

**INVER GROVE HEIGHTS
PLANNING COMMISSION AGENDA**

**Tuesday, September 19, 2017 – 7:00 p.m.
City Council Chambers - 8150 Barbara Avenue**

1. CALL TO ORDER

2. APPROVAL OF PLANNING COMMISSION MINUTES FOR SEPTEMBER 5, 2017

3. APPLICANT REQUESTS AND PUBLIC HEARINGS

- 3.01 WIDSETH SMITH NOLTING (RIVER HEIGHTS CHURCH) - CASE NO. 17-41PR**
Consider **TABLING** a Major Site Plan Review to construct a building addition on the property located at 6070 Cahill Avenue.

Planning Commission Action _____

- 3.02 CITY OF INVER GROVE HEIGHTS - CASE NO. 17-39VAC (tabled from 9-5-17)**
Consider a Vacation of a drainage and utility easement on the property located at 6070 Cahill Avenue.

Planning Commission Action _____

- 3.03 GERALD SALMEY - CASE NO. 17-44V**
Consider a Variance to allow a zero setback for a driveway whereas five feet is required for the property located at 8460 Copper Way.

Planning Commission Action _____

- 3.04 SEAN WRIGHT - CASE NO. 17-40V**
Consider the following requests for the property located at 6825 Cahill Avenue:

- a) a Conditional Use Permit to expand a non-conforming structure up to 30% gross square feet.

Planning Commission Action _____

- b) a Variance to exceed a 30% expansion of a non-conforming structure.

Planning Commission Action _____

- c) a Variance to exceed the 25-foot maximum building height in a B-1 district.

Planning Commission Action _____

3.05 BITUMINOUS ROADWAYS, INC - CASE NO. 17-43CZ

Consider the following request for the property located at 11661 and 11201 Rich Valley Boulevard:

- a) An **Ordinance Amendment** for the renewal of a five-year sand and gravel overlay permit

Planning Commission Action _____

4. OTHER BUSINESS

5. ADJOURN

This document is available upon 3 business day request in alternate formats such as Braille, large print, audio recording, etc. Please contact Kim Fox at 651.450.2545 or kfox@invergroveheights.org

PLANNING COMMISSION MINUTES - CITY OF INVER GROVE HEIGHTS

Tuesday, September 5, 2017 – 7:00 p.m.
City Hall Chambers - 8150 Barbara Avenue

Chair Maggi called the Planning Commission meeting to order at 7:00 p.m.

Commissioners Present: Tony Scales
Armando Lissarrague
Dennis Wippermann
Jonathan Weber
Joan Robertson
Elizabeth Niemioja
Annette Maggi
Pat Simon

Commissioners Absent: Luke Therrien

Others Present: Tom Link, Community Development Director
Allan Hunting, City Planner

APPROVAL OF MINUTES

The August 15, 2017 Planning Commission minutes were approved as submitted.

CITY OF INVER GROVE HEIGHTS – CASE NO. 17-45X

Reading of Notice

Commissioner Robertson read the public hearing notice to hold a public hearing to consider recommendations regarding the repeal of Title 10, Chapter 5, Section 11 of the Inver Grove Heights City Code and the enactment of Title 5, Chapter 5, Section 11 of the Inver Grove Heights City Code related to predatory offender residency restrictions. No notices were mailed.

Presentation of Request

Bridget Nason, Levander, Gillen & Miller, explained the request as detailed in the report. She advised that in 2016 the City adopted an interim ordinance which established temporary predatory offender residency restrictions to allow for the study, adoption, or amendment of controls related to the residency of predatory offenders. Following completion of that study, an ordinance has been prepared which will repeal the interim ordinance and enact permanent predatory offender residency restrictions in the City. The interim ordinance ended up being codified within the zoning ordinance itself, so the first part of the ordinance officially repeals the interim ordinance. The second part of the ordinance establishes permanent residency restrictions for certain designated predatory offenders. The restrictions will be located in Title 5, Chapter 5, Section 11 of the City Code which is the Police, Health and Safety section. The ordinance establishes a 1,000-foot buffer zone from places where children are likely to congregate (i.e. schools, libraries, houses of worship), with a few exceptions.

At Commissioner Niemioja's request, Ms. Nason displayed a map indicating the areas in the City within the 1,000-foot buffer.

Commissioner Niemioja asked what the reason was behind the immediate family member residence exception.

Ms. Nason advised that the family exception was more common than not and allowed predatory

offenders to live with certain family members.

Commissioner Lissarrague asked if the ordinance pertained to only Level III offenders.

Ms. Nason replied in the affirmative, stating the definition of a designated predatory offender was essentially a Level III offender.

Opening of Public Hearing

There was no public testimony.

Chair Maggi closed the public hearing.

Planning Commission Discussion

Commissioner Niemioja stated she did not have a problem with the ordinance as written, but felt the family exception was a good question for City Council to consider as it involved a large area of the city.

Planning Commission Recommendation

Motion by Commissioner Niemioja, second by Commissioner Lissarrague, to the repeal of Title 10, Chapter 5, Section 11 of the Inver Grove Heights City Code and the enactment of Title 5, Chapter 5, Section 11 of the Inver Grove Heights City Code related to predatory offender residency restrictions.

Motion carried (8/0). This item goes to the City Council on September 11, 2017.

JOE LEVI – CASE NO. 17-34C

Reading of Notice

Commissioner Scales read the public hearing notice to consider a request for a conditional use permit to allow sheet metal siding on a detached accessory building, for the property located at 8803 Inver Grove Trail. 77 notices were mailed.

Chair Maggi noted that Commissioners received a copy of an email from a neighbor.

Mr. Hunting advised that was the only email staff received from neighboring property owners.

Presentation of Request

Allan Hunting, City Planner, explained the request as detailed in the report. He advised that the property is zoned A, Agricultural and is 5.33 acres in size. The property currently has a single-family home and a 572 square foot detached structure. The applicant is proposing to construct an 1,800 square foot accessory structure, which would comply with the number of accessory buildings and size requirements for the property. The new structure would have the corrugated metal siding, which requires a conditional use permit. The request meets the sheet metal siding and general CUP criteria. Engineering is requesting an easement over a low spot on the west side of the property for drainage purposes and to protect its natural basin. Staff recommends approval of the request.

Commissioner Niemioja asked for clarification regarding the required sheet metal gauge.

Mr. Hunting replied that the applicant is proposing 28-gauge whereas 29 is required. This complies with the requirements as the smaller the number the thicker the metal.

Commissioner Simon asked if there were any color restrictions in the code.

Mr. Hunting replied there were not.

Commissioner Scales asked if the Planning Commission could suggest that the drainage easement not be required.

Mr. Hunting replied in the affirmative.

Commissioner Scales questioned the need for it on a five-acre parcel.

Mr. Hunting stated he did not have much background on the requested easement, but believed it would negate the need for additional treatment.

Chair Maggi noted that the conditions were not specific and simply stated that prior to commencement of any grading the final grading, drainage, and erosion control plans shall be approved by the city engineer.

Opening of Public Hearing

Joe Levi, 8803 Inver Grove Trail, advised he was available to answer any questions.

Chair Maggi asked the applicant if he read and understood the report.

Mr. Levi replied in the affirmative.

Commissioner Wippermann asked what color the proposed building would be.

Mr. Levi replied it would be earth tones.

Chair Maggi closed the public hearing.

Planning Commission Recommendation

Motion by Commissioner Simon, second by Commissioner Wippermann, to approve the request for a conditional use permit to allow sheet metal siding on a detached accessory building, for the property located at 8803 Inver Grove Trail.

Motion carried (8/0). This item goes to the City Council on September 11, 2017.

CITY OF INVER GROVE HEIGHTS – CASE NO. 17-39VAC

Reading of Notice

Commissioner Simon read the public hearing notice to consider a request for the vacation of a permanent drainage and stormwater ponding easement, for the property located at 6070 Cahill Avenue. 13 notices were mailed.

Presentation of Request

Allan Hunting, City Planner, explained the request as detailed in the report. He advised that the City acquired a drainage and utility easement over the northeast corner of the River Heights Vineyard Church property to be used for ponding capacity to address some flooding issues at Carleda Way and 64th Court. Based on a request by the landowner, the City Engineering Department did further research and determined it is not feasible at this time to complete the stormwater rerouting for which the easement was originally acquired. Therefore, they are

comfortable releasing the easement. Engineering recommends vacation of the existing drainage and utility easement.

Chair Maggi noted that part of the reason the Planning Commission approved a previous variance for this property was because of the easement.

Mr. Hunting clarified that the previous variance request was associated with a different private easement which is still in existence; not the easement being discussed tonight.

Chair Maggi asked for clarification of whether the stormwater rerouting would never happen in this area or was it just not feasible at this time.

Mr. Hunting advised he did not have enough information to answer that question.

Commissioner Robertson asked what the stormwater plan was for that area should they vacate the easement.

Mr. Hunting replied he was unsure.

Commissioner Scales stated it appears the City is using a blanket approach lately and acquiring drainage easements for all building projects without having the background behind whether or not they will be used. He suggested the City review its process on applying drainage easements.

Commissioner Robertson stated she would need to know what protections are going to be put in place for the properties to the north and east of this parcel before she could recommend approval of the vacation.

Opening of Public Hearing

There was no public testimony.

Chair Maggi closed the public hearing.

Planning Commission Discussion

Commissioner Niemioja stated because engineering has stated they do not need this easement for the safety of the area she is comfortable moving this forward; however, she wishes they had more information from engineering explaining what is now in place for stormwater management.

Chair Maggi agreed that more information would be helpful, especially since there is a potential for increased impervious surface with the proposed building addition.

Mr. Hunting advised that the applicants will have to treat the additional runoff for their proposed building addition.

Chair Maggi advised that the report from the City Engineer states there is a known flooding issue at Carleda Way and 64th Court but that it is not feasible at this time to complete the stormwater rerouting. She asked for clarification as to why they could not do the rerouting.

Mr. Hunting responded that apparently there are other options to address the historical flooding issue on Carleda Way and 64th Court.

Planning Commission Recommendation

Motion by Commissioner Scales, second by Commissioner Niemioja, to approve the request for the vacation of a permanent drainage and stormwater ponding easement, for the property located

at 6070 Cahill Avenue.

Commissioner Robertson advised that she could not approve the request at this time as she needed more information on the safeguards in place for the Carleda Way neighborhood.

Commissioner Scales stated his understanding was that stormwater could not get to the easement area in question even if it flooded on Carleda Way.

Motion failed (4/4 – Wippermann, Robertson, Simon, and Maggi)

Chair Maggi asked if it was possible to table the request until they could get additional information from engineering.

Mr. Hunting replied in the affirmative.

Commissioners Simon and Robertson supported tabling the request for additional information.

Commissioner Niemioja stated that additional information would likely help City Council as well.

Motion by Commissioner Simon, second by Commissioner Robertson, to table the request for the vacation of a permanent drainage and stormwater ponding easement, for the property located at 6070 Cahill Avenue, to the September 19 Planning Commission meeting.

Motion carried (8/0).

OTHER BUSINESS

CITY OF INVER GROVE HEIGHTS (McPhillips) – CASE NO. 17-38X

There was no public hearing notice.

Presentation of Request

Tom Link, Community Development Director, explained the request as detailed in the report. He advised that the owners of 6940 and 6950 Dixie Avenue approached the City and expressed an interest in selling their two single-family residential properties to the Inver Grove Heights Economic Development Authority (EDA). The Planning Commission is being asked to consider whether the City acquisition of these two properties is consistent with the comprehensive plan. The comprehensive plan includes several statements regarding the importance of economic development and the role of the EDA, and specifically states that the City should support redevelopment efforts for the Concord Neighborhood. Mr. Link advised that the Concord Boulevard Neighborhood Plan, adopted in 2012, identifies this neighborhood as one of four 'catalyst' sites. The City's plans are to acquire properties from willing sellers, assemble them into larger parcels, remove the structures, and at some future time sell them for redevelopment. Staff recommends that the acquisition be found consistent with the comprehensive plan.

Commissioner Simon asked for clarification of which parcels in this neighborhood were owned by the City.

Mr. Link displayed a map indicating which of the parcels were currently City-owned.

Planning Commission Recommendation

Motion by Commissioner Simon, second by Commissioner Lissarrague, to recommend approval of

the request to find the acquisition of the properties at 6940 and 6950 Dixie Avenue consistent with the Inver Grove Heights Comprehensive Plan.

Motion carried (8/0).

The meeting was adjourned by unanimous vote at 7:40 p.m.

Respectfully submitted,

Kim Fox
Recording Secretary

MEMO

CITY OF INVER GROVE HEIGHTS

TO: Inver Grove Heights Planning Commission
FROM: Allan Hunting, City Planner
DATE: September 14, 2017
SUBJECT: WIDSETH SMITH NOLTING (RIVER HEIGHTS CHURCH) CASE NO. 17-41PR

The Engineering Department is working with the applicant to address some issues with the grading and storm water plan. There are needed revisions that could not be addressed in time to add to the report for the 19th.

Therefore, the item is being tabled until October 3rd in order for Engineering to have time to review revised grading and storm water plans.

P L A N N I N G R E P O R T
CITY OF INVER GROVE HEIGHTS

REPORT DATE: September 1, 2017

CASE NO: 17-39VAC

HEARING DATE: September 5, 2017

APPLICANT/PROPERTY OWNER: City of Inver Grove Heights/River Heights Vineyard Church

REQUEST: A Vacation of a public drainage and utility easement

LOCATION: 6070 Cahill Avenue

COMPREHENSIVE PLAN: P, Public/Institutional

ZONING: P, Institutional District

REVIEWING DIVISIONS: Planning
Engineering

PREPARED BY: Allan Hunting
City Planner

BACKGROUND

The City acquired a drainage and utility easement over the northeast corner of the River Heights Vineyard Church property to be used for ponding capacity to address some flooding issues at Carleda Way and 64th Court. Based on a request by the landowner, the City Engineering Department is reconsidering the need for the easement. A memo from the City Engineer is attached to this memo providing more information.

ALTERNATIVES

- A. **Approval:** If the Planning Commission finds the application acceptable, the following request should be recommended for approval:
- Approval of a **Vacation** of an existing public drainage and utility easement as shown on the attached exhibit.
- B. **Denial.** If the Planning Commission does not favor the proposed application, the above requests should be recommended for denial. With a recommendation for denial, findings or the basis for the denial should be given.

RECOMMENDATION

The Engineering Department recommends approval of the vacation of the drainage and utility easement.

Attachments: Memo from City Engineer

MEMO

CITY OF INVER GROVE HEIGHTS

TO: Allan Hunting, City Planner

FROM: Thomas J. Kaldunski, City Engineer *TJK*

DATE: September 1, 2017

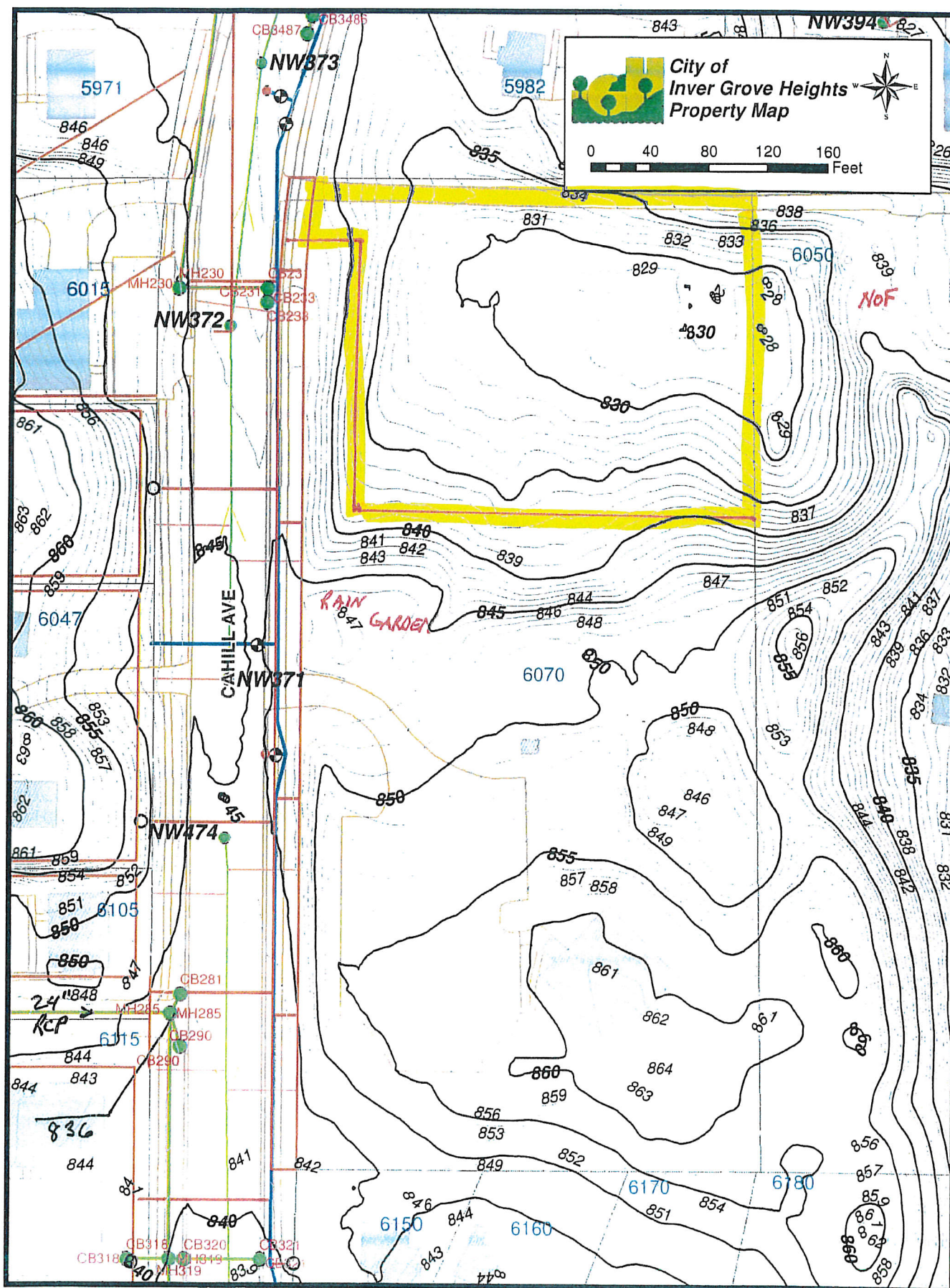
SUBJECT: Vacation of Drainage and Utility Easement
River Heights Vineyard Church – 6070 Cahill Avenue

The City has received a request to vacate an existing drainage and storm water ponding easement on the northern portion of this location. This easement was secured by the City on December 12, 2016 to provide an area to manage storm water runoff from a new parking lot that has been built on the site. The area also receives some runoff from adjacent parcels as illustrated in the attached drawing. The church also constructed a raingarden to treat storm water before it is discharged into the natural basin.

The City had also requested the ponding easement because of a review of the adjacent watershed. The City was considering the use of the basin of River Heights Vineyard Church to provide some ponding capacity by rerouting the drainage at manhole 285 into the basin. This would have provided some relief to a known flooding issue at Carleda Way/64th Court. The City has determined that it is not feasible to complete the storm water rerouting at this time. This allows the City to consider vacating the existing easement at River Heights Vineyard Church as the 100-year event on the existing site would not reach the natural overflow elevation of 838. This elevation was used to set the easement size.

This natural basin will continue to service its existing watershed if the easement is vacated. River Heights Vineyard Church will be able to consider a building proposal along the north edge of the parking lot. When this new building proposal is fully developed and presented to the City, a smaller drainage and ponding easement will be secured to service the new building and the existing basins watershed at that time. The new easement would be based on River Heights Vineyard Church hydrologic study to define the 100-year high water level for the future project.

TJK/kf
Attachments





Thatcher Engineering, Inc.
 6201 Creek Valley Road
 Edina, MN 55439
 (612) 781-2188
www.thatcher-eng.com
shahab@thatcher-eng.com

First Name: Sharon W. Thibodeau
 Surname: DeWitt

Ayars & Ayars

River Heights Church

Grading & Erosion Control

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REVISIONS					S&P, NO. 20-000-106	DRAWING
NO.	DATE	BY	CHKD	COMMENTS		
1.	11-10-16	PHD	SWT	REV. CITY COMMENTS	1.1	OF 2
2.	11-10-16	PHD	SWT	REV. CITY COMMENTS		
3.	11-10-16	PHD	SWT	REV. CITY COMMENTS		
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**River Heights Church
Parking Lot Expansion**

6070 Cahill Ave., River Grove Heights, MN

Legend	
Existing	Proposed
- Existing Contour 526 Fence - Sign Location - X Road	Proposed Contour

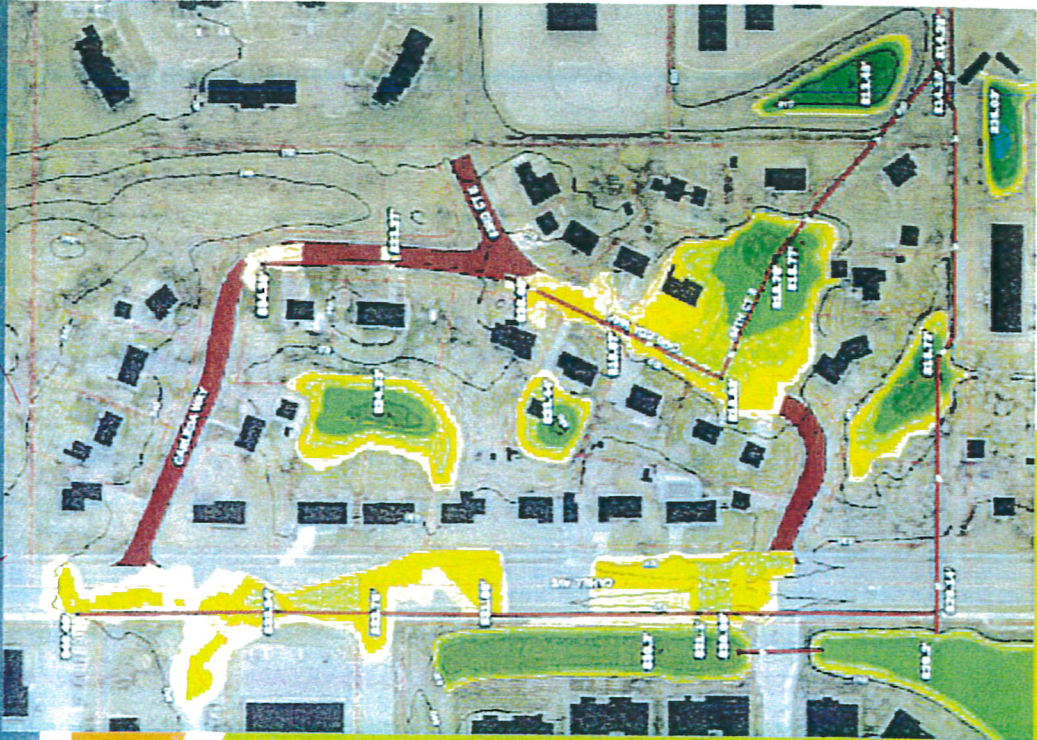
WARNING
CONTRACTOR SHALL CALL DOMINION
STATE GAS CALL BEFORE DOING
1-800-252-1166
REQUIRED BY LAW

NOTE:
ANY PUBLIC UTILITIES WORKING ON THIS PROJECT ARE
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MAY BE VARYING IN THE CONTRACTOR OTHER
UTILITIES MAY EXIST AND IT SHALL BE THE
RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN
THE LOCATION OF SUCH

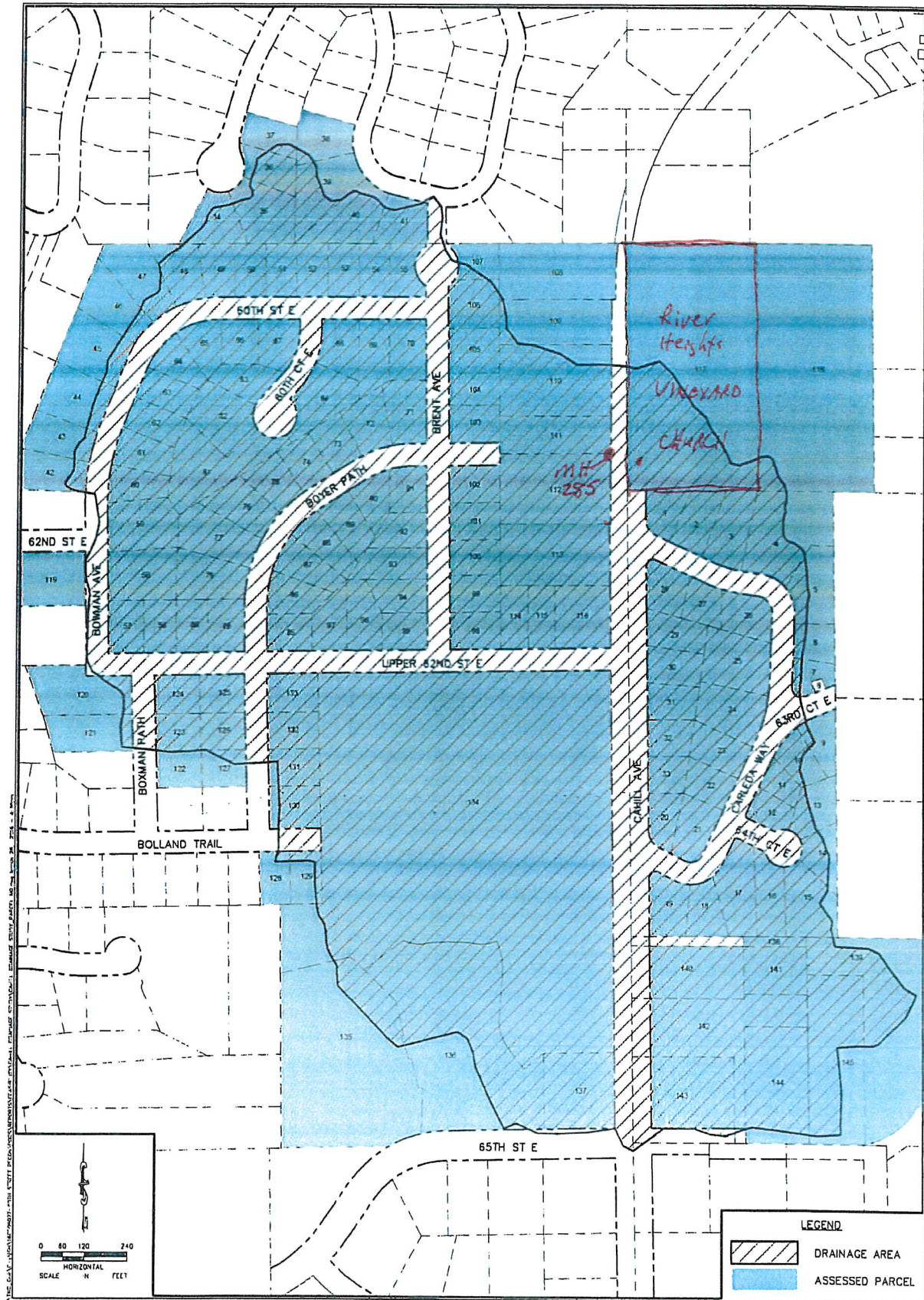
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RHVC

CARLEDA WAY AREA REGIONAL DRAINAGE ANALYSIS



- 64th Court flooding issues
 - Bypass flow from Cahill Avenue
 - Impacts one home (6320 Carleda)
 - Undersized trunk to Bohrer Pond
 - Requires significant trunk storm replacements, pond construction and/or property acquisition
 - Not included in project costs at this time
 - Separate watershed feasibility study consideration
- Carleda neighborhood ponding
 - Backyard ponding with no outlet
 - Private drainage issues, can mitigate impacts at owners expense



Kimley-Horn

2550 UNIVERSITY AVENUE, SUITE 100, FAULKLAND, VA 22041
PHONE: 541-643-4197
WWW.KH-CORP.COM

CAHILL TRUNK DRAINAGE STUDY
CP 2016-13
PRELIMINARY ASSESSMENT MAP

PLANNING REPORT

CITY OF INVER GROVE HEIGHTS

HEARING DATE: September 19, 2017 **CASE NO.:** 17-44V

APPLICANT: Gerald Salmey

REQUEST: A variance to improve a driveway that will encroach within the side yard setback

LOCATION: 8460 Cooper Way

COMP PLAN: LDR, Low Density Residential

ZONING: R-1C, Single-Family Residential District

REVIEWING DIVISIONS: Planning
Engineering **PREPARED BY:** Heather Botten
Associate Planner 

BACKGROUND

The applicant is proposing to improve his driveway by installing black top over the existing rock parking area alongside the current driveway, which is located right up to the property line. The lot currently features the applicant's home, two car attached garage and driveway. The existing rock area has been in place at least 20 years. The proposed request is to improve this area with black top; a variance is being requested because driveways and parking areas are required to maintain at least a five-foot side yard setback from property lines. In this case, the applicant is asking for a driveway to be located up to the property line.

SPECIFIC REQUEST

The following specific application is being requested:

- 1) A variance to install black top over an existing rock driveway up to the property line whereas five feet is the required setback.

SURROUNDING USES

The following land uses, zoning districts, and comprehensive plan designations surround the subject property:

North -	Residential; zoned R-1C, Single-family residential; guided LDR
East -	Residential; zoned R-1C, Single-family residential; guided LDR
West -	Residential; zoned R-1C, Single-family residential; guided LDR
South -	Residential; zoned PUD, Planned Unit Development; guided MDR

EVALUATION OF REQUEST:

City Code Title 10, Chapter 3. **Variances**, states that the City Council may grant variances when they are in harmony with the general purposes and intent of the zoning ordinance and consistent with the comprehensive plan and establishes that there are practical difficulties in complying with the official control. In order to grant the requested variances, City Code identifies criteria which are to be considered practical difficulties. The applicant's request to encroach into the side setback is reviewed below against those criteria.

1. *The variance request is in harmony with the general purpose and intent of the city code and consistent with the comprehensive plan.*

The request is consistent with the comprehensive plan as the property would continue to be utilized as a residential lot. In respect to the use of the land, impervious surface, other setbacks and code requirements, the request is in harmony with the provisions in the zoning ordinance.

2. *The property owner proposes to use the property in a reasonable manner not permitted by the zoning ordinance.*

The applicant uses the existing rock area to park his RV. In 2016, the parking ordinance in the City Code was amended requiring recreational vehicles to be parked on a solid paved parking pad; additionally the parking pad must be immediately connected to the driveway on the side opposite the front door. There is not enough room on the applicant's property to install a parking pad that meets setbacks. The driveway improvements will be going over existing rock surface; staff believes the improvements are a reasonable use of the property.

3. *The plight of the landowner is due to circumstances unique to the property not created by the landowner.*

The property is located along a curve, with a lot width of 74 feet at the curb. The home is not located in the center of the property, it is set closer to the property line to the west whereas if the home was located in the center of the lot there would be enough room to install a parking area that could meet setbacks.

4. *The variance will not alter the essential character of the locality.*

One of the functions of setback requirements is to maintain consistency of structure placement and aesthetic qualities from street and neighboring views. Staff does not believe the proposed improvements would alter the essential character of the locality. The parking pad has been in place for over 20 years and has been continuously used during this time. The black top surface would look more aesthetically pleasing than the existing rock.

5. *Economic considerations alone do not constitute an undue hardship.*

Economic considerations do not appear to be a basis for this request.

ALTERNATIVES

The Planning Commission has the following alternatives available for the requested action:

- A. **Approval.** If the Planning Commission favors the requested Variance, the Commission should recommend approval of the request with at least the following condition:
1. The site shall be developed in substantial conformance with the site plan on file with the Planning Department.
- B. **Denial.** If the Planning Commission does not favor the proposed application, the above request should be recommended for denial. With a recommendation for denial, findings or the basis for the denial should be given.

RECOMMENDATION

The improvements would not be out of character of the neighborhood and it is consistent with the comprehensive plan. Staff believes the request to improve the parking area up to the property line is a reasonable use of the property. A practical difficulty can be found for the side yard setback due to the lot width of the property, placement of the home, and the fact the required parking area for an RV is not able to meet setbacks on the property without a variance.

Based on the information in the preceding report and the condition listed in Alternative A, staff is recommending approval of the setback variance.

Attachments: Exhibit A – Location/Zoning map
Exhibit B – Applicant narrative
Exhibit C – Site plan



8460 Cooper Way

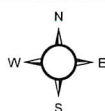
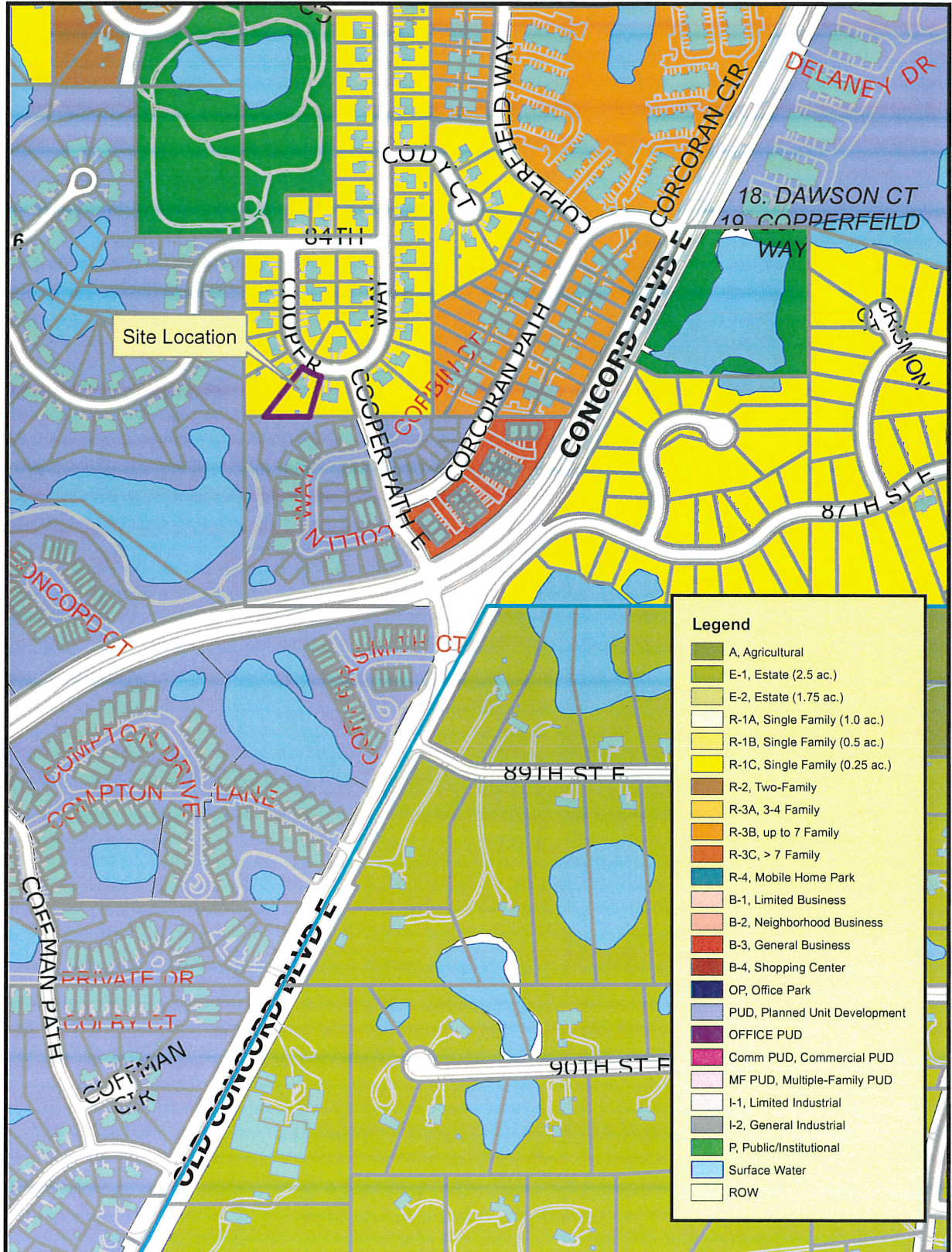


Exhibit A
Zoning and Location Map
Map not to scale

Summary of Request for Variance

I am requesting a variance to allow me to black top up to the property line on the west side of my house. The purpose of this request is to allow me to park my 5th wheel trailer on the new black top driveway. Due to the shape of our lot and the position of the house on the lot, I am requesting this variance to allow enough paved area to maneuver my 5th wheel trailer along side of my house.

Currently I have a rock covered parking area. This rock parking area has been in place for about 20 years. The rock parking area runs from the paved driveway to the property line along side of my house. The current rock covered area covers both my property and my neighbor's property at 8466 Cooper Way. My neighbor and I agreed to this rock parking area some 20 years ago. I now want to pave this area up to my property line. The set back requirement of five feet from the property line would not allow me enough paved driveway to maneuver my 5th wheel without hitting the overhang of my garage roof. The five foot setback from the property line would only allow a driveway width of about eight foot from the roof overhang on the garage. The 5th wheel is slightly over eight feet wide. With the additional five feet I would have adequate room to maneuver the 5th wheel into the parking area.

I have spoken to my neighbor Sandy Singer whose property I wish to blacktop up to. Sandy told me she has no concerns about my plan to blacktop up to the property line.

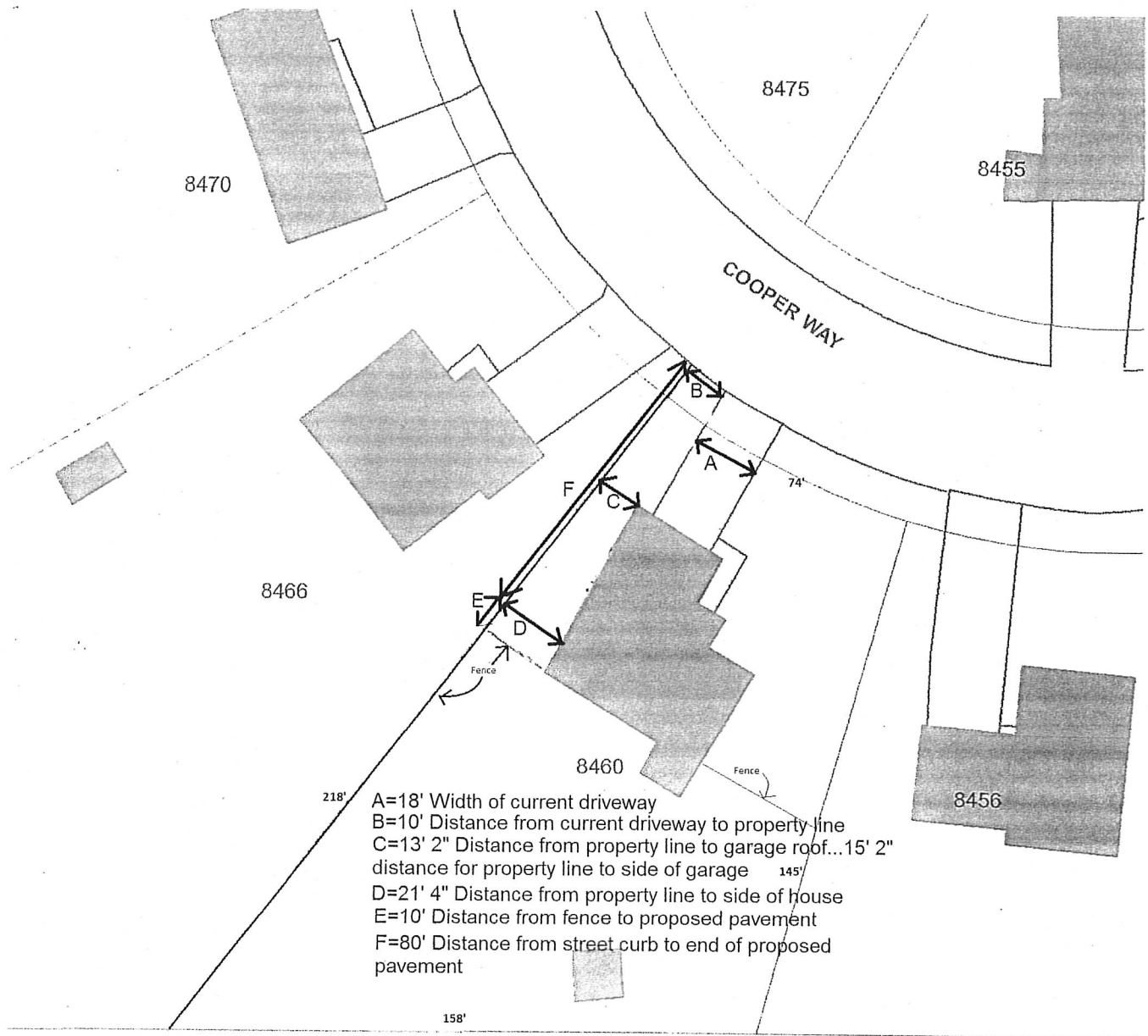
Neighbors are:

Sandy Singer
8466 Cooper Way
West side

John and Angela Rouse
8456 Cooper Way
East side

Dan and Bonnie Dahlke
8455 Cooper Way
Across street

Rick and Judy Marty
8475 Cooper Way
Across street



P L A N N I N G R E P O R T
CITY OF INVER GROVE HEIGHTS

HEARING DATE: September 19, 2017

CASE NO: 17-40C

APPLICANT: Sean Wright

PROPERTY OWNER: Erin Schmidt

REQUEST: A conditional use permit and variances to expand a legal nonconforming use

LOCATION: 6825 Cahill Avenue

COMPREHENSIVE PLAN: CC, Community Commercial

ZONING: B-1, Limited Business

REVIEWING DIVISIONS: Planning
Engineering

PREPARED BY: Heather Botten
Associate Planner

BACKGROUND

The applicant is requesting a conditional use permit and two variances to expand the existing home and add an attached garage. The property is .41 acres in size and zoned B-1, Limited Business. The existing house was built in 1930, prior to the City adopting a zoning code which makes the home a legal nonconformity. There is not an attached or detached garage on the property. City code allows a garage addition if none previously existed on a residential nonconforming lot. The applicant is also proposing to add 2,150 square feet of living space; the zoning code allows a lawfully existing nonconforming structure to conditionally expand its gross floor area by up to 30% and a variance to exceed that amount. The existing home is about 1,600 gross square feet. The applicant is proposing a 2,150 square foot home addition and a 1,200 square foot attached garage addition.

The specific request consists of the following:

- A.) A **Conditional Use Permit** to expand a legal nonconforming structure by 30% of its gross floor area.
- B.) A **Variance** to exceed the 30% expansion of a nonconforming structure.
- C.) A **Variance** to exceed the maximum height allowed in the B-1 district.

EVALUATION OF THE REQUEST

The following land uses, zoning districts, and comprehensive plan designations surround the subject property:

- North - Residential; zoned B-1, Limited Business; guided CC, Community Commercial
- East - Residential; zoned R-1C, single-family and B-2; guided LDR, Low density residential and CC, Community Commercial
- West - Park; zoned P, Public/Institutional; guided Public Open Space

South – City Property; zoned P, Public/Institutional; guided Public Open Space

CONDITIONAL USE PERMIT REVIEW

City Code, Title 10-3A-1 states that a conditional use permit may be approved if the City determines the following:

1. *The use is consistent with the goals, policies and plans of the City Comprehensive Plan, including future land uses, utilities, streets and parks.*

The use is not consistent with the goals, policies, and plans of the Comprehensive Plan. The future land use of this parcel is Community Commercial the uses envisioned in this district would be commercial type of businesses. Approving this large of a residential addition would reduce an opportunity for commercial or business redevelopment. If approved, the City may want to consider changing the comprehensive plan designation and zoning during the Comprehensive plan update process.

2. *The use is consistent with the City Code, especially the Zoning Ordinance and the intent of the specific Zoning District in which the use is located.*

The applicant is proposing to add a garage to a property used as residential where none has currently existed. The Zoning Code allows a garage to be added to a nonconforming residential use without any special approvals; it is also the applicants desire to expand the gross square feet of living space.

3. *The use would not be materially injurious to existing or planned properties or improvements in the vicinity.*

The proposed use would not have a detrimental effect on public improvements in the vicinity of the project.

4. *The use does not have an undue adverse impact on existing or planned City facilities and services, including streets, utilities, parks, police and fire, and the reasonable ability of the City to provide such services in an orderly, timely manner.*

This use does not appear to have any negative effects on City facilities or services.

5. *The use is generally compatible with existing and future uses of surrounding properties, including: Aesthetics/exterior appearance, noise, traffic, drainage, fencing, landscaping and buffering.*

A single-family home is compatible with the neighborhood. There is City park property to the south and west and residential to the north and east. The

addition would complete the existing residential use on the property by providing a garage addition.

6. *The property is appropriate for the use considering: size and shape; topography, vegetation, and other natural and physical features; access, traffic volumes and flows; utilities; parking; setbacks; lot coverage and other zoning requirements; emergency access, fire lanes, hydrants, and other fire and building code requirements.*

The topography of the property is a little challenging, the home is located lower than the road. The request is to build the addition with the existing topography in mind. Access to the property and traffic volumes would not be changing.

7. *The use does not have an undue adverse impact on the public health, safety or welfare.*

This use does not appear to have any negative effects on the public health, safety or welfare.

8. *The use does not have an undue adverse impact on the environment, including, but not limited to, surface water, groundwater and air quality.*

The proposed home would not have an undue adverse impact on the environment. The applicant is working with the City Engineering Department on grading and drainage requirements.

NONCONFORMING CUP CRITERIA

Section 10-16-5 of the Zoning Regulations states that a lawfully existing nonconforming structure or structure containing a legally existing nonconforming use may conditionally expand its gross floor area by up to thirty percent (30%) if the following criteria are satisfied:

1. *A complete conditional use permit application shall be applied for and approved by the city council. [Chapter 3, article A](#) of this title shall regulate the city review and approval or denial of the conditional use permit.*

The applicant has submitted a Conditional Use Permit Application.

2. *A complete building permit application shall be submitted to the building inspections division, found satisfactory and issued prior to the commencement of any work on the expansion.*

If approved, the applicant would then apply for the proper building permits.

3. *The structure expansion shall meet all of the bulk standards for the zoning district within which the structure is located. A variance may be applied for if the structure expansion does not meet the respective bulk standards. The variance application and its review by the city shall be regulated according to the section [10-3-4](#) of this title.*

The applicant has applied for two variances, as detailed in this report.

4. *If an expansion is requested under this subsection, the city may impose standards and/or conditions upon the underlying nonconforming use or structure for purposes of health, safety or welfare.*

This criterion has been met; no conditions are proposed to be added for the purposes of health, safety, or welfare.

VARIANCE

City Code Title 11, Chapter 3. **Variances**, states that the City Council may grant variances when they are in harmony with the general purposes and intent of the zoning ordinance and consistent with the comprehensive plan and establishes that there are practical difficulties in complying with the official control. In order to grant the requested variance, City Code identifies criteria which are to be considered practical difficulties. The applicant's request is reviewed below against those criteria. The applicant is asking for two variances: 1) to allow nonconforming use expansion to be greater than 30% and 2) to allow a building height of 35 feet whereas 25 feet is allowed in the B-1 district.

1. *The variance request is in harmony with the general purpose and intent of the city code and consistent with the comprehensive plan.*

The surrounding neighborhood is developed residential and City property. The future land use designation of this parcel is Community Commercial, the uses envisioned in this district would be neighborhood businesses. Approving this large of a residential addition would reduce an opportunity for commercial or business redevelopment. If approved, the City may want to consider changing the comprehensive plan designation and zoning during the Comprehensive plan update process.

2. *The property owner proposes to use the property in a reasonable manner not permitted by the zoning ordinance.*

The property is a legal nonconforming lot; the nonconforming section of the zoning code states a variance may be applied for if the structure expansion does not meet the respective bulk standards. Although staff finds an expansion of a residential building that has been in existence since the 1930's, to be a reasonable request the proposed square footage is more than double the existing size of the home. Staff believes a foot print of a two-car garage, along with meeting the height requirements of a residential structure to be a reasonable addition to the property.

The use of the property has historically been residential and is proposed to be single-family residential. The proposed height of 35 feet complies with the maximum height requirements allowed in a residential district.

3. *The plight of the landowner is due to circumstances unique to the property not created by the landowner.*

The property is a legal nonconforming lot. The lot size and width would meet or exceed the minimum requirements for a residential lot and there is ample room on the property for the proposed garage and living space expansion. The proposed height complies with the maximum height requirements for a residential home.

4. *The variance will not alter the essential character of the locality.*

The residential use of the property would remain the same. The proposed structure would be the tallest structure in the neighborhood, but it would be in compliance with residential height requirements. Overall, there would not be a great impact to the character of the locality.

5. *Economic considerations alone do not constitute an undue hardship.*

Economic considerations do not appear to be a basis for this request.

ALTERNATIVES

The Planning Commission has the following actions available on the following requests:

A. **Approval.** If the Planning Commission finds the application to be acceptable, the following actions or portions thereof should be taken:

- Approval of a Conditional Use Permit to expand a lawfully existing nonconforming structure subject to the following conditions:
 1. The site shall be developed in substantial conformance with the site plan on file with the Planning Department or as modified herein.
 2. Any expansion or future additions on the property may require additional city approvals or permits and is not part of this conditional use permit.
 3. Prior to issuance of building permits, the final grading, drainage and erosion control, and utility plans shall be approved by the City Engineer.
 4. The applicant shall meet all the conditions outlined in the City Engineers review letters and subsequent correspondence. Prior to commencement of any grading, the final grading, drainage and erosion control, and utility plans shall be approved by the City Engineer.

5. The siding shall comply with the exterior building material requirements for a single-family residential home.
- Approval of the **Variance** to exceed the 30% expansion of a nonconforming structure subject to the following conditions:
 1. The site shall be developed in substantial conformance with the site plan on file with the Planning Department or as modified herein.
 2. Any expansion or future additions on the property may require additional city approvals or permits and is not part of this conditional use permit.
 3. Prior to issuance of building permits, the final grading, drainage and erosion control, and utility plans shall be approved by the City Engineer.
 4. The applicant shall meet all the conditions outlined in the City Engineers review letters and subsequent correspondence. Prior to commencement of any grading, the final grading, drainage and erosion control, and utility plans shall be approved by the City Engineer.

Practical difficulty: The size of the existing home, built in 1930, limits how large an addition can be constructed without a variance. Staff believes a foot print of a two-car garage, which is allowed by code, along with meeting the height requirements of a residential structure to be a reasonable addition to the property.

- Approval of the **Variance** to exceed the maximum building height in the B-1 district subject to the following condition:
 1. The maximum height of the proposed structure, as defined in the zoning code, shall not exceed 35 feet as allowed in the R-1C single-family residential district.

Practical difficulty: The existing home is located in the most restrictive commercial zoning district, it seems reasonable to allow an addition to the single-family home to comply with the height maximums in the residential district.

- B. **Denial.** If the Planning Commission does not favor the proposed application the above request should be recommended for denial. With a recommendation for denial, findings or the basis for the denial should be given.

RECOMMENDATION

Based on the preceding report, staff has the following recommendations:

- Recommends approval of the **conditional use permit** to expand a legal nonconformity with the conditions listed.
- Recommends denial of the **variance** to exceed the 30% gross square foot expansion as submitted based on the fact the conditions of the property are not so limiting or unique that the property could not be used in a reasonable manner without the size variance. The large addition could be considered a convenience to the applicant, not a practical difficulty.

Staff would be in support of a variance to allow a two-car garage addition with living space above or below not to exceed the height of 35 feet.

- Recommends approval of the **variance** to exceed the maximum height requirements of the B-1 district with the condition listed.

Attachments: Location Map
Applicant Narrative
Site Plan
Building Elevations



6825 Cahill Avenue



THIS DRAWING IS NEITHER A LEGALLY RECORDED MAP NOR A SURVEY AND IS NOT INTENDED TO BE USED AS ONE. THIS DRAWING IS A COMPILATION OF RECORDS, INFORMATION AND DATA LOCATED IN VARIOUS CITY, COUNTY AND STATE OFFICES AND OTHER SOURCES AND IS TO BE USED FOR REFERENCE PURPOSES ONLY. THE CITY OF INVER GROVE HEIGHTS IS NOT RESPONSIBLE FOR ANY INACCURACIES HEREIN CONTAINED.

Map produced by the City of Inver Grove Heights GIS Dept.
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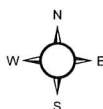


Exhibit A
Zoning and Location Map
Map not to scale

Sean Wright
7416 Clayton Avenue
IGH, MN 55076
[Date]August 21, 2017

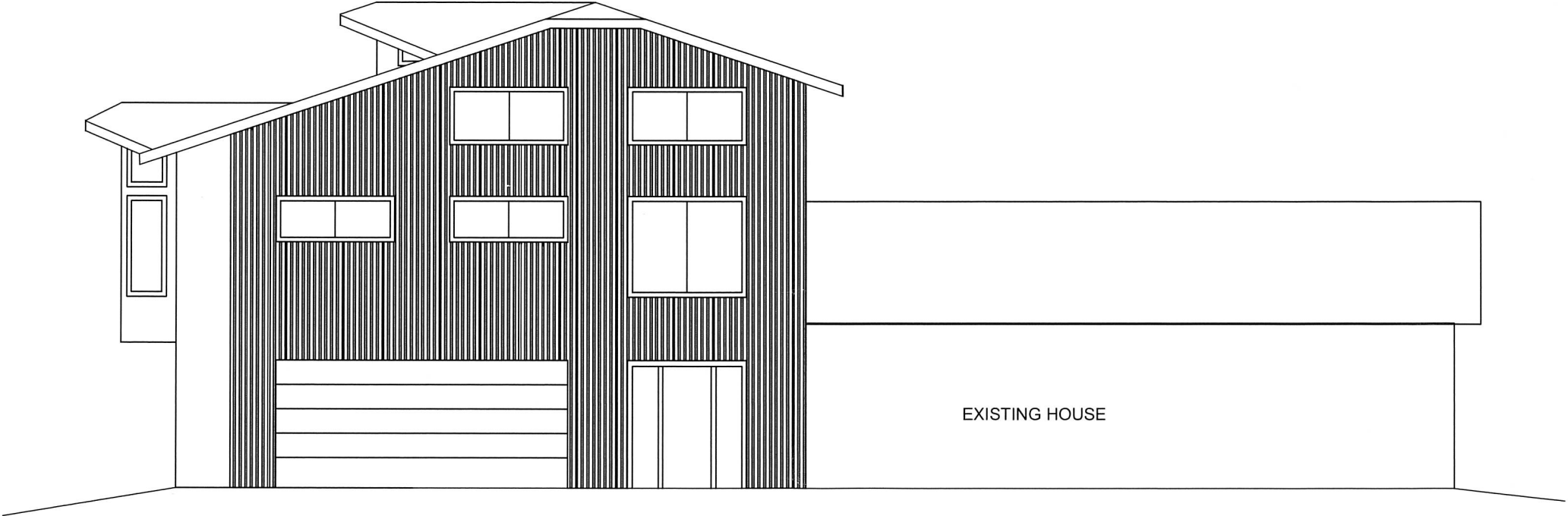
City of Inver Grove Heights
Planning Review
8150 Barbara Avenue

City of Inver Grove Heights,

The property at 6825 Cahill Avenue as it exists has no garage. The goal of the plan in review is to create garage space and add more living space along with it.

Thank You,

Sean Wright
Applicant



EAST ELEVATION

SCALE: 1/8" = 1'-0"

SEAN WRIGHT
6825 CAHILL AVE
INVER GROVE HEIGHTS, MN 55076



NORTH ELEVATION

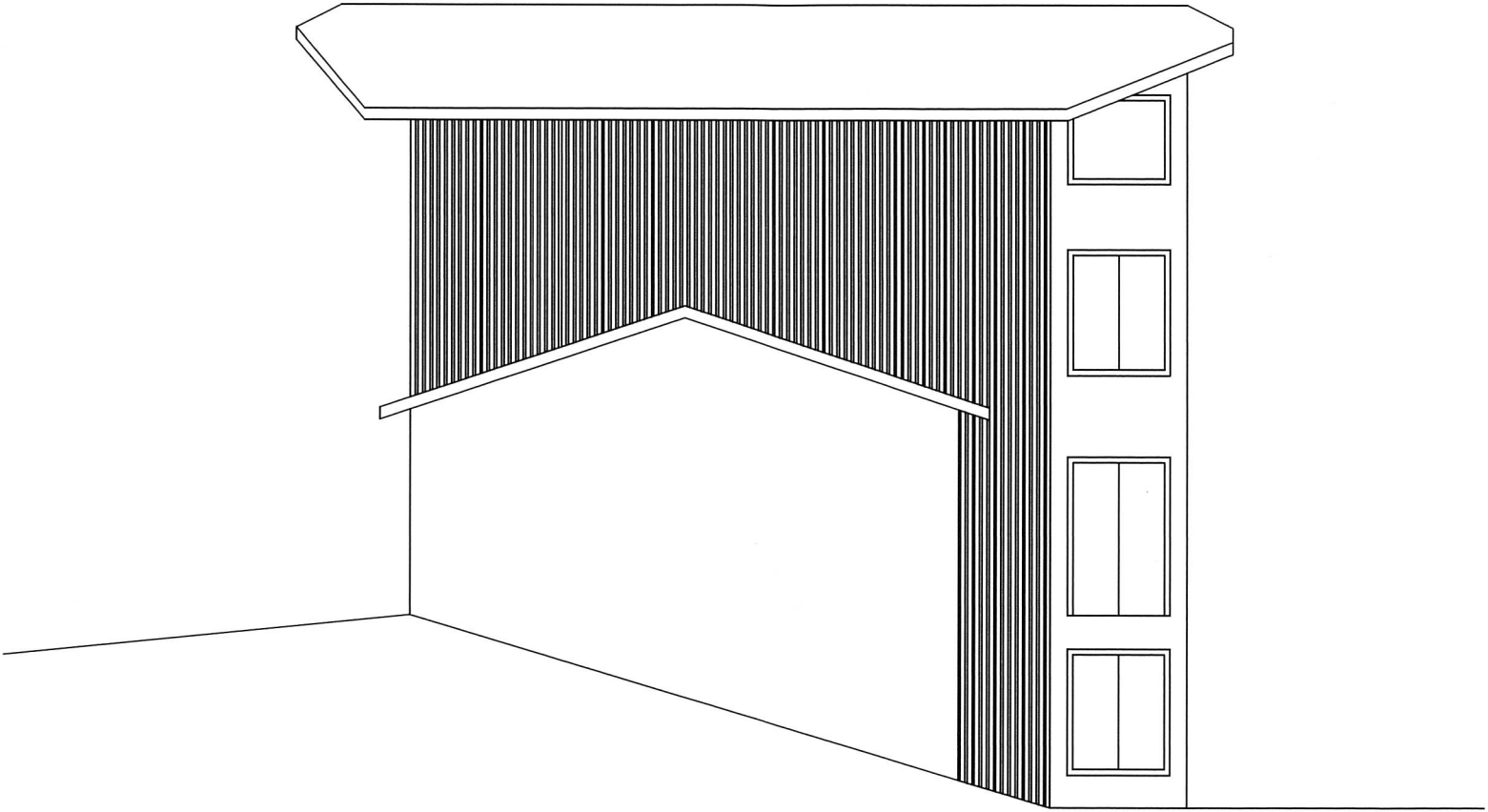
SCALE: 1/8" = 1'-0"

SEAN WRIGHT
6825 CAHILL AVE
INVER GROVE HEIGHTS, MN 55076



WEST ELEVATION
SCALE: 1/8" = 1'-0"

SEAN WRIGHT
6825 CAHILL AVE
INVER GROVE HEIGHTS, MN 55076



SOUTH ELEVATION

SCALE: 1/8" = 1'-0"

SEAN WRIGHT
6825 CAHILL AVE
INVER GROVE HEIGHTS, MN 55076

P L A N N I N G R E P O R T
C I T Y O F I N V E R G R O V E H E I G H T S

REPORT DATE: September 13, 2017

CASE NO: 17-43CZ

APPLICANT: Bituminous Roadways

PROPERTY OWNER: Bituminous Roadways

REQUEST: Sand and Gravel Zoning District designation five (5) year renewal

LOCATION: 112th Street and Rich Valley Boulevard

HEARING DATE:

Planning Commission: 9/19/17
Environmental Commission: 9/21/17

COMPREHENSIVE PLAN: IOS, Industrial
Open Space

ZONING: A, Agricultural

REVIEWING DIVISIONS: Planning
Engineering

PREPARED BY: Allan Hunting
City Planner

BACKGROUND

Bituminous Roadways, Inc. has submitted an application for an extension of their five year Sand and Gravel Overlay Zoning District designation for their approximately 200 acre site. The operations at the existing site include the mining and removal, crushing, screening, washing and stockpiling of aggregate for the asphalt plant, and the recycling and stockpiling of concrete and rock products. The main processing activities will include, crushing, screening and washing. Over the life of the facility, mining is proposed to occur on approximately 141 acres of the site and the remaining 60 acres is designated as a buffer area.

Approvals of any Sand and Gravel Overlay Districts require renewal every five years. The current Sand and Gravel approval was granted on October 22, 2012 and expires on October 22, 2017. The site also operates under a Conditional Use Permit to allow for the asphalt plant, processing of sand and gravel and a contractor's yard with open storage. The conditional use permit does not require renewals.

The applicant has submitted a narrative describing the operation and has provided maps showing existing conditions and a final development plan for the gravel pit. The applicant is proposing three changes to the current approvals:

1. Requesting the asphalt plant be allowed to begin operations at 6:00 a.m. and allow bituminous trucks to move within the site. Normal operations would begin at 7:00 a.m. The current approvals limit operations from 7:00 a.m. to 7:00 p.m. M-S.
2. Utilizing an existing driveway on the southern end of the property as a back up secondary access.

3. Modify and clarify the well testing schedule and storm water pond testing.

EVALUATION OF THE REQUEST

The site is surrounded by the following uses:

North – Vacant land; zoned A; guided IOS

East - Open space, west 100 acres/agricultural; zoned A and I-1; guided Limited Industrial

West – Open space/agricultural; zoned A; guided RDR

South – Residential, Open space/agricultural; zoned A; guided IOS

History

The City granted the original Sand and Gravel zoning of the property on May 13, 1974 for a period of 15 years. On December, 26, 1979, the City approved a conditional use permit for the asphalt plant. This permit was initially granted for a period of five years but was extended by the City, at the owners request in 1984. On April 24, 1989, the City approved the next five year extension and a CUP for the asphalt plant and for a contractors yard for the painting contractor that also operates out of the site. The City Council again approved an extension on March 28, 1994 for both the Sand and Gravel Overlay and for the CUP extension.

The City Council approved a five year extension for the Sand and Gravel Overlay and CUP for sand and gravel processing, asphalt plant and contractor's yard in April 2001 at the existing 70 acre site.

In 2002, the City Council approved a 130 acre expansion of the sand and gravel operation. That expansion required that an EAW be prepared for the site. This was done and was reviewed by the Environmental Commission and was approved by the City Council with a negative declaration that an environmental impact statement was not needed.

In 2012, the City Council approved a modification to the approval to allow a well to be drilled to use for wash water. The DNR approved a water appropriation permit and the site has been using the well for wash water at times during the summer.

The City has approved two additional 5-year permits since the 2002 expansion. The current sand and gravel approval expires October 22, 2017.

ANALYSIS

The analysis of this report consists of a review of each condition of the existing Sand and Gravel Temporary Zoning District approval as well as addressing the three proposed changes. The existing condition will be listed followed by a response on the status of that condition and/or modification.

A. Sand and Gravel Temporary Zoning District

1. The Temporary Sand and Gravel (S&G) Zoning shall remain in place on the property for a period of five (5) years to expire on October 22, 2017.

The application will be reviewed by the Environmental Commission on September 21 and City Council on October 9th.

2. The operation of the sand and gravel operation approved herein shall comply with all provisions of Inver Grove Heights City Code, Section 515.19, Sand and Gravel Zoning District, except as specifically modified herein.

No issues found with this condition. Staff is not aware of any non-compliance with this condition.

3. The following plans, on file with the Planning Division, shall constitute the “approved plans” referenced therein:

Existing conditions dated 7/21/12

Phasing Plan dated 7/21/12

Final Land Use Plan dated 4/25/02

Reclamation Plan dated 7/21/12

Landscaping Plan – east property line dated 2012

Landscape Plan – south property line dated 2012

All aspects of the operation of the site shall comply with the approved plans.

The site has been operating in accordance with the approved plans since the expansion was approved in 2002. The current Comp Plan guides the area as IOP, Industrial Open Space.

This category was created to serve as a buffer between heavier industrial uses (land fill, gravel pit and refinery) and residential uses. Industrial uses that are currently operating within this area would be allowed to continue operating under existing permits without further restrictions. The final land use plan shows large lot residential with a public street extending from Rich Valley Boulevard. No sewer is expected on the west side of Rich Valley and therefore the lots would be served by their own well and septic system. No other issues existing with this condition.

4. The location of the asphalt plant shall remain in its existing position and shall not be relocated unless this sand and gravel ordinance is amended.

No changes proposed. No issues with this condition.

5. “Operation” as it relates to hours of operation, shall include, but is not limited to, all mining and grading operations, crushing and screening of rock, washing, the operation of the asphalt plant on the site, and movement of vehicles and

equipment in and out of the site. Hours of operation on the site shall be limited to 7:00 a.m. to 7:00 p.m., Monday through Friday, 9:00 a.m. to 6:00 p.m. Saturday, except the asphalt plant may run 7:00 a.m. to 7:00 p.m., Saturday. The crushing of concrete and asphalt shall be regulated by condition #6.

The applicant is requesting the hours be changed to allow morning start time at 6:00 a.m. Current start time is 7:0 a.m. This would allow the start up of the asphalt plant and allow BRI vehicles to leave the site. Balance of operations would begin at 7:00 p.m.

Setting hours of operation is not used very often. This was mostly required because there is a residential home that is nearly surrounded by BRI. The neighbor has been notified and according to BRI, they are ok with the change. Staff does not see any issues with changing the morning hour.

6. Crushing of concrete on site shall be permitted provided the following conditions are met:
 1. All crushing operations shall be conducted in the current location in the existing site as of 6/4/02.
 2. The stockpile of concrete to be crushed and the stockpile of already crushed concrete shall not in the aggregate exceed a total of 50,000 cubic yards.
 3. The height of the stockpiles shall not exceed 25 feet.
 4. Crushing shall occur on not more than 12 weeks during the calendar year.
No crushing shall occur on Sunday; crushing shall only occur between the hours of 7:00 a.m. and 7:00 p.m. Monday – Friday and 9:00 a.m. to 6:00 p.m., Saturday.

No issues with this condition. To our knowledge, the site operates under these conditions. Staff has not received any complaints that the operator is working outside of the approved hours.

7. Bituminous Roadways may temporarily store Manufactured Organic Shingle Scrap (MOSS) in open storage areas provided the areas in the aggregate do not exceed one (1) acre in size and provided the location and storage configuration is approved by the Fire Marshal and Director of Community Development. MOSS storage areas may be relocated as operations on the site change subject to the approval of the Fire Marshal and the Director of Community Development. The City may impose reasonable conditions relating to dust control, fire prevention and size, height and configuration of the storage piles.

Bituminous Roadways does temporarily store MOSS on site in the area identified as shingle storage on the site plan. The stock pile is located in the same area as the previous approval (typically in the northern portion of the site). No issues with this condition.

8. The final disposal of MOSS on the site shall be prohibited.

Operational condition.

9. As part of the approval granted herein, the applicant may use used concrete and asphalt products as a part of the operation. Stockpiling area for these materials shall be as noted on the approved plans.

The proposed plans show the location of the product stockpiles. The stockpiles are generally located in the same location as previous approvals. No issues with this condition.

10. Bituminous Roadways shall prohibit all drivers of trucks from using Rich Valley Boulevard north of Cliff Road except in those instances where materials are being taken to a project located within the City's regulatory authority. Bituminous Roadways shall post an advisory to all drivers to the same effect at exits from the site.

No issues with this condition. To our Knowledge, the site operates under these conditions.

11. The site shall be kept clear, at all times, of windblown debris.

No issues with this condition. To our Knowledge, the site operates under these conditions.

12. The foundry sand in the southeast berm shall be left undisturbed.

The southeast foundry sand berm had been undisturbed and contained a vegetative cover. This condition has been satisfied.

13. Bituminous Roadways shall bring no additional foundry sand onto the site.

Operational condition. No additional foundry sand has been found on the site.

14. The berms which cover the foundry sand shall be maintained in vegetative cover to control erosion of the foundry sand.

This condition has been satisfied.

15. The stockpiled MOSS, shingle scrap, recycled asphalt, and concrete pavement will not be disposed at the site.

No issues with this condition. To our Knowledge, the site operates under these conditions.

16. Stock piles of recycled asphalt, MOSS, shingles, and concrete shall be limited in size to amount that will be used that year.

No issues with this condition. To our Knowledge, the site operates under these conditions.

17. Backfill material shall be either clean fill material that was stripped off the site or other clean fill material which is brought in from offsite.

Operational condition.

18. Spent bag house bags will be disposed of in a lined landfill permitted or approved to accept such materials.

Bituminous Roadways indicates the spent bags are disposed of at a landfill.

19. A restoration bond shall be in an amount to cover the costs of restoration of the site, as determined by the City Engineer, prior to City Council approval.

The City does have a restoration bond from Bituminous Roadways to cover the costs of restoration. The City Engineer indicates no changes are needed.

20. Bituminous Roadways shall obtain and maintain the necessary licenses and approvals from Dakota County and Minnesota Department of Natural Resources. Terms and conditions of the license and approval shall be hereby incorporated into this City approval.

Bituminous Roadways has provided the city with copies of all necessary permits from other agencies. The site is in compliance with this condition.

21. Bituminous Roadways shall obtain and maintain the necessary Minnesota Pollution Control Agency permits including two air quality permits and one industrial storm water permit. The terms and conditions of those permits shall be hereby incorporated into this City approval.

Bituminous Roadways has provided the city with copies of all of the required permits. No notices of violation have ever been issued by the MPCA. The site is in compliance with this condition.

22. All reports which are required to be submitted to Dakota County under the single Hazardous Waste Generators License and the one Processing License shall also be submitted to the City, including the required annual and quarterly reports.

During the 2012 renewal, it was discovered from Dakota County that as of 2003, the facility was no longer a hazardous waste generator and no reports were required. Condition should be eliminated with this renewal.

23. All reports which are required to be submitted to the Minnesota Pollution Control Agency shall also be submitted to the City, including annual emissions inventory report, semi-annual deviations report, annual compliance certification report, and annual report.

Bituminous Roadways has provided to the city copies of their reports submitted to the MPCA. The site is in compliance with this condition.

24. Monitoring shall be conducted at the single ground water well that consists of arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, DRO, GRO, phenol, pH, electric conductivity and alkalinity. The monitoring should occur with half the wells every other year. Parameters and protocols shall be as agreed to by Dakota County, the City and Bituminous Roadways.

Staff has received copies of the well tests. According to the project narrative, the sample concentrations show the levels below limits.

25. Monitoring of the storm water ponds used for the washing operation shall be conducted every other year and shall be tested for the same elements as listed in condition #24.

To clarify the well testing schedule, the applicant has proposed a map showing which wells will be tested in alternating years. This will help clarify the testing schedule.

26. All buildings shall be removed from the site within three (3) months of the closure of the facility.

Operational Condition.

27. Bituminous Roadways shall enter into a Host Community Agreement with the City of Inver Grove Heights including the payment of host community fees, within three (3) months of the State Legislature providing the City with the Authority to enter into such an agreement.

The Legislature has not approved any regulations providing cities the authority to collect host community fees for sand and gravel extraction. This condition should remain for future action.

28. Restoration shall be conducted in phases at the site. As portions of the mining area are completed, the areas will be backfilled, graded, topsoil applied and vegetation established.

Operational condition. Engineering would review the backfilling operation to make sure the work is in compliance with the approved plans.

29. The operator is responsible for obtaining all required permits for the wash water well from the appropriate state and or county agencies and must meet all DNR requirements, obligations and protocols for a well appropriations permit, including responsibilities and protocols for any remedial actions and those responsibilities and protocols for any compensation or damages from the loss of well use affected neighboring properties. Any change or any application for an appropriation permit for an aquifer different than the one that has been identified would require an amendment to the conditional use permit.

The City approved the use of a new well to be utilized for washing the aggregate as part of the 2012 approval. The DNR approved a water appropriation permit for the site. The applicant has provided information from the DNR indicating the amount of water used each year. This is attached to this report.

30. Bituminous Roadways shall provide a voluntary well interference protocol agreement for neighboring properties within ½ mile of the well requesting to be a party thereto. The agreement shall be prepared by Bituminous Roadways and shall stipulate procedures to follow should well problems occur. The agreement between the parties is strictly voluntary and not required for the well to be operational.

Bituminous Roadways prepared an agreement that was part of the package approved by City Council in 2012. BRI has an agreement with 18 neighbors.

Use of access on the south side of the property. The applicant has indicated they would like to be able to use an existing driveway that lead to the old farmhouse as a secondary access to be used intermittently. The existing primary access would continue to be used as the primary access. The conditions of approval do not limit the access points to the site. Staff does not see any issues with allowing the southerly driveway to be used for the operation. A condition should be added to clarify use.

Ground Water Monitoring Plan Change. The applicant is requesting that the monitory plan be modified to eliminate the testing of the wash plant sedimentation ponds as these ponds do not accurately identify content of the water at the bottom of the ponds as they seal up with sedimentation and do not infiltrate. The applicant believes the existing water testing of the storm water ponds is a better test of the water infiltrating into the ground and any potential impacts

with groundwater. Reviewing staff reports of past approvals did not find any specifics on need for monitoring the wash water ponds. Staff does not see an issue with this change.

Conditional Use Permit. The site operates under a conditional use permit for the asphalt plant and contractors yard. No changes to the CUP are proposed. The majority of the conditions are part of the Sand and Gravel Overlay Ordinance and have been covered above.

ALTERNATIVES

The Planning Commission has the following actions available on the proposed project:

A. **Approval:** If the proposed request is found to be acceptable, approval of the applicable following actions should be taken:

- o Approval of the **Temporary Sand and Gravel Zoning** Renewal for a period of five (5) years subject to the following conditions:
 - 1. The Temporary Sand and Gravel (S&G) Zoning shall remain in place on the property for a period of five (5) years to expire on (council approval date), 2022.
 - 2. The operation of the sand and gravel operation approved herein shall comply with all provisions of Inver Grove Heights City Code, Title 10-13G, Sand and Gravel Overlay District, except as specifically modified herein.
 - 3. The following plans, on file with the Planning Division, shall constitute the “approved plans” referenced therein:
 - Existing conditions dated 8/18/17
 - Phasing Plan dated 8/18/17
 - Final Land Use Plan dated 4/25/02
 - Cross Section Plans (3 sheets) dated 8/18/17
 - Reclamation Plan dated 8/18/17
 - Landscaping Plan – east property line dated 2017
 - Landscape Plan – south property line dated 2017
 - Water Testing Map – dated 9/5/17

All aspects of the operation of the site shall comply with the approved plans.

- 4. The location of the asphalt plant shall remain in its existing position and shall not be relocated unless this sand and gravel ordinance is amended.
- 5. “Operation” as it relates to hours of operation, shall include, but is not limited to, all mining and grading operations, washing, the operation of the asphalt plant on the site, and movement of vehicles and equipment in and out of the site. Hours of operation on the site shall be limited to 7:00 a.m. to 7:00 p.m., Monday through

Saturday, except hours of operation may begin at 6:00 a.m. Monday – Saturday for internal operations only, including start up of the asphalt plant and moving of BRI owned vehicles. The crushing of concrete which shall be regulated by Condition #7. The asphalt plant shall be allowed to operate a maximum of 30 night shifts (7:00 p.m. to 7:00 a.m.) during the construction season each year. Bituminous Roadways shall provide the city with written notice prior to each event, including confirmation of contact with the nearest neighbor so a record can be kept to monitor total hours used each season.

6. Crushing of concrete on site shall be permitted provided the following conditions are met:
 1. All crushing operations shall be conducted in the current location in the existing site.
 2. The stockpile of concrete to be crushed and the stockpile of already crushed concrete shall not in the aggregate exceed a total of 50,000 cubic yards.
 3. The height of the stockpiles shall not exceed 25 feet.
 4. Crushing shall occur on not more than 12 weeks during the calendar year. No crushing shall occur on Sunday; crushing shall only occur between the hours of 7:00 a.m. and 7:00 p.m. Monday – Friday and 9:00 a.m. to 6:00 p.m., Saturday.
7. Bituminous Roadways may temporarily store Manufactured Organic Shingle Scrap (MOSS) in open storage areas provided the areas in the aggregate do not exceed one (1) acre in size and provided the location and storage configuration is approved by the Fire Marshal and Director of Community Development. MOSS storage areas may be relocated as operations on the site change subject to the approval of the Fire Marshal and the Director of Community Development. The City may impose reasonable conditions relating to dust control, fire prevention and size, height and configuration of the storage piles.
8. The final disposal of MOSS on the site shall be prohibited.
9. As part of the approval granted herein, the applicant may use used concrete and asphalt products as a part of the operation. Stockpiling area for these materials shall be as noted on the approved plans.
10. Bituminous Roadways shall prohibit all drivers of trucks from using Rich Valley Boulevard north of Cliff Road except in those instances where materials are being taken to a project located within the City's regulatory authority. Bituminous Roadways shall post an advisory to all drivers to the same effect at exits from the site.

11. The site shall be kept clear, at all times, of windblown debris.
12. The foundry sand in the southeast berm shall be left undisturbed.
13. Bituminous Roadways shall bring no additional foundry sand onto the site.
14. The berms which cover the foundry sand shall be maintained in vegetative cover to control erosion of the foundry sand.
15. The stockpiled MOSS, shingle scrap, recycled asphalt, and concrete pavement will not be disposed at the site.
16. Stock piles of recycled asphalt, MOSS, shingles, and concrete shall be limited in size to amount that will be used that year.
17. Backfill material shall be either clean fill material that was stripped off the site or other clean fill material which is brought in from offsite.
18. Spent bag house bags will be disposed of in a lined landfill permitted or approved to accept such materials.
19. A restoration bond shall be in an amount to cover the costs of restoration of the site, as determined by the City Engineer, prior to City Council approval.
20. Bituminous Roadways shall obtain and maintain the necessary licenses and approvals from Dakota County and Minnesota Department of Natural Resources. Terms and conditions of the license and approval shall be hereby incorporated into this City approval.
21. Bituminous Roadways shall obtain and maintain the necessary Minnesota Pollution Control Agency permits including two air quality permits and one industrial storm water permit. The terms and conditions of those permits shall be hereby incorporated into this City approval.
22. All reports which are required to be submitted to Dakota County under a Hazardous Waste Generators License and a Processing License shall also be submitted to the City, including the required annual and quarterly reports.
23. All reports which are required to be submitted to the Minnesota Pollution Control Agency shall also be submitted to the City, including annual emissions inventory report, semi-annual deviations report, annual compliance certification report, and annual report.

24. Monitoring shall be conducted at the single water well that consists of arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, DRO, GRO, phenol, pH, electric conductivity and alkalinity. The monitoring shall occur with half the wells every other year. Parameters and protocols shall be as agreed to by Dakota County, the City and Bituminous Roadways.
25. Monitoring of the storm water ponds and wells shall be conducted every other year and shall be tested for the same elements as listed in condition #24 **per the proposed testing schedule identified on the Water Testing Map.**
26. All buildings shall be removed from the site within three (3) months of the closure of the facility.
27. Bituminous Roadways shall enter into a Host Community Agreement with the City of Inver Grove Heights including the payment of host community fees, within three (3) months of the State Legislature providing the City with the Authority to enter into such an agreement.
28. Restoration shall be conducted in phases at the site. As portions of the mining area are completed, the areas will be backfilled, graded, topsoil applied and vegetation established.
29. The operator is responsible for obtaining all required permits for the wash water well from the appropriate state and or county agencies and must meet all DNR requirements, obligations and protocols for a well appropriations permit, including responsibilities and protocols for any remedial actions and those responsibilities and protocols for any compensation or damages from the loss of well use affected neighboring properties. Any change or any application for an appropriation permit for an aquifer different than the one that has been identified would require an amendment to the conditional use permit.
30. Bituminous Roadways shall provide a voluntary well interference protocol agreement for neighboring properties within ½ mile of the well requesting to be a party thereto. The agreement shall be prepared by Bituminous Roadways and shall stipulate procedures to follow should well problems occur. The agreement between the parties is strictly voluntary and not required for the well to be operational.

B. Denial: Should the proposed request, or portions thereof, not be found to be acceptable, the appropriate requests described above should be denied. The basis for denial must be stated in any such motion.

RECOMMENDATION

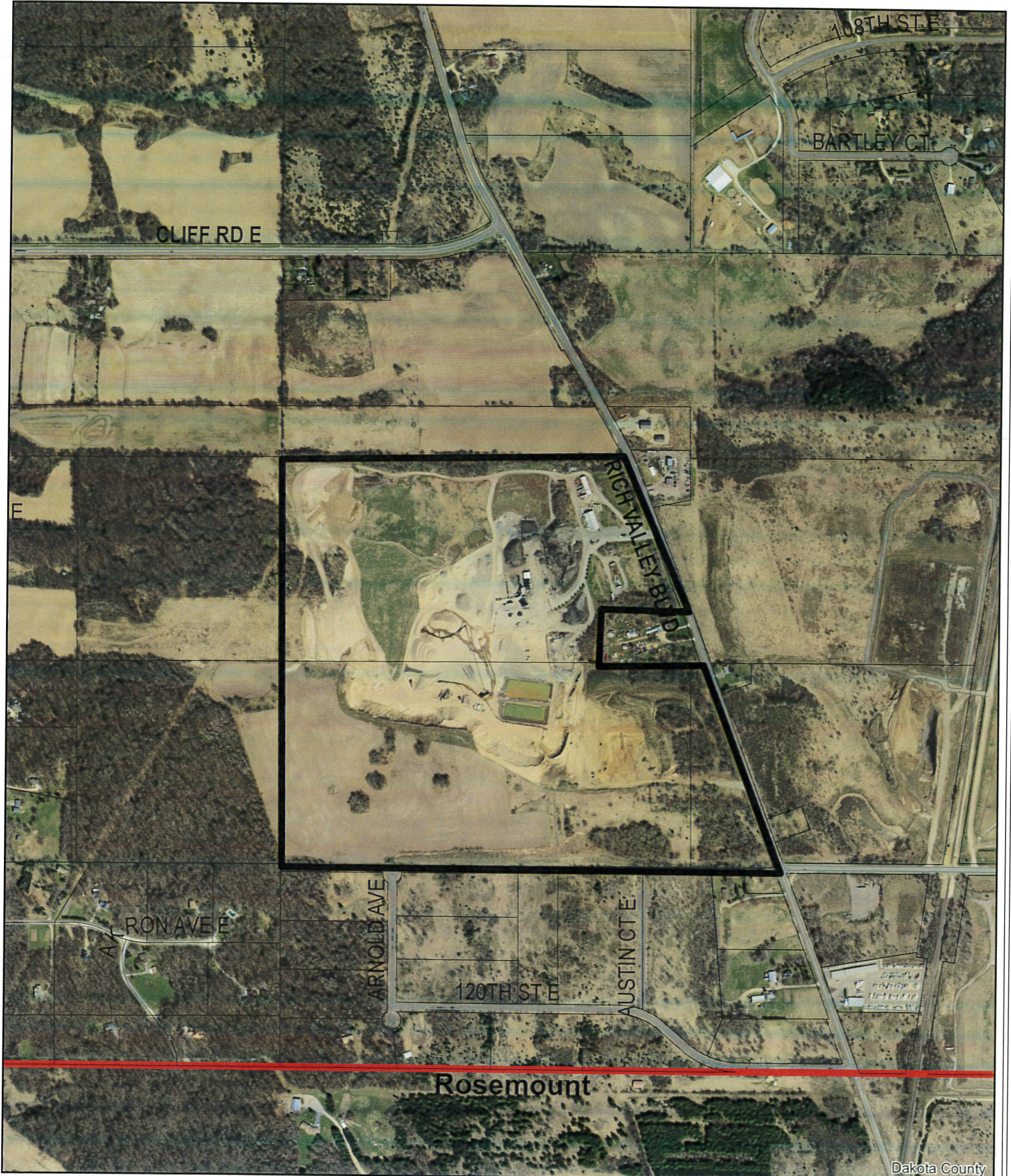
Staff did not find any issues with the five year Sand and Gravel Zoning renewal and would support the requested three changes. As such, Staff recommends **Alternative A**, approval of the request with the conditions listed.

Attachments: Site Location
Application Packet including Plans
Water Testing Map
Well Pumping Information from DNR
Current Sand and Gravel Ordinance
Current Conditional Use Permit



Location Map

Case No. 17-43CZ



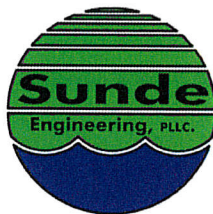
August 18, 2017

REPORT TO:

BITUMINOUS ROADWAYS, INC.

**APPLICATION FOR
REISSUANCE OF CONDITIONAL USE PERMIT 12-17CZA
FOR THE MINING AND PROCESSING OF SAND AND
GRAVEL, AN ASPHALT PLANT AND CONTRACTOR'S
YARD WITH OPEN STORAGE AND FIVE YEAR SAND AND
GRAVEL OVERLAY DISTRICT**

INVER GROVE HEIGHTS, MINNESOTA



Consulting Civil Engineers

Sunde Engineering, PLLC.

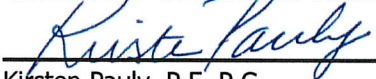
10830 Nesbitt Avenue South • Bloomington, Minnesota 55437-3100
Phone: (952) 881-3344 • Fax: (952) 881-1913 • E-Mail: info@sundecivil.com

REPORT TO:
BITUMINOUS ROADWAYS, INC.

**APPLICATION FOR
REISSUANCE OF CONDITIONAL USE PERMIT 12-17CZA
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GRAVEL, AN ASPHALT PLANT AND CONTRACTOR'S
YARD WITH OPEN STORAGE AND FIVE YEAR SAND AND
GRAVEL OVERLAY DISTRICT**

INVER GROVE HEIGHTS, MINNESOTA

I HEREBY CERTIFY THAT THIS REPORT
WAS PREPARED BY ME OR UNDER MY
DIRECT SUPERVISION AND THAT I AM
A DULY LICENSED PROFESSIONAL
ENGINEER AND A DULY LICENSED
PROFESSIONAL GEOLOGIST UNDER
THE LAWS OF THE STATE OF MINNESOTA.


Kirsten Pauly, P.E. P.G.

DATE 8/18/17 REG. NO. 21842

SUBMITTED BY:

SUNDE ENGINEERING, PLLC
10830 Nesbitt Avenue South
Bloomington, MN 55437

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- APPENDIX C: Storm Water Management Calculations

I. INTRODUCTION

Bituminous Roadways, Inc. (BRI) operates a sand and gravel mining and processing facility located in the southern portion of Inver Grove Heights (Site). The Site operates in accordance with City of Inver Grove Heights Ordinance 1259 which establishes operating conditions and a five year Sand and Gravel Zoning over the property. This application pertains to a five year renewal of the operating conditions and Temporary Sand and Gravel Zoning of the Site. This application provides updated information on Site operations.

Activities allowed include mining and processing (crushing, screening, and washing), stockpiling, loading and hauling, reclamation, and operation of an asphalt plant and a contractor's yard. In addition, the Site operates under a General Non Metallic Mineral Mining and Associated Activities National Pollutant Discharge Elimination System (NPDES) Permit and an Air Emissions Permit issued by the Minnesota Pollution Control Agency (MPCA), a Minnesota Department of Natural Resources (DNR) Water Appropriations Permit, and a Dakota County Hazardous Waste Generators License and Processing License. Environmental Review was completed for this Site on April 8, 2002 in accordance with the Minnesota Environmental Quality Board Rules with the City of Inver Grove Heights as the Responsible Government Unit (RGU).

This application proposes to continue operations as currently approved, with the exception of 3 requests for modifications to conditions as follows:

Hours of Operation: The current, permitted hours of operations at the Site are from 7 a.m. to 7 p.m. Monday through Saturday. Operations that are permitted during these hours are all mining and grading operations, washing, asphalt plant operation, and movement of vehicles and equipment in and out of the Site. Currently crushing of concrete and asphalt recycle is limited to the hours of 7 a.m. to 7 p.m. Monday through Friday and 9 a.m. to 6 p.m. on Saturday. The asphalt plant is also currently permitted to operate a maximum of 30 night shifts from the hours of 7 p.m. – 7 a.m. during the construction season each year. BRI provides the City with written notice prior to each event so a record can be kept to monitor the total number of nights work. BRI's closest neighbor, Todd Wicker, is also notified of the night work prior to each event.

BRI is proposing to add one hour from 6 a.m. to 7 a.m., Monday through Saturday, to the hours of operation to allow BRI owned vehicles to exit out of the Site and to allow startup of the asphalt plant. No other Site operations will be conducted, including loading and unloading of trucks, during this time. The additional hour will allow BRI to start up the asphalt plant prior to beginning permitted operations which start at 7 a.m. and will allow BRI owned vehicles that were parked overnight to exit the Site. BRI's closest neighbor, Todd Wicker, has been notified of this change of hours request and is in agreement with the change.

Site Access: The current Site access is located at the north-east corner of the Site off of Rich Valley Blvd. The old farmhouse that was located on the Site in the south-east corner has been removed during the last 5 year operating renewal period. The driveway associated with this farmhouse remains. BRI proposes to keep the north access as the primary access, but would like to use the south-east access off of Rich Valley Blvd. as a secondary access to be used intermittently as needed. Haul routes will remain the same as previously permitted and as described in Section III.6.

Groundwater Testing: Currently BRI is monitoring the neighboring Wicker well and Plan well, the wash plant sedimentation ponds, the stormwater ponds, and the on-site Rainbow well every other year. During the past 5 year permit period the neighboring (Wicker and Plan) wells were tested on the odd years and the Rainbow well tested on the even years). BRI is proposing to make one minor change to the groundwater monitoring plan which is to eliminate testing the wash plant sedimentation ponds. Testing the wash plant sedimentation ponds doesn't accurately represent the composition of the groundwater as the bottoms of these ponds seal up with silt and sediment and the water will not infiltrate into the ground. The monitoring of the two stormwater ponds near the north side of the Site provides a better representation of how surface water ponds may impact the groundwater. BRI will continue to test the stormwater ponds located on the north end of the Site and the neighboring and on-site wells as currently permitted.

This report and accompanying plan set provides information regarding the mining operation.

II. SITE INFORMATION

1. General Site Information

The Site is located in Section 32, Township 27 North, Range 22 W, in the City of Inver Grove Heights in Dakota County, just west of County Road 71 (Rich Valley Boulevard). The general location of the Site is illustrated on Figure 1.

The Site includes both the original mining operation and asphalt production plant which has been permitted since 1963 and a southerly expansion area which was originally permitted in 2002 after completion of an Environmental Assessment Worksheet (EAW). During the 2002 permitting process, both areas were combined into one permit to facilitate the five-year permit review and renewal process.

The Site encompasses a total of approximately 201 acres. Over the life of the facility, mining is proposed to occur on approximately 141 acres and the remaining 60 acres is setback and buffer area. Mining has been completed over the majority of the northern portion of the Site

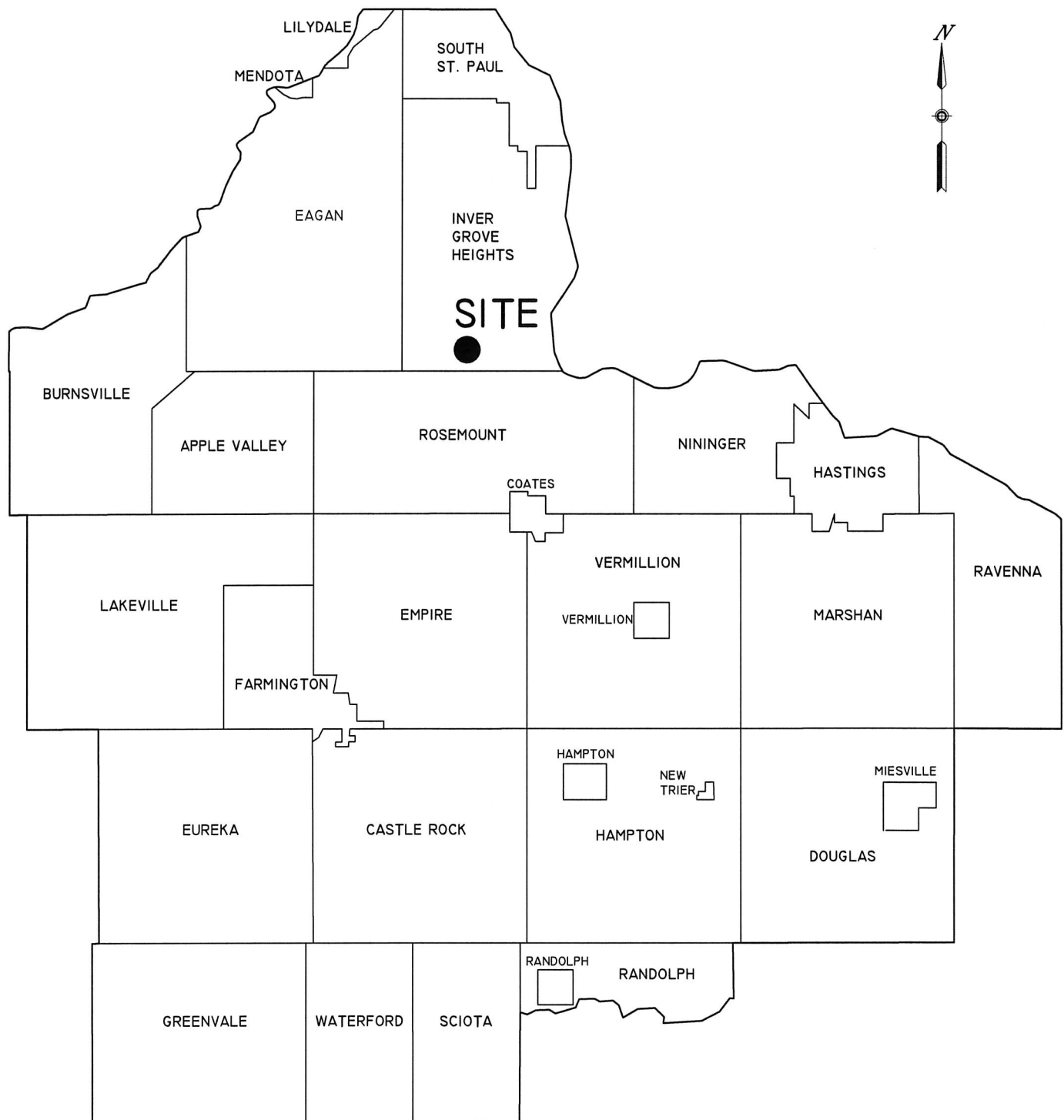


FIGURE 1 GENERAL LOCATION MAP

BITUMINOUS ROADWAYS INC.
INVER GROVE HEIGHTS GRAVEL PIT

2017 PERMIT REISSUANCE

and has progressed to the south. Reclamation activity has begun and will continue throughout the next five-year permit term on the northern portion of the Site in areas where mining has been completed.

Current mining activity takes place in the southern portion of the Site. Portions of this area have been stripped in preparation for the progression of mining. A screening berm has been constructed and vegetation established just south of the Wicker property (an adjacent residential property). A temporary berm was constructed and vegetation established just south of the Wicker property and west of the wooded area along Rich Valley Blvd. This berm will be removed and a new berm constructed as mining expands easterly into Phase 2. The new berm will be located east of the wooded area and west of Rich Valley Blvd. as shown on Figure 3, Landscaping – East Property Line. A new washplant and sedimentation ponds were constructed during the last five-year permit term in accordance with the approved plans. Inactive phases of the Site continue to be used for agricultural production and open space/wooded areas. A gas pipeline runs along a portion of the southern boundary of the Site and transects the western portion of the Site. The pipeline will not be disturbed as part of the mining operations.

Surrounding land uses include agricultural production to the north (under the control of Flint Hills Resources), rural residential to the south and west, and agricultural and industrial to the east and southeast. The Site with respect to adjacent features is indicated on Figure 2, USGS Quadrangle Map Excerpt.

Specific Site features are indicated on the Existing Conditions Plan, Sheet C-1 located in the back of this report.

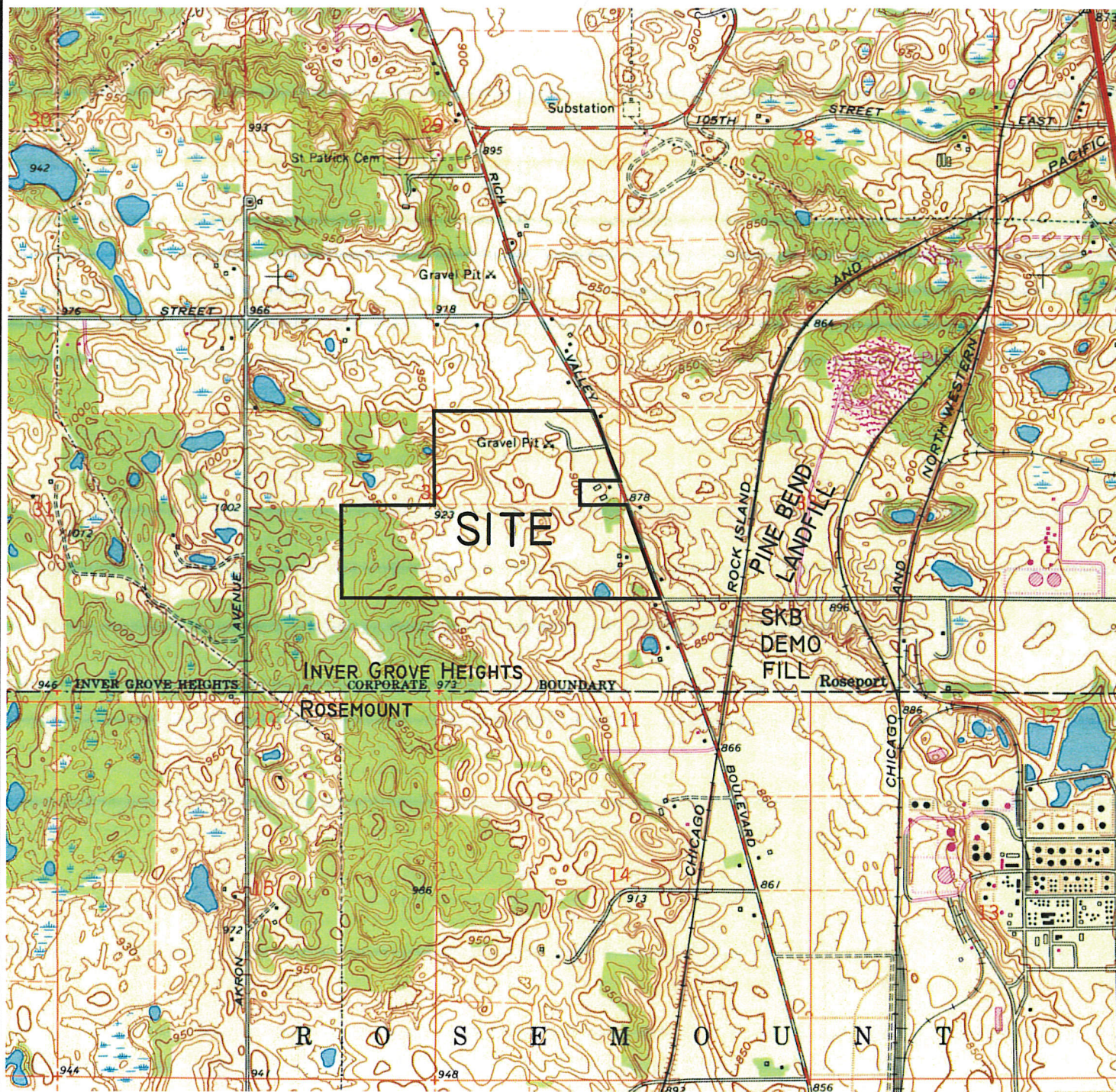
2. Site Ownership

The northern parcel is owned by:

Gerda Limited Partnership
c/o Debra Lacount
13907 Dublin Road
Apple Valley, MN 55124
(952) 322-2214

The southern parcel is owned by:

Bituminous Roadways, Inc.
1520 Commerce Drive
Mendota Heights, MN 55120
(651) 686-7001

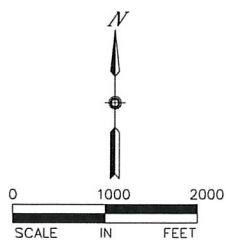


Source: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1967
INVER GROVE HEIGHTS, MINNESOTA

FIGURE 2
USGS QUADRANGLE MAP EXCERPT

BITUMINOUS ROADWAYS INC.
INVER GROVE HEIGHTS GRAVEL PIT

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3. Site Operator

The Site is operated by:
Bituminous Roadways, Inc.
1520 Commerce Drive
Mendota Heights, MN 55120

4. Legal Description

The legal description of the Site is as follows:

That part of the S $\frac{1}{2}$ of the NE $\frac{1}{4}$ of Section 32, Township 27, Range 22, W, lying Westerly of Rich Valley Boulevard; except that part described as follows: Commencing at the SE corner of said S $\frac{1}{2}$ of the NE $\frac{1}{4}$; thence West along the South line thereof, a distance of 592.43 feet; thence North 344.9 feet; thence East 570 feet to the centerline of Rich Valley Boulevard; thence Southeasterly along said centerline, a distance of 67 feet to the East line of said S $\frac{1}{2}$ of the NE $\frac{1}{4}$; thence South 281.85 feet to the point of beginning.

And

The Northeast Quarter (NE $\frac{1}{4}$) of the Southwest Quarter (SW $\frac{1}{4}$) and the North One-Half (N $\frac{1}{2}$) of the Southeast Quarter (SE $\frac{1}{4}$), Section thirty-two (32), Township twenty-seven (27), Range twenty-two (22) AND All of that tract of land lying West of Highway Number Five (5) in the Northwest Quarter (NW $\frac{1}{4}$) of the Southwest Quarter (SW $\frac{1}{4}$), Section thirty-three (33), Township twenty-seven (27), Range twenty-two (22); subject to an easement to Minnesota Northern Natural Gas Company, as described in Deed recorded in Book 193 of Deeds, page 374.

5. Neighboring Properties

A property owner's list within 1000 feet of the Site is included in Appendix A.

III. OPERATIONS

1. Mineral Extraction

Site operations consist of stripping overburden from areas to be mined. Overburden is used to create screening berms along the perimeter of the property. The depth of overburden varies across the Site from one to seven feet in thickness based on soil borings drilled over the project area. Overburden remains on-site and is later used during the reclamation process.

Aggregate is removed from the bank using a front end loader. Excavation will occur to a maximum depth of 840 feet above mean sea level (msl). Areas around the perimeter of the Site may be mined to 840 feet above msl and subsequently backfilled with on-site sand or clean soil fill to achieve the proposed reclamation grades.

Excavation will proceed in phases as illustrated on the Phasing Plan, Sheet C-2. Each phase is estimated to represent approximately five years' worth of mining activity. The expected duration of mining is approximately an additional twenty years, although the actual life of the Site will depend upon market demand. Cross Sections A-A', B-B' and C-C' Sheets C-3 through C-5 illustrate the sand and gravel deposit, maximum mining depth, reclamation grades, and existing grades.

2. Processing

Excavated material is loaded into a feed bin and conveyed to the screening area and wash plant. Material is screened and washed and conveyed into product stockpiles. Oversized rock is screened and conveyed to a stockpile in the processing area to be crushed at a later date. Material is then transported to the northern portion of the Site for additional processing. Material is transported from the active face to the processing area using conveyors and/or off road haul trucks. Crushing operations occur at the Site approximately once per year for a duration of about 3-4 weeks and is performed by an outside contractor. Processing includes crushing, washing, screening, sorting and blending into a variety of aggregate products. The majority of the material produced is used in the production of asphalt mix at the on-site asphalt plant.

Recycling of concrete and asphalt occurs in the northern portion of the Site. The material is hauled to the Site and stockpiled. These materials are crushed periodically and blended into specific aggregate products. Crushing occurs on the Site as described above. The combined volume of concrete material to be crushed and the crushed concrete stockpile is not allowed to exceed 50,000 cubic yards. Asphalt is crushed and used on-site in various asphalt mixes. Crushing associated with the recycling operation is restricted to no more than 12 weeks of

operation during the calendar year and is subject to limited hours of operation as described in item 4 below.

Manufactured organic shingle scrap (MOSS) are also recycled in the northern portion of the Site. These materials are put through a grinder and then added to the asphalt plant process. Permit conditions limit the open storage of MOSS to a total storage area of one acre at a location approved by the Fire Marshal and Director of Community Development. MOSS is recycled and not disposed of on-site.

A washplant is operated full time on the Site. A washplant is a structure that is composed of a series of screens and spray bars. As aggregate is passed through the plant it is sprayed with water to remove fine sand and silt from the aggregate. The washwater contains no chemicals or additives. After the washwater passes through the plant, it is discharged into a series of sedimentation ponds. The sedimentation ponds allow for the fine sediment to settle out of the washwater. Treated washwater is recycled back to the wash plant from the final sedimentation pond for reuse.

The washplant and sedimentation pond area was updated in 2013. A Water Appropriations Permit was obtained from the DNR and a new production well was drilled as part of the washplant updates. A series of sedimentation ponds treat the washplant discharge removing suspended fine sediment and then the treated washwater is recycled back to the plant. The production well supplies make up water to the clean water intake pond and operates for a maximum of 12 hours per day on a seasonal basis.

BRI has provided a voluntary well interference protocol agreement with neighboring properties within ½ mile of the well requesting to be a party thereto. The agreement stipulates procedures to follow if a well interference issue should occur.

3. Fencing

Portions of the Site adjacent to steep slopes are fenced with six-foot high chain link fencing. Fencing is illustrated on the Existing Conditions Plan C-1.

4. Hours of Operation

The Site currently operates between the hours of 7 a.m. and 7 p.m. Monday through Saturday for all activities, except crushing concrete and asphalt recycle materials, which includes mining, grading, crushing and screening of aggregate, washing, movement of vehicles into and out of the Site, and operation of the asphalt plant. Concrete and asphalt recycle crushing activity only occurs between the hours of 7 a.m. – 7 p.m., Monday – Friday, and 9 a.m. – 6

p.m., Saturday. Concrete and asphalt recycle crushing will be limited to no more than 12 weeks during the calendar year and there will be no crushing on Sunday.

The asphalt plant is permitted to operate a maximum of 30 night shifts from the hours of 7 p.m. – 7 a.m., during the construction season each year. Night shifts are required with certain jobs, especially State Highway work. BRI provides the City with written notice prior to each event so a record can be kept to monitor the total number of nights work.

BRI also notifies their closest neighbor, Todd Wicker, prior to night shift work. Mr. Wicker's house is approximately 600 feet from the plant's driveway and approximately 800 feet from the asphalt plant itself. The next nearest occupied residence is approximately 2,000 feet from the plant. BRI has never received any noise or disruption complaints from neighbors regarding night shift operations.

BRI is proposing to add one hour from 6 a.m. to 7 a.m., Monday through Saturday, to the hours of operation to allow BRI owned vehicles to exit out of the Site and to allow startup of the asphalt plant. No other Site operations will be conducted, including loading and unloading of trucks, during this time. The additional hour will allow BRI to start up the asphalt plant prior to beginning permitted operations which start at 7 a.m. and will allow BRI owned vehicles that were parked overnight to exit the Site. BRI's closes neighbor, Todd Wicker, has been notified of this change of hours request and is in agreement with the change.

5. Setbacks

Stripping, excavation, processing, stockpiling and sedimentation ponds are setback a minimum of 50 feet from all property lines and gas pipelines, a minimum of 75 feet from the right-of-way line of County Road 71 (Rich Valley Boulevard) and a minimum of 300 feet from adjacent residential structures. Setbacks are indicated on the Phasing Plan, Sheet C-2.

6. Site Access

The Site is accessed at the north-east corner of the Site off of County Road 71 (Rich Valley Boulevard). The entrance to the Site is paved for at least 75 feet. The haul routes are currently Rich Valley Boulevard north to Cliff Road and Rich Valley Boulevard south to 117th Street. Average daily traffic generated from the Site is approximately 150 truck trips per day. Levels of production are expected to remain fairly consistent over the course of the next permitting period.

BRI proposes to keep the north access as the primary access, but would like to use the south-east access off of Rich Valley Blvd. as a secondary access to be used intermittently. During the last 5 year renewal period the old farmhouse that was located in the south-east corner of

the Site has been removed. The driveway associated with this farmhouse remains. The proposed secondary access was previously the driveway for the farmhouse on the Site. The south access has been widened and resurfaced with crushed concrete approximately 200 feet into the Site. The north access will remain the primary Site access. Haul routes will remain the same as previously permitted and as described above.

7. Landscaping

The setback areas on the Site will be landscaped in accordance with the approved landscape plans (see Figures 3, 3A and 3B). Landscaping includes the establishment of berms along Rich Valley Boulevard and along portions of the southern setback area of the Site. A portion of the berms along the southern setback area and along Rich Valley Boulevard have been constructed and vegetation established.

8. Weed Control

Weeds or other unsightly or noxious vegetation shall be controlled as necessary to maintain a neat appearance of the Site.

9. Wetlands

There are no wetlands located on the Site. There are two low areas on the southern portion of the Site that were indicated as wetland basins in the National Wetland Inventory. A field delineation of the wetland basins was performed by SEH and it was determined that neither area meets the criteria for a jurisdictional wetland determination. A copy of the SEH report is included as Appendix B.

10. Stormwater Management

Stormwater calculations for the 2, 10, and 100 year events from pre and post mining conditions, as well as a long term yield model for the Site using precipitation data from the last thirty years to establish high water levels for the proposed future ponding areas were submitted as part of the past permitting applications. These studies are still applicable and are provided in Appendix C.

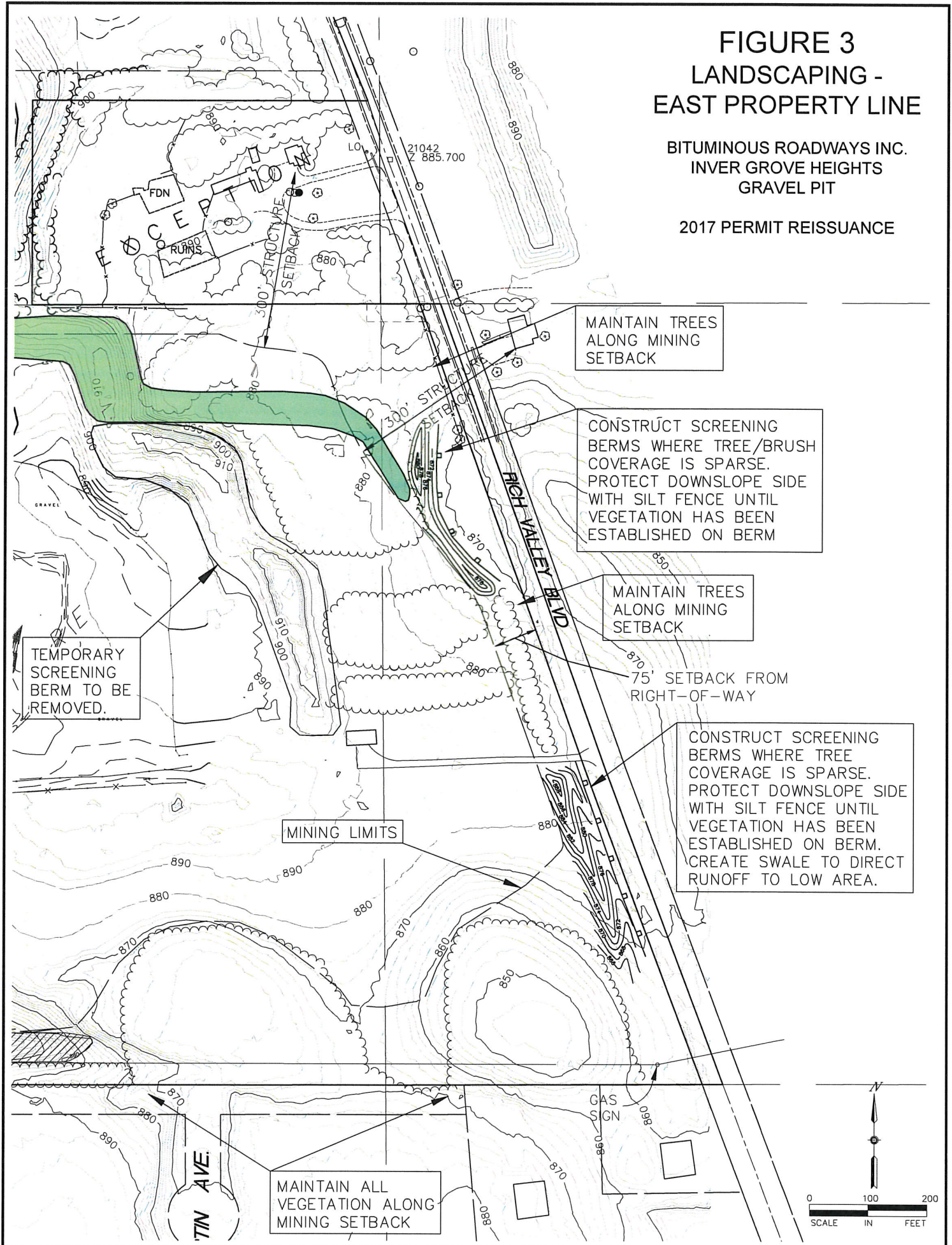
11. Tree Preservation

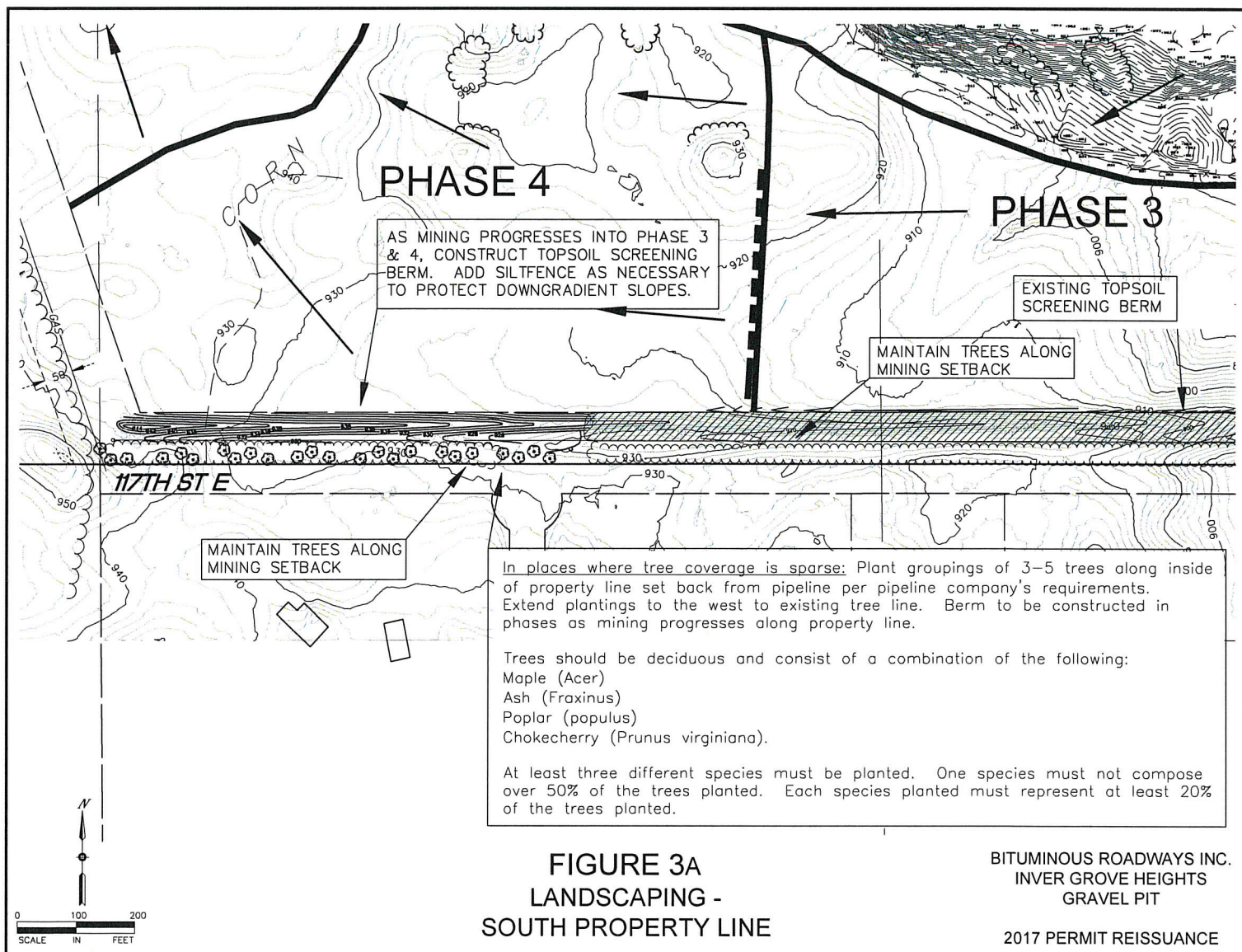
The existing woods located west of the gas pipeline will not be impacted by mining or reclamation grading. Trees and vegetation within the 300 foot setback from existing structures will also remain undisturbed. Existing trees in the setback area along the southern portion of the Site have been undisturbed and provide screening of Site operations. Additional trees may be planted as the proposed topsoil screening berm along the south property line is expanded

FIGURE 3 LANDSCAPING - EAST PROPERTY LINE

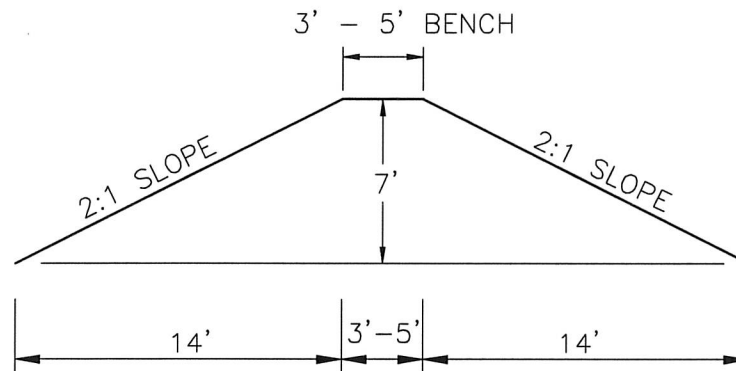
BITUMINOUS ROADWAYS INC.
INVER GROVE HEIGHTS
GRAVEL PIT

2017 PERMIT REISSUANCE





NO SCALE



SEED BERM ACCORDING TO SPECIFICATIONS:

In areas to be permanently seeded, use native seed mixture equivalent to MNDOT No. 350. Apply seed mixture at a rate of 94.7 kg per hectare (84.5 lbs per acre) in accordance with MNDOT Standard Spec. 2575. Incorporate a Type 3 fertilizer (slow release type with 10 week residual) consisting of 22-5-10 (%N-P-K) into the soil at an application rate of 392 kg per hectare (350 lbs per acre) by disking prior to seeding.

Establish native seed mix in accordance with MNDOT Standard Spec. 2575.3. Use a Truax type, or equal interseeder drill with at least two seed boxes: a small/fine seed box and a large/fluffy seed box. Drill large/fluffy seeds to a final planting depth of 10 mm (1/2 inch) to 25 mm (1 inch) deep from the large/fluffy seed box. Split the drill rates in half and make two passes over the site in order to decrease competition in drill rows. Scatter small/fine seeds over the soil surface by drop-seeding from the small/fine seed box, or broadcast. Coordinate with the seed vendor to keep the large/fluffy seeds separate from the small/fine seeds so that they may be installed from separate seed boxes. Lightly harrow or rake the site following the seeding operation. Pack the site following harrowing in order to ensure a firm seed-bed.

Comply with the requirements of MNDOT Standard Spec. Table 2575-1 for season of planting native seed mixtures. The appropriate dates for spring seeding are from April 15 through July 20. Fall seeding dates are from September 20 to October 20. Dormant seeding dates are from October 20 to November 15. Dormant seeding will only be allowed if the maximum soil temperature at a depth of 25 mm (1 inch) does not exceed 10 degrees C (50 degrees F) in order to prevent germination.

In seeded areas with slopes equal to or flatter than 3:1, apply MNDOT Standard Spec. 3882 Type 1 mulch uniformly over the soil surface by hand or machine within 24 hours after seeding in accordance with MNDOT Standard Spec. 2575.3. Apply mulch at a rate of 4.5 metric tons per hectare (2 tons per acre). Immediately after placement, anchor all mulch material into the soil by crimping (straight disking) in a direction perpendicular to that of the overland storm water flow. Punch the mulch into the soil to a depth of 2 to 3 inches with a disk spacing of 8" or less.

FIGURE 3B SCREENING BERMS

to the west in accordance with the previously approved landscaping plans (see Figures 3, 3A and 3B, Landscaping).

12. Dust Control

Dust is controlled at the Site by utilizing the existing paved Site entrance. Interior haul roads are watered as needed in order to minimize dust from vehicular travel within the Site. Screening berms are vegetated.

13. Noise Control

The Site must operate in compliance with State noise standards. Vehicles and equipment are operated with standard noise reduction features such as mufflers. Perimeter berms and operation of equipment in the recessed portion of the Site also help to reduce noise emissions from the Site.

During the original permitting phase of the southern portion of the Site, Barr Engineering modeled anticipated noise generation from the Site based on topography, equipment to be operated and location of adjacent residences or receptors. The modeling results and applicable noise standards were discussed in detail in the EAW. The noise analysis predicted that the Site will operate below noise standards established by the Minnesota Pollution Control Agency for residential areas both during stripping operations which occur at grade and during mining operations when equipment is recessed on the floor of the mining operation and the active bank provides noise mitigation.

Barr's analysis also noted that back up alarms will likely be audible at the nearest residences particularly when there is a light northern wind and little other background noise. Although the noise may be audible, it does not represent a predicted exceedance of state standards. Back up alarms are a requirement of Mining Safety and Health Administration (MSHA). Back up alarms are intentionally loud and audible and are required in order to ensure the protection of on-site workers.

14. Lighting

There is no lighting within the active mining area. There are a total of six exterior lights associated with security for the asphalt plant and contractors yard. Exterior lights are located as follows:

- 1 - Rainbow shop
- 1 - Old scale house
- 1- Top of oil tanks at plant
- 3- Top of silos at plant.

15. Groundwater Monitoring

In accordance with the permit, groundwater monitoring is conducted every other year at the on-Site well (known as the "Rainbow well") and at the Todd Wicker and Robert Plan properties. Monitoring of the on-site surface water ponds is also conducted every other year. Ground water (well) and surface water pond samples are analyzed for both diesel range organics (DRO) and gasoline range organics (GRO) and for arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, phenol, pH, electric conductivity and alkalinity. Results are submitted to the City.

The results from the last five years show that sample concentrations for both GRO and DRO in the on-site and neighboring groundwater wells are below the detection limit and reporting limit. Results from the sample concentrations of the on-site stormwater ponds and wash plant ponds for GRO are below the detection limit and reporting limit. Results from the sample concentrations of the on-site stormwater ponds and wash plant ponds for DRO are above the reporting limit, but do not exceed the surface water and drinking water standards of greater than 1 mg/L below the "action level" requiring a Remedial Investigation (RI) per MPCA Guidance Document 4-01 (Petroleum Remediation Program). The results from all the wells and surface waters show that the concentrations of barium, cadmium, chromium, nickel, selenium, silver, zinc, and phenol were all below the Health Risk Limit (HRL) established by the Minnesota Department of Health. The sample concentrations of arsenic and mercury were below the Maximum Contaminate Level (MCL) (HRLs have not been established for arsenic or mercury), which is a federal standard for the lowest concentration at which a particular contaminant is believed to be a potential health concern. The sample concentrations for lead and copper were both below the "action level" (HRLs or MCLs have not been established for lead or copper).

An existing well associated with the farmstead on the Site has been sealed in accordance with Dakota County Ordinance No. 114 and the Minnesota Department of Health.

BRI is proposing to make one minor change to the groundwater monitoring plan which is to eliminate testing the wash plant sedimentation ponds. Testing the wash plant sedimentation ponds doesn't accurately represent the composition of the groundwater as the bottoms of these ponds seal up with silt and sediment and the water will not infiltrate into the ground. The monitoring of the two stormwater ponds near the north side of the Site provides a better representation of how surface water ponds may impact the groundwater. BRI will continue to test the stormwater ponds located on the north end of the Site and the neighboring and on-site wells as currently permitted.

16. Volumes

The volume of in-place material to be removed from the Site within all of Phases 1-5 is approximately 8 million cubic yards. Approximately 1.5 million cubic yards have been removed from the Site as part of Phase 1 mining and approximately 230,000 cubic yards have been removed from the Site as part of Phase 2. The life expectancy of the Site will depend upon the future economy and aggregate demand in the metropolitan area. Reports by the Metropolitan Council, Minnesota Geologic Survey and Minnesota Department of Natural Resources indicate that the supply of aggregate materials in the metropolitan area is rapidly being depleted. However, the vitality of the economy and the construction industry impact market demand which varies from year to year. The remaining life of this Site is estimated to be approximately 20 years.

17. Permits

In addition to the local permits required by the City of Inver Grove Heights, which include the Conditional Use Permit and Land Alteration Permit, the Site must operate in compliance with other state and federal regulations. The Site operates under a NPDES Stormwater Permit and Air Emissions Permit issued by the MPCA, a Minnesota DNR Water Appropriations Permit, and a Dakota County Hazardous Waste Generators License and Processing License.

All reports which are required to be submitted to the MN DNR for the Water Appropriations Permit including annual water usage report, Dakota County for the Hazardous Waste Generators License and the Processing License, and the MPCA, including annual emissions inventory report, semi-annual deviations report, annual compliance certification report, and annual report will also be submitted to the City. The Site also operates under a Spill Prevention Control and Countermeasures (SPCC) Plan.

IV. RECLAMATION

1. Phasing

Reclamation is conducted in phases at the Site. As portions of the mining area are completed, the areas are backfilled, graded, topsoil applied and vegetation established. During the past five year permit period, substantial reclamation activity has been completed in the northern portion of the Site. The Reclamation Plan, Sheet C-6 illustrates the reclamation grades that will be established at the Site upon conclusion of mining. The Phasing Plan, Sheet C-2 illustrates areas where reclamation has been completed. Reclamation activities will leave the Site in a state that will prepare it for final development.

2. Grades

Areas within the northern portion of the Site have been backfilled, sloped and vegetated. Reclamation activities will continue in areas where mining has been completed. Reclamation activities in these areas will include continued backfilling and sloping with materials unsuitable for sale or use in asphalt mix. Clean backfill soil may also be brought to the Site to be used for establishment of reclamation grades. All backfill used in reclamation activities is clean, compactable, natural earthen material free of debris or contamination.

Along the perimeter of the excavation limits, backfilling will be required to achieve a maximum 4:1 final slope previously approved by the City of Inver Grove Heights. The processing and stockpile area will remain open and active. Reclamation grades for the southern portion of the Site will be graded to a maximum slope of 10:1 as indicated on the Reclamation Plan, Sheet C-6.

3. Topsoil

Topsoil capable of establishing and supporting vegetation, will be placed as areas are reclaimed. Topsoil will be replaced to a minimum depth of six inches. Backfilled and graded areas will be seeded and mulched to establish vegetation, stabilize slopes and minimize erosion.

4. Removal of buildings

Within three months after completion of the sand and gravel mining operation any buildings or structures which have been established on the Site as an accessory to the mining operation will be removed. Permanent structures which conform to the permanent zoning district requirements in which they are located, may remain on-site.

5. Bond

A reclamation bond has been posted with the City of Inver Grove Heights to ensure that the Site is properly reclaimed upon completion of mining activity. Final use of the property will be consistent with the zoning and subdivision ordinances in effect at the time of final development. According to the City of Inver Grove Heights 2030 Comprehensive Plan dated March 2010 the current land use is designated Extractive and the future land use is designated industrial open space. The 2040 Comprehensive Plan is currently underway and will likely be available in 2018 or 2019 and that designation is subject to change. It is possible that this area will be serviced by sanitary sewer at the time of final development. Even if this area is not within the Metropolitan Urban Service Area (MUSA) at the time of final development, previous drain field design and percolation testing within Inver Grove Heights have shown that septic systems and drain fields can be properly designed in areas previously disturbed by grading and earth

moving activities in areas with permeable sand and gravel soils. Another option would be to provide a community drain field design in an undisturbed portion of the Site. In this situation, individual septic tanks could be pumped up to a larger drain field serving all of the residential uses on the Site.

V. PLAN SET

Operations are described in detail within this report. The following plans have been prepared which help to illustrate the Site operations.

1. 2016 Aerial: A-1

2. Existing Conditions: C-1

This plan illustrates pertinent Site features including the Site boundary, existing topography, utilities, easements, wooded areas, wetlands, and existing on-Site and adjacent buildings.

3. Phasing Plan: C-2

The Phasing Plan illustrates the sequence of mining and reclamation activities which are proposed to occur on the Site.

4. Cross-Sections: C-3, C-4, C-5

Cross Sections have been prepared for the Site and are included as Figures C-3, C-4 and C-5. These cross sections illustrate the existing elevation, proposed reclamation grades, depth of topsoil, maximum mining elevation and extent of sand and gravel deposit on Site.

5. Reclamation Plan: **C-6**

This plan illustrates the end use grades for the Site, limits of mining, and setbacks. Final grades have been designed at a maximum 10:1 slope for the southern portion of the Site and a maximum 4:1 slope as previously approved for the northern portion of the Site.

APPENDIX A

PROPERTY OWNERS WITHIN 1,000 FEET

1 Flint Hills Resources Pine Bend LLC PID No. 20-03300-25-012
 c/o Property Tax Dept N $\frac{3}{4}$ of N $\frac{1}{2}$ of NE $\frac{1}{4}$ in Section 32, Township 27,
 PO Box 2917 Range 22 EXCEPT N 311.5 ft of W 700 ft &
 Wichita, KS 67201-2917 EXCEPT Beg 894.3 ft W of NE Cor W 240 ft to
 OWN: C/L CR #71 SE on C/L 216.3 ft N 72D22M20S E
 219.07 ft NW Parr C/L Rd to Beg & EXCEPT Beg
 Int W R/W CR #71 & S line W 267.4 ft N 208.7 ft

E 150 ft to R/W Rd SE on R/W 239.5 ft to Beg also N $\frac{1}{2}$ of NW $\frac{1}{4}$ in Section 33,
 Township 27, Range 22 EXCEPT 10.40 Acres RR 33-27-22 EXCEPT Pt Beg NE
 Cor of NW $\frac{1}{4}$ S along E line said NW $\frac{1}{4}$ 60.08 ft to point on RR R/W thence
 70.68 ft along Non-Tang Curv R=2914.93 ft CB=S 37D32M W thence N
 13D17M38S E 119.14 ft to N line Section 33 E'ly along N line 14.71 ft to Beg
 AND

PID No. 20-03200-03-020
 Pt of N $\frac{3}{4}$ of N $\frac{1}{2}$ of NE $\frac{1}{4}$ Com Int W R/W Co. Rd #5 & S line W 267.4 ft N
 208.7 ft E 150 ft to R/W Rd SE on R/W 239.5 Ft to Beg
 AND

PID No. 20-03200-04-010
 All W of Capital Hwy of S $\frac{1}{4}$ of N $\frac{1}{2}$ of NE $\frac{1}{4}$ in Section 32, Township 27, Range 22
 AND

PID No. 20-03200-25-010
 N $\frac{3}{4}$ of N $\frac{1}{2}$ of NW $\frac{1}{4}$ in Section 32, Township 27, Range 22 Subj to Hwy Esmnt
 over the W 50 ft of S 650 ft of N 700 ft together with N 50 ft
 AND

PID No. 20-03200-26-011
 S $\frac{1}{4}$ of N $\frac{1}{2}$ of NW $\frac{1}{4}$ in Section 32, Township 27, Range 22 EXCEPT W 693.00 ft
 Thereof
 AND

PID No. 20-03200-28-010
 SE $\frac{1}{4}$ of NW $\frac{1}{4}$ in Section 32, Township 27, Range 22
 AND

PID No. 20-03300-52-010
 Pt of S $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 33, Township 27, Range 22 lying W of CR #5 Com
 Int N line & W R/W Rd SE on R/W 175 ft W 250 ft N to N line E to Beg
 AND

PID No. 20-11150-01-031
 Lots 1, 2 & 3, Block 1 & Pt of Vac 114th St E Accruing Thereto
 Akron Acres
 AND

PID No. 20-11150-02-041
 Lots 1, 2, 3 & 4, Block 2 & Pt of Vac 114th St E Accruing Thereto
 Akron Acres
 AND

PID No. 20-64025-01-010
 Lot 1, Block 1
 Rich Valley Estates
 AND

PID No. 20-64025-01-031
 Lots 2 & 3, Block 1
 Rich Valley Estates
 AND

PID No. 20-64025-02-010
 Lot 1, Block 2
 Rich Valley Estates
 AND

PID No. 20-64025-02-020
 Lot 2, Block 2
 Rich Valley Estates
 AND

(SEE NEXT PAGE)

PID No. 20-64025-02-030
Lot 3, Block 2
Rich Valley Estates
AND
PID No. 20-64025-02-040
Lot 4, Block 2
Rich Valley Estates
AND
PID No. 20-64025-02-061
Lots 5 & 6, Block 2
Rich Valley Estates
AND
PID No. 20-64025-03-010
Lot 1, Block 3
Rich Valley Estates
AND
PID No. 20-64025-03-020
Lot 2, Block 3
Rich Valley Estates
AND
PID No. 20-64025-03-030
Lot 3, Block 3
Rich Valley Estates
AND
PID No. 20-64025-03-040
Lot 4, Block 3
Rich Valley Estates
AND
PID No. 20-64025-03-050
Lot 5, Block 3
Rich Valley Estates
AND
PID No. 20-64025-03-060
Lot 6, Block 3
Rich Valley Estates
AND
PID No. 20-64025-03-070
Lot 7, Block 3
Rich Valley Estates

- 2 Pine Bend Landfill Inc
c/o Allied Waste Ind Inc - Prop Tax Div
18500 North Allied Way
Phoenix, AZ 85054
OWNS:
AND
PID No. 20-03300-26-011 Pt of S ½ of NE ¼ in
Section 32, Township 27, Range 22 lying E'ly of
SAR #71 EXCEPT N 2 Acres lying E of SAR #71
also Pt of S ½ of NW ¼ in Section 33, Township 27,
Range 22 lying W'ly of Chicago Rock Island RR
EXCEPT Pt lying W'ly of C/L of SAR #71
AND
PID No. 20-03300-51-011
Pt of N ½ of SW ¼ in Section 33, Township 27, Range 22 lying E of Hwy #5 & W
of RR EXCEPT Com 100.1 ft E of NW Cor being Cen #5 S 19D14M E on Cen
220.7 ft N 70D46M E 235.5 ft N 130.95 ft to N line W 295.35 ft to Beg & EXCEPT
Com SW Cor E 572.1 ft to C/L Rich Valley Blvd NW on C/L 165.35 ft to Beg Cont
NW on C/L 160 ft N 69D29M28S E 272.25 ft S 20D30M32S E 160 ft S
69D29M28S W 272.25 ft to Beg
AND
PID No. 20-03300-51-012
Pt of N ½ of SW ¼ in Section 33, Township 27, Range 22 Com SW Cor E 572.1 ft
to C/L Rich Valley Blvd NW on C/L 165.35 ft to Beg Cont NW on C/L 160 ft N
69D29M28S E 272.25 ft S 20D30M32S E 160 ft S 69D29M28S W 272.25 ft to
Beg

- 3 TSA Holdings LLC
 11278 Rich Valley Blvd
 Inver Grove Heights, MN 55077
 OWN:
 PID No. 20-03200-06-020
 N 2 Acres of Hwy of S $\frac{1}{2}$ of NE $\frac{1}{4}$ & S 50 ft of S $\frac{1}{2}$
 of N $\frac{1}{2}$ of NE $\frac{1}{4}$ in Section 32, Township 27,
 Range 22
- 4 Todd K. Wicker
 Linda D. Wicker
 11479 Rich Valley Blvd
 Inver Grove Heights, MN 55077
 OWN:
 PID No. 20-03300-28-010
 Pt of S $\frac{1}{2}$ of NE $\frac{1}{4}$ in Section 32, Township 27,
 Range 22 Com SE Cor W 592.43 ft N 344.9 ft E
 570 ft to C/L Rd SE on C/L 67 ft S 281.85 ft to
 Beg also Pt of S $\frac{1}{2}$ of NW $\frac{1}{4}$ in Section 33,
 Township 27, Range 22 lying SW of CR #71
- 5 Alan Bebel
 3852 North Ridge Dr
 Eagan, MN 55123
 OWNS:
 PID No. 20-03200-06-010
 All E of Capital Hwy of S $\frac{1}{4}$ of N $\frac{1}{2}$ of NE $\frac{1}{4}$ in
 Section 32, Township 27, Range 22 EXCEPT
 S 50 ft
- 6 Joseph T. Maltese
 Diane I. Maltese
 11618 Akron Ave
 Inver Grove Heights, MN 55077
 OWN:
 PID No. 20-03200-50-016
 N 431.89 ft of NW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32,
 Township 27, Range 22 EXCEPT W 821.48 ft
- 7 William Larson
 Teri A. Larson
 11630 Akron Ave
 Inver Grove Heights, MN 55077
 OWN:
 PID No. 20-03200-50-013
 Pt of E 266.34 ft of W 821.48 ft in Section 32,
 Township 27, Range 22 lying N of line Com W
 line 702 ft S of NW Cor S 89D58M38S E 32.60 ft
 Cur R 138.93 ft S 50D10M38S E 47.82 ft Cur L
 143.12 ft N 88D49M22S E 225.65 ft to Pt
 555.14 ft E of W line & Beg of line N 88D49M22S
 E 266.40 ft & There Term
- 8 Cory Cole Hohneke
 11530 Akron Ave
 Inver Grove Heights, MN 55077
 OWNS:
 PID No. 20-03200-50-012
 N 392.33 ft of W 555.14 ft of NW $\frac{1}{4}$ of SW $\frac{1}{4}$ in
 Section 32, Township 27, Range 22 Subj to Rd
 W 33 ft
- 9 Robert M. Heidenreich
 Deena L. Heidenreich
 11632 Akron Ave
 Inver Grove Heights, MN 55077
 OWN:
 PID No. 20-03200-50-040
 W 555.14 ft of NW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32,
 Township 27, Range 22 lying N of line Beg W
 line 702 ft S of NW Cor S 89D58M38S E 32.60 ft
 Cur R 138.93 ft S 50D10M38S E 47.82 ft Cur L
 143.12 ft N 88D49M22S E 225.65 ft to Pt in line
 555.14 ft E of W line & There Term Subj to
 Esmnt EXCEPT N 392.33 ft

- 10 Robert L. Haleen
Sandra J. Haleen
11620 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-50-030
Pt of NW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 lying N of line Com W line 702 ft S of
NW Cor S 89D58M38S E 32.60 ft Cur R 138.93 ft
S 50D10M38S E 47.82 ft Cur L 143.12 ft N
88D49M22S E 492.05 ft to Beg of line S
79D04M54S E 514.21 ft to E line & There Term
EXCEPT N 431.98 ft & EXCEPT W 821.48 ft Subj
to Esmnt
- 11 Carol L. Boudinot
11624 Akron Ave
Inver Grove Heights, MN 55077
OWNS:
PID No. 20-03200-50-050
Pt of NW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 Com NW Cor S 702 ft to C/L Rd Esmnt
E on C/L Esmnt 854.52 ft to Beg S 79D04M54S E
514.21 ft to E line S 392.73 ft to SE Cor W
485.30 ft N 02D21M33S W 488.65 ft to Beg
- 12 Robert A. Gilbert
Olive G. Gilbert
11634 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-50-018
Pt of SW $\frac{1}{4}$ in Section 32, Township 27, Range 22
Com NW Cor S 702 ft S 89D58M38S E 32.60 ft E
& SE on Cur 138.93 ft S 50D10M38S E 47.82 ft
SE & E on Cur 143.12 ft N 88D49M22S E 71.14 ft
to Beg Cont same bearing 420.91 ft SE 488.65 ft
to Pt on S line 841.59 ft E of W line S 21.97 ft W
440.93 ft N 499.70 ft to Beg
- 13 Jeffrey & Alison Brown
11636 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-50-020
W 400.66 ft of NW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32,
Township 27, Range 22 EXCEPT Pt lying N of
C/L Rd Esmnt also N 13.05 ft of W 400.66 ft of
SW $\frac{1}{4}$ of SW $\frac{1}{4}$ of said Section 32 Subj to Esmnt
- 14 Gary R. & Zoe E. Zuckweiler
Timothy & Jennifer Wheeler
11760 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-020
Pt of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 Com NW Cor E on N line 841.59 ft S
21.97 ft to Beg W 440.93 ft N 21.97 ft to N line W
to NW Cor S 200.22 ft to C/L E-W Rd Esmnt E
on C/L Esmnt 708.39 ft to C/L N-S Esmnt N on
said C/L 445.11 ft to Beg EXCEPT N 13.05 ft of
W 400.66 ft Subj to Esmnt
- 15 Lawrence & Jovanka Koury
Brandon Koury
11804 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-080
Pt of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 Com NW Cor S 200.22 ft to C/L Rd
Esmnt 484.18 ft to Beg S 602.28 ft E 387.49 ft N
597.41 ft to C/L Esmnt W on C/L Esmnt 387.83 ft
to Beg Subj to Esmnt
- 16 Anthony D. Wenman
Debra A. Wenman
11806 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-090
Pt of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 Com NW Cor S 200.22 ft to C/L Rd
Esmnt E on C/L 872.03 ft to Beg S 597.41 ft to Pt
315.97 ft N of S line E 384.84 ft to Pt 318.83 ft N
of S line N 597.41 ft to C/L Esmnt W 384.84 ft to
Beg Subj to Esmnt N 33 ft

- 17 David J. Dickey
Nicole D. Alleva-Dickey
11770 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-030
Pt of SW $\frac{1}{4}$ in Section 32, Township 27, Range 22
Beg N line SW $\frac{1}{4}$ of SW $\frac{1}{4}$ 841.59 ft E of NW Cor
S on C/L N-S Rd Esmnt 467.08 ft to C/L E-W Rd
Esmnt E 548.48 ft N 30D46M23S E to Pt on N line
581.34 ft E of Beg W 581.34 ft to Beg Subj to
Esmnt
- 18 Troy M. Stephens
Angela N. Stephens
11808 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-012
Pt of SW $\frac{1}{4}$ in Section 32, Township 27, Range 22
Com SW Cor N on W line 1100 ft E 100 ft E & SE
on Cur 233.67 ft SE & E on Rev Cur 194.72 ft E
on Tang 728.48 ft to Beg Cont E 107.67 ft E & SE
on Cur 256.17 ft SE on Rev Cur 119.60 ft S
15D38M59S W 5360 ft SW & S & SE on Tang Cur
280.67 ft S 37D57M15S E Tang 216.23 ft W
633.87 ft N 597.41 ft to Beg
- 19 William M. McPhillips
Kathleen McPhillips
11798 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-040
Pt of SW $\frac{1}{4}$ in Section 32, Township 27, Range 22
Beg N line SE $\frac{1}{4}$ of SW $\frac{1}{4}$ 1422.93 ft E of NW Cor
of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ S 30D46M23S W 450.70 ft to
C/L E-W Rd Esmnt E on C/L 621.01 ft N 514.21 ft
to N line W 367.31 ft to Beg Subj to Esmnt
- 20 Ronald Stevan Malley
11796 Akron Ave
Inver Grove Heights, MN 55077
OWNS:
PID No. 20-03200-52-050
Pt of SW $\frac{1}{4}$ in Section 32, Township 27, Range 22
Beg N line SE $\frac{1}{4}$ of SW $\frac{1}{4}$ 1790.24 ft E of NW Cor
of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ S 514.21 ft E 428.78 ft N
512.53 ft to N line W on N line 429.78 ft to Beg
Subj to Esmnt
- 21 Michael B. Johnson
Christine M. Johnson
11794 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-060
Pt of SE $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 Beg N line 2220.02 ft E of NW Cor of
SW $\frac{1}{4}$ of SW $\frac{1}{4}$ S 512.53 ft E 435.07 ft to E line
N 510.83 ft to NE Cor W on N line 433.77 ft to
Beg Subj to Esmnt
- 22 Jason Lee Edgar
11792 Akron Ave
Inver Grove Heights, MN 55077
OWNS:
PID No. 20-03200-52-110
Pt of SE $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 Com NW Cor of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ S
200.22 ft to C/L E-W Rd Esmnt E on C/L
2276.66 ft to Pt of Beg E 465.07 ft S 469.01 ft to
Pt 329.71 ft N of SE Cor W 466.27 ft to Pt
326.33 ft N of S line N 469.01 ft to Beg Subj to
Esmnt

- 23 Steven R. Sandberg Trustee
Elaine C. Sandberg Trustee
11802 Akron Ave
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03200-52-100
Pt of SE $\frac{1}{4}$ of SW $\frac{1}{4}$ in Section 32, Township 27,
Range 22 Com NW Cor of SW $\frac{1}{4}$ of SW $\frac{1}{4}$ S
200.22 ft to C/L E-W Rd Esmnt E on C/L Esmnt
1740.31 ft to Beg being C/L N-S Rd Esmnt S on
N-S Esmnt 550.50 ft to Pt 323.53 ft N of S line E
363.80 ft to Pt 326.23 ft N of S line N 469.01 ft W
on C/L E-W Esmnt 436.35 ft to Beg Subj to
Esmnt
- 24 Robert Plan
Marcille H. Plan
11889 Rich Valley Blvd
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03300-52-021
Pt of S $\frac{1}{2}$ of SW $\frac{1}{4}$ in Section 33, Township 27,
Range 22 Beg 132.10 ft E of NW Cor E 440 ft to
C/L Rd R 69D28S on C/L 1037.80 ft R
110D15M 725 ft R 85D39M05S 978.45 ft to Beg
EXCEPT Beg N line & C/L Rd SE on C/L 175 ft
W 250 ft N to N line E to Beg EXCEPT Com NW
Cor S $\frac{1}{2}$ of SW $\frac{1}{4}$ N 89D53M12S E along N line
132.10 ft to NE Cor Rich Valley Estates & Pt of
Beg S 4D43M15S E 528.17 ft N 89D53M12S E
559.27 ft to W R/W Co. Rd #71 N 20D37M20S
W along R/W 562.10 ft to N line S 89D53M12S
W 404.77 ft to Beg
- 25 Larry E. Plan
Christine Plan
11815 Rich Valley Blvd
Inver Grove Heights, MN 55077
OWN:
PID No. 20-03300-52-022
Pt of S $\frac{1}{2}$ of SW $\frac{1}{4}$ in Section 33, Township 27,
Range 22 Com NW Cor S $\frac{1}{2}$ of SW $\frac{1}{4}$ N
89D53M12S E along N line 132.10 ft to NE Cor
Rich Valley Estates & Pt of Beg S 4D43M15S E
528.17 ft N 89D53M12S E 559.27 ft to W R/W Co.
Rd #71 N 20D37M20S W along R/W 562.10 ft to
N line S 89D53M12S W 404.77 ft to Beg EXCEPT
Beg Int W'ly R/W Co. Rd #71 & N line S $\frac{1}{2}$ of
SW $\frac{1}{4}$ SE along R/W 175 ft W 250 ft N at R/A to N
line E along N line to Beg
- 26 R & M Holdings LLC
c/o Richard L. O'Gara
251 Starkey St
St. Paul, MN 55107
OWN:
PID No. 20-03300-54-015
S $\frac{1}{2}$ of SW $\frac{1}{4}$ in Section 33, Township 27,
Range 22 lying E of Co. Rd #5 EXCEPT RR
EXCEPT Parcel 20-03300-54-012 EXCEPT S
394.10 ft lying between CSAH #71 & W R/W RR
EXCEPT Pt lying E'ly of RR R/W (Midwestern
RR Properties Inv) Subj to Esmnt
- 27 Browning-Ferris Ind Inc
c/o Republic Services
PO Box 29246
Phoenix, AZ 85038
OWNS:
PID No. 20-03300-50-010
Pt of N $\frac{1}{2}$ of SW $\frac{1}{4}$ in Section 33, Township 27,
Range 22 lying E of Hwy #5 & W of RR Com
100.1 ft E of NW Cor being Cen #5 S 19D14M E
on Cen 220.7 ft N 70D46M E 235.5 ft N 130.95 ft
to N line W 295.35 ft to Beg

28 11900 Rich Valley LLC
11900 Rich Valley Blvd
Inver Grove Heights, MN 55077
OWNS:

PID No. 20-03300-54-012
Pt of S $\frac{1}{2}$ of SW $\frac{1}{4}$ in Section 33, Township 27,
Range 22 Com NW Cor E 1320.09 ft S 559.10 ft
to Pt "B" Cont S 366.14 ft to Beg W 402.29 ft to
C/L CR #71 NW on C/L 300 ft to Int of line S
79D56M30S W from Pt "B" NE on said line & its
Ext 662.95 ft to W R/W RR S on R/W 30 ft E on
R/W 75 ft S on R/W 353.79 ft to N line of S
394.10 ft W 162.39 ft to Beg Subj to Rd



State of Minnesota,)
:ss.
County of Dakota.)

DCA Title does hereby certify that the foregoing exhibit consisting of
entries numbered 1 to 28, both inclusive, constitutes a true and complete report
of the apparent ownership of all parcels of land situate within a radius of 1,000
feet of:

- 29 That part of the South 1/2 of the Northeast 1/4 of Section 32, Township 27,
Range 22, lying westerly of Rich Valley Boulevard; except that part described
as follows:
Commencing at the Southeast corner of said South 1/2 Northeast 1/4; thence West
along the South line thereof, a distance of 592.43 feet; thence North 344.9 feet;
thence East 570 feet to the centerline of Rich Valley Boulevard; thence
Southeasterly along said centerline, a distance of 67 feet to the East line of said
South 1/2 of the Northeast 1/4; thence South 281.85 feet to the point of beginning;
AND
The Northeast 1/4 of the Southwest 1/4 and the North 1/2 of the Southeast 1/4,
Section 32, Township 27, Range 22, and all of that tract of land lying West of
Highway 5 in the Northwest 1/4 of the Southwest 1/4, Section 33, Township 27,
Range 22;
as shown by the records of the County Treasurer of said County.

Dated at Hastings, Minnesota this 4th day of August, A. D. 2017 at
8 o'clock A.M.

DCA Title,
by

[Handwritten signature]

llb

An Authorized Signature.

MEMBER AMERICAN LAND TITLE ASSOCIATION
and
MINNESOTA LAND TITLE ASSOCIATION

DCA Title accepts no responsibility as to the accuracy of the addresses or legal
descriptions in this report as said addresses and legal descriptions are taken from
the records of the office of the County Treasurer of said Dakota County and are
not necessarily the most current addresses of said property owners.

Order No. A17-71861

APPENDIX B

WETLAND DELINEATION REPORT



3535 Vadnais Center Drive, St. Paul, MN 55110-5196

651.490.2000

651.490.2150 FAX

architecture

• engineering

• environmental

• transportation

May 20, 2002

RE: Bituminous Roadways, Inc.
11201 Rich Valley Road
Wetland Delineation
Inver Grove Heights, MN
SEH No. A-BITUM0201.00

Mr. Kent Peterson
President
Bituminous Roadways, Inc.
6898 Highway 101 East
Shakopee, MN 55379

Dear Mr. Peterson:

This letter constitutes our findings during a site visit at 11201 Rich Valley Road in Inver Grove Heights, Minnesota on May 10, 2002. The purpose of this site visit was to investigate the parcel, identify areas meeting the technical criteria for wetlands, delineate the jurisdictional extent of the wetland basins, and classify the wetland habitat.

The project site is located in the N½ of the SW¼ of Section 32, and the NE¼ of the SW¼ of Section 32 in Township 27 North, Range 22 West in Dakota County, Minnesota (see attached Figure 1). The 130-acre site is bounded on the north by a gravel pit, on the east by Rich Valley Road, on the south by private residences and agricultural land, and on the west by agricultural land.

Wetlands are defined jointly by the U.S. Army Corps of Engineers (Federal Register, 1982) and the U.S. Environmental Protection Agency (Federal Register, 1980) as follows: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas."

According to U.S. Army Corps of Engineers, one positive indicator (except in certain situations) from each of three elements must be in order to make a positive wetland determination, which are as follows:

- Greater than 50 percent dominance of hydrophytic plant species;
- Presence of hydric soil; and,
- The area is either permanently or periodically inundated, or soil is saturated to the surface during the growing season of the dominant vegetation.

The project site was examined on May 10, 2002 for areas meeting wetland criteria in accordance with the Corps of Engineers Wetlands Delineation Manual (U.S. Army Corps of Engineers, 1987). The 1987 Manual requires that soil inundation or saturation occur within 18 inches of the surface

and that all three wetland parameters (as discussed above) be present. The Routine Onsite Determination Method (RODM) as set forth by the U.S. Army Corps of Engineers was applied during this field investigation. Field data collected during the investigation is provided on the attached RODM data sheets.

The National Wetlands Inventory mapped two basins in the southeast corner of the parcel as Type 3 and Type 7 wetlands (see attached Figure 2). However, during the field investigation for wetland conditions on May 10, 2002, the two basins did not meet the criteria (as described above) for a jurisdictional wetland determination. Precipitation for the region is at or slightly above normal for the region according to the Minnesota Climatology Working Group. Precipitation totals for the month of April 2002 were reported as 4.22 inches (Rosemount Agriculture Experiment Station) and that Dakota County is within 90 – 110 % of normal precipitation from April 1 – May 6, 2002. The Minnesota Climatology Working Group indicates that average precipitation (1961 – 1990) for the month of April is approximately 2.87 inches (Rosemount Agriculture Experiment Station). The following paragraphs describe the results of the field investigation.

Basin 1

Basin 1 is a forested depression dominated by slippery elm (*Ulmus rubra*), box elder (*Acer negundo*) in the canopy, and tatarian honeysuckle (*Lonicera tatarica*) and red-berried elder (*Sambucus racemosa*) in the shrub layer. The forb layer is dominated by ground ivy (*Glechoma hederacea*), common burdock (*Arctium minus*), tatarian honeysuckle seedlings. Less than 50 percent of the dominant vegetation is Facultative (i.e., equally likely to occur in wetlands and non-wetlands, 34 – 66 percent probability) or wetter, therefore not meeting the criterion for wetland vegetation.

The soil in Basin 1 is mapped by the Soil Survey of Dakota County as Kennebec Variant silt loam (map unit 1816), which is not listed as a hydric soil, but may have hydric inclusions (see attached Figure 3). The upper 24 inches of the soil profile was dark silt loam (10YR2/1), but showed no signs of typical redoximorphic conditions (e.g., concretions, mottling, or oxidized rhizosphere) in the soil profile. The soil was not saturated in the upper 24 inches of the soil profile, but some shallow tree roots were observed (a secondary hydrologic indicator). The evidence suggesting hydric soil conditions and sustained hydrology to support a prevalence of hydrophytic vegetation was marginal.

It is likely Basin 1 receives runoff from adjacent side slopes with no aboveground outlet. However, the soil may have a high infiltration rate as saturated soil was not observed despite several days of rain previous to the field investigation and also, the likelihood of encountering wetter conditions would be expected in the spring of the year. The wetland vegetation criterion was not met and the soil and hydrology criteria were marginal for the basin. For these reasons, it was determined that all three wetland criteria were not met, therefore this basin did not meet the technical criteria for a jurisdictional wetland.

Mr. Kent Peterson
May 20, 2002
Page 3

Basin 2

Basin 2 is a forested depression located in the southeast corner of the parcel and to the west of Basin 1. Basin 2 is dominated by box elder and red-berried elder in the canopy and shrub layer, respectively. The forb layer is dominated by common burdock and small-flowered crowfoot (*Ranunculus abortivus*). Less than 50 percent of the dominant vegetation is Facultative or wetter, therefore not meeting the criterion for wetland vegetation.

The soil in Basin 2 is mapped by the Soil Survey of Dakota County as Colo silt loam, a state-listed hydric soil (see attached Figure 3). The upper 24 inches of the soil profile was dark silt loam (10YR3/1) with very faint mottles (10YR4/2) less than 2 percent. The soil was not saturated in the upper 24 inches of the profile and showed no other hydric indicators, therefore not meeting the hydrology criterion.

Similar to Basin 1, Basin 2 likely receives runoff from adjacent side slopes and has no aboveground outlet. However, no saturation was observed in the upper 24 inches of the soil profile despite several days of rain prior to the field investigation. The wetland vegetation and hydrology criteria were not met, therefore it was determined that Basin 2 did not meet the technical criteria for a jurisdictional wetland.

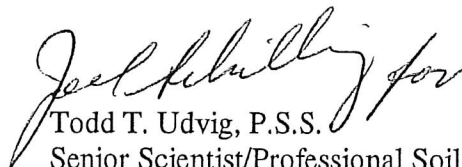
If you have any questions regarding the results of this field investigation or other concerns, please feel free to contact Todd Udvig, SEH Project Manager, or me at the numbers provided below. SEH is pleased to provide you this information and looks forward to working with Bituminous Roadways, Inc. in the future.

Sincerely,

SHORT ELLIOTT HENDRICKSON INC.

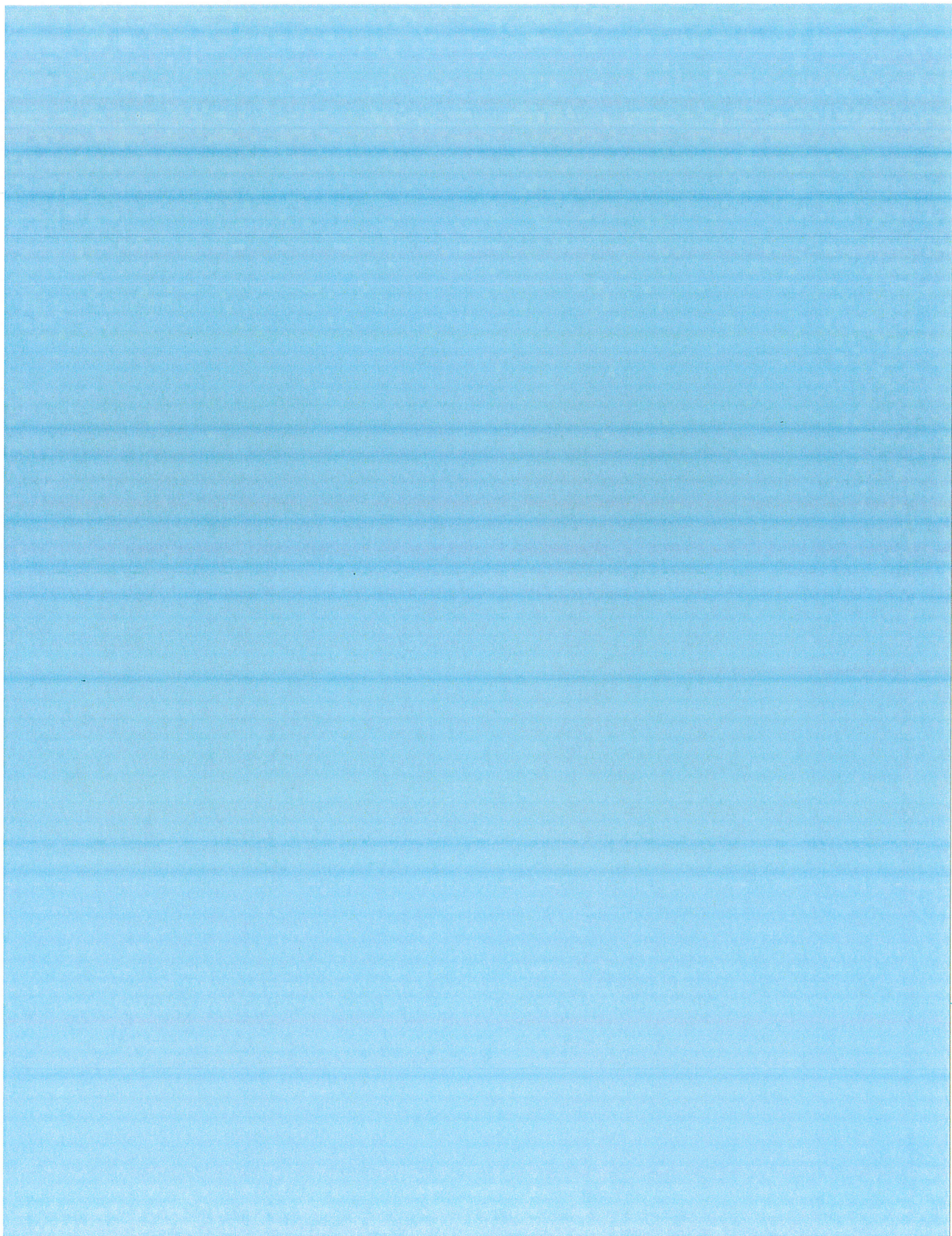


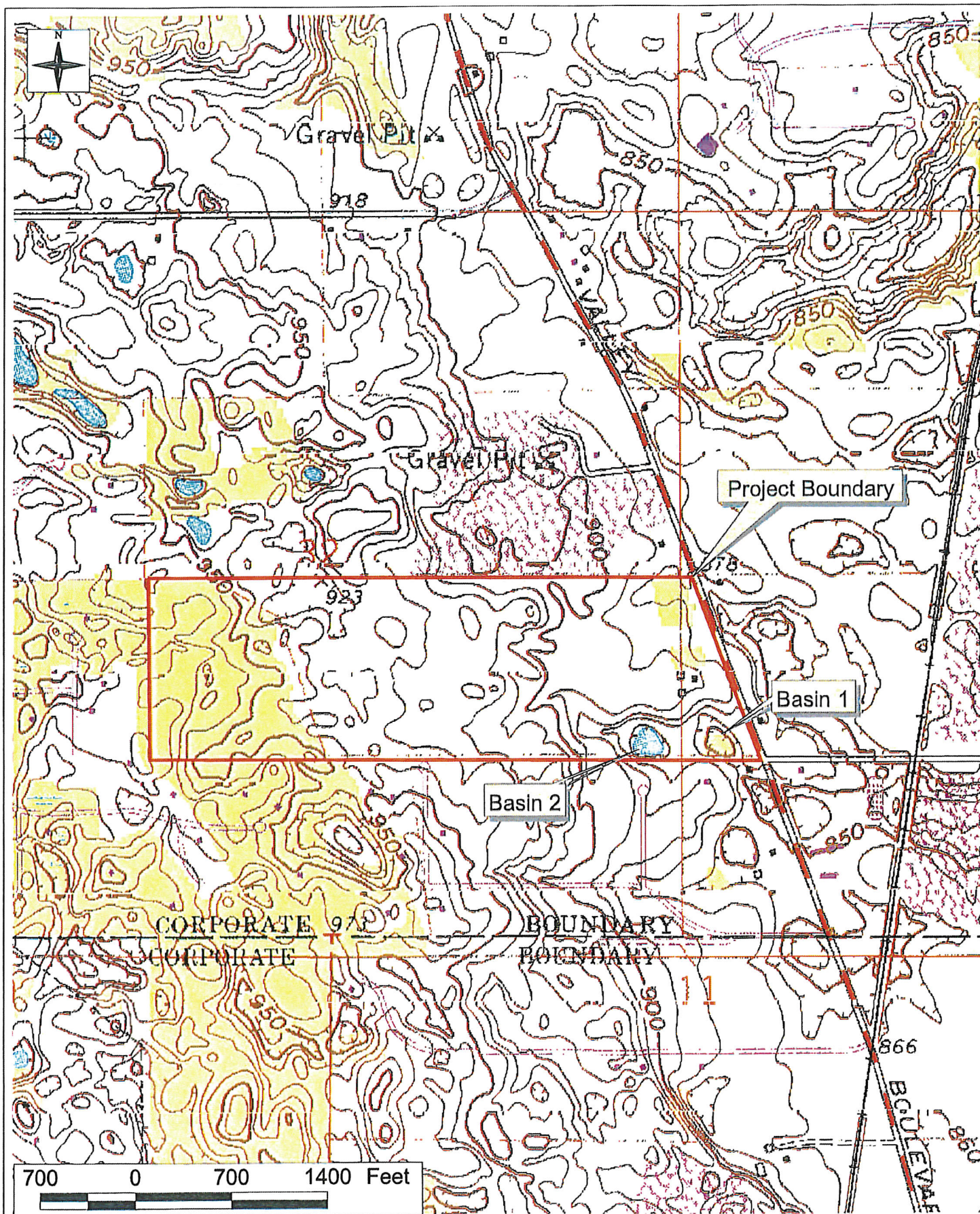
Allyz D. Kramer
Staff Biologist
651.490.2162



Todd T. Udvig, P.S.S.
Senior Scientist/Professional Soil Scientist
651.765.2957

Attachment

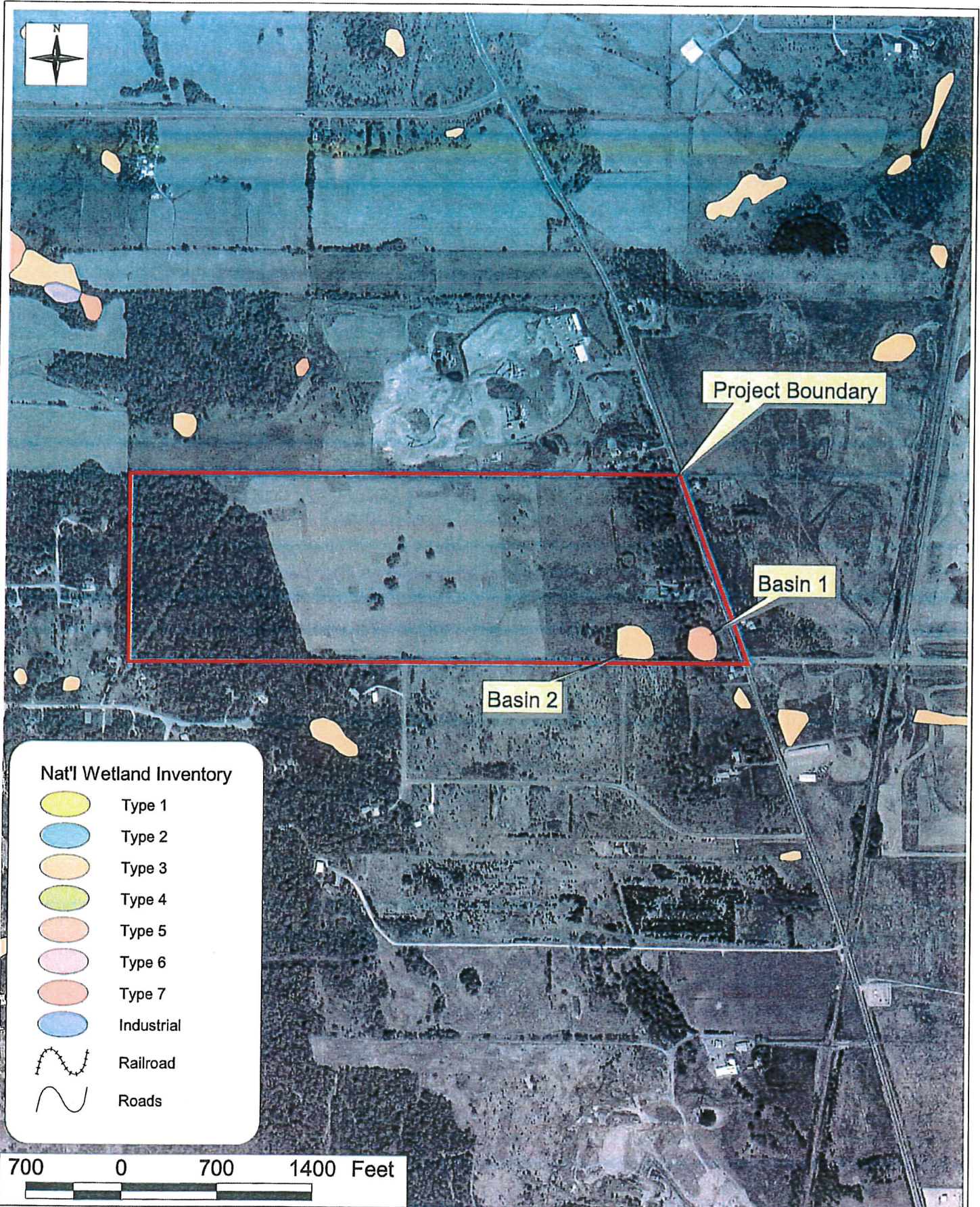




USGS 7.5 Minute Quad Map
of Project Location

A-BITUM0201.00

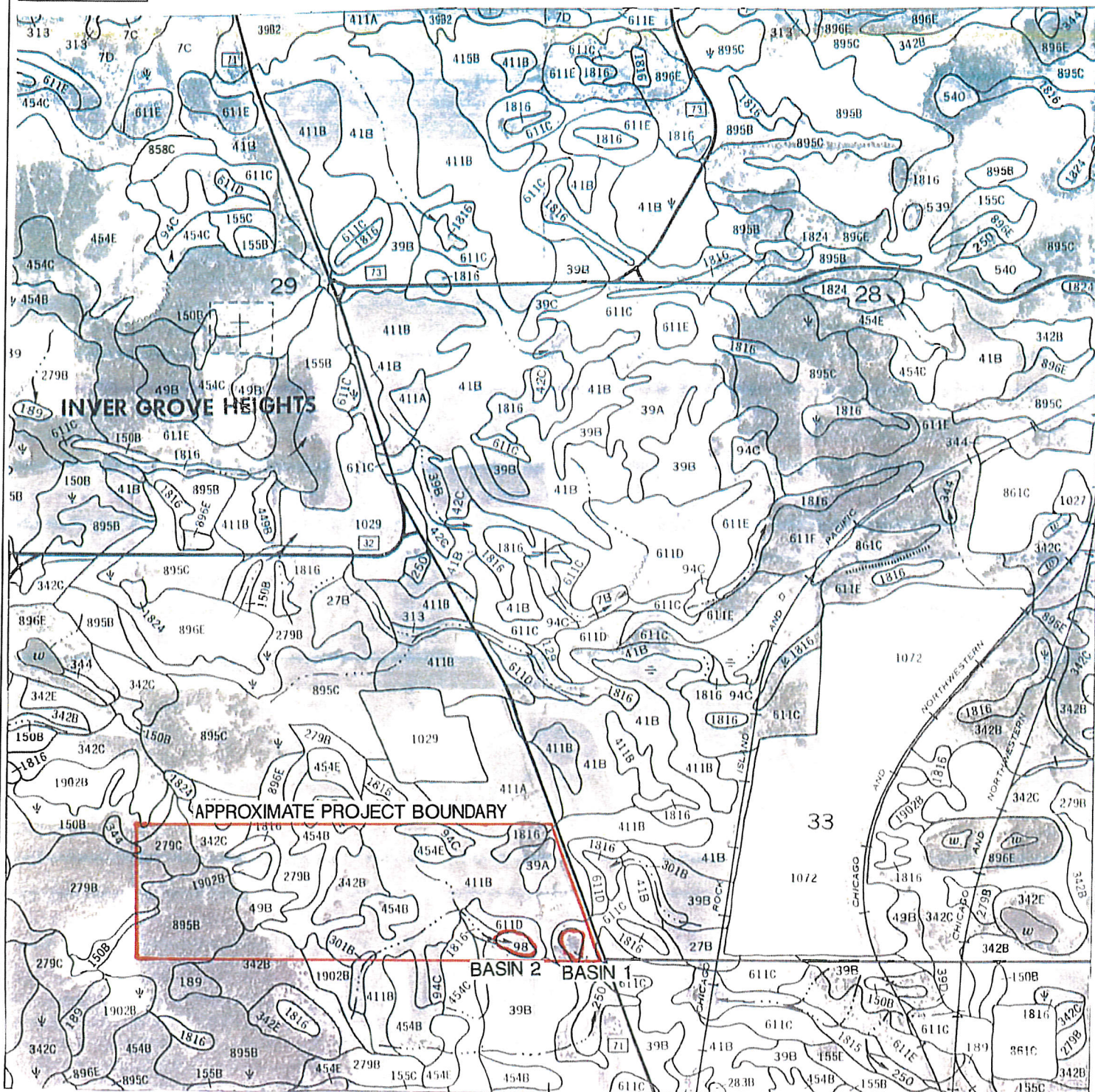
Figure 1



National Wetlands Inventory Map
overlayed on 2000 aerial photograph

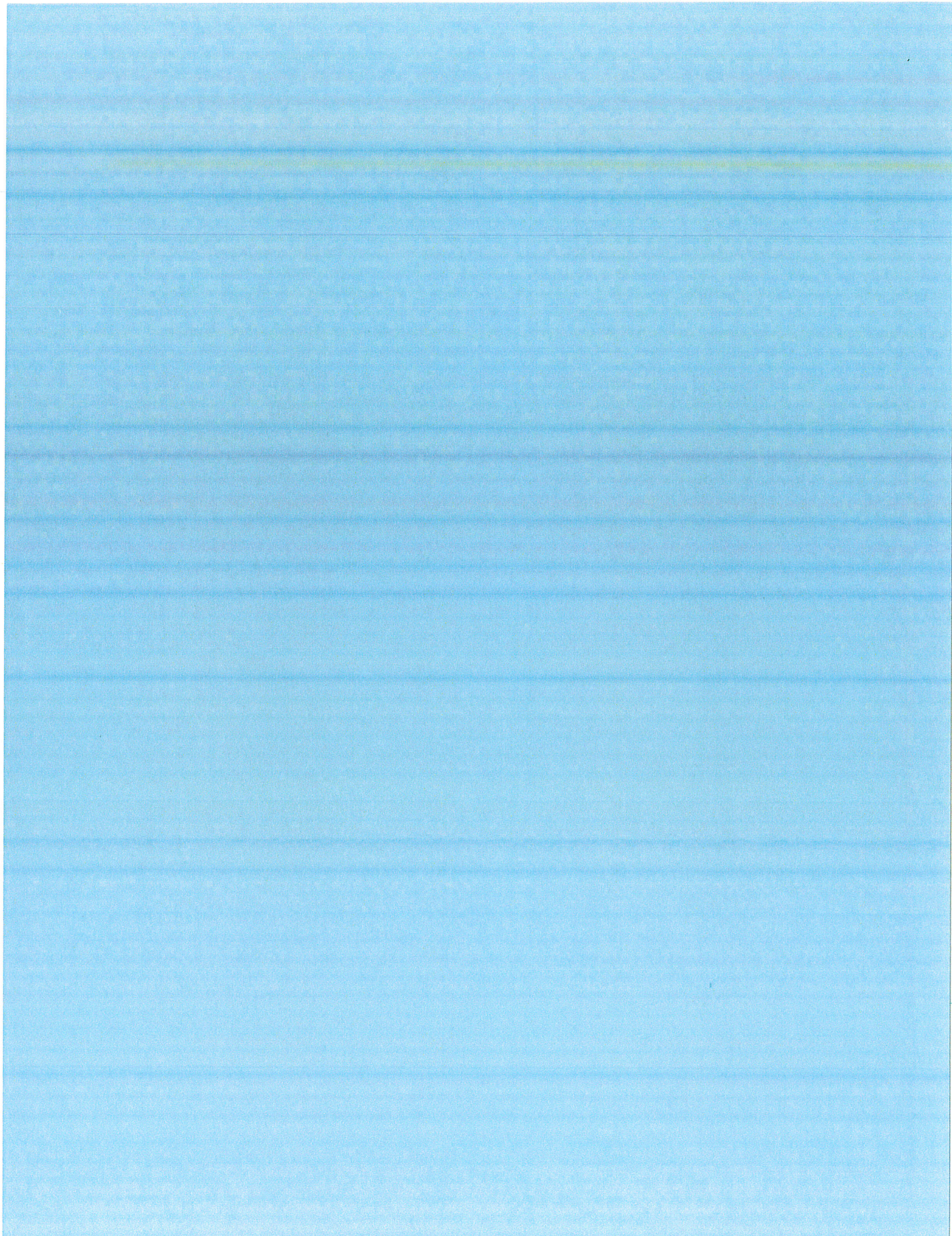
A-BITUM0201.00

Figure 2



ABITUM0201.00

Figure 3



DATA FORM
ROUTINE ONSITE DETERMINATION METHOD



Project/Site: 11201 Rich Valley Road, Inver Grove Heights MN Abnormal conditions? Y ☐ N ☒ Is the Area (circle):
 Applicant/Owner: BITUMINOUS ROADWAYS INC. Site disturbed? Y ☐ N ☒ Filled Floodplain Ditched
 Field Investigator: A. KRAMER Transect No. _____ Problem area? Y ☐ N ☒ Seasonal Permanent Tiled
 Investigation Date: 05/10/02 Site Sample No. BASIN 1 If yes, explain in remarks

VEGETATION

Dominant Plant Species	Stratum	%	Indicator
1. <i>Ulmus rubra</i> - Slippery Elm	TREE	50%	FAC
2. <i>Acer Negundo</i> - Box elder	TREE	50%	FACWT
3. <i>Sambucus racemosa</i> - Red berried elder	Shrub	20%	FACU
4. <i>Glechoma hederacea</i> - Ground ivy	Herb	60%	FACU
5. <i>Arctium minus</i> - Common burdock	Herb	20%	NI
6. <i>Lonicera tatarica</i> - tatarian honeysuckle	Herb	20%	FACU
7. <i>Lonicera tatarica</i> - tatarian honeysuckle	Shrub	60%	FACU
8.			
9.			
10.			
11.			
12.			

Percent of dominant species that are OBL, FACW and/or FAC = <50 %

HYDROLOGY

____ Stream, Lake or Well Data
 ____ Precipitation Data
 ____ Aerial Photographs
 ____ Other (Explain in remarks)
☒ No recorded data used

Primary Wetland Hydrology Indicators

____ Inundated
 ____ Saturated in upper 18"
 ____ Water Marks
 ____ Drift Lines
 ____ Sediment Deposits
 ____ Drainage Patterns in Wetlands

Secondary Wetland Hydrology Indicators

(If no primary indicator, 2 or more secondary indicators required)

____ Oxidized Rhizosphere
 ____ Water Stained Leaves
 ____ Local Soil Survey Data
 ____ FAC Neutral Vegetation Test
 ____ Multiple Trunks
 ____ Other (Explain in remarks)

Field Observations

Depth of Surface Water: 0
 Depth to Water in Pit: >24"
 Depth to Saturated Soil: >24"

SOILS

Map Unit Name: Kennebec Variant Silt Loam Natural Drainage Class
 Soil Suborder: Cumultic Hapludolls Whole unit hydric soil?

Moderately well drained
 Y ☐ N ☒

Soil Profile Description

Depth (in)	Horizon Name	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle %	Soil Texture and Comments
0-24	A	10YR2/1	—	—	Silt loam

DATA FORM
ROUTINE ONSITE DETERMINATION METHOD



Project/Site: 11201 Rich Valley Road, Inver Grove Hgts. MN
 Applicant/Owner: BITUMINOUS ROADWAYS INC.
 Field Investigator: AKRAMER Transect No. _____
 Investigation Date: 05/10/02 Site Sample No. BSIN 2
 Abnormal conditions? Y ☐ N ☒
 Site disturbed? Y ☐ N ☒
 Problem area? Y ☐ N ☒
 If yes, explain in remarks _____
 Is the Area (circle):
 Filled ☐ Floodplain ☐ Ditched ☐
 Seasonal ☐ Permanent ☐ Tiled ☐

VEGETATION

Dominant Plant Species	Stratum	%	Indicator
1. <u>Acer negundo - Boxelder</u>	<u>TREE</u>	<u>60</u>	<u>FACW4</u>
2. <u>Sambucus racemosa - Red berried elder</u>	<u>SHRUB</u>	<u>10</u>	<u>FACU</u>
3. <u>Ranunculus abortivus - Small flowered crowfoot</u>	<u>Herb</u>	<u>20</u>	<u>(FACW-</u>
4. <u>Arctium minus - Common burdock</u>	<u>Herb</u>	<u>20</u>	<u>N)</u>
5. _____	_____	_____	_____
6. _____	_____	_____	_____
7. _____	_____	_____	_____
8. _____	_____	_____	_____
9. _____	_____	_____	_____
10. _____	_____	_____	_____
11. _____	_____	_____	_____
12. _____	_____	_____	_____

Percent of dominant species that are OBL, FACW and/or FAC = 50 %

HYDROLOGY

____ Stream, Lake or Well Data
 ____ Precipitation Data
 ____ Aerial Photographs
 ____ Other (Explain in remarks)
☒ No recorded data used

Primary Wetland Hydrology Indicators

____ Inundated
 ____ Saturated in upper 18"
 ____ Water Marks
 ____ Drift Lines
 ____ Sediment Deposits
 ____ Drainage Patterns in Wetlands

Secondary Wetland Hydrology Indicators

(If no primary Indicator, 2 or more secondary Indicators required)
 ____ Oxidized Rhizosphere
 ____ Water Stained Leaves
☒ Local Soil Survey Data
 ____ FAC Neutral Vegetation Test
 ____ Multiple Trunks
 ____ Other (Explain in remarks)

Field Observations

Depth of Surface Water: 0
 Depth to Water in Pit: >24"
 Depth to Saturated Soil: >24"

SOILS

Map Unit Name: Colo silt loam Natural Drainage Class: Poorly drained soil
 Soil Suborder: Cumelic Haplaquolls Whole unit hydric soil? ☒ Y ☐ N

Soil Profile Description					
Depth (in)	Horizon Name	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle %	Soil Texture and Comments
<u>0-24</u>	<u>A</u>	<u>10YR³/1</u>	<u>10YR⁴/2</u>	<u>2-3</u>	<u>silt loam</u>

APPENDIX C

STORM WATER MANAGEMENT CALCULATIONS

LONG-TERM WATERSHED YIELD MODEL FOR BITUMINOUS ROADWAYS INVERGROVE HEIGHTS, MN

INTRODUCTION:

The City of Inver Grove Heights engineering department requested from Bituminous Roadways a long-term watershed yield model for the future development of their Inver Grove Heights site. The future development will consist of 2.5-5 acre parcels developed according to rural residential uses. The 200.3-acre site was modeled using XP-SWMM 2000 continuous simulation along with 30 years, 1970-2000, of hourly precipitation data. The runoff from the 30 years of hourly precipitation data was routed through the site and into the respective holding basins. These holding basins are land-locked and the only outflow is evaporation and seepage. Evaporation from each basin was modeled in XP-SWMM based on actual pan evaporation data from P.W. Manson, G.M. Schwarz, E.R. Allred, "Some Aspects of the Hydrology of Ponds and Small Lakes", Agricultural Experiment Station—University of Minnesota, Technical Bulletin 257, 1968. Seepage from each basin was modeled using a rating curve and the soil characteristics. The critical event for a land-locked basin is the spring 10-day snowmelt. This was modeled using 7.2" of runoff over the entire site (assuming 100% impervious – frozen ground). This volume was then added to an average high water elevation from the XP-SWMM output over the 30 years to obtain the 10-day snowmelt HWL.

SUMMARY:

The ultimate design of the holding ponds for the future development of the Bituminous Roadways site in Inver Grove Heights was determined using the long-term watershed yield model. XP-SWMM was used to route 30 years of precipitation data through the site and each pond. The pond for the 71.33-acre North site was designed with an approximate normal water level of 820. The series of ponds for the 129.01-acre south site were designed with approximate NWL's of 830. The water levels of these ponds bounced with time (see stage-time graph in snowmelt section). From the graph an average high water level in the beginning of spring was interpolated for each pond. This average high water level was used as the starting elevation for the 10-day spring snowmelt simulation. The 7.2" of runoff volume was added to the average high water level of each pond and the 10-day snowmelt HWL was determined. The SWMM output shows three major storm events (August 1977, July 1987 and July 1997) all of which occur in the summer months. The 10-day snowmelt simulation shows HWLs similar to the event of July 1987.

	August 1977	July 1987	July 1997	10-day snowmelt	Low Point in Street
North Pond	839±	843.9	829.5±	844±	848
South Pond	848.5±	853.2	840±	854±	855

Therefore, a HWL of about 844 for the north pond and 854 for the south pond seems to be critical. The street elevation for each site is designed above this critical elevation.

Bituminous Roadways #87-185
Inver Grove Heights, MN

Date: 4/24/02
By: MAO

Long Term Yield Model (30-year)

XP-SWMM 2000 Continuous Modeling

Tributary Drainage Areas:

North (1) = 71.33 acres

South (2) = 129.01 acres

(1) Routing Method:

SWMM Runoff Non-linear Reservoir Method:

Subcatchment Area #	Area (ac)	Impervious* Fraction (%)	Slope (ft/ft)	Width (ft)
North (1)	71.33	12	0.05	2220
South (1)	129.01	12	0.03	2440

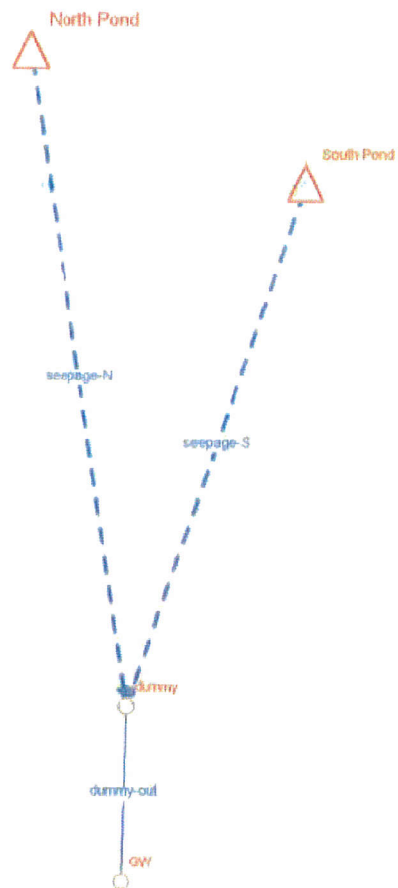
* 2.5-5 acre lots

(2) Runoff Infiltration: SCS Type B Horton

Max. Infiltration Rate $\approx$ 3 in/hr
(loam soils)

Men. Asymptotic Infiltration Rate $\approx$ 0.2 in/hr
(Type B)

Decay Rate of Infiltration $\approx$ 0.001 /sec



SWMM2000

Version 8.01

Copyright (c) XP Software

30-Year Long-Term Yield Model

XP-Swmm Schematic

Licensed To: Sunde Engineering [42-801-1752]

04/25/02

Page 1/1

(3) Storage - Stepwise Linear Method

Stage Storage Table: North Pond

Elevation	Area (ac)	Incremental Volume (ac-ft)	Σ Vol (ac-ft)
820	0.791		0.00
830	1.656	12.23	11.97
840	2.704	21.59	33.55
850	7.420	48.68	82.23

Stage Storage Table: South Ponds

Elevation	Area (Total) (ac)	Incremental Volume (ac-ft)	Σ Vol (ac-ft)
830	1.25		0.00
840	2.94	20.32	20.32
850	5.06	39.50	59.82
860	19.85	116.43	176.24

(4) Seepage

$$Q = KiA$$

K = hydraulic Conductivity
(ft/sec)

i = hydraulic gradient = 1.0

A = Sectional Area (ft²)

Soil Characteristics

411A + 411B Waukegan (See Attachment 'A')

Depth 28-60 in ~ $K = 6.0-20$ in/hr

Use $K = 6.0$ in/hr = 1.4×10^{-4} ft/sec

Rating Curve - Seepage North

$$Q = Ki(LH)$$

Elevation	(L) Average Circumference (ft)	H (ft)	Q (cfs)	ΣQ (cfs)
820			0	0
821	1000	1	0.14	0.14
822	1025	1	0.14	0.28
823	1048	1	0.15	0.43
	1124	7		
830			1.10	1.53
	1526	10		
840			2.14	3.68
	1711	10		
850			2.40	6.08



$$K = 1.4 \times 10^{-4} \text{ ft/sec}$$

Rating Curve - Seepage South

$$Q = K i (LH)$$

Elevation	(L) Average Circumference (ft)	(H) (ft)	Q (cfs)	ΣQ (cfs)
830	1923	1	0	0.00
831	1975	1	0.27	0.27
832	2000	1	0.28	0.55
833	2275	7	0.28	0.83
840	3044	10	2.23	3.06
850	3634	10	4.26	7.32
860			5.08	12.4

(5) Evaporation

Pan evaporation data from "Hydrology of Ponds and Small Lakes" by Manson, Schwartz, Allred (Agricultural Experiment Station - University of Minnesota) Technical Bulletin 257 - 1968 (See Attachment 'B')

	Pan Evaporation - Farmington (in.)			
	1962	1963	1964	Average
May	7.85	7.29	9.29	8.14
June	7.76	10.11	10.11	9.33
July	5.59	8.68	10.18	8.15
Aug.	7.38	7.60	8.36	7.78
Sept.	4.55	5.46	4.78	4.93
Oct	3.25	-	-	1.08

(6) Rain Fall Data

30-years Hourly Precipitation Data TD-3240
years (1970-1999)

Obtained in NWS Fixed length Format
from National Climatic Data Center
for Station # 215435 (Mpls-St. Paul Airport)



(7) Snowmelt Simulation

10-Day snowmelt = 7.2 inches runoff

North Site

Runoff Volume = (71.33 acres) (7.2 inches)

$$V = 42.8 \text{ ac-ft}$$

@ Elevation 822* Volume Storage = 1.72 ac-ft

add snowmelt volume = 44.52 ac-ft

$$\boxed{10\text{-Day Snowmelt HWL} = \pm 844}$$

South Site

Runoff Volume = (129.01 ac) (7.2 inches)

$$V = 77.4 \text{ ac-ft}$$

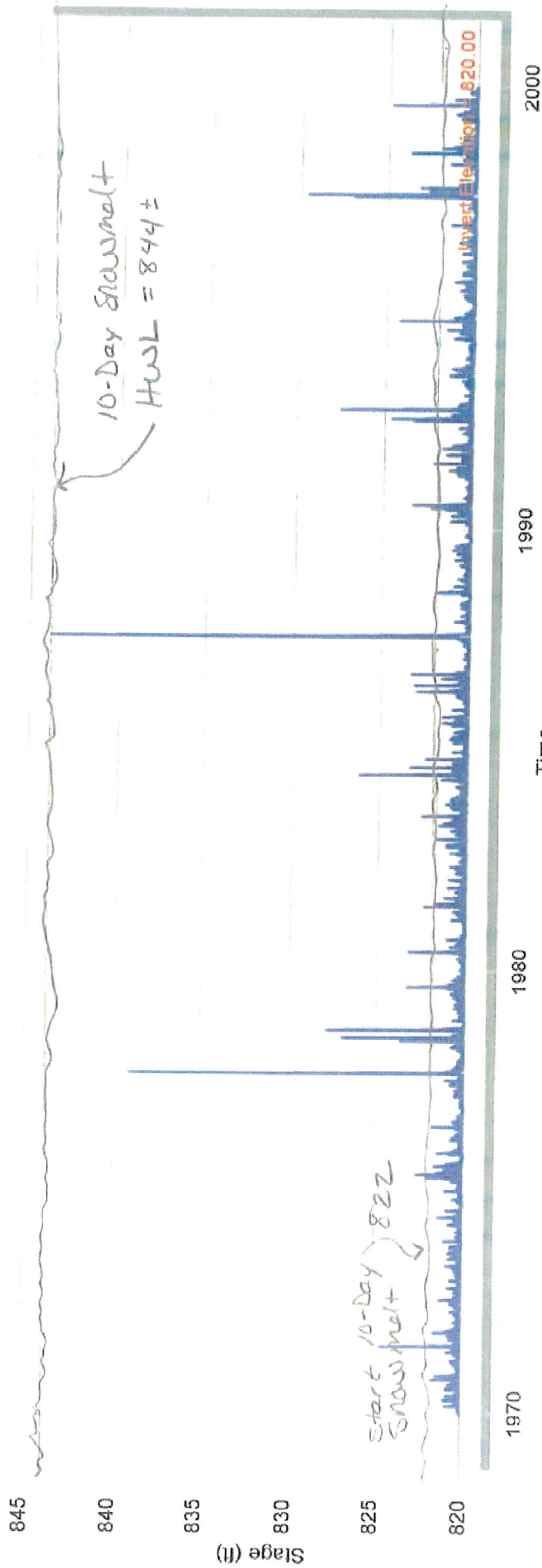
@ Elevation 833* Volume Storage = 4.34 ac-ft

add snowmelt runoff volume = 81.74 ac-ft

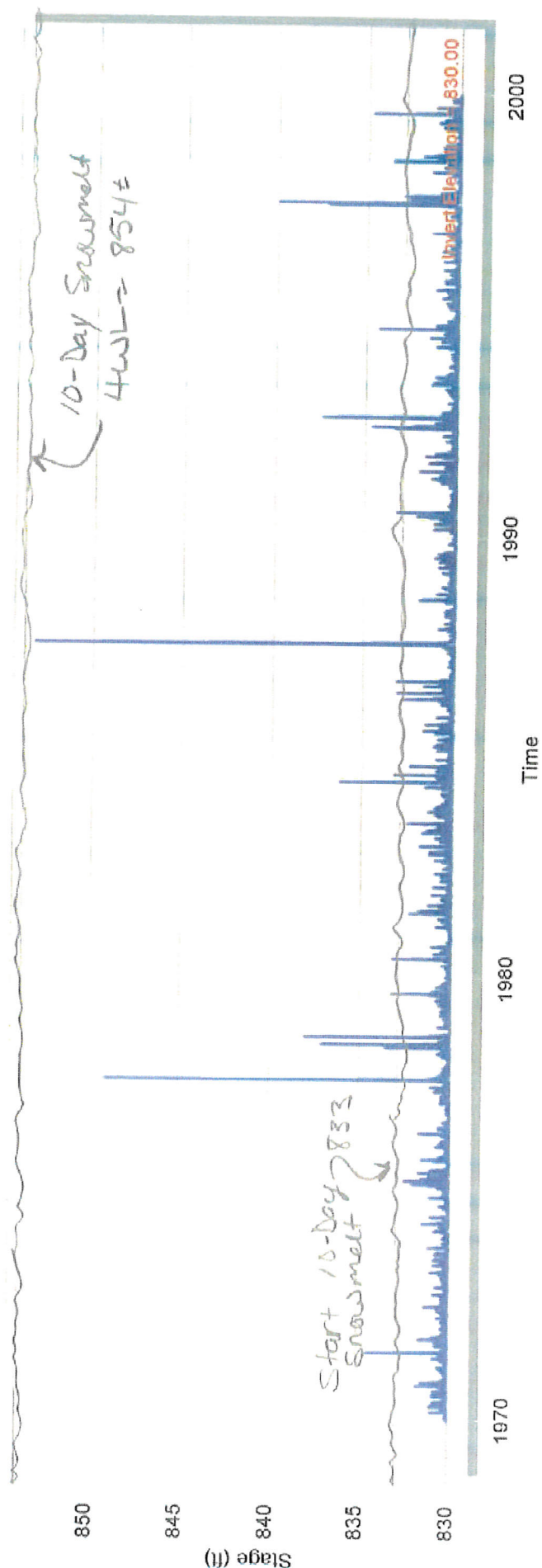
$$\boxed{10\text{-Day Snowmelt HWL} = \pm 854}$$

* Approximate elevation of ponds at
Springtime snowmelt (see following graph)

Node - North Pond



Node - South Pond



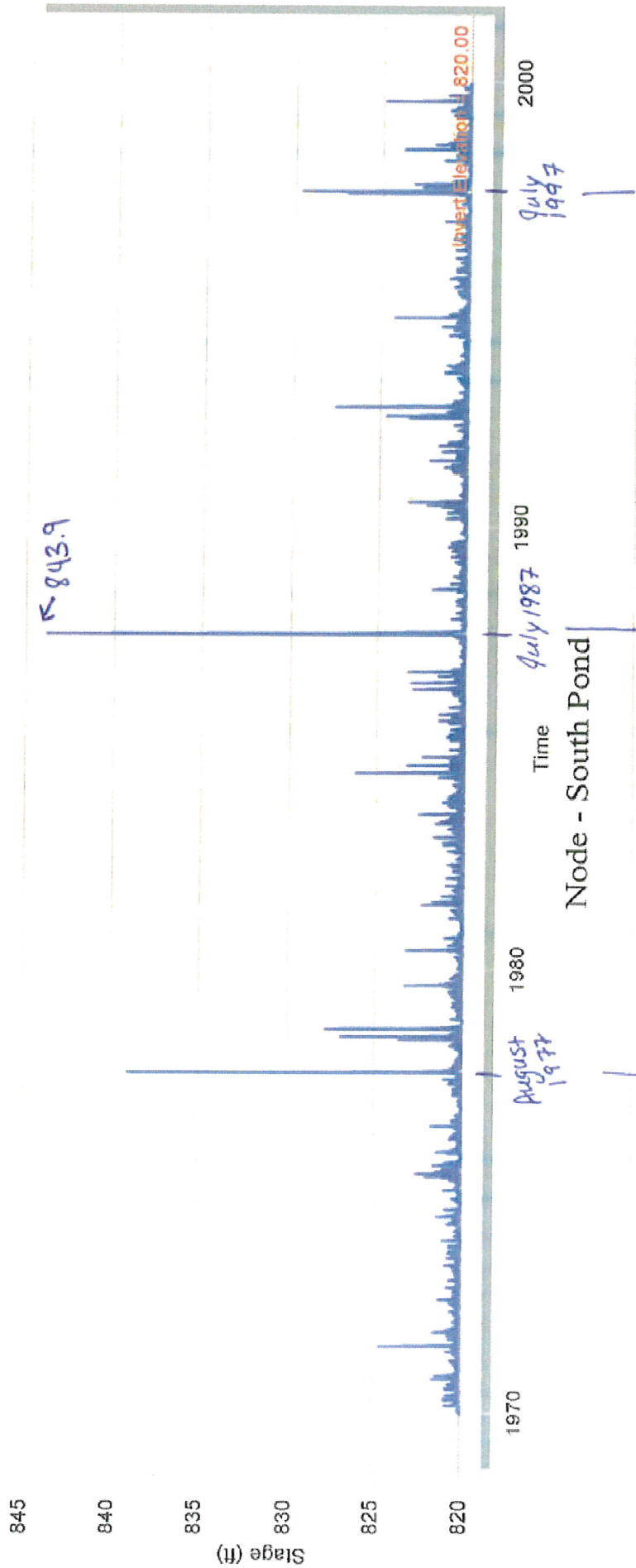


(8) Results

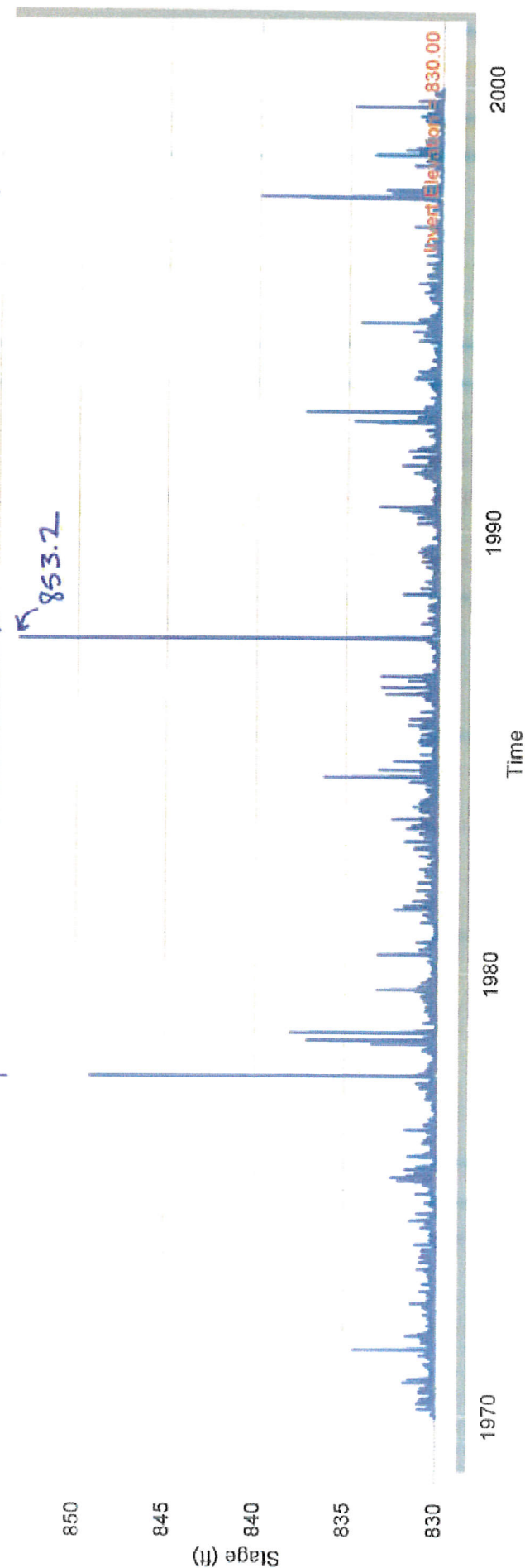
	HWL (Aug. 1977)	HWL (July 1982)	HWL (July 1997)	10-Day Snowmelt	Low Point in Street
North Pond	839 ±	843.9	829.5 ±	844 ±	848
South Pond	848.5 ±	853.2	840 ±	854 ±	855

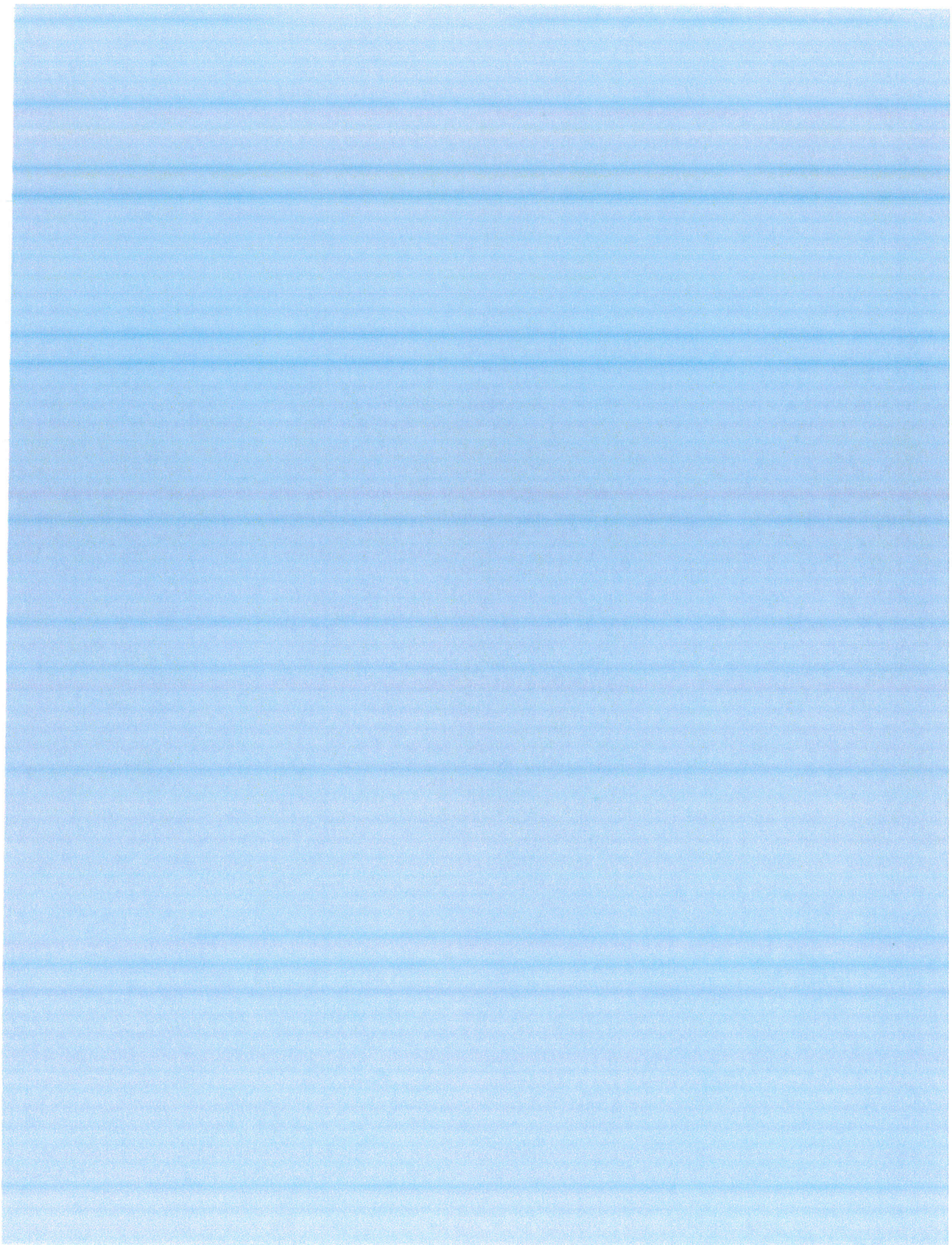
See BH2.01 for XP-SUMM output (Attachment 'C')

Node - North Pond



Node - South Pond

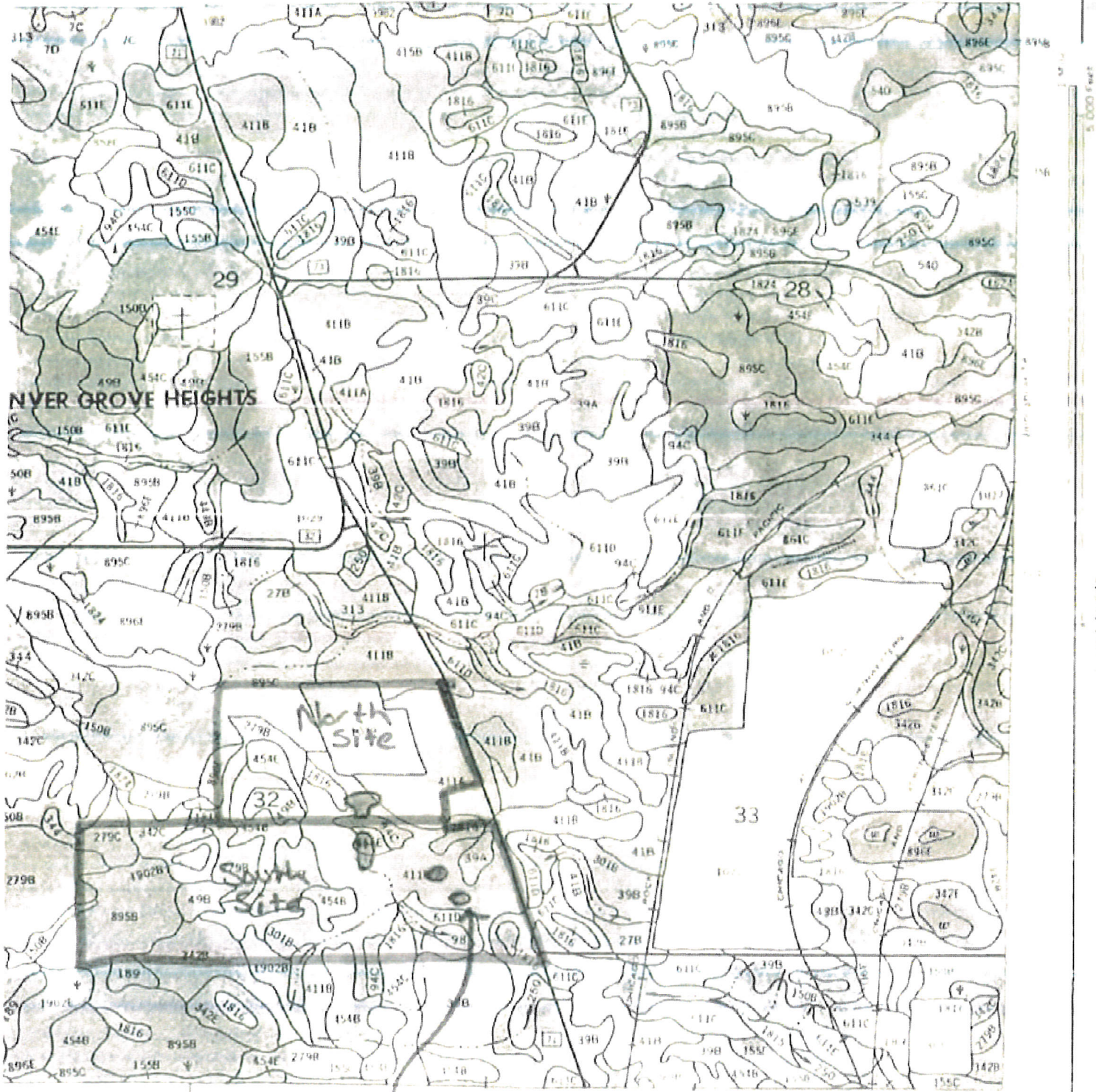




A

17

N



Approximate
Location of
Proposed ponds

TABLE 15.--PHYSICAL AND CHEMICAL PROPERTIES OF THE SOILS--Continued

Soil name and map symbol	Depth	Clay		Moist bulk density g/cm ³	Permeability in/hr	Available water capacity in/in	Soil reaction pH	Shrink-swell potential	Erosion factors		Wind erodibility group	Organic matter Pct
		In	Pct						K	T		
378----- Maxfield	0-21	30-35	1.35-1.40	0.6-2.0	0.21-0.23	6.6-7.3	High-----	0.24	5	6	6-7	
	21-27	25-34	1.40-1.50	0.6-2.0	0.18-0.20	6.1-7.3	High-----	0.32				
	27-60	20-26	1.65-1.85	0.6-2.0	0.17-0.19	6.1-7.8	Low-----	0.32				
382B----- Blooming	0-9	18-27	1.30-1.45	0.6-2.0	0.24-0.30	5.6-6.5	Moderate-----	0.32	5	6	2-4	
	9-21	24-32	1.35-1.50	0.6-2.0	0.18-0.22	5.6-6.5	Moderate-----	0.32				
	21-48	20-30	1.50-1.65	0.6-2.0	0.16-0.19	5.1-7.3	Moderate-----	0.32				
	48-60	18-27	1.50-1.75	0.6-2.0	0.17-0.19	6.6-7.8	Low-----	0.32				
408----- Paxon	0-28	28-35	1.20-1.40	0.6-2.0	0.17-0.22	6.6-7.8	Moderate-----	0.28	4	6	5-15	
	28-37	18-30	1.40-1.60	0.6-2.0	0.12-0.19	6.6-7.8	Moderate-----	0.28				
	37	---	---	---	---	---	---	---				
409B, 409C----- Etter	0-7	8-15	1.30-1.50	2.0-6.0	0.16-0.18	5.6-7.3	Low-----	0.20	4	3	1-2	
	7-21	10-18	1.35-1.55	0.6-2.0	0.17-0.19	5.1-6.5	Low-----	0.20				
	21-60	1-5	1.50-1.70	6.0-20	0.05-0.07	5.1-6.0	Low-----	0.15				
411A, 411B, 411C----- Waukegan	0-13	18-27	1.35-1.55	0.6-2.0	0.22-0.24	5.6-7.3	Low-----	0.32	4	6	2-5	
	13-28	18-27	1.35-1.55	0.6-2.0	0.20-0.22	5.1-7.3	Low-----	0.43				
	28-60	1-10	1.50-1.70	6.0-20	0.02-0.04	5.6-7.8	Low-----	0.10				
414----- Hamel	0-16	20-27	1.30-1.40	0.6-2.0	0.20-0.24	5.6-7.3	Low-----	0.28	5	6	5-7	
	16-40	24-35	1.45-1.60	0.2-0.6	0.16-0.19	5.6-7.3	Moderate-----	0.28				
	40-60	20-30	1.55-1.75	0.6-2.0	0.14-0.18	7.4-7.8	Moderate-----	0.28				
415A, 415B, 415C----- Kanaranzi	0-9	18-32	1.30-1.45	0.6-2.0	0.20-0.22	5.6-7.3	Low-----	0.28	4	6	2-5	
	9-19	18-32	1.35-1.50	0.6-2.0	0.17-0.22	5.6-7.8	Low-----	0.28				
	19-60	0-5	1.55-1.65	6.0-20	0.02-0.04	7.4-8.4	Low-----	0.10				
449B----- Crystal Lake	0-9	8-20	1.35-1.55	0.6-2.0	0.20-0.24	5.1-6.5	Low-----	0.37	5	5	2-4	
	9-40	18-30	1.50-1.60	0.6-2.0	0.18-0.22	5.1-6.0	Moderate-----	0.37				
	40-60	8-20	1.45-1.55	0.6-2.0	0.20-0.22	5.1-7.3	Low-----	0.37				
454B, 454C, 454E----- Mahtomedi	0-5	2-15	1.40-1.60	6.0-20	0.10-0.12	5.1-6.5	Low-----	0.15	5	2	<1	
	5-35	0-10	1.45-1.70	6.0-20	0.05-0.07	5.1-6.5	Low-----	0.10				
	35-60	0-10	1.45-1.75	6.0-20	0.04-0.09	5.1-7.8	Low-----	0.10				
463----- Minneiska	0-8	10-27	1.30-1.40	2.0-6.0	0.20-0.22	7.4-8.4	Low-----	0.28	5	5	2-5	
	8-60	5-18	1.40-1.60	2.0-6.0	0.13-0.18	7.4-8.4	Low-----	0.28				
465----- Kalmarville	0-42	8-15	1.35-1.50	2.0-6.0	0.13-0.18	6.6-7.8	Low-----	0.20	5	3	2-4	
	42-60	2-5	1.55-1.65	6.0-20	0.06-0.09	6.6-7.8	Low-----	0.10				
495----- Zumbro	0-18	5-18	1.35-1.45	2.0-6.0	0.13-0.16	5.6-7.8	Low-----	0.17	5	3	2-4	
	18-56	2-10	1.45-1.55	6.0-20	0.10-0.12	5.6-7.8	Low-----	0.17				
	56-60	0-10	1.45-1.60	6.0-20	0.05-0.12	6.1-7.8	Low-----	0.17				
522----- Boots	0-5	---	0.16-0.45	0.2-6.0	0.35-0.45	6.6-7.8	---	---	---	3	60-80	
	5-60	---	0.16-0.28	0.6-6.0	0.35-0.45	6.6-7.8	---	---				
539----- Palms	0-45	---	0.25-0.45	0.2-6.0	0.35-0.45	5.1-7.8	---	---	2	3	>75	
	45-60	7-35	1.45-1.75	0.2-2.0	0.14-0.22	6.1-8.4	Low-----	---				
540----- Seelyeville	0-60	---	0.10-0.25	0.2-6.0	0.35-0.45	5.6-7.3	---	---	---	3	>25	
545----- Rondeau	0-45	0-10	0.10-0.25	0.2-6.0	0.35-0.48	5.1-7.8	---	---	---	2	>25	
	45-60	5-15	0.05-0.20	<0.2	0.20-0.22	7.4-7.8	---	---				
611C, 611D----- Hawick	0-11	5-15	1.35-1.55	2.0-6.0	0.13-0.15	6.1-7.8	Low-----	0.17	3	3	1-4	
	11-21	1-10	1.50-1.65	>6.0	0.03-0.10	6.1-7.8	Low-----	0.17				
	21-60	1-5	1.55-1.65	>20	0.02-0.06	7.4-8.4	Low-----	0.10				
611E, 611F----- Hawick	0-9	2-10	1.40-1.60	6.0-20	0.10-0.12	6.1-7.8	Low-----	0.17	3	2	1-3	
	9-21	1-10	1.50-1.65	>6.0	0.03-0.10	6.1-7.8	Low-----	0.17				
	21-60	1-5	1.55-1.65	>20	0.02-0.06	7.4-8.4	Low-----	0.10				

SOIL LEGEND

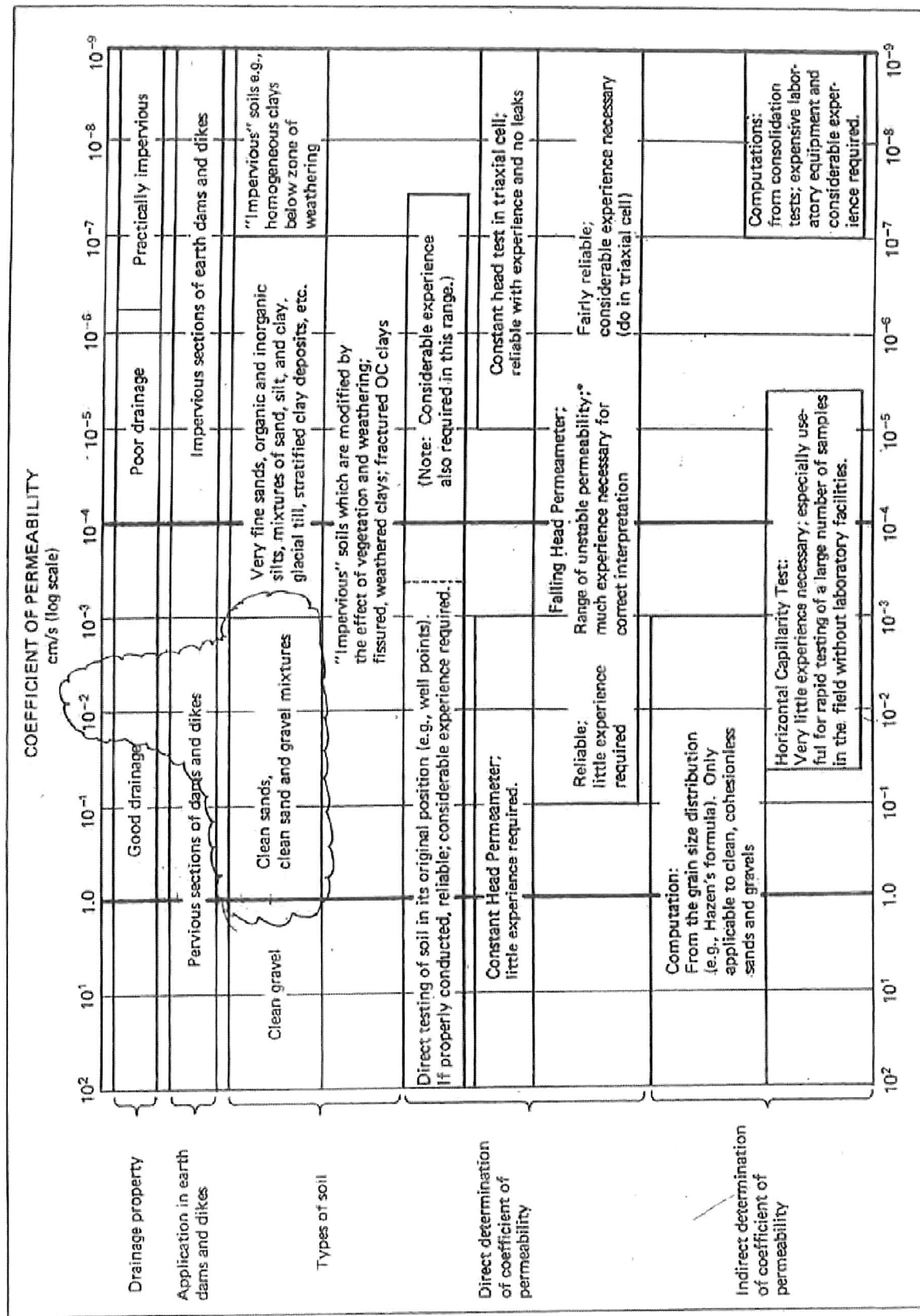
Map symbols consist of numbers or a combination of numbers and a letter. The initial numbers represent the kind of soil. A capital letter following these numbers indicates the class of slope. Symbols without a slope letter are for nearly level soils or miscellaneous areas. A final number of 2 following the slope letter indicates that the soil is eroded.

SYMBOL	NAME	SYMBOL	NAME
2B	Ostlander loam, 1 to 5 percent slopes	329C2	Farula silt loam, 6 to 12 percent slopes, eroded
2C	Ostlander loam, 6 to 12 percent slopes	347H	Kingsley sandy loam, 3 to 8 percent slopes
7A	Hubbard loamy sand, 0 to 1 percent slopes	347C	Kingsley sandy loam, 8 to 15 percent slopes
7B	Hubbard loamy sand, 1 to 5 percent slopes	347E	Kingsley sandy loam, 15 to 25 percent slopes
7C	Hubbard loamy sand, 6 to 12 percent slopes	347F	Kingsley sandy loam, 25 to 40 percent slopes
7D	Hubbard loamy sand, 12 to 18 percent slopes	34I	Quart silt loam
8A	Sparks loamy fine sand, 0 to 1 percent slopes	377B	Newton silt loam, 1 to 6 percent slopes
8B	Sparks loamy fine sand, 1 to 6 percent slopes	37I	Hawfield silty clay loam
12C	Emmett very gravelly sandy loam, 3 to 15 percent slopes	382B	Blowing silt loam, 1 to 6 percent slopes
27A	Dickinson sandy loam, 0 to 2 percent slopes	40I	Faxon silty clay loam
27B	Dickinson sandy loam, 2 to 6 percent slopes	409B	Etter fine sandy loam, 2 to 6 percent slopes
28A	Wadena loam, 0 to 2 percent slopes	409C	Etter fine sandy loam, 6 to 12 percent slopes
28B	Wadena loam, 2 to 6 percent slopes	411A	Waukegan silt loam, 0 to 1 percent slopes
28B2	Wadena loam, 2 to 6 percent slopes, eroded	411B	Waukegan silt loam, 1 to 6 percent slopes
29D	Wadena loam, 6 to 12 percent slopes	411C	Waukegan silt loam, 6 to 12 percent slopes
30C2	Wadena loam, 6 to 12 percent slopes, eroded	414	Kamel silt loam
35B	Wadena loam, 12 to 18 percent slopes	415A	Kamrarati loam, 0 to 2 percent slopes
41A	Estherville sandy loam, 0 to 2 percent slopes	415D	Kamrarati loam, 2 to 6 percent slopes
41B	Estherville sandy loam, 2 to 6 percent slopes	415C	Kamrarati loam, 6 to 12 percent slopes
42C	Selkirk gravelly coarse sandy loam, 2 to 12 percent slopes	445D	Crystal Lake silt loam, 1 to 8 percent slopes
43B	Anjala silt loam, 1 to 1 percent slopes	454B	Mahomeddi loamy sand, 3 to 8 percent slopes
81B	Boone loamy fine sand, 2 to 6 percent slopes	454C	Mahomeddi loamy sand, 6 to 15 percent slopes
81C	Boone loamy fine sand, 6 to 12 percent slopes	454E	Mahomeddi loamy sand, 15 to 25 percent slopes
81F	Boone loamy fine sand, 12 to 40 percent slopes	463	Minnetonka loam, occasionally flooded
94C	Terra loam, 4 to 12 percent slopes	465	Kalmarville sandy loam, frequently flooded
98	Cole silt loam, occasionally flooded	485	Zumbro fine sandy loam
100A	Copeland loam, 0 to 2 percent slopes	522	Boots muck
100B	Copeland loam, 2 to 6 percent slopes	539	Palm muck
100C	Copeland loam, 6 to 12 percent slopes	540	Seelyville muck
106B	Leslie loam, 2 to 6 percent slopes	545	Rondeau muck
106C	Leslie loam, 6 to 12 percent slopes	611C	Hawick coarse sandy loam, 6 to 12 percent slopes
106C2	Leslie loam, 6 to 12 percent slopes, eroded	611D	Hawick coarse sandy loam, 12 to 18 percent slopes
106D2	Leslie loam, 12 to 18 percent slopes, eroded	611E	Hawick loamy sand, 18 to 25 percent slopes
109	Rodous silty clay loam	611F	Hawick loamy sand, 25 to 50 percent slopes
113	Webster clay loam	857A	Urban land-Waukegan complex, 0 to 1 percent slopes
114	Glenade silty clay loam	857B	Urban land-Waukegan complex, 1 to 8 percent slopes
125	Cylinder loam	858C	Urban land-Chetek complex, 1 to 15 percent slopes
150B	Spencer silt loam, 2 to 6 percent slopes	860C	Urban land-Leslie complex, 3 to 15 percent slopes
151C	Burkhardt sandy loam, 6 to 12 percent slopes	861C	Urban land-Kingsley complex, 3 to 15 percent slopes
151D	Burkhardt sandy loam, 12 to 15 percent slopes	861E	Urban land-Kingsley complex, 15 to 25 percent slopes
155B	Chetek sandy loam, 3 to 8 percent slopes	863B	Urban land-Hubbard complex, 0 to 5 percent slopes
155C	Chetek sandy loam, 8 to 15 percent slopes	860F	Bradley-Rock outcrop complex, 18 to 45 percent slopes
155E	Chetek sandy loam, 15 to 25 percent slopes	868B	Kingsley-Leslie complex, 2 to 6 percent slopes
173F	Frederic loam, 25 to 40 percent slopes	868C	Kingsley-Leslie complex, 6 to 12 percent slopes
176	Garwin silty clay loam	868D	Kingsley-Leslie complex, 12 to 18 percent slopes
177A	Gotham loamy fine sand, 0 to 2 percent slopes	899B	Wadena-Hawick complex, 2 to 6 percent slopes
177B	Gotham loamy fine sand, 2 to 6 percent slopes	899C	Wadena-Hawick complex, 6 to 12 percent slopes
177C	Gotham loamy fine sand, 6 to 12 percent slopes	899D	Wadena-Hawick complex, 12 to 18 percent slopes
189	Auburnville silt loam	895B	Kingsley-Mahomeddi-Spencer complex, 3 to 8 percent slopes
201B	Jay silt loam, 1 to 5 percent slopes	895C	Kingsley-Mahomeddi-Spencer complex, 8 to 15 percent slopes
208	Kata silty clay loam	896I	Kingsley-Mahomeddi complex, 15 to 25 percent slopes
213B	Ringer silt loam, 1 to 5 percent slopes	896I	Kingsley-Mahomeddi complex, 25 to 40 percent slopes
226	Lawson silt loam	951C2	Timula-Bold silt loam, 6 to 12 percent slopes, eroded
239	Le Sueur loam	951D2	Timula-Bold silt loam, 12 to 18 percent slopes, eroded
250	Rennebec silt loam	951E2	Timula-Bold silt loam, 18 to 25 percent slopes, eroded
251D	Marlean loam, 12 to 18 percent slopes	1013	Pits, quarry
251E	Marlean loam, 18 to 25 percent slopes	1022	Udorthens, wet
252	Marshall silty clay loam	1029	Pill, gravel
253	Maxeek silty clay loam	1030	Urban land
255	Mayer silt loam	1055	Aquella and Hartsell, ponded
279B	Osterholt silt loam, 3 to 6 percent slopes	1072	Udorthens, moderately shallow
279C	Osterholt silt loam, 6 to 15 percent slopes	1815	Zumbro loamy fine sand
283B	Plainfield loamy sand, 0 to 2 percent slopes	1816	Rennebec variant silt loam
283D	Plainfield loamy sand, 2 to 6 percent slopes	1821	Algansse sandy loam, occasionally flooded
283E	Plainfield loamy sand, 6 to 18 percent slopes	1824	Quinn silt loam, ponded
285A	Port Byron silt loam, 0 to 2 percent slopes	1825C	Seelyville muck, sloping
285B	Port Byron silt loam, 2 to 6 percent slopes	1827A	Waukegan silt loam, bedrock substratum, 0 to 2 percent slopes
285C	Port Byron silt loam, 6 to 12 percent slopes	1827D	Waukegan silt loam, bedrock substratum, 2 to 6 percent slopes
299B	Rockton loam, 0 to 2 percent slopes	1827C	Waukegan silt loam, bedrock substratum, 6 to 12 percent slopes
299B	Rockton loam, 2 to 6 percent slopes	1848B	Spauld loamy sand, bedrock substratum, 2 to 8 percent slopes
299C	Rockton loam, 6 to 12 percent slopes	1894B	Winnebago loam, 2 to 6 percent slopes
301B	Lindstrom silt loam, 1 to 4 percent slopes	1895B	Carroll loam, 2 to 8 percent slopes
311	Spillville loam, occasionally flooded	1896B	Ostlander-Carroll loam, 2 to 5 percent slopes
317	Onawa silty clay loam	1898F	Etter-Brooks complex, 25 to 60 percent slopes
318	Mayer loam, swales	1902B	Jenett silt loam, 1 to 6 percent slopes
320B	Tallula silt loam, 2 to 6 percent slopes		

Exhibit A-1, continued: Hydrologic soil groups for United States soils

WARM SPRINGS, DRAINED, ALKALI	C	WAUPECAN	D	WELD	C	WETTERHORN	C	WIBAUX	D
WARM SPRINGS, DRAINED	C	WAUQUIE	B	WELDA	C	WETZEL	D	WICHITA	C
WARM SPRINGS, COOL	C	MAURICA	D	WELLER	C	WEVERTON	B	WICHUP	D
WARHAN	B/D	MAUSEON	B/D	WELLINGTON	D	WEWELA	B	WICKAHONEY	D
WARHAN, GRAVELLY SUBSOIL	A/D	MAUTONA	B/D	WELLMAN	B	WEWOKA	C	WICKENBURG	D
WARNEKE	D	MAVELAND	B/D	WELLS	B	WEYERS	C/D	WICKERSHAM	B
WARNERS	C/D	MAVELAND, DEPRESSIONAL	D	WELLSBORO	C	WEYMOUTH	B	WICKETT	C
WARNOCK	B	MAVERLY	B/D	WELLS CREEK	B	WHAKANA	B	WICKHAM	B
WARRENTON	D	MAWASEE	B	WELLSSED	C	WHALAN	B	WICKIUP	C
WARSAW	B	MAWANA	A	WELLSTON	B	WHALEY	D	WICKSBURG	B
WARSING	B	WAX	C	WELLSVILLE	B	WHARTON	C	WICUP	C
WARWICK	A	WAXPOOL	D	WELLTON	B	WHATCOM	C	WIDEMAN	A
WASA	D	WAYAH	B	WELDY	C	WHATELY	D	WIDEN	C
WASATCH	A	WAYBE	B	WELRING	D	WHEATLEY	A/D	WIDTSOE	B
WASCO	B	WAYCUP	B	WELSUM	D	WHEATRIDGE	B	WIEHL	C
WASDA	B/D	WAYDEN	D	WELTER	D	WHEATVILLE	B	WIELAND	C
WASEPT	B	WAYLAND	C/D	WEMPLER	B	WHEELER	B	WIERGATE	D
WASHBURN	D	WAYMOR	B	WENAS	D	WHEELERVILLE	B	WIFFO	B
WASHINGTON	B	WAYNECO	D	WENAS, DRAINED	C	WHEELING	B	WIGGLER	D
WASHINGTON, WET SUBSTRATUM	C	WAYNESBORO	B	WENATCHEE	C	WHEELON	D	WIGGLETON	B
WASHOE	B	WAYNETOWN	C	WENDANE	B	WHETROCK	C	WIGTON	A
WASHDUGAL	B	WEA	B	WENDANE, DRAINED	B	WHETSTONE	C	WILAH	B
WASHTENAW	C/D	WEASH	C	WENDOVER	D	WHICHMAN	B	WILBANKS	D
WASILLA	D	WEATHERFORD	B	WENDTE	D	WHIDBEY	C	WILBRAHAM	C
WASIOJA	B	WEAVER	B	WENONA	C	WHILPHANG	D	WILBUR	B
WASKISH	D	WEAVERVILLE	B	WENTWORTH	C	WHIPPANY	C	WILBURTON	B
WASKOM	C	WEBB	C	WEDGUFKA	C	WHIPPLE	D	WILCO	D
WASPO	D	WEBB	C	WEPD	C	WHIPSTOCK	C	WILCOX	D
WASSAIC	B	WEBBRIDGE	B	WERELD	B	WHIRLO	B	WILCOXSON	C
WASSIT	D	WEBBTOWN	C	WERLOG	C	WHISKEYDICK	C	WILDALE	C
WATAO	C	WEBER	B	VERNER	D	WHISPERING	C	WILDCAT	C
WATAMA	C	WEBILE	C	VERNOCK	B	WHISTLE	D	WILDERNESS	C
WATAUGA	B	WEBSTER	B/D	WESCONNETT	D	WHIT	B	WILDGEN	C
WATCHABOB	C	WEDEKIND	D	WESDY	C	WHITAKER	C	WILDHORSE	A
WATCHAUG	B	WEDERTZ	B	WESFIL	D	WHITE HOUSE	C	WILDOORS	C
WATCHUNG	D	WEDGE	A	WESIX	D	WHITE STORE	D	WILDMOOD	D
WATERBURY	D	WEDLAR	C	WESKA	D	WHITE SMAN	D	WILE	C
WATERCANYON	B	WEDOWEE	B	WESLEY	B	WHITECAP	D	WILEY	B
WATEREE	B	WEED	B	WESO	B	WHITECLOUD	B	WILHITE	C/D
WATERMAN	D	WEEDING	D	WESPAC	D	WHITECOM	B	WILHOIT	B
WATERTOWN	A	WEEDHARK	B	WESPAC, SANDY	C	WHITCROSS	D	WILKES	C
WATERVILLE	B	WEEKIWACHEE	D	SUBSTRATUM		WHITFISH	B	WILKESON	B
WATKINS	B	WEEKS	C	WESSEL	C	WHITFORD	B	WILKINS	D
WATKINS RIDGE	B	WEEKSVILLE	B/D	WESTBROOK	D	WHITEHALL	B	WILL	B/D
WATO	D	WENA	D	WESTBURY	C	WHITEHILLS	C	WILLABY	C
WATONGA	D	WEPAH	C	WESTBUTTE	C	WHITEHORN	D	WILLACY	B
WATOODPAH	B	WEESATCHE	B	WESTCAMP	C	WHITEHORSE	B	WILLAKENZIE	C
WATROUS	B	WEGA	B	WESTCREEK	B	WHITENOB	B	WILLAHAR	B
WATSEKA	B	WEHADKEE	D	WESTE	C	WHITELAKE	B	WILLAMETTE	B
WATSON	C	WEIGANG	C	WESTERVILLE	B	WHITENAN	D	WILLAMETTE, WET	C
WATSONIA	D	WEIGLE	D	WESTFORK	D	WHITEPEAK	D	WILLANCH	D
WATSONVILLE	D	WEIKERT	C/D	WESTHAVEN	B	WHITERIVER	C	WILLAPA	C
WATT	D	WEIMER	D	WESTHAVEN, ALKALI	C	WHITEROCK	D	WILLARD	B
WATTON	C	WEINBACH	C	WESTINDIAN	C	WHITESBORO	C	WILLETTTE	A/D
WATUSI	C	WEINGART	D	WESTLAKE	D	WHITESBURG	C	WILLHILL	C
WAUBAY	B	WEINGARTEN	C	WESTLAND	B/D	WHITESON	D	WILLHO	D
WAUBEER	B	WEIR	D	WESTMORE	C	WHITESTONE	B	WILLIAMS	B
WAUBERG	D	WEIRMAN	C	WESTMORELAND	B	WHITETHORN	D	WILLIAMSBURG	B
WAUBORSE	B	WEISBACH	D	WESTOVER	B	WHITETWATER	D	WILLIAMSON	C
WAUCEDAH	D	WEISBURG	C	WESTPHALIA	B	WHITETWOLF	A	WILLIAMSPORT	C
WAUCHULA	B/D	WEISER	B	WESTPLAINE	D	WHITETWOOD	C/D	WILLIAMSTOWN	C
WAUCHULA, DEPRESSIONAL	O	WEISHAUP	D	WESTPORT	A	WHITETWOOD, NONFLOODED	B/D	WILLIAMSVILLE	C
WAUCOBA	D	WEISSENFELS	C	WESTPORT, THIN	B	WHITETWRIGHT	C	WILLIAM	B/D
WAUCOMA	B	WEITAS	B	SURFACE		WHITING	B	WILLIS	C
WAUCONDA	B	WEITCHPEC	C	WESTSHORE	D	WHITINGER	C	WILLISTON	C
WAUKEE	B	WEKDDA	D	WESTVACD	C	WHITLEY	B	WILLOW CREEK	B
WAUKEGAN	B	WELAKA	A	WESTVIEW	D	WHITLOCK	B	WILLOWDALE	B
WAUKENA	D	WELBY	B	WESTVILLE	D	WHITMAN	D	WILLOWEMDC	C
WAUKDN	B	WELCH	D	WESTWEGD	D	WHITNEY	C	WILLOWMAN	B
WAULD	C	WELCH, GRAVELLY SUBSTRATUM	B	WESWIND	C	WHITORE	B	WILLOMS	D
WAUMAC	B	WELCH, RARELY FLOODED, DRAINED	B	WESWOOD	B	WHITSOL	B	WILLWOOD	A
WAUMBEK	B	WELCH, DRAINED	C	WETA	D	WHITSON	D	WILMA	B
WAUNA	C	WELCHLAND	B	WETHERSFIELD	C	WHITTIER	B	WILMER	C
WAUPACA	B/D	WELCONE	B	WETHEY	C	WHITWELL	C	WILMINGTON	D
				WETHEY, DRAINED	A	WHOBREY	C	WILMONT	B
				WETHORE	D	WHOLAN	C	WILMONTON	B
				WETSAW	C	WHORLED	C	WILPAR	C
						WHY	B	WILPOINT	D
								WILSHIRE	A

NOTES: TWO HYDROLOGIC SOIL GROUPS SUCH AS B/C INDICATES THE DRAINED/UNDRAINED SITUATION. MODIFIERS SHOWN, E.G., BEDROCK SUBSTRATUM, REFER TO A SPECIFIC SOIL SERIES PHASE FOUND IN SOIL MAP LEGEND.



*Due to migration of fines, channels, and air in voids.

Fig. 7.6 Permeability, drainage, soil type, and methods to determine the coefficient of permeability (after A. Casagrande, 1938, with minor additions).



The different clay minerals significantly affect the permeability of the clay as emphasized by Grim (p. 240, 1962). Clay tends to fill the voids between grains of silt, sand, and gravel, and there is definite correlation between clay mineral composition and the order of magnitude of permeability.

Grim (p. 241, 1962) cites a table by Endell *et al* giving permeability K in cm/min at 65 kg/sq. cm for various mixtures of sand and clay minerals, including pure clay. Comparisons from the cited table are pertinent to the analysis shown in table 3. It is noted that quartz sand, mica, kaolinite, and ca-montmorillonite have a permeability (K) value of 1×10^{-3} , 4.9×10^{-4} , 3.0×10^{-6} and 2.0×10^{-7} , respectively.

Na-montmorillonite is impermeable. It should be explained that the X-ray method used in obtaining the analyses given in table 3 gives the dominant montmorillonite, but some Na-montmorillonite is doubtless present, as is common where ion-exchange is involved. The presence of much montmorillonite in the clays of the bottom sediments of ponds and lakes in Minnesota is important in reducing permeability.

Organic matter in the bottom sediments has been briefly noted above, but further description is desirable. The muck (and clay-silt sediment below) ranges in color from black to light gray both in bulk and under the microscope. When organic matter is abundant, its appearance under the microscope in plain polarized light ranged from black to brown to tan, depending primarily on its abundance and particle size. The prevailing characteristic of this material is that the organic matter, clay minerals, and silt particles from aggregates in which the grains of silt,

mainly quartz, are clearly enclosed in aggregates. Just what effect, if any, the aggregates have on the grain size determinations in the laboratory process remains to be determined. It seems possible that aggregation or flocculation of the organic matter and fine particles makes the sediment more impervious.

Table 4. Comparison of evaporation and precipitation

	70% of Pan Evaporation (in inches) Farmington	Precipitation (in inches) Minneapolis	Excess or Deficiency Evaporation (in inches)
1962.....	25.47 (May-October only)	28.83	-3.46
1963.....	27.40 (May-September only)	19.57	+7.83
1964.....	29.90 (May-September only)	25.97	+3.93

Precipitation and Evaporation

That precipitation and evaporation are by far the most important factors in determining water levels in isolated bodies of water is verified by the results of the present studies. Since Minnesota has a continental climate, the weather is subject to wide fluctuations, not only throughout the year but from year to year and the effects of this are shown in the levels of the ponds and lakes included in this investigation.

It was not practical to establish rain gages at the 47 locations investigated. Instead it was necessary to use the climatological data of the Weather Bureau, U. S. Department of Commerce. Fortunately several of the sites for regular observations of precipitation were reasonably

Table 5. Precipitation in 1962 at selected locations. U.S. Weather Bureau records. (Precipitation in inches.)

	Minneapolis		Forest Lake		St. Peter		Redwood Falls		Willmar		Morris		Little Falls
Jan.	.55	-.15	.34		.25	-.60	.41	-.13	.65	.07	.51	-.06	.55
Feb.	2.07	1.29	1.18		1.82	.94	1.26	.94	1.75	1.09	1.55	.87	1.22
March	1.87	.34	1.73		1.45	-.17	1.02	-.36	1.06	-.10	.79	-.35	.86
April	1.32	-.54	.98		1.22	-.94	1.79	-.18	1.60	-.44	1.60	-.69	1.00
May	8.03	4.84	5.73		6.79	3.16	4.05	.78	5.61	2.39	6.43	3.47	7.18
June	1.48	-2.52	3.00		2.15	-3.19	3.64	-.64	2.84	1.64	3.89	-.05	2.37
July	5.12	1.85	4.63		7.24	4.05	8.27	5.43	5.82	3.01	9.09	5.91	7.93
August	3.47	.29	5.90		4.19	.41	3.62	.41	1.77	-1.83	1.76	1.27	3.08
Sept.	2.46	.03	2.85		.164	-1.12	2.06	-.09	3.58	.91	3.93	2.04	2.69
October	1.69	.10	1.49		1.40	-.15	2.80	1.44	1.44	.09	.51	-.94	.65
Nov.	.52	-.98	.63		.23	-1.31	.31	-.87	.66	-.49	.46	-.55	.47
Dec.	.26	-.60	.25		.12	.81	.17	-.47	.09	-.48	.07	-.54	.10
TOTAL	28.83	4.05	28.71		38.50	.34	28.40	5.81	26.87	2.400	30.42	7.84	28.08

EVAPORATION

	Farmington	Stewart
May	7.85	6.89
June	7.76	7.05
July	5.59	6.02
Aug.	7.38	7.26
Sept.	4.55	4.29
Oct.	3.25	3.57
Total	36.38	35.08

Minus sign indicates below normal.

Table 6. Precipitation and class A pan evaporation for 1963 at selected locations

	Minneapolis		Forest Lake		St. Peter		Redwood Falls		Willmar		Morris		Little Falls	
Jan.	.46	-.24	.18	.34	-.52	.62	+.08	.59	+.01	.34	-.23	.23		
Feb.	.41	-.37	.20	.39	-.49	.60	-.17	.34	-.32	.68	+.02	.48		
March	1.18	-.35	1.04	1.07	-.55	.88	-.50	2.03	+87.00	1.73	+.59	1.11		
April	2.07	+.22	1.91	2.29	+.07	2.62	+.44	4.84	+2.80	2.70	+.56	3.44		
May	5.06	+1.87	4.10	2.88	-.75	5.68	+2.41	5.38	+2.16	3.16	+.20	5.04		
June	1.91	-2.09	2.94	4.92	+.35	3.39	-.89	5.46	+.98	4.33	+.39	3.08		
July	1.53	-1.74	3.35	6.36	+3.17	8.52	+5.68	3.05	+.24	4.41	+1.23	4.02		
Aug.	1.55	-1.63	1.91	2.67	-1.12	3.48	+.27	2.78	-.82	3.00	+.03	4.35		
Sept.	3.46	+1.04	3.15	2.56	-.19	3.72	1.57	5.36	+2.59	2.56	+.67	2.25		
Oct.	.81	-.78	.38	1.85	+.30	1.44	.08	2.49	+.96	2.22	+.77	1.51		
Nov.	.52	-.88	.49	.29	-1.31	.29	-.89	.45	-.70	.53	-.48	.99		
Dec.	.60	-.26	.77	.36	-.57	.24	-.40	1.09	+.52	.63	+.02	1.26		
Total	19.21	-5.21	20.42	25.86	-2.30	31.27	+4.38	33.86	+9.39	26.29	+3.71	27.76		

Class A Pan Evaporation

	Farmington	Stewart
May	7.29	7.30
June	10.11	9.74
July	8.68	7.91
Aug.	7.60	6.49
Sept.	5.46	4.81
Total	39.14	36.25

Table 7. Precipitation and class A pan evaporation for 1964 at selected locations, U.S. Weather Bureau records (Precipitation in inches)

	Minneapolis		Forest Lake		St. Peter		Redwood Falls		Willmar		Morris		Little Falls	
Jan.	.67	-.23	.65	.14	-.71	.25	-.29	.24	-.34	1.21	-.34	.19		
Feb.	.06	-.72	.02	Tr	-.88	.08	-.69	.20	-.46	.17	-.49	Tr		
March	1.35	-.18	.98	.95	-.67	.88	-.50	1.64	+.41	1.39	+.25	1.27		
April	2.98	+1.13	3.63	3.34	+1.15	2.84	-.87	4.02	+1.98	3.64	+1.50	2.52		
May	3.44	+.25	4.13	4.46	+.83	2.89	-.38	2.28	-.94	.28	-2.68	1.88		
June	2.18	-1.82	1.61	2.05	-3.23	1.30	-2.98	2.49	-1.99	2.75	-1.19	2.35		
July	2.02	-1.25	1.44	3.63	+.44	1.71	-1.13	2.35	-.46	2.21	-.97	3.91		
Aug.	5.42	2.24	4.70	6.90	+3.12	3.61	.40	6.68	+3.08	6.01	+2.98	7.83		
Sept.	5.21	2.78	3.40	5.80	+3.05	2.81	-.66	1.98	-.69	1.53	-.36	2.69		
Oct.	.57	-1.02	.49	.37	-1.18	.49	-.87	.02	-1.51	.06	-1.39	.23		
Nov.	1.19	-.21	1.14	1.36	-.18	.30	-.88	.74	-.41	.35	-.66	1.05		
Dec.	1.08	+.22	1.53	.86	-.07	.37	-.27	.57	.00	.29	-.32	.44		
Total	25.97	+1.19	23.16	29.86	+1.70	17.53	-6.06	23.14	-1.33	18.89	-3.67	24.36		

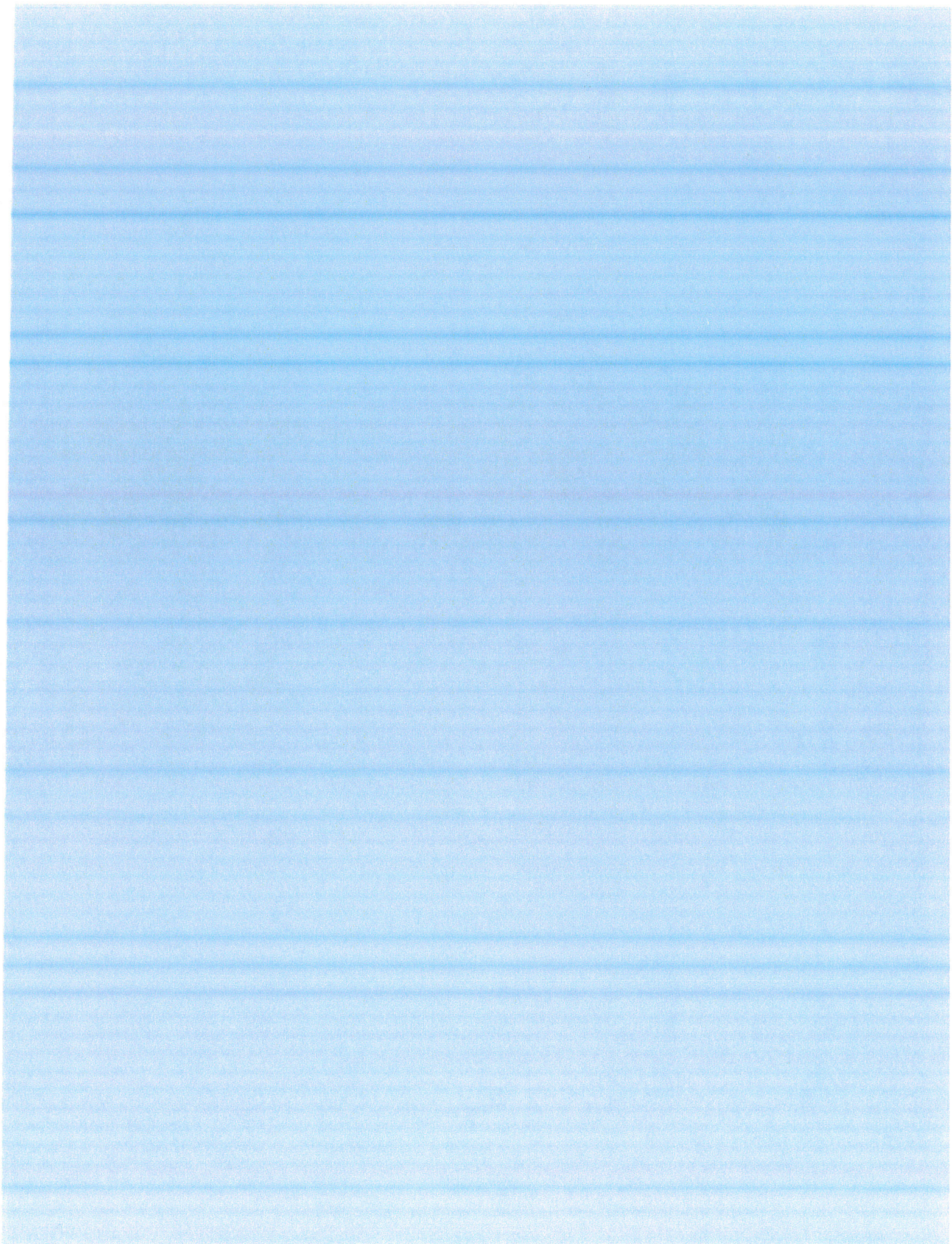
Class A Pan Evaporation

	Farmington	Waseca
May	9.29	8.24
June	10.11	8.46
July	10.18	9.10
Aug.	8.36	6.92
Sept.	4.78	3.71
Total	42.72	37.61

Table 8. Examples of the rise in water level in spring 1965

Pothole No.	From	To	Rise Feet
B 1	12-31-1964	4-22-1965	4.24
In 1	12-31-1964	4-22-1965	7.06
In 2	12-31-1964	4-22-1965	3.87
In 3	12-31-1964	4-22-1965	5.69
In 4	12-31-1964	4-22-1965	8.31
In 5	12-31-1964	4-22-1965	8.23
In 7	12-31-1964	4-22-1965	7.92
LE 3	12-31-1964	4-29-1965	7.18
LE 4	1- 9-1965	4-22-1965	5.84
M 1	1- 9-1965	5- 4-1965	8.69
M 2	1- 5-1965	4-29-1965	5.66
M 3	1- 9-1965	4-29-1965	5.54
N 1	1-22-1965	5- 4-1965	11.46
S.P. 1	12-31-1964	5-27-1965	4.84
S.P. 2	12-31-1964	5-27-1965	5.76
S.P. 3	12-31-1964	5-27-1965	7.57

for above normal.
for below normal.



Stormwater Calculations: 2, 10, + 100-yr Storms

(1) Existing Conditions

Drainage Area tributary to
existing on-site wetland

$$A_1 = 44.77 \text{ acres} = 0.06976 \text{ mi}^2$$

100% pervious ~ CN = 61

Time of Concentration

1st 300 Feet Sheet Flow

$$t_1 = \frac{0.007(1.49L)^{0.8}}{(P_2)^{0.5} 30.4} \quad \text{where: } n \approx 0.24$$

$$L = 300'$$

$$P_2 = 2.75$$

$$S = 0.01$$

$$t_1 \approx 0.813 \text{ hrs}$$

After Max. 300 Feet - Shallow Concentrated Flow

$$t_2 = \frac{L}{3600V} \quad \text{where: } L = 1720 \text{ ft}$$

$$V = 2.8 \text{ ft/sec}$$

$$t_2 \approx 0.17 \text{ hrs.}$$

$$t_c = t_1 + t_2 \approx 0.98 \text{ hrs}$$

Existing Conditions Tributary Drainage Area Map



MINNESOTA NORTHERN NATURAL GAS CO.
EASEMENT PER BOOK 183, DEEDS, P.C. 374
MINNESOTA NORTHERN NATURAL GAS CO.
LINE CO. PER BOOK 184, M.P. 500
(BLANKET EASEMENT)



(2) Proposed Conditions

Drainage Area Tributary to existing
on-site wetland $A_2 = 63.05 \text{ ac} = 0.0986 \text{ mi}^2$
100% Pervious $\sim CN = 61$

Time of Concentration:

1st 300 ft Sheet Flow

$$t_1 = \frac{0.007 (nL)^{0.8}}{(P_2)^{0.5} S^{0.4}}$$

where: $n = 0.24$
 $L = 300'$
 $P_2 = 2.75$
 $S = 0.02$

$$t_1 \approx 0.62 \text{ hrs}$$

After Max 300 feet Shallow Concentrated Flow

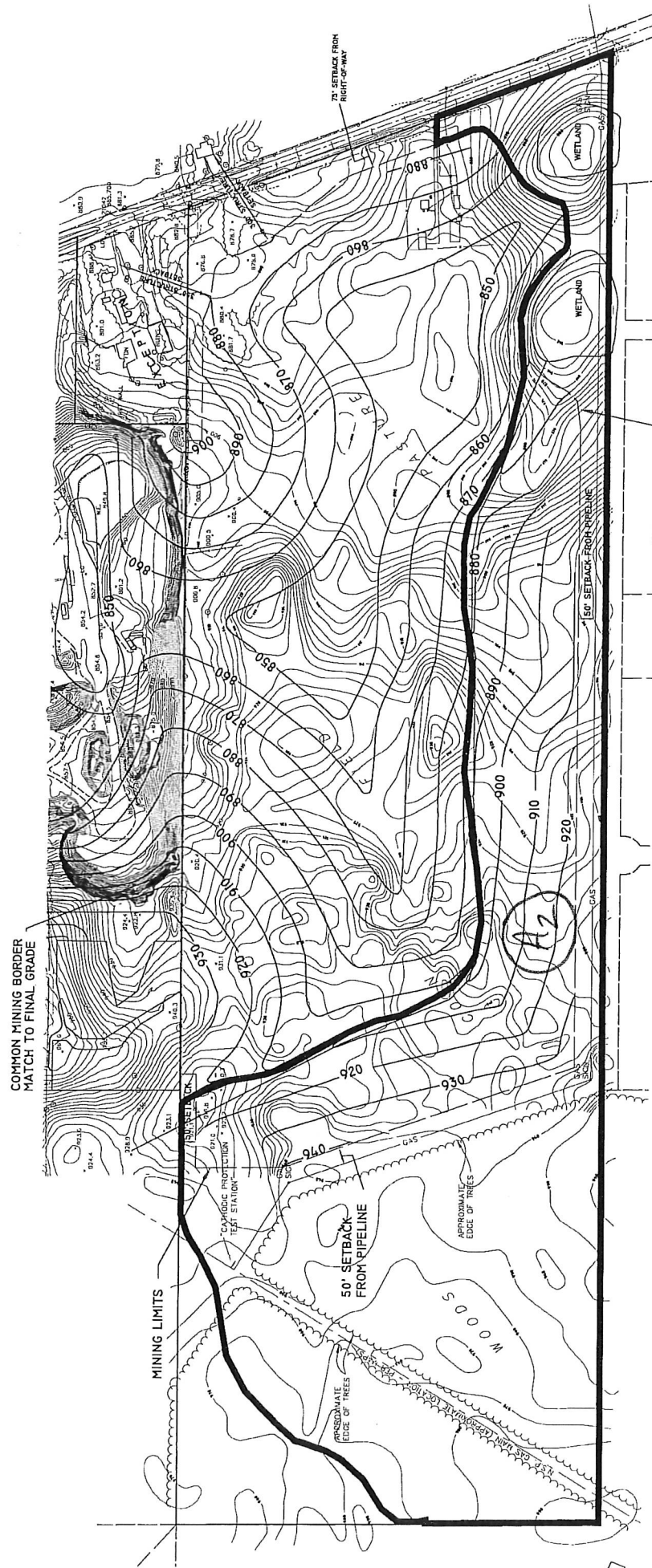
$$t_2 = \frac{L}{3600V}$$

where: $L = 2840 \text{ ft}$
 $V = 2.3 \text{ ft/sec}$

$$t_2 \approx 0.34 \text{ hrs}$$

$$t_c \approx 0.62 + 0.34 = 0.96 \text{ hrs.}$$

Proposed Conditions Tributary Drainage Area Map





(3) TR-20 Results

Storm Event	Rainfall (in.)	Existing Conditions Peak Flow Rate (cfs)	Proposed Conditions Peak Flow Rate (cfs)
2-YR	2.75	3.53	5.04
10-YR	4.20	17.78	25.43
100-YR	5.90	42.91	61.38

*****80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB TR-20 FULLPRINT SUMMARY
TITLE Bituminous Roadways, Inver Grove Heights, MN Existing Conditions
TITLE (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT
6 RUNOFF 1 001 1 .06996 61. 0.98 1 1 1 1
ENDATA
7 INCREM 6 0.05
7 COMPUT 7 001 001 2.75 1.0 2 2 01 01
ENDCMP 1
7 INCREM 6 0.05
7 COMPUT 7 001 001 4.20 1.0 2 2 01 01
ENDCMP 1
7 INCREM 6 0.05
7 COMPUT 7 001 001 5.90 1.0 2 2 01 01
ENDCMP 1
ENDJOB 2

0*****END OF 80-80 LIST*****

1

TR20 XEQ 04-26-02 09:50 Bituminous Roadways, Inver Grove Heights, MN Existing Conditions JOB 1 PASS 1
REV PC 09/83(.2) (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT PAGE 1

EXECUTIVE CONTROL OPERATION INCREM RECORD ID
+ MAIN TIME INCREMENT = .05 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID
+ FROM XSECTION 1
+ TO XSECTION 1
STARTING TIME = .00 RAIN DEPTH = 2.75 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 1 MAIN TIME INCREMENT = .05 HOURS

OPERATION RUNOFF CROSS SECTION 1
OUTPUT HYDROGRAPH= 1
AREA= .07 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= .98 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0503 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.77 3.53 (RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.05 HOURS	DRAINAGE AREA =	.07 SQ.MI.
11.50 DISCHG	.00 .00	.00	.00	.00	.00	.05
12.00 DISCHG	.14 .26	.43	.65	.93	1.26	2.36
12.50 DISCHG	2.93 3.15	3.31	3.43	3.50	3.53	3.52
13.00 DISCHG	3.19 3.08	2.98	2.89	2.80	2.71	2.63
13.50 DISCHG	2.33 2.26	2.19	2.13	2.07	2.01	1.95
14.00 DISCHG	1.75 1.70	1.66	1.62	1.58	1.54	1.51
14.50 DISCHG	1.38 1.35	1.32	1.30	1.27	1.25	1.22
					1.20	1.17
					1.20	1.17

RUNOFF VOLUME ABOVE BASEFLOW = .14 WATERSHED INCHES, 6.10 CFS-HRS, .50 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP RECORD ID
+ COMPUTATIONS COMPLETED FOR PASS 1

1

TR20 XEQ 04-26-02 09:50 Bituminous Roadways, Inver Grove Heights, MN Existing Conditions JOB 1 PASS 2
REV PC 09/83(.2) (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT PAGE 2

EXECUTIVE CONTROL OPERATION INCREM RECORD ID
+ MAIN TIME INCREMENT = .05 HOURS

EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID

+ FROM XSECTION 1 TO XSECTION 1
+ STARTING TIME = .00 RAIN DEPTH = 4.20 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 1 MAIN TIME INCREMENT = .05 HOURS

OPERATION RUNOFF CROSS SECTION 1

OUTPUT HYDROGRAPH= 1
AREA= .07 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= .98 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0503 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.62 17.78 (RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.05 HOURS	DRAINAGE AREA =	.07 SQ.MI.
11.50	DISCHG	.00	.00	.01	.03	.16
12.00	DISCHG	2.08	3.17	4.52	6.13	7.94
12.50	DISCHG	17.00	17.52	17.75	17.73	17.47
13.00	DISCHG	13.12	12.37	11.71	11.10	10.54
13.50	DISCHG	7.90	7.56	7.24	6.94	6.65
14.00	DISCHG	5.30	5.12	4.95	4.80	4.65
14.50	DISCHG	3.92	3.82	3.73	3.64	3.55

RUNOFF VOLUME ABOVE BASEFLOW = .56 WATERSHED INCHES, 25.41 CFS-HRS, 2.10 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP

RECORD ID

COMPUTATIONS COMPLETED FOR PASS 2

1

TR20 XEQ 04-26-02 09:50 Bituminous Roadways, Inver Grove Heights, MN Existing Conditions
REV PC 09/83(.2) (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT

JOB 1 PASS 3
PAGE 3

EXECUTIVE CONTROL OPERATION INCREM

RECORD ID

MAIN TIME INCREMENT = .05 HOURS

EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID

+ FROM XSECTION 1 TO XSECTION 1
+ STARTING TIME = .00 RAIN DEPTH = 5.90 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 1 MAIN TIME INCREMENT = .05 HOURS

OPERATION RUNOFF CROSS SECTION 1

OUTPUT HYDROGRAPH= 1
AREA= .07 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= .98 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0503 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.57 42.91 (RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.05 HOURS	DRAINAGE AREA =	.07 SQ.MI.
10.50	DISCHG	.00	.00	.00	.00	.00
11.00	DISCHG	.01	.02	.03	.05	.07
11.50	DISCHG	.41	.52	.68	.90	1.20
12.00	DISCHG	8.84	11.86	15.40	19.39	23.70
12.50	DISCHG	42.28	42.86	42.78	42.13	40.98
13.00	DISCHG	28.92	27.05	25.40	23.90	22.53
13.50	DISCHG	16.23	15.43	14.70	14.01	13.37
14.00	DISCHG	10.38	9.99	9.63	9.30	8.98
14.50	DISCHG	7.46	7.26	7.07	6.88	6.70

RUNOFF VOLUME ABOVE BASEFLOW = 1.30 WATERSHED INCHES, 58.71 CFS-HRS, 4.85 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP

RECORD ID

COMPUTATIONS COMPLETED FOR PASS 3

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD ID

TR20 XEQ 04-26-02 09:50
REV PC 09/83(.2)

Bituminous Roadways, Inver Grove Heights, MN Existing Conditions
(04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT

JOB 1 SUMMARY
PAGE 4

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR (*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK (?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNATE 1 STORM 1														
XSECTION	1	RUNOFF	.07	2	2	.05	.0	2.75	24.00	.14	---	12.77	3.53	50.5
XSECTION	1	RUNOFF	.07	2	2	.05	.0	4.20	24.00	.56	---	12.62	17.78	254.1
XSECTION	1	RUNOFF	.07	2	2	.05	.0	5.90	24.00	1.30	---	12.57	42.91	613.4

TR20 XEQ 04-26-02 09:50
REV PC 09/83(.2)

Bituminous Roadways, Inver Grove Heights, MN Existing Conditions
(04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT

JOB 1 SUMMARY
PAGE 5

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....
0 XSECTION	1	.07
ALTERNATE 1		42.91

1END OF 1 JOBS IN THIS RUN

*****80-80 LIST OF INPUT DATA FOR TR-20 HYDROLOGY*****

JOB TR-20 FULLPRINT SUMMARY
 TITLE Bituminous Roadways, Inver Grove Heights, MN Proposed Conditions
 TITLE (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT
 6 RUNOFF 1 002 1 .09851 61. 0.96 1 1 1 1
 ENDDATA
 7 INCREM 6 0.05
 7 COMPUT 7 002 002 2.75 1.0 2 2 01 01
 ENDCMP 1
 7 INCREM 6 0.05
 7 COMPUT 7 002 002 4.20 1.0 2 2 01 01
 ENDCMP 1
 7 INCREM 6 0.05
 7 COMPUT 7 002 002 5.90 1.0 2 2 01 01
 ENDCMP 1
 ENDJOB 2

0*****END OF 80-80 LIST*****

1

TR20 XEQ 04-26-02 09:57 Bituminous Roadways, Inver Grove Heights, MN Proposed Conditions JOB 1 PASS 1
 REV PC 09/83(.2) (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT PAGE 1

EXECUTIVE CONTROL OPERATION INCREM RECORD ID
 + MAIN TIME INCREMENT = .05 HOURS

EXECUTIVE CONTROL OPERATION COMPUT RECORD ID
 + FROM XSECTION 2 TO XSECTION 2
 + STARTING TIME = .00 RAIN DEPTH = 2.75 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
 ALTERNATE NO.= 1 STORM NO.= 1 MAIN TIME INCREMENT = .05 HOURS

OPERATION RUNOFF CROSS SECTION 2
 OUTPUT HYDROGRAPH= 1
 AREA= .10 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= .96 HOURS
 INTERNAL HYDROGRAPH TIME INCREMENT= .0492 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
 12.75 5.04 (RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.05 HOURS	DRAINAGE AREA =	.10 SQ.MI.
11.50	DISCHG	.00 .00 .00 .00	.00 .00 .00 .00	.00 .02 .08		
12.00	DISCHG	.20 .39 .64 .96	1.37 1.87 2.41	2.96 3.46 3.90		
12.50	DISCHG	4.27 4.56 4.79 4.93	5.01 5.04 5.01	4.93 4.80 4.63		
13.00	DISCHG	4.47 4.32 4.18 4.05	3.92 3.80 3.69	3.57 3.46 3.35		
13.50	DISCHG	3.25 3.16 3.06 2.97	2.88 2.80 2.72	2.65 2.57 2.51		
14.00	DISCHG	2.44 2.38 2.32 2.26	2.21 2.15 2.10	2.06 2.01 1.97		
14.50	DISCHG	1.93 1.89 1.85 1.81	1.78 1.74 1.71	1.67 1.64 1.60		

RUNOFF VOLUME ABOVE BASEFLOW = .14 WATERSHED INCHES, 8.62 CFS-HRS, .71 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP RECORD ID
 + COMPUTATIONS COMPLETED FOR PASS 1

1

TR20 XEQ 04-26-02 09:57 Bituminous Roadways, Inver Grove Heights, MN Proposed Conditions JOB 1 PASS 2
 REV PC 09/83(.2) (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT PAGE 2

EXECUTIVE CONTROL OPERATION INCREM RECORD ID
 + MAIN TIME INCREMENT = .05 HOURS

EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID

+ FROM XSECTION 2 TO XSECTION 2
+ STARTING TIME = .00 RAIN DEPTH = 4.20 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 1 MAIN TIME INCREMENT = .05 HOURS

OPERATION RUNOFF CROSS SECTION 2

OUTPUT HYDROGRAPH= 1
AREA= .10 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= .96 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0492 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.60 25.43 (RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.05 HOURS	DRAINAGE AREA =	.10 SQ.MI.
11.50	DISCHG	.00	.00	.01	.53	1.04
12.00	DISCHG	3.08	4.70	6.71	19.83	21.89
12.50	DISCHG	24.56	25.20	25.43	23.06	20.64
13.00	DISCHG	18.20	17.17	16.26	13.24	12.01
13.50	DISCHG	10.94	10.47	10.02	8.51	7.89
14.00	DISCHG	7.35	7.10	6.87	6.08	5.75
14.50	DISCHG	5.46	5.32	5.19	4.71	4.49

RUNOFF VOLUME ABOVE BASEFLOW = .56 WATERSHED INCHES, 35.88 CFS-HRS, 2.96 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP

RECORD ID

COMPUTATIONS COMPLETED FOR PASS 2

1

TR20 XEQ 04-26-02 09:57 Bituminous Roadways, Inver Grove Heights, MN Proposed Conditions
REV PC 09/83(.2) (04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT

JOB 1 PASS 3
PAGE 3

EXECUTIVE CONTROL OPERATION INCREM

RECORD ID

MAIN TIME INCREMENT = .05 HOURS

EXECUTIVE CONTROL OPERATION COMPUT

RECORD ID

+ FROM XSECTION 2 TO XSECTION 2
+ STARTING TIME = .00 RAIN DEPTH = 5.90 RAIN DURATION= 1.00 RAIN TABLE NO.= 2 ANT. MOIST. COND= 2
ALTERNATE NO.= 1 STORM NO.= 1 MAIN TIME INCREMENT = .05 HOURS

OPERATION RUNOFF CROSS SECTION 2

OUTPUT HYDROGRAPH= 1
AREA= .10 SQ MI INPUT RUNOFF CURVE= 61. TIME OF CONCENTRATION= .96 HOURS
INTERNAL HYDROGRAPH TIME INCREMENT= .0492 HOURS

PEAK TIME(HRS) PEAK DISCHARGE(CFS) PEAK ELEVATION(FEET)
12.55 61.38 (RUNOFF)

TIME(HRS)	FIRST HYDROGRAPH POINT =	.00 HOURS	TIME INCREMENT =	.05 HOURS	DRAINAGE AREA =	.10 SQ.MI.
10.50	DISCHG	.00	.00	.00	.00	.00
11.00	DISCHG	.02	.03	.04	.28	.37
11.50	DISCHG	.61	.77	1.00	4.68	6.67
12.00	DISCHG	13.03	17.48	22.69	52.35	56.36
12.50	DISCHG	60.81	61.38	60.99	49.41	46.12
13.00	DISCHG	39.99	37.42	35.15	26.29	24.88
13.50	DISCHG	22.40	21.31	20.29	16.18	15.53
14.00	DISCHG	14.35	13.83	13.33	11.31	10.97
14.50	DISCHG	10.36	10.09	9.82	8.62	8.39

RUNOFF VOLUME ABOVE BASEFLOW = 1.30 WATERSHED INCHES, 82.86 CFS-HRS, 6.85 ACRE-FEET; BASEFLOW = .00 CFS

EXECUTIVE CONTROL OPERATION ENDCMP

RECORD ID

COMPUTATIONS COMPLETED FOR PASS 3

EXECUTIVE CONTROL OPERATION ENDJOB

RECORD ID

TR20 XEQ 04-26-02 09:57
REV PC 09/83(.2)

Bituminous Roadways, Inver Grove Heights, MN Proposed Conditions
(04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT

JOB 1 SUMMARY
PAGE 4

SUMMARY TABLE 1 - SELECTED RESULTS OF STANDARD AND EXECUTIVE CONTROL INSTRUCTIONS IN THE ORDER PERFORMED
(A STAR(*) AFTER THE PEAK DISCHARGE TIME AND RATE (CFS) VALUES INDICATES A FLAT TOP HYDROGRAPH
A QUESTION MARK(?) INDICATES A HYDROGRAPH WITH PEAK AS LAST POINT.)

SECTION/ STRUCTURE ID	STANDARD CONTROL OPERATION	DRAINAGE AREA (SQ MI)	RAIN TABLE #	ANTEC MOIST COND	MAIN TIME INCREM (HR)	PRECIPITATION			RUNOFF AMOUNT (IN)	PEAK DISCHARGE				
						BEGIN (HR)	AMOUNT (IN)	DURATION (HR)		ELEVATION (FT)	TIME (HR)	RATE (CFS)	RATE (CSM)	
ALTERNATE	1	STORM	1											
XSECTION	2	RUNOFF	.10	2	2	.05	.0	2.75	24.00	.14	---	12.75	5.04	51.1
XSECTION	2	RUNOFF	.10	2	2	.05	.0	4.20	24.00	.56	---	12.60	25.43	258.1
XSECTION	2	RUNOFF	.10	2	2	.05	.0	5.90	24.00	1.30	---	12.55	61.38	623.1

TR20 XEQ 04-26-02 09:57
REV PC 09/83(.2)

Bituminous Roadways, Inver Grove Heights, MN Proposed Conditions
(04/26/02) 2-YR, 10-YR & 100-YR/24-HR/TYPE II STORM EVENT

JOB 1 SUMMARY
PAGE 5

SUMMARY TABLE 3 - DISCHARGE (CFS) AT XSECTIONS AND STRUCTURES FOR ALL STORMS AND ALTERNATES

XSECTION/ STRUCTURE ID	DRAINAGE AREA (SQ MI)	STORM NUMBERS.....
0 XSECTION	2	.10
ALTERNATE	1	61.38

1END OF 1 JOBS IN THIS RUN



Individual Permit: 2013-1534

Status: Active

Actions

[Communicate with DNR](#)

[Request a change to permit](#)

[Overview](#) [Parties](#) [Attachments](#) [History](#) [Financial](#) [Water Use](#) [Communication](#)

Water Use

From this page you can enter and view annual water use data for your permit.

- Click 'Enter new data' the first time you want to start entering water use information for water used during a particular year. You can always enter partial data, save your report, and return at a later date to finish.
- **Be sure to click on the year that water was used - not the year in which the report is due.**
- Click 'Continue' to return to where you last left off if you entered partial data.
- Click 'View' or 'Print' to see a finalized and submitted water use report for a particular year.

Water Use Year	Report Due Date	Gallons	Action
2017	02/15/2018		Enter new data
2016	02/15/2017	11,211,401	View Print
2015	02/15/2016	19,033,000	View Print
2014	02/15/2015	38,107,450	View Print
2013	02/15/2014	37,440,000	View Print
2012	02/15/2013		Enter new data

Questions? Contact Joe Richter at joe.richter@state.mn.us or 651-259-5877, Minnesota Department of Natural Resources, 1200 Warner Road, St. Paul, MN 55106.

**CITY OF INVER GROVE HEIGHTS
DAKOTA COUNTY, MINNESOTA**

ORDINANCE NO. 1258

**AN ORDINANCE AMENDING TITLE 10, CHAPTER 4 OF THE INVER GROVE
HEIGHTS CITY CODE**

CASE NO. 12-17CZA

The City Council of Inver Grove Heights ordains as follows:

SECTION I. Ordinance No. 1037 adopted July 8, 2002, entitled, "AN ORDINANCE AMENDING, RESTATING, AND RECODIFYING SECTIONS 405, 425, 515, 505, 516, 517, 518, 519, 520, 525, 535, 540, 545, 546, AND 550 OF THE INVER GROVE HEIGHTS CITY CODE" being also known as the City Zoning Ordinance is hereby amended to rezone to Temporary Sand and Gravel (S & G) for a period of five (5) years to following described property located within the City of Inver Grove Heights, Minnesota, to wit:

That part of the S $\frac{1}{2}$ of the NE $\frac{1}{4}$ of Section 32, Township 27, Range 22, lying westerly of Rich Valley Boulevard; except that part described as follows: Commencing at the SE corner of said S $\frac{1}{2}$ NE $\frac{1}{4}$; thence west along the south line thereof, a distance of 592.43 feet; thence north 344.9 feet; thence east 570 feet to the centerline of Rich Valley Boulevard; thence southeasterly along said centerline, a distance of 67 feet to the east line of said S $\frac{1}{2}$ NE $\frac{1}{4}$; thence south 281.85 feet to the point of beginning. Part of PID # 20-03200-011-05, and

The Northeast Quarter of the Southwest Quarter and the North One-Half of the Southeast Quarter, Section 32, Township 27, Range 22, and all of that tract of land lying West of Highway 5 in the Northwest Quarter of the Southwest Quarter, Section 33, Township 27, Range 22; subject to an

easement to Minnesota Northern Natural Gas Company, as described in Deed recorded in Book 193 of Deeds, page 374. PID No. 20-03200-010-75, 20-03200-020-50.

SECTION II. The Zoning Map of the City of Inver Grove Heights referred to and described in said Ordinance No. 1037 as that certain map entitled "Inver Grove Heights Zoning Map, June 24, 2002," shall not be republished to show the aforesaid rezoning, but the Clerk shall appropriately mark the said zoning map on file in the Clerk's Office for the purpose of indicating the rezoning hereinabove provided for in this ordinance and all of the notations, references and other information shown thereon are hereby incorporated by reference and made a part of this ordinance.

SECTION III. This Ordinance shall be in full force and effect from and after its publication according to law, and shall be subject to the following conditions:

1. The Temporary Sand and Gravel (S&G) Zoning shall remain in place on the property for a period of five (5) years to expire on August 13, 2017.
2. The operation of the sand and gravel operation approved herein shall comply with all provisions of Inver Grove Heights City Code, Title 10-13G, Sand and Gravel Overlay District, except as specifically modified herein.
3. The following plans, on file with the Planning Division, shall constitute the "approved plans" referenced therein:
 - Existing conditions dated 7/21/12
 - Phasing Plan dated 7/21/12
 - Final Land Use Plan dated 4/25/02
 - Reclamation Plan dated 7/21/12
 - Landscaping Plan - east property line dated 2012
 - Landscape Plan - south property line dated 2012All aspects of the operation of the site shall comply with the approved plans.
4. The location of the asphalt plant shall remain in its existing position and shall not be relocated unless this sand and gravel ordinance is amended.
5. "Operation" as it relates to hours of operation, shall include, but is not limited to, all mining and grading operations, washing, the operation of the asphalt plant on the site, and movement of vehicles and equipment in and out of the site. Hours of operation on the site shall be limited to 7:00 a.m. to 7:00 p.m., Monday through Saturday, except for the crushing of concrete which shall be regulated by Condition #7. The asphalt plant shall be allowed to operate a maximum of 30 night shifts (7:00 p.m. to 7:00 a.m.) during the construction season each year. Bituminous Roadways shall

provide the city with written notice prior to each event, including confirmation of contact with the nearest neighbor so a record can be kept to monitor total hours used each season.

6. Crushing of concrete on site shall be permitted provided the following conditions are met:
 1. All crushing operations shall be conducted in the current location in the existing site.
 2. The stockpile of concrete to be crushed and the stockpile of already crushed concrete shall not in the aggregate exceed a total of 50,000 cubic yards.
 3. The height of the stockpiles shall not exceed 25 feet.
 4. Crushing shall occur on not more than 12 weeks during the calendar year. No crushing shall occur on Sunday; crushing shall only occur between the hours of 7:00 a.m. and 7:00 p.m. Monday – Friday and 9:00 a.m. to 6:00 p.m., Saturday.
7. Bituminous Roadways may temporarily store Manufactured Organic Shingle Scrap (MOSS) in open storage areas provided the areas in the aggregate do not exceed one (1) acre in size and provided the location and storage configuration is approved by the Fire Marshal and Director of Community Development. MOSS storage areas may be relocated as operations on the site change subject to the approval of the Fire Marshal and the Director of Community Development. The City may impose reasonable conditions relating to dust control, fire prevention and size, height and configuration of the storage piles.
8. The final disposal of MOSS on the site shall be prohibited.
9. As part of the approval granted herein, the applicant may use used concrete and asphalt products as a part of the operation. Stockpiling area for these materials shall be as noted on the approved plans.
10. Bituminous Roadways shall prohibit all drivers of trucks from using Rich Valley Boulevard north of Cliff Road except in those instances where materials are being taken to a project located within the City's regulatory authority. Bituminous Roadways shall post an advisory to all drivers to the same effect at exits from the site.
11. The site shall be kept clear, at all times, of windblown debris.
12. The foundry sand in the southeast berm shall be left undisturbed.

13. Bituminous Roadways shall bring no additional foundry sand onto the site.
14. The berms which cover the foundry sand shall be maintained in vegetative cover to control erosion of the foundry sand.
15. The stockpiled MOSS, shingle scrap, recycled asphalt, and concrete pavement will not be disposed at the site.
16. Stock piles of recycled asphalt, MOSS, shingles, and concrete shall be limited in size to amount that will be used that year.
17. Backfill material shall be either clean fill material that was stripped off the site or other clean fill material which is brought in from offsite.
18. Spent bag house bags will be disposed of in a lined landfill permitted or approved to accept such materials.
19. A restoration bond shall be in an amount to cover the costs of restoration of the site, as determined by the City Engineer, prior to City Council approval.
20. Bituminous Roadways shall obtain and maintain the necessary licenses and approvals from Dakota County and Minnesota Department of Natural Resources. Terms and conditions of the license and approval shall be hereby incorporated into this City approval.
21. Bituminous Roadways shall obtain and maintain the necessary Minnesota Pollution Control Agency permits including two air quality permits and one industrial storm water permit. The terms and conditions of those permits shall be hereby incorporated into this City approval.
22. All reports which are required to be submitted to Dakota County under a Hazardous Waste Generators License and a Processing License shall also be submitted to the City, including the required annual and quarterly reports.
23. All reports which are required to be submitted to the Minnesota Pollution Control Agency shall also be submitted to the City, including annual emissions inventory report, semi-annual deviations report, annual compliance certification report, and annual report.
24. Monitoring shall be conducted at the single water well that consists of arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel,

selenium, silver, zinc, DRO, GRO, phenol, pH, electric conductivity and alkalinity. The monitoring shall occur with half the wells every other year. Parameters and protocols shall be as agreed to by Dakota County, the City and Bituminous Roadways.

25. Monitoring of the storm water ponds used for the washing operation shall be conducted every other year and shall be tested for the same elements as listed in condition #24.
26. All buildings shall be removed from the site within three (3) months of the closure of the facility.
27. Bituminous Roadways shall enter into a Host Community Agreement with the City of Inver Grove Heights including the payment of host community fees, within three (3) months of the State Legislature providing the City with the Authority to enter into such an agreement.
28. Restoration shall be conducted in phases at the site. As portions of the mining area are completed, the areas will be backfilled, graded, topsoil applied and vegetation established.
29. The operator is responsible for obtaining all required permits for the wash water well from the appropriate state and or county agencies and must meet all DNR requirements, obligations and protocols for a well appropriations permit, including responsibilities and protocols for any remedial actions and those responsibilities and protocols for any compensation or damages from the loss of well use affected neighboring properties. Any change or any application for an appropriation permit for an aquifer different than the one that has been identified would require and amendment to the conditional use permit.
30. Bituminous Roadways shall provide a voluntary well interference protocol agreement for neighboring properties within ½ mile of the well requesting to be a party thereto. The agreement shall be prepared by Bituminous Roadways and shall stipulate procedures to follow should well problems occur. The agreement between the parties is strictly voluntary and not required for the well to be operational.

Enacted and ordained into an Ordinance this 22nd day of October, 2012.

Ordinance No. 1258
Page 6

Ayes: 5
Nays: 0

George Tourville, Mayor

ATTEST:

Melissa Kennedy, Deputy Clerk

**CITY OF INVER GROVE HEIGHTS
DAKOTA COUNTY, MINNESOTA**

RESOLUTION NO. 12-175

RESOLUTION APPROVING A CONDITIONAL USE PERMIT AMENDMENT FOR THE PROCESSING OF SAND AND GRAVEL, AN ASPHALT PLANT AND CONTRACTOR'S YARD

CASE NO. 12-17CZA
(Bituminous Roadways)

WHEREAS, an application for Conditional Use Permit Amendment has been submitted for property legally described as the following;

That part of the S $\frac{1}{2}$ of the NE $\frac{1}{4}$ of Section 32, Township 27, Range 22, lying westerly of Rich Valley Boulevard; except that part described as follows: Commencing at the SE corner of said S $\frac{1}{2}$ NE $\frac{1}{4}$; thence west along the south line thereof, a distance of 592.43 feet; thence north 344.9 feet; thence east 570 feet to the centerline of Rich Valley Boulevard; thence southeasterly along said centerline, a distance of 67 feet to the east line of said S $\frac{1}{2}$ NE $\frac{1}{4}$; thence south 281.85 feet to the point of beginning. Part of PID # 20-03200-011-05, and

The Northeast Quarter of the Southwest Quarter and the North One-Half of the Southeast Quarter, Section 32, Township 27, Range 22, and all of that tract of land lying West of Highway 5 in the Northwest Quarter of the Southwest Quarter, Section 33, Township 27, Range 22; subject to an easement to Minnesota Northern Natural Gas Company, as described in Deed recorded in Book 193 of Deeds, page 374. PID No. 20-03200-010-75, 20-03200-020-50.

WHEREAS, the aforescribed property is currently zoned A, Agricultural and S&G, Sand and Gravel Overlay;

WHEREAS, all conditional use permits are subject to the criteria listed in City Code Title 10, Chapter 3, Article A, Section 10-3A-5, regarding consistency with the Comprehensive Plan, conformity with the Zoning Ordinance and compatibility with adjacent properties, among other criteria;

WHEREAS, a public hearing concerning the Conditional Use Permit was held before the Inver Grove Heights Planning Commission in accordance with Minnesota Statutes, Section 462.357, Subdivision 3 on August 9, 2012;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF INVER GROVE HEIGHTS, that a Conditional Use Permit Amendment for the processing of sand and gravel, an asphalt plant and a contractor's yard with open storage is hereby granted for the aforescribed property, subject to the following conditions:

1. Resolutions No. 07-122 and the conditions therein shall become null and void.
2. All terms and conditions of the approval of the temporary Sand and Gravel Zoning District for the property shall apply to all the operations on the site specifically stated herein, except where said terms and conditions may be modified by the conditions below, then the conditions of this permit shall prevail.
3. Approval of this conditional use permit shall be valid for the duration of the Temporary Sand and Gravel Zoning or until such time that the sand and gravel operation on site shall cease to continue if such time frame is shorter. The sand and gravel operation and the approval granted herein shall terminate concurrently.
4. Where violations of the conditions of this permit are noted, the City is authorized to immediately terminate all operations on the site and resumption of operation will not be permitted until such violation is rectified.
5. The processing of the sand and gravel shall include, but not limited to; mining, crushing, screening, washing, sorting and blending into and stockpiling a variety of aggregates, and the recycling and stockpiling of concrete and rock products.
6. The contractor's yard shall be used in substantial conformance with the plan entitled "Existing Conditions" dated 1/8/07, on file with the Planning Division.
7. The location of the asphalt plant shall remain in its existing position and shall not be relocated.
8. All buildings shall be removed from the site within three (3) months of the closure of the facility.
9. Storage of equipment and vehicles for Rainbow Painting shall be limited to the building designated "garage" on the approved site plan and the adjacent area located south of the metal building.
10. All plans submitted by the applicant shall be subject to the review and recommendations made by the City Engineer and Director of Public Works.

11. Monitoring shall be conducted every other year at the single ground water well on site known as the "Rainbow well" and on the Todd Wicker and Robert Plan property, that consists of arsenic, barium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, DRO, GRO, phenol, pH, electric conductivity and alkalinity. The monitoring shall occur at half the wells one year and the other half the next year. Parameters and protocols shall be as agreed to by Dakota County, the City and Bituminous Roadways.
12. The owner shall provide the City Engineering Division full access to the property for an annual storm water maintenance, erosion control, and sediment control inspections.
13. The operator is responsible for obtaining all required permits for the wash water well from the appropriate state and or county agencies and must meet all DNR requirements, obligations and protocols for a well appropriations permit, including responsibilities and protocols for any remedial actions and those responsibilities and protocols for any compensation or damages from the loss of well use affected neighboring properties. Any change or any application for an appropriation permit for an aquifer different than the one that has been identified would require an amendment to the conditional use permit.
14. Bituminous Roadways shall provide a voluntary well interference protocol agreement for neighboring properties within ½ mile of the well requesting to be a party thereto. The agreement shall be prepared by Bituminous Roadways and shall stipulate procedures to follow should well problems occur. The agreement between the parties is strictly voluntary and not required for the well to be operational.

BE IT FURTHER RESOLVED that the Deputy Clerk is hereby authorized and directed to record a certified copy of this Resolution at the Dakota County Recorder's Office.

Adopted by the City Council of Inver Grove Heights this 22nd day of October, 2012.

George Tourville, Mayor

Ayes: 5
Nays: 0

ATTEST:

Melissa Kennedy, Deputy Clerk