

Minnesota River Bluff and Valley

2003
REPORT

One of the unique physical characteristics contributing to Eden Prairie's landscape is the Minnesota River valley bluff. The bluff is an unusual combination of climate, vegetation, geology, and wildlife characteristics, which contribute to the area's community value. Preservation of these features is desirable as a contribution to Eden Prairie's high quality of life and desire to preserve its heritage.

The Minnesota River bluff was formed approximately 10,000 years ago during the Wisconsin Glacial Stage. All of Eden Prairie's familiar landforms are due to numerous glacial ice sheets that covered the area. Melt waters from the retreating glaciers cut through sandy outwash plains, thereby forming a bluff. Later climatic changes provided an environment for changing vegetation patterns. Spruce forest and short grass prairie preceded the current mix of Big Woods stands. Prehistoric tribes inhabited the bluff as evidenced by the burial mounds. Later, the Iowa inhabited the bluffs, but they were driven away by Dakota (Sioux) tribes, who settled on the bluff and river bottom area. The Sioux lived in the area until 1852 when they were moved to the lower Sioux reservation in western Minnesota. Pioneer settlements occurred in the mid 1800s when the bluff was selected for its transportation and security characteristics. River transportation and truck farming reinforced this area's importance prior to World War II. Recent subdivision developments have now begun to encroach upon Eden Prairie's bluffs, which may alter the bluff's unique character.

Native American burial sites are present throughout Eden Prairie's bluffs. More than 100 earth mounds have been recorded within Eden Prairie City limits, most are conical or ovoid in shape and occur in clusters along the Minnesota River bluffs. They represent some of Eden Prairie's most

Eden Prairie Park and Open Space System Plan
SRF Consulting Group, Inc

2-13

significant cultural resources. Section 307.08 of Minnesota's "Private Cemeteries Act" (MS307) affords all human burial grounds and remains older than 50 years and located outside of platted or identified cemetery protection from unauthorized disturbance. One of the policy recommendations regarding conservation of the bluffs is that the City should complete a survey of known burial sites to determine current conditions of mounds and require archaeological survey of any bluff development.

The need to preserve Eden Prairie's bluff areas are justified by their contribution to community heritage. The bluff's topography, vegetation and aesthetics are currently jeopardized by encroaching development. Without preservation, their character may be permanently altered such that future generations cannot enjoy them.

December 29, 2021

Riley, Purgatory, Bluff Creek Watershed District

18681 Lake Drive East

Chanhassen, MN 55317

Re: Mitigation funding for lower reach of Riley Creek

Dear Watershed Managers,

I applaud your mitigation funding for the Upper and Middle reaches of Riley Creek. Please save some money for the Lower reach of Riley Creek.

As you probably know, Riley Creek is classified as "impaired water" by the Minnesota Pollution Agency (MPCA). A tutorial article regarding "impaired water" appeared in the Star Tribune on 12-26-21, Sec. B, pages 1 and 6. In the article Wayne Cords, watershed section manager, stated: "Water is really a reflection of the land around it." My suspicion is that an aerial view of the lands abutting Riley Creek from its headwaters to its lowest reach will show multiple residential subdivisions snuggled up to Riley Creek. Are these residential subdivisions the reflections Wayne Cords is addressing?

It also appears to me that some or all of Riley Creek is located within your "High Risk Erosion Map," Eroding creek banks are a good reason not to snuggle.

Your 3-2 vote to approve the Noble Hill residential subdivision located on the south slope of the Minnesota River bluff is encouraging. One more nay vote would have preserved this prairie remnant and prevented another residential subdivision from snuggling up to Riley Creek. An ounce of prevention is worth a pound of cure. That is a good adage to keep in mind when we now see the looming remedial costs to cure.

KEEP UP THE GOOD WORK

Very truly yours,



Theodore R. Mellby, Former Minnesota delegate
to the Great Lakes Commission, One of the Founders and Chair of the Leech Lake Area
Watershed Foundation, Owner of an Eden Prairie Townhouse snuggled up to Purgatory Creek.

Summary

Understanding an urban forest's structure, function and value can promote management decisions that will improve human health and environmental quality. An assessment of the vegetation structure, function, and value of the Noble Hill Inventory urban forest was conducted during 2022. Data from 357 trees located throughout Noble Hill Inventory were analyzed using the i-Tree Eco model developed by the U.S. Forest Service, Northern Research Station.

- Number of trees: 357
- Tree Cover: 6.296 acres
- Most common species of trees: Red pine, Eastern white pine, White oak
- Percentage of trees less than 6" (15.2 cm) diameter: 0.0%
- Pollution Removal: 572.6 pounds/year (\$1.92 thousand/year)
- Carbon Storage: 284.2 tons (\$48.5 thousand)
- Carbon Sequestration: 3.793 tons (\$647/year)
- Oxygen Production: 10.11 tons/year
- Avoided Runoff: 20.28 thousand cubic feet/year (\$1.36 thousand/year) (151,705 U.S. gallons)
- Building energy savings: N/A – data not collected
- Avoided carbon emissions: N/A – data not collected
- Replacement values: \$542 thousand

Ton: short ton (U.S.) (2,000 lbs)

Monetary values \$ are reported in US Dollars throughout the report except where noted.

Ecosystem service estimates are reported for trees.

For an overview of i-Tree Eco methodology, see Appendix I. Data collection quality is determined by the local data collectors, over which i-Tree has no control.

April 12, 2023

Riley Purgatory Bluff Creek Watershed District
18681 Lake Drive East
Chanhassen MN 55317

Dear Managers Ward, Crafton, Pedersen, Ziegler & Koch:

The i-Tree Ecosystem Analysis, Noble Hill Inventory, Urban Forest Effects and Values, dated 07/19/2022, quantifies the environmental value of the 357 significant Heritage trees scheduled for removal. See the summary on page 2. The total environmental value is \$594,437.00.

We studied twelve randomly selected upstream residential developments in the Riley Creek Sub Watershed District, to determine the number of Significant and Heritage trees that were removed. That number is 25,173, which is 70 x \$594,437.00 or \$41,610,590.00.

There are 57 more upstream residential subdivisions in the Riley Creek Sub Watershed District that should be studied to determine the number of Significant and Heritage trees that were removed. We leave those numbers for your determination as per due diligence.

One of the categories in the Noble Hill i-Tree Inventory is Avoided Runoff which is 20.28 cubic feet/year which corresponds to 151,705 U.S. gallons. 70 times 151,705 gallons equals 10,619,350 U.S. gallons which the trees needed yearly to survive, which the Watershed District must now handle.

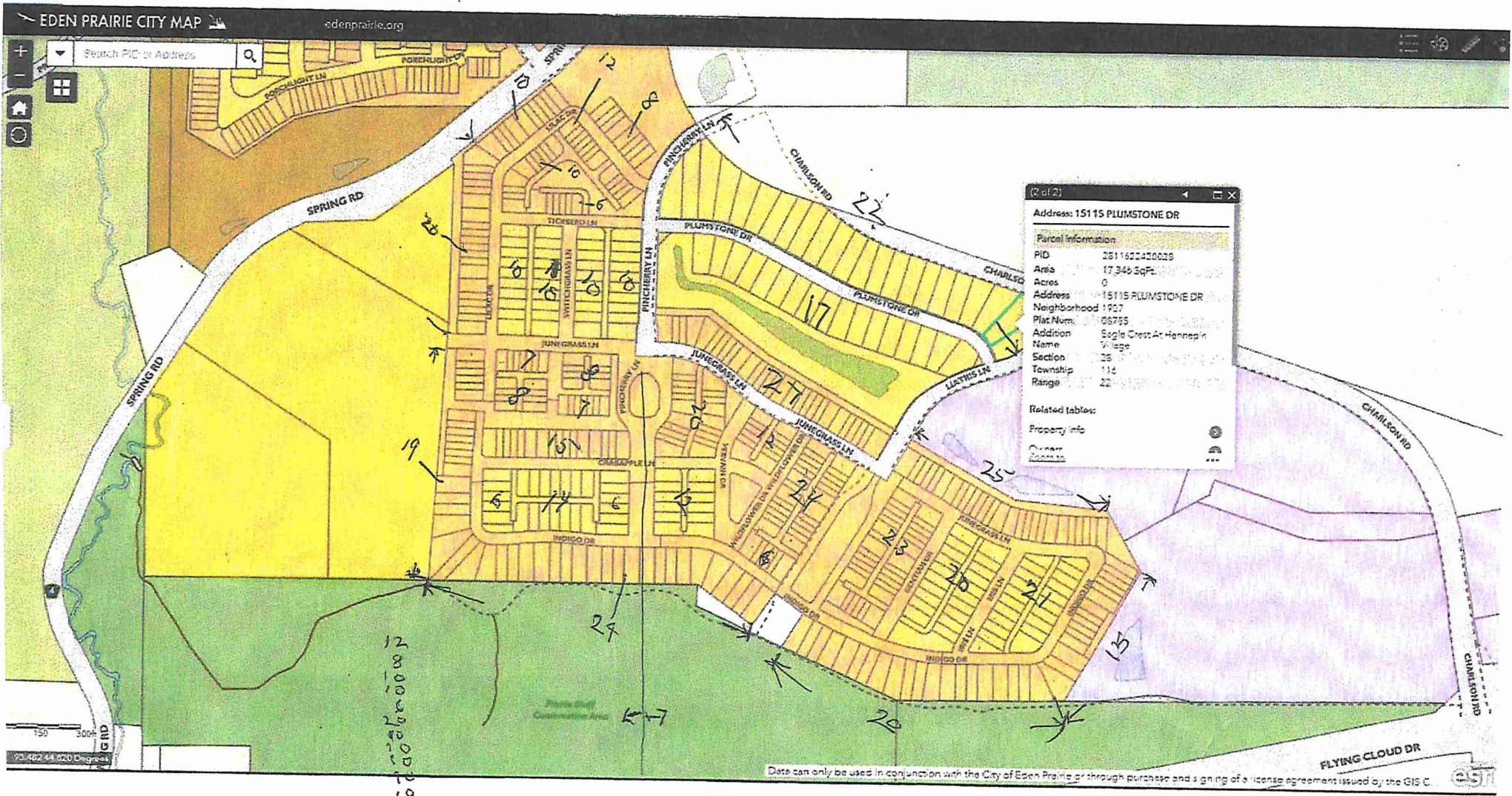
Please remember there are 57 more upstream residential subdivisions for which Avoided Runoff is not quantified. This single factor makes the Watershed mission to protect and enhance Riley Creek difficult, if not impossible, to attain.

We hope this information, including the numbers, will allow you to reconsider Permit No. 2021-012.

Very truly yours,

Theodore R. Mellby

Eagle Crest At Hennepin Village With Plat Number



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289

226
289

515 UNITS



Watershed Protection Research Monograph No. 1

IMPACTS of Impervious Cover on Aquatic Systems

Center for
Watershed
Protection

March 2003

1.1 A Review of Recent Urban Stream Research and the ICM

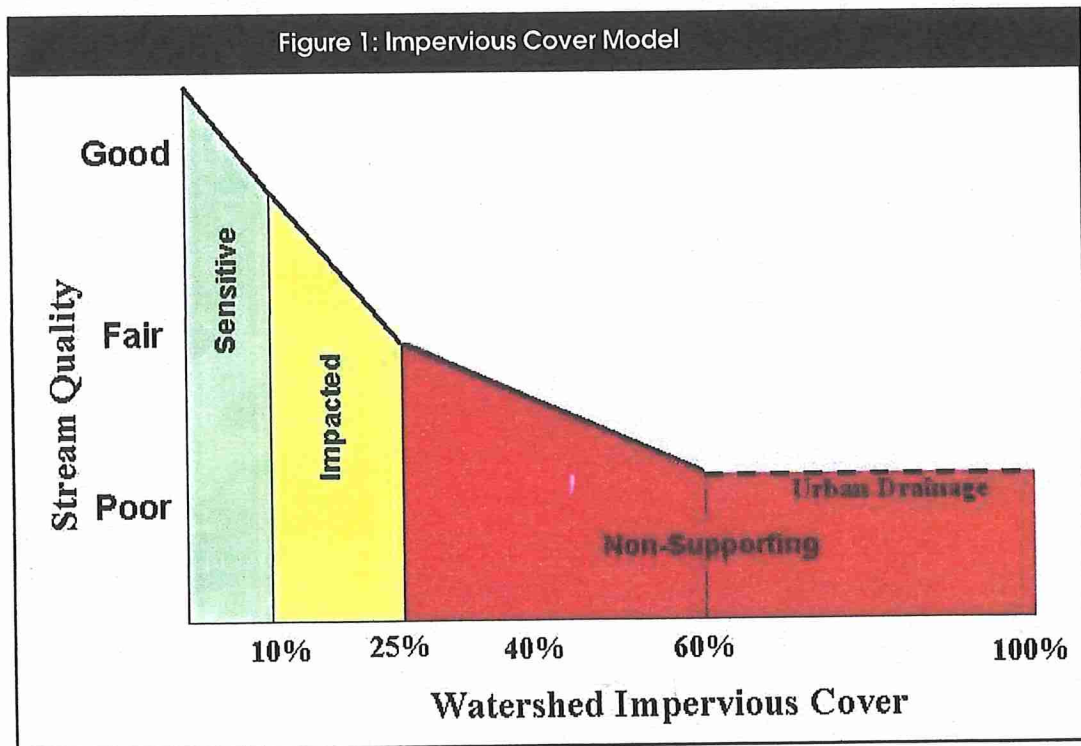
In 1994, the Center published "The Importance of Imperviousness," which outlined the scientific evidence for the relationship between IC and stream quality. At that time, about two dozen research studies documented a reasonably strong relationship between watershed IC and various indicators of stream quality. The research findings were subsequently integrated into the ICM (Schueler, 1994a and CWP, 1998). A brief summary of the basic assumptions of the ICM can be found in Figure 1. The ICM has had a major influence in watershed planning, stream classification and land use regulation in many communities. The ICM is a deceptively simple model that raises extremely complex and profound policy implications for watershed managers.

The ICM has been widely applied in many urban watershed settings for the purposes of small watershed planning, stream classification, and supporting restrictive development regulations and watershed zoning. As such, the ICM has stimulated intense debate among the planning, engineering and scientific communi-

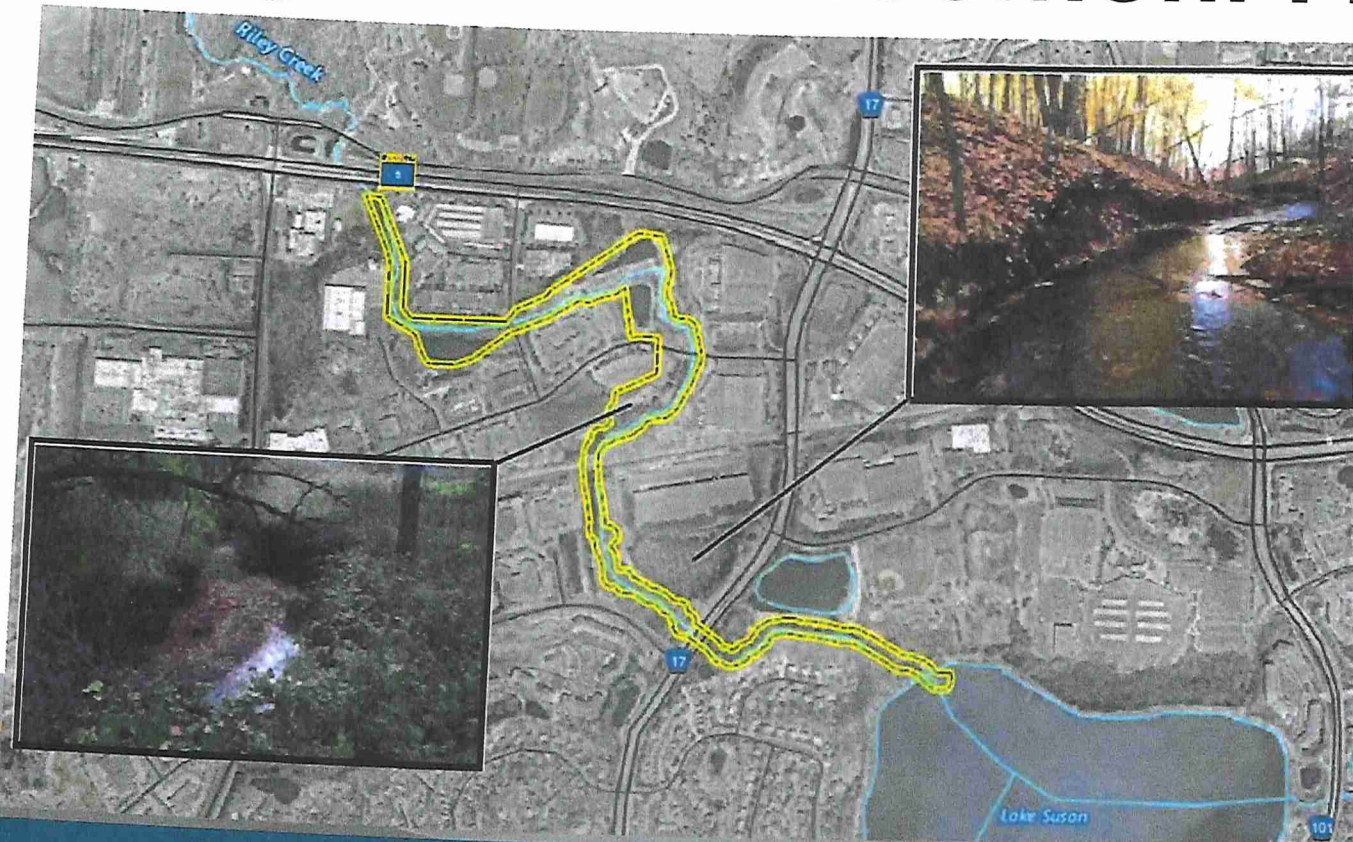
ties. This debate is likely to soon spill over into the realm of politics and the courtroom, given its potential implications for local land use and environmental regulation. It is no wonder that the specter of scientific uncertainty is frequently invoked in the ICM debate, given the land use policy issues at stake. In this light, it is helpful to review the current strength of the evidence for and against the ICM.

The ICM is based on the following assumptions and caveats:

- Applies only to 1st, 2nd and 3rd order streams.
- Requires accurate estimates of percent IC, which is defined as the total amount of impervious cover over a subwatershed area.
- Predicts potential rather than actual stream quality. It can and should be expected that some streams will depart from the predictions of the model. For example, monitoring indicators may reveal poor water quality in a stream classified as "sensitive" or a surprisingly high biological diversity



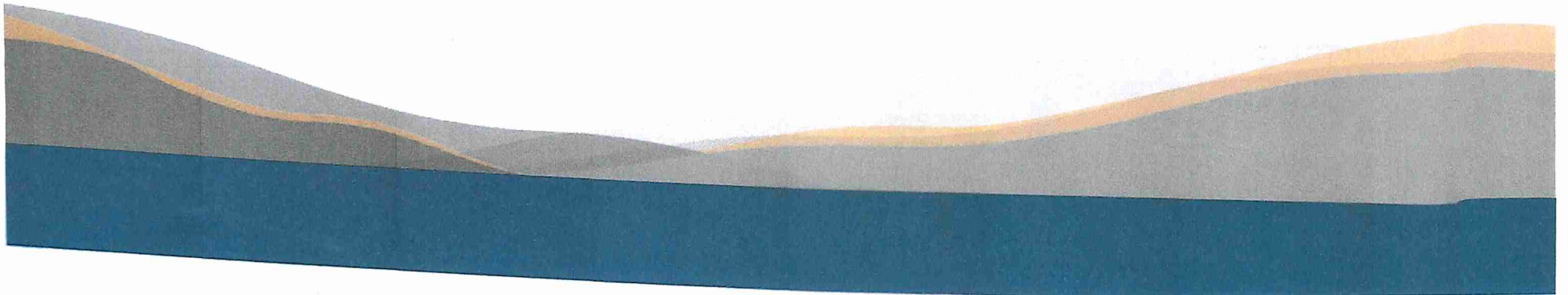
Upper Riley Creek Ecological Enhancement Plan



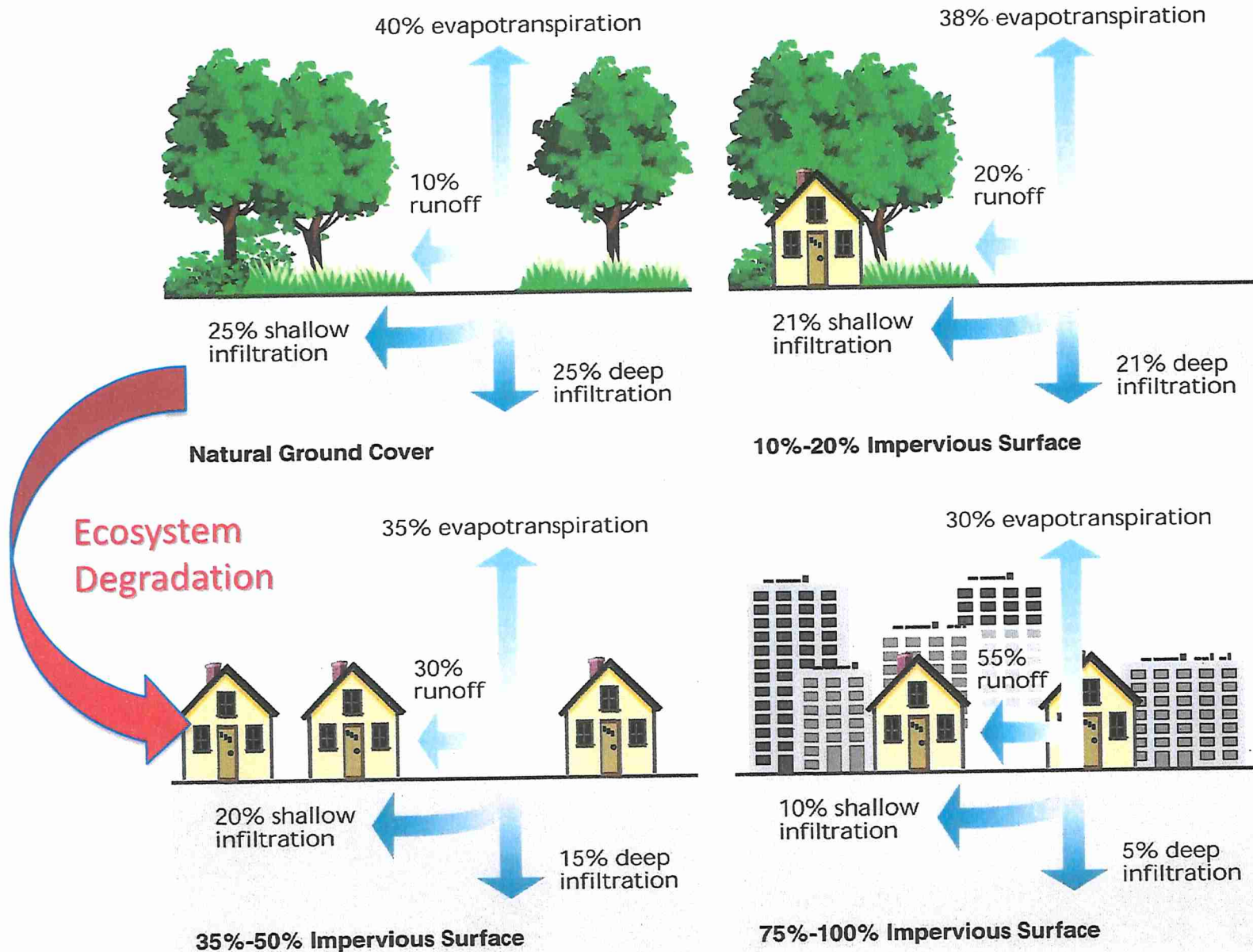
Board of Managers Meeting – December 8, 2021



How did we get here?



Main Driver



**RILEY
PURGATORY
BLUFF CREEK
WATERSHED DISTRICT**

18681 Lake Drive East
Chanassen, MN 55317
952-607-6512
www.rpbcwd.org

Riley Purgatory Bluff Creek Watershed District Permit Application Review

Permit No: 2021-012

Considered at Board of Managers Meeting: August 4, 2021 (continued to August 12, 2021)

Received complete: April 13, 2021

Applicant: Dean Lotter, Pulte Homes

Consultant: Mark Rausch, Alliant Engineering

Project: Noble Hills: proposed redevelopment of an existing single-family home site for 50 single-family residential lots. The construction will also disturb the turn lanes and the city trail along Spring Road. Proposed stormwater features include three infiltration basins and one sediment basin.

Location: 9955 Spring Road, Eden Prairie, MN 55347

Reviewer: Scott Sobiech, P.E., Barr Engineering

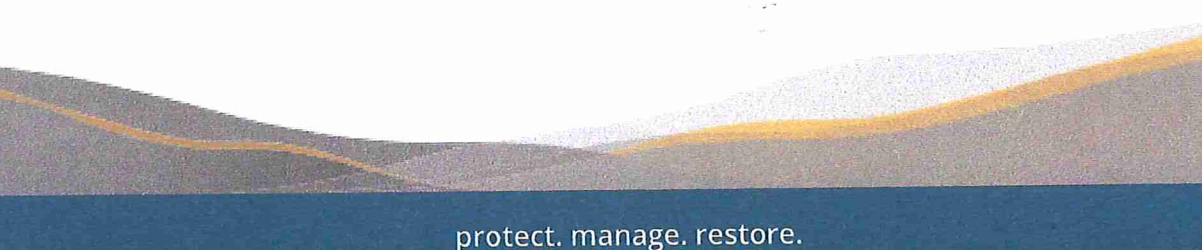
Proposed Board Action

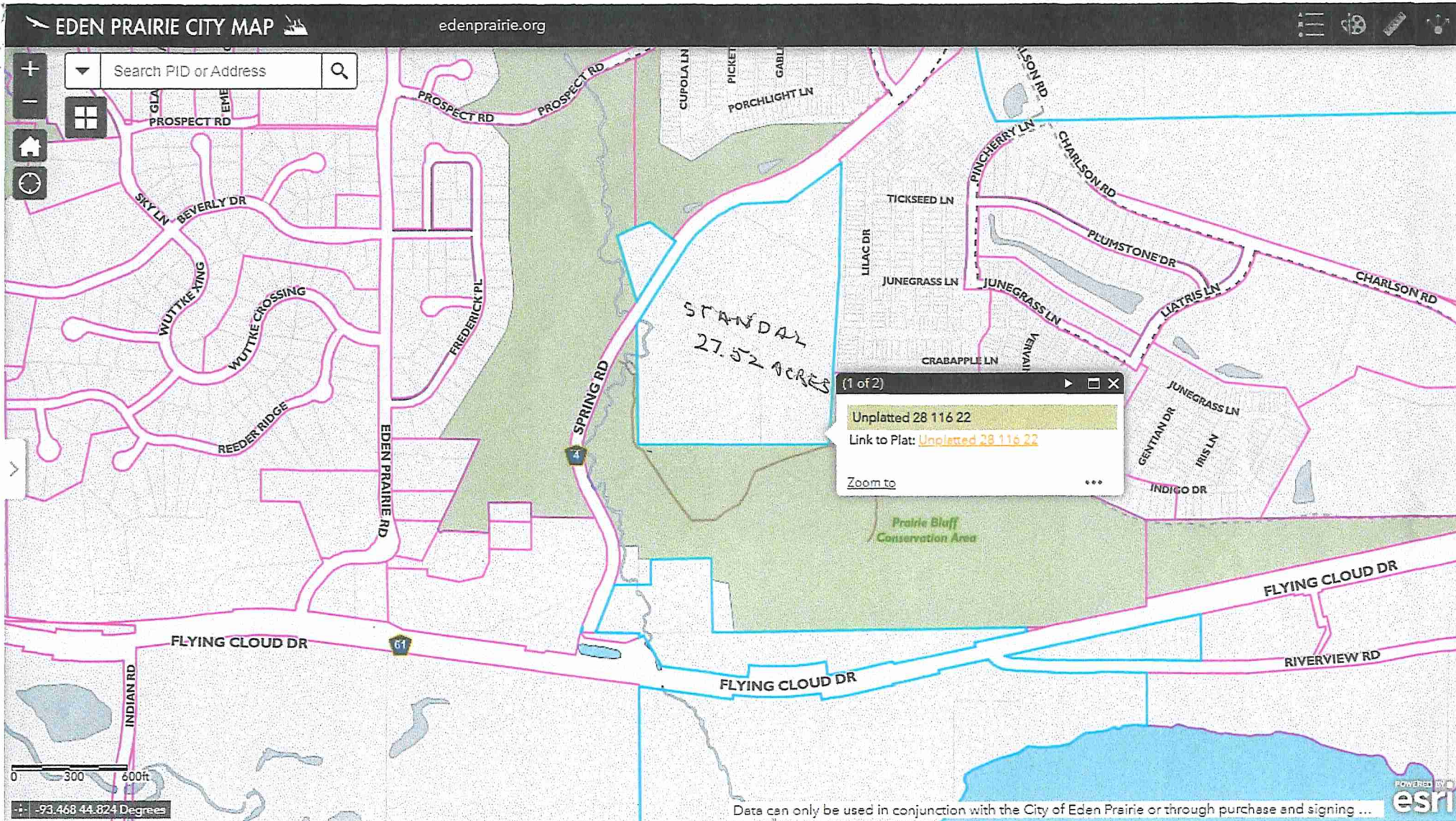
Manager _____ moved and Manager _____ seconded adoption of the following resolutions based on the permit report that follows and the presentation of the matter at the August 4, 2021 (continued to August 12, 2021) meeting of the managers:

Resolved that the application for Permit 2021-012 is approved, subject to the conditions and stipulations set forth in the Recommendations section of the attached report;

Resolved that on determination by the RPBCWD administrator that the conditions of approval have been affirmatively resolved, the RPBCWD president or administrator is authorized and directed to sign and deliver Permit 2021-012 to the applicant on behalf of RPBCWD.

Upon vote, the resolutions were adopted, _____ [VOTE TALLY].





PID 1 3.16 acres
 4 10.00 "
 5 14.36 "

 27.52

Search by Address or [Bldg help](#)

2811622320001

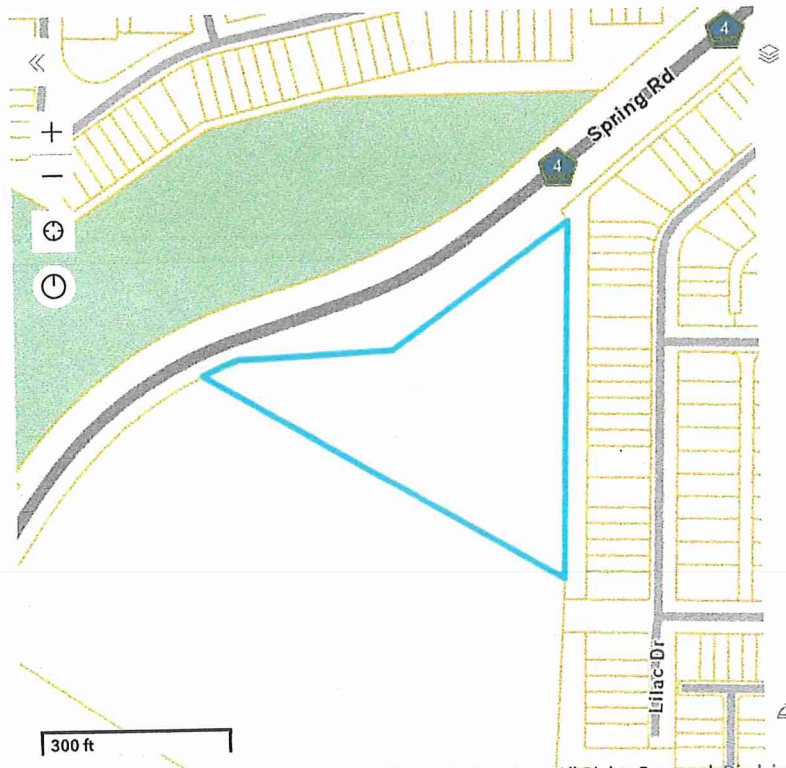
[Results](#) [Prop](#) [Print](#) [Share](#) [Close](#)

PID 2811622320001
Address 9875 Spring Rd,
Eden Prairie,
MN 55347

Owner/Taxpayer

Owner John Standal
& Carol
Standal

Taxpayer JOHN
STANDAL &
CAROL
STANDAL
2001 SE
RIVERSIDE
DR
STUART FL
33480



3.16 ACRES
137,481 SQ FT.
TORRENS

Search by Address or Bldg # help

Search input field

Results Prop: Print Copy Close

PID 2811622320004
Address 9955 Spring Rd,
Eden Prairie,
MN 55347

Owner/Taxpayer

Owner John B &
Carol L
Standal

Taxpayer JOHN
STANDAL
2001 SE
RIVERSIDE
DR
STUART FL
34996

Tax Parcel



10.60 ACRES
435,555 sq ft
Abstract

This parcel need to be resurveyed
& reduced to approx 3 +/- acres

Search by Address or [Bldg help](#)

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PID 2811622320005
Address 61 Address
Unassigned,
Eden Prairie,
MN 00000

Owner/Taxpayer

Owner J B & C
Standal
Taxpayer JOHN
STANDAL
2001 SE
RIVERSIDE
DR
STUART FL
34996-1209

Tax Parcel



14.36 acres
625,583 sq ft
Abstract

Including results for [Watershed Act, MN Statutes Chapter 103D](#).
Do you want results only for [Watershed Act, MN Statutes Chapter 103D](#)?

 See more

The **Minnesota Watershed District Act**, now codified in **Minnesota Statutes Chapter 103D**, provides for the establishment of watershed districts "to conserve the natural resources of the state by land use planning, flood control, and other conservation projects... using sound scientific principles for the protection of the public health and welfare and provident use of the natural resources."


Minnesota Watershed Law – Water Laws

 www.waterlaws.com/minnesota-watershed-law

How can I get involved?

What are the benefits of watersheds?

How are watershe

 Type a message...

Feedback

✓ Minnesota Watershed Law – Water Laws

<https://www.waterlaws.com/minnesota-watershed-law>

Web As set forth in Minnesota Statutes § 103D.335, watershed districts have the following specific governmental powers: General powers. **To the extent necessary for lawful conservation purposes: to sue and be sued; to incur debts, liabilities, and obligations; to ...**

Ditch Law

County commission established ditch in 1988 but did not acquire buffer. While ...

Minnesota Watershed Dist...

Bois de Sioux Watershed District. Brown's Creek Watershed District. Buffalo Creek ...

Riparian and Private Rights

What are the boundaries of federal easements acquired over "any water" ...

News

The EPA has narrowed state and tribal authority to evaluate and impose ...

Tort Liability

The Court also ruled that despite the language of Minnesota Statutes §586.02 ...

Clean Water Act

Are unpermitted discharges to groundwater that reach surface waters a point source ...

Public Waters

What constitutes a "roofed" structure prohibited from Minnesota's public ...

Minnesota Statutes

Minnesota Statutes. Statutes and Rules; Minnesota Statutes; Minnesota Rules; ...

Miscellaneous

Did the National Parks Service properly define the term "water resources project" ...

Resources

Riley Purgatory Bluff Creek Watershed District One of Minnesota's urban ...

See results only from waterlaws.com

✓ Minnesota Statutes Chapter 103D (2021) - Watershed Districts ::

...
<https://law.justia.com/codes/minnesota/2021/chapters-103a-114b/chapter-103d>

Web Chapter 103D – Watershed Districts. GENERAL PROVISIONS. Section 103D.001 – Citation. Section 103D.011 – Definitions. Section 103D.501 – Construction And...

✓ Minnesota Statutes > Chapter 103D – Watershed Districts

<https://www.lawserver.com/law/state/minnesota/mn...>

Web **Minnesota Statutes > Chapter 103D – Watershed Districts** Current as of: 2022 | Check for updates | Other versions Terms Used In **Minnesota Statutes > Chapter 103D - Watershed ...**

[PDF] ✓ **Minnesota Drainage Law A Chronological Summary of Key ...**

<https://bwsr.state.mn.us/sites/default/files/2019...>

✓ Home :: [Riley Purgatory Bluff Creek Watershed District](https://rpbcwd.org)

<https://rpbcwd.org>

Web The **Riley Purgatory Bluff Creek Watershed District (RPBCWD)** is a special unit of government that protects the **watersheds** of **Riley Creek, Purgatory Creek, and Bluff ...**

Permits

The rules are a watershed-wide regulatory structure that ensures a consistent level ...

Board Meetings

Library. Welcome to our Resource Library! Here you'll find documents relating to our ...

Grants

From simple ideas to grand plans, sometimes it's hard to know where to ...

Citizens Advisory Committee

As representatives of citizen interests, committee members support the ...

Adopt a Tree

Every Fall, we give away over 100 tree and shrub saplings that have been growing in ...

Permit FAQs

Check out this useful tool from the MN Department of Natural Resources to help ...

About Us

The **Riley Purgatory Bluff Creek Watershed District (RPBCWD)** is a local, special unit ...

Board of Managers Meetings

Please take notice that the Riley Purgatory Bluff Creek Watershed District Board of ...

Other content from rpbcwd.org

[Watershed Management Plans - Home :: Riley Purgatory](#)

[Riley Creek - Home :: Riley Purgatory](#)

[Events - Home :: Riley Purgatory](#)

[See more](#)

18681 Lake Dr E, Chanhassen, MN 55317 · (952) 607-6512



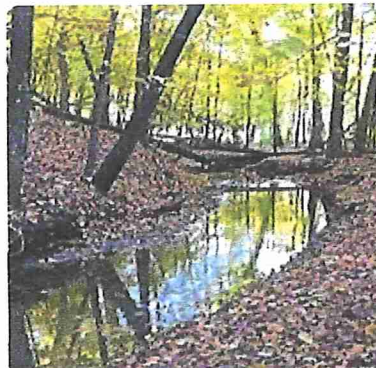
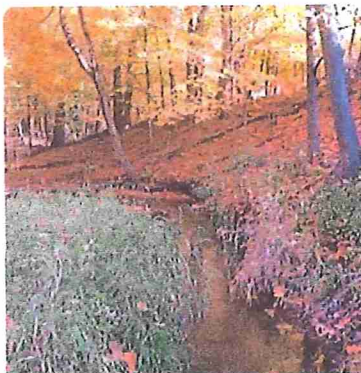
WEBSITE



DIRECTIONS

Images of Riley Purgatory Bluff Creek Watershed

bing.com/images



Rule D – Wetland and Creek Buffers

1 Policy

It is the policy of the Board of Managers to ensure the preservation of the natural resources, recreational, habitat, water treatment and water storage functions of water resources. This rule is intended to:

- Support municipal enforcement of the Wetland Conservation Act and the policy of no net loss in the extent, quality and ecological diversity of existing wetlands in the watershed.
- Preserve vegetation and habitat important to fish, waterfowl and other wildlife while also minimizing negative impacts of erosion.
- Require buffers around wetlands, water basins and watercourses affected by land-disturbing activities.
- Ensure the preservation of the natural resources, habitat, water treatment and water storage functions of wetlands, water basins and watercourses.
- Maintain wetland integrity and prevent fragmentation of wetlands.
- Prevent erosion of shorelines and streambanks, and foster the use of natural materials for the protection, maintenance and restoration of shorelines and streambanks.

2 Regulation

2.1 Compliance with the criteria in section 3 of this rule is required for any activity that requires a permit under Rule B – Floodplain Management and Drainage Alterations, Rule E – Dredging and Sediment Removal, Rule F – Shoreline and Streambank Stabilization, except sand blanketing, Rule G – Waterbody Crossings and Structures or Rule J – Stormwater Management. The requirements of the rule apply to property:

- a encompassing or adjacent to a public watercourse, public waters wetland or other protected wetland in the watershed; or
- b encompassing or adjacent to any other watercourse within a High-Risk Erosion Area, unless the applicant submits data demonstrating a Stream Power Index rating of 3 or less and an absence of any significant existing erosion.

2.2 The requirements of this rule do not apply to:

- a incidental wetlands;
- b to wetlands that are disturbed solely by utility improvements or repairs that are the subject of a no-loss determination from the relevant Wetland Conservation Act Local Government Unit; or
- c to projects approved under the maintenance provisions of Rule F, paragraph 3.4.

3 Criteria

3.1 **Buffer area.** Buffer must be created or maintained:

Permit 2021-012

2 messages

Ted Mellby <tbmellby@gmail.com>

Thu, Apr 27, 11:11 AM

To: Terry Jeffery <tjeffery@rpbcwd.org>

Can you e-mail me Permit 2021-012. After a half hour on you web site with no luck i am forced to request that you e-mail what I should have been able to find without bothering you. Sorry

Terry Jeffery <tjeffery@rpbcwd.org>

Thu, Apr 27, 2:17 PM

To: Ted Mellby <tbmellby@gmail.com>

Permits are not placed on the website. They are a license. The permit review report will be under the meeting at which it was reviewed.

Terry Jeffery, District Administrator
952.687.1107
Sent from my Samsung S9
[Quoted text hidden]

Automatic reply: Permit 2021-012

Terry Jeffery <tjeffery@rpbcwd.org>
To: Ted Mellby <tbmellby@gmail.com>

Thu, Apr 27, 2023 at 9:11 AM

I will be out of the office on the afternoon of Wednesday, April 26th through Monday, May 1st, returning to the office on the 2nd. I will respond to emails as time permits.

If you need more immediate assistance please contact the following:

- For permitting questions contact Mat Nicklay at mnicklay@rpbcwd.org or Scott Sobiech at ssobiech@barr.com;
- For water quality and fisheries questions contact Josh Maxwell at jmaxwell@rpbcwd.org;
- For grant questions contact Liz Forbes at lforbes@rpbcwd.org;
- For all other questions contact Amy Bakkum at abakkum@rpbcwd.org.

Thank you.

Regards,

Terry Jeffery

Permit 2021-012

Mat Nicklay <mnicklay@rpbcwd.org>
To: Ted Mellby <tbmellby@gmail.com>

Thu, Apr 27, 2:05 PM

Good afternoon Ted,

We do not have an executed permit under number 2021-012. That number was assigned to the permit application submitted for the Noble Hills development on spring road, and that application was conditionally approved by the District board of managers at the meeting on June 2, 2021. However, the applicants never fulfilled the conditions and therefor a permit was never given. To the best of my knowledge, the developers of Noble Hills are no longer pursuing the project.

Sorry I couldn't be of more help. Let me know if you have any other questions.

Best regards,

Mat

signature_729190410

Mat Nicklay (he/him)

Natural Resources Technician

Riley Purgatory Bluff Creek Watershed District

[18681 Lake Drive E, Chanhassen, MN 55317](https://www.rpbcd.org/)

Ph: [612-791-9085](tel:612-791-9085) |

Email mnicklay@rpbcwd.org



[Quoted text hidden]

Climate-warming carbon dioxide emissions a record

Increased use of coal, more air travel get most blame.

By CATHY BUSSEWITZ
Associated Press

NEW YORK - Communities around the world emitted more carbon dioxide in 2022 than in any other year on record dating to 1900, a result of air travel rebounding from the pandemic and more cities turning to coal as a low-cost source of power.

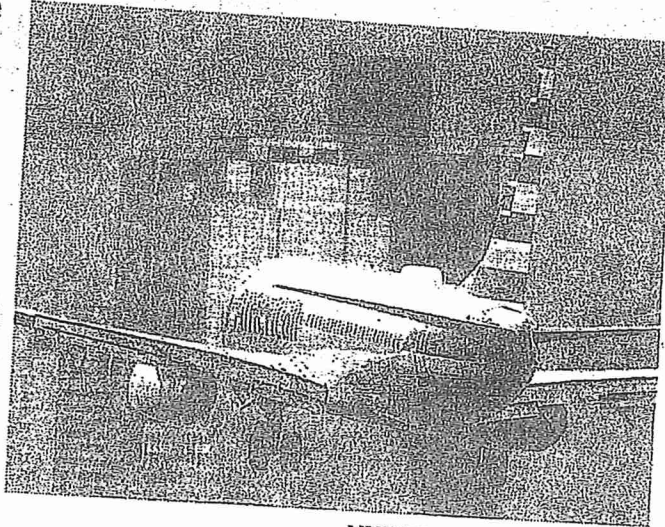
Emissions of the climate-warming gas that were caused by energy production grew 0.9% to reach 36.8 gigatons in 2022, the International Energy Agency reported Thursday. (The mass of one gigaton is equivalent to about 10,000 fully loaded aircraft carriers, according to NASA.)

Carbon dioxide is released when fossil fuels such as oil, coal or natural gas are burned to power cars, planes, homes and factories. When the gas enters the atmosphere, it traps heat and contributes to the warming of the climate.

Extreme weather events intensified last year's carbon dioxide emissions: Droughts reduced the amount of water available for hydropower, which increased the need to burn fossil fuels. And heat waves drove up demand for electricity.

Thursday's report was described as disconcerting by climate scientists, who warn that energy users around the world must cut emissions dramatically to slow the dire consequences of global warming.

"Any emissions growth — even 1 percent — is a failure," said Rob Jackson, a professor of earth system science at Stanford University and chairman of the Global Carbon Project, an international group. "We can't afford growth. We can't afford stasis. It's cuts or chaos



MICHAEL DWYER • Associated Press

As more people took to the skies last year with the pandemic fading, one result was an increase in carbon dioxide emissions.

for the planet. Any year with higher coal emissions is a bad year for our health and for the Earth."

Carbon dioxide emissions from coal grew 1.6% last year. Many communities, primarily in Asia, switched from natural gas to coal to avoid high natural gas prices that were worsened by Russia's invasion of Ukraine, the IEA said.

And as global airline traffic increased, carbon dioxide emissions from burning oil grew 2.5%, with about half the surge resulting from the aviation sector.

Global emissions have grown in most years since 1900 and have accelerated over time, according to data from IEA.

One exception was the pandemic year of 2020, when travel all but came to a standstill.

Last year's level of emissions, though a record high, was nevertheless lower than experts had expected. Increased deployment of renewable energy, electric vehicles and heat pumps together helped prevent an additional 550 megatons of

carbon dioxide emissions, the IEA said.

Strict pandemic measures and weak economic growth in China also curtailed production, helping to limit overall global emissions. And in Europe, the IEA said, electricity generation from wind and solar power exceeded that of gas or nuclear for the first time.

"Without clean energy, the growth in CO2 emissions would have been nearly three times as high," Fatih Birol, the IEA's executive director, said in a statement.

Though emissions continue to grow at worrisome levels, a reversal that would help achieve the climate goals that nations have committed to remains possible, said John Sterman, director of the Massachusetts Institute of Technology Sloan Sustainability Initiative.

Nations must subsidize renewables, improve energy efficiency, electrify industry and transportation, set a high price for carbon emissions, reduce deforestation, plant trees and rid the system of coal, Sterman argued.

views of the editor.