Colvin, Judith

From: Geza Kiss [geza.kiss@watermanagementgroup.net]
Sent: Thursday, March 27, 2008 4:50 PM
To: Huff, Gwen
Cc: Colvin, Judith
Subject: GIS/GPS dessign, audit operation methodology presented to DWR public hearing session
Attachments: BadDU Rotpr 50.1.jpg; BadDU Spray 19.2.jpg; NewDU-I20-81.7.jpg

Dear Madams,

My name is Geza Kiss a principal at Green World Solutions a California corporation.

The following brief supplemental summary, that describes some of the GIS/GPS design/installation/operation concepts that
I have mentioned in my oral testimony during the public hearing today, at the IEUA headquarters.

The GIS/GPS technology integrates the water management process from planning, design, GPS (head location) and operation.

In the development process the largest volume of water can be saved , by eliminating the currently
still existing gaps between design and installation as well as installation and operation by controlling the efficiency of distribution and operation.

The technology is applicable to both new irrigation system design, plan checking, and the evaluation and operation of existing landscape.

In case of a new landscape project the process starts from planning and design of the irrigation system, during which the irrigation system efficiency is tested and known at the completion of design.
This technology which quantifies and controls the volume during planning and design helps to control the water used during operation.

The system allows the designer to meet or exceed the proposed new state criteria of 0.71.
Current design and audit methodologies do not allow to routinely achieve that.

By knowing the efficiency of the design at the time of designing the irrigation system and accurately duplicate the distribution
efficiency on the field, and eliminates the need for costly field adjustments and allow the system to take full advantage of smart controllers.
Accurate control of volume can be possible only if the irrigation heads are spatially correct, which can enable the operator to of the capabilities of “smart controllers” .

Once the design is tested the spatial x,y,z, coordinates are downloaded into a GPS machine which can locate the heads with few centimeter accuracy.
Consequently, the tested design is duplicated in a real environment with topography, with

known distribution efficiency, consequently assures accurate water consumption.
Once the project completed the design database is downloaded into a “smart irrigation controller” and the system is operated from the design database.
As a result the water consumption is based on actual spatial relationship of heads and efficiency factors are accurate.

As an additional benefit the system eliminates the need for water audit, because as long as the heads and nozzles are the type specified and are not moved,
the efficiency of the system will remain the same.

The system can also accept daily Et0 values to adjust to weather conditions. Daily comparison of water budget compliance can be displayed on a website,
to verify accurate water consumption. This allows the maintenance contractor to react to any unforeseen events, which might alter predetermined consumption
(line break intentional water use etc)

If the methodology is applied to plan checking, the system can also prevent the installation of inefficient systems.

In case of an existing system, the process is reversed. First the head location information is collected via GPS, than the system is analyzed.
And the GIS/GPS distribution assessment can pinpoint the specific locations of the inefficiency or problem areas.

Following that, the data downloaded into the controller, just like in case of new systems, to operate from the the established evaluation database.

The water audit process is also simplified with GPS audit methodology.
Conventional water audit only samples water distribution, and assumes that the sampled areas are representative
of all other areas, which makes the audit process itself highly inaccurate and it does not point to areas with distribution inefficiency problems.

GPS water audit however, test every head and all areas. And as a bi product, the owner/contractor can receive an as-built drawing, which also improves operation.
GPS water audit identifies the exact location of inefficiency or problem areas.

GPS methodology encourages the use of and the importance of correct specification as well as the use of control and back indication devices to control equipment operation parameters constant
(pressure sensors, flow sensors, moisture sensors et0 gages etc)

Conventional water audit is exposed to the elements, even mild wind conditions renders the conventional water audit inaccurate.

In addition, full, and detailed audit of sites is cost prohibitive with conventional methodology, GPS audit cost is comparable to current audit cost.

I am attaching sample site evaluations which shows color coded distribution analysis.

Thank you for the opportunity to participate on this public hearing and

please do not hesitate to call me if have any questions.

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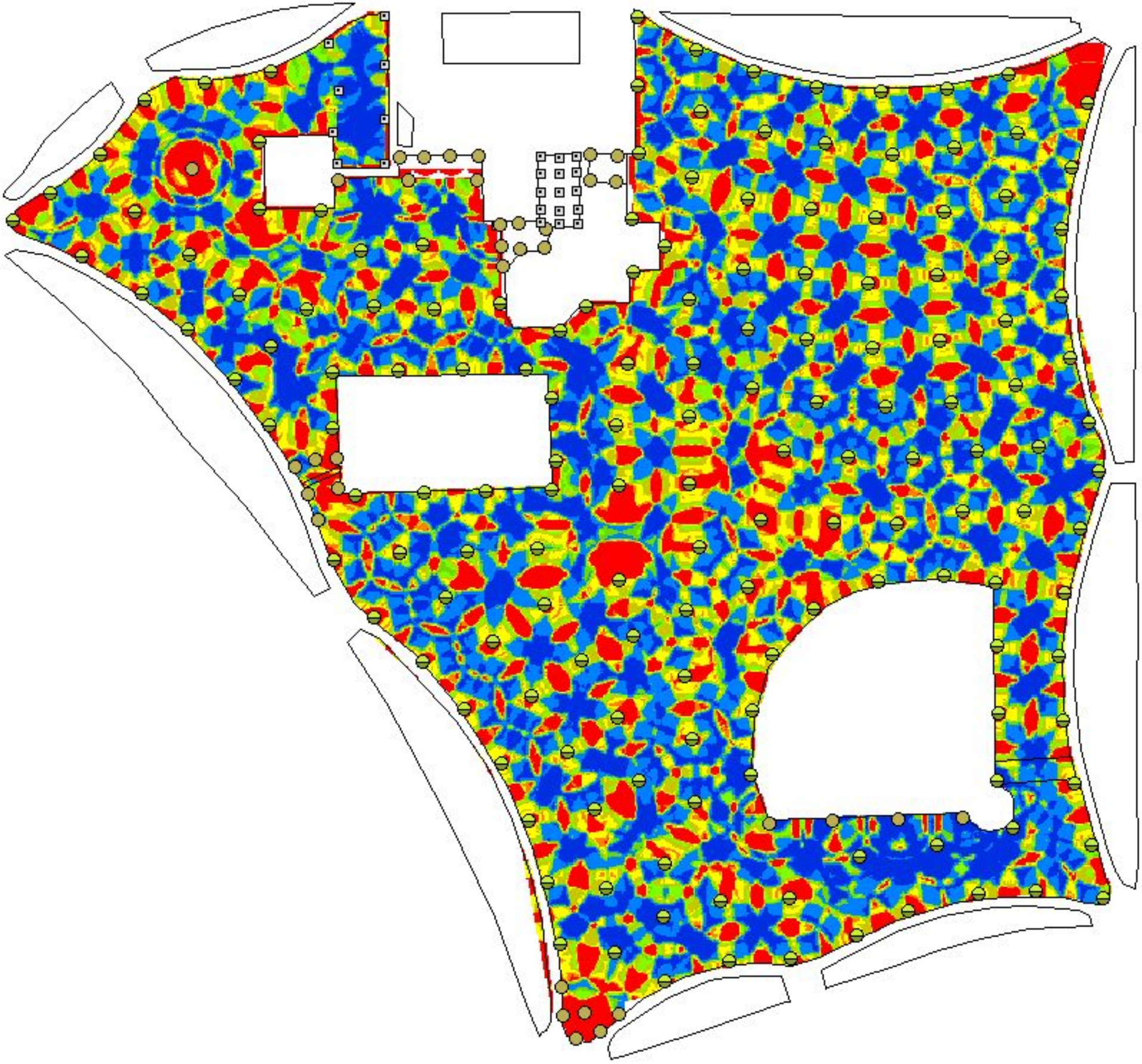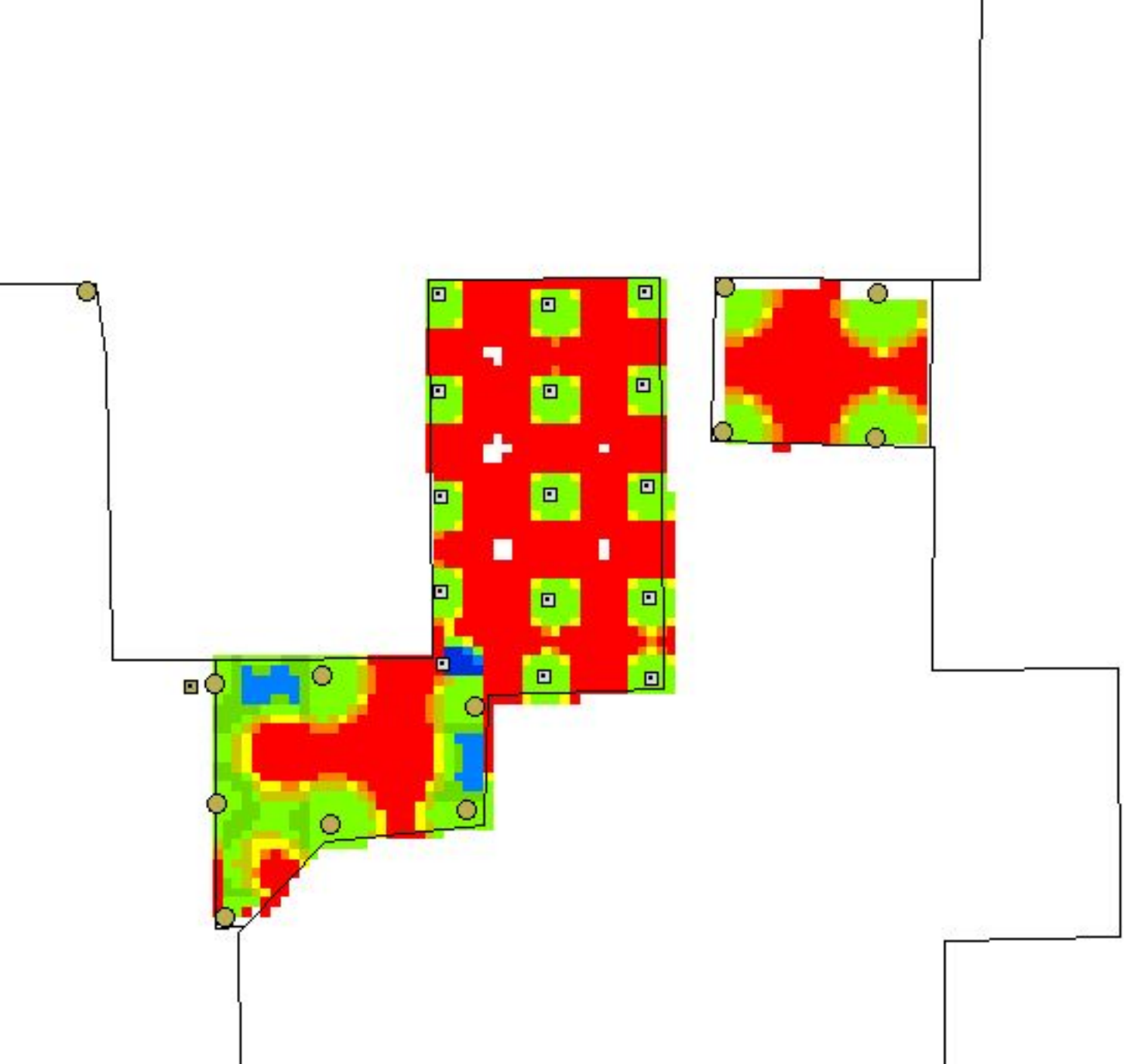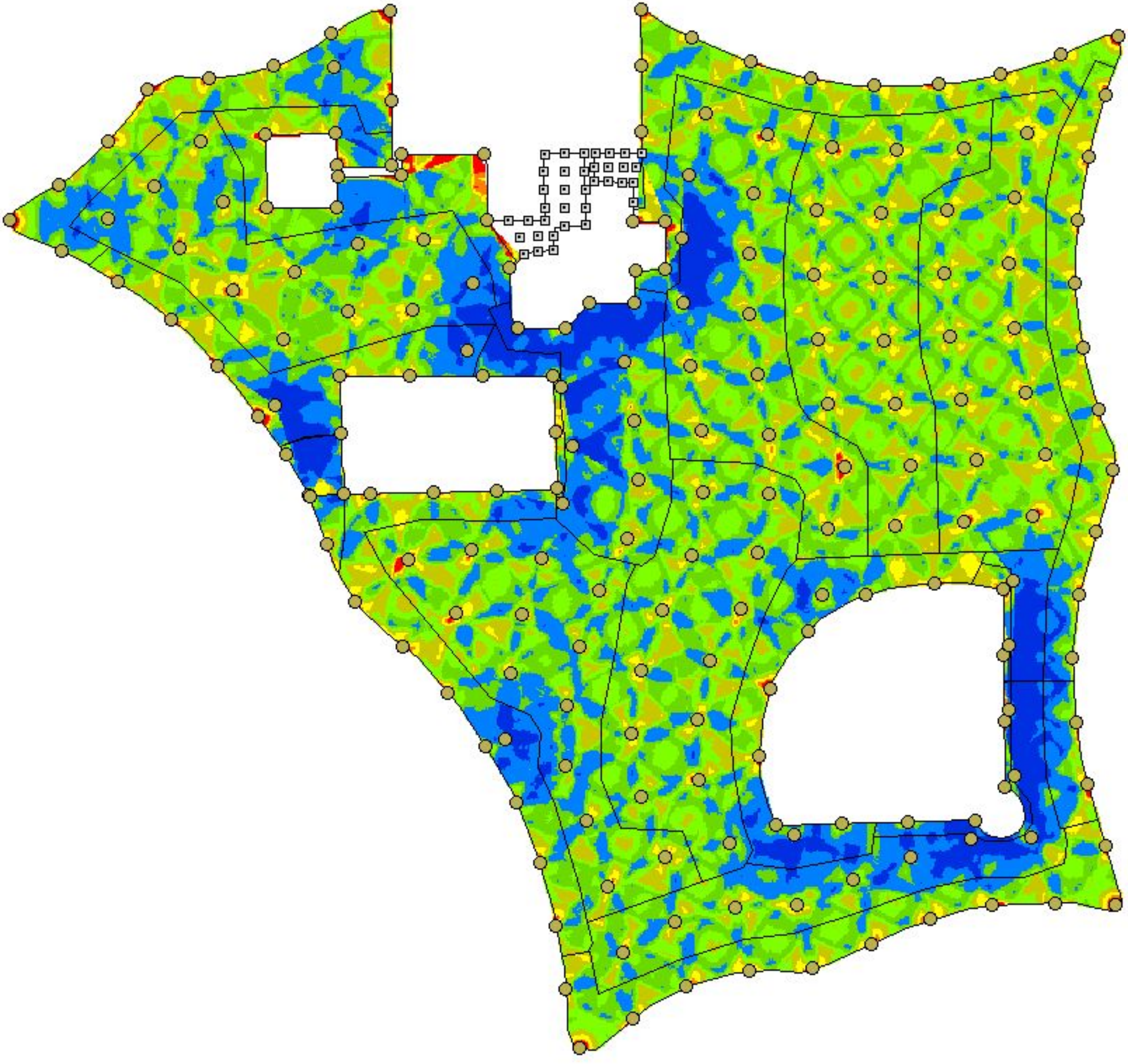
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