



333 S. Tanner Street
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Phone 217.892.6800
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TO: Storm Drainage Committee

FROM: Charles Smith, Mayor

DATE: September 6, 2018

MEETING NOTICE

There will be a meeting of the Storm Drainage Committee on Monday, September 10, 2018 at 5:00 pm in the Conference Room of the Municipal Building.

Storm Drainage Committee September 10, 2018

1. Call to Order
2. Roll Call
3. Public Participation
4. Review of Proposed Modifications of Storm Water Policy - Ordinance No. 2582
5. Discussion of Illinois Drive Storm Drainage Report
6. Discussion of Village Storm Water Topics
7. Adjournment

cc: Rick Snider, Administrator
Greg Hazel, Public Works Director
Media

**BOARD OF TRUSTEES
VILLAGE OF RANTOUL**

AGENDA ITEM

PAGE 1 OF 1

ITEM: Amending Storm Drainage Article	DEPARTMENT: Finance
AGENDA SECTION:	AMOUNT: N/A
ATTACHMENTS: <input checked="" type="checkbox"/> ORDINANCE <input type="checkbox"/> RESOLUTION <input type="checkbox"/> OTHER (See Summary Highlights) <input type="checkbox"/> SUPPORTING DOCUMENTS	DATE: July 31, 2018
<p>SUMMARY HIGHLIGHTS: The attached ordinance is amending sections 40-446 and 40-453 of Article VII of Chapter 40 of the Rantoul Code referring to the Storm Water Drainage Utility Fees. When the above fee was initially assessed, it was below the \$50 identified in section 40-446. The original section indicated that if the fee imposed is over \$50, residents would have the ability to pay in two installments. The first installment shall be due 45 days after the statement date and the second installment which shall be due 90 days after the statement date. The intent of this amendment is to make any payment under \$100 due in one installment or 45 days after the statement date.</p> <p>The second item is to amend section 40-453 that refers to the lien charge. The original lien fee was \$25 and it is recommended that this amount increase to \$40. In order to file a lien, it takes time to research the legal description and generate the lien document for the County. In order to cover our administrative costs, it is recommended that this fee increase to \$40 per lien. This lien is applied to the storm drainage bill that is at least two years delinquent.</p>	
<p>RECOMMENDED ACTION: Approve the amendment of the Storm Drainage Article sections 40-446 and 40-453.</p>	
DEPARTMENT HEAD APPROVAL: 	VILLAGE ADMINISTRATOR: 

PROPOSED

ORDINANCE NO. 2582

**AN ORDINANCE
SUPPLEMENTING AND AMENDING SECTIONS 40-446
AND 40-453 OF ARTICLE VII OF CHAPTER 40 OF THE RANTOUL CODE**

**VILLAGE OF RANTOUL
CHAMPAIGN COUNTY, ILLINOIS**

CERTIFICATE OF PUBLICATION

Published in pamphlet form this 14th day of August, 2018, by authority of the President and Board of Trustees of the Village of Rantoul, Champaign County, Illinois.

Village Clerk

ORDINANCE NO. _____

**AN ORDINANCE
SUPPLEMENTING AND AMENDING SECTIONS 40-446
AND 40-453 OF ARTICLE VII OF CHAPTER 40 OF THE RANTOUL CODE**

**BE IT ORDAINED BY THE PRESIDENT AND THE BOARD OF TRUSTEES OF
THE VILLAGE OF RANTOUL, ILLINOIS, as follows:**

Section 1. Adoption. Section 40-446, entitled “Payment periods and due dates”, and Section 40-453, entitled “Additional lien charges”, of Article VII, entitled “STORMWATER DRAINAGE UTILITY FEES”, of Chapter 44, entitled “UTILITY SERVICES”, of the Rantoul Code, as supplemented and amended, be and the same are hereby further supplemented and amended as set forth in the title, headings and text thereof as attached hereto and hereby incorporated herein by this reference thereto.

Section 2. Effective Date. The provisions of this Ordinance shall become effective immediately following its passage, approval and publication as required by law.

Section 3. Conflict. All other ordinances or parts of ordinances which are in conflict with the provisions of this Ordinance are, to the extent of such conflict, hereby superseded.

Section 4. Publication. The Village Clerk is hereby authorized and directed to cause this Ordinance to be published in pamphlet form.

This ordinance is hereby passed, the “ayes” and “nays” being called, by the concurrence of a majority of the members of the Corporate Authorities then holding office at a regular meeting on the date set forth below.

PASSED this 14th day of August, 2018.

Village Clerk

APPROVED this 14th day of August, 2018.

Village President

Sec. 40-446. - Payment periods and due dates.

The amount of the utility fee imposed under this article for each billable unit shall be computed annually and shall be billed on an annual basis. Payment of each such annual billed amount may be made in two equal installments if such billed amount for any such billable unit is more than \$100.00, the first installment of which shall be due 45 days after the statement date and the second installment of which shall be due 90 days after the statement date. If the annual billed amount is for \$100.00 or less, payment in full shall be due 45 days after the statement date.

Sec. 40-453. - Additional lien charge.

In all cases where the amounts of any utility fee, late penalty and interest under this article have become delinquent and the village elects to file a claim of lien as set forth in this article, there shall be added to any such amounts due prior to recording, in addition to the amounts of any outstanding taxes, late penalties and interest then due, an additional amount equal to \$40.00 in order to reimburse the village for such charges and expenses as are necessary and required to verify the legal description and ownership information of the billable unit and to prepare the claim of lien, plus any further amounts as may be required to record the claim of lien and any release of such claim for lien. Such additional amounts shall be included in the amounts claimed due by the claim of lien.

- EXISTING -

EXISTING

Sec. 40-446. - Payment periods and due dates.

The amount of the utility fee imposed under this article for each billable unit shall be computed annually and shall be billed on an annual basis. Payment of each such annual billed amount may be made in two equal installments if such billed amount for any such billable unit is more than \$50.00 the first installment of which shall be due 45 days after the statement date and the second installment of which shall be due 90 days after the statement date. If the annual billed amount is for \$50.00 or less, payment in full shall be due 45 days after the statement date.

\$100.00

\$100.00

Sec. 40-453. - Additional lien charge.

In all cases where the amounts of any utility fee, late penalty and interest under this article have become delinquent and the village elects to file a claim of lien as set forth in this article, there shall be added to any such amounts due prior to recording, in addition to the amounts of any outstanding taxes, late penalties and interest then due, an additional amount equal to \$25.00 in order to reimburse the village for such charges and expenses as are necessary and required to verify the legal description and ownership information of the billable unit and to prepare the claim of lien, plus any further amounts as may be required to record the claim of lien and any release of such claim for lien. Such additional amounts shall be included in the amounts claimed due by the claim of lien.

\$40.00

ARTICLE VII. - STORMWATER DRAINAGE UTILITY FEES

Sec. 40-440. - Establishment of utility fees for stormwater drainage utility system.

The village, having acquired and constructed, and now owning, operating and maintaining a stormwater drainage utility system within the village to protect the public health, safety and welfare of its residents, to protect the public from floods and flood damage, to protect property from stormwater runoff damage, to protect its water supply from stormwater runoff pollutants and to prevent and control pollutant discharge into its wastewater sewer system, hereby establishes utility fees under this article to cover the costs of acquiring, constructing, installing, maintaining, repairing or extending such stormwater drainage utility system. As further provided in this article, such utility fees are based upon the quantity of stormwater runoff that is discharged into the stormwater drainage utility system of the village from a particular property, which such utility fees are required to be deposited into a separate fund to be used solely and exclusively for the acquisition, construction, installation, maintenance, repair or extension of such stormwater drainage utility system.

Sec. 40-441. - Definitions.

For the purpose of this article, and the interpretation and enforcement thereof, the words, terms, phrases and their derivatives shall have meanings respectively ascribed to them in this section below. Words used in the present tense include the future, words of the singular number include correlative words of the plural number and vice versa, and any reference to any gender or the neuter includes both genders and the neuter, as the case may be.

Billable unit means any lot, tract or parcel of real estate or any part thereof which is improved with any building or structure or with any other impervious surface and which is not otherwise designated as being "exempt (not a billable unit)" under the "land use classifications" described in this article.

Statement date means the date the statements for the remittance of the utility fee imposed under this article are deposited in the United States mail by the village comptroller.

Sec. 40-442. - Utility fee imposed.

A utility fee is charged to each person who, as of January 1 of any calendar year, owns any billable unit within the corporate limits of the village. Such utility fee shall be in such annual amount as may be determined in accordance with this article for the applicable calendar year in which each such January 1 occurs, and such utility fee, together with any late penalty, interest and costs that may accrue thereon pursuant to this article, shall be a lien upon any such billable unit from and after any such January 1 until paid.

Sec. 40-443. - Determination of stormwater drainage utility fee.

- (a) The utility fee imposed under and pursuant to this article is intended to reflect a fair and equitable means of allocating the capital costs and related operation and maintenance expenses necessary to provide a stormwater drainage utility system within the village by classifying all billable units within the village according to their respective land use types and by assigning to each such land use classification an estimate of the runoff volume in inches of rain for each such land use classification under the following formula:

$$Q = (P - .2S)^2 / (P + .8S)$$

Where:

Q = runoff volume in inches of rain;

P = 2.52 inches of rain, based upon a ten-year rainfall event;

S = standard runoff by land use classification equal to $(1,000 / CN) - 10$, where CN is a deviation curve number which estimates a percentage of runoff volume relative to a standard established for such purposes by the U.S. Geological Survey

Set forth below are each of the land use classifications together with, for each such billable land use classification, the related runoff volume in inches of rain and an equivalency factor equal to the ratio of such runoff volume in inches of rain for each such billable land use classification to the runoff volume in inches of rain for the one- and two-family residential land use classification (EF).

Land Use Classification	Runoff Volume (inches)	Equivalency Factor (EF)
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One- and two-family residential	0.850852	1.0000
Three- or more family residential	0.902743	1.0610
Mobile home park	1.194441	1.4038
Commercial	1.398605	1.6438
Industrial	1.259828	1.4807
Public and quasi public	1.194411	1.4038
Office/service/church	1.131489	1.3298
Aviation	1.327852	1.5606*
Parks/open space	Exempt (not a billable unit)	
Agriculture	Exempt (not a billable unit)	
Roads, lakes and rivers	Exempt (not a billable unit)	

*For the aviation land use classification, the equivalency factor (EF) set forth above shall be adjusted by reducing such equivalency factor (EF) by 40 percent to 0.9364 so as to properly recognize that all capital costs for stormwater drainage facilities within such billable land use classification shall be paid from sources other than the utility fee imposed under this article, including from federal or state grants.

(b) Based upon the equivalency factors (EF) described in subsection (a) of this section, including as adjusted, the amount of the annual utility fee for each billable unit under and pursuant to this article shall be determined in accordance with the following steps:

(1) Step 1. Calculate the weighted acres for each billable land use classification (WA) by multiplying the applicable equivalency factor set forth in subsection (a) of this section (EF) by the total number of acres within each such billable land use classification (TA).

$$WA = EF \times TA$$

(2) Step 2. Calculate the percentage of the total runoff volume in inches of rain allocated to each billable land use classification (%C) by dividing the weighted acres for each such billable land use classification (WA) by the sum of the weighted acres for all billable land use classifications (ΣWA).

$$\%C = WA / \Sigma WA$$

(3) Step 3. Calculate that part of the total budgeted amount allocated to all billable units within each billable land use classification (\$LC) by multiplying such total annual budgeted amount for stormwater drainage purposes (\$TBA) times the applicable percentage allocated to each such billable land use classification (%C).

$$\$LC = \$TBA \times \%C$$

(4) Step 4. Calculate the individual dollar amount of the annual utility fee under this article allocated to each billable unit (\$BU) in the manner as follows:

a. For the one- and two-family residential land use classification, divide the applicable dollar amount of the annual budget allocated to all billable units in such billable land use classification (\$LC) by the total number of billable units (BU) within such billable land use classification.

$$\$BU = \$LC / BU$$

b. For all other billable land use classifications, multiply the applicable dollar amount of each such other billable land use classification (\$LC) times a fraction, the numerator of which is equal to the actual acreage

of each such billable unit within each such other billable land use classification (ABU) and the denominator of which is the total number of acres within each such other billable land use classification (BA).

$$\$BU = \$LC \times (ABU / BA)$$

- (c) The total annual budgeted amount for stormwater drainage purposes (\$TBA) as described in this section shall be established annually by the corporate authorities of the village as a part of the annual budget. Such total annual budgeted amount may be changed by the corporate authorities from year to year to reflect any changes deemed necessary, useful or advisable by the corporate authorities to provide a stormwater drainage utility system within the village.

Sec. 40-444. - Adjustments to stormwater drainage utility fee.

- (a) The village comptroller shall make the method for determining the utility fee imposed under this article available to any person who owns a billable unit upon the written request of any such person.
- (b) The village comptroller may adjust the utility fee imposed under this article to more properly reflect the applicable land use classification or, if applicable, the actual acreage of any billable unit. Any person who is the owner of any billable unit shall be responsible for initiating any request to review the applicable land use classification or actual acreage of any such billable unit by filing with the village comptroller factual evidence in support of any such request for adjustment within 45 calendar days of the initial statement date first notifying such person of the applicable land use classification or actual acreage of any such billable unit.

Sec. 40-445. - Billing address.

A bill for the utility fee imposed under this article for each billable unit shall be sent by first-class mail to the person in whose name the real estate taxes for each such billable unit are last assessed as shown by the supervisor of assessments in the county, in the books or records of that office most recently existing no more than 90 days prior to any statement date, and to the address of such person as shown in such books or records.

Sec. 40-446. - Payment periods and due dates.

The amount of the utility fee imposed under this article for each billable unit shall be computed annually and shall be billed on an annual basis. Payment of each such annual billed amount may be made in two equal installments if such billed amount for any such billable unit is more than \$50.00, the first installment of which shall be due 45 days after the statement date and the second installment of which shall be due 90 days after the statement date. If the annual billed amount is for \$50.00 or less, payment in full shall be due 45 days after the statement date.

Sec. 40-447. - Penalties and interest for delinquent payments.

In the event the utility fee imposed under this article for any billable unit remains unpaid in whole or in part after the due date, the billed amount shall then be delinquent and a late penalty in the amount of five percent of such billed amount of the utility fee for which payment is unpaid, rounded up to the nearest cent, shall be added to such billed amount as a late penalty. In addition, interest shall be charged at the rate of two percent per month or any part thereof on the unpaid billed amount and any late penalty which remains unpaid from the date any such amounts become delinquent until the date of payment.

Sec. 40-448. - Billable period.

Whenever the period for which a billable unit is subject to the utility fee imposed under this article is less than the full billing period of 12 calendar months, the utility fee imposed under this article for any such billable unit shall be prorated for the period the billable unit becomes subject to such utility fee.

Sec. 40-449. - Information included with bill,

The bill for each billable unit shall contain such information as the village comptroller shall prescribe and shall include:

- (1) The billed amount of the annual utility fee under this article for which the bill is rendered;
- (2) The period for which the bill is rendered;
- (3) The name and address of the person in whose name the real estate taxes for the billable unit are last assessed as shown on the books or records of the supervisor of assessments;
- (4) The permanent parcel number of the billable unit;

- (5) The land use classification for the billable unit;
- (6) The acreage, if applicable, of the billable unit;
- (7) When and where the billed amount of the utility fee under this article is payable;
- (8) The installment amount due, if applicable;
- (9) If any delinquency exists, the amount of any late penalty and interest charges;
- (10) The total amount due, including any late penalty and interest, if applicable; and
- (11) A statement that if the billed amount remains unpaid for more than 30 days, a lien for such billed amount, including any late penalty and interest, may be filed against the billable unit and that other enforcement remedies, including the disconnection of any other utility service provided to the billable unit by the village, may also be pursued.

Sec. 40-450. - Application of payments in the event of delinquency.

Any payment received by the village for any amount due under this article for any billable unit shall be applied first to any delinquent utility fee for any prior calendar year, then to any unpaid interest due on the amount of any such delinquent utility fee for any such prior calendar year, then to any late penalty for any such prior year, and then to the amount of any utility fee for the current calendar year, then to any unpaid interest due on the amount of the utility fee for the current calendar year, if any, and then to any late penalty for the current calendar year, if any. Any payments in excess of the amounts outstanding shall be credited to any future liability for any such billable unit when it becomes due or, if requested in writing by the person who is the owner of any such billable unit, refunded to such person.

Sec. 40-451. - Lien for delinquent amounts.

Whenever the utility fee imposed under this article for any billable unit becomes delinquent as set forth in this article, the delinquent amount of the utility fee, together with the amount of any outstanding late penalty and interest and, if applicable, any additional lien charge under this article, shall become and constitute a lien upon the billable unit.

Sec. 40-452. - Notice of lien.

The bill rendered to any person for the amount of any such utility fee, late penalty and interest under this article shall be deemed notice of the lien to the person who is the owner of the billable unit if such bill is mailed by first class mail in the manner required by this article. No additional notice of lien is required to be sent to any person who is the owner of a billable unit nor is a copy of the claim of lien required to be sent to any such person.

Sec. 40-453. - Additional lien charge.

In all cases where the amounts of any utility fee, late penalty and interest under this article have become delinquent and the village elects to file a claim of lien as set forth in this article, there shall be added to any such amounts due prior to recording, in addition to the amounts of any outstanding taxes, late penalties and interest then due, an additional amount equal to \$25.00 in order to reimburse the village for such charges and expenses as are necessary and required to verify the legal description and ownership information of the billable unit and to prepare the claim of lien, plus any further amounts as may be required to record the claim of lien and any release of such claim for lien. Such additional amounts shall be included in the amounts claimed due by the claim of lien.

Sec. 40-454. - Contents of lien claim.

- (a) The claim of lien for the amount of any delinquent utility fee, late penalty, interest and additional lien charge shall be made in the form of a sworn statement by the village comptroller setting forth the following information:
 - (1) A description of the billable unit, sufficient for identification;
 - (2) The amount of money due, including any outstanding utility fee, late penalty, interest and additional lien charge under this article;
 - (3) The date when such amount became delinquent; and
 - (4) The person in whose name the real estate taxes for the billable unit are assessed as disclosed by the records of the supervisor of assessments described in this article.
- (b) Any such claim of lien shall be recorded in the office of the recorder for the county.

Sec. 40-455. - Other remedies.

In addition to the recording of any claim of lien, the village may, in its discretion, file suit to collect all such amounts as are delinquent and due against any person who is the owner of the billable unit in a civil action, or disconnect any other utility service provided to the billable unit by the village in accordance with all applicable provisions of the utility service rules and regulations contained in article II of this chapter. In any civil action, the village may also collect all costs and expenses reasonably incurred by the village, including such reasonable attorney fees as may be fixed by the order of the court.

Sec. 40-456. - Responsibility of owner.

The failure of any person who is the owner of any billable unit to receive a bill for the amount of any utility fee imposed under this article shall not be grounds for nonpayment or grounds to extend or defer the date upon which payment is due or avoid the inclusion of any late penalty and interest. Any person who is the owner of any billable unit subject to the utility fee imposed under this article and to the recording of a claim of lien pursuant to the terms of this article shall be charged with notice of the existence of such utility fee and shall be responsible for ascertaining from the village all amounts, if any, due as provided in this article.

Sec. 40-457. - Corrected bill.

If it is shown that the village mailed a bill to any person or to any address other than that required under this article, no late penalty or interest shall be assessed if the utility fee imposed under this article is in fact paid within 45 days after the date that the village either mails such a bill to the required person or to the required address or otherwise personally delivers such a bill to the person who is the owner of the applicable billable unit.

Sec. 40-458. - Use of utility fee funds.

The village comptroller shall deposit all receipts from the utility fee imposed under this article in a separate fund, which shall be used solely and exclusively, as directed by the corporate authorities, for the acquisition, construction, installation, maintenance, repair or extension of the stormwater drainage utility system of the village, together with any required structures, equipment, appurtenances, fixtures and other improvements, any electrical, mechanical or other work and any acquisition of land or rights in land deemed necessary, useful or advisable by the corporate authorities in connection with such stormwater drainage utility system, including, but not limited to, any issuance costs related to and any principal, interest or premium payments on

any indebtedness incurred for such purposes or any engineering and legal costs that may be incurred with respect to such stormwater drainage utility system, as well as for any costs and expenses associated with the implementation or administration of this article.

Sec. 40-459. - Accounts.

The village comptroller shall establish a proper system of accounts and shall keep proper books, records and accounts in which complete and correct entries shall be made of all transactions relative to the stormwater drainage utility system of the village.

Sec. 40-460. - Qualified circuit breaker law rebate.

Any individual who is legally entitled to and has in fact qualified for a grant under and pursuant to the Senior Citizens and Disabled Persons Property Tax Relief and Pharmaceutical Assistance Act (320 ILCS 25/1 et seq.) (the "circuit breaker law") for any calendar year is likewise entitled to file a request for a rebate of any utility fee required by this article that was paid by any such individual during such calendar year to the village in any such individual's capacity as an individual owning and residing in a billable unit. Any such request for a rebate must be filed on or before June 30 of the next succeeding calendar year on such form as may be prescribed by the village. Upon the timely filing of any such request for a rebate and verification that the name of any such individual requesting such rebate is contained on a list of all individuals who have qualified under the circuit breaker law as maintained by the department of revenue of the state for any such calendar year, the village shall cause the amount of any such rebate to be made to such individual.

Memorandum



Date: September 5, 2018

To: G. Gregory Hazel, P.E.
Director of Public Works, Village of Rantoul

From: Joe Darlington, P.E.,
Adam Blumstein, P.E., CFM

Subject: Illinois Circle Area Drainage Study

Background

The purpose of this memorandum is to evaluate and recommend stormwater management options for the Illinois Circle area in Rantoul, Illinois. The Village of Rantoul (Village) has indicated that several residential properties located on Illinois Drive adjacent to the Northview Elementary School experience flooding during certain rainfall events.

Reports of basement backups during significant rain events have been experienced in the residential area along Illinois Circle and south of Northview School. Basement backups have also been reported at the Church of the Nazarene at the corner of North Sheldon Street and East Grove Avenue.

Existing Conditions

The project area is presented on Exhibit 1. An overview of existing conditions of the project area is shown on Exhibit 2. Illinois Circle is located in the Village of Rantoul east of the Northview Elementary School. This subdivision was constructed in the early 1950's. The natural overland drainage pattern is from the northwest to the southeast, but the area is relatively flat. The Illinois Circle area has two main storm sewer lines located on the east and west sides of Illinois Drive which convey flow south. Existing storm sewer pipe diameters range from 10-inches at the upstream end to 18-inches at the downstream end, where the pipes connect to an existing 30-inch diameter storm sewer near the intersection of E Grove Avenue and N Chanute Street. It does not appear that detention was provided for runoff from the Illinois Circle area when the area was developed.

The Northview Elementary School was built in 1955 and the east wing addition was constructed in 1968. The school is tributary to the Illinois Circle area. There are currently no detention facilities on the school property. Existing conditions at the Northview Elementary School are discussed in further detail in the attached *Northview Elementary School Drainage Evaluation*.

Mr. Jack Anderson, a resident of the Village, documented significant rainfall events occurring on July 5 and July 14, 2018. Mr. Anderson provided descriptions and photographs of locations that experienced localized flooding during the rainfall events.

The Village identified that significant backyard and occasional structure flooding occurs in a localized area at residential properties 320, 324, and 328 Illinois Drive during significant rain

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events. It is our understanding that other properties in the Illinois Circle area, specifically those that are adjacent to the southeast corner of the Northview School property, also experience occasional yard flooding during significant rain events. We also understand that areas in the downstream (southeast) portion of the Illinois Circle area (near Chanute Street & Grove Avenue) do not typically experience significant surface flooding.

Stormwater Management Requirements

All stormwater management facilities are required to be designed in accordance with the Manual of Practice, authorized by the Rantoul Code, Section 32-14.

Stormwater management plan requirements are outlined in Section 6.3.B.6 of the Manual of Practice and must be approved by the Director of Public Works. Storm sewers shall be designed to deliver runoff resulting from a 10-year storm, flowing under gravity conditions. This means that the amount of water produced from a storm with a probability of occurring once every ten years must be conveyed through the storm sewer, with the water flowing within the pipe and no surcharging in the manholes.

Per Section 6.3.B.5.b of the Manual of Practice, the peak release rate from site runoff storage facilities shall not exceed the property's runoff from the natural undeveloped rate for a 2-year storm with a maximum run-off coefficient of $C=0.15$. The developed design rate for stormwater runoff for the storage area shall be based on a 100-year storm after full development. This means that the detention facility will store the amount of water produced from a storm with a probability of occurring once every 100 years and will release the water at a prescribed rate so that it does not inundate the downstream storm sewer system.

Hydraulic and Hydrologic Analysis

A hydraulic and hydrologic analysis was performed for the tributary area to Illinois Circle. The tributary areas are shown in Exhibit 2. The existing capacity of the storm sewers in Illinois Circle were calculated and compared to the runoff from a 10-year critical duration storm event as presented below in Table 1.

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Table 1: Existing Storm Sewer Capacity in Illinois Circle

SEWER SEGMENT #	UPSTREAM MH ID	DOWNSTREAM MH ID	DIAMETER (IN)	SLOPE (%)	CAPACITY (CFS)	10-YEAR RUNOFF (CFS)
1	388	387	10	0.31	1.21	2.95
2	387	385	12	0.27	1.86	5.99
3	385	384	15	0.22	3.04	8.24
4	384	383	18	-0.01	4.17	12.58
5	11271	373	10	0.42	1.41	1.86
6	373	375	12	0.64	2.85	5.25
7*	11269	1612	10	1.04	2.56	10.10
8*	1612	375	12	0.76	3.11	13.68
9	375	376	15	0.24	3.10	21.22
10	376	383	15	0.31	3.59	37.97
11	383	1633	18	0.30	5.75	50.55
12	1633	1632	18	0.96	10.29	51.08

*Privately owned storm sewer

Analysis of the runoff from the Northview Elementary School site and the Illinois Circle area show that the existing Illinois Circle storm sewer system does not provide adequate capacity to convey the 10-year critical duration event in a gravity flow condition. Based on the existing elevations the sewers were constructed relatively flat, limiting the pipe capacity. It is likely that during 10-year storm events, water is being conveyed overland along the street and out of the circle and therefore does not cause localized flooding at the downstream areas of Illinois Circle.

If detention was provided at the Northview School, the Illinois Circle storm sewer system would still not provide adequate capacity to convey the 10-year critical duration event in a gravity flow condition. The storm sewers in Illinois Circle were constructed in the 1950's. It is common throughout the Midwest that storm sewer systems constructed in the 1950's are not able to provide adequate capacity for what is now defined as a 10-year rainfall event because these systems were not constructed using the current day design criteria.

To provide additional capacity, one option would be to install a relief storm sewer. This would consist of a redundant storm sewer parallel to the existing storm sewer to meet the required capacity for the 10-year rainfall event. A budgetary cost for installing a relief sewer to provide a 10-year level of service is approximately \$1,100,000.

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It is possible that a relief sewer could affect the capacity of the existing downstream storm sewer or create downstream issues for other residents. This would need to be confirmed during detailed design. If the existing downstream storm sewer is not capable of conveying the increased flow associated with a relief sewer, it would need to be replaced with a larger pipe.

It should also be noted that while a relief sewer would increase the conveyance capacity of the storm sewers in the Illinois Circle area, it would not mitigate surface flooding flowing off the Northview School property onto adjacent properties. This is because the runoff from the Northview School exceeds the capacity required for a 10-year rainfall event. Localized flooding occurring at the properties could be addressed by providing detention.

Detention Analysis

An analysis was completed to determine the amount of detention that would be required for a variety of scenarios, assuming the project area was constructed to meet current stormwater management requirements. A summary of the storage required for the Illinois Circle area and the Northview School is presented in Table 2. For further discussion regarding detention requirements for the Northview School, please see the attached *Northview Elementary School Drainage Evaluation*.

Table 2: Required Detention

Location	Storage Required (acre-feet)
Illinois Circle	2.1
Northview Elementary School	1.7
Total	3.8

Several alternatives to provide detention were considered. A summary of the alternatives that were evaluated is presented below.

Oversized Storm Sewers in Illinois Circle

Oversized storm sewers in the Illinois Circle would need to be sized to convey runoff from a 10-year rainfall event plus storage for the Illinois Circle area or both the Illinois Circle area and the Northview School. In order to provide the required conveyance and storage, the oversized storm sewers would need to be greater than 36-inches in diameter. The invert elevation of the downstream storm sewer connection from the Illinois Circle area is relatively shallow and does not allow adequate cover for oversized storm sewers. This option is not feasible with the current elevations and is not recommended.

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Page 5

Detention at Open Space East of N Chanute Street and South of E Grove Avenue

A detention facility could be constructed at the open space east of Chanute Street and south of Grove Avenue to provide the required storage for the Illinois Circle area or both the Illinois Circle area and the Northview School. Due to the existing storm sewer and site elevations, conveying the flow via gravity to a detention facility would require an approximately 20 feet deep basin to provide the required volume and prevent upstream sewer surcharging. A pump station would be required to dewater the detention basin. These improvements would require a significant capital investment and may not be feasible if groundwater elevations are higher than the depth required for constructing the basin. For these reasons, this option is not recommended.

Detention at Northview Elementary School

A detention analysis for the Northview Elementary School was completed in the *Northview Elementary School Drainage Evaluation*. Approximately 1.7 acre-feet of storage is required at the site to meet the stormwater management regulations. Above ground detention for a 100-year level of service at the Northview School would cost approximately \$500,000.

Detention at Acquired Properties

As previously mentioned, the Village has identified that that significant backyard and occasional structure flooding occurs in a localized area at residential properties 320, 324, and 328 Illinois Drive during significant rain events. One potential option to mitigate flooding this area would include acquisition of the three properties at 320, 324, and 328 Illinois Drive and constructing a detention basin in this area. A detention facility at this location could provide a portion of the required storage for the Illinois Circle area or both the Illinois Circle area and the Northview School.

- **Detention Storage for a Portion of Illinois Circle:** Based on the site location elevations and relative upstream location within the Illinois Circle, runoff from about 4.5 acres in the northwest part of the Illinois Circle area could be routed to this detention basin, holding approximately 0.5 acre-feet of storage. The location of the proposed detention basin for this option is shown in Exhibit 3. This option would not include any detention storage for the Northview School. This would require storm sewer improvements to route upstream areas in the northwest part of the Illinois Circle to this detention basin. The detention basin and storm sewer improvements for this option would cost approximately \$400,000 but would provide only a portion of the required detention.
- **Detention Storage for a Portion of Illinois Circle and Northview School:** A larger above ground detention basin could be constructed at this location utilizing both the acquired properties and the school property to provide the required storage for the Northview School and a portion of the required storage for Illinois Circle. This detention basin could hold approximately 2.2 acre-feet of storage. The location of the detention basin

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Page 6

for this option is shown in Exhibit 4. This would require storm sewer improvements to route upstream areas in the northwest part of the Illinois Circle to this detention basin. The detention basin and storm sewer improvements for this option would cost approximately \$1,000,000.

Table 3: Detention at Acquired Properties

Detention Scenario	Storage Required (acre-feet)	Storage Provided (acre-feet)	Additional Storage Needed (acre-feet)	Approximate Cost
A Portion of Illinois Circle	2.1	0.5	1.6	\$400,000
A Portion of Illinois Circle and Northview School	3.8	2.2	1.6	\$1,000,000

The cost for property acquisition and demolition of the residential properties would be additional costs and should be confirmed with a property appraiser near time of closing. It should be noted that constructing a detention basin at this location (for either scenario) would not provide all the required storage for the Illinois Circle due to the relative location within the Illinois Circle drainage area. The existing storm sewers in the Illinois Circle area would continue to provide less than a 10-year level of service even if this improvement were implemented.

Detention at Illinois Circle

Current best practice for providing detention storage at the Illinois Circle area would be to construct a detention facility in the middle of the subdivision. To provide the required detention for Illinois Circle or both Illinois Circle and Northview School, a detention facility could be constructed within Illinois Circle at the locations shown in Exhibit 5 and Exhibit 6. Both options would require acquisition of a significant amount of residential property. Significant storm sewer improvements and roadway improvements would need to be made to convey flow to the detention basin. The storm sewer improvements and detention basin construction would involve significant disruption to residential property. The storage volume provided and budget costs for both options are shown in Table 4.

Table 4: Required Detention

Detention Option	Storage Provided (acre-feet)	Budget Cost
Illinois Circle	2.1	\$2,350,000
Illinois Circle and Northview School	3.8	\$2,850,000

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The cost for property acquisition and demolition of the residential properties would be additional costs and should be confirmed with a property appraiser near time of closing.

Basement Backups

The Village has indicated that several properties along the Illinois Circle and south of Northview school experience basement backups during heavy rainfall events. During the site visit conducted by Burns & McDonnell, field staff observed several properties with downspouts discharging below grade. It is possible that downspouts that discharge below-grade may be connected to the sanitary or storm sewers. The locations of these downspouts are listed in Table 5. Photos of the downspout locations with underground connections can be found in the photo album attached.

Table 5: Downspout Locations Observed

Church of the Nazarene	229 Illinois Circle	253 Illinois Circle
269 Illinois Circle	289 Illinois Circle	356 Illinois Circle
Northview Elementary School		316 Illinois Circle

The Village also indicated that several properties along Illinois Circle have installed backflow valves to prevent sanitary flow from backing up into their houses. The properties listed in Table 6 have installed backflow valves.

Table 6: Properties with Backflow Valves Installed

264 Illinois Drive	300 Illinois Drive	325 Illinois Drive
340 Illinois Drive	348 Illinois Drive	356 Illinois Drive

Excessive infiltration and inflow (I/I) is a common issue in sanitary sewer systems. Downspout connections are one potential source of I/I and can significantly limit the available capacity of a sanitary sewer. For reference, the runoff for a 10-year rainfall event with a 30-minute duration would produce 1.45 inches of rain. This storm over 11,300 square feet of roofs (5 to 10 typical homes, depending on the size) directly connected to an 8-inch diameter sewer would utilize 100 percent of the capacity of the sewer.

A sewer system evaluation survey (SSES) is a systematic approach to detect the location of defects that may be allowing excessive I/I to enter the sanitary sewer system. Common sources of I/I include defective pipes, joints, connections, manholes, and downspouts and area drains connected to the sanitary sewer. Common SSES tasks include CCTV pipe inspection, manhole inspections, flow monitoring, smoke testing, and dye water testing. Once defects are identified, a plan can be developed for I/I reduction. Removing sources of I/I can help mitigate occurrences of basement backups and sanitary sewer overflows.

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Summary of Stormwater Management Options

The following provides a summary of the potential storm sewer and detention options discussed:

Table 7: Stormwater Management Options

Stormwater Management Option	Storage Provided (acre-feet)	Budget Cost	Considerations
Relief sewers within Illinois Circle	N/A	\$1,100,000	<ul style="list-style-type: none"> • Would not mitigate localized flooding • Could affect the capacity of the existing downstream storm sewer • If required, downstream sewer improvements would be an additional cost
Detention at Northview School	1.7	\$500,000	<ul style="list-style-type: none"> • Could be designed to mitigate localized flooding • Would not provide a 10-year level of service for the storm sewers in Illinois Circle
Detention at Acquired Properties: Storage for a Portion of Illinois Circle Only	0.5	\$400,000	<ul style="list-style-type: none"> • Would mitigate localized flooding issues adjacent to Northview School • Would not provide detention at Northview School • Additional cost for property acquisition and demolition • Would only provide a portion of the required detention for Illinois Circle • Would not provide 10-year level of service for all of Illinois Circle
Detention at Acquired Properties: Storage for a Portion of Illinois Circle and Northview School	2.2	\$1,000,000	<ul style="list-style-type: none"> • Additional cost for property acquisition and demolition • Would only provide a portion of the required detention for Illinois Circle • Would not provide 10-year level of service for all of Illinois Circle
Detention at Illinois Circle: Storage for Illinois Circle Only	2.1	\$2,350,000	<ul style="list-style-type: none"> • Would impact a significant number of residential properties • Additional cost for property acquisition • Would not provide detention at Northview School

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Stormwater Management Option	Storage Provided (acre-feet)	Budget Cost	Considerations
			<ul style="list-style-type: none"> • Would require significant storm sewer and roadway improvements
Detention at Illinois Circle: Storage for Illinois Circle and Northview School	3.8	\$2,850,000	<ul style="list-style-type: none"> • Would impact a significant number of residential properties • Additional cost for property acquisition • Would require significant storm sewer and roadway improvements

Recommendations

Burns & McDonnell recommends the following to mitigate flooding and basement backups:

1. Provide detention at the Northview School property for a 100-year storm to help mitigate localized surface flooding at the properties adjacent to the school. Since significant flooding has not been reported at the downstream properties along Illinois Circle, providing detention at Northview School would provide a greater cost benefit when compared to public storm sewer improvements.
2. Disconnect downspouts at the Northview School from their existing underground connections and reroute their discharge at grade. While this improvement alone will not fully address the situation, it may help by increasing the amount of time it takes for runoff from the school to enter the storm sewer system.
3. Conduct a SSES in the project area to determine specific locations for removing I/I from the sanitary sewer system. Removal of large sources of I/I could help mitigate basement backups in the area. Private sector alternatives to mitigate sanitary backups could include the installation of overhead plumbing at the homes that experience the backups.

Please contact Joe Darlington at 630-724-3809 or jdarlington@burnsmcd.com if you have any questions.

- Attachment:
- Exhibit 1: Project Area
 - Exhibit 2: Tributary Area
 - Exhibit 3: Detention at Acquired Properties: Storage for a Portion of Illinois Circle Only
 - Exhibit 4: Detention at Acquired Properties: Storage Illinois Circle and Northview School
 - Exhibit 5: Illinois Circle Detention
 - Exhibit 6: Illinois Circle and Northview School Detention Photo Album

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Northview Elementary School Drainage Evaluation Memorandum

cc: Jake McCoy, P.E., Village of Rantoul
Randy Patchett, P.E., BMcD



PROJECT AREA
APPROXIMATELY 56 ACRES

N High Street

Clark Street

E Campbell Ave

E Belle-Ave

E Grove Ave

N High Street

N Sheldon Street

**NORTHVIEW
ELEMENTARY
SCHOOL**

Illinois Drive

N Seaver Street

E Sangamon Ave

N Ludlow Street

Illinois Drive

N Chanute Street

Gibbs Drive

Gibbs Drive

E Grove Ave

Kepp Ave



date **AUGUST 30, 2018**
designed **A. BLUMSTEIN**

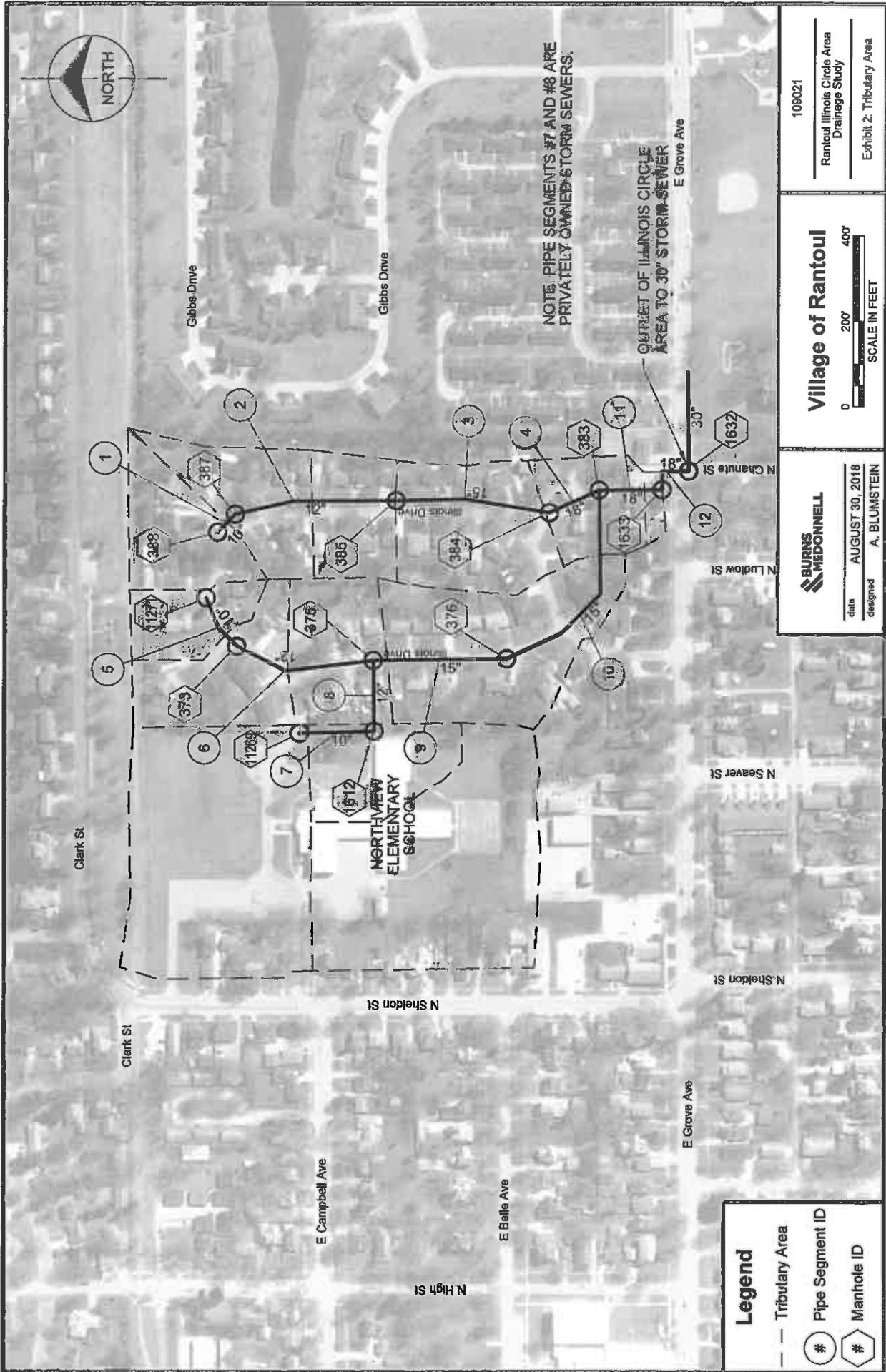
109021

Rantoul Illinois Circle Area
Drainage Study

Exhibit 1: Project Area

Village of Rantoul





108021

Rantoul Illinois Circle Area
Drainage Study

Exhibit 2: Tributary Area

Village of Rantoul



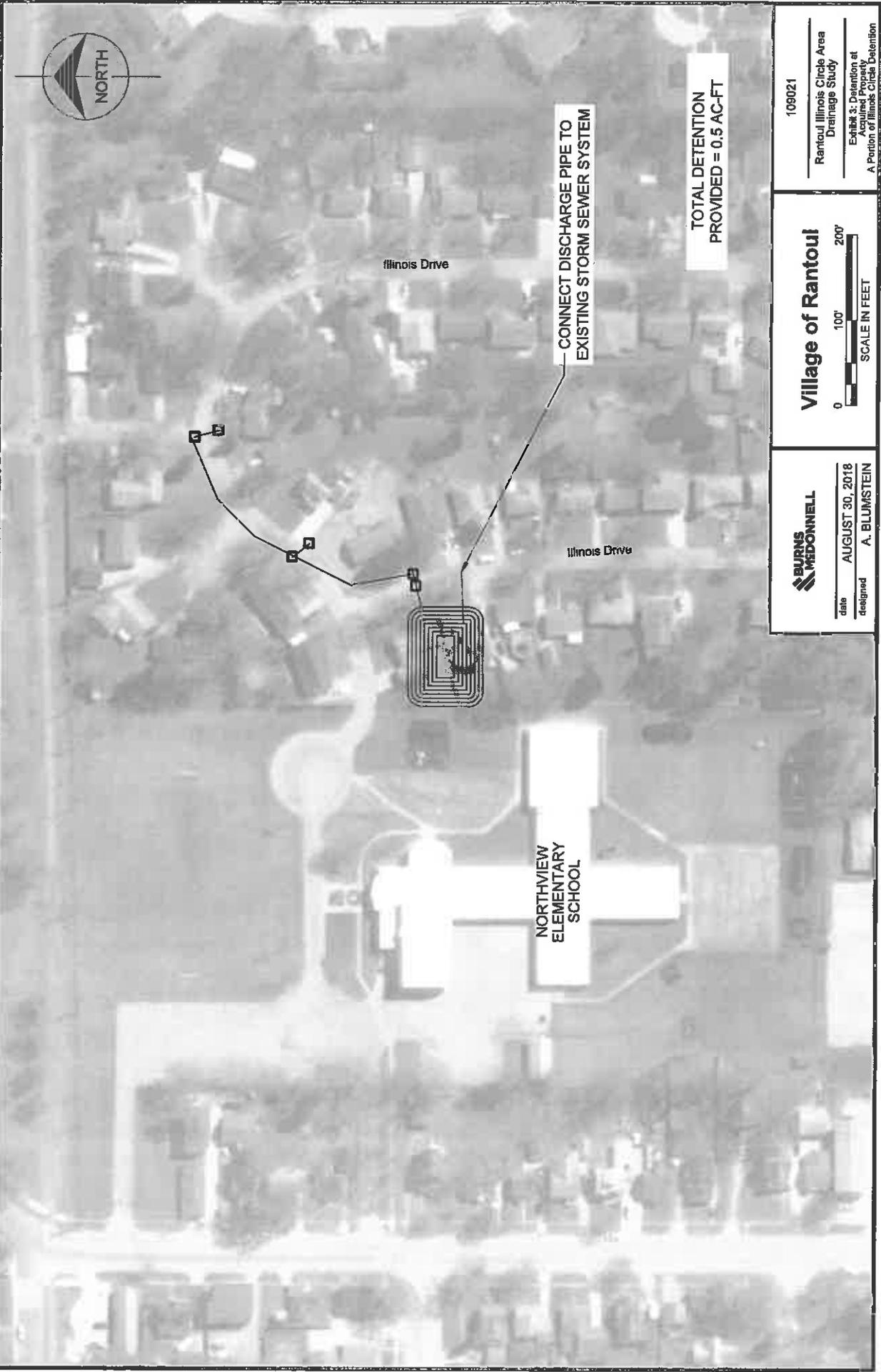
date AUGUST 30, 2018
designed A. BLUMSTEIN

Legend

--- Tributary Area

Pipe Segment ID

Manhole ID



CONNECT DISCHARGE PIPE TO EXISTING STORM SEWER SYSTEM

TOTAL DETENTION PROVIDED = 0.5 AC-FT

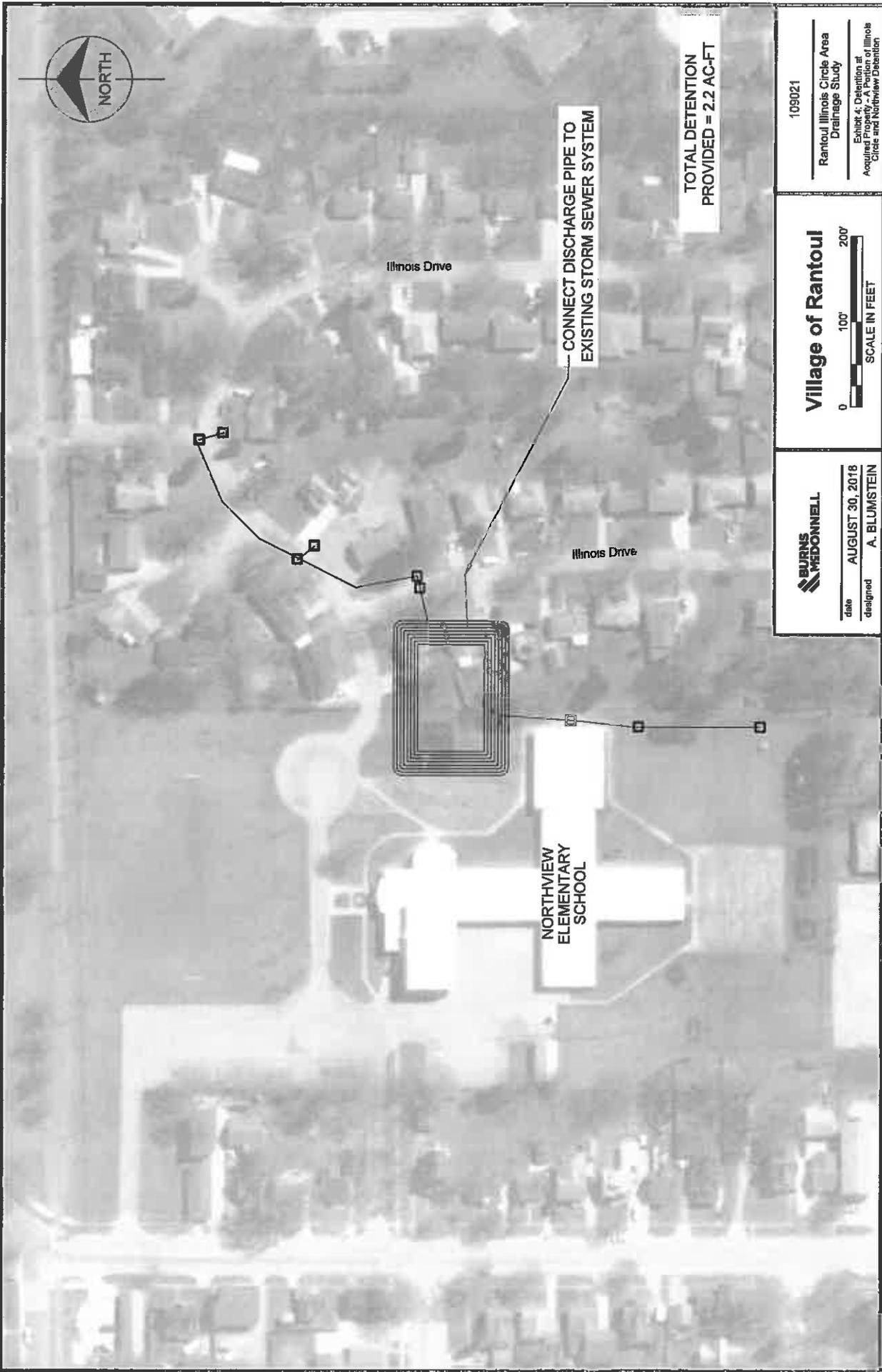
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Rantoul Illinois Circle Area
Drainage Study
Exhibit 3: Detention at
Acquired Property
A Portion of Illinois Circle Detention

Village of Rantoul



date AUGUST 30, 2018
designed A. BLUMSTEIN



TOTAL DETENTION
PROVIDED = 2.2 AC-FT

CONNECT DISCHARGE PIPE TO
EXISTING STORM SEWER SYSTEM

Illinois Drive

Illinois Drive

NORTHVIEW
ELEMENTARY
SCHOOL

109021

Rantoul Illinois Circle Area
Drainage Study
Exhibit 4: Detention at
Acquired Property - A Portion of Illinois
Circle and Northview Debiton

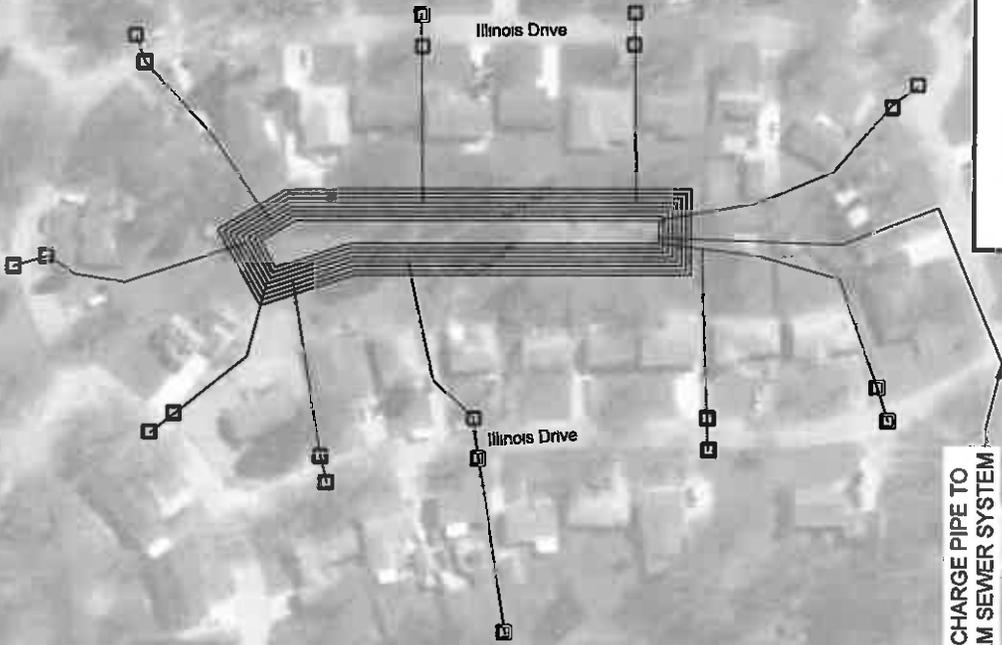
Village of Rantoul



date AUGUST 30, 2018
designed A. BLUMSTEIN



TOTAL DETENTION
PROVIDED = 2.1 AC-FT



Illinois Drive

Illinois Drive

NORTHVIEW
ELEMENTARY
SCHOOL

CONNECT DISCHARGE PIPE TO
EXISTING STORM SEWER SYSTEM

109021

Rantoul Illinois Circle Area
Drainage Study
Exhibit 5: Illinois Circle
Detention

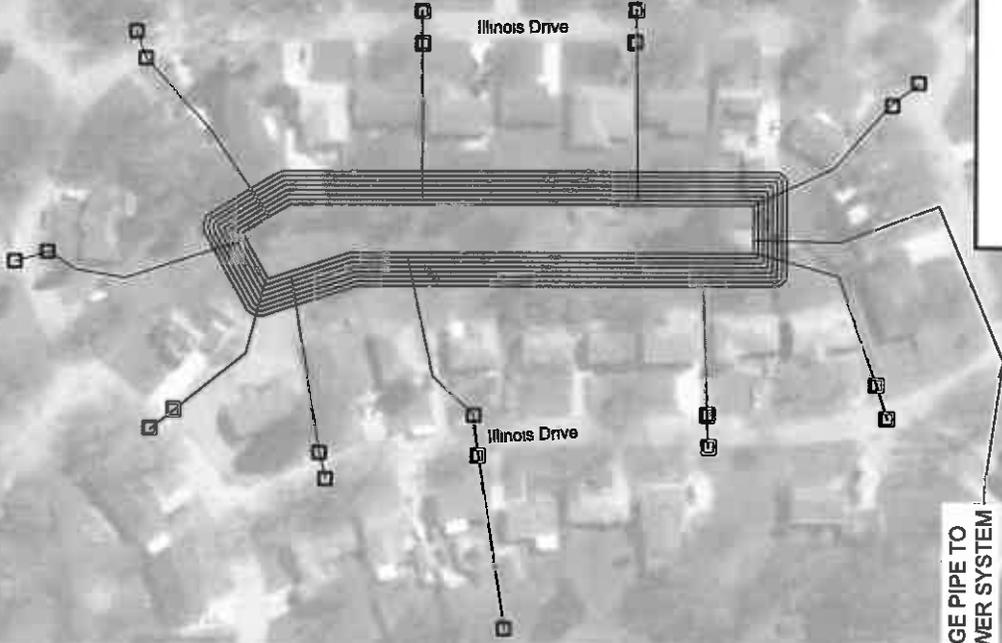
Village of Rantoul



date AUGUST 30, 2018
designed A. BLUMSTEIN



TOTAL DETENTION
PROVIDED = 3.8 AC-FT



NORTHVIEW
ELEMENTARY
SCHOOL

CONNECT DISCHARGE PIPE TO
EXISTING STORM SEWER SYSTEM

109021

Rantoul Illinois Circle Area
Drainage Study
Exhibit 6 Illinois Circle &
Northview School Detention

Village of Rantoul



DATE: AUGUST 30, 2018
DESIGNED BY: A. BLUMSTEIN

Illinois Circle
Drainage Evaluation
Site Investigation
Photo Album



Church of the Nazarene Downspout



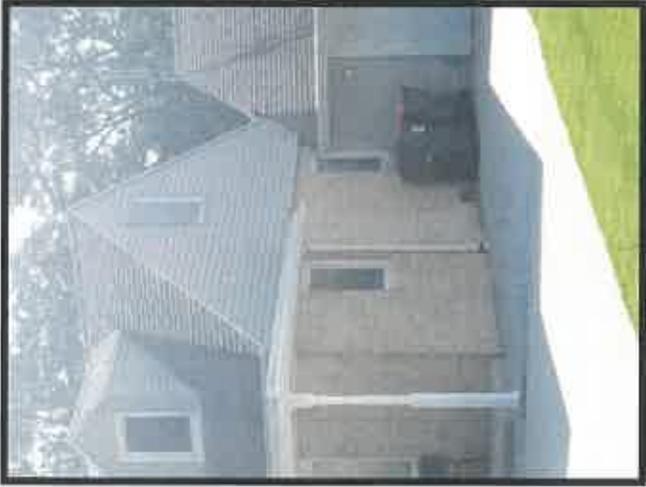
229 Illinois Dr. Downspout



253 Illinois Dr. Downspout



269 Illinois Dr. Downspout



289 Illinois Dr. Downspout



324 Illinois Dr. Backyard Manhole



356 Illinois Drive Downspout



Church of the Nazarene Downspout



E Grove South Property



Northeast side of Northview Downspouts



Northview Concrete Pad Facing Southeast

Memorandum



Date: October 4, 2016

To: Pete Passarelli
Assistant Director of Public Works, Village of Rantoul

From: Jamie Patterson, P.E., CFM
Adam Blumstein, E.I.T., CFM

Subject: Northview Elementary School Drainage Evaluation

Background

The purpose of this memorandum is to evaluate and recommend stormwater management options for the Northview Elementary School (Northview) in Rantoul, Illinois. The Village of Rantoul (Village) has indicated that the school property experiences flooding during minor rainfall events. Pre-existing (prior to the school development) and existing (current) conditions of the school parcel were evaluated for compliance with the Village of Rantoul Manual of Practice (July 2015), which defines stormwater management requirements in the Village. The existing site drainage was assessed and options for site stormwater management to mitigate flooding were considered.

An overview of existing conditions of the school property is shown on Exhibit 1. An overview of the proposed improvement alternatives for the 25-year, 50-year, and 100-year storm events at the school property (including outfalls discussed later) are shown on Exhibits 2 through 4.

Existing Conditions

Northview Elementary School is located in the Village of Rantoul, Illinois near southeast corner of the intersection of Sheldon Street and Clark Street. The site is bounded by residential properties to the east, west, and south, and Ryan Park to the north. Approximately 12.7 acres of runoff is discharged from the site at two locations. A 12-inch diameter storm sewer at the east limit of the site conveys stormwater from the North sub-basin into the storm sewer on Illinois Drive. Runoff from the South sub-basin sheet flows to the southeast corner of the property and discharges overland into the residential area on Illinois Drive. The sub-basins are described in greater detail below. There are currently no detention facilities on the school property.

The site is primarily pervious consisting of a large soccer field and other grassy areas. Impervious areas make up the majority of the remaining area including the school building, parking lot, and pavement surfaces. Playgrounds made of rubber tire chips cover the remaining property. Land cover translates to a composite runoff coefficient of 0.61.

A small amount of off-site flow from the west and south drains to the site. Runoff from the site discharges to two separate locations forming two on-site sub-basins, which are described below:

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Page 2

1. **North Sub-basin** – This is the larger of the two sub-basins and is located generally in the north and east areas of the site. Flow generally drains overland across the soccer field, flows east along the curb and gutter north of the school building, enters the storm sewer and discharges from the site to the east through an existing 12-inch storm sewer. The total area of the North sub-basin is approximately 7.29 acres with elevations ranging from approximately 754.0 feet to the invert of 738.97 feet where the stormwater exits the site.
2. **South Sub-basin** – This sub-basin encompasses the area west and south of the school building. Flow generally drains overland through a ditch which discharges at the southeast corner of the property. There is an existing catch basin in the ditch which is filled with debris and appears to be non-functional. The total area of the South sub-basin is approximately 5.40 acres with elevations ranging from approximately 750.0 feet to 745.5 feet at southeast edge of the site.

According to the latest FEMA Flood Insurance Rate Map (FIRM) (Panel 17019C0200D) dated October 2, 2013 the project site is greater than 5,000 feet from the nearest Zone A floodplain, associated with the Upper Salt Fork Drainage Ditch and Big Ditch. The proposed school is located in a Zone X area determined to be outside the 500-year floodplain. Compensatory storage will not be required.

Detention Requirements and Stormwater Management Requirements

All stormwater management facilities are required to be designed in accordance with the Manual of Practice, authorized by the Rantoul Code, Section 32-14.

Site runoff storage is required for all development at the Northview School property per Section 6.3.B.6 of the Manual of Practice. Per Section 6.3.B.5.b, the developed peak release rate shall not exceed the property release rate from the natural undeveloped state for a 2-year storm using a runoff coefficient of 0.15. The developed release rate for stormwater runoff shall be based on a 100-year storm. Since the 25-year and 50-year storm events are not specified in the Manual of Practice, the 100-year release rate was used as the release rate in determining detention volume requirements for 25-year and 50-year storms. Detention requirements for the 25-year, 50-year, and 100-year storms are summarized in Table 1.

Table 1: Detention Requirements

Storm Event	North Sub-basin Detention Required (ac-ft)	South Sub-basin Detention Required (ac-ft)	Total Detention Required (ac-ft)
25-year	0.61	0.53	1.18
50-year	0.72	0.65	1.37
100-year	0.88	0.78	1.71

October 4, 2016

Page 3

Proposed Alternatives

Three proposed alternatives to meet stormwater runoff storage requirements are discussed in this section. The alternatives were prepared to provide the total detention volume required for the 25-, 50-, and 100-year storms, as indicated in Table 1.

1. **Alternative A: 25-, 50-, and 100-Year Design** – This alternative is applicable for the 25-, 50-, and 100-year storms. One detention facility will be constructed. Runoff from the North sub-basin will be conveyed via sewer to a proposed detention basin in the southeast corner of the property. Runoff from the South sub-basin will be conveyed to the proposed detention basin via sewer and overland flow. The detention basin will discharge to the storm sewer on Illinois Drive through a new storm sewer at the southeast corner of the property. It is expected that the detention basin may impact existing playground equipment. A drainage easement is required for this alternative.
2. **Alternative B: 25- and 50-Year Design** – This alternative is applicable for the 25- and 50-year storms. Two detention facilities will be constructed. Runoff from the North sub-basin will be conveyed via overland flow towards a detention basin near the east limit of the school property. The depth of this detention basin will be approximately 4 feet. Runoff from the South sub-basin will flow towards a detention basin at the southeast corner of the property. It is expected that these detention basins may impact existing access drives and playground equipment. Each detention facility will have a control structure to restrict the discharge to the specified release rate. Downstream of these control structures, the water will flow via sewers to a manhole where the runoff will combine and discharge to the storm sewer on Illinois Drive.
3. **Alternative B: 100-Year Design** – This alternative is only applicable for the 100-year storm. Two detention facilities will be constructed. Runoff from the North sub-basin will flow towards an underground detention system near the existing discharge point at the east limit of the school property. Runoff from the South sub-basin will flow towards a detention basin at the southeast corner of the property. It is expected that the detention facilities may impact existing access drives and playground equipment. Each detention facility will have a control structure to restrict the discharge to the specified release rate. Downstream of these control structures, the water will flow via sewers to a manhole where the runoff will combine and discharge to the storm sewer on Illinois Drive.

Cost Considerations

The preliminary engineer's opinion of probable cost for each alternative is summarized in Table 2. A detailed breakdown is presented in the attached spreadsheet.

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Table 2: Engineer’s Opinion of Probable Cost Summary

Storm Event	Alternative A	Alternative A- Cost per Cubic Foot Storage	Alternative B	Alternative B- Cost per Cubic Foot Storage
25-year	\$389,000	\$7.57	\$374,000	\$7.53
50-year	\$425,000	\$7.12	\$422,000	\$7.07
100-year	\$479,000	\$6.43	\$790,000	\$10.93

Conclusions & Recommendation

Each of the proposed alternatives offer a unique set of benefits. Alternative A proposes one detention basin as opposed to Alternative B which proposes two detention systems. Alternative A can be designed to stay relatively dry and remain a mostly usable turf area. Alternative A will require acquisition of a drainage or utility easement to construct the new storm sewer to Illinois Drive. We also expect that Alternative A will require less maintenance.

Alternative B for both the 25- and 50-year level of service proposes two detention basins, but will not require a drainage or utility easement. For the 100-year level of service, an underground detention system will need to be used to provide detention in the north sub-basin in lieu of a detention basin. This will significantly increase the cost of construction. The significant benefit of Alternative B is in the elimination of the need for a drainage or utility easement.

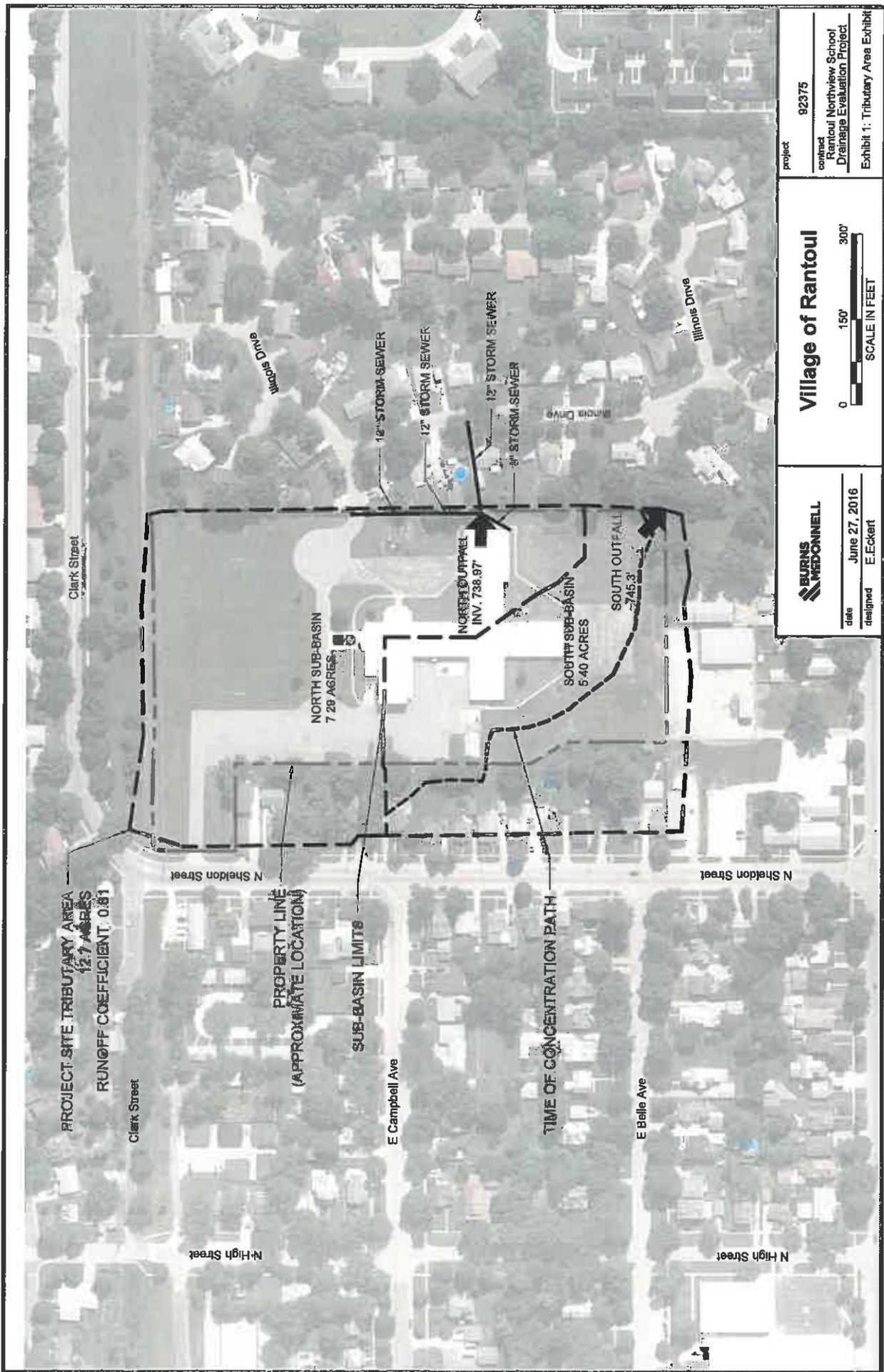
Burns & McDonnell recommends the Alternative A for the 100-year level of service for the Northview School Drainage Improvements project. This option provides the most protection, lowest cost per cubic foot of storage, and requires the least amount of maintenance.

Another potential solution to address localized flooding issues is purchase of affected properties. The building structures could be demolished to convert the properties to open space. The cost opinion for purchase and demolition is \$100,000 per residential building structure.

Please contact Joe Darlington at 630-724-3809 or jdarlington@burnsmcd.com if you have any questions.

- Attachment: Exhibit 1: Tributary Area
 Exhibit 2: Proposed 25-, 50-, & 100-Year Alternative A
 Exhibit 3: Proposed 25- & 50-Year Design Alternative B
 Exhibit 4: Proposed 100-Year Design Alternative B
 Preliminary Engineer’s Opinion of Probable Cost

cc: Joe Darlington, P.E., BMcD
 Randy Patchett, P.E., BMcD



PROJECT SITE TRIBUTARY AREA
12.7 ACRES
RUNOFF COEFFICIENT: 0.81

PROPERTY LINE
(APPROXIMATE LOCATION)

SUB-BASIN LIMITS

TIME OF CONCENTRATION PATH

NORTH SUB-BASIN
7.29 ACRES

SOUTH SUB-BASIN
5.40 ACRES

NORTH OUT-LET
INV. 738.87

SOUTH OUT-LET
745.3'

12" STORM SEWER

12" STORM SEWER

12" STORM SEWER

8" STORM SEWER

Village of Rantoul

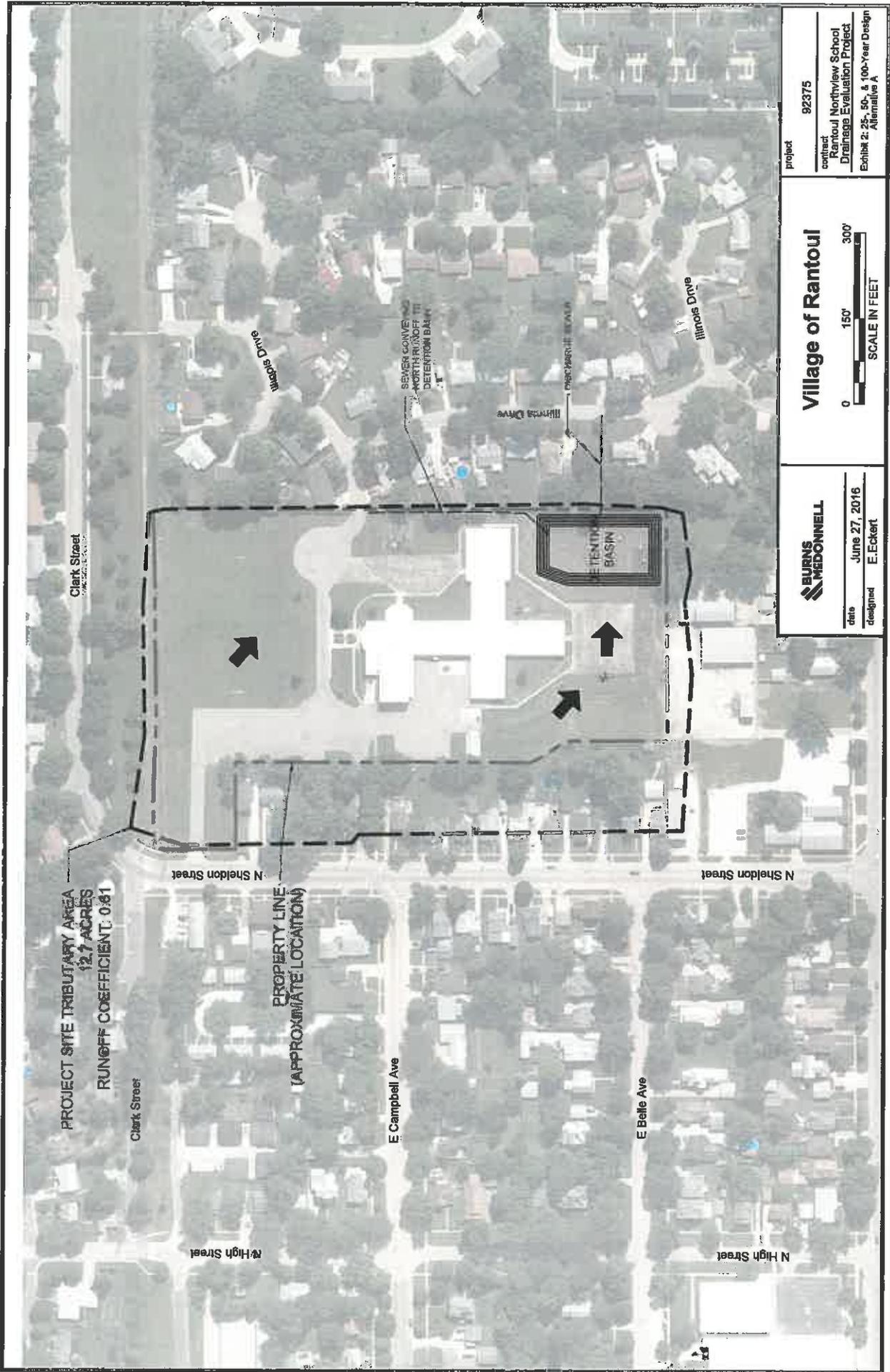


BURNS MEDONNELL

date June 27, 2016
designed E.Eckert

project 92375

contract Rantoul Northview School
Drainage Evaluation Project
Exhibit 1: Tributary Area Exhibit



PROJECT SITE TRIBUTARY AREA
12.7 ACRES
RUNOFF COEFFICIENT: 0.61

PROPERTY LINE
(APPROXIMATE LOCATION)

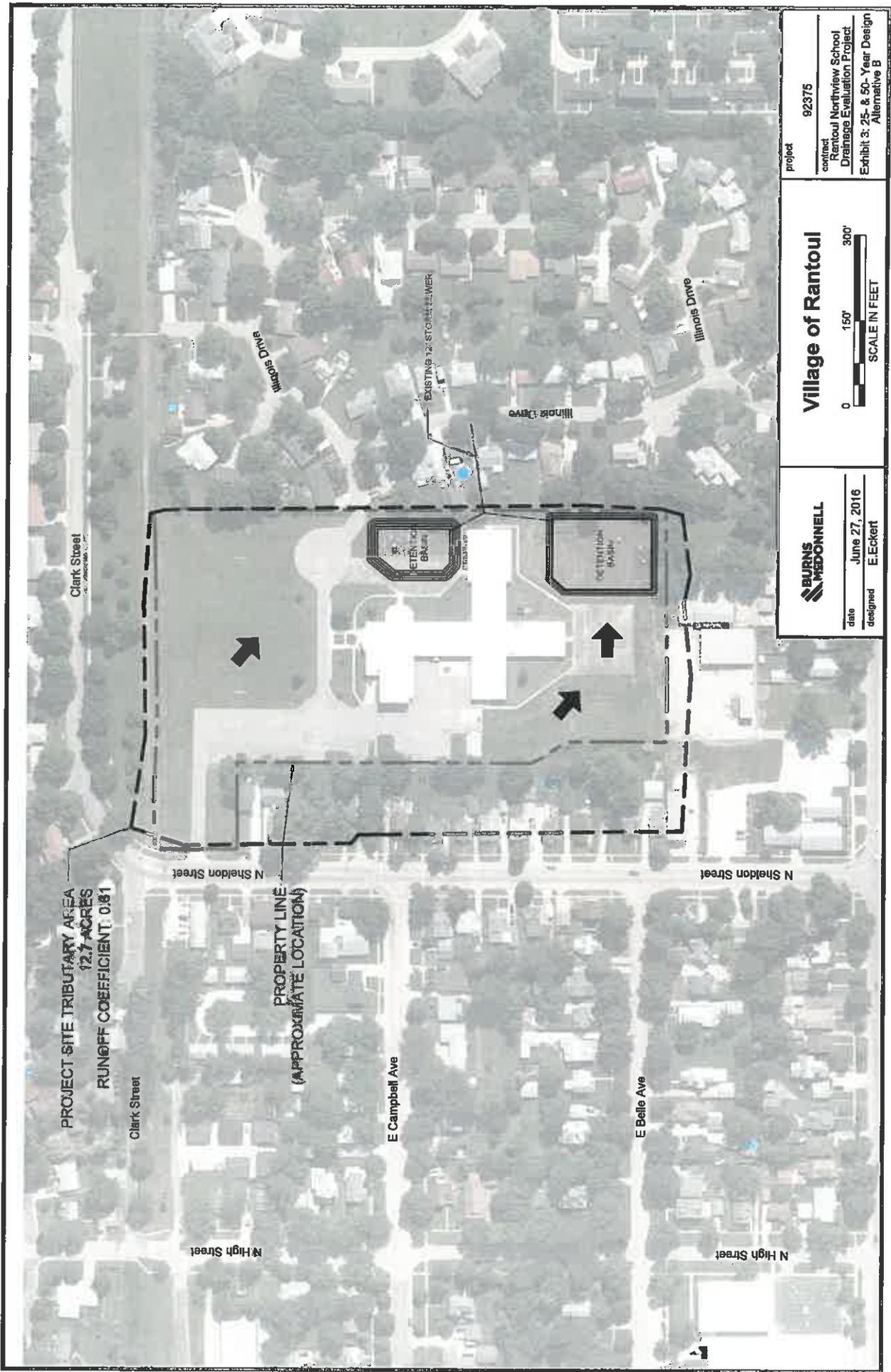
DETENTION BASIN

SEWER CONVEYANCE
NORTH RUNOFF TTI
DETENTION BASIN

project 92375
contract
Rantoul Northview School
Drainage Evaluation Project
Exhibit 2: 25, 50, & 100-year Design
Alternatives A

Village of Rantoul
0 150' 300'
SCALE IN FEET

FURNS MEDONNELL
date June 27, 2016
designed E. Eckert



PROJECT SITE TRIBUTARY AREA
12.7 ACRES
RUNOFF COEFFICIENT: 0.61

PROPERTY LINE
(APPROXIMATE LOCATION)

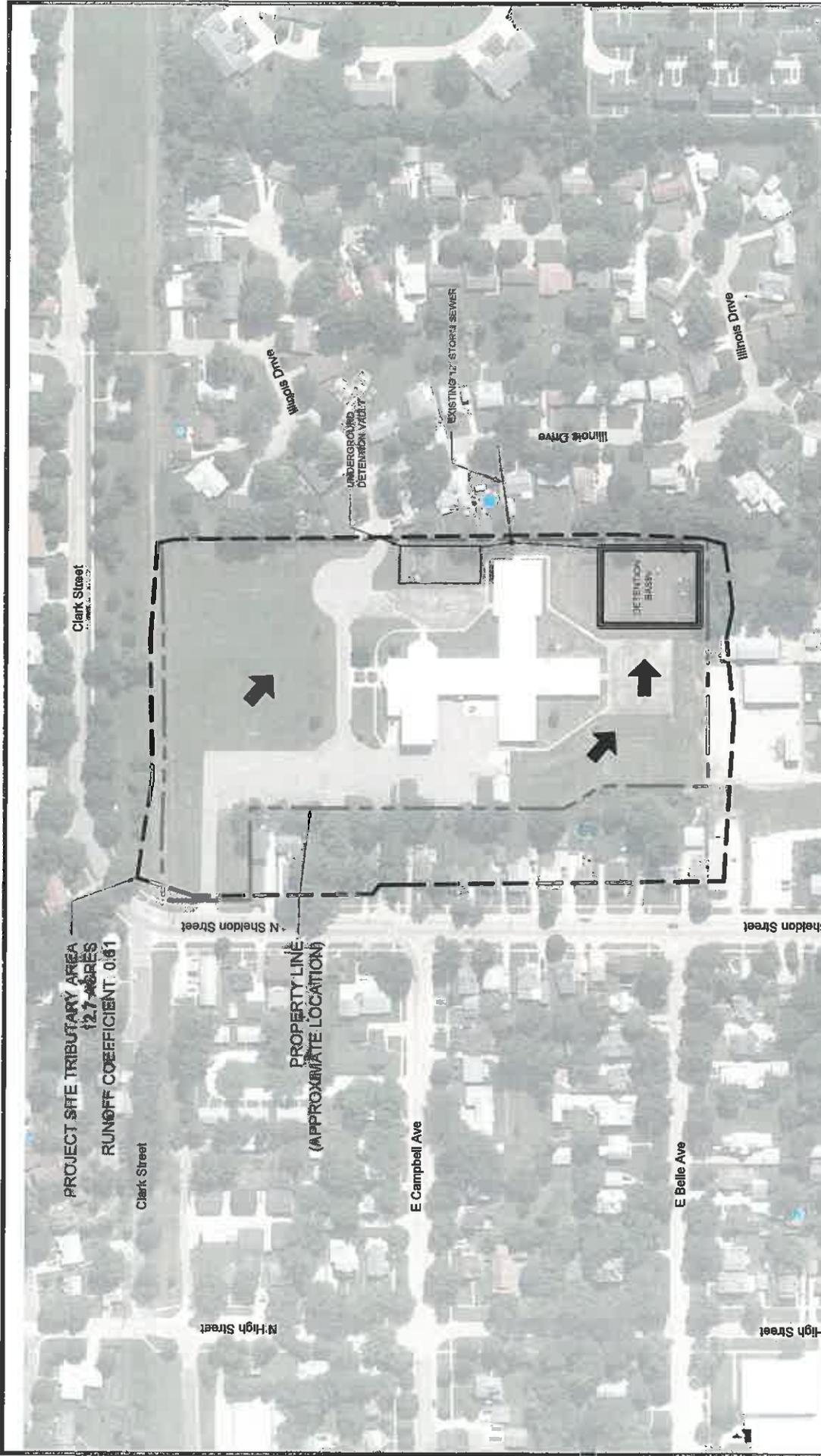
project 92375

contract
Rantoul Northview School
Drainage Evaluation Project
Exhibit 3: 25- & 50- Year Design
Alternative B

Village of Rantoul



date June 27, 2016
designed E. Eckert



PROJECT SITE TRIBUTARY AREA
12.7 ACRES
RUNOFF COEFFICIENT: 0.61

PROPERTY LINE
(APPROXIMATE LOCATION)

RETENTION
BASIN

	date June 27, 2016	Village of Rantoul SCALE IN FEET 0 150' 300'	Project 92375 contract Rantoul Northview School Drainage Evaluation Project Exhibit 4: 100-Year Design Alternative B
	designed E.Eckert		

NORTHVIEW ELEMENTARY SCHOOL DRAINAGE EVALUATION
 VILLAGE OF RANTOUL, ILLINOIS
 PRELIMINARY ENGINEER'S OPINION OF PROBABLE COST
 ALTERNATIVE A

DESCRIPTION	UNIT	UNIT PRICE	25-YR			50-YR			100-YR		
			QUANTITY	TOTAL	% PROJECT	QUANTITY	TOTAL	% PROJECT	QUANTITY	TOTAL	% PROJECT
EARTH EXCAVATION	CU YD	\$ 40.00	2,900	\$ 116,000	44.75%	3,360	\$ 134,400	47.52%	4,200	\$ 168,000	52.69%
TRENCH BACKFILL	CU YD	\$ 60.00	10	\$ 600	0.23%	10	\$ 600	0.21%	10	\$ 600	0.19%
TOPSOIL FURNISH AND PLACE, 6"	SQ YD	\$ 6.00	3,700	\$ 22,200	8.56%	4,100	\$ 24,600	8.70%	4,200	\$ 25,200	7.90%
SEEDING, CLASS 1A	ACRE	\$ 1,200.00	0.77	\$ 924	0.36%	0.85	\$ 1,017	0.36%	0.87	\$ 1,044	0.33%
EROSION CONTROL BLANKET	SQ YD	\$ 3.00	8,500	\$ 25,500	9.84%	9,400	\$ 28,200	9.97%	10,000	\$ 30,000	9.41%
PERIMETER EROSION BARRIER	FOOT	\$ 5.50	730	\$ 4,015	1.55%	730	\$ 4,015	1.42%	730	\$ 4,015	1.26%
INLET FILTERS	EACH	\$ 150.00	4	\$ 600	0.23%	4	\$ 600	0.21%	4	\$ 600	0.19%
CLASS D PATCHES, TYPE II, 4"	SQ YD	\$ 150.00	15	\$ 2,250	0.87%	15	\$ 2,250	0.80%	15	\$ 2,250	0.71%
PRECAST REINFORCED CONCRETE FLARED END SECTIONS, 12"	EACH	\$ 2,100.00	1	\$ 2,100	0.81%	1	\$ 2,100	0.74%	1	\$ 2,100	0.66%
PRECAST REINFORCED CONCRETE FLARED END SECTIONS, 15"	EACH	\$ 2,600.00	1	\$ 2,600	1.00%	1	\$ 2,600	0.92%	1	\$ 2,600	0.82%
STORM SEWERS, CLASS A, TYPE 2, 12"	FOOT	\$ 70.00	290	\$ 20,300	7.83%	290	\$ 20,300	7.18%	290	\$ 20,300	6.37%
STORM SEWERS, CLASS A, TYPE 2, 15"	FOOT	\$ 85.00	200	\$ 17,000	6.56%	200	\$ 17,000	6.01%	200	\$ 17,000	5.33%
STORM SEWER REMOVAL, 12"	FOOT	\$ 20.00	27	\$ 540	0.21%	27	\$ 540	0.19%	27	\$ 540	0.17%
CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, OPEN LID	EACH	\$ 3,000.00	3	\$ 9,000	3.47%	3	\$ 9,000	3.18%	3	\$ 9,000	2.82%
MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	\$ 3,000.00	1	\$ 3,000	1.16%	1	\$ 3,000	1.06%	1	\$ 3,000	0.94%
MOBILIZATION	L SUM	\$ 18,000.00	1	\$ 18,000	6.94%	1	\$ 18,000	6.36%	1	\$ 18,000	5.65%
CURB REMOVAL AND REPLACEMENT	FOOT	\$ 30.00	20	\$ 600	0.23%	20	\$ 600	0.21%	20	\$ 600	0.19%
CONSTRUCTION LAYOUT	L SUM	\$ 3,000.00	1	\$ 3,000	1.16%	1	\$ 3,000	1.06%	1	\$ 3,000	0.94%
DRAINAGE STRUCTURE TO BE REMOVED	EACH	\$ 500.00	2	\$ 1,000	0.39%	2	\$ 1,000	0.36%	2	\$ 1,000	0.31%
UNDERGROUND DETENTION SYSTEM	CU FT	\$ 6.00	-	\$ -	0.00%	-	\$ -	0.00%	-	\$ -	0.00%
REMOVE, SALVAGE, RE-ERECT PLAYGROUND EQUIPMENT	EACH	\$ 5,000.00	2	\$ 10,000	3.86%	2	\$ 10,000	3.54%	2	\$ 10,000	3.14%

Note: This cost opinion does not include the cost of land acquisition.

Sub-total: \$ 259,229
 Contingency (30%): \$ 77,769
 Engineering & Administration (20%): \$ 51,846
GRAND TOTAL (ROUNDED): \$ 389,000

\$ 282,822
 \$ 84,846
 \$ 56,564
\$ 425,000

\$ 318,849
 \$ 95,655
 \$ 63,770
\$ 479,000

NORTHVIEW ELEMENTARY SCHOOL DRAINAGE EVALUATION
 VILLAGE OF RANTOUL, ILLINOIS
 PRELIMINARY ENGINEER'S OPINION OF PROBABLE COST
 ALTERNATIVE B

DESCRIPTION	UNIT	UNIT PRICE	25-YR			50-YR			100-YR		
			QUANTITY	TOTAL	% PROJECT	QUANTITY	TOTAL	% PROJECT	QUANTITY	TOTAL	% PROJECT
EARTH EXCAVATION	CU YD	\$ 40.00	3,000	\$ 120,000	48.17%	3500	\$ 140,000	49.86%	4,320	\$ 172,800	32.82%
TRENCH BACKFILL	CU YD	\$ 60.00	10	\$ 600	0.24%	10	\$ 600	0.21%	10	\$ 600	0.11%
TOPSOIL FURNISH AND PLACE, 6"	SQ YD	\$ 6.00	4,440	\$ 26,640	10.69%	5328	\$ 31,968	11.38%	3,800	\$ 22,800	4.33%
SEEDING, CLASS 1A	ACRE	\$ 1,200.00	0.92	\$ 1,101	0.44%	1.10	\$ 1,321	0.47%	0.78	\$ 936	0.18%
EROSION CONTROL BLANKET	SQ YD	\$ 3.00	10,200	\$ 30,600	12.28%	12240	\$ 36,720	13.08%	7,000	\$ 21,000	3.99%
PERIMETER EROSION BARRIER	FOOT	\$ 5.50	730	\$ 4,015	1.61%	730	\$ 4,015	1.43%	730	\$ 4,015	0.76%
INLET FILTERS	EACH	\$ 150.00	4	\$ 600	0.24%	4	\$ 600	0.21%	4	\$ 600	0.11%
CLASS D PATCHES, TYPE II, 4"	SQ YD	\$ 150.00	9	\$ 1,350	0.54%	9	\$ 1,350	0.48%	9	\$ 1,350	0.26%
PRECAST REINFORCED CONCRETE FLARED END SECTIONS, 12"	EACH	\$ 2,100.00	1	\$ 2,100	0.84%	1	\$ 2,100	0.75%	1	\$ 2,100	0.40%
PRECAST REINFORCED CONCRETE FLARED END SECTIONS, 15"	EACH	\$ 2,600.00	1	\$ 2,600	1.04%	1	\$ 2,600	0.93%	1	\$ 2,600	0.49%
STORM SEWERS, CLASS A, TYPE 2, 12"	FOOT	\$ 70.00	140	\$ 9,800	3.93%	140	\$ 9,800	3.49%	260	\$ 18,200	3.46%
STORM SEWERS, CLASS A, TYPE 2, 15"	FOOT	\$ 85.00	-	\$ -	0.00%	0	\$ -	0.00%	-	\$ -	0.00%
STORM SEWER REMOVAL, 12"	FOOT	\$ 20.00	27	\$ 540	0.22%	27	\$ 540	0.19%	27	\$ 540	0.10%
CATCH BASINS, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, OPEN LID	EACH	\$ 3,000.00	2	\$ 6,000	2.41%	2	\$ 6,000	2.14%	2	\$ 6,000	1.14%
MANHOLES, TYPE A, 4'-DIAMETER, TYPE 1 FRAME, CLOSED LID	EACH	\$ 3,000.00	2	\$ 6,000	2.41%	2	\$ 6,000	2.14%	2	\$ 6,000	1.14%
MOBILIZATION	L SUM	\$ 18,000.00	1	\$ 18,000	7.23%	1	\$ 18,000	6.41%	1	\$ 18,000	3.42%
CURB REMOVAL AND REPLACEMENT	FOOT	\$ 30.00	6	\$ 180	0.07%	6	\$ 180	0.06%	6	\$ 180	0.03%
CONSTRUCTION LAYOUT	L SUM	\$ 3,000.00	1	\$ 3,000	1.20%	1	\$ 3,000	1.07%	1	\$ 3,000	0.57%
DRAINAGE STRUCTURE TO BE REMOVED	EACH	\$ 500.00	2	\$ 1,000	0.40%	2	\$ 1,000	0.36%	2	\$ 1,000	0.19%
UNDERGROUND DETENTION SYSTEM	CU FT	\$ 6.00	-	\$ -	0.00%	-	\$ -	0.00%	-	\$ -	-
REMOVE, SALVAGE, RE-ERECT PLAYGROUND EQUIPMENT	EACH	\$ 5,000.00	3	\$ 15,000	6.02%	3	\$ 15,000	5.34%	3	\$ 15,000	2.85%

Note: This cost opinion does not include the cost of land acquisition.

Sub-total: \$ 249,126
 Contingency (30%): \$ 74,738
 Engineering & Administration (20%): \$ 49,825
GRAND TOTAL (ROUNDED): \$ 374,000

\$ 526,521
 \$ 157,956
 \$ 105,304
\$ 790,000