in connection with the aquifer test, and

- Identification of the total amount of drawdown attributable to pumping of the New Well that is observed at each of the offsite wells monitored pursuant to this workplan

Based on findings of the aquifer testing, Princeton Geoscience will provide conclusions regarding implications of any drawdowns observed in the offsite wells monitored pursuant to this workplan, that are attributed to pumping of the New Well during the test. If such drawdowns in the offsite wells do not exceed the greater of 5 feet, or 10% of the maximum drawdown observed in the New Well during the test, future use of the New

Well as planned by GMNJ will, by definition, be acceptable to the Township, and Princeton Geoscience will document this finding. Otherwise, the report will include evaluation of additional information for consideration by the Township's Engineer and Hydrogeologist, that may require additional testing and planning. if such information is available (or a recommendation to attempt to obtain such additional information, if warranted), which may support the conclusion that GMNJ's planned useof the New Well is nevertheless not expected to cause problematic and unacceptableinterference, or such interference which cannot be mitigated.

Such information, pertaining to any offsite wells which experienced drawdowns exceeding the greater of 5 feet, or 10% of the maximum drawdown observed in the New Well during the test, could include, but would not be limited to:

- Conditions at the offsite well, such as remaining available drawdown and borehole storage in the offsite well which allow operation consistent with property water uses

- Ability to set pumps deeper within the offsite well, at GMNJ's expense, to provide additional available drawdown and borehole storage, or

- The ability to deepen, or otherwise modify the construction of the offsite well, at GMNJ's expense, to supplement its capacity, available drawdown or borehole storage.

Additionally, as described in Section 4.2.2, the aquifer test has been designed to increase the probability that site-specific values of aquifer parameter T and S values can be developed from the test data. If necessary, the report will include calculations employing any measured T and S values, to assess conditions anticipated at offsite wells based on actual future daily water withdrawals from the New Well, which are mandated to be less than the total quantity that will be pumped during the test. Such evaluations, if

performed, will form an additional basis for the Township's review of the proposed withdrawals from the New Well.

6. SCHEDULE

GMNJ wishes to proceed with the aquifer testing described in this workplan as soon as possible and has been working with the Township and Colliers to accomplish the Pre-test tasks described in Section 4.1.1. Upon completion of those activities, final dates for the aquifer testing can be set, and other onsite Pre-test setup work described in Section 4.1.2 can be conducted.

Including the setup and post-test demobilization activities, the estimated duration of aquifer testing field work is 16 days. It is expected that data from the test will be summarized briefly to facilitate review initial findings of testing during a meeting with the Township, Colliers and GMNJ within two weeks after completion of the aquifer testing field activities.

If findings of the testing are clearly supportive (e.g, if drawdowns in the offsite wells monitored pursuant to this workplan do not exceed the greater of 5 feet, or 10% of the maximum drawdown observed in the New Well during the test), it may be possible for the Township and Colliers to approve GMNJ's planned withdrawal based upon information exchanged during the meeting. Otherwise, review by the Township and Colliers would take place after submittal of the letter report, which would be prepared and delivered within approximately three weeks after the date of the post-test meeting with the Township and Colliers.

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Source: USGS National Map coverage for the Lambertville Quadrangle, Hunterdon and Mercer Counties, New Jersey, https://apps.nationalmap.gov/viewer/

FIGURE 1: Site Location Map

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

PRINCETON GEOSCIENCE

SCALE: As Shown
DATE: May 2023
PREPARED BY: JLP
CHECKED BY: JLP
PROJECT #: 22122
FILE NAME: Figure 1

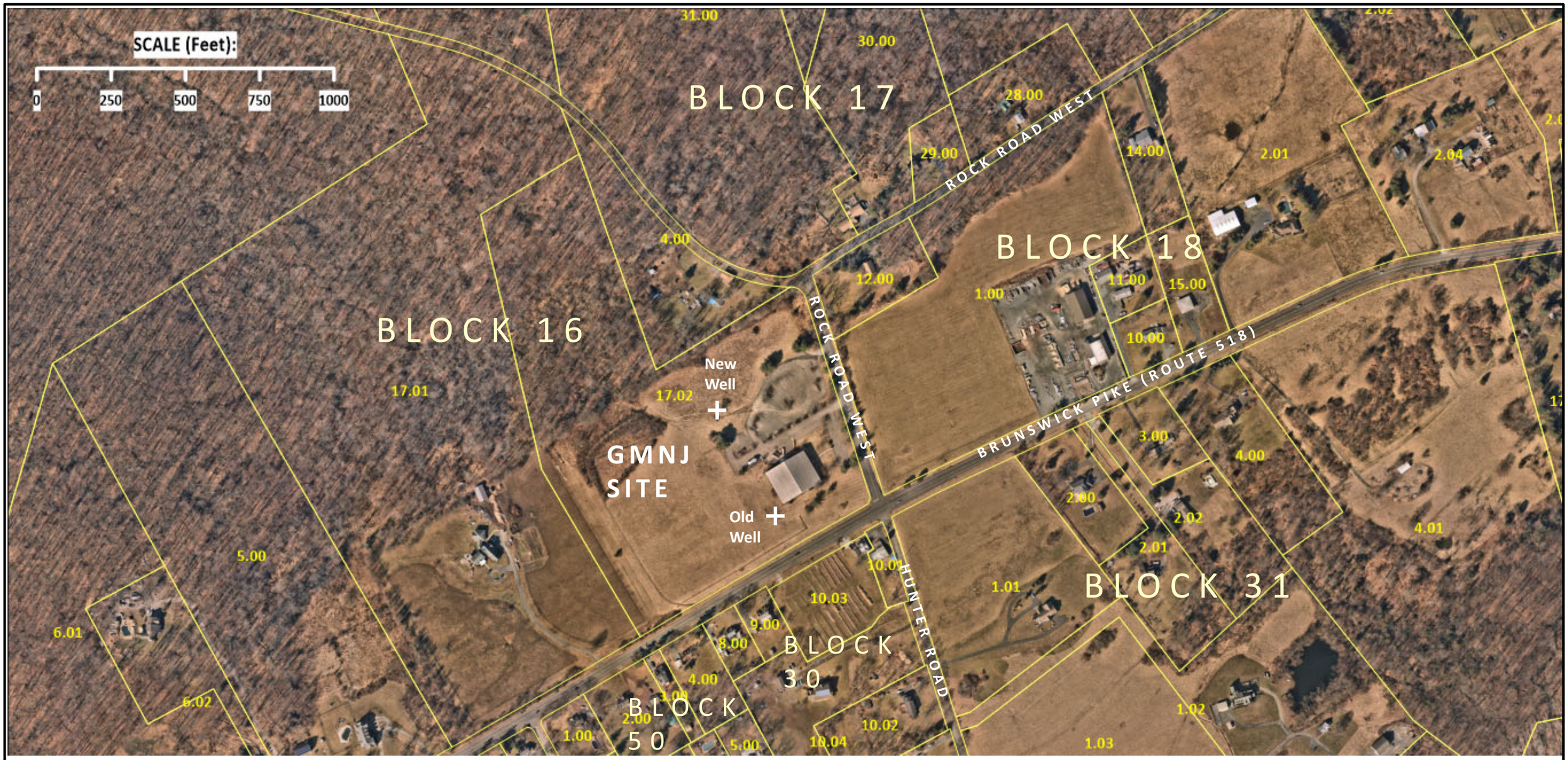

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FIGURE 2: Area Map Showing Green Medicine NJ LLC Site, Other Nearby Properties

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

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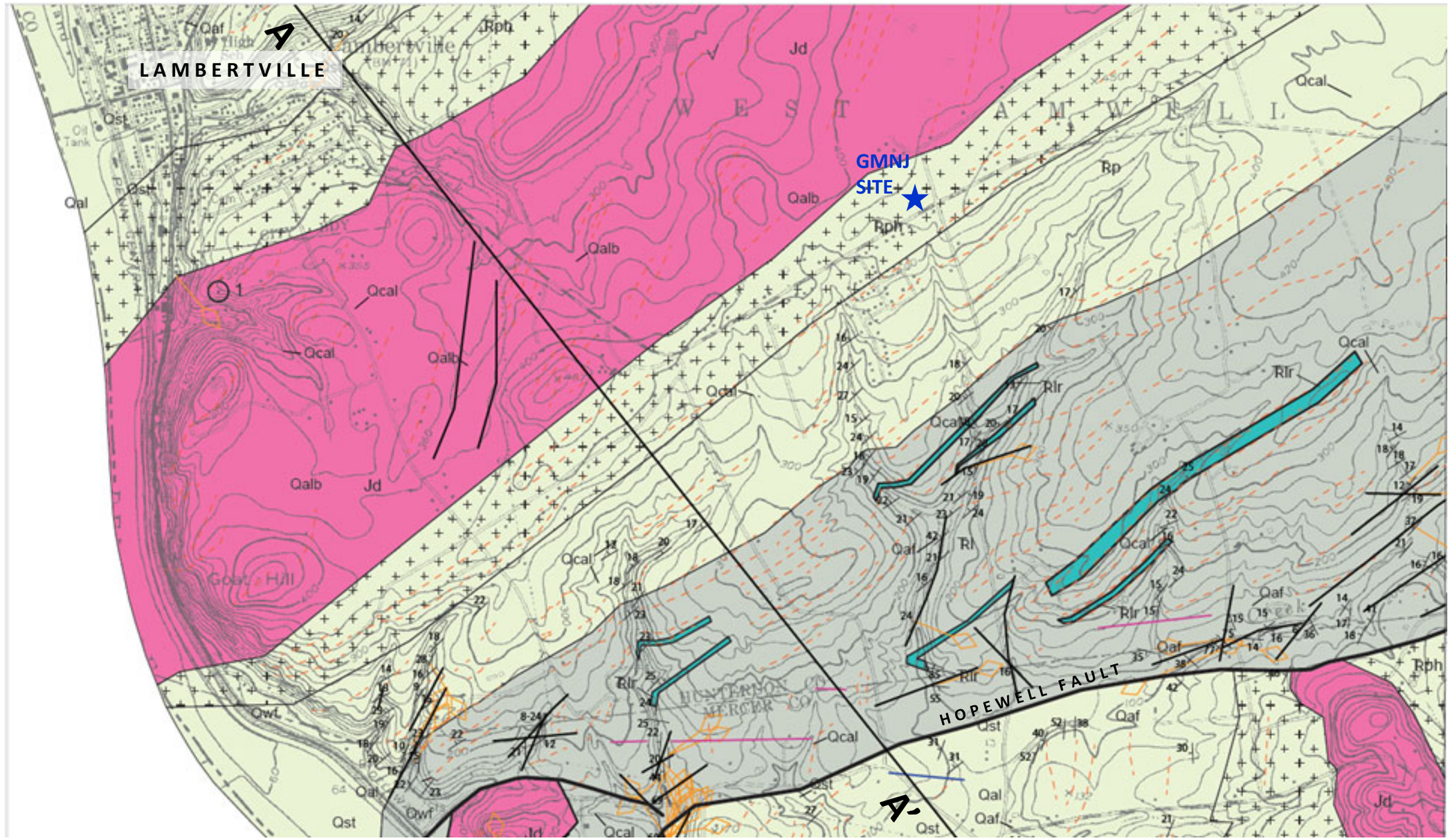
PROJECT #:	22122
FILE NAME:	Figure 2



Legend

- Jd — Jurassic Aged Diabase (a.k.a., "Traprock")
- Rp — Triassic Aged Passaic Formation – Mudstone, siltstone, lesser sandstone (stippled where contact metamorphosed adjacent to diabase intrusions)
- Rl — Triassic Aged Lockatong Formation – Mudstone, siltstone, shale and argillite
- 11 — Strike and Dip of Sedimentary Bedding
- Fault

N

Source: "Bedrock Geologic Map of the Lambertville Quadrangle, Hunterdon and Mercer Counties, New Jersey", Gregory C. Herman, Ron W. Witte, and Donald H. Monteverde, NJ Geological Survey Geologic Map Series GMS-XX (in review) – Copy provided by Donald Monteverde May 2022

FIGURE 3: Excerpt of Bedrock Geologic Map for the Lambertville Quadrangle, showing GMNJ Site Location

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

PRINCETON GEOSCIENCE

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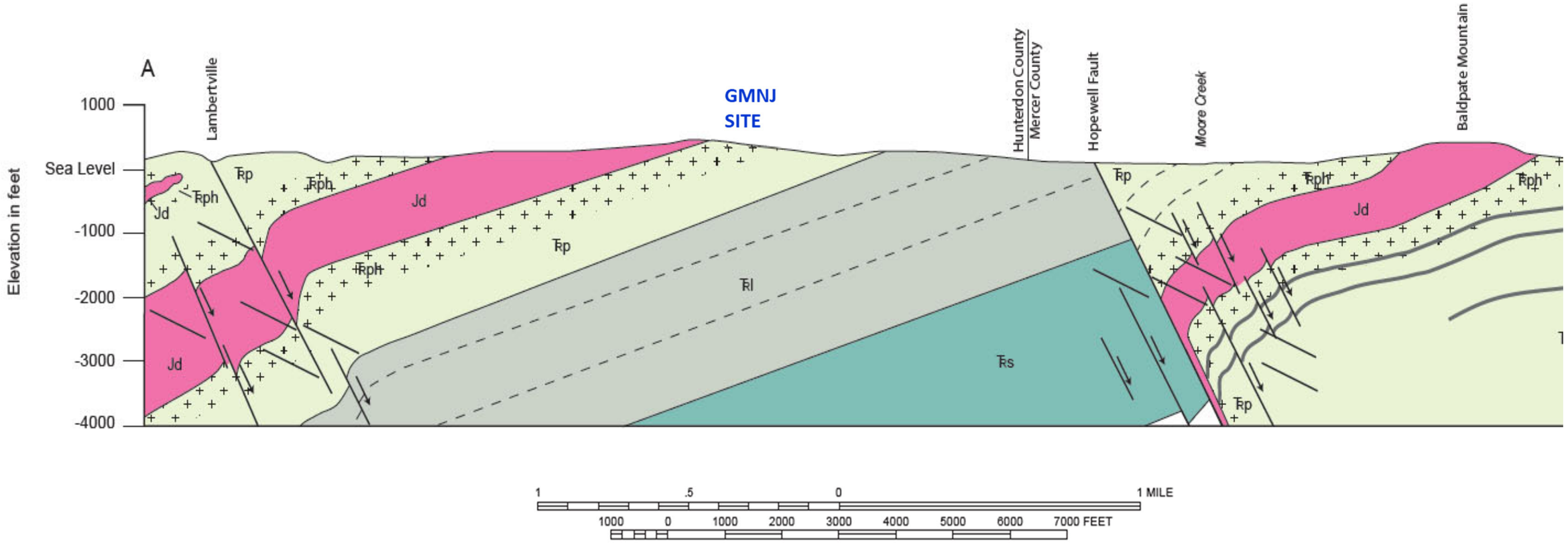
PROJECT #:	22122
FILE NAME:	Figure 3



Legend

Jd — Jurassic Aged Diabase (a.k.a., "Traprock")

Trp — Triassic Aged Passaic Formation – Mudstone, siltstone, lesser sandstone (stippled where contact metamorphosed adjacent to diabase intrusions)

Trl — Triassic Aged Lockatong Formation – Mudstone, siltstone, shale and argillite

Fault

Source: **"Bedrock Geologic Map of the Lambertville Quadrangle, Hunterdon and Mercer Counties, New Jersey", Gregory C. Herman, Ron W. Witte, and Donald H. Monteverde, NJ Geological Survey Geologic Map Series GMS-XX (in review) – Copy provided by Donald Monteverde May 2022**

FIGURE 4: Cross-Section Excerpt from Lambertville Quadrangle Geologic Map – Area Near the Site

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

PRINCETON GEOSCIENCE

SCALE: As Shown
DATE: May 2023
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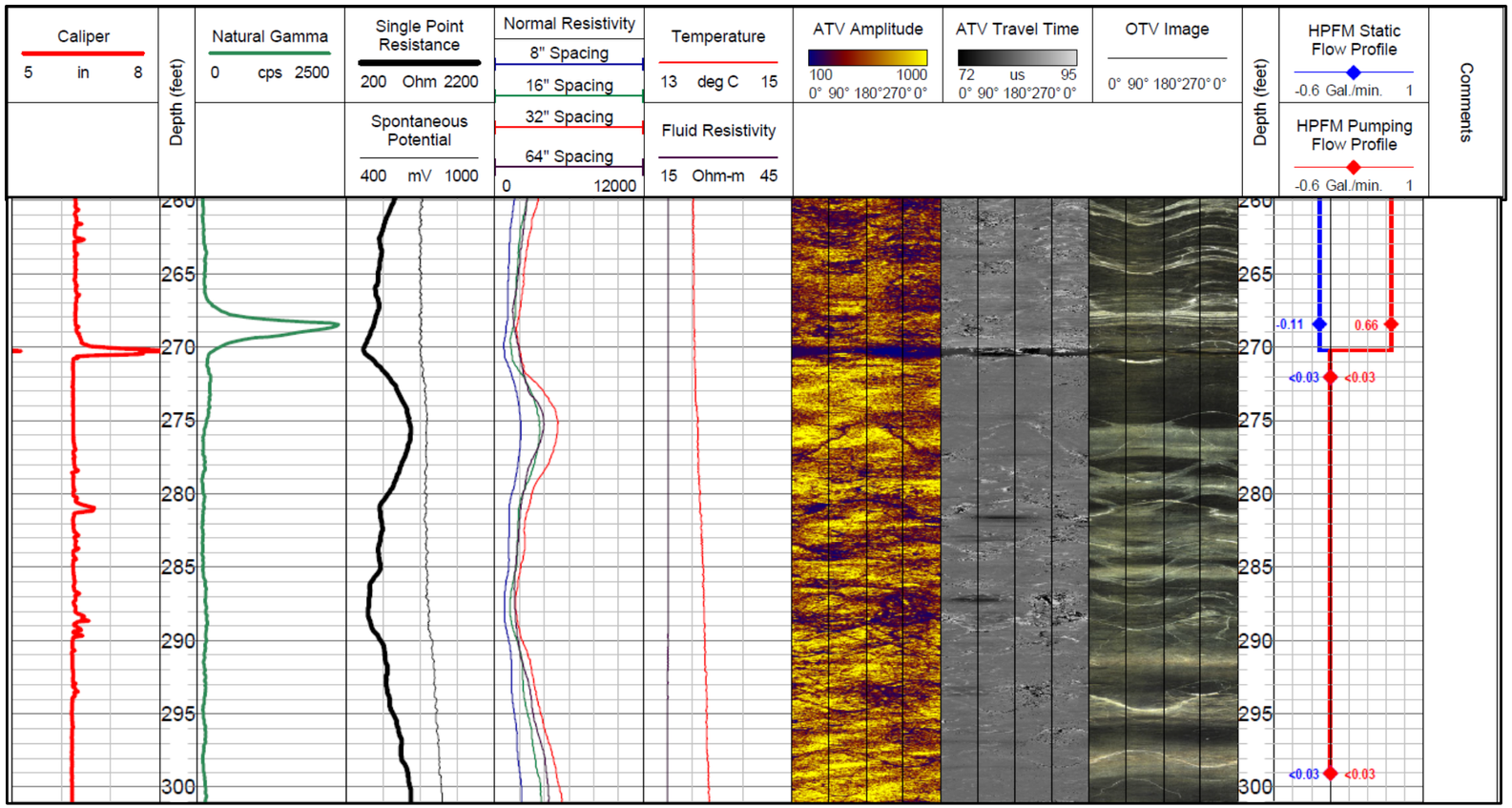
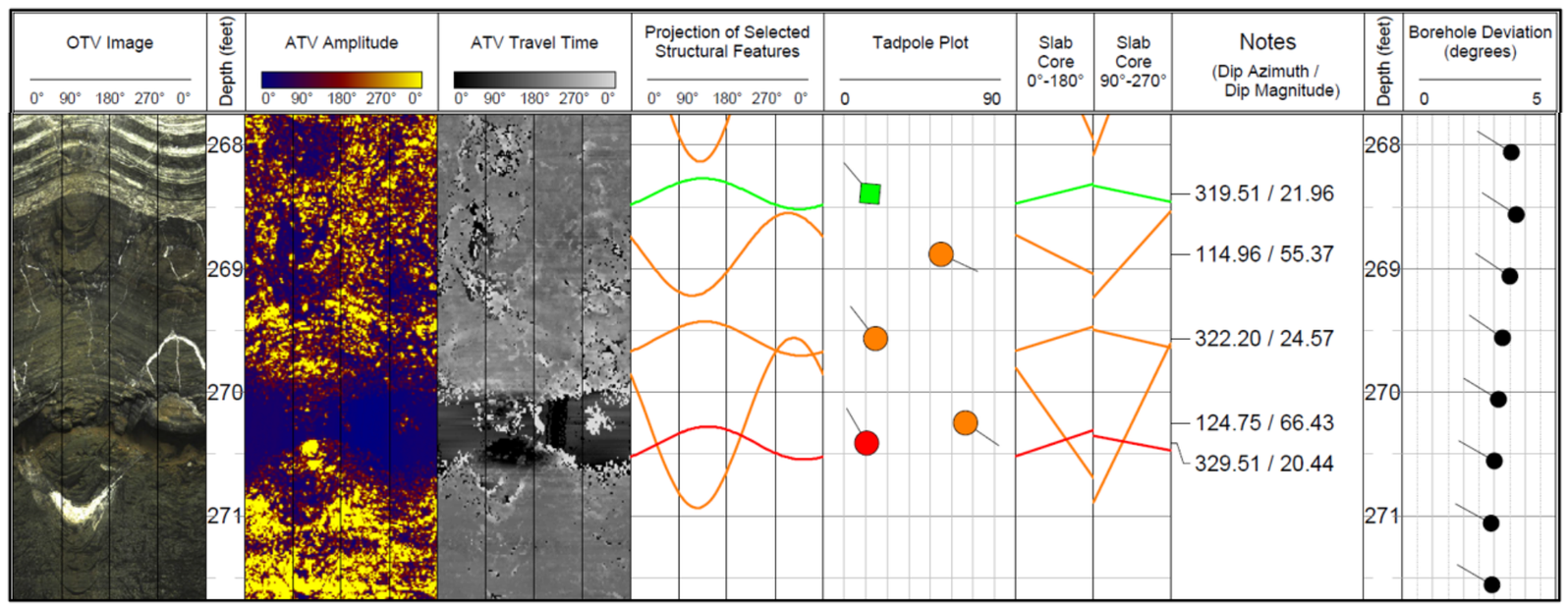
PROJECT #: 22122
FILE NAME: Figure 4





Bedding Plane Fracture @ 177.5’

Large Bedding Plane Fracture at 270’

Steeply-Dipping Mineralized Fractures @ 65’ to 67’

FIGURE 5: Partial Results of Geophysical Logging of New Well

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

PRINCETON GEOSCIENCE

SCALE:	As Shown
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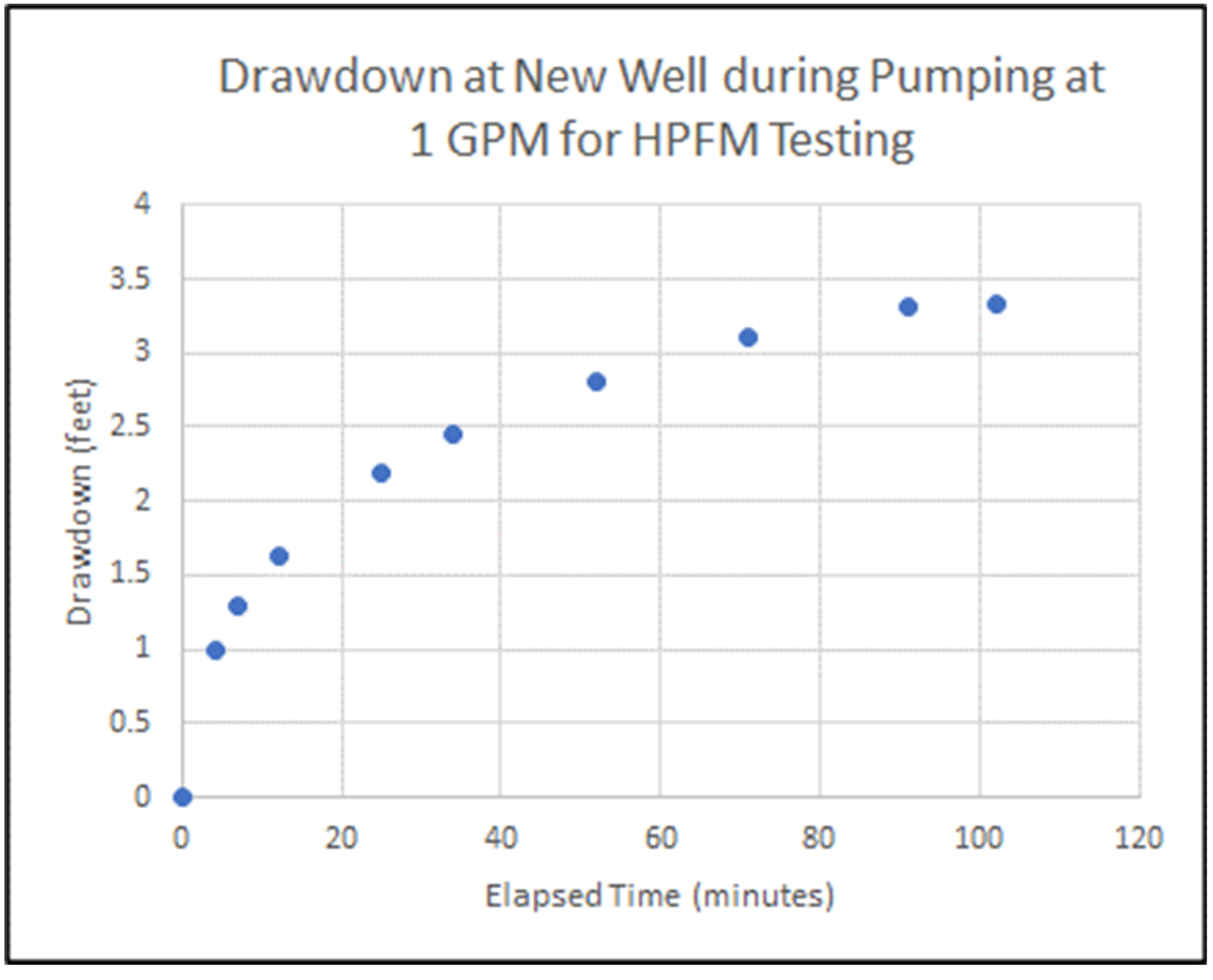
PROJECT #:	22122
FILE NAME:	Figure 5



Water Level and Pumping Rate Measurements Recorded during Pumping of New Well at 1 GPM for HPFM Testing					
Clock Time	Elapsed Time		Water Levels (feet)		Pumping Rate (GPM)
	Hr:Min	Minutes	Depth	Drawdown	
17:39	0:00	0	24.81	0	1.05
17:43	0:04	4	25.81	1.00	1.05
17:46	0:07	7	26.10	1.29	1.05
17:51	0:12	12	26.44	1.63	1.03
18:04	0:25	25	27.00	2.19	1.02
18:13	0:34	34	27.26	2.45	0.99
18:31	0:52	52	27.61	2.80	0.98
18:50	1:11	71	27.92	3.11	0.99
19:10	1:31	91	28.12	3.31	0.96
19:21	1:42	102	28.15	3.34	0.93

FIGURE 6: Response of New Well to Pumping at 1 GPM during Heat Pulse Flow Meter Geophysical Testing

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

PRINCETON GEOSCIENCE

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WNW

A

Residential Properties - North

GMNJ Site

New Well

Old Well

RTE 518

Residential Properties - South

ESE

A'

Partially Open Bedding Plane and Steep Fractures Provide Leaky Interconnection Between Major Aquifer Sub-units and Contribute Small Quantities of Water to Wells

Bedding Plane Fracture Encountered in New Well at 270' – Major Aquifer Sub-Unit

Large, Open Bedding Plane

Numerous, Steep-Dipping Fractures, Mostly Sealed with Secondary Mineral Infill (e.g., Calcite, Gypsum) Contribute No Water or Very Small Quantities of Water to Wells

LEGEND

Note: Bedrock aquifer fracture network shown approximately for illustrative purposes – not to scale.

<u>Supply Wells</u> – Solid black interval represents steel surface casing; Deeper white interval shows open borehole in bedrock

Dark Gray Diabase ("Traprock")

Lower Passaic Formation – Mudstones and siltstones, lesser sandstones with bedding parallel fracturing and subvertical fracturing shown – weathered zone shown at top

Lockatong Formation – Mudstones, siltstones, shale and argillite with bedding parallel and subvertical fracturing shown

FIGURE 7: Generalized Dip-Oriented Cross-Section, Showing Leaky, Multi-Unit Aquifer System in Sedimentary Bedrock

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

PRINCETON GEOSCIENCE

SCALE:	Not to Scale
DATE:	May 2023
PREPARED BY:	JLP
CHECKED BY:	JLP
PROJECT #:	22122
FILE NAME:	Figure 7

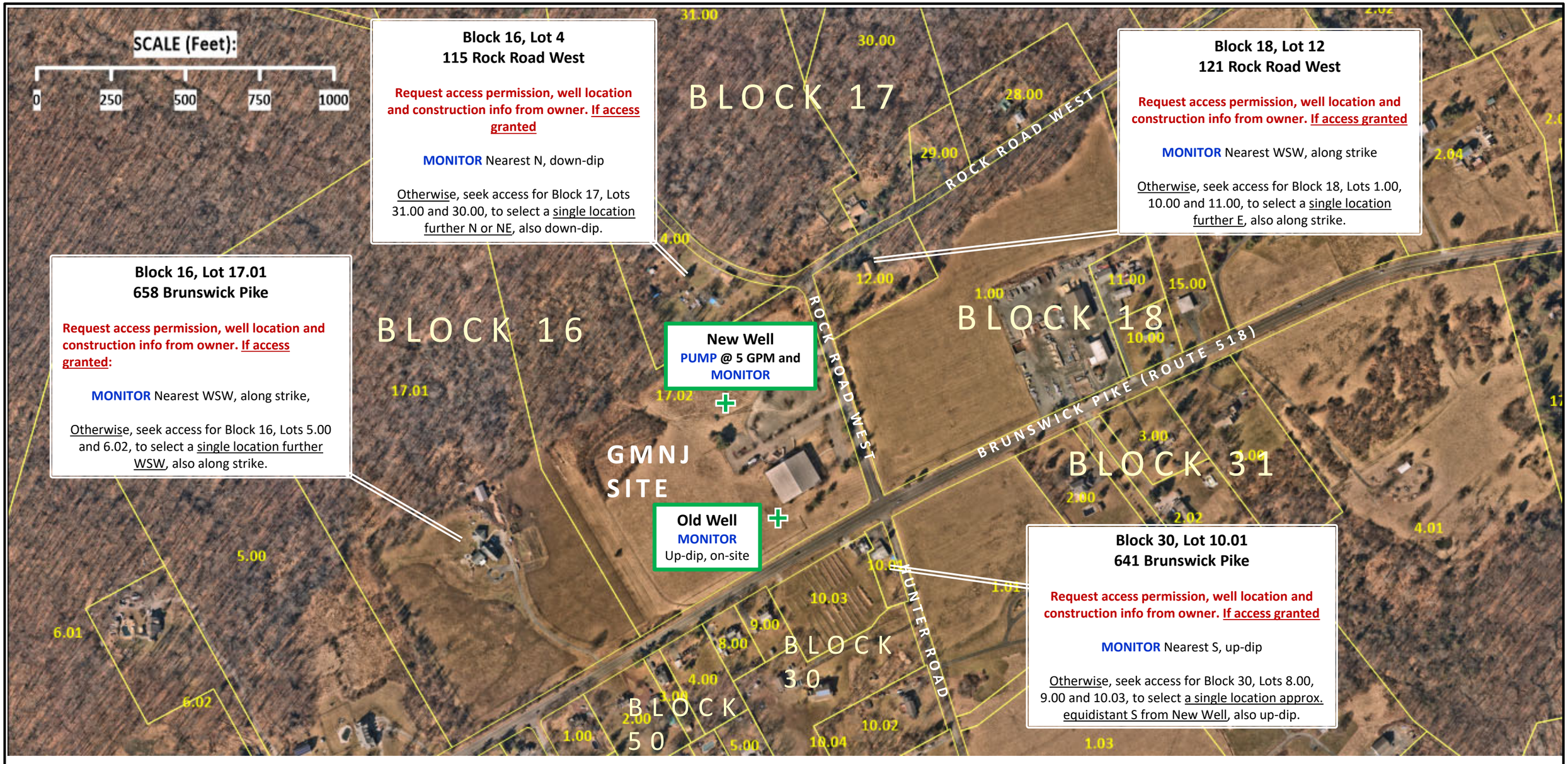

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FIGURE 8: Planned Locations for Onsite Pumping and Monitoring and for Requests to Monitor Offsite Wells

Green Medicine NJ LLC, West Amwell Township, Hunterdon County, NJ

PRINCETON GEOSCIENCE

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PREPARED BY:	JLP
CHECKED BY:	JLP
PROJECT #:	22122
FILE NAME:	Figure 8